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(Also referred to as FORM PTO-1465)

**REQUEST FOR EX PARTE REEXAMINATION TRANSMITTAL FORM**

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Mail Stop Ex Parte Reexam  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Attorney Docket No.: OPEN2200

Date: October 18, 2011

1.  This is a request for *ex parte* reexamination pursuant to 37 CFR 1.510 of patent number 7,062,749 issued June 13, 2006. The request is made by:  
 patent owner.  third party requester.
2.  The name and address of the person requesting reexamination is:  
Ariyeh Akmal  
1301 W. 25th Street, Suite 408  
Austin, Texas 78705
3.  a. A check in the amount of \$\_\_\_\_\_ is enclosed to cover the reexamination fee, 37 CFR 1.20(c)(1);  
 b. The Director is hereby authorized to charge the fee as set forth in 37 CFR 1.20(c)(1) to Deposit Account No. 503183; or  
 c. Payment by credit card. Form PTO-2038 is attached.
4.  Any refund should be made by  check or  credit to Deposit Account No. 503183 37 CFR 1.26(c). If payment is made by credit card, refund must be to credit card account.
5.  A copy of the patent to be reexamined having a double column format on one side of a separate paper is enclosed. 37 CFR 1.510(b)(4)
6.  CD-ROM or CD-R in duplicate, Computer Program (Appendix) or large table  
 Landscape Table on CD
7.  Nucleotide and/or Amino Acid Sequence Submission  
*If applicable, items a. – c. are required.*
- a.  Computer Readable Form (CRF)
- b. Specification Sequence Listing on:  
i.  CD-ROM (2 copies) or CD-R (2 copies); or  
ii.  paper
- c.  Statements verifying identity of above copies
8.  A copy of any disclaimer, certificate of correction or reexamination certificate issued in the patent is included.
9.  Reexamination of claim(s) 1-58 10/23/2011 STEVENS is requested. 503183 98333361
10.  A copy of every patent or printed publication relied upon is submitted herewith including a listing thereof on Form PTO/SB/08, PTO-1449, or equivalent. 01-FC-1012
11.  An English language translation of all necessary and pertinent non-English language patents and/or printed publications is included.

[Page 1 of 2]

This collection of information is required by 37 CFR 1.510. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 18 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop Ex Parte Reexam, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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12.  The attached detailed request includes at least the following items:

- a. A statement identifying each substantial new question of patentability based on prior patents and printed publications. 37 CFR 1.510(b)(1)
- b. An identification of every claim for which reexamination is requested, and a detailed explanation of the pertinency and manner of applying the cited art to every claim for which reexamination is requested. 37 CFR 1.510(b)(2).

13.  A proposed amendment is included (only where the patent owner is the requester). 37 CFR 1.510(e)

14.  a. It is certified that a copy of this request (if filed by other than the patent owner) has been served in its entirety on the patent owner as provided in 37 CFR 1.33(c).

The name and address of the party served and the date of service are:

Joseph E. Chovanes

5 Great Valley Parkway, Suite 329

Malvern, PA 19355

Date of Service: October 18, 2011; or

b. A duplicate copy is enclosed because service on patent owner was not possible. An explanation of the efforts made to serve patent owner is **attached**. See MPEP 2220.

15. Correspondence Address: Direct all communications about the reexamination to:

The address associated with Customer Number:

44654

OR

Firm or Individual Name \_\_\_\_\_

Address

City

State

Zip

Country

Telephone

Email

16.  The patent is currently the subject of the following concurrent proceeding(s):

- a. Copending reissue Application No. \_\_\_\_\_
- b. Copending reexamination Control No. \_\_\_\_\_
- c. Copending Interference No. \_\_\_\_\_

d. Copending litigation styled:  
Case No. 2:11-CV-01609-JCJ, YYZ, LLC v. Metastorm, Inc.  
and OpenText Corporation, USDC, E.D. of Pennsylvania

**WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.**

[Signature]  
Authorized Signature

Ariyeh Akmal  
Typed/Printed Name

October 18, 2011  
Date

51,388  
Registration No.

For Patent Owner Requester

For Third Party Requester

# **APPENDIX “E”**

**UNITED STATES PATENT  
NO. 7,062,749**



US007062749B2

(12) **United States Patent**  
Cyr et al.

(10) **Patent No.:** US 7,062,749 B2  
(45) **Date of Patent:** Jun. 13, 2006

(54) **MEASURING, MONITORING AND TRACKING ENTERPRISE COMMUNICATIONS AND PROCESSES**

(75) **Inventors:** Vincent R. Cyr, Glen Mills, PA (US); Kenneth Fritz, Glen Mills, PA (US)

(73) **Assignee:** Promenix, Inc., Chadds Ford, PA (US)

(\*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1109 days.

(21) **Appl. No.:** 09/737,494

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(51) **Int. Cl.**  
G06F 9/44 (2006.01)

(52) **U.S. Cl.** ..... 717/103; 705/9; 709/231

(58) **Field of Classification Search** ..... 717/103; 705/9; 709/231; 719/314, 315, 316  
See application file for complete search history.

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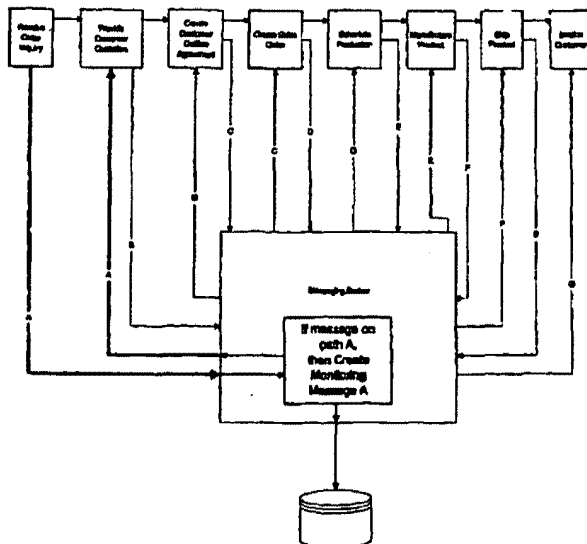
(Continued)

*Primary Examiner*—Todd Ingberg

(57) **ABSTRACT**

The present invention comprises apparatus and systems for measuring, monitoring, tracking and simulating enterprise communications and processes. A central message repository or database is constructed, comprised of monitoring messages sent from process messaging systems. The database may then be accessed or queried as desired. A simulation tool assists in reviewing present and proposed processes and sub-processes before modifying existent systems or creating new systems.

**58 Claims, 8 Drawing Sheets**





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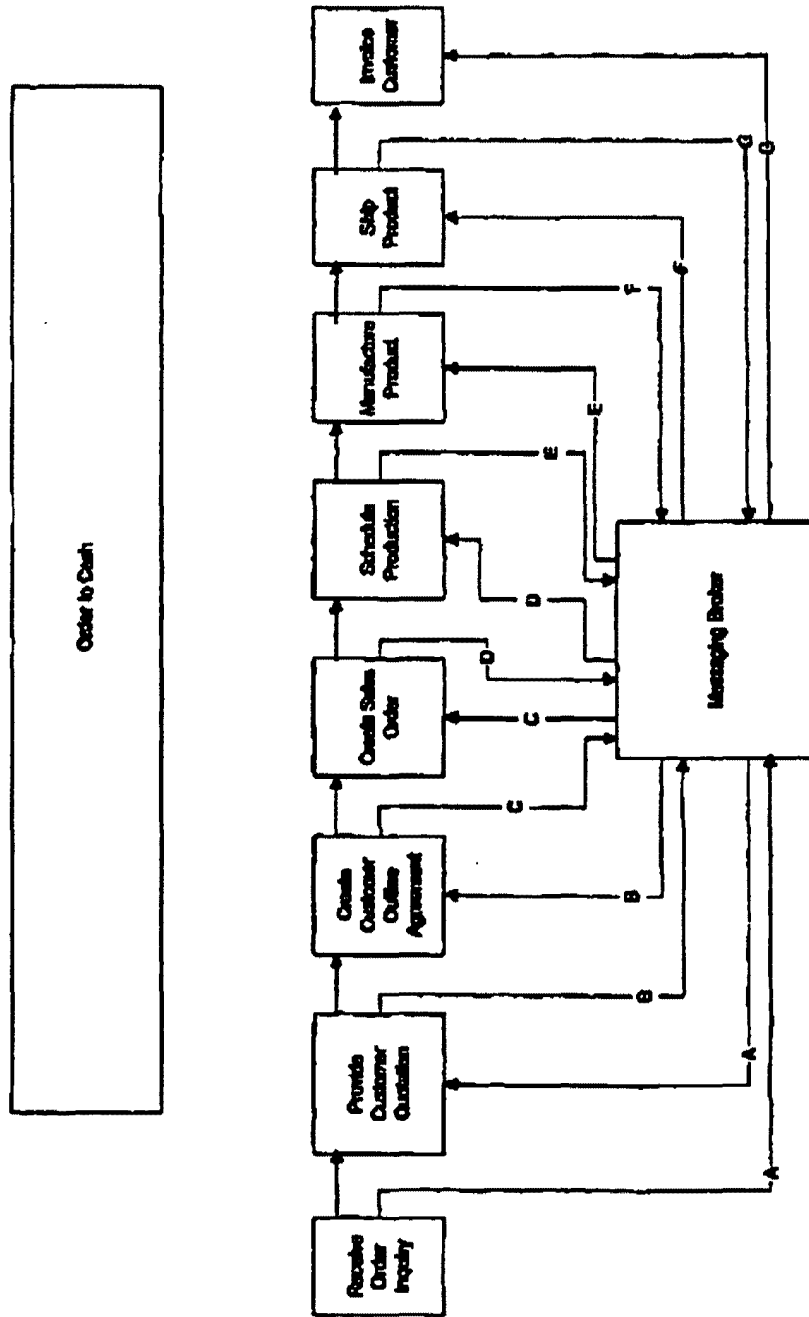


Figure 1

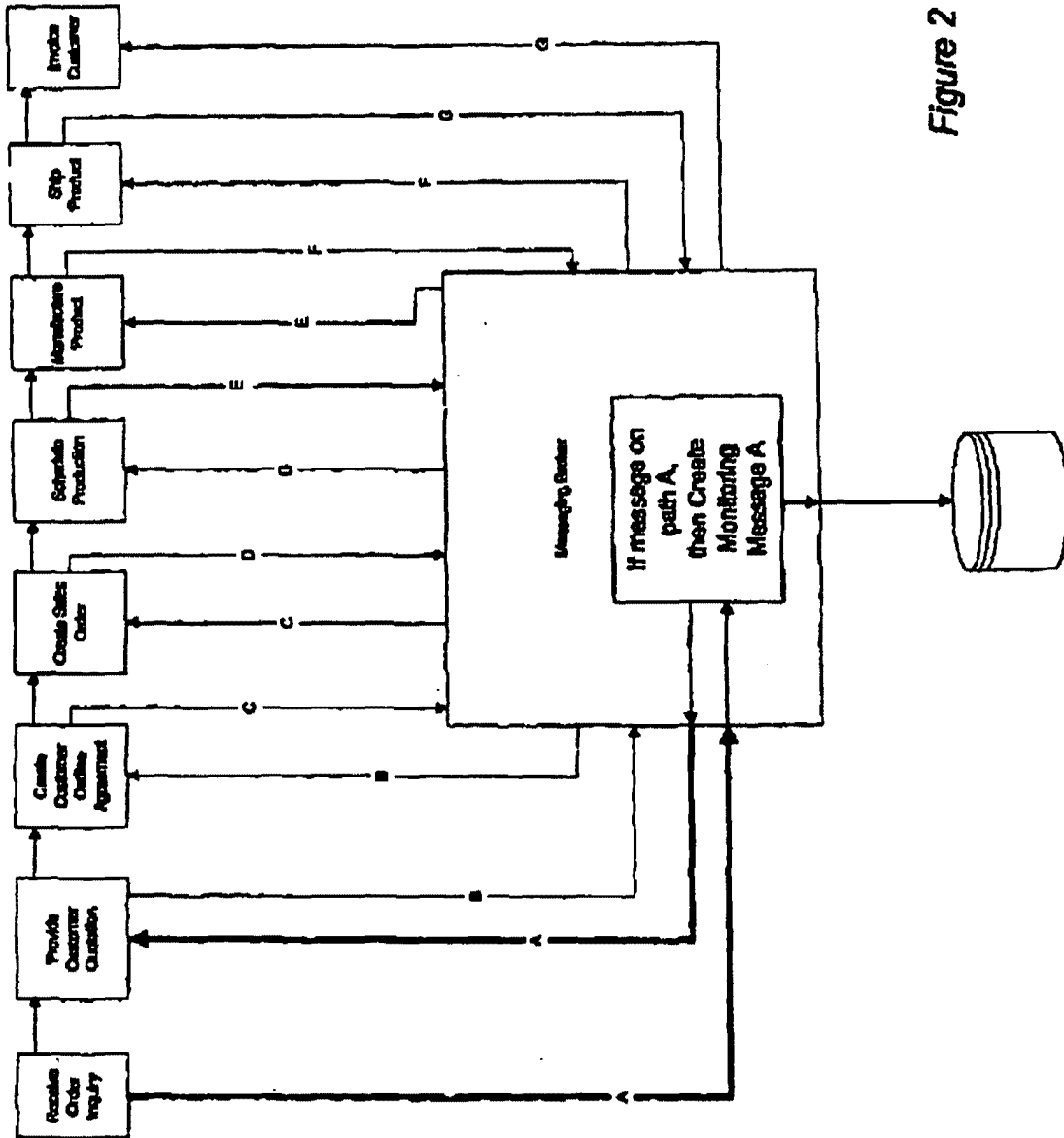


Figure 2

### Summary Of Orders

#### Your Information

<b>Customer Number</b>	<b>Company</b>	<b>Location</b>
5000	Dow Chemical	Midland, MI

#### Current Orders, Quotes, and Inquiries

Click on an order to view its detailed status and history

<b>Date</b>	<b>Transaction ID</b>	<b>Order Number</b>	<b>Current Status</b>
3/27/2000	0003	80000	INVOICE
3/29/2000	2102	838400	MANUFACTURE
3/31/2000	2204	940302	ORDER

*Figure 3*

Order History and Tracking Information

Imply-... at 10:10

Your Information

Customer Name: 0000, Company: Dev/Contract, Location: Millard, NE

Current Order Status: Transferred to Order 000000

INVOICE

Invoice Date: 05/10/06

Ordering

Item #	Material Name	Material Number	Unit of Measure	Quantity	Price Each
1	Widget	000000	BOX	1	2.00

DELIVERIES

Date	Time	Order Number
05/10/06	10:10	000000

Date	Time
05/10/06	10:10

Date	Time
05/10/06	10:10

Date	Time	Order Number
05/10/06	10:10	000000

Date	Time
05/10/06	10:10

Item #	Material Name	Material Number	Production Location	Quantity
1	Widget	000000	LOCAL	1

Date	Time	Shipping Method	Tracking Number
05/10/06	10:10	UPS	0000000000

Date	Time	Order Number
05/10/06	10:10	000000

Figure 4

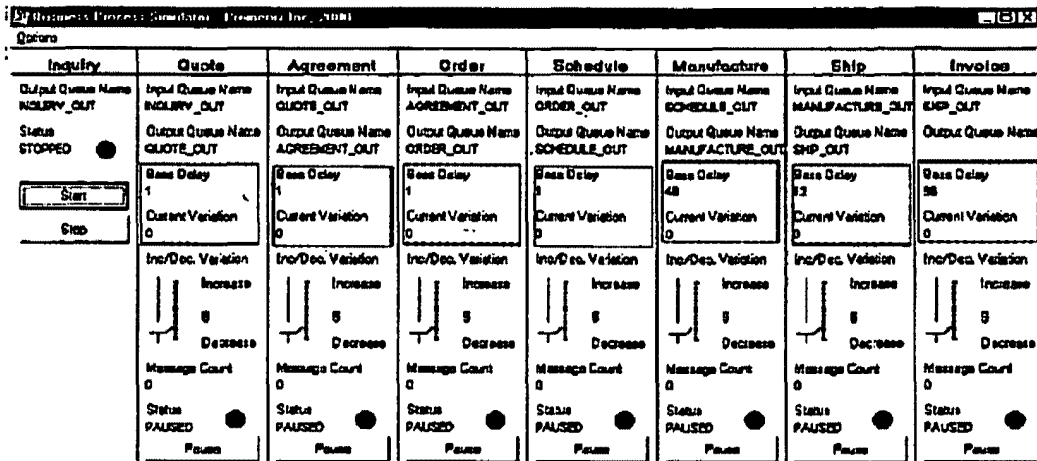


Figure 5

Process	Queues	Applica..	Data P...
Process Name	Order_to_cash	▼▲	▲▼
Sub-process	Agreement	▼▲	▲▼
Application	SAP R/3	▼▲	▲▼

**Figure 6**

Queues	Process	Applica..	Data P...
Queue Mgr.	QUEMGR1	▼▲	▲▼
Input Queue	INPTQ	▼▲	▲▼
Output Queue	OUPTQ	▼▲	▲▼

**Figure 7**

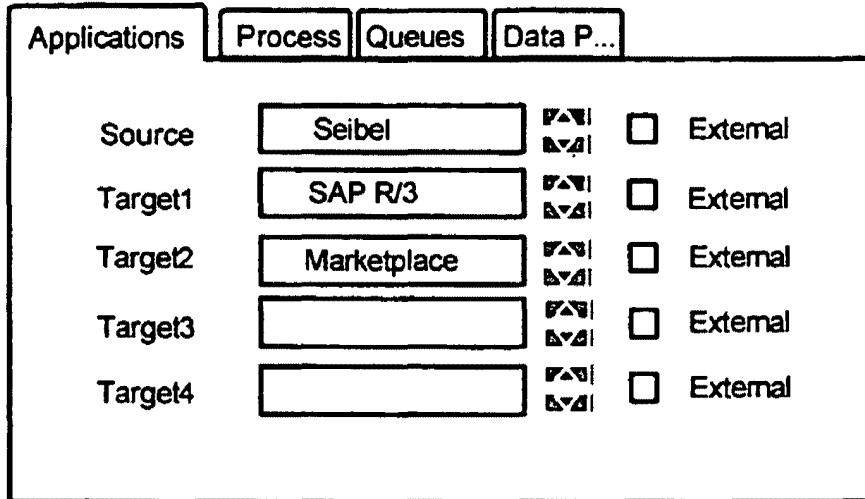


Figure 8

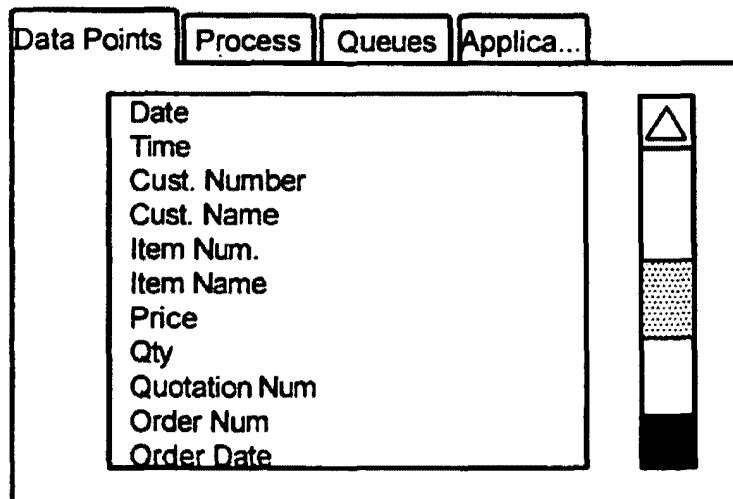


Figure 9



Process		
Process Name	Order_to_cash	▼▲  ▲▼
Sub-process	Agreement	▼▲  ▲▼
Application	SAP R/3	▼▲  ▲▼

**Figure 10**

## MEASURING, MONITORING AND TRACKING ENTERPRISE COMMUNICATIONS AND PROCESSES

The present invention relates to apparatus and systems for measuring, monitoring, tracking and simulating enterprise communications and processes. More particularly, the present invention relates to computer-based apparatus and systems for measuring, monitoring, tracking and simulating enterprise communications and processes in an asynchronous messaging environment.

### BACKGROUND OF THE INVENTION

The activities of a business or enterprise can be grouped into processes. Processes are business operations that are separated as desired and usually occur across business units. For example, the process of taking orders and turning those orders into revenue may be known as Order to Cash. The processes are comprised of sub-processes. For example, Order to Cash may be broken down into sub-processes such as Receive Order Inquiry, Provide Customer Quotation, Create Customer Outline Agreement, Create Sales Order, Schedule Production, Manufacture Product, Ship Product and Invoice Customer. Each sub-process may in turn be broken down into discrete activities such as providing customer number, entering that customer number, establishing pricing, determining a shipping date, etc.

The processes, sub-processes and activities operate, in part, by communicating information. For example, users may communicate through email. As another example, applications may communicate amongst themselves through electronic data interchange ("EDI") and other similar services. Communication occurs horizontally, that is, among a process, sub-process and activities, as well as vertically, that is, between processes, sub-processes and activities.

Whether communications occur horizontally or vertically, among applications or users, communications are increasingly asynchronous or message based. That is, enterprise communications were formerly primarily synchronous, or connection oriented, in which a connection is established with prior coordination between communication end points with data then being transmitted over the connection. Enterprise communications are now increasingly asynchronous, or connectionless, transmitting data without prior coordination between communication end points, such as through "event based" communications which use messages to move data instead of large files.

Asynchronous or message based communications permit loosely coupled connections among and between systems because the end points do not have to be prepared to receive the data when the message is transmitted. Loosely coupled connections permit more flexibility in assembling processes. Flexibility in assembling processes is desirable in order to permit quick reaction to changing business conditions: if a particular sub-process or activity becomes unusable, the process can be reassembled with a new sub-process or activity. For example, if a Manufacture Product sub-process in the Order to Cash process at Widget Co. enterprise has a specific factory identified to manufacture the product and that factory has a fire or other disaster, making it unusable, Widget Co. will need to substitute a new factory. The ripple effect of that substitution among all of Widget Co.'s processes will change any number of parameters. A loosely coupled asynchronous connection among Widget Co.'s processes provides rapid substitution of the new factory for the old because the end points of communication to the new

factory do not have to be predetermined before communications begin with the new factory. Thus, the flexibility of the asynchronous message based communication has permitted quick response to changing business conditions.

Despite this flexibility, asynchronous or message based communications are problematic because of their loosely coupled nature. At any given time, precise information on the progress of the processes is difficult to obtain—messages may be in transit and not instantly locatable. For example, if a customer calls for the status of an order, an enterprise customer service representative may be able to determine nothing more than the fact that the order has been received and that the scheduled ship date is X. There is often no ability to drill down into the information levels and review the status in more granularity, such as the location of the good, the manufacturing status, etc., because the information required to review that status is in transit and unable to be reviewed.

Of course, if the enterprise lacks the ability to access status information, business partners of the enterprise will similarly lack that ability. Thus, asynchronous communications may well increase inefficiency among business partners as well.

The difficulty in reporting caused by message based architecture also makes it difficult for the enterprise to measure the efficiency of its processes and their sub-process. Asynchronous messaging, with its indeterminate transmission of information, means a company may not be able to easily measure the interval between each sub-process, e.g. the time between Scheduling Production and the Manufacturing of a Product, and so easily measure the efficiency of their operations.

Finally, asynchronous messaging may provide an enterprise with an ability to model and simulate processes. That is, since information flows can be readily estimated through enterprises with asynchronous messaging, and processes can be easily modeled from those flows, asynchronous messaging modeling provides the potential to model and simulate processes. That potential is not realized with present technology, however. Moreover, since as described above, enterprises lack information on the processes they have implemented, the enterprises are handicapped in their ability to modify those processes or plan new processes. A modeling and simulation tool, demonstrating processes, sub-processes and their activity or granular detail level would be extremely helpful, and would give the enterprise an opportunity to assemble, test, adjust, and simulate processes and their details.

Accordingly, it is an object of the present invention to provide a tool for simulating message based architectures.

It is a further object of the present invention to provide monitoring capabilities for enterprise processes.

### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 shows a view of a process.

FIG. 2 shows a view of a process of a preferred embodiment.

FIG. 3 shows a screen of a preferred embodiment.

FIG. 4 shows a screen of a preferred embodiment.

FIG. 5 shows a screen of a preferred embodiment.

FIG. 6 shows a partial view of a preferred embodiment.

FIG. 7 shows a partial view of a preferred embodiment.

FIG. 8 shows a partial view of a preferred embodiment.

FIG. 9 shows a partial view of a preferred embodiment.

FIG. 10 shows a partial view of a preferred embodiment.

SUMMARY OF THE INVENTION

The present invention comprises apparatus and systems for measuring, monitoring, tracking and simulating enterprise communications and processes in an asynchronous messaging environment. For each original message sent within a process, sub-process or activity, the preferred embodiments of the present invention send a separate monitoring message containing data from the central message repository or database. This data may include date, time, customer number, materials, quantity, amount, or other information, and be copied from the original message. Other embodiments may add data to the monitoring message aside from that contained in the original message.

This central message repository or database is comprised of information passing through the enterprise. In effect, the database provides a collection point or an "end point" for the asynchronous communications, and so allows the flexibility of asynchronous communications to be combined with the precision of synchronous communications. The database can be reviewed in any number of ways. For example, the database can be queried to obtain specific information about that particular order or customer or could be examined across larger time spans such as days, weeks, or months, to gauge trends or performance. Of course, some preferred embodiments may wish to create mirror databases or other databases that can be used in various ways.

An enterprise's information flow can also be readily modeled and simulated through creating new process, sub-process and/or activities or altering existing process, sub-process or activities. The information flows from those creations or alterations can be collected in one or more databases and examined as desired.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. 1 shows a sample process, Order to Cash, which is comprised of various sub-processes: Receive Order Inquiry, Provide Customer Quotation, Create Customer Outline Agreement, Create Sales Order, Schedule Production, Manufacture Product, Ship Product and Invoice Customer. The dashed line arrows connecting the sub-processes are the communication paths between the sub-processes. In the example shown in the figure, the sub-processes actually communicate through a messaging broker, such as an IBM MQSeries component, and the paths to and from the component are identified identically. This messaging broker permits certain sophisticated messaging uses, such as message queuing, some data translation, etc.

A messaging component is added to the messaging broker, through methods known in the art. This messaging component creates a "monitoring" message for each original message received by the broker. This monitoring message contains, in this embodiment, specific data generated from the original messages passing between the sub-processes. The monitoring message with its data is then sent from the messaging broker to a central database repository or database (the terms "repository" or "database" are used interchangeably throughout.)

The messaging component may be, in some embodiments, or may not be, in other embodiments, provided by the messaging broker. For example, IBM's MQSeries messaging broker provides a component that can be configured to perform a copying function for the messages it receives, and so create monitoring messages for the messages it receives.

The specific data contained in the monitoring messages (in this embodiment, generated from the original messages passing between the sub-processes) is organized into data fields. Those data fields are path specific in this embodiment. For example, assume a customer calls the enterprise (Widget Co.) whose process is shown in FIG. 1 and asks whether or not Widget Co. has a certain product (Type A Widgets.) That customer request will begin the Receive Order Inquiry sub-process which will end with the generation of a Receive Order Inquiry message traveling to the Provide Customer Quotation sub-process through the messaging broker component. When the messaging broker receives the message on Path A, it will create a monitoring message, and send the monitoring message to the central database repository, as shown in FIG. 2. In this embodiment, the data contained in the monitoring message is generated from the message on Path A. Other preferred embodiments may alter or add data to the monitoring messages aside from that contained in the original message.

The monitoring message contains, in this embodiment, specific data fields. (Of course, other embodiments may have different data fields.) Those data fields are:

FIELDS	IDENTIFIERS
PROCESS IDENTIFIER	ProID,
SUB-PROCESS IDENTIFIER	SbProID,
CUSTOMER NUMBER	Custno,
PART NUMBER	Partno,
QUANTITY	Qty,
DATE	Date,
TIME	Time

The first field, the PROCESS IDENTIFIER field, provides the identifier for the process, for example, the value "Order to Cash" because the monitoring message is being created within the Order to Cash process. The second field, the SUB-PROCESS IDENTIFIER field, provides the identifier for the sub-process, for example, the value "Inquiry" because the monitoring message is being created within the Inquiry sub-process. This embodiment prepopulates these PROCESS IDENTIFIER and SUB-PROCESS IDENTIFIER fields, with the appropriate values.

The CUSTOMER NUMBER field is assigned to the particular customer generating the inquiry. The PART NUMBER field is the identifier for the particular part and the QUANTITY for the particular quantity. DATE and TIME are the data and time the message is generated. Other message fields for other paths of this embodiment are shown in Table 1. Of course, some, all or none of these fields may be present in other embodiments, as well as other fields as desired. For example, one or more ACTIVITY IDENTIFIER fields may be present in monitoring messages in other embodiments.

The monitoring message data populates one information flow or transaction record ("transaction record.") As monitoring messages progress through any given process and/or sub-process, the transaction record is updated. Once the monitoring messages complete the transaction record, all of the information needed to measure that transaction through the process is contained in one record in the central message database. (Of course, if the monitoring messages do not fully populate the transaction record, e.g., the transaction is aborted in mid process, then these abandoned records may be made available as well with an indication that they were abandoned.)

The central message database can be reviewed in any number of ways, in order to measure, monitor and track enterprise communications and processes, e.g., to provide information or generate reports. Using the central message database to provide information or generate reports “off loads” the information access or reporting processes from the applications that generate messages initially, e.g., sub-processes such as those seen in FIG. 1. This off loading relieves some of the monitoring pressure from the source applications so that, for example, any queries that might have been made to the source applications and interfere with or slow down the operation of the source applications can now be made through the central message database.

The information retrieved from the central message database may include, but is not limited to, information about any particular order or customer, information about process efficiency, “snapshot” or time slice information, information across time spans such as days, weeks, or months, information to gauge trends or performance, etc. Also, in some embodiments, a “real-time” tool may be used to track the progress of transaction records and/or processes and use distribution methods such as broadcasting, WAP, etc. to provide the information to users. For example, if a process such as pipeline capacity for oil and natural gas transmissions is implemented and monitored through an embodiment of the present invention, the central message database will constantly broadcast unused pipeline capacity, which information in turn can be used to sell, trade or barter that unused capacity. As another example, information about an enterprise’s processes can be made available over an intranet, extranet, the Internet, etc. to business partners or other entities. One example would be providing information to stock analysts so that they could track any particular enterprise’s productivity or other areas of interest. Another example would be providing information to actual or potential business partners to check production capacity, shipping capacity, or other areas of interest. In some embodiments, with regard to external entities, communication channels between the external entities and the enterprise might well be established, so that central message databases exist on both ends of the communication channel.

The central message database allows for broader analysis of trends that may include: time between sub-processes, variances by customer, variances by order amount, bottlenecks in the process, etc. For example, it would be possible to determine how many orders stood between Order and Invoice. This may allow for the acceleration of some orders so they could be booked by quarter close. For example, a vendor bottleneck may be identified in the course of review of the processes, sub-processes and/or activities. For example, seasonal variations in processes, sub-processes and/or activities may be identified as well.

Of course, some embodiments may create mirror databases and/or generate other databases that can be used by various entities. For example, an enterprise may create a number of central message databases which could track processes, sub-processes and/or activities in whole or part. These databases could also be combined as desired.

Monitoring message database(s) may be used, in some embodiments, in various ways, either in addition to or instead of central message database(s.) For example, a monitoring message database or a central message database may be used to generate messages and feedback to the processes, sub-processes, activities and/or applications, as well as to users and/or administrators (herein generally “users.”) Various messages transmitted from sub-process applications such as error messages would generate special

monitoring messages which would be added to a message monitoring database. Other events, exceptions, triggers and thresholds, could be tracked as well in various embodiments and be used to signal conditions, problems, etc. by various methods such as “flagged” or specially designated messages or other indicators.

Access to the database(s) is, in the preferred embodiments, on a secured or authorized basis, with different users obtaining different levels of access to the data in the database.

FIG. 3 shows a screen shot of an example of a preferred embodiment where access was made available to a customer over a corporate extranet. The screen shot is of a report, generated through an XML link to the central message database, of that particular customer’s orders. In the preferred embodiments, the customer has the option to “drill down” through this screen to other screens for further detail. So, for example, FIG. 4 shows a result of one such operation, where the customer had drilled down from the screen of FIG. 3. Of course, these records may vary depending on the status of the transaction, that is, whether the transaction is in the middle of the process, at the beginning of the process, etc. Furthermore, other reporting options may be seen depending on the embodiments. Additionally, in some embodiments the user may have the option to drill down further into or past these levels if desired.

The preferred embodiments of the present invention also provide a simulation module for business processes. The simulation module makes possible simulation of new processes, their sub-processes and the activities that make up the sub-processes. This provides the enterprise or other user with the opportunity to assemble, test, adjust, and simulate processes before they are integrated into the enterprise.

The simulation module of the preferred embodiments provides the ability to assemble simulated processes in two primary ways. The first primary way is through provision of a toolkit or palette of predetermined sub-processes to the user. The user can then choose from that palette of sub-processes to form a process for an organization, which is then used in the simulation as is explained in further detail below.

The second primary method of assembling processes is to provide the user with activities, which are the most granular construct of a sub-process. Additionally, more sophisticated users will be given the opportunity to assemble their own activities. Either or both options of this second primary method can be offered in various embodiments. Additionally, the first and second primary methods can be combined in certain embodiments as well.

The preferred embodiments permit use of discrete activities among sub-processes, perhaps in an object oriented format, in order to save time and increase productivity. These activities can then be connected to form one or more sub-processes, which in turn can be connected to form one or more processes. The ability to create additional sub-processes would allow for the company to add their unique sub-processes to the palette.

It should be noted that in other embodiments, the simulation module may be constructed in other ways. For example, preconfigured, industry-specific processes may be supplied that can be altered and/or provided with enterprise specifics.

The simulation model is contained, in the preferred embodiments, on a corporate intranet or extranet. The underlying assumption of the simulation model in the preferred embodiments is that the completion of each sub-process will generate a message. So, for example, if a process such as that

of FIG. 1 is simulated, the completion of the first sub-process will generate a message to be sent to the next sub-process, the completion of the next sub-process will generate a message that will be sent to the next sub-process, and so on.

FIG. 5 shows a process development environment screen for an example process called "Order" of the simulation module. Sub-processes Inquiry, Quote, Agreement, Order, Schedule, Manufacture, Ship and Invoice have been joined together to comprise this process. The sub-processes, in this example, are predetermined and their activities are predetermined. The input and output queue names are identified where appropriate. For example, the output queue name in the Inquiry sub-process is INQUIRY\_OUT. That output queue then feeds data into the input queue of the Quote sub-process. (These are analogous to Path A in FIG. 1.) The base delay provides the initial time of a sub-process. For example, the base delay for the Quote Sub-process is 1 or a time increment of 1. In contrast the Manufacture Sub-process base delay is 48, so that the time increment for the Manufacture Sub-process is 48. The Current Variation shows the Increase/Decrease Variation set by the slider, permitting an increase or decrease in the latency per process and thus permits the user to see the downstream effect of altering each sub-process time. (Other embodiments may use different apparatus and methods as known in the art to vary the latency of the sub-process.) In this example, the total time of the process is obtained by adding each base delay of each sub-process, however, each sub-process may not affect the other in a geometric or logarithmic progression. For example, varying the base delay by one time increment of the Quote sub-process may not lead to an exact one time increment variation in the Scheduling sub-process.

FIGS. 6 through 9 are examples of tools that are used in this embodiment to construct sub-process modules such as those used in FIG. 5. For example, FIG. 6 shows the properties of the Agreement sub-process module, which are the process, the sub-process and the application used in the sub-process. The process and sub-process are predetermined in this module. The user has the option of setting the application alternative of the sub-process to one or more predetermined alternatives. These alternatives would be used, for example, when a new application might be used to provide output from the sub-process.

FIG. 7 shows a message queue construction tool for the sub-process identified in FIG. 6. This tool, which may be another option combined with the process tool of FIG. 6 or some other tool in various embodiments, or may be stand-alone in other embodiments, provides the ability to select a queue manager (a process that manages different message queues in various machines or applications), input queue and output queue for the particular sub-process being simulated. Each of these options, queue manager, input queue and output queue, can be changed by using the arrows to access a drop-down menu of predetermined alternatives. Once the alternatives are chosen, the module can be saved. Of course, in other embodiments non-predetermined alternatives may be used.

FIG. 8 shows an application construction tool, which can be used to select the applications used on either end of the queue or path. Here, there are two separate targets, one external, with a single monitoring message being sent to a central message database, before the source message is split and sent to both target applications. FIG. 9 shows the particular data fields or points that may be captured in the monitoring message. These are selected by highlighting the preferred fields in this embodiment.

Other alternatives are possible for other embodiments of the simulation module. For example, the embodiments discussed above have some alternatives as predetermined, which makes the construction of sub-process modules more convenient. In other embodiments non-predetermined alternatives may be used. Moreover, any desired processes that are not defined in predetermined modules can be developed and made available to the user. For example, a tool such as that shown in FIG. 10 provides the ability to alter the process, the sub-process, and the application, by using the arrows to access a drop-down menu of predetermined alternatives, thus facilitating creation of new processes, sub-processes and/or activities. Other embodiments may use an "open ended" format to allow the creation of new processes and sub-processes and/or activities.

The simulation module is, in the preferred embodiments, either stand-alone or contained as part of a monitoring apparatus and/or system as had been described above. If the latter, then "real-time" data and processes, sub-processes and activities can be used in the simulation apparatus and/or process. The simulator module permits processes and sub-processes to be defined, simulated, and refined before modifying existent systems or implementing new systems.

The above description and the views and material depicted by the figures are for purposes of illustration only and are not intended to be, and should not be construed as, limitations on the invention.

Moreover, certain modifications or alternatives may suggest themselves to those skilled in the art upon reading of this specification, all of which are intended to be within the spirit and scope of the present invention as defined in the attached claims.

TABLE 1

PATH	FIELDS	IDENTIFIERS
B	PROCESS IDENTIFIER SUBPROCESS IDENTIFIER CUSTOMER NUMBER MATTER NUMBER QUOTE NUMBER QUANTITY PRICE AMOUNT DATE TIME	Order to cash, quote, custno, matno, quote num, qty, price, amt, date, time
C	PROCESS IDENTIFIER SUBPROCESS IDENTIFIER CUSTOMER NUMBER MATTER NUMBER QUOTE NUMBER QUANTITY PRICE AMOUNT DATE TIME	Order to cash, Agreement, custno, matno, quote num, qty, price, amt, date, time
D	PROCESS IDENTIFIER SUBPROCESS IDENTIFIER ORDER NUMBER QUOTE NUMBER CUSTOMER NUMBER MATTER NUMBER QUANTITY PRICE AMOUNT DATE TIME	Order to cash, order, ordemum, quote num, custno, matno, qty, price, amt, date, time
E	PROCESS IDENTIFIER SUBPROCESS IDENTIFIER ORDER NUMBER QUOTE NUMBER PRODUCTION NUMBER PRODUCTION DATE	Order to cash, schedule, ordemum, quote num, production Number, Production date,

TABLE 1-continued

PATH	FIELDS	IDENTIFIERS
	PRODUCTION LOCATION	production location,
	PRODUCTION STATUS	production status,
	CUSTOMER NUMBER	custno,
	MATTER NUMBER	matno,
	QUANTITY	qty,
	PRICE	price,
	AMOUNT	amt,
	DATE	date,
	TIME	time
F	PROCESS IDENTIFIER	Order to cash,
	SUBPROCESS IDENTIFIER	mfg,
	ORDER NUMBER	ordernum,
	QUOTE NUMBER	quote num,
	PRODUCTION NUMBER	production Number,
	PRODUCTION DATE	Production date,
	PRODUCTION LOCATION	Production location,
	PRODUCTION STATUS	Production status,
	CUSTOMER NUMBER	custno,
	MATTER NUMBER	matno,
	QUANTITY	qty,
	PRICE	price,
	AMOUNT	amt,
	DATE	date,
	TIME	time
G	PROCESS IDENTIFIER	Order to cash,
	SUBPROCESS IDENTIFIER	ship,
	ORDER NUMBER	ordernum,
	QUOTE NUMBER	quote num,
	PRODUCTION NUMBER	production Number,
	PRODUCTION DATE	Production date,
	PRODUCTION LOCATION	production location,
	PRODUCTION STATUS	production status,
	CUSTOMER NUMBER	custno,
	SHIPPING DATE	ship date,
	MATTER NUMBER	matno,
	QUANTITY	qty,
	PRICE	price,
	AMOUNT	amt,
	DATE	date,
	TIME	time
H	PROCESS IDENTIFIER	Order to cash,
	SUBPROCESS IDENTIFIER	invoice,
	ORDER NUMBER	ordernum,
	QUOTE NUMBER	quote num,
	CUSTOMER NUMBER	custno,
	SHIPPING DATE	ship date,
	MATTER NUMBER	matno,
	QUANTITY	qty,
	PRICE	price,
	AMOUNT	amt,
	DATE	date,
	TIME	time

We claim:

1. A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:
  - providing, through a monitoring message, at least part of said original message data to a central message repository;
  - populating a transaction record in said central message repository with said original message data provided by said monitoring message;
  - wherein said original message data comprises the status of an activity.
2. A method as in claim 1 further comprising reviewing data collected in said transaction record.
3. A method as in claim 1 wherein said original message data comprises at least one field of data selected from the group consisting of date data, time data, customer number data, materials data, quantity data and amount data.

4. A method as in claim 1 wherein said original message data comprises at least one field selected from the group consisting of PROCESS IDENTIFIER, SUB-PROCESS IDENTIFIER, ACTIVITY IDENTIFIER, CUSTOMER NUMBER, PART NUMBER, QUANTITY, DATE and TIME.
5. A method as in claim 1 wherein said original message data comprises at least one field selected from the group consisting of ProID, SbProID, Custno, Partno, Qty, Date and Time.
6. A method as in claim 1 further comprising providing the status of a process by providing access to said central message repository.
7. A method as in claim 1 further comprising adding, to said monitoring message, data other than said original message data.
8. A method as in claim 1 further comprising updating said transaction record.
9. A method as in claim 8 further comprising updating said transaction record by:
  - providing, through a second monitoring message, a second original message data to said transaction record; and,
  - populating said transaction record with said second original message data provided by said second monitoring message.
10. A method as in claim 1 further comprising completing a process.
11. A method as in claim 10 further comprising completing said transaction record.
12. A method as in claim 1 further comprising aborting a process.
13. A method as in claim 12 further comprising providing, in said transaction record, an indication that the record has been abandoned.
14. A central message repository created by the method of claim 1.
15. A transaction record created by the method of claim 1.
16. A method as in claim 1 wherein said status of a process is a simulated process.
17. A method as in claim 1 wherein said original message data is simulated original message data.
18. A method as in claim 1 further comprising providing the status of a sub process by providing access to said central message repository.
19. A method as in claim 1 further comprising providing the status of an activity by providing access to said central message repository.
20. A method as in claim 1 wherein said status of a sub process is a simulated process.
21. A method as in claim 1 wherein said status of an activity is a simulated process.
22. A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:
  - monitoring a process, which is comprised of at least a first and second sub process, by generating original message data from each of said first and second sub process;
  - transmitting said original message data from said first sub process, via a first monitoring message, to a central message repository;
  - storing said original message data from said first sub process, in a transaction record in said central message repository;

transmitting said original message data from said second sub process, via a second monitoring message, to said central message repository; and, storing said original message data from said second sub process, in said transaction record in said central message repository; wherein said original message data comprises the status of said sub processes.

23. A method as in claim 22 further comprising determining the status of said process.

24. A method as in claim 22 wherein said original message data from each of said first and second sub processes comprises a sub process specific set of data.

25. A method as in claim 22 wherein said first monitoring message further comprises altered original message data.

26. A method as in claim 22 wherein said first monitoring message further comprises data added to said original message data.

27. A method as in claim 22 further comprising reviewing said central message repository.

28. A method as in claim 27 wherein reviewing said central message repository further comprises reviewing information from the group consisting of order information, customer information, process efficiency information, snapshot information, time slice information, daily information, weekly information, monthly information, trend information and performance information.

29. A method as in claim 22 further comprising distributing process progress information in real time.

30. A method as in claim 29 further comprising distributing said process progress information through broadcasting.

31. A method as in claim 29 further comprising distributing said process progress information through the Internet.

32. A method as in claim 29 further comprising distributing said process progress information through Wireless Application Protocol.

33. A method as in claim 29 further comprising distributing said process progress information through an intranet.

34. A method as in claim 29 further comprising distributing said process progress information through an extranet.

35. A method as in claim 22 further comprising analyzing said central message repository in order to determine a process trend.

36. A method as in claim 35 wherein said process trend is selected from the group consisting of: time between sub-processes, variances by customer, variances by order amount, bottlenecks and seasonal variations.

37. A method as in claim 36 wherein orders may be accelerated as a result of said analysis.

38. A method as in claim 22 further comprising providing a monitoring message database.

39. A method as in claim 22 further comprising providing a report via an XML link to said central message repository.

40. A method as in claim 22 wherein said second monitoring message further comprises altered original message data.

41. A method as in claim 22 wherein said second monitoring message further comprises data added to said original message data.

42. An apparatus for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:

means for providing, through a monitoring message, at least part of said original message data to a central message repository;

means for populating a transaction record in said central message repository with said original message data provided by said monitoring message; wherein said original message data comprises the status of a.

43. An apparatus as in claim 42 further comprising means for reviewing data collected in said transaction record.

44. An apparatus as in claim 42 further comprising means for broadcasting data collected in said transaction record.

45. An apparatus as in claim 42 further comprising means for providing the status of a process by providing access to said central message repository.

46. An apparatus as in claim 42 further comprising means for adding, to said monitoring message, data other than said original message data.

47. An apparatus as in claim 42 further comprising means for providing the status of a sub process by providing access to said central message repository.

48. An apparatus as in claim 42 further comprising means for providing the status of an activity by providing access to said central message repository.

49. An apparatus for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:

means for monitoring a process, which is comprised of at least a first and second sub process, by generating original message data from each of said first and second sub process;

means for transmitting said original message data from said first sub process, via a first monitoring message, to a central message repository;

means for storing said original message data from said first sub process, in a transaction record in said central message repository;

means for transmitting said original message data from said second sub process, via a second monitoring message, to said central message repository; and,

means for storing said original message data from said second sub process, in said transaction record in said central message repository;

wherein said original message data comprises the status of said sub processes.

50. An apparatus as in claim 49 further comprising means for reviewing said central message repository.

51. An apparatus as in claim 49 further comprising means for distributing process progress information through broadcasting.

52. An apparatus as in claim 49 further comprising means for providing a monitoring message database.

53. An apparatus as in claim 49 further comprising means for providing a report via an XML link to said central message repository.

54. An apparatus as in claim 49 further comprising means for distributing said process progress information through Wireless Application Protocol.

55. A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:

providing, through a monitoring message, at least part of said original message data to a central message repository;

populating a transaction record in said central message repository with said original message data provided by said monitoring message;

13

wherein said original message data comprises the status of a process.

56. A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:

providing, through a monitoring message, at least part of said original message data to a central message repository;

populating a transaction record in said central message repository with said original message data provided by said monitoring message;

wherein said original message data comprises the status of a sub process.

57. An apparatus for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:

means for providing, through a monitoring message, at least part of said original message data to a central message repository;

14

means for populating a transaction record in said central message repository with said original message data provided by said monitoring message;

wherein said original message data comprises the status of a sub process.

58. An apparatus for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:

means for providing, through a monitoring message, at least part of said original message data to a central message repository;

means for populating a transaction record in said central message repository with said original message data provided by said monitoring message;

wherein said original message data comprises the status of an activity.

\* \* \* \* \*



# **APPENDIX “F”**

## **COPY OF CERTIFICATE OF SERVICE AND STATEMENT REGARDING SERVICE**

**CERTIFICATE OF SERVICE UNDER 37 C.F.R. 1.248**

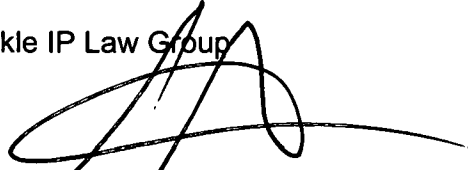
Applicant hereby serves the Notification under 37 C.F.R. 4.565 in the above referenced case to:

Joseph E. Chovanes  
5 Great Valley Parkway, Suite 329  
Malvern, PA 19355

As per U.S.C. §1.248 service is made via first class mail on October 18, 2011.

Respectfully submitted,

Sprinkle IP Law Group

A handwritten signature in black ink, appearing to be 'Ariyeh Akmal', written over a horizontal line.

Ariyeh Akmal  
Reg. No. 51,388

Dated: October 18, 2011

1301 West 25<sup>th</sup> Street, Suite 408  
Austin, Texas 78705  
Tel. (512) 637-9220  
Fax. (512) 371-9088

Enclosures: Appendix A - G



Commissioner for Patents  
United States Patent and Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450  
www.uspto.gov

Requester's Name and Address: ARIYEH AKMAL  
SPRINKLE IP LAW GROUP  
1301 W. 25<sup>TH</sup> STREET, SUITE 408  
AUSTIN, TX 78705

Patent Number: 7,062,749

Request Receipt Date: 10-18-2011

Control Number: 90/009,961  
Date Mailed: 10-27-2011

**NOTICE OF FAILURE TO COMPLY WITH *EX PARTE* REEXAMINATION REQUEST FILING REQUIREMENTS (37 CFR 1.510(c))**

The Central Reexamination Unit (CRU) in the United States Patent and Trademark Office (USPTO) has received a request for *ex parte* reexamination. The request cannot be processed, because the below-identified filing date requirements for an *ex parte* reexamination request have not been satisfied. If a fully compliant response is not received within **30** days of the mailing date of this notice, the request will be treated as a prior art citation under 37 CFR 1.501 or closed from public view, at the Office's option. A **filing date** will **NOT** be assigned to the request until the deficiencies noted below are corrected (37 CFR 1.510(d)):

The following items required by 37 CFR 1.510(a) and (b) are missing:

- 1. The *ex parte* reexamination filing fee under 37 CFR 1.20(c)(1) – see attached Form PTO-2057.
- 2. An identification of the patent by its patent number, and of every claim of the patent for which reexamination is requested.
- 3. A citation of the patents and printed publications that are presented to raise a substantial new question of patentability.
- 4. A statement pointing out each substantial new question of patentability based on the cited patents & printed publications, and a detailed explanation of the pertinency and manner of applying the patents & printed publications to every claim for which reexamination is requested.
- 5. A legible copy of every patent or printed publication (other than U.S. patents or U.S. patent publications) relied upon or referred to in (3) and (4) above, accompanied by an English language translation of all the necessary and pertinent parts of any non-English language document.
- 6. A legible copy of the entire patent including the front face, drawings, and specification/claims (in **double** column format) for which reexamination is requested, and a legible copy of any disclaimer, certificate of correction, or reexamination certificate issued in the patent. All copies must have each page plainly written on only one side of a sheet of paper.
- 7. A certification by the third party requester that a copy of the request has been served in its entirety on the patent owner at the address provided for in 37 CFR 1.33(c). The name and address of the party served must be indicated. If service was not possible, a duplicate copy of the request must be supplied to the Office.
- 8. Other:
- Explanation of above item(s): See Attachment.

Any written correspondence in response to this notice must include a submission pursuant to the attached instructions. **The instructions for a detailed explanation for an *ex parte* reexamination request differ from those for an *inter partes* reexamination request.** Any written correspondence in response to this notice should be mailed to the Central Reexamination Unit (CRU), ATTN: "Box Ex Parte Reexam" at the USPTO address indicated at the top of this notice. Any "replacement documents" may be facsimile transmitted to the CRU at the FAX number indicated below. **A REPLACEMENT STATEMENT AND EXPLANATION UNDER 37 CFR 1.510(b)(1) and (2) MAY NOT BE FACSIMILE TRANSMITTED.**

*Patricia Volpe*  
\_\_\_\_\_  
Paralegal Specialist, Central Reexamination Unit  
(571) 272- 6825 ; FAX No. (571) 273-9900

cc: Patent Owner's Name and Address: JOSEPH E. CHOVANES  
5 GREAT VALLEY PARKWAY  
SUITE 329  
MALVERN, PA 19355

## ATTACHMENT TO PTOL 2077

Control Number: 90/009,961

Patent Number: 7,062,749

Request Receipt Date: October 18, 2011

The request for *Ex Parte* Reexamination of U.S. Patent 7,062,749 filed on October 18, 2011, does not comply with the filing requirements of *ex parte* reexamination proceedings under 37 CFR 1.510(b)(1) and (2).

Reexamination was requested for U.S. Patent No. 7,062,749 (in this instance claims 1 – 58 are requested). The request does not provide a “statement pointing out each substantial new question of patentability based on the prior patents and printed publications” for each cited document, as is required by 37 CFR 1.510(b)(1).

**The request is incomplete as to compliance with 37 CFR 1.510(b)(1) for the following reason:**

The request has failed to provide the requisite identification and explanation, in compliance with 37 CFR 1.510(b)(1), of what substantial new questions of patentability (SNQs) are being raised by the cited prior art documents under 37 CFR 1.510(b). In other words, the request fails to clearly point out and explain how each asserted SNQ is substantially different from those raised in the previous examination of the patent before the Office. **It is not sufficient to merely state that the references were not of record in the prior prosecution of the ‘749 patent.** Also, as pointed out in MPEP 2216, “[i]t is not sufficient that a request for reexamination merely proposes one or more rejections of a patent claim or claims as a basis for reexamination. **It must first be demonstrated that a patent or printed publication that is relied upon in a proposed rejection presents a new, non-cumulative technological teaching** that was not previously considered and discussed on the record during the prosecution of the application that resulted in the patent for which reexamination is requested, and during prosecution of any other prior proceeding involving the patent for which reexamination is requested.” [Emphasis added]

While the request does address what the references teach individually, the request does not clearly explain, for each identified SNQ, which teachings are substantially different than those considered in the previous examination of the patent by the Office.

Accordingly, any corrected request filed in response to this decision must clearly establish, for each substantial new question/proposed rejection identified, what is the new technical teaching being provided by the citation of the newly cited references. See MPEP 2242.

Additionally, the request does not include a detailed explanation of how the reference listed below and cited on the Information Disclosure Statement (Substitute Form PTO/SB/08a) applies to every claim of U.S. Patent No. 7,062,749 for which reexamination was requested.

### **NON PATENT LITERATURE DOCUMENTS**

C3 WACKEROW, DIETER, *MQSeries Primer*, MQSeries Enterprise Application Integration Center, October 1999, 34 pgs., IBM Corp., NY.

If the requester were permitted to omit an explanation of the SNQs raised and how such documents cited in the request are applied to the patent claims, an undue burden would be placed on the Office to address each document in the determination on the request, without an explanation of the relevance to the patent claims. Accordingly, such an omission is prohibited by law.

**The request is incomplete as to compliance with 37 CFR 1.510(b)(2) for the following reason:**

The request does not provide a "detailed explanation of the pertinency and manner of applying the cited prior art to every claim for which reexamination is requested," as is required by 37 CFR 1.510(b)(2).

Specifically, the request is not clear as to the proposed rejections that are being set forth, because it fails to provide a clear explanation of the proposed rejections due to the ambiguity of the proposed rejections. For example, at page 3 of the request it is stated:

"C. ADVANCED WORKFLOW SOLUTIONS (Hoffmann, Marc, Shute, David and Ebbers, Mike. *Image and Workflow Library: Advanced Workflow Solutions using IBM FlowMark*. International Business Machines Corporation, January, 1999). Claims 1-6, 8-24, 27-31, 33-37, 42-45, 47-51 and 55-58 are Anticipated under 35 U.S.C. § 102 by Advanced Workflow Solutions; Claims 3-9, 18, 25, 26, 29, 30, 32, 39-41, 44, 46, 47, 51 and 53-54 are rendered obvious under 35 U.S.C. § 103(a) by Advanced Workflow Solutions in view of Leymann '633 or Leymann '111"

See MPEP 2217, which states:

The explanation **must not** lump together the proposed rejections or proposed combinations of references.

#### **Examples of inappropriate language:**

- Claim 1 is unpatentable under 35 U.S.C. 103 as being obvious over Smith **and/or** Charles.
- Claim 2 is unpatentable under 35 U.S.C. 103 as being obvious over Smith in view of Jones **or** Harvey. (This could however be used if both

Jones and Harvey provide a minor teaching which can be articulated in a sentence or two.)

- Claims 3 - 10 are unpatentable under 35 U.S.C. 103 as being obvious over Smith in view of either Jones **and** Cooper **or** Harvey **and** Cooper.

**Examples of appropriate language:**

- Claim 1 is unpatentable under 35 U.S.C. 103 as being obvious over Smith.
- Claim 1 is unpatentable under 35 U.S.C. 103 as being obvious over Charles.
- Claim 2 is unpatentable under 35 U.S.C. 103 as being obvious over Smith in view of Jones.
- Claim 2 is unpatentable under 35 U.S.C. 103 as being obvious over Smith in view of Harvey.
- Claims 3 - 10 are unpatentable under 35 U.S.C. 103 as being obvious over Smith in view of Jones, and further in view of Cooper.
- Claims 3 - 10 are unpatentable under 35 U.S.C. 103 as being obvious over Smith in view of Harvey, and further in view of Cooper

In accordance with 37 CFR 1.510(c), a filing date for the reexamination request will not be granted **at this time**.

**To assist requesters in filing compliant Requests for Reexamination, a helpful guide “Best Practices and FAQs for filing compliant reexamination requests” can be found at:**

**[www.uspto.gov/patents/stats/Reexamination\\_Information.jsp](http://www.uspto.gov/patents/stats/Reexamination_Information.jsp)**

Requester has the option to respond to this identification of defects in the request papers by applying the appropriate option(s) set forth below:

Providing an explanation of the manner and pertinence of applying each cited document to the patent claims for which reexamination is requested, as required by 37 CFR 1.510(b)(2). Every limitation in each patent claim for which reexamination is requested must be addressed. Where references are applied in combination, each combination must be individually identified, and the basis for forming each combination of references must be supplied.

For any document for which no explanation is to be provided for any of the patent claims, explicitly withdrawing the reference from the request and replacing the presently-submitted listing of documents with a new listing confined to the documents for which a discussion required by 37 CFR 1.510(b)(2) has been provided via the request papers.

Serving the corrected request (including all supporting documents such as the listing of references, copies of the references, appendices, etc...) on the patent owner at the current correspondence address under 37 CFR 1.33(a) in the patent record at the time the corrected request was filed, or alternatively, if such service cannot be made, providing an explanation of the efforts taken to provide service and why those efforts were not successful, and a second copy of the request papers.

The existing forms PTO1449 would be expressly withdrawn by requester, and replaced with a newly provided form or forms.

**Failure to submit a proper response to this Notice may result in the termination of the request, with no filing date accorded.**

All correspondence related to this ex parte reexamination proceeding should be directed:

By EFS: Registered users may submit via the electronic filing system EFS-Web, at <http://sportal.gov/authenticate/authenticateuserlocalepf.html>.


By Mail to: Mail Stop Ex Parte Reexam  
Central Reexamination Unit  
Commissioner for Patents  
United States Patent & Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450

By Hand: Customer Service Window  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE	
<b>CORRECTED REQUEST FOR <i>EX PARTE</i> REEXAMINATION TRANSMITTAL FORM</b>	Atty Docket No. <b>OPEN2200</b>
Control No. <b>90/009,961</b>	
Patent No. <b>7,062,749</b>	Date Issued <b>06/13/2006</b>
In the Application of: <b>Vincent R. Cyr</b>	
Application No. <b>09/737,494</b>	Date Filed: <b>12/15/2000</b>
Title: <b>MEASURING, MONITORING AND TRACKING ENTERPRISE COMMUNICATIONS AND PROCESSES</b>	

**Mail Stop: Central Reexamination  
Unit Attention: Box Ex Parte Reexam**  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

<u>Certificate of Transmission Under 37 C.F.R. § 1.8</u>
I hereby certify that this correspondence is being deposited electronically with the U.S. Patent and Trademark Office using the United States Patent and Trademark Office's EFS-Web system on November <u>7</u> , 2011.
 Delia Narvaiz

1. Filed contemporaneously is a corrected request for *ex parte* reexamination pursuant to 37 CFR 1.510 of U.S. Patent No. 7,062,749, which issued on June 13, 2006 (the '749 patent). The corrected request responds to the Notice of Failure to Comply with Ex Parte Reexamination Request Filing Requirements, mailed on October 27, 2011.
2. The Commissioner is authorized to charge any fees beyond that amount which may be required, or to credit any overpayment, to Deposit Account No. 50-3183.
3. **Reexamination of claims 1-58 is requested.**
4. The corrected *ex parte* request for reexamination contemporaneously filed includes at least the following items:
  - a. A statement identifying each substantial new question of patentability based on prior patents and printed publications. 37 CFR 1.510(b)(1) (See, e.g. Sections I, V and VI of the corrected request and **Appendices A, B, C and D**);
  - b. An identification of every claim for which reexamination is requested and a detailed explanation of the pertinency and manner of applying the cited art to every claim for which reexamination is requested. 37 CFR 1.510(b)(2)



- 2 -

(see, e.g. Sections **IV** and **VI** of the corrected request and **Appendices A, B, C and D**); and

- c. A replacement listing of documents (e.g. PTO SB/08 Form) containing documents for which a discussion as required by 37 CFR 1.510(b)(2) has been provided. Previously-cited Reference C3, WACKEROW, DIETER, *MQSeries Primer*, MQSeries Enterprise Application Integration Center, October 1999, 34 pgs., IBM Corp., NY, and the previous listing of documents is hereby expressly withdrawn from the Request. (See Appendix G.)

5. It is certified that a copy of the corrected *ex parte* request has been served in its entirety on the patent owner as provided in 37 CFR 1.33(c). Applicant hereby serves the Notification under 37 C.F.R. 4.565 in the above referenced case to:

Joseph E. Chovanes  
5 Great Valley Parkway, Suite 329  
Malvern, PA 19355

As per U.S.C. §1.248 service is made via first class mail on November 1, 2011.

6. The other items included with the original request for *ex parte* reexamination filed on October 18, 2011, have not been filed because they have not changed.

Respectfully submitted,  
**SPRINKLE IP LAW GROUP**



---

Ari G Akmal  
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Dated: November 1, 2011

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re *Ex Parte* Reexamination

of: Vincent R. Cyr et al.

U.S. Patent No. 7,062,749

For: **APPARATUS AND SYSTEMS FOR  
MEASURING, MONITORING,  
TRACKING AND SIMULATING  
ENTERPRISE COMMUNICATIONS  
AND PROCESSES**

CONTROL NO. 90/009,961

Issued: June 13, 2006 Examiner:  
INGBERG, Todd (Prior)

Attorney Docket No. OPEN2200

**CORRECTED REQUEST FOR *Ex Parte*  
REEXAMINATION UNDER 37 CFR § 1.510**

Date: November 1, 2011

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Delia Narvaiz

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Central Reexamination Unit  
Commissioner for Patents  
United States Patent & Trademark Office  
P. O. Box 1450  
Alexandria, VA 22313-1450

**TABLE OF CONTENTS**

	<b>Page</b>
I. INTRODUCTION.....	5
II. BACKGROUND .....	5
III. CONCURRENT PROCEEDINGS.....	8
IV. CLAIMS FOR WHICH REEXAMINATION IS REQUESTED.....	8
V. PRIOR ART PATENTS AND PUBLICATIONS .....	9
VI. STATEMENT POINTING OUT SUBSTANTIAL NEW QUESTIONS OF PATENTABILITY AND DESCRIPTION OF THE RELEVANT PRIOR ART .....	10
A. PRODUCTION WORKFLOW (Leymann, Frank, and Roller, Dieter. <i>Production Workflow Concepts and Techniques</i> . Upper Saddle River: Prentice-Hall, Inc., July 30, 1999). Claims 1-58 are Anticipated under 35 U.S.C. § 102 by Production Workflow .....	11
1. Production Workflow's Application to Claim 1.....	12
2. Claims Chart Mapping of Production Workflow to the Claim Limitations of Claims 1- 58 of the '749 Patent .....	17
B. BLACKWELL (U.S. Patent No. 7,003,781). Claims 1-6, 8-11, 14-17, 19, 21, 42-43, 45, 46, 48, 55, and 58 are Anticipated under 35 U.S.C. § 102 by Blackwell; Claims 22-24, 27, 31-34, 38, 47, 49, 50, 52, 54, 56 and 57 are rendered obvious under 35 U.S.C. § 103(a) by Blackwell in view of One of Ordinary Skill in the Art .....	22
1. Blackwell's Application to Claim 1 .....	22
2. Claims Chart Mapping of Blackwell to the Claim Limitations of Claims 1-6, 8-11, 14-17, 19, 21, 42, 43, 45, 46, 48, 55, and 58 of the '749 Patent.....	27
3. Claims Chart Mapping of Blackwell to the Claim Limitations of Claims 22-24, 27, 31-34, 38, 47, 49, 50, 52, 54, 56 and 57 of the '749 Patent.....	30

C.	ADVANCED WORKFLOW SOLUTIONS (Hoffmann, Marc, Shute, David, and Ebbers, Mike. <i>Image and Workflow Library: Advanced Workflow Solutions using IBM FlowMark</i> . International Business Machines Corporation, January, 1999). Claims 1-6, 8-24, 27-31, 33-37, 42-45, 47-51 and 55-58 are Anticipated under 35 U.S.C. § 102 by Advanced Workflow Solutions; Claims 7, 18, 25-26, 40-41 and 46-47 are rendered obvious under 35 U.S.C. § 103(a) by Advanced Workflow Solutions in view of Leymann '111; Claims 3-6, 8, 9, 29, 30, 32, 39, 44, 51, 53 and 54 are rendered obvious under 35 U.S.C. § 103(a) by Advanced Workflow Solutions in view of Leymann '633.....	31
1.	AWS' Application to Claim 1.....	32
2.	Claims Chart Mapping of AWS to the Claim Limitations of Claims 1-6, 8-24, 27-31, 33-37, 42-45, 47-51 and 55-58 of the '749 Patent.....	37
3.	Overview of Leymann '111 and Leymann '633.....	40
4.	Claims Chart Mapping of AWS in view of Leymann '111 to the Claim Limitations of Claims 7, 18, 25-26, 40-41 and 46-47 of the '749 Patent.....	42
5.	Claims Chart Mapping of AWS in view of Leymann '633 to the Claim Limitations of Claims 3-6, 8, 9, 29, 30, 32, 39, 44, 51, 53 and 54 of the '749 Patent.....	43
D.	BUHANNIC (U.S. Patent Application Publication No. 2002/0038276). Claims 1, 42, 55, and 58 are Anticipated under 35 U.S.C. § 102 by Buhannic.....	44
1.	Buhannic's Application to Claim 1.....	44
2.	Claims Chart Mapping of Buhannic to the Claim Limitations of Claims 1, 42, 55 and 58 of the '749 Patent.....	48
VII.	CONCLUSION.....	51
VIII.	APPENDIX	
A.	Claims Chart for Production Workflow under 35 U.S.C. § 102.....	52
B-1.	Claims Chart for Blackwell under 35 U.S.C. § 102.....	75
B-2.	Claims Chart for Blackwell under 35 U.S.C. § 103(a).....	85
C-1.	Claims Chart for Advanced Workflow Solutions under 35 U.S.C. § 102.....	91
C-2.	Claims Chart for Advanced Workflow Solutions in view of Leymann '111 under 35 U.S.C. § 103(a).....	111

C-3. Claims Chart for Advanced Workflow Solutions in view of Leymann '633 under 35 U.S.C. § 103(a)..... 115

D. Claims Chart for Buhannic under 35 U.S.C. § 102..... 121

E. Copy of United States Patent No. 7,062,749..... 126

F. Copy of Certificate of Service and Statement Regarding Service..... 144

G. Copy of Replacement PTO/SB/08a and PTO/SB/08b Forms ..... 146

## I. INTRODUCTION

This Request for *Ex Parte* Reexamination of U.S. Patent No. 7,062,749 ("the '749 Patent") raises substantial new questions of patentability based on, among other things, prior art not disclosed or considered during the prosecution of the '749 Patent, which was filed on December 15, 2000, without any claim of priority, and which issued on June 13, 2006.<sup>1</sup>

Specifically, during the prosecution of the '749 Patent, the following prior art references were neither disclosed to nor considered by the Examiner: (1) *Production Workflow Concepts and Techniques* by Frank Leymann and Dieter Roller; (2) U.S. Patent No. 7,003,781 to Blackwell et al.; (3) *Image and Workflow Library: Advanced Workflow Solutions using IBM FlowMark* by Marc Hoffmann, David Shute, and Mike Ebbers; (4) U.S. Patent No. 6,073,111 to Leymann et al.; (5) U.S. Patent No. 6,122,633 to Leymann et al.; and (6) U.S. Patent Publication No. 2002/0038276 to Buhannic et al. Each of the above referenced patents or printed publications presents a new, non-cumulative technological teaching that was not previously considered and discussed on the record during the prosecution of the application that resulted in the '749 Patent for which reexamination is requested, and during the prosecution of any other prior proceedings involving the '749 Patent for which reexamination is requested.

## II. BACKGROUND

As the '749 Patent generally involves the use of messages in a computer environment, some background information regarding messaging may be useful. In a distributed computing environment, different applications or other programs (which may or may not be on different physical computers) often need to communicate with one another (e.g., to provide data to another application, receive data from another application, invoke another application, etc.).

---

<sup>1</sup> Requestor is also aware of the following patents and patent applications related to the '749 Patent: (i) U.S. Patent No. 7,603,674 (the "'674 Patent'"), which issued on October 13, 2009, was a continuation of U.S. Patent Application No. 09/737,494 (the "'494 Application'"), from which the '749 Patent issued; and, (ii) U.S. Patent Application No. 11/356,538 (U.S. Pub. No. 2006/0150156) which is a divisional of the '494 Application. As noted below, the Requestor is aware of a separate request for reexamination with respect to the '674 Patent.

One approach to implementing such communication is through the use of “messaging.”

Messaging can be either synchronous or asynchronous. In synchronous messaging, the application (the “sender”) that sends a communication (the “message”) waits for a response from the recipient of the message (the “receiver”) before continuing on with further processing. In asynchronous messaging, the sender may immediately continue other processing after the message is sent.

One common approach to implementing an asynchronous messaging system is through the use of queuing. In an asynchronous messaging system that employs queuing, applications do not communicate with one another directly. Instead, messages are sent to, and retrieved from, queues. As it is asynchronous, an application can place messages into a queue, even if the intended recipient application is not available to retrieve messages from the queue at that time. Moreover, the recipient application can retrieve the message from the queue when that application is available and ready for the message.

Message queues can also be used for what is generally known as “publish and subscribe” messaging. In this type of messaging, which is also asynchronous, it is not the sender application that is directing the message to a specific recipient application. Rather, it is the recipient applications that actually “subscribe” or declare to the messaging system that they are interested in receiving messages containing particular content. A sending application “publishes” a message by providing it to the messaging system through a particular queue. The messaging system can then deliver the message to the various destination queues associated with any recipient applications that have subscribed to messages of the type received from the sender, and the recipient application can then retrieve the message from its associated destination queue when it is available and ready for the message.

Messaging systems provide a powerful and flexible way for allowing communications between distributed applications in an asynchronous manner. Accordingly, these asynchronous

messaging systems were employed as the communication mechanism in a variety of contexts. One particular context in which such messaging systems were employed was that of workflow management systems.

A workflow management system is designed to facilitate the implementation of a business (or other type of) process. Examples of business processes include such things as a product ordering process, a loan approval process, and a travel reservation process. Generally, processes are made up of a number of separate activities or subprocesses which must occur in a particular order. A subprocess is simply an activity of a process which is, itself, implemented as a separate process (*e.g.*, it can be made up of its own set of activities or subprocesses). For example, a loan process may include an "Asses Risk" activity and a "Credit Check" activity, while a product ordering process may include a "Check Inventory" activity and a "Bill Customer" activity.

A workflow management system attempts to facilitate the implementation of such processes by (i) determining which activity of a process needs to execute; (ii) communicating with the activity to provide the activity with the input data that it needs; (iii) receiving output data from the activity after the activity has completed; and (iv) determining the next activity in the process that needs to execute, based on the output data received from the activity. This can continue until the process is completed or otherwise halted.

In most workflow management system architectures, the workflow management system serves as a central location from which all communications to activities originate and to which all communications from activities are sent. In many cases, the various activities of a process are implemented in a distributed computing environment, where they may be performed on a number of computers in a variety of locations. For example, a "Check Inventory" activity may be performed by a computing device in a warehouse, while the "Bill Customer" activity may be performed by a computing device in the accounting department. The messaging systems



described above were utilized by workflow management systems to effectuate the communications between the workflow management system and the various activities of a process. In other words, the workflow management systems used messaging to pass data to and receive data from the various activities of a process.

These workflow management systems also leveraged their position as the central location through which all communications to and from activities flow to maintain a database of the data generated by or about the execution of a process, including data communicated to and received from the various activities of a process. This data is referred to by many workflow management systems as the audit trail or audit log. This audit trail was leveraged by users of workflow management systems to a variety of ends, including process monitoring, process modeling, process design, process derivation, process analysis, and legal auditing/compliance requirements.

### **III. CONCURRENT PROCEEDINGS**

To the knowledge of the undersigned, there are currently no co-pending reissue, reexamination, or interference proceedings concerning the '749 Patent. The undersigned is aware of a separate request for reexamination submitted with respect to U.S. Patent No. 7,603,674 (the "'674 Patent'"), which shares the same specification as the '749 Patent.

The '749 Patent (along with the '674 Patent) is currently in litigation in the District Court for the Eastern District of Pennsylvania in a case styled YYZ, LLC v. Metastorm, Inc. and OpenText Corporation, Civil Action No. 2:11-CV-01609-JCJ. The case is currently set for trial, beginning on May 29, 2012. A Markman hearing has not yet been set by the Court.

### **IV. CLAIMS FOR WHICH REEXAMINATION IS REQUESTED**

Reexamination is requested for all claims of the '749 Patent, Claims 1-58.

**V. PRIOR ART PATENTS AND PUBLICATIONS**

Pursuant to 37 C.F.R. § 1.555, the undersigned brings to the attention of the Examiner the following references, all of which are listed on the Forms PTO/SB/08a and PTO/SB/08b contemporaneously filed.<sup>2</sup> Each of the below referenced patents or printed publications presents a new, non-cumulative technological teaching that was not previously considered and discussed on the record during the prosecution of the application that resulted in the '749 Patent for which reexamination is requested, and during the prosecution of any other prior proceedings involving the '749 Patent for which reexamination is requested. For example, each of the following references teach a central message repository; and, as understood by the Examiner, a teaching of a central message repository was not present in any of the references considered during examination of the '494 Application which resulted in the '749 Patent. See Examiner's Reasons For Allowance in the Notice of Allowability mailed on February 22, 2005, in the '494 Application.

Reference Name	Reference Description
"Production Workflow"	Printed Publication: Leymann, Frank, and Roller, Dieter. <i>Production Workflow Concepts and Techniques</i> . Upper Saddle River: Prentice-Hall, Inc., July 30, 1999. ISBN 0-13-021753-0.
"Blackwell"	U.S. Patent No. 7,003,781 to Blackwell et al., which was filed on May 5, 2000 and which issued on February 21, 2006.
"Advanced Workflow Solutions ("AWS")"	Printed Publication: Hoffmann, Marc, Shute, David, and Ebbers, Mike. <i>Image and Workflow Library: Advanced Workflow Solutions using IBM FlowMark</i> . International Business Machines Corporation, January, 1999. SG24-5371-00.
"Leymann '633"	U.S. Patent No. 6,122,633 to Leymann et al., which was filed on April 20, 1998, and which issued on September 19, 2000.

<sup>2</sup> Copies of the references are attached hereto as Appendix G.

<p><b>“Leymann ’111”</b></p>	<p>U.S. Patent No. 6,073,111 to Leymann et al., which was filed on April 15, 1998, and which issued on June 6, 2000.</p>
<p><b>“Buhannic”</b></p>	<p>U.S. Patent Application Publication No. 2002/0038276 to Buhannic et al., which was filed on June 26, 2001 as a non-provisional of U.S. Provisional Patent Application No. 60/214,256 filed on June 26, 2000 and U.S. Provisional Patent Application No. 60/298,083 filed on June 15, 2001.</p>

For the reasons discussed below, the prior art patents and printed publications submitted herein raise substantial new questions of patentability as to claims 1 through 58 of the '749 Patent.

**VI. STATEMENT POINTING OUT SUBSTANTIAL NEW QUESTIONS OF PATENTABILITY AND DESCRIPTION OF THE RELEVANT PRIOR ART**

This Request for *Ex Parte* Reexamination of the '749 Patent raises the following substantial new questions of patentability. Each of the references or combinations of references detailed below presents a new, non-cumulative technological teaching that was not previously considered and discussed on the record during the prosecution of the application that resulted in the '749 patent for which reexamination is requested, and during the prosecution of any other prior proceedings involving the '749 patent for which reexamination is requested.

**A. Production Workflow**

1. Whether claims 1-58 are anticipated under 35 U.S.C. § 102 by Production Workflow.

**B. Blackwell**

1. Whether claims Claims 1-6, 8-11, 14-17, 19, 21, 42-43, 45, 46, 48, 55 and 58 are anticipated under 35 U.S.C. § 102 by Blackwell.
2. Whether claims 22-24, 27, 31-34, 38, 47, 49, 50, 52, 54, 56 and 57 are rendered obvious under 35 U.S.C. § 103(a) by Blackwell in view of One of Ordinary Skill in the Art.

**C. Advanced Workflow Solutions**

1. Whether claims 1-6, 8-24, 27-31, 33-37, 42-38, 40-51 and 55-58 are anticipated under 35 U.S.C. § 102 by AWS.
2. Whether claims 7, 18, 25-26, 40-41 and 46-47 are rendered obvious under 35 U.S.C. § 103(a) by AWS in view of Leymann '111.
3. Whether claims 3-6, 8, 9, 29, 30, 32, 39, 44, 51, 53 and 54 are rendered obvious under 35 U.S.C. § 103(a) by AWS in view of Leymann '633.

**D. Buhannic**

1. Whether claims 1, 42, 55 and 58 are anticipated under 35 U.S.C. § 102 by Buhannic.

**A. PRODUCTION WORKFLOW (Leymann, Frank, and Roller, Dieter. Production Workflow Concepts and Techniques. Upper Saddle River: Prentice-Hall, Inc., July 30, 1999) Claims 1 through 58 are Anticipated under 35 U.S.C. § 102 by Production Workflow.**

*Production Workflow Concepts and Techniques* ("Production Workflow") was first published on July 30, 1999, (more than a year prior to the filing of the '749 Patent) as evidenced by copyright registration number TX0005060483 in the copyright catalog of the Library of Congress (a copy of which is included with the cited reference). Production Workflow was not cited by the applicant nor discovered by the Examiner during prosecution of the '749 Patent. Consequently, with respect to the '749 Patent, Production Workflow is prior art which was not previously considered. Production Workflow presents a new, non-cumulative technological teaching that was not previously considered and discussed on the record during the prosecution of the application that resulted in the '749 Patent for which reexamination is requested, and during the prosecution of any other prior proceedings involving the '749 Patent for which reexamination is requested.

Generally speaking, Production Workflow describes various concepts, techniques, architectures and implementations of workflow management systems as they existed in 1999. In general, such workflow management systems were used to design, model, simulate, execute

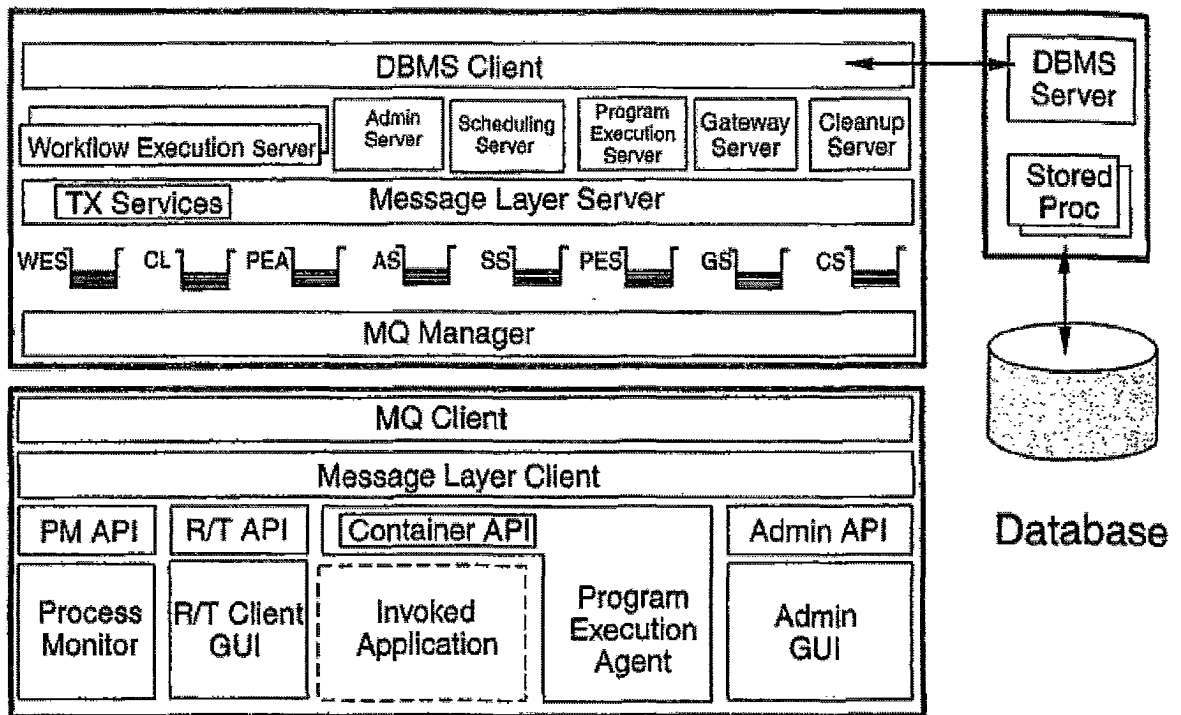
and monitor the execution of processes. During the execution of a process, the workflow management system passes input to an activity of the process, receives output from the activity, and determines which activity of the process to execute next, based on the output from the previous activity. The passing of such input and output data can be done through the use of messaging. Workflow management systems also maintain a database with data tracking the status of the processes executed by the system.

#### 1. Production Workflow's Application to Claim 1

More specifically, with reference to claim 1 of the '749 Patent, Production Workflow discloses a workflow management system comprised of components that communicate using a messaging system, such as IBM's MQSeries (**an asynchronous messaging environment**). The workflow management system disclosed by Production Workflow is comprised of a workflow server for managing a process and various clients that execute the activities of such process. In executing a process, messages are passed between the workflow server and these clients; these messages are **original messages**. The messages returned from these clients at the completion of an activity contain output data (**original message data**). This output data (**original message data**) can include the **status of an activity** such as activityState, Location, Finished, Confirmed, etc. that indicate the status of the process. The output data from the activity (**original message data**) is sent from the workflow server to a database (**a central message repository**) using a separate message (**a monitoring message**) over the MQSeries messaging system. The output data for that activity (**original message data**) is stored in the database (**central message repository**) in association with the output data from other activities of the same process (**a transaction record**).

The architecture of a workflow management system with a workflow server and various clients executing activities of a given process is shown in FIGURE 10.10 of Production Workflow (pg. 366) and described in the accompanying text.

## Server



## Client

As shown in Figure 10.10, the workflow server ("Server") communicates with a client ("Client") implementing an activity of a given process, using a message over the MQSeries messaging system. After completing the activity, the Client sends a message (**an original message**) to the Server with the output data (**original message data**) of that activity. The Server sends this output data (that includes the **status of the activity**) to the DBMS Server using a separate message (**a monitoring message**) over the MQSeries messaging system. The output data of the activity is stored in the database ("Database") (**central message repository**) where it is associated with the output data from other activities of the same process (**a transaction record**). See, Production Workflow, Chapter 10, beginning at 364.

- a. **A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising**

As described in Production Workflow, a messaging system such as MQSeries may provide the infrastructure that is needed for communication between different components of the workflow management system. Thus, the components of the workflow management system are able to communicate asynchronously (**an asynchronous messaging environment**) in executing a process. See, Production Workflow, Sec. 3.4.4, pg. 92 and Sec. 10.5.1, pgs. 378-379.

The execution of such a process is based on a "process model" which includes the set of activities to be carried out as part of that process and the logic to determine which activities to execute. Each of the activities of a process is associated with an input container for input data required by the activity and an output container for output data from the activity. See, Production Workflow, Sec. 1.4, pg. 7; Sec. 2.2, pgs. 33-35; Sec. 3.1, pgs. 62-63; Sec. 3.4.2, pgs. 78-79; Sec. 4.2.3, pg. 126; Sec. 4.3, pg. 128; and Sec. 4.4, pgs. 136-137.

During the execution of a particular instance of a process (referred to in Production Workflow as both a "process" and a "process instance") the workflow management system (i) assembles an input container for an activity of that process (also referred to variously in Production Workflow as an "activity implementation," "program," or "subprocess"); (ii) communicates the input container to that activity; (iii) receives a communication from that activity containing the output container (with the output data from that activity); and (iv) determines which activity (or activities) to execute next based on the process model and the data contained in the output container received from that activity. See, Production Workflow, Sec. 1.4, pg. 7; Sec. 2.2, pgs. 33-35; Sec. 3.1, pgs. 62-63; Sec. 3.4.2, pgs. 78-79 and 84-86; Sec. 3.4.4, pg. 92; Sec. 4.2.3, pg. 126; Sec. 4.3, pg. 128; Sec. 4.3.2, pgs.131-132; Sec. 4.4, pgs. 136-137; Sec. 5.4, pgs. 196-198; Sec. 7.6, pgs. 274-278; Sec. 10.3.5, pgs. 372; and Sec. 10.5, pgs. 378-379.

An activity may be invoked asynchronously by the workflow management system using a message passed over a messaging system. More specifically, a message comprising the input container for the activity may be sent to the activity implementation. After completing the activity, the activity implementation returns a message (**an original message**) that contains the output container with the output data of the activity (**original message data**) to the workflow management system. See, Production Workflow, Sec. 1.11, pg. 16; Sec. 3.4.4, pg. 92; Sec. 9.4.2, pgs. 319-336; and Sec. 10.14, pg. 419.

**b. providing, through a monitoring message, at least part of said original message data to a central message repository;**

As noted above, after the completion of an activity, the activity implementation returns a message (**an original message**) to the workflow management system that contains the output container with the output data of the activity (**original message data**). Production Workflow also teaches that, during the execution of a process instance, all important events, including the output containers of each completed activity of the process, are stored in a database.

To store such events in the database, a separate message (**monitoring message**) is sent to the database server via the MQSeries messaging system, where this message (**monitoring message**) includes the output container (**original message data**) returned in a message (**original message**) from a client executing an activity. See, Production Workflow, Sec. 2.7.1, pg. 45; Sec. 3.4.4, pg. 92; Sec. 7.6.1, pgs. 274-277; Sec. 9.3, pg. 317; Sec. 10.2, pgs. 364-366; Sec. 10.2.1, pg. 368; and Sec. 10.12.2, pgs. 410-412. The database server enters the data it receives into the database (**central message repository**).

Referring to FIGURE 10.10 above, the use of messaging to communicate with the database is further described at Sec. 10.2, pg. 366 of Production Workflow. Access to the database of the workflow management system is accomplished through the DBMS server, using the DBMS client. Messaging (e.g., MQSeries) is the underlying communication mechanism



used between clients and servers and between servers and servers, as discussed at Sec. 10.2, pg. 364. Thus, data to be stored in the database (**central message repository**) is provided to the DBMS Server using a message (**a monitoring message**).

The use of messaging to communicate data to be stored in the database is also explained at Sec. 9.3.1, pg. 317, which notes that the database management client is responsible for handling messages related to stored procedure invocation and returning responses. See, Production Workflow, Sec. 9.4.2, pgs. 319-336; Sec. 10.2, pgs. 364-366; and Sec. 10.3, pgs. 369-374.

**c. populating a transaction record in said central message repository with said original message data provided by said monitoring message;**

The database server stores the data it receives via the message (**monitoring message**) discussed above, including the output container (**original message data**) from an activity, into an entry (**transaction record**) in the database (**central message repository**) associated with the process instance for which the activity was performed. In particular, the database (**central message repository**) maintains one or more entries for each process instance, including dates and times of the occurrence of activities, identifiers of activities and processes, states of activities, the output containers of each of the activities and other information. Particular processes and their current state and processing history, including the current state of each of the activities and the output containers of the activities, can thus be queried. See, Production Workflow, Sec. 1.17.1, pg. 25; Sec. 3.6, pgs. 105-108; Sec. 3.7.1, pg. 113; Sec. 4.3.2, pg.132; Sec. 7.6.1, pgs. 274-277; and Sec. 11.4, pgs. 440-441.

As shown in Production Workflow, an entry for a process instance can be made in a "process instance table," where the process entry includes an associated "process identifier" field (PID). Moreover, each activity instance associated with that process (*i.e.*, each activity performed as part of that process) can have an entry in an "activity instance table," where each

activity entry also includes the PID for the corresponding process instance. Thus, all of the activity entries for a given process instance can be associated. See, Production Workflow, Sec. 10.13, pgs. 412-417. The output containers (**original message data**) for completed activities are associated with the corresponding entry in the activity instance table.

**d. wherein said original message data comprises the status of an activity.**

The output container (**original message data**) for an activity may contain values such as: activityState, Return Code, Location, Flight Price Limit, Hotel Price Limit, Finished, Error Report Number, All Flights Confirmed, Fare, All Hotels Confirmed, etc. See, Production Workflow, Sec. 2.7.1, pg. 45; Sec. 3.6, pg. 105-106; Sec. 4.3.2, pg.132; Sec. 7.6.1, pgs. 274-277; Sec. 10.13, pgs. 412-427; and Appendix A, pgs. 449-462. These values can indicate a state or status of a step in the process (**status of the activity**)

**2. Claims Chart Mapping of Production Workflow to the Claim Limitations of Claims 1- 58 of the '749 Patent.**

As demonstrated above, Production Workflow raises substantial new questions of patentability with respect to the claims of the '749 Patent. A full claims chart mapping Production Workflow to the claim limitations of the applicable claims of the '749 Patent is found in **Appendix "A."** For the convenience of the Examiner, the portion of the claims chart for representative claim 1 is reproduced below.

Claim Language of '749 Patent	Portion of Production Workflow That Meets the Limitation <sup>3</sup>
<p><b>Claim 1</b></p> <p>1. A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:</p>	<p><b>Asynchronous Messaging Environment</b></p> <p>At Sec. 10.2, pgs. 364-367 and FIGURE 10.10, Production Workflow discloses a workflow management system having a server with multiple server components which interface with various clients for implementing activities that make up certain processes. The workflow system is implemented using messaging as the underlying communication mechanism both between the servers of the workflow management system and between such servers and the clients of the workflow management system. <i>See also</i>, Sec. 1.11, pg. 16.</p> <p>As described at Sec. 3.4.4, pg. 92 and Sec. 10.5.1, pgs. 378-379 of Production Workflow, messaging is used to asynchronously invoke activity implementations on the clients of the workflow management system.</p> <p>At Sec. 9.4.2, pgs. 319-335, Production Workflow describes asynchronous messaging systems and points out (at pg. 320) that one example of such a messaging system is MQSeries.</p> <p>Communication between the various pieces of an application can happen in two inherently different manners: synchronously and asynchronously. Production Workflow at Sec. 9.4, pg. 317. <i>See also</i>, FIGURES 9.9, Sec. 9.13. "[T]he appropriate component is invoked by sending a message to the component. The target component...sends back a message that contains the output container and other appropriate information, such as a return code. It should be noted that this...works asynchronously." Production Workflow at Sec. 3.4.4, pg. 92. The concept of message queuing as the underlying communication mechanism is not only used between clients and the server but also between the servers. When a component needs services from another component, it sends a message using the queue name of the appropriate component. Production Workflow at Sec. 10.2, pg. 364; <i>see also</i>, Secs. 9.4.2-9.6.3, pgs. 319-335; FIGURES 10.9, 10.10.</p>

<sup>3</sup> According to the USPTO Examination Guidelines for Patent Applications, claims are to be given their broadest reasonable interpretation and limitations appearing in the specification but not recited in the claims should not be read into the claims. *See e.g.*, M.P.E.P. 2100.

	<p><b>Original Message</b></p> <p>As described at Sec. 3.4.4, pg. 92 and Sec. 10.5.1, pgs. 378-379 of Production Workflow, messaging is used by a workflow management server to asynchronously invoke activity implementations on clients by sending a message containing input data. When the activity implementation is complete, a message containing an output container is communicated to the workflow management server by the activity implementation. Each of these messages is an original message.</p> <p><b>Original Message Data</b></p> <p>As described at Sec. 3.4.4, pg. 92 and Sec. 10.5.1, pgs. 378-379 of Production Workflow, messaging is used by a workflow management server to asynchronously invoke activity implementations on clients by sending a message containing input data. When the activity implementation is complete, a message containing an output container is communicated to the workflow management server by the activity implementation. Thus, the output container included in a message communicated to the workflow management server is <b>original message data</b>.</p>
<p>providing, through a monitoring message, at least part of said original message data to a central message repository;</p>	<p><b>Monitoring Message</b></p> <p>As described at Sec. 10.2, pg. 366 of Production Workflow, access to the database of the workflow management system is accomplished through the DBMS server using a DBMS client. Messaging is the underlying communication mechanism used between clients and servers and between servers and servers, as discussed at Sec. 10.2, pg. 364.</p> <p>The use of messaging to communicate data to be stored in the database is further explained at Sec. 9.3.1, pg. 317, which notes that a database management client is responsible for handling messages related to stored procedure invocation and returning responses.</p> <p>Production Workflow further describes how the output container received in a message from the activity implementation is stored in this database. For example, at Sec. 2.7.1, pg. 45, Production Workflow describes how the workflow management system stores an entry in the audit trail for all relevant actions, such as the start and completion of an activity. The entry in the audit trail contains all of the important information about the event, such as the type of event, the activity associated with the event, the input passed to the activity, the output produced by the activity</p>

	<p>and the time the event occurred.</p> <p>As another example, at Sec. 7.6, pgs. 274-277, Production Workflow describes how output containers received in messages from activity implementations are stored in the database, along with the other context of each process instance. See also, pg. 57.</p> <p>Thus, the message sent from the workflow management system to the DBMS server with the output container (original message data) is a monitoring message.</p> <p><b>Central Message Repository</b></p> <p>At Sec. 10.2, pgs. 364-367 and FIGURE 10.10, Production Workflow discloses a workflow management system that has a server with multiple server components and clients for implementing activities. One of the server components is a DBMS server used to access a centralized database</p>
<p>populating a transaction record in said central message repository with said original message data provided by said monitoring message;</p>	<p><b>Transaction Record</b></p> <p>Sec. 10.13, pgs. 412-419 gives an example of a simple schema for the central database, such that a record is stored for a process instance and a record is stored for each activity instance associated with that process instance, where the record for the process instance and the record for each of the activity instances are associated using a process identifier (PID).</p> <p>Production Workflow describes at Sec. 2.7.1, pg. 45 how entries contain information such as the input passed to the activity and the output produced by the activity. Additionally, at Sec. 7.6, pgs. 274-277, Production Workflow describes how output containers received in messages from activity implementations are stored in the database, along with the other context of each process instance. Thus, it can be known which activities have been completed, which activities are active, etc.</p> <p>Accordingly, the input data passed to each activity in a message and the output container received from each activity in a message (original message data) is stored in association with the record for a given process.</p>
<p>wherein said original message data comprises the status of an activity.</p>	<p><b>Status of an Activity</b></p> <p>Production Workflow discusses various examples of statuses that may be contained in an output container received in a message from an activity implementation.</p>

For example, the output containers for an activity may contain such values as activityState, Return Code, Location, Flight Price Limit, Hotel Price Limit, Finished, Error Report Number, All Flights Confirmed, Fare, All Hotels Confirmed, etc. See, Production Workflow, Sec. 2.7.1, pg. 45; Sec. 3.6, pgs. 105-106; Sec. 10.13, pgs. 412-427; and Appendix A, pgs. 449-462.

Data member activityState holds the state of the activity instance. Production Workflow at Sec. 10.15, pg. 421.

Moreover, Sec. 3.5.3, pgs 101-102 describe, and FIGURES 3.18 and 3.19 graphically depict that the status of an activity is in the input container passed to an activity or an output container received from an activity. Note that in FIGURE 3.18 this status, as viewed by a user, is "Running," while in FIGURE 3.19 the activity is "Collect Customer Information" and the status is listed as "Ready."

**B. BLACKWELL (U.S. Patent No. 7,003,781) Claims 1-6, 8-11, 14-17, 19, 21, 42-43, 45, 46, 48, 55, and 58 are Anticipated under 35 U.S.C. § 102 by Blackwell; Claims 22-24, 27, 31-34, 38, 47, 49, 50, 52, 54, 56 and 57 are rendered obvious under 35 U.S.C. § 103(a) by Blackwell in view of One of Ordinary Skill in the Art.**

Blackwell was filed on May 5, 2000, before the filing of the '749 Patent. Blackwell issued on February 21, 2006. Blackwell was not cited by the applicant nor discovered by the Examiner during prosecution of the '749 Patent. Consequently, with respect to the '749 Patent, Blackwell is prior art which was not previously considered. Blackwell presents a new, non-cumulative technological teaching that was not previously considered and discussed on the record during the prosecution of the application that resulted in the '749 Patent for which reexamination is requested, and during the prosecution of any other prior proceedings involving the '749 Patent for which reexamination is requested

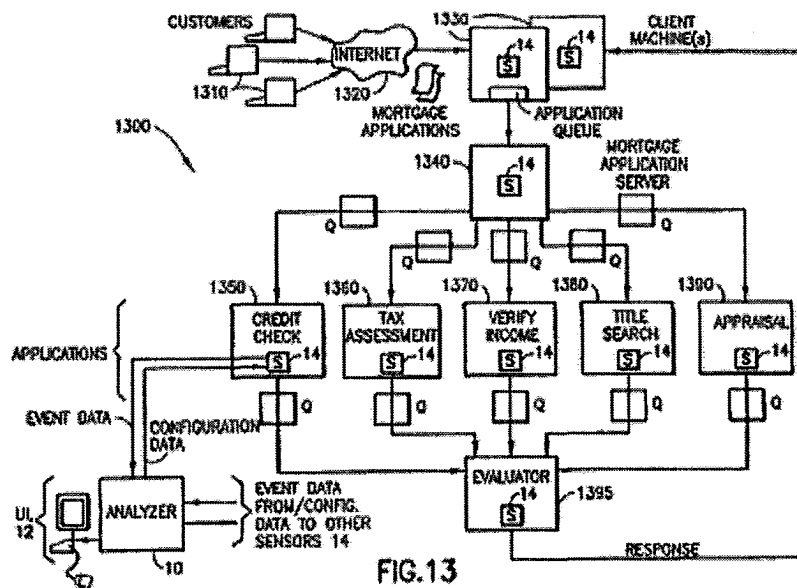
Generally speaking, Blackwell describes a system for monitoring the operation of a distributed system that includes a plurality of applications communicating with one another through the same MQSeries messaging system described in the '749 Patent. An interface provided by the MQSeries messaging system is monitored to capture events, which include data from the messages passing through the messaging system. The events are sent to a database where they are grouped into transactions which can be subsequently displayed to a user. See, Blackwell, Abstract, col. 1, lines 47-51 and col. 2, lines 5-11.

**1. Blackwell's Application to Claim 1**

Blackwell discloses the use of an MQSeries messaging system (**an asynchronous messaging environment**) to pass messages between user applications. The messages passed between the user applications are **original messages**. Blackwell further teaches the use of sensors, located between the user applications and the MQSeries messaging system, to intercept these original messages and create events containing data (**original message data**) from the intercepted original messages. This original message data can include the **status of**

an activity such as 'approved', 'disapproved', 'conditionally approved,' the current state of a transaction, etc. The sensors use the same MQSeries messaging system to send a separate message (a **monitoring message**) with the event to a database (a **central message repository**). The event with the original message data is then stored in the database, where it is correlated with other events in the database (a **transaction record**).

The operation of Blackwell, as described above, is graphically demonstrated in FIGURES 13 and 14 of Blackwell.



Specifically, as shown in FIGURE 13, user applications (e.g., Credit Check 1350, Tax Assessment 1360, etc.) process a mortgage request by passing messages (**original messages**). Sensors 14 intercept these original messages and create events containing data (**original message data**) from these original messages. These sensors 14 send these created events to the analyzer 10 using a separate message (a **monitoring message**). FIGURE 14 (shown below) graphically depicts a sensor 14 sending a message with an event to analyzer 10.



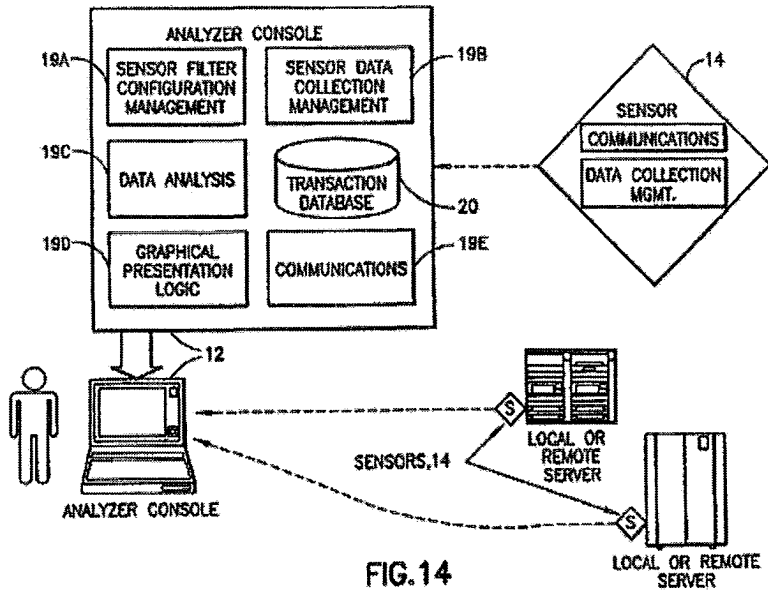


FIG. 14

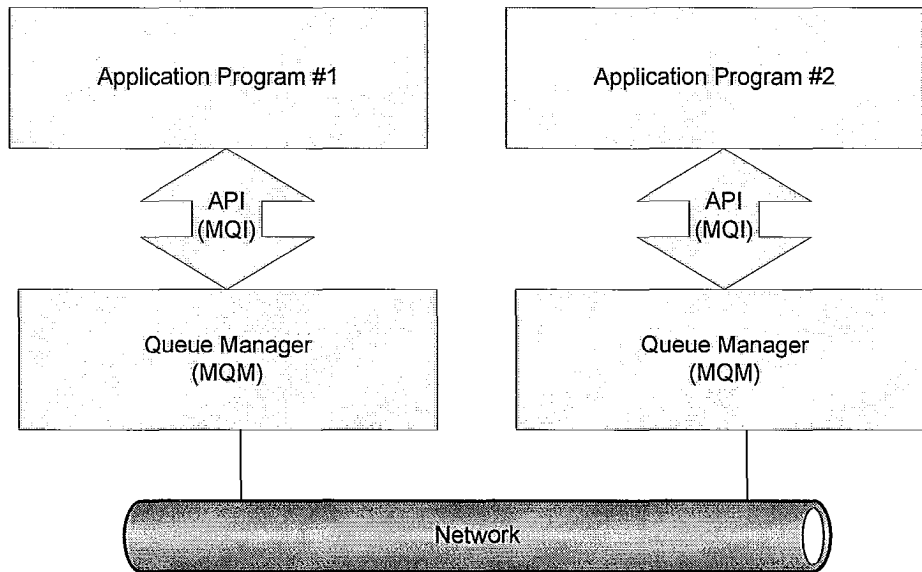
These event messages are stored in the transaction database 20 (a **central message repository**), where the events of a particular transaction are correlated (a **transaction record**).

See, Blackwell, col. 5, lines 31-36; col. 15, lines 15-57; and FIGURES 13 and 14.

- a. **A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising**

Blackwell and the '749 Patent both specifically call out IBM's MQSeries message-oriented middleware. IBM's MQSeries is a messaging system that allows applications to communicate with one another by passing messages between them through the use of queues, "so that the various programs and applications can run independently and asynchronously relative to one another." Blackwell, col. 15, lines 16-26. Thus, Blackwell and the '749 Patent both operate in an **asynchronous messaging environment**.

The figure set out below depicts the functionality of the IBM MQSeries product.



As can be seen from the drawing, application programs (Application Program #1 and Application Program #2), which are located on two different systems, are able to communicate with one another by passing messages between them over the “Network.” To facilitate this communication, the IBM MQSeries product provides a queue manager (also referred to as a message queue manager or MQM) and certain application programming interfaces (API) which allow the applications to communicate with the queue manager (referred to as the Message Queue Interface or MQI).

Two of the main API calls provided by the MQI are MQPUT and MQGET. The MQPUT API call is used by an application program to put a message on a queue. An MQPUT API call made by an application includes a message descriptor or header and a buffer containing the message itself (i.e., the message body). The message is the data that is sent from one application program to another. Blackwell refers to this buffer as the user data buffer; the message as the user data message or user message; and the data in the user message as the user data. See, Blackwell, col. 6, lines 54-57; col. 7, lines 28-33; col. 11, lines 42-50, col. 15, lines 50-55; and col. 16, lines 43-46. So, in the drawing above, if Application Program #1 intends to send a message to Application Program #2, it would issue an MQPUT API call to the

MQM, such API call including the message intended for Application Program #2. In response to this API call, the MQM would place the message on a queue which is accessible by Application Program #2. When Application Program #2 is ready for the message, it would then issue an MQGET API call to the MQM, allowing it to read the message off of the queue.

The user applications of Blackwell pass messages between themselves using the MQPUT and MQGET APIs. See, Blackwell, col. 2, lines 19-29; col. 7, lines 14-20; col. 9, lines 11-24; and col. 15, lines 15-27. These messages passed between the user applications of Blackwell using these APIs are **original messages**, and the data contained in these messages is **original message data**.

- b. **providing, through a monitoring message, at least part of said original message data to a central message repository;**

On top of the basic MQSeries messaging system, Blackwell teaches the use of sensors 14, placed between the user applications and the MQM, which sensors are able to intercept API calls (e.g., MQPUT) intended for the MQM by emulating such calls. See, Blackwell, col. 2, lines 31-39; col. 3, lines 49-54; col. 3, line 64 to col. 4, line 11; and col. 4, line 59 to col. 5, line 44. As noted above, the API calls include the message header and the message (**the original message**). Blackwell further teaches that, once the sensor 14 intercepts an API call, the sensor 14 can generate an event capturing the intercepted API call. See, Blackwell, col. 4, lines 5-10 and col. 5, lines 61-66. An event generated by sensor 14 may comprise data including all, or a portion of, the data in the user message (**original message data** from the **original message**).

The generated event is then sent to the analyzer by the sensor 14 using a separate message (**a monitoring message**) on the same MQSeries messaging system. The event is then stored in a transaction database 20 (**a central message repository**). See, Blackwell col. 5, lines 31-36. As specifically disclosed by Blackwell at col. 15, lines 61-64:

[A]nalyzer console 12 receives event messages from the sensors, stores the messages in the transaction database 20, and operates on the stored event data with a data analysis model . . . .

FIGURES 13 and 14 (shown above) demonstrate that transaction database 20 of the analyzer is a centralized database (**a central message repository**).

**c. populating a transaction record in said central message repository with said original message data provided by said monitoring message;**

The events stored in the transaction database 20 that are associated with the same transaction are connected or correlated. See, Blackwell, col. 14, lines 23-30. As discussed above, such events contain user message data (**original message data**) extracted from the messages intercepted by the sensors 14. Thus, the connected or correlated events comprise a **transaction record populated** with user message data (**original message data**).

**d. wherein said original message data comprises the status of an activity.**

The user message data (**the original message data**) in an event is used to populate a transaction record, as discussed above. Blackwell discusses various examples of activity statuses (**status of an activity**) that may be contained in the user message data. See, e.g., Blackwell, col. 3, lines 55-57; col. 4, lines 5-10; and col. 7, lines 28-33. Examples of **such activity statuses** include: times when events occurred (col. 7, lines 15-20 and col. 9, lines 25-40), date that a loan obligation was satisfied (col. 11, lines 42-49), responses from applications such as 'approved', 'disapproved', 'conditionally approved' (col. 15, lines 1-5) and the current state of a transaction (col. 16, lines 19-23). See also, Blackwell at col. 16, lines 42-47.

**2. Claims Chart Mapping of Blackwell to the Claim Limitations of Claims 1-6, 8-11, 14-17, 19, 21, 42, 43, 45, 46, 48, 55 and 58 of the '749 Patent.**

As demonstrated above, Blackwell raises substantial new questions of patentability with respect to the claims of the '749 Patent. A full claims chart mapping Blackwell to the claim limitations of the applicable claims of the '749 Patent is found in **Appendix "B-1."** For the

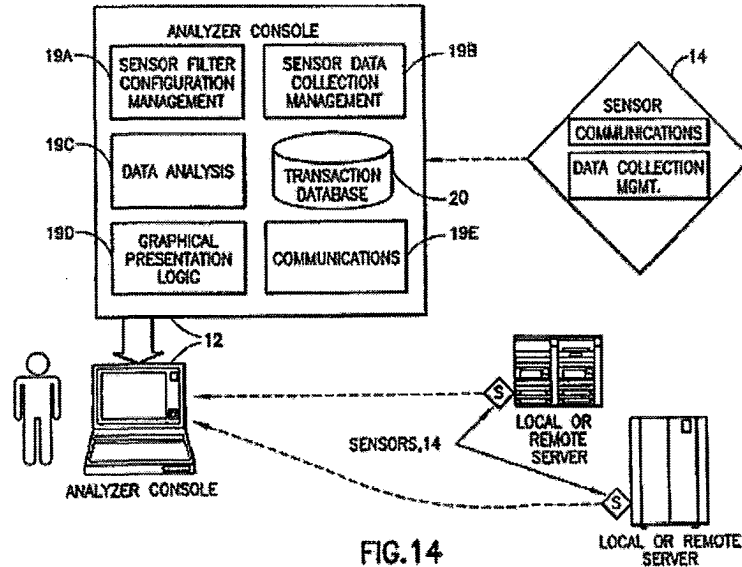
convenience of the Examiner, the portion of the claims chart for representative claim 1 is reproduced below.

Claim Language of '749 Patent	Portion of U.S. Patent No. 7,003,781 That Meets the Limitation
<b>Claim 1</b>	
<p>1. A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:</p>	<p><b>Asynchronous Messaging Environment</b></p> <p>The Blackwell patent describes at col. 15, lines 16-26 that the message passing technique can be a message-oriented middleware system such as MQSeries that operates with the components of the system to perform messaging so that the various programs and applications can run asynchronously.</p> <p>At col. 3, lines 43-48, Blackwell describes a method and system for monitoring the operation of a distributed data processing system, including a plurality of applications running on a plurality of host processors and communicating with one another through a message passing technique.</p> <p><b>Original Message/Original Message Data</b></p> <p>As discussed above for "asynchronous message environment," messages can be passed between applications using MQSeries. These messages are original messages containing original message data.</p>
<p>providing, through a monitoring message, at least part of said original message data to a central message repository;</p>	<p><b>Monitoring Message</b></p> <p>Blackwell discloses that a sensor operates to monitor the API calls from a user application to a queue manager, including, for example, MQPUT and MQGET . See, Blackwell, col. 12, lines 66-67; col. 7, lines 7-9; col. 4, lines 3-4; col. 4, line 64 to col. 5, line 13 and col. 14, lines 59-61. It is inherent that such API calls include a message header and a message buffer containing the message, itself (the original message containing original message data). See, Blackwell, col. 6, lines 54-57; col. 7, lines 28-33; col. 11, lines 42-50; col. 15, lines 50-55; and col. 16, lines 43-46.</p> <p>Blackwell describes intercepting an API call and generating an event comprising all or a portion of the data of the original message. See, Blackwell, col. 3, lines 53-54; col. 4, lines 5-9; col. 6, lines 53-57; col. 11, lines 42-51; and col. 15, lines 51-55.</p> <p>As further described by Blackwell at col. 5, lines 26-36 and col. 15, lines 61-63, MQSeries may then be used to send an event message</p>

containing the event to a database for storage. The event message is a monitoring message, containing original message data.

### Central Message Repository

The event message is stored in a database as described at col. 15, lines 61-63 and FIGURES 13 and 14. FIGURE 14, set out below, discloses that databases (20) is centralized. See also, Blackwell, FIGURE 13.



Thus, as shown by FIGURE 14, Blackwell discloses providing, through a message from sensor 14 to analyzer 12 (a monitoring message), data (original message data) extracted from a message (an original message) intercepted by sensor 14 to a transaction database 20 (a central message repository).

<p>populating a transaction record in said central message repository with said original message data provided by said monitoring message;</p>	<p><b>Transaction Record</b></p> <p>The events that are stored in the database are connected or correlated with other events in the same transaction. Blackwell, col. 14, lines 23-30. The connected or correlated events comprise a transaction record. This transaction record can be used to display the transaction as it happens or has happened across multiple hosts, operating systems and applications. Blackwell, col. 16, lines 19-22.</p> <p>The process of correlating or connecting events in a transaction record is discussed in several places in Blackwell. For example: Processing a plurality of the stored events to identify logically correlated events, such as those associated with a business transaction. Blackwell at Abstract, col. 3, lines 54-55; Events are grouped automatically into related transactions. Blackwell at col. 12, lines 53-55; What results is a set of connected or correlated events for a transaction that are correlated across all processes. Blackwell at col. 14, lines 25-27; <i>See also</i>, Blackwell at col. 17, lines 7-11.</p>
<p>wherein said original message data comprises the status of an activity.</p>	<p><b>Status of an Activity</b></p> <p>Blackwell discusses various examples of activity statuses that may be contained in the user message data (original message data). <i>See, e.g.</i>, Blackwell, col. 3, lines 55-57; col. 4, lines 5-10; and col. 7, lines 28-33. Examples include: times when events occurred (col. 7, lines 15-20 and col. 9, lines 25-40), date that a loan obligation was satisfied (col. 11, lines 42-49), responses from applications such as 'approved', 'disapproved', 'conditionally approved' (col. 15, lines 1-5) and the current state of a transaction (col. 16, lines 19-23). <i>see also</i>, Blackwell, col. 15, lines 51-55; col. 12, lines 1-15; col. 16, lines 39-47; col. 6, lines 1-8 and lines 54-57; and col. 12, line 2.</p>

**3. Claims Chart Mapping of Blackwell to the Claim Limitations of Claims 22-24, 27, 31-34, 38, 47, 49, 50, 52, 54, 56 and 57 of the '749 Patent.**

In addition to being anticipated by Blackwell, certain claims of the '749 Patent are also rendered obvious under 35 U.S.C. § 103(a) by Blackwell, in view of the knowledge of one of ordinary skill in the art. A full claims chart mapping Blackwell in view of one of ordinary skill in the art to the claim limitations of the applicable claims of the '749 Patent is found in **Appendix "B-2."** The combination of Blackwell with the knowledge of one of ordinary skill in the art raises substantial new questions of patentability with respect to the claims of the '674 Patent.

- C. **“ADVANCED WORKFLOW SOLUTIONS (“AWS”)” (Hoffmann, Marc, Shute, David, and Ebbers, Mike. Image and Workflow Library: Advanced Workflow Solutions using IBM FlowMark. International Business Machines Corporation, January, 1999). Claims 1-6, 8-24, 27-31, 33-37, 42-45, 47-51 and 55-58 are Anticipated under 35 U.S.C. § 102 by Advanced Workflow Solutions; Claims 7, 18, 25-26, 40-41 and 46-47 are rendered obvious under 35 U.S.C. § 103(a) by Advanced Workflow Solutions in view of Leymann '111; Claims 3-6, 8, 9, 29, 30, 32, 39, 44, 51, 53 and 54 are rendered obvious under 35 U.S.C. § 103(a) by Advanced Workflow Solutions in view of Leymann '633.**

*Image and Workflow Library: Advanced Workflow Solutions using IBM FlowMark* (“Advanced Workflow Solutions” or “AWS”) was first published in January of 1999, as evidenced by the copyright mark contained on the document, more than a year prior to the filing of the '749 Patent. AWS was not cited by the applicant nor discovered by the Examiner during prosecution of the '749 Patent. Consequently, with respect to the '749 Patent, AWS is prior art which was not previously considered. AWS presents a new, non-cumulative technological teaching that was not previously considered and discussed on the record during the prosecution of the application that resulted in the '749 Patent for which reexamination is requested, and during the prosecution of any other prior proceedings involving the '749 Patent for which reexamination is requested.

AWS is an IBM Redbook discussing certain topics related to the architecture, design and implementation of Version 2.3 of IBM's FlowMark workflow management system. Rather than a user manual, AWS is a guide written to highlight certain issues/best practices that IBM's developers and engineers had developed, based on the experiences of their customers in installing and deploying the FlowMark product over several years. See, AWS, Preface at pg. vii.<sup>4</sup>

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<sup>4</sup> There are other available documents, manuals, guides, redbooks and reference materials related to the functions and operation of Version 2.3 (and earlier) of FlowMark. Moreover, there are numerous issued patents covering various aspects of the FlowMark product, including the two patents referenced in this Section C.



AWS describes certain aspects of the version of the FlowMark product that existed in 1999. Specifically, AWS describes FlowMark's ability to: (i) communicate with applications through a messaging system, (ii) copy data from such messages into an audit trail, and (iii) send the audit trail records containing such data to a data store by way of messaging. Simply put, the FlowMark product, which was on sale in 1999, and which is described in AWS, included the functionality claimed in the '749 Patent.

#### 1. AWS' Application to Claim 1

As described by AWS, FlowMark, a workflow management system, can use the MQSeries messaging system (**an asynchronous messaging environment**) to pass messages to applications that perform the activities of a business process. The messages passed between the FlowMark system and these applications are **original messages**. The messages sent from an application performing an activity to FlowMark contain the output data from such application's performance of the activity. This output data is **original message data**. The output data (**original message data**) contained in a message from an application performing an activity can include the **status of the activity**, such as when the activity was completed.

AWS also discloses that FlowMark can record this output data (**original message data**) in an audit trail record (**a transaction record**), which is stored in an audit trail data store (**a central message repository**). FlowMark can accomplish this by using the same MQSeries messaging system to send a separate message (**a monitoring message**) containing the output data (**original message data**) from the application performing an activity to the audit trail data store (**central message repository**), where it is stored in an audit trail record (**a transaction record**).

The operation of FlowMark, as described above, is graphically demonstrated in Figures 25 and 35 of AWS.

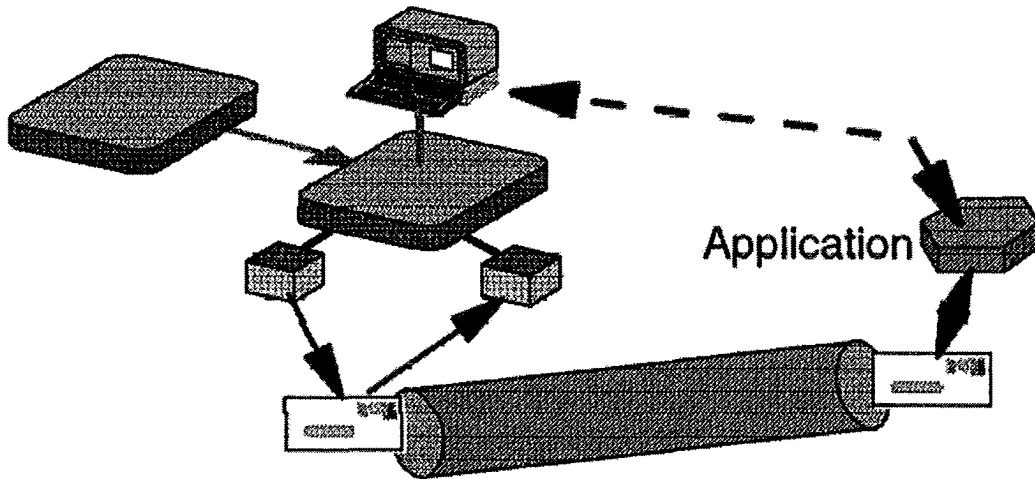


Figure 25. Message-based Workflow Application

As can be seen from Figure 25, FlowMark is able to communicate with “message-based workflow applications” (the “Application” in the figure) through the use of messages (shown in the figure as envelopes being passed through a tube). These messages being passed between FlowMark and the “Application” are **original messages**. The message from the “Application” to FlowMark contains the output data (**original message data**) from the “Application’s” performance of an activity, which can include the **status of the activity**, such as when the activity was completed.

Further, as noted above, FlowMark can record this output data (**original message data**) into an audit trail record (**a transaction record**) stored in the audit trail data store (**a central message repository**). As can be seen from Figure 35, FlowMark (specifically, the FlowMark component labeled “Audit trail processor Part 2”) sends the audit trail records to the audit trail data store (**central message repository**) by way of a separate message (**a monitoring message**).

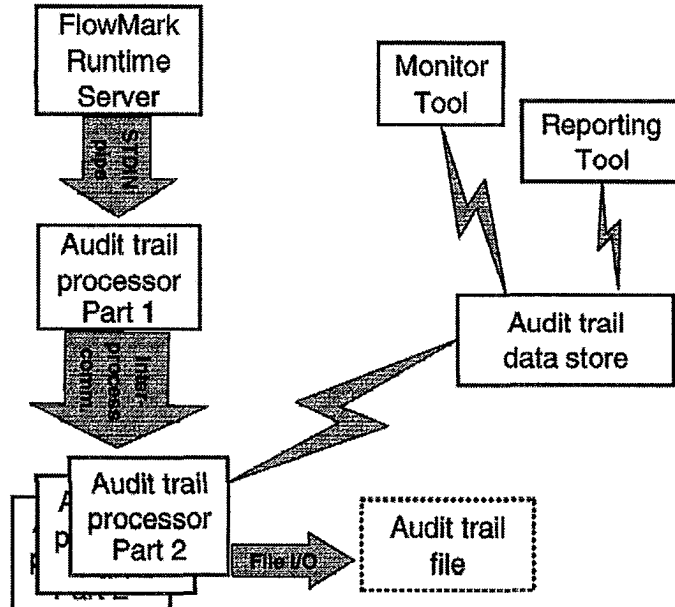


Figure 35. Building an Audit Trail Processor

See, AWS, Figures 25 and 35.

- a. **A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising**

FlowMark uses input and output containers to pass data back and forth with the applications that perform the activities that make up a given process. AWS, Sec. 6, pg. 49 (“The application can access the data input container to retrieve information that it needs to process the task, and it can store newly generated data in the output container, so that FlowMark can send this information to other activities in the process.”) FlowMark was designed to allow communications with applications through messaging systems like IBM’s MQSeries.<sup>5</sup> AWS, Sec. 6.3, pg. 51. FlowMark refers to such applications as “message-based applications.” As noted by AWS (and the ’749 Patent, itself), messaging systems like MQSeries “usually transmit their messages asynchronously.” AWS, Sec. 6.3, pg. 52. Thus, FlowMark, as described in AWS, operates in an **asynchronous messaging environment**.

<sup>5</sup> As noted at Sec. 6.3, pg. 51, in 1999, messaging based applications were more common in the marketplace than workflow-ready applications and “many industry applications have been ‘MQ-enabled.’” Accordingly, FlowMark provided “a building block for easy integration with MQSeries.”

When FlowMark needs to communicate with a message-based application (e.g., the application is needed to perform an activity in an ongoing process), FlowMark posts the data that the application needs for the activity into a message and sends the message to the application through the messaging system. AWS, Sec. 6.3, pgs. 51-52. When the application completes the activity, the application sends a message to FlowMark, signaling that the activity is complete and providing the data to be stored in the output container. See also, AWS, Sec. 6, pg. 49 (applications “can store newly generated data in the output container, so that FlowMark can send this information to other activities in the process.”); and AWS, Sec. 8.2.2, pg. 72. The message passed from the message-based application to FlowMark is an **original message** and the output data provided by the message-based application in such a message is **original message data**.

Figure 25, set out above, depicts the use of a messaging system to provide the communication between the FlowMark system and a message-based application. AWS, Sec. 6.3, pg. 52. The figure demonstrates how data from the input container provided by FlowMark is posted into a message and sent through the messaging system to the message-based application. The figure also shows that, when the message-based application is finished with the activity, it sends the data that was generated through such activity to FlowMark in a separate message (**an original message**).

- b. **providing, through a monitoring message, at least part of said original message data to a central message repository;**

The FlowMark system records, in an audit trail, the output data (**original message data**) that was received in the message (**original message**) from the message-based application. Specifically, as processes flow through the FlowMark system, FlowMark records every event that occurs in an audit trail. AWS, Sec. 10.2, pg. 82. This audit trail information contains the output data (**original message data**) that was received in the message (**original message**)

from the message-based application. AWS discloses that this audit trail information can be written to an audit trail processing program. AWS, Sec. 10.3, pg. 84. The “audit trail processor” can process and store this audit trail information as audit trail records (**a transaction record**) in an audit trail data store (**a central message repository**).

As noted in AWS and as depicted in Figure 35, set out above, the audit trail processor can store the audit trail records in the audit trail data store through the use of messages passed via a messaging system (for example, MQSeries). Sec. 10.3.1, pg. 85 and Figure 35. Specifically, the “Audit trail processor Part 2” component of the FlowMark system can send the audit trail records, which contain the output data (**original message data**) from the message sent by the message-based application (**original message**), to the “Audit trail data store” (**central message repository**) in a separate message (**a monitoring message**). Thus, this separate message (**monitoring message**) sent to the “Audit trail data store” (**central message repository**) contains output data (**original message data**).

As depicted, in Figure 35, the audit trail data store (**central message repository**) is a separate database accessible by both the FlowMark server and certain monitoring and reporting tools. As noted by AWS, “[t]he data store should reside on a different machine, so that the performance of the FlowMark server machine is not significantly impacted.” AWS, Sec. 10.3.1, pg. 85.

**c. populating a transaction record in said central message repository with said original message data provided by said monitoring message;**

As shown in the discussion above, the “audit trail records” (**a transaction record**) which are stored in the audit trail data store (**a central message repository**) contain data (**original message data**) from the message (**original message**) returned to FlowMark by the message-based application performing an activity. As also noted above, the “Audit trail processor Part 2” component of the FlowMark system can send the audit trail records to the “Audit trail data store”

(**central message repository**) by way of a separate message (**a monitoring message**). See, AWS, Sec. 10.2, pgs. 82-83; Sec. 10.3, pgs. 84-85; and Figure 35; See also, AWS Sec. 6.3, pgs. 51-52, Figure 25.

**d. wherein said original message data comprises the status of an activity.**

AWS discusses that the output data (**original message data**) contained in the separate message (**a monitoring message**) includes various examples of activity statuses (**status of an activity**) including, for example, the description of the object for which the status change is being recorded (which description is associated with the full data container and the data contained therein) and the time/date when the activity or process was completed. AWS, Sec. 10.2, pgs 82-83 (“Using the audit trail information, one can obtain the status of every process instance in the FlowMark system.”); Sec. 10.4.1; See also, 10.4.2, pg. 89-91 and Figure 36.<sup>6</sup>

**2. Claims Chart Mapping of AWS to the Claim Limitations of Claims 1-6, 8-24, 27-31, 33-37, 42-45, 47-51 and 55-58 of the '749 Patent.**

As demonstrated above, AWS raises substantial new questions of patentability with respect to the claims of the '749 Patent. A full claims chart mapping AWS to the claim limitations of the applicable claims of the '749 Patent is found in **Appendix “C-1.”** For the convenience of the Examiner, the portion of the claims chart for representative claim 1 is reproduced below.

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<sup>6</sup> U.S. Patent No. 6,122,633, Leymann et. al. (Leymann '633), which discusses the ability to subscribe to certain events in the database storing the audit trail records, contains a good discussion of some of the fields in the audit trail records, which would include the output data (original message data) contained in the message (original message) from the message-based application. Leymann '633, col. 9, line 42 to col. 10, line 15; FIGURE 1.

Claim Language of '749 Patent	Portion of Advanced Workflow Solutions ("AWS") That Meets the Limitation
<p><b>Claim 1</b></p> <p>1. A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:</p>	<p><b>Asynchronous Messaging Environment</b></p> <p>At Sec. 6.3, pgs. 51-52, AWS discloses the use of an asynchronous messaging system like IBM's MQSeries to exchange data between the workflow system and the applications performing the activities of a process. See also, Figure 25.</p> <p><b>Original Message/Original Message Data</b></p> <p>As described at Sec. 6.3, pgs. 51-52 of AWS, FlowMark is able to communicate with a message-based application to perform an activity in a process. When FlowMark communicates with such a message-based application, the data necessary for the application is posted into a message, which is shipped to the target application tasked with performing the activity. On completion of the activity, the target application sends a message back to the workflow management system, signaling that the activity is complete and providing the data to be stored in the FlowMark output container. See also, Figure 25 (set out below); AWS, Sec. 6, pg. 49 (applications "can store newly generated data in the output container, so that FlowMark can send this information to other activities in the process."); and Sec. 8.2.2, pg. 72.</p> <div> </div> <p><i>Figure 25. Message-based Workflow Application</i></p> <p>Figure 25 depicts the use of messages to transmit data to and from an application performing an activity in a process. These messages are original messages containing original message data.</p>

providing, through a monitoring message, at least part of said original message data to a central message repository;

### Monitoring Message

At Sec. 10.2, pgs. 82-83, AWS discloses that output data (original message data) from a message-based application can be included in the audit trail. The audit trail can be written to an audit trail processing program. AWS, Sec. 10.3, pg. 84. The audit trail processor process and stores the audit trail records into an audit trail data store. Storing the audit trail records in the audit trail data store can be accomplished through messages passed via a messaging system (for example, MQSeries). AWS, Sec. 10.3.1, pg. 85 and Figure 35.

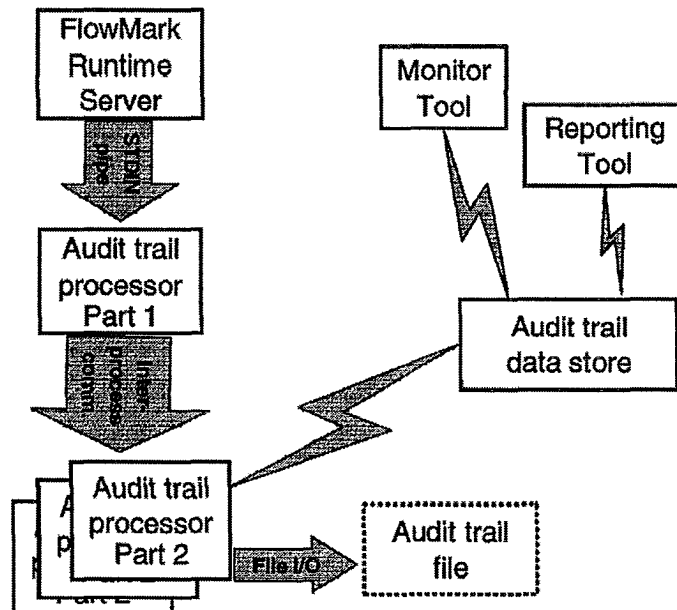


Figure 35. Building an Audit Trail Processor

Figure 35 from AWS depicts the “Audit trail processor Part 2” component of the FlowMark system sending audit trail records to the “Audit trail data store” by means of a message. This message is a monitoring message containing original message data.

### Central Message Repository

As described in AWS and depicted in Figure 35, the “audit trail records” can be stored in an “audit trail data store.” See, AWS, Sec. 10.2-10.4, pgs. 82-91, Figure 35. AWS further notes that “[t]he data store should reside on a different machine, so that the performance of the FlowMark server machine is not significantly impacted.” AWS, Sec. 10.3.1, pg. 85. The audit trail data store is a central message repository.

Thus, as described in AWS and as depicted in Figure 35, FlowMark can send output data (original message data) provided in a message (original message) from a message-based application to an audit trail data store (central message repository) by means of a separate



	message (a monitoring message).
populating a transaction record in said central message repository with said original message data provided by said monitoring message;	<p><b>Transaction Record</b></p> <p>AWS discloses that FlowMark records every event that occurs in the FlowMark system while managing processes in the FlowMark audit trail. Sec. 10.2, pgs. 82-83. This audit trail information contains the output data (original message data) that was received in the message (original message) from the message-based application. See, AWS, Sec. 10.3.1, pg. 85; Figure 35; and Sec. 10.2, pgs. 82-83; See also, AWS, Sec. 6.3, pgs 51-52, Figure 25. AWS discloses that this audit trail information can be written to an audit trail processing program. AWS, Sec. 10.3, pg. 84. The “audit trail processor” can process and store this audit trail information as audit trail records in an audit trail data store (a central message repository). AWS, Sec. 10.3.1, pg. 85 and Figure 35. The audit trail records are transaction records.</p>
wherein said original message data comprises the status of an activity.	<p><b>Status of an Activity</b></p> <p>AWS discloses examples of activity statuses that may be contained in the output data (original message data) provided in the message (original message) from the message-based application, including the description of the object for which the status change is being recorded (which description is associated with the full data container and the data contained therein) and the time/date when the activity or process was completed. AWS, Sec. 10.2, pgs 82-83 (“Using the audit trail information, one can obtain the status of every process instance in the FlowMark system.”); Sec. 10.4.1; See also, 10.4.2, pgs. 89-91 and Figure 36.</p>

### 3. Overview of Leymann '111 and Leymann '633

In addition to being anticipated by AWS, certain claims of the '749 Patent are also rendered obvious under 35 U.S.C. § 103(a) by AWS, in view of Leymann '111 or Leymann '633, both of which were filed and issued prior to the filing of the '749 Patent.<sup>7</sup> Specifically, both Leymann '111 and Leymann '633 are patents directed to aspects of a workflow management

<sup>7</sup> Leymann '111 was filed on April 15, 1998, more than two years prior to the filing of the '749 Patent; and it issued on June 6, 2000. Leymann '633 was filed on April 20, 1998, and issued on September 19, 2000. Neither Leymann '111 nor Leymann '633 were cited by the Applicant nor discovered by the Examiner during prosecution of the '749 Patent. Consequently, with respect to the '749 Patent, Leymann '111 and Leymann '633 are prior art which was not previously considered. Leymann '111 and Leymann '633 present a new, non-cumulative technological teaching that was not previously considered and discussed on the record during the prosecution of the application that resulted in the '749 Patent for which reexamination is requested, and during the prosecution of any other prior proceedings involving the '749 Patent for which reexamination is requested.

system. In fact, both patents specifically discuss embodiments in conjunction with the FlowMark system described in AWS. Leymann '111 at col. 7, lines 15-16; Leymann '633 at col. 4, lines 35-37. Thus, it would have been obvious to one of ordinary skill in the art to combine AWS with either Leymann '111 or Leymann '633.

Briefly, Leymann '111 is directed, in part, to the use of "dematerialization programs" on the data in the output containers received by the FlowMark system upon completion of an activity (e.g., the output data (original message data) contained in a message (original message) sent by a message-based application). Leymann '111 col. 5, line 29 to col. 6, line 27; col. 9, lines 1-3. As can be seen from the patent and from FIGURE 2, such programs can be used to alter the data (e.g., encrypt or compress the data) or add to the data contained in the output container. Leymann '111, col. 13, line 51 to col. 14, line 8; col. 14, line 63 to col. 15, line 12.

Leymann '633 teaches the use of a subscription means associated with the database housing the audit trail records such that users of the system can establish "subscriptions," triggers and/or notifications, allowing them to be notified if certain events happen or are recoded in the audit trail records (e.g., the approval of a loan exceeding \$10,000). Leymann '633, col. 3, lines 8-25; col. 12, lines 22-51. Leymann '633 also describes the types of fields of data that can be included in an audit trail record, including (i) Timestamp (date and time the event took place); (ii) Process Instance Name (an identification of the process instance at issue); (iii) Activity Name (identification of the activity within the process model that is at issue); (iv) Associated Object Identifier (identifies the object associated with the event being recorded); and (v) "User" (contains user data associated with the process instance, such as customer number or amount of a loan). Leymann '633, col. 9, line 42 to col. 10, line 15; FIGURE 1.

**4. Claims Chart Mapping of AWS in view of Leymann '111 to the Claim Limitations of Claims 7, 18, 25-26, 40-41 and 46-47 of the '749 Patent.**

In addition to the issues raised in Section C.2 above, AWS in view of Leymann '111 raises substantial new questions of patentability with respect to the claims of the '749 Patent. A full claims chart mapping AWS in view of Leymann '111 to the claim limitations of the applicable claims of the '749 Patent is found in **Appendix "C-2."** For the convenience of the Examiner, the portion of the claims chart for claim 7 is reproduced below.

Claim Language of '749 Patent	Portions of Leymann '111 That Render The Limitation Obvious Under 35 U.S.C. § 103(a) In View of AWS
<b>Claim 7</b>	
<p>7. A method as in claim 1 further comprising adding, to said monitoring message, data other than said original message data.</p>	<p>This claim is rendered obvious under 35 U.S.C. § 103(a) by AWS (as applied to claim 1 in the preceding section), in view of Leymann '111.</p> <p>Specifically, Leymann '111 teaches the use of materialization/dematerialization programs on the data contained in the input and output containers which are used to pass data back and forth between the workflow systems and the applications performing the activities that make up a process. Specifically, Leymann '111 teaches the use of a set of programs on the data contained in the output container once it is received from the application performing the activity. Leymann '111, col. 5, line 29 to col. 6, line 27.<sup>8</sup></p> <p>As described by Leymann '111, the results that are produced by the application performing the activity are put into an output container which is associated with such activity. Leymann '111, col. 9, lines 1-3.</p> <p>Once the application returns the associated output container to the workflow management system, the workflow management system can invoke a dematerialization chain, which is an ordered group of programs intended to act on the data contained in the output container. Leymann '111, col. 13, line 51 to col. 14, line 8. The programs can substitute or add data into the container, including, for example, adding references to data located outside of the container, or replacing references in the output container with the actual data associated with the reference. The programs can use other sources of data for enrichment of the data contained in the output container. Leymann '111, col. 13, line 51 to col. 14, line 8; col. 14, line 63 to col. 15, line 12.</p>

<sup>8</sup> It would have been obvious to combine AWS and Leymann '111, as both references concern the FlowMark workflow management system. See, AWS at pg. vii; Leymann '111, col. 7, lines 15-16.

**5. Claims Chart Mapping of AWS in view of Leymann '633 to the Claim Limitations of Claims 3-6, 8, 9, 29, 30, 32, 39, 44, 51, 53 and 54 of the '749 Patent.**

In addition to the issues raised in Section C-2 above, AWS in view of Leymann '633 raises substantial new questions of patentability with respect to the claims of the '749 Patent. A full claims chart mapping AWS in view of Leymann '633 to the claim limitations of the applicable claims of the '749 Patent is found in **Appendix "C-3."** For the convenience of the Examiner, the portion of the claims chart for claim 3 is reproduced below.

Claim Language of '749 Patent	Portions of Leymann '633 That Render The Limitation Obvious Under 35 U.S.C. § 103(a) In View of AWS
<p><b>Claim 3</b></p> <p>3. A method as in claim 1 wherein said original message data comprises at least one field of data selected from the group consisting of date data, time data, customer number data, materials data, quantity data and amount data.</p>	<p>This claim was previously addressed in the claim chart attached as C-1, where it was demonstrated that the claim was anticipated under 35 U.S.C. § 102 by AWS.</p> <p>In addition to being anticipated by AWS, this claim is also rendered obvious under 35 U.S.C. § 103(a) by AWS (as applied to claims 1 and 3 in the claim chart attached as C-1), in view of Leymann '633.</p> <p>Specifically, Leymann '633 teaches that the main purpose of the audit trail is to capture the history of the execution of a process instance. Leymann '633 further notes that "[m]ost workflow management systems store the audit trail directly into a relational database. The audit trail contains a record for each major event, such as the start or termination of a process or an activity. Leymann '633, col. 9, lines 21-39. Leymann '633 further teaches that the audit trail records can have a "timestamp field," containing the date and time of the event being recorded, and a "user field," which provides a mechanism for storing in the audit trail user data that is associated with the given process instance. Such "user data" could include a "customer number or the amount of a loan." Leymann '633, col. 9, line 42 to col. 10, line 15; FIGURE 1.<sup>9</sup></p>

<sup>9</sup> It would have been obvious to combine AWS and Leymann '633, as both references discuss the FlowMark workflow management system. See, AWS at pg. vii; Leymann '633 at col.4, lines 35-37.

**D. BUHANNIC (U.S. Patent Application Publication No. 2002/0038276) Claims 1, 42, 55 and 58 are Anticipated under 35 U.S.C. § 102 by Buhannic.**

Buhannic was filed on June 26, 2001, claiming priority to U.S. Provisional Patent Application No. 60/214,256, filed on June 26, 2000, (before the filing of the '749 Patent). Buhannic was published on March 28, 2002.<sup>10</sup> Buhannic was not cited by the applicant nor discovered by the Examiner during prosecution of the '749 Patent. Consequently, with respect to the '749 Patent, Buhannic is prior art which was not previously considered. Buhannic presents a new, non-cumulative technological teaching that was not previously considered and discussed on the record during the prosecution of the application that resulted in the '749 Patent for which reexamination is requested, and during the prosecution of any other prior proceedings involving the '749 Patent for which reexamination is requested.

Generally speaking, Buhannic teaches using a message broker server to track the status of a securities trade by monitoring messages related to that trade that the message broker server passes between the computers conducting the trade. (See, Buhannic, Abstract, [0002], [0010]).

**1. Buhannic's Application to Claim 1**

Buhannic discloses the use of a Java Message Service compliant message broker server (an **asynchronous messaging environment**) to pass messages between servers involved in a securities trade. The messages passed between the servers through the message broker server are **original messages**. Buhannic further teaches monitoring the messages passed by the various servers involved in a particular trade at the message broker server in order to track the status of that trade. More specifically, Buhannic discloses that the content (**original message data**) of a message (**original message**) sent from a server can include status information for transactions (**status of an activity**) implemented using that server. When the message broker server receives a message from a server related to a particular trade, the

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<sup>10</sup> According to the prosecution history for Buhannic, the applicant received an office action on September 11, 2002, rejecting the claims. Applicant then abandoned the application.

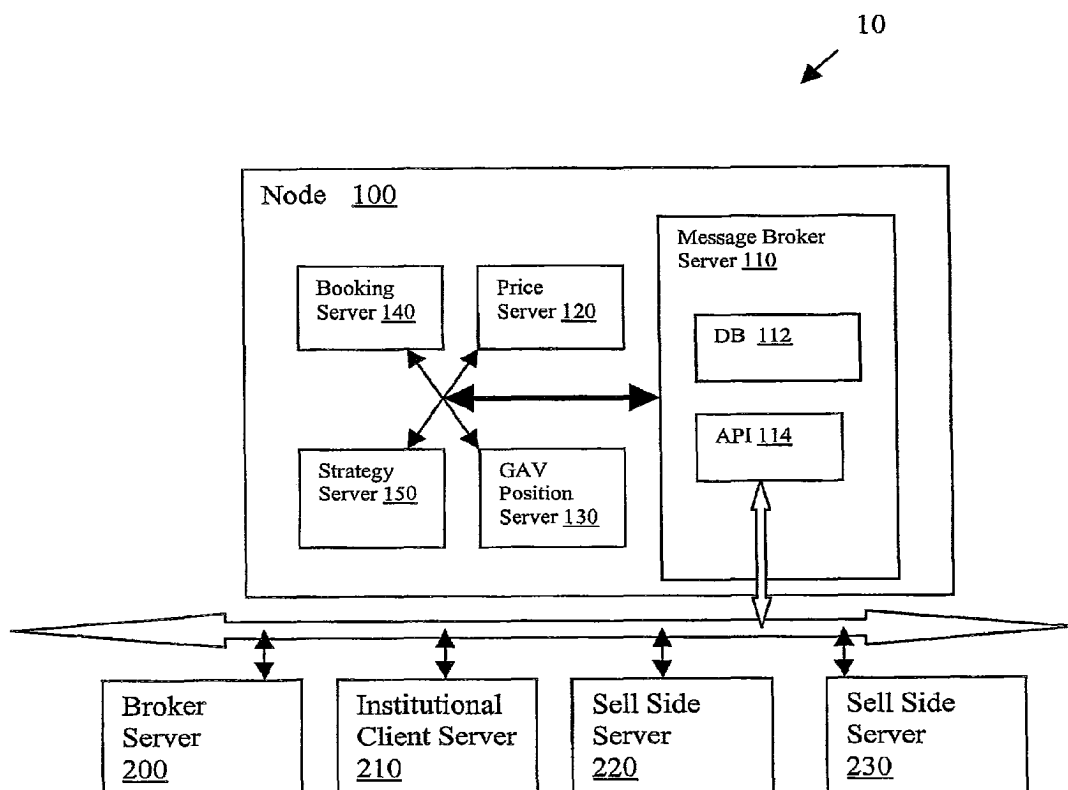
message broker server determines the status of that trade based on the content of the message received and sends the status of the trade by a separate communication (a **monitoring message**) to a centralized database (**central message repository**). A record (**transaction record**) in the centralized database associated with that trade is then updated with that status.

- a. **A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising**

Buhannic teaches the use of a message broker server to pass messages between servers involved in the trade of a security and to track the status of the trade by monitoring these messages. The message broker server of Buhannic is Java Message Service (JMS) compliant. JMS is an asynchronous messaging system developed by Sun (similar to IBM's MQSeries). Thus, the securities trading and status tracking of Buhannic occur in an **asynchronous messaging environment**.

Buhannic may be better explained with reference to FIGURE 1, reproduced below:

FIG. 1



Buhannic, FIGURE 1.

A securities trade is comprised of a set of events. See, Buhannic, paragraph [0009]. Servers such as broker server 200, sell side server 220, institutional client server 210, etc., communicate via messages (**original messages**) to accomplish the set of events comprising the securities trade. Buhannic teaches that message broker server 110 interfaces with these servers to provide the messaging service (e.g., JMS) by which the servers pass these messages. See, Buhannic, paragraph [0014]. A message passed by a server can include data (**original message data**) reflecting the status of a process being implemented by that server. See, Buhannic, paragraph [0016].

- b. **providing, through a monitoring message, at least part of said original message data to a central message repository;**

As discussed above, all messages (**original messages**) passed between servers involved in a securities trade pass through the message broker server 110. See, Buhannic, paragraph [0017]. When a server involved in that trade passes a message, the server can include, in the message, data (**original message data**) reflecting the status of a process being implemented by that server.

The message broker server 110 tracks the status of a securities trade throughout all phases of the trade process using the messages passed by the servers involved in the trade. See, Buhannic, paragraphs [0015], [0022]. More specifically, when the message broker server 110 receives each message (**an original message**) associated with a particular trade, it determines the status of the trade based on the content of the message and sends by a separate communication (**monitoring message**) the status of the trade reflected in the message received from the server (**original message data**) to a centralized database 112 (**central message repository**) so the status of the trade can be updated. See, Buhannic, paragraph [0020].



- c. **populating a transaction record in said central message repository with said original message data provided by said monitoring message;**

The status of the trade (**original message data**) is stored in the centralized database 112, in a record (**transaction record**) associated with that trade. The record may be associated with an identifier such as a "Transaction No." See, Buhannic, paragraphs [0017]-[0019]. Upon receipt of each subsequent message relating to that trade, the record (transaction record) in the centralized database 112 associated with that trade is updated with the current status using the content of the message. See, Buhannic, paragraphs [0015], [0020], and [0022].

- d. **wherein said original message data comprises the status of an activity.**

The status of the trade (**original message data**) sent to the centralized database 112 can include status information for a transaction (**status of an activity**) associated with a trade being carried out by an entity associated with the server which sent the message (original message) received by the message broker server 110. See, Buhannic, paragraph [0020]. Examples of such status information, indicating the status of the trade transaction, include "Registered", "Credit Approved", "Executed", etc. See, Buhannic, paragraphs [0017]-[0019], and [0021].

## **2. Claims Chart Mapping of Buhannic to the Claim Limitations of Claims 1, 42, 55 and 58 of the '749 Patent.**

As demonstrated above, Buhannic raises substantial new questions of patentability with respect to the claims of the '749 Patent. A full claims chart mapping Buhannic to the claim limitations of the applicable claims of the '749 Patent is found in **Appendix "D."** For the convenience of the Examiner, the portion of the claims chart for representative claim 1 is reproduced below.

Claim Language of '749 Patent	Portion of U.S. Patent Application Publication No. 2002/0038276 That Meets the Limitation
<p><b>Claim 1</b></p> <p>1. A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:</p>	<p><b>Asynchronous Messaging Environment</b></p> <p>At paragraph [0014] Buhannic describes a trade state processing system having a node including a message broker server coupled to the servers in the trade processing system. Paragraph [0014] specifies that the message broker server may be Java Message Service (JMS) compliant. The Java Message Service was a well-known asynchronous messaging service.</p> <p><b>Original Message</b></p> <p>Paragraph [0017] of Buhannic describes how the message broker server tracks messages between the servers to coordinate the trading of securities. The messages between the servers are original messages.</p> <p><b>Original Message Data</b></p> <p>Paragraph [0016] of Buhannic describes how each server can include status information for transaction in messages passed by that server. This status information is original message data.</p>
<p>providing, through a monitoring message, at least part of said original message data to a central message repository;</p>	<p><b>Monitoring Message</b></p> <p>At paragraph [0020], Buhannic discloses that, when a message related to a trade is received by the message broker server, the contents of the message are used to determine the status of a trade. The status of the trade is then updated in the centralized database. In order to update the centralized database, a message must be sent from the message broker server to the central database. The message from the message broker server to the central database is a monitoring message.</p> <p><b>Central Message Repository</b></p> <p>Paragraph [0022] of Buhannic describes the use of a centralized database to track the trade status through all phases of a trade process and among the disparate systems.</p>

<p>populating a transaction record in said central message repository with said original message data provided by said monitoring message;</p>	<p><b>Transaction Record</b></p> <p>Paragraph [0017] describes creating a record in the central database associated with a trade. The record may be associated with, for example, a transaction number. Buhannic at paragraphs [0017]-[0019]. The record is updated with the trade state as described at paragraph [0020]. The update to the record may occur, for example, by inserting the proper state between the applicable tags of the record. This record is a transaction record.</p> <p>When a trade request message is received, a state model, i.e. a dynamic record of the request, is created in centralized database 112 and a proper state is assigned to the record. Buhannic at paragraph [0017]. The trade state may be correlated to a transaction number or other indicator in the record. Buhannic at paragraphs [0017]-[0019]. The record can be constantly updated with the status of each trade between the various parties at any time. Buhannic at paragraph [0020]. Upon receipt of each subsequent message relating to a trade the message broker updates the trade state by inserting the proper state between the "state" tags in the XML child element. Buhannic at paragraph [0020]</p> <p>As discussed above, the status used to update the record in the centralized database 112 can be included in an original message sent from a server. Thus, Buhannic discloses the step of populating a record (a transaction record) in a centralized database (a central message repository) with data (original message data) from a message received by the message broker server relating to a given trade.</p>
<p>wherein said original message data comprises the status of an activity.</p>	<p><b>Status of an Activity</b></p> <p>Paragraph [0016] of Buhannic describes how each server can include status information for a transaction in messages passed by that server. The data (original message data) in each of the messages passed by these servers is used to determine a new status of the trade (status of an activity) as discussed at paragraph [0020]. Thus, as described at paragraph [0022] the status of a trade can be tracked throughout all phases of the trade process and amongst the disparate system.</p> <p>Examples of such status is given in paragraphs [0017]-[0019] and [0021] and include statuses such as "Registered", "Credit Approved", "Executed", etc.</p>

## VII. CONCLUSION

The documents referenced above were not disclosed or considered during the prosecution of the '749 Patent. These prior art documents anticipate and/or render obvious the claims in the '749 Patent, as described above. Consequently, it is respectfully requested that reexamination be granted as to all claims in the '749 Patent based upon substantial new questions of patentability. It is further respectfully requested that each of claims 1 through 58 be rejected over the prior art for the reasons described above.

Dated: November 1, 2011

Respectfully submitted,

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# **APPENDIX “A”**

## **CLAIMS CHART MAPPING**

### **PRODUCTION WORKFLOW**

#### **TO THE CLAIM LIMITATIONS OF CLAIMS 1 – 58 OF THE '749 PATENT**

Claim Language of '749 Patent	Portion of Production Workflow That Meets the Limitation
<b>Claim 1</b>	
<p>1. A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:</p>	<p><b>Asynchronous Messaging Environment</b></p> <p>At Sec. 10.2, pgs. 364-367 and FIGURE 10.10, Production Workflow discloses a workflow management system having a server with multiple server components which interface with various clients for implementing activities that make up certain processes. The workflow system is implemented using messaging as the underlying communication mechanism both between the servers of the workflow management system and between such servers and the clients of the workflow management system. <i>See also</i>, Sec. 1.11, pg. 16.</p> <p>As described at Sec. 3.4.4, pg. 92 and Sec. 10.5.1, pgs. 378-379 of Production Workflow, messaging is used to asynchronously invoke activity implementations on the clients of the workflow management system.</p> <p>At Sec. 9.4.2, pgs. 319-335, Production Workflow describes asynchronous messaging systems and points out (at pg. 320) that one example of such a messaging system is MQSeries.</p> <p>Communication between the various pieces of an application can happen in two inherently different manners: synchronously and asynchronously. Production Workflow at Sec. 9.4, pg. 317. <i>See also</i>, FIGURES 9.9, Sec. 9.13. "[T]he appropriate component is invoked by sending a message to the component. The target component...sends back a message that contains the output container and other appropriate information, such as a return code. It should be noted that this...works asynchronously." Production Workflow at Sec. 3.4.4, pg. 92. The concept of message queuing as the underlying communication mechanism is not only used between clients and the server but also between the servers. When a component needs services from another component, it sends a message using the queue name of the appropriate component. Production Workflow at Sec. 10.2, pg. 364; <i>See also</i>, Secs. 9.4.2-9.6.3, pgs. 319-335; FIGURES 10.9, 10.10</p> <p><b>Original Message</b></p> <p>As described at Sec. 3.4.4, pg. 92 and Sec. 10.5.1, pgs. 378-379 of Production Workflow, messaging is used by a workflow management server to asynchronously invoke</p>

	<p>activity implementations on clients by sending a message containing input data. When the activity implementation is complete, a message containing an output container is communicated to the workflow management server by the activity implementation. Each of these messages is an original message.</p> <p><b>Original Message Data</b></p> <p>As described at Sec. 3.4.4, pg. 92 and Sec. 10.5.1, pgs. 378-379 of Production Workflow, messaging is used by a workflow management server to asynchronously invoke activity implementations on clients by sending a message containing input data. When the activity implementation is complete, a message containing an output container is communicated to the workflow management server by the activity implementation. Thus, the output container included in a message communicated to the workflow management server is original message data.</p>
<p>providing, through a monitoring message, at least part of said original message data to a central message repository;</p>	<p><b>Monitoring Message</b></p> <p>As described at Sec. 10.2, pg. 366 of Production Workflow, access to the database of the workflow management system is accomplished through the DBMS server using a DBMS client. Messaging is the underlying communication mechanism used between clients and servers and between servers and servers, as discussed at Sec. 10.2, pg. 364.</p> <p>The use of messaging to communicate data to be stored in the database is further explained at Sec. 9.3.1, pg. 317, which notes that a database management client is responsible for handling messages related to stored procedure invocation and returning responses.</p> <p>Production Workflow further describes how the output container received in a message from the activity implementation is stored in this database. For example, at Sec. 2.7.1, pg. 45, Production Workflow describes how the workflow management system stores an entry in the audit trail for all relevant actions, such as the start and completion of an activity. The entry in the audit trail contains all of the important information about the event, such as the type of event, the activity associated with the event, the input passed to the activity, the output produced by the activity and the time the event occurred.</p> <p>As another example, at Sec. 7.6, pgs. 274-277, Production Workflow describes how output containers received in</p>

	<p>messages from activity implementations are stored in the database, along with the other context of each process instance. See <i>also</i>, pg. 57.</p> <p>Thus, the message sent from the workflow management system to the DBMS server with the output container (original message data) is a monitoring message.</p> <p><b>Central Message Repository</b></p> <p>At Sec. 10.2, pgs. 364-367 and FIGURE 10.10, Production Workflow discloses a workflow management system that has a server with multiple server components and clients for implementing activities. One of the server components is a DBMS server used to access a centralized database.</p>
<p>populating a transaction record in said central message repository with said original message data provided by said monitoring message;</p>	<p><b>Transaction Record</b></p> <p>Sec. 10.13, pgs. 412-419 gives an example of a simple schema for the central database, such that a record is stored for a process instance and a record is stored for each activity instance associated with that process instance, where the record for the process instance and the record for each of the activity instances are associated using a process identifier (PID).</p> <p>Production Workflow describes at Sec. 2.7.1, pg. 45 how entries contain information such as the input passed to the activity and the output produced by the activity. Additionally, at Sec. 7.6, pgs. 274-277, Production Workflow describes how output containers received in messages from activity implementations are stored in the database, along with the other context of each process instance. Thus, it can be known which activities have been completed, which activities are active, etc.</p> <p>Accordingly, the input data passed to each activity in a message and the output container received from each activity in a message (original message data) is stored in association with the record for a given process.</p>



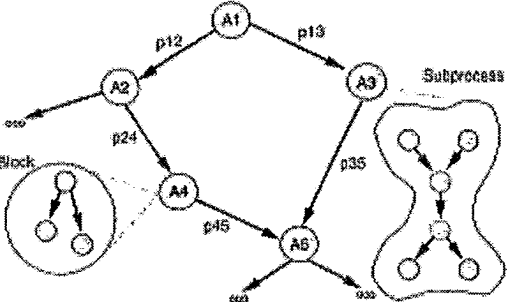
<p>wherein said original message data comprises the status of an activity.</p>	<p><b>Status of an Activity</b></p> <p>Production Workflow discusses various examples of statuses that may be contained in an output container received in a message from an activity implementation. For example, the output containers for an activity may contain such values as activityState, Return Code (RC), Location, Flight Price Limit, Hotel Price Limit, Finished, Error Report Number, All Flights Confirmed, Fare, All Hotels Confirmed, etc. See, Production Workflow, Sec. 2.7.1, pg. 45; Sec. 3.6, pgs. 105-106; Sec. 10.13, pgs. 412-427; and Appendix A, pgs. 449-462.</p> <p>Data member activityState holds the state of the activity instance. Production Workflow at Sec. 10.15, pg. 421.</p> <p>Moreover, Sec. 3.5.3, pgs. 101-102 describes, and FIGURES 3.18 and 3.19 graphically depict that the status of an activity is in the input container passed to an activity or an output container received from an activity. Note that in FIGURE 3.18 this status, as viewed by a user, is "Running," while in FIGURE 3.19 the activity is "Collect Customer Information" and the status is listed as "Ready."</p>
<p><b>Claim 2</b></p> <p>2. A method as in claim 1 further comprising reviewing data collected in said transaction record.</p>	<p>At Sec. 2.7.1, pgs. 44-45, Production Workflow describes how the audit trail written by the workflow management system can be analyzed using data mining technology.</p> <p>At Sec. 2.7.2, pgs. 45-46, Production Workflow describes how the audit trail, including information on each of the activities, is processed to derive a process model.</p> <p>At Sec. 2.11, pgs. 59-60, Production Workflow describes how the audit trail can be examined.</p> <p>At Sec. 3.7.1, pg. 107, Production Workflow describes functions that are provided to locate processes and query their current state and processing history, including the current state of each of the activities.</p> <p>At Sec 2.9.3, pg. 52, Production Workflow describes the derivation of probabilities through the processing of the audit trail written by the workflow management system.</p>

<p><b>Claim 3</b></p> <p>3. A method as in claim 1 wherein said original message data comprises at least one field of data selected from the group consisting of date data, time data, customer number data, materials data, quantity data and amount data.</p>	<p>Production Workflow discusses various examples of statuses that may be contained in an output container received in a message from an activity implementation. For example, the output containers for an activity may contain such values as activityState, Return Code (RC), Location, Flight Price Limit, Hotel Price Limit, Finished, Error Report Number, All Flights Confirmed, Fare, All Hotels Confirmed, etc. See, Production Workflow, Sec. 2.7.1, pg. 45; Sec. 3.6, pgs. 105-106; Sec. 10.13, pgs. 412-427; and Appendix A, pgs. 449-462.</p>
<p><b>Claim 4</b></p> <p>4. A method as in claim 1 wherein said original message data comprises at least one field selected from the group consisting of PROCESS IDENTIFIER, SUB-PROCESS IDENTIFIER, ACTIVITY IDENTIFIER, CUSTOMER NUMBER, PART NUMBER, QUANTITY, DATE and TIME.</p>	<p>Production Workflow discusses various examples of data that may be contained in an output container received in a message from an activity implementation. For example, the output containers for an activity may contain such values as Process Identifier (PID), Activity Identifier (AID), Arrival date, Valid From date, customer, departure date, departure time, arrival date, arrival time, etc. See, Production Workflow, Sec. 2.7.1, pg. 45; Sec. 3.6, pgs. 105-106; Sec. 10.13, pgs. 412-427; and Appendix A, pgs. 449-462.</p>
<p><b>Claim 5</b></p> <p>5. A method as in claim 1 wherein said original message data comprises at least one field selected from the group consisting of ProID, SbProID, Custno, Partno, Qty, Date and Time.</p>	<p>Production Workflow discusses various examples of data that may be contained in an output container received in a message from an activity implementation. For example, the output containers for an activity may contain such values as Process Identifier (PID), Arrival date, Valid From date, customer, departure date, departure time, arrival date, arrival time, etc. See, Production Workflow, Sec. 2.7.1, pg. 45; Sec. 3.6, pgs. 105-106; Sec. 10.13, pgs. 412-427; and Appendix A, pgs. 449-462.</p>
<p><b>Claim 6</b></p> <p>6. A method as in claim 1 further comprising providing the status of a process by providing access to said central message repository.</p>	<p>At Sec. 3.7.1, pg. 107, Production Workflow describes functions that are provided to locate processes and query their current state and processing history, including the current state of each of the activities. This current state and processing history is stored in the database of the workflow management system.</p>

<p><b>Claim 7</b></p> <p>7. A method as in claim 1 further comprising adding, to said monitoring message, data other than said original message data.</p>	<p>At Sec. 9.6.3, pg. 335, Production Workflow describes how messages may be annotated by combining the message with operational data from a database or with data from other messages.</p> <p>Production Workflow also describes at Sec. 5.4, pgs. 196-198 that the output container received from an activity may be processed by a dematerialization chain before it is stored in the database. The dematerialization chain may comprise a set of programs that can process the output container received from an activity before it is stored in the database. A program in the dematerialization chain may, for example, modify the data of the output container, add data to the output container or substitute other information in the output container before it is stored. The output container with the enriched, additional or substitute data is then stored in the database.</p>
<p><b>Claim 8</b></p> <p>8. A method as in claim 1 further comprising updating said transaction record.</p>	<p>At Sec. 2.7.1, pg. 45, Production Workflow describes how the workflow management system stores an entry in the audit trail for all relevant actions such as the start and completion of an activity. The entry contains all important information about the event, such as the type of event, the activity associated with the event, the input passed to the activity, the output produced by the activity and the time the event occurred. As another example, at Sec. 7.6, pgs. 274-277, Production Workflow describes how output containers received in messages from activity implementations are stored in the database, along with the other context of each process instance.</p> <p>Furthermore, at Sec. 10.13, pg. 415, Production Workflow describes how an entry is created in the process instance table and how multiple activity entries are created and associated with the entry in the process instance table.</p> <p>Thus, an update to a transaction record occurs whenever a relevant action occurs, for example, when a message is received from an activity with an output container, when an activity starts or ends, etc.</p>

<b>Claim 9</b>	
9. A method as in claim 8 further comprising updating said transaction record by:	
providing, through a second monitoring message, a second original message data to said transaction record; and,	Production Workflow at Sec. 2.2, pgs. 33-35 and Appendix A, pgs. 449-462 describes a process with multiple activities. Thus, during the execution of such a process, each of the activities would return a message with an output container. When each of these messages is received, the transaction record is populated with the output container contained in that message. <i>See also</i> , Claim 1, above.
populating said transaction record with said second original message data provided by said second monitoring message.	See, Claim 1, above.
<b>Claim 10</b>	
10. A method as in claim 1 further comprising completing a process.	At Sec. 10.13, pg. 414, Production Workflow discloses that an entry in the process instance table has a "State" field. At Sec. 3.5.1, pgs. 98-99, Production Workflow identifies examples of states for a process. These include "Finished," "Deleted," "Terminating" and "Terminated." <i>See also</i> , FIGURE 3.16 at pg. 98.
<b>Claim 11</b>	
11. A method as in claim 10 further comprising completing said transaction record.	At Sec. 3.5.1, pgs. 98-99, Production Workflow identifies examples of states for a process. These include "Finished," "Deleted," "Terminating" and "Terminated." When a process is in the "Finished" state, for example, no more activities are carried out for that process. Thus, the transaction record associated with that process is completed. <i>See also</i> , FIGURE 3.16 at pg. 98.
<b>Claim 12</b>	
12. A method as in claim 1 further comprising aborting a process.	At Sec. 3.5.1, pgs. 98-99, Production Workflow identifies examples of states for a process. These include "Suspended," "Deleted," "Terminating" and "Terminated." <i>See also</i> , FIGURE 3.16 at pg. 98.
<b>Claim 13</b>	
13. A method as in claim 12 further comprising providing, in said transaction record, an indication that the record has been abandoned.	At Sec. 10.13, pg. 414, Production Workflow discloses that an entry in the process instance table has a "State" field. At Sec. 3.5.1, pg. 98, Production Workflow identifies examples of states for a process. These include "Finished," "Deleted," "Terminating" and "Terminated."

<b>Claim 14</b>	
<p>14. A central message repository created by the method of claim 1.</p>	<p>At Sec. 10.2, pgs. 364-367, and FIGURE 10.10, Production Workflow discloses a workflow management system which has a server with multiple server components and clients for implementing activities. One of the servers is a DBMS server used to access a centralized database.</p> <p>At Sec. 2.7.1, pg. 45, Production Workflow describes that such a database is used to store an entry in the audit trail for all relevant actions such as the start and completion of an activity. The entry contains all important information about the event, such as the type of event, the activity associated with the event, the input passed to the activity, the output produced by the activity and the time the event occurred.</p> <p><i>See also, Claim 1, above.</i></p>
<b>Claim 15</b>	
<p>15. A transaction record created by the method of claim 1.</p>	<p>Sec. 10.13, pgs. 412-419 of Production Workflow gives an example of a simple schema for a database, such that a record is stored for a process instance and a record is stored for each activity instance associated with that process instance, where the record for the process instance and the record for each of the activity instances are associated using a process instance identifier (PID).</p> <p>Production Workflow describes at Sec. 2.7.1, pg. 45 how entries in the audit trail contain information such as the input passed to the activity and the output produced by the activity. Additionally, at Sec. 7.6, pgs. 274-277, Production Workflow describes how output containers received in messages from activity implementations are stored in the database, along with the other context of each process instance. Thus, it can be known which activities have been completed, which activities are active, etc.</p> <p>Accordingly, the process record for a given process and the activity records for each of the activities of such process are associated with the input passed to each activity in a message and the output container received from each activity in a message.</p>

<p><b>Claim 16</b></p> <p>16. A method as in claim 1 wherein said status of a process is a simulated process.</p>	<p>At Sec. 2.9, pgs. 49-54, Production Workflow describes the simulation of a process, the execution of the activities of the process and the collection of state information, including, for example, the amount of time for the occurrence of each of the activities of the process.</p>
<p><b>Claim 17</b></p> <p>17. A method as in claim 1 wherein said original message data is simulated original message data.</p>	<p>At Sec. 2.9, pgs. 49-54, Production Workflow describes the simulation of a process, the execution of the activities of the process and the collection of state information. As the process is being simulated, at least some of this state information would necessarily come from simulated message data.</p>
<p><b>Claim 18</b></p> <p>18. A method as in claim 1 further comprising providing the status of a sub process by providing access to said central message repository.</p>	<p>As described in Production Workflow, a process comprises a set of activities. Production Workflow further describes at Sec. 2.1, pg. 32, Sec. 3.4.2, pgs. 85-86 and Sec. 4.3.1, pg. 129 that an activity of a process can itself be implemented as a process. A process implementing an activity of another process is referred to as a subprocess or child process while the process containing the activity implemented by the subprocess is referred to as the parent process.</p> <p>This is illustrated in FIGURE 3.4 on pg. 79, which shows a parent process comprising activities "A1" through "A5". Activity "A3" of the parent process is implemented as a subprocess:</p>  <p>At Sec. 3.4.3, pg. 87 and Sec. 10.7.2, pg. 392, Production Workflow describes how a subprocess is spawned from a process. As with any other activity of the parent process, an input container is sent to the subprocess via a message and a message with an output container is received from the subprocess after it is complete. This output container is then stored in the database in association with the entry for that activity (i.e. the activity which was implemented by</p>

	<p>the subprocess) in the parent process.</p> <p>Thus, for each activity implemented as a subprocess, the workflow management system would store the same data that would be stored for any other activity (e.g. the output container, the return code, etc.). The stored data would include the status of that activity which, in the case of an activity being implemented by a subprocess, would be the status of the subprocess.</p> <p>Furthermore, as described at Sec. 3.4.3, pgs. 87-89 of Production Workflow, a subprocess can be a local (as opposed to a remote) subprocess, meaning that it is carried out by the same workflow management system that is carrying out the parent process. Thus, when a subprocess is local, the workflow management system writes all of the audit trail information for that subprocess (including the activities making up the subprocess) to its database in addition to the audit trail information for the parent process.</p> <p>All audit trail information for the parent process is also written to the database of the workflow management system. As noted at Sec. 3.6, pg. 106, when events that occur in a subprocess are written in the audit trail the appropriate parent process identifier is also written so the correlation can be made between events that occurred during execution of the subprocess and events that occurred with respect to the parent process.</p> <p>At Sec. 3.7.1, pg. 107, Production Workflow describes functions that are provided to locate processes and query their current state and processing history, including the current state of each of the activities. As an activity can be implemented as a subprocess, Production Workflow describes providing the status of a sub process by providing access to said central message repository.</p>
<b>Claim 19</b>	
<p>19. A method as in claim 1 further comprising providing the status of an activity by providing access to said central message repository.</p>	<p>At Sec. 3.7.1, pg. 107, Production Workflow describes functions that are provided to allow users to locate processes and query their current state and processing history, including the current state of each of the activities of the process. This current state and processing history is stored in the database of the workflow management system.</p>

<p><b>Claim 20</b></p> <p>20. A method as in claim 1 wherein said status of a sub process is a simulated process.</p>	<p>At Sec. 2.9, pgs. 49-54, Production Workflow describes the simulation of a process, the execution of the activities of the process and the collection of state information. As the process is being simulated, at least some of this state information would necessarily come from a simulated activity. As an activity can be implemented as a subprocess, the state information collected can be the status of a subprocess.</p>
<p><b>Claim 21</b></p> <p>21. A method as in claim 1 wherein said status of an activity is a simulated process.</p>	<p>At Sec. 2.9, pgs. 49-54, Production Workflow describes the simulation of a process, the execution of the activities of the process and the collection of state information. As the process is being simulated, at least some of this state information would necessarily come from a simulated activity and simulated process.</p>
<p><b>Claim 22</b></p> <p>22. A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:</p>	<p>See, Claim 1, above.</p>
<p>monitoring a process, which is comprised of at least a first and second sub process, by generating original message data from each of said first and second sub process;</p>	<p>See, Claim 1, above.</p> <p>Production Workflow at Sec. 2.2, pgs. 33-35 and Appendix A, pgs. 449-462 describes a process with multiple activities. Production Workflow further describes, at Sec. 2.1, pg. 32, Sec. 3.4.2, pgs. 85-86 and Sec. 4.3.1, pg. 129 that an activity of a process can itself be implemented as a process. See <i>also</i>, Claim 18, above. Thus, a process may comprise multiple activities implemented as subprocesses.</p> <p>Production Workflow describes at Sec. 3.4.3, pg. 87 and Sec. 10.7.2, pg. 392 how a subprocess is spawned from a process. As with any other activity of the parent process, an input container is sent to the subprocess via a message and an output container is received from the subprocess via a message. Thus, for each activity implemented as a subprocess, that subprocess will generate a message containing an output container.</p>



transmitting said original message data from said first sub process, via a first monitoring message, to a central message repository;	See, Claim 1, above.  For each activity implemented as a subprocess, the workflow management system controlling the parent process would store the same data that would be stored for any other activity (e.g. the input data, output container, the return code, etc.).
storing said original message data from said first sub process, in a transaction record in said central message repository;	See, Claim 1, above.  As an activity may be implemented as a subprocess, the activity entry for an activity implemented as a subprocess would be associated with the input passed to the subprocess in a message and the output container received from the subprocess in a message.
transmitting said original message data from said second sub process, via a second monitoring message, to said central message repository; and,	A process may comprise multiple activities implemented as subprocesses. See also, above description with respect to first subprocess.
storing said original message data from said second sub process, in said transaction record in said central message repository;	A process may comprise multiple activities implemented as subprocesses. See also, above description with respect to first subprocess.
wherein said original message data comprises the status of said sub processes.	See, Claim 1, above.  As an activity may be implemented as a subprocess, the same type of statuses may be contained in input data passed to a subprocess using a message or in an output container received in a message from a subprocess.
<b>Claim 23</b>	
23. A method as in claim 22 further comprising determining the status of said process.	At Sec. 3.7.1, pg. 107, Production Workflow describes functions that are provided to locate processes and determine their current state and processing history.
<b>Claim 24</b>	
24. A method as in claim 22 wherein said original message data from each of said first and second sub processes comprises a sub process specific set of data.	As described at Sec. 3.4.4, pg. 92 and Sec. 10.5.1, pgs. 378-379 of Production Workflow, messaging is used by a workflow management server to asynchronously invoke activity implementations on clients by sending a message containing input data for that activity. Output containers are communicated to the workflow management server by the activity implementation using a message when the activity implementation is complete. This output container

	<p>contains data generated by the activity and specific to that activity.</p> <p>Production Workflow describes at Sec. 3.4.3, pg. 87 and Sec. 10.7.2, pg. 392 how a subprocess is spawned from a process. As with any other activity of the parent process, an input container is sent to the subprocess and an output container is received from the subprocess. The input data sent to the subprocess via a message and data in the output container received in the message from the subprocess would comprise data specific to the subprocess implementing the activity.</p>
<b>Claim 25</b>	
25. A method as in claim 22 wherein said first monitoring message further comprises altered original message data.	<p>At Sec. 9.6.3, pg. 335, Production Workflow describes how messages may be annotated by combining the message with operational data from a database or with data from other messages.</p> <p>Production Workflow also describes at Sec. 5.4, pgs. 196-198 that the output container received from an activity may be processed by a dematerialization chain before it is stored in the database. A program in the dematerialization chain may, for example, modify the data of the output container, add data to the output container or substitute other information in the output container before it is stored. The output container with the enriched, additional or substitute data is then stored in the database. <i>See also</i>, Claim 7, above.</p>
<b>Claim 26</b>	
26. A method as in claim 22 wherein said first monitoring message further comprises data added to said original message data.	See, Claim 7, above.
<b>Claim 27</b>	
27. A method as in claim 22 further comprising reviewing said central message repository.	See, Claims 2 and 6, above.

<p><b>Claim 28</b></p> <p>28. A method as in claim 27 wherein reviewing said central message repository further comprises reviewing information from the group consisting of order information, customer information, process efficiency information, snapshot information, time slice information, daily information, weekly information, monthly information, trend information and performance information.</p>	<p>At Sec. 2.9, pgs. 49-54, Production Workflow describes the review of the audit trail for performance, timing, trend, snapshot, process efficiency and other information, including, for example, activity execution frequency, activity duration, etc.</p> <p><i>See also</i>, Claim 6, above.</p>
<p><b>Claim 29</b></p> <p>29. A method as in claim 22 further comprising distributing process progress information in real time.</p>	<p>At Sec. 107, pg. 107, Production Workflow describes how the details of a process may be queried.</p> <p>At Sec. 3.7.2, pg 108, Production Workflow describes how notifications may occur when a particular process is in error.</p> <p>At Sec. 2.11, pg. 59, Production Workflow describes how, when a particular event is inserted into the audit trail of the workflow management system, appropriate messages may be sent. This can be done, for example, through the use of database triggers. Additionally, Production Workflow describes how the process performance monitor provides information about the current status of a process or activity.</p>
<p><b>Claim 30</b></p> <p>30. A method as in claim 29 further comprising distributing said process progress information through broadcasting.</p>	<p>At Sec. 3.7.2, pg. 108, Production Workflow describes how notifications may occur when a particular process is in error.</p> <p>At Sec. 2.11, pg. 59, Production Workflow describes how, when a particular event is inserted into the audit trail of the workflow management system, appropriate messages may be sent. This can be done, for example, through the use of database triggers.</p>

<p><b>Claim 31</b></p> <p>31. A method as in claim 29 further comprising distributing said process progress information through the Internet.</p>	<p>At Sec. 3.10, pg. 115, Production Workflow describes that a user may use a web browser to access the workflow management system. See also, Sec. 10.4.4, pg. 377 and FIGURE 1.13.</p>
<p><b>Claim 32</b></p> <p>32. A method as in claim 29 further comprising distributing said process progress information through Wireless Application Protocol.</p>	<p>See FIGURE 1.13, "Mobile Computing". Mobile computing devices such as smartphones, cellular phones, PDAs, etc., may utilize wireless application protocol (WAP).</p>
<p><b>Claim 33</b></p> <p>33. A method as in claim 29 further comprising distributing said process progress information through an intranet.</p>	<p>At Sec. 3.10, pg. 115, Production Workflow describes that a user may use a web browser to access the workflow management system. See also, Sec. 10.4.4, pg. 377 and FIGURE 1.13. A web browser may operate over any type of network including an intranet.</p>
<p><b>Claim 34</b></p> <p>34. A method as in claim 29 further comprising distributing said process progress information through an extranet.</p>	<p>At Sec. 3.10, pg. 115, Production Workflow describes that a user may use a web browser to access the workflow management system. See also, Sec. 10.4.4, pg. 377 and FIGURE 1.13. A web browser may operate over any type of network including an extranet.</p>
<p><b>Claim 35</b></p> <p>35. A method as in claim 22 further comprising analyzing said central message repository in order to determine a process trend.</p>	<p>At Sec. 2.9, pgs. 49-54, Production Workflow describes the review of the audit trail in the workflow management system database for performance, timing, trend, snapshot, process efficiency and other information, including, for example, the number of process instances, the amount of time the activities of the process take, the processing time of different paths of the process, etc.</p>
<p><b>Claim 36</b></p> <p>36. A method as in claim 35 wherein said process trend is selected from the group consisting of: time between subprocesses, variances by customer, variances by order amount, bottlenecks and seasonal variations.</p>	<p>See, Claim 35, above.</p> <p>As an activity may be implemented as a subprocess, the information outlined in response to Claim 35 above may be time between subprocesses. Additionally, this timing information may indicate bottlenecks.</p> <p>Additionally, Production Workflow discusses at Sec. 3.7.2, pg. 108 how the process monitor presents the current or accumulated states of processes graphically. The monitor may help identify places where work piles up (i.e., a bottleneck).</p>

<p><b>Claim 37</b></p> <p>37. A method as in claim 36 wherein orders may be accelerated as a result of said analysis.</p>	<p>At Sec. 2.6, pg. 42, Production Workflow describes that tools provided by the workflow management system may allow for the analysis of a process such that improvements in measures of performance such as speed, cost, quality and service may be achieved.</p>
<p><b>Claim 38</b></p> <p>38. A method as in claim 22 further comprising providing a monitoring message database.</p>	<p>See, description of central message repository in Claim 1, above.</p> <p>Additionally, with respect to messaging systems, at Sec. 9.6.3, pg. 334, it is described how a messaging system may permanently store messages passed by the messaging system in a message database.</p>
<p><b>Claim 39</b></p> <p>39. A method as in claim 22 further comprising providing a report via an XML link to said central message repository.</p>	<p>At Sec. 1.3, pg. 4, Production Workflow discusses user requests being in XML. At Sec. 10.5.5, pg. 381, Production Workflow discusses that data should be supplied in a format that can be easily processed, such as XML.</p>
<p><b>Claim 40</b></p> <p>40. A method as in claim 22 wherein said second monitoring message further comprises altered original message data.</p>	<p>See, Claim 25, above.</p>
<p><b>Claim 41</b></p> <p>41. A method as in claim 22 wherein said second monitoring message further comprises date added to said original message data.</p>	<p>See, Claim 26, above.</p>
<p><b>Claim 42</b></p> <p>42. An apparatus for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:</p>	<p>See, Claim 1, above.</p>

means for providing, through a monitoring message, at least part of said original message data to a central message repository;	
means for populating a transaction record in said central message repository with said original message data provided by said monitoring message;	
wherein said original message data comprises the status of a.	
<b>Claim 43</b>	
43. An apparatus as in claim 42 further comprising means for reviewing data collected in said transaction record.	See, Claim 2, above.
<b>Claim 44</b>	
44. An apparatus as in claim 42 further comprising means for broadcasting data collected in said transaction record.	See, Claim 30, above.
<b>Claim 45</b>	
45. An apparatus as in claim 42 further comprising means for providing the status of a process by providing access to said central message repository.	See, Claim 6, above.
<b>Claim 46</b>	
46. An apparatus as in claim 42 further comprising means for adding, to said monitoring message, data other than said original message data.	See, Claim 40, above.

<b>Claim 47</b>	
47. An apparatus as in claim 42 further comprising means for providing the status of a sub process by providing access to said central message repository.	See, Claim 18, above.
<b>Claim 48</b>	
48. An apparatus as in claim 42 further comprising means for providing the status of an activity by providing access to said central message repository.	See, Claim 45, above.
<b>Claim 49</b>	
49. An apparatus for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:	See, Claim 22, above.
means for monitoring a process, which is comprised of at least a first and second sub process, by generating original message data from each of said first and second sub process;	
means for transmitting said original message data from said first sub process, via a first monitoring message, to a central message repository;	
means for storing said original message data from said first sub process, in a transaction record in said central message repository;	

means for transmitting said original message data from said second sub process, via a second monitoring message, to said central message repository; and,	
means for storing said original message data from said second sub process, in said transaction record in said central message repository;	
wherein said original message data comprises the status of said sub processes.	
<b>Claim 50</b>	
50. An apparatus as in claim 49 further comprising means for reviewing said central message repository.	See, Claim 27, above.
<b>Claim 51</b>	
51. An apparatus as in claim 49 further comprising means for distributing process progress information through broadcasting.	See, Claim 30, above.
<b>Claim 52</b>	
52. An apparatus as in claim 49 further comprising means for providing a monitoring message database.	See, Claim 38, above.
<b>Claim 53</b>	
53. An apparatus as in claim 49 further comprising means for providing a report via an XML link to said central message repository.	See, Claim 39, above.



<b>Claim 54</b>	
54. An apparatus as in claim 49 further comprising means for distributing said process progress information through Wireless Application Protocol.	See, Claim 32, above.
<b>Claim 55</b>	
55. A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:	See, Claim 1, above.
providing, through a monitoring message, at least part of said original message data to a central message repository;	
populating a transaction record in said central message repository with said original message data provided by said monitoring message;	
wherein said original message data comprises the status of a process.	
<b>Claim 56</b>	
56. A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:	See, Claim 1, above. An activity can be implemented as a subprocess. See <i>also</i> , Claim 18, above.
providing, through a monitoring message, at least part of said original message data to a central message repository;	

populating a transaction record in said central message repository with said original message data provided by said monitoring message;	
wherein said original message data comprises the status of a sub process.	
<b>Claim 57</b>	
57. An apparatus for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:	See, Claim 1, above. An activity can be implemented as a subprocess. See <i>also</i> , Claim 18, above.
means for providing, through a monitoring message, at least part of said original message data to a central message repository;	
means for populating a transaction record in said central message repository with said original message data provided by said monitoring message;	
wherein said original message data comprises the status of a sub process.	
<b>Claim 58</b>	
58. An apparatus for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:	See, Claim 1, above.

means for providing, through a monitoring message, at least part of said original message data to a central message repository;	
means for populating a transaction record in said central message repository with said original message data provided by said monitoring message;	
wherein said original message data comprises the status of an activity.	

# **APPENDIX “B-1”**

## **CLAIMS CHART MAPPING OF**

### **BLACKWELL**

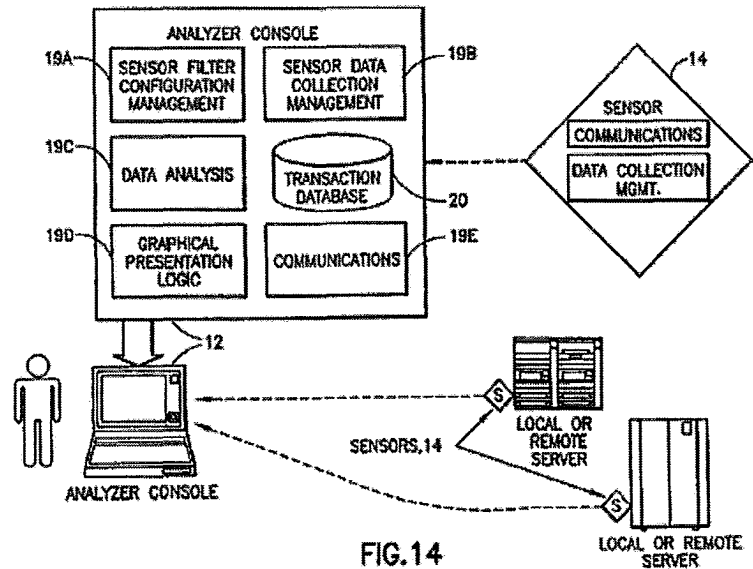
**TO THE CLAIM LIMITATIONS OF  
CLAIMS 1-6, 8-11,  
14-17, 19, 21, 42, 43, 45, 46, 48, 55,  
AND 58 OF THE '749 PATENT**

Claim Language of '749 Patent	Portion of U.S. Patent No. 7,003,781 That Meets the Limitation
<p><b>Claim 1</b></p> <p>1. A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:</p>	<p><b>Asynchronous Messaging Environment</b></p> <p>The Blackwell patent describes at col. 15, lines 16-26 that the message passing technique can be a message-oriented middleware system such as MQSeries that operates with the components of the system to perform messaging so that the various programs and applications can run asynchronously.</p> <p>At col. 3, lines 43-48, Blackwell describes a method and system for monitoring the operation of a distributed data processing system, including a plurality of applications running on a plurality of host processors and communicating with one another through a message passing technique.</p> <p><b>Original Message/Original Message Data</b></p> <p>As discussed above for "asynchronous message environment," messages can be passed between applications using MQSeries. These messages are original messages containing original message data.</p>
<p>providing, through a monitoring message, at least part of said original message data to a central message repository;</p>	<p><b>Monitoring Message</b></p> <p>Blackwell discloses that a sensor operates to monitor the API calls from a user application to a queue manager, including, for example, MQPUT and MQGET . See, Blackwell, col. 12, lines 66-67; col. 7, lines 7-9; col. 4, lines 3-4; col. 4, line 64 to col. 5, line 13; and col. 14, lines 59-61. It is inherent that such API calls include a message header and a message buffer containing the message, itself (the original message containing original message data). See, Blackwell, col. 6, lines 54-57; col. 7, lines 28-33; col. 11, lines 42-50; col. 15, lines 50-55; and col. 16, lines 43-46.</p> <p>Blackwell describes intercepting an API call and generating an event comprising all or a portion of the data of the original message. See, Blackwell, col. 3, lines 53-54; col. 4, lines 5-9; col. 6, lines 53-57; col. 11, lines 42-51; and col. 15, lines 51-55.</p> <p>As further described by Blackwell at col. 5, lines 26-36 and col. 15, lines 61-63, MQSeries may then be used to send</p>

an event message containing the event to a database for storage. The event message is a monitoring message, containing original message data.

### Central Message Repository

The event message is stored in a database as described at col. 15, lines 61-63 and FIGURES 13 and 14. FIGURE 14, set out below, discloses that databases (20) is centralized. See also, Blackwell, FIGURE 13.



Thus, as shown by FIGURE 14, Blackwell discloses providing, through a message from sensor 14 to analyzer 12 (a monitoring message), data (original message data) extracted from a message (an original message) intercepted by sensor 14 to a transaction database 20 (a central message repository).

populating a transaction record in said central message repository with said original message data provided by said monitoring message;

### Transaction Record

The events that are stored in the database are connected or correlated with other events in the same transaction. Blackwell, col. 14, lines 23-30. The connected or correlated events comprise a transaction record. This transaction record can be used to display the transaction as it happens or has happened across multiple hosts, operating systems and applications. Blackwell, col. 16, lines 19-22.

The process of correlating or connecting events in a transaction record is discussed in several places in Blackwell. For example: Processing a plurality of the

	<p>stored events to identify logically correlated events, such as those associated with a business transaction. Blackwell at Abstract, col 3, lines 54-55; Events are grouped automatically into related transactions. Blackwell at col. 12, line 53-55; What results is a set of connected or correlated events for a transaction that are correlated across all processes. Blackwell at col. 14, lines 25-27; See <i>also</i>, Blackwell at col. 17, lines 7-11.</p>
<p>wherein said original message data comprises the status of an activity.</p>	<p><b>Status of an Activity</b></p> <p>Blackwell discusses various examples of activity statuses that may be contained in the user message data (original message data). See, e.g., Blackwell, col. 3, lines 55-57; col. 4, lines 5-10; and col. 7, lines 28-33. Examples include: times when events occurred (col. 7, lines 15-20 and col. 9, lines 25-40), date that a loan obligation was satisfied (col. 11, lines 42-49), responses from applications such as 'approved', 'disapproved', 'conditionally approved' (col. 15, lines 1-5) and the current state of a transaction (col. 16, lines 19-23). See <i>also</i>, Blackwell, col. 15, lines 51-55; col. 12, lines 1-15; col. 16, lines 39-47; col. 6, lines 1-8 and lines 54-57; and col. 12, line 2.</p>
<p><b>Claim 2</b></p> <p>2. A method as in claim 1 further comprising reviewing data collected in said transaction record.</p>	<p>The transaction record can, for example, be used to display the transaction as it happens or has happened across multiple hosts, operating systems and applications. Blackwell, col. 16, lines 19-22. A user can, therefore, view the connected or correlated events at a transaction level view or "drill down" into the more specific details of the captured events making up the transaction, including the message descriptor or the user data of the message which resulted in the event. See, Blackwell, col 2, lines 58-62; col. 3, lines 54-58; col. 14, lines 23-30; col. 15, lines 34-59; and col. 16, lines 39-43. In this manner, Blackwell teaches a system that can provide a user with messages and other data relating to a single transaction of interest. See, Blackwell, col. 17, lines 6-10.</p> <p>At col. 3, lines 55-56, Blackwell discloses displaying all or a portion of the stored API call content data for logically correlated events where the displaying preferably includes a step of processing the stored API call content data for the logically correlated events.</p> <p>Blackwell discloses, at col. 5, lines 25-26, a user interface for visualizing the collected event data and for performing data analysis.</p>

	<p>Blackwell describes, at col. 15, lines 33-35, how captured event data is analyzed to isolate and track the flow of one or more transactions.</p> <p>Blackwell, at col. 15, lines 51-57, goes on to describe how a user interface enables an operator to sort the collected event data by a variety of criteria and drill down into more details of the captured event, such as the message descriptor and the user data.</p> <p>At col. 16, lines 19-52, Blackwell describes in detail various views that may be presented to an operator, including a dynamic transaction visualization where transactions are shown as they happen or have happened, an event history view where all events can be viewed at a desired level of detail, including an event details mode where all of the user data in each message can be viewed.</p>
<p><b>Claim 3</b></p> <p>3. A method as in claim 1 wherein said original message data comprises at least one field of data selected from the group consisting of date data, time data, customer number data, materials data, quantity data and amount data.</p>	<p>FIGURE 17 of Blackwell discloses that message data comprises both date and time data.</p> <p>Col. 9, lines 37-40 of Blackwell discusses that message data can include the "PutDate" and the "PutTime".</p> <p>Blackwell discloses, at col 11, lines 42-45, that part of the user message data may include a particular date of interest (e.g. a date that a previous loan obligation was satisfied).</p>
<p><b>Claim 4</b></p> <p>4. A method as in claim 1 wherein said original message data comprises at least one field selected from the group consisting of PROCESS IDENTIFIER, SUB-PROCESS IDENTIFIER, ACTIVITY IDENTIFIER, CUSTOMER NUMBER, PART NUMBER, QUANTITY, DATE and TIME.</p>	<p>See, Claim 3, above.</p>



<p><b>Claim 5</b></p> <p>5. A method as in claim 1 wherein said original message data comprises at least one field selected from the group consisting of ProID, SbProID, Custno, Partno, Qty, Date and Time.</p>	<p>See, Claim 3, above.</p>
<p><b>Claim 6</b></p> <p>6. A method as in claim 1 further comprising providing the status of a process by providing access to said central message repository.</p>	<p>See, Claim 2, above.</p>
<p><b>Claim 8</b></p> <p>8. A method as in claim 1 further comprising updating said transaction record.</p>	<p>Blackwell describes analyzer 12 connecting or correlating a set of events for a given transaction. Blackwell, col. 14, lines 23-30. The connected or correlated events comprise a transaction record. This transaction record can be used to display the transaction as it happens or has happened across multiple hosts, operating systems and applications. Blackwell, col. 16, lines 19-22.</p>
<p><b>Claim 9</b></p> <p>9. A method as in claim 8 further comprising updating said transaction record by:</p>	
<p>providing, through a second monitoring message, a second original message data to said transaction record; and,</p>	<p>At col. 14, line 35 to col. 15, line 57 and at FIGURE 13, Blackwell discloses a mortgage application processing system comprising multiple distributed applications, including for example, a credit check application, a verify income application, a title search application, etc. Messages are sent between these various applications to process mortgage requests. Sensors are operated with the various applications to capture event data from each of these applications. Thus, Blackwell discloses the use of multiple original messages and multiple monitoring messages.</p>
<p>populating said transaction record with said second original message data provided by said second monitoring message.</p>	<p>Blackwell describes analyzer 12 connecting or correlating a set of events for a given transaction. Blackwell, col. 14, lines 23-30. The connected or correlated events comprise a transaction record. This transaction record can be used to display the transaction as it happens or has happened across multiple hosts, operating systems and applications. Blackwell, col. 16, lines 19-22.</p>

<b>Claim 10</b>	
10. A method as in claim 1 further comprising completing a process.	At col. 16, lines 20-21, Blackwell discloses that transactions can be viewed as they happen or as they have happened. Thus, transactions can be viewed after they have completed.  At col. 15, lines 14-15, Blackwell discusses that processes may be in varying stages of completion.
<b>Claim 11</b>	
11. A method as in claim 10 further comprising completing said transaction record.	At col. 16, lines 20-21, Blackwell discloses that transactions can be viewed as they happen or as they have happened. Thus, the transaction records can be completed and viewed as completed transactions.
<b>Claim 14</b>	
14. A central message repository created by the method of claim 1.	See, Claim 1, above.
<b>Claim 15</b>	
15. A transaction record created by the method of claim 1.	See, Claim 1, above.
<b>Claim 16</b>	
16. A method as in claim 1 wherein said status of a process is a simulated process.	Blackwell discusses, at col. 17, lines 35-43, that the described systems and methods may be utilized in both a development environment and in an actual production environment. Any processes occurring in a development environment and any statuses associated with such processes would thus be simulated.
<b>Claim 17</b>	
17. A method as in claim 1 wherein said original message data is simulated original message data.	See, Claim 16, above.
<b>Claim 19</b>	
19. A method as in claim 1 further comprising providing the status of an activity by providing access to said central message repository.	See, Claim 2, above.

<b>Claim 21</b>	
21. A method as in claim 1 wherein said status of an activity is a simulated process.	See, Claim 16, above.
<b>Claim 42</b>	
42. An apparatus for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:	See, Claim 1, above.
means for providing, through a monitoring message, at least part of said original message data to a central message repository;	
means for populating a transaction record in said central message repository with said original message data provided by said monitoring message;	
wherein said original message data comprises the status of a.	
<b>Claim 43</b>	
43. An apparatus as in claim 42 further comprising means for reviewing data collected in said transaction record.	See, Claim 2, above.
<b>Claim 45</b>	
45. An apparatus as in claim 42 further comprising means for providing the status of a process by providing access to said central message repository.	See, Claim 2, above.
<b>Claim 46</b>	
46. An apparatus as in claim 42 further comprising means for adding, to said monitoring message, data other than said original message data.	See, Claim 7, above.

<b>Claim 48</b>	
48. An apparatus as in claim 42 further comprising means for providing the status of an activity by providing access to said central message repository.	See, Claim 2, above.
<b>Claim 55</b>	
55. A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:	See, Claim 1, above.
providing, through a monitoring message, at least part of said original message data to a central message repository;	
populating a transaction record in said central message repository with said original message data provided by said monitoring message;	
wherein said original message data comprises the status of a process.	
<b>Claim 58</b>	
58. An apparatus for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:	See, Claim 1, above.

means for providing, through a monitoring message, at least part of said original message data to a central message repository;	
means for populating a transaction record in said central message repository with said original message data provided by said monitoring message;	
wherein said original message data comprises the status of an activity.	

# **APPENDIX “B-2”**

**CLAIMS CHART MAPPING OF**

**BLACKWELL**

**TO THE CLAIM LIMITATIONS OF  
CLAIMS 22-24, 27,  
31-34, 38, 47, 49, 50, 52, 54, 56  
AND 57 OF THE '749 PATENT**

Claim Language of '749 Patent	Portion of U.S. Patent No. 7,003,781 or the Knowledge of One of Ordinary Skill in the Art That Meets the Limitation
<b>Claim 22</b>	
22. A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:	See, discussion of claim 1 in Appendix B-1. In addition, one of ordinary skill in the art would know that an activity of a process could itself be a process or a "subprocess."  As Blackwell discloses that a process can be made up of multiple activities, it would have been obvious to one of ordinary skill in the art to monitor a process comprised of a first and second subprocess as the activities are monitored with respect to the limitations of claim 1.
monitoring a process, which is comprised of at least a first and second sub process, by generating original message data from each of said first and second sub process;	
transmitting said original message data from said first sub process, via a first monitoring message, to a central message repository;	
storing said original message data from said first sub process, in a transaction record in said central message repository;	
transmitting said original message data from said second sub process, via a second monitoring message, to said central message repository; and,	
storing said original message data from said second sub process, in said transaction record in said central message repository;	
wherein said original message data comprises the status of said sub processes.	
<b>Claim 23</b>	
23. A method as in claim 22	Blackwell describes the use of "dynamic transaction

further comprising determining the status of said process.	visualization" where transactions are shown as they happen or have happened, across multiple hosts, operating systems and applications. Blackwell, col. 16, lines 19-22.
<b>Claim 24</b>	
24. A method as in claim 22 wherein said original message data from each of said first and second sub processes comprises a sub process specific set of data.	One of ordinary skill in the art would know that an activity of a process could itself be a process or "subprocess" and that activities of a process would be different and would, therefore, comprise their own sets of data. Thus, it would have been obvious to one of ordinary skill in the art that original messages from subprocesses would comprise original message data with subprocess- specific sets of data.
<b>Claim 27</b>	
27. A method as in claim 22 further comprising reviewing said central message repository.	See, Claim 2 in Appendix B-1.
<b>Claim 31</b>	
31. A method as in claim 29 further comprising distributing said process progress information through the Internet.	See, Claim 22, above. Blackwell also discloses that the components may utilize a global communications network, such as the internet. Blackwell, col. 14, lines 40-42.
<b>Claim 32</b>	
32. A method as in claim 29 further comprising distributing said process progress information through Wireless Application Protocol.	See, Claim 31, above. Since Blackwell describes the use of the internet for communications, it would have been obvious to one of ordinary skill in the art to use protocols such as Wireless Application Protocol to distribute process progress information.
<b>Claim 33</b>	
33. A method as in claim 29 further comprising distributing said process progress information through an intranet.	See, Claim 31, above. Since Blackwell describes the use of the internet for communications, it would have been obvious to one of ordinary skill in the art to use an intranet to distribute process progress information.
<b>Claim 34</b>	
34. A method as in claim 29 further comprising distributing said process progress information through an extranet.	See, Claim 31, above. Since Blackwell describes the use of the internet for communications, it would have been obvious to one of ordinary skill in the art to use an extranet to distribute process progress information.



<b>Claim 38</b>	
38. A method as in claim 22 further comprising providing a monitoring message database.	Blackwell indicates that the event messages are stored in the transaction database 20. Blackwell, col. 15, lines 61-63.
<b>Claim 47</b>	
47. An apparatus as in claim 42 further comprising means for providing the status of a sub process by providing access to said central message repository.	See, Claim 6 of Appendix B-1.
<b>Claim 49</b>	
49. An apparatus for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:	See, Claim 22, above.
means for monitoring a process, which is comprised of at least a first and second sub process, by generating original message data from each of said first and second sub process;	
means for transmitting said original message data from said first sub process, via a first monitoring message, to a central message repository;	
means for storing said original message data from said first sub process, in a transaction record in said central message repository;	
means for transmitting said original message data from said second sub process, via a second monitoring message, to said central message repository; and,	

means for storing said original message data from said second sub process, in said transaction record in said central message repository;	
wherein said original message data comprises the status of said sub processes.	
<b>Claim 50</b>	
50. An apparatus as in claim 49 further comprising means for reviewing said central message repository.	See, Claim 2 in Appendix B-1.
<b>Claim 52</b>	
52. An apparatus as in claim 49 further comprising means for providing a monitoring message database.	See, Claim 38, above.
<b>Claim 54</b>	
54. An apparatus as in claim 49 further comprising means for distributing said process progress information through Wireless Application Protocol.	See, Claim 32, above.
<b>Claim 56</b>	
56. A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:	See, Claim 22, above.
providing, through a monitoring message, at least part of said original message data to a central message repository;	
populating a transaction record in said central message repository with said original message data provided by said monitoring message;	

wherein said original message data comprises the status of a sub process.	
<b>Claim 57</b>	
57. An apparatus for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:	See, Claim 22, above.
means for providing, through a monitoring message, at least part of said original message data to a central message repository;	
means for populating a transaction record in said central message repository with said original message data provided by said monitoring message;	
wherein said original message data comprises the status of a sub process.	

# **APPENDIX “C-1”**

## **CLAIMS CHART MAPPING OF ADVANCED WORKFLOW SOLUTIONS**

**TO THE CLAIM LIMITATIONS OF  
CLAIMS 1-6, 8-24, 27-31, 33-37, 42-45,  
47-51 AND 55-58 OF THE '749 PATENT**

Claim Language of '749 Patent	Portion of Advanced Workflow Solutions ("AWS") That Meets the Limitation
<p><b>Claim 1</b></p> <p>1. A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:</p>	<p><b>Asynchronous Messaging Environment:</b></p> <p>At Sec. 6.3, pgs. 51-52, AWS discloses the use of an asynchronous messaging system like IBM's MQSeries to exchange data between the workflow system and the applications performing the activities of a process. <i>See also</i>, Figure 25.</p> <p><b>Original Message/Original Message Data</b></p> <p>As described at Sec. 6.3, pgs. 51-52 of AWS, FlowMark is able to communicate with a message-based application to perform an activity in a process. When FlowMark communicates with such a message-based application, the data necessary for the application is posted into a message, which is shipped to the target application tasked with performing the activity. On completion of the activity, the target application sends a message back to the workflow management system, signaling that the activity is complete and providing the data to be stored in the FlowMark output container. <i>See also</i>, Figure 25 (set out below); AWS, Sec. 6, pg. 49 (applications "can store newly generated data in the output container, so that FlowMark can send this information to other activities in the process."); and Sec. 8.2.2, pg. 72.</p> <div> </div> <p><i>Figure 25. Message-based Workflow Application</i></p> <p>Figure 25 depicts the use of messages to transmit data to and from an application performing an activity in a process. These messages are original messages containing original message data.</p>

providing, through a monitoring message, at least part of said original message data to a central message repository;

### Monitoring Message

At Sec. 10.2, pgs. 82-83, AWS discloses that output data (original message data) from a message-based application can be included in the audit trail. The audit trail can be written to an audit trail processing program. AWS, Sec. 10.3, pg. 84. The audit trail processor process and stores the audit trail records into an audit trail data store. Storing the audit trail records in the audit trail data store can be accomplished through messages passed via a messaging system (for example, MQSeries). AWS, Sec. 10.3.1, pg. 85 and Figure 35.

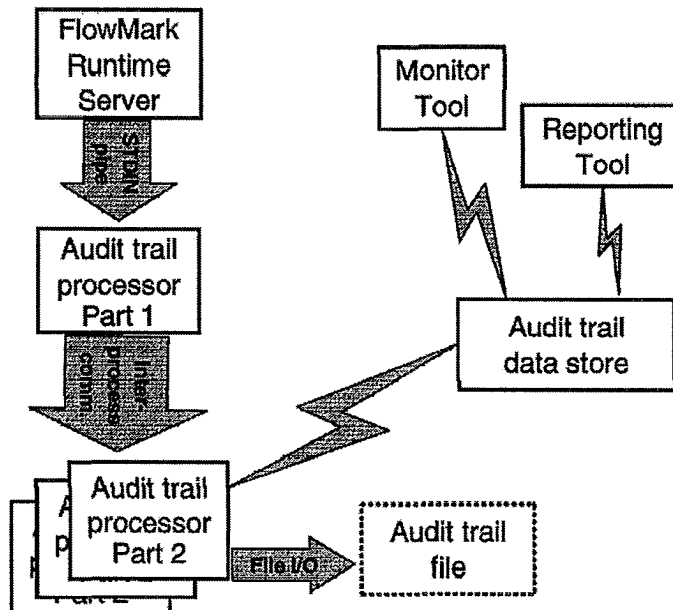


Figure 35. Building an Audit Trail Processor

Figure 35 from AWS depicts the “Audit trail processor Part 2” component of the FlowMark system sending audit trail records to the “Audit trail data store” by means of a message. This message is a monitoring message containing original message data.

### Central Message Repository

As described in AWS and depicted in Figure 35, the “audit trail records” can be stored in an “audit trail data store.” See, AWS, Sec. 10.2-10.4, pgs. 82-91, Figure 35. AWS further notes that “[t]he data store should reside on a different machine, so that the performance of the FlowMark server machine is not significantly impacted.” AWS, Sec. 10.3.1, pg. 85. The audit trail data store is a central message repository.

Thus, as described in AWS and as depicted in Figure 35, FlowMark can send output data (original message data) provided in a message (original message) from a message-based application to an audit trail

	data store (central message repository) by means of a separate message (a monitoring message).
populating a transaction record in said central message repository with said original message data provided by said monitoring message;	<p><b>Transaction Record</b></p> <p>AWS discloses that FlowMark records every event that occurs in the FlowMark system while managing processes in the FlowMark audit trail. Sec. 10.2, pgs. 82-83. This audit trail information contains the output data (original message data) that was received in the message (original message) from the message-based application. See, AWS, Sec. 10.3.1, pg. 85; Figure 35; and Sec. 10.2, pgs. 82-83; See <i>also</i>, AWS, Sec. 6.3, pgs 51-52, Figure 25. AWS discloses that this audit trail information can be written to an audit trail processing program. AWS, Sec. 10.3, pg. 84. The “audit trail processor” can process and store this audit trail information as audit trail records in an audit trail data store (a central message repository). AWS, Sec. 10.3.1, pg. 85 and Figure 35. The audit trail records are transaction records.</p>
wherein said original message data comprises the status of an activity.	<p><b>Status of an Activity</b></p> <p>AWS discloses examples of activity statuses that may be contained in the output data (original message data) provided in the message (original message) from the message-based application, including the description of the object for which the status change is being recorded (which description is associated with the full data container and the data contained therein) and the time/date when the activity or process was completed. AWS, Sec. 10.2, pgs 82-83 (“Using the audit trail information, one can obtain the status of every process instance in the FlowMark system.”); Sec. 10.4.1; See <i>also</i>, 10.4.2, pgs. 89-91 and Figure 36.</p>
<b>Claim 2</b>	
2. A method as in claim 1 further comprising reviewing data collected in said transaction record.	At Sec. 10.3.1, pg. 85, AWS notes that monitoring, analysis and reporting tools/programs can access the data stored in the data store. See <i>also</i> , AWS, Figure 35; Sec. 10.4; Sec.10.3.1, pg. 85; Sec. 10.4.1 – 10.4.2, pgs. 87-91; and Figures 36-39.

<p><b>Claim 3</b></p> <p>3. A method as in claim 1 wherein said original message data comprises at least one field of data selected from the group consisting of date data, time data, customer number data, materials data, quantity data and amount data.</p>	<p>AWS notes that the audit trail records can include activity information such as "time/date workitems were assigned; which user IDs they were assigned to; when and who started the workitem; when the workitem completed; if/when a notification item was generated because the allowed duration time was exceeded." AWS, Sec. 10.2, pgs. 82-83. <i>See also</i>, AWS, Sec. 6.3, pgs. 51-52; Figure 25.</p> <p>Thus, AWS discloses that the original message data can be, among other things, date data or time data.</p>
<p><b>Claim 4</b></p> <p>4. A method as in claim 1 wherein said original message data comprises at least one field selected from the group consisting of PROCESS IDENTIFIER, SUB-PROCESS IDENTIFIER, ACTIVITY IDENTIFIER, CUSTOMER NUMBER, PART NUMBER, QUANTITY, DATE and TIME.</p>	<p>AWS notes that the audit trail records can include information such as "the process instance name" (<i>i.e.</i>, the process identifier), a description of the object for which the status change is being recorded (which description is associated with the full container and the data contained therein) along with actual object attributes of such object, "time/date workitems were assigned; which user IDs they were assigned to; when and who started the workitem; when the workitem completed; if/when a notification item was generated because the allowed duration time was exceeded." AWS, Sec. 10.2, pgs. 82-83. <i>See also</i>, AWS, Sec. 6.3, pgs. 51-52, Figure 25.</p>
<p><b>Claim 5</b></p> <p>5. A method as in claim 1 wherein said original message data comprises at least one field selected from the group consisting of ProID, SbProID, Custno, Partno, Qty, Date and Time.</p>	<p>AWS notes that the audit trail records can include activity information such as "the process instance name" (<i>i.e.</i>, the process identifier), a description of the object for which the status change is being recorded (which description is associated with the full container and the data contained therein) along with actual object attributes of such object, time/date workitems were assigned; when the workitem completed; etc. AWS, Sec. 10.2, pgs. 82-83. <i>See also</i>, AWS, Sec. 6.3, pgs. 51-52, Figure 25.</p>



<p><b>Claim 6</b></p> <p>6. A method as in claim 1 further comprising providing the status of a process by providing access to said central message repository.</p>	<p>At Sec. 10.3.1, pg. 85, AWS notes that monitoring, analysis and reporting tools/programs can access the data stored in the data store. See <i>also</i>, Figure 35. AWS also describes the use of certain monitoring tools to “provide status information about all processes running in the system.” AWS, Sec. 10.4.1; See <i>also</i>, Sec. 10.3.1, pg. 85; Sec. 10.4.1 – 10.4.2, pgs. 87-91; and Figures 36-39.</p> <p>“Using the audit trail information, one can obtain the status of every process instance in the FlowMark system.” AWS, Sec. 10.2, pgs. 82-83.</p>
<p><b>Claim 8</b></p> <p>8. A method as in claim 1 further comprising updating said transaction record.</p>	<p>As noted at Sec. 10.2, pgs. 82-83 of AWS, the audit trail records can contain process information, including the time and date of process completion. See <i>also</i>, AWS, Sec. 10.3.1, pg. 85; Figure 35; and AWS, Sec. 10.3, pgs. 84-85.</p>
<p><b>Claim 9</b></p> <p>9. A method as in claim 8 further comprising updating said transaction record by:</p>	
<p>providing, through a second monitoring message, a second original message data to said transaction record; and,</p>	<p>As noted at pg. 126 of AWS, a process is a series of activities to achieve a desired result.</p> <p>At Sec. 6, pg. 49, AWS describes the use of workflow-enabled applications in the FlowMark system. Specifically, it notes that the applications necessary for each activity in a process can store newly generated data in an output container, so that FlowMark can send this information to other activities in the process.</p> <p>See, Claim 1, above.</p>
<p>populating said transaction record with said second original message data provided by said second monitoring message.</p>	<p>See, Claim 1, above.</p>

<p><b>Claim 10</b></p> <p>10. A method as in claim 1 further comprising completing a process.</p>	<p>As noted at Sec. 10.2, pgs. 82-83 of AWS, the audit trail records can contain process information, including the time and date of process completion.</p> <p>Further, at Sec. 10.4.1, pg. 87, AWS notes that the workflow monitor could be used for process termination.</p>
<p><b>Claim 11</b></p> <p>11. A method as in claim 10 further comprising completing said transaction record.</p>	<p>As noted at Sec. 10.2, pgs. 82-83 of AWS, the audit trail records can contain process information, including the time and date of process completion.</p> <p>Further, at Sec. 10.4.1, pg. 87, AWS notes that the workflow monitor could be used for process termination.</p>
<p><b>Claim 12</b></p> <p>12. A method as in claim 1 further comprising aborting a process.</p>	<p>As noted at Sec. 10.2, pgs. 82-83 of AWS, the audit trail records can contain process information, including the time and date of process completion.</p> <p>Further, at Sec. 10.4.1, pg. 87, AWS notes that the workflow monitor could be used for process termination.</p>
<p><b>Claim 13</b></p> <p>13. A method as in claim 12 further comprising providing, in said transaction record, an indication that the record has been abandoned.</p>	<p>As noted at Sec. 10.2, pgs. 82-83 of AWS, The audit trail records can contain process information, including the date and time of process completion.</p> <p>Further, at Sec. 10.4.1, pg. 87, AWS notes that the workflow monitor could be used for process termination.</p>
<p><b>Claim 14</b></p> <p>14. A central message repository created by the method of claim 1.</p>	<p>See, Claim 1, above.</p>
<p><b>Claim 15</b></p> <p>15. A transaction record created by the method of claim 1.</p>	<p>See, Claim 1, above.</p>
<p><b>Claim 16</b></p> <p>16. A method as in claim 1 wherein said status of a process is a simulated process.</p>	<p>At Sec. 13.3, pgs. 109-111, AWS discusses the use of performance and capacity testing for the FlowMark system. AWS specifically discusses the use of test applications to start process instances and run them to near end, so that database size can be measured. At pg. 110, AWS also suggests loading data containers with "dummy" data for such testing.</p>

<p><b>Claim 17</b></p> <p>17. A method as in claim 1 wherein said original message data is simulated original message data.</p>	<p>At Sec. 13.3, pgs. 109-111, AWS discusses the use of performance and capacity testing for the FlowMark system. AWS specifically discusses the use of test applications to start process instances and run them to near end, so that database size can be measured. At pg. 110, AWS also suggests loading data containers with “dummy” data for such testing.</p>
<p><b>Claim 18</b></p> <p>18. A method as in claim 1 further comprising providing the status of a sub process by providing access to said central message repository.</p>	<p>At Sec. 10.3.1, pg. 85, AWS notes that monitoring, analysis and reporting tools/programs can access the data stored in the data store. See also, Figure 35, AWS, Sec. 10.4; Sec.10.3.1, pg. 85; Sec. 10.4.1 – 10.4.2, pgs. 87-91; and Figures 36-39.</p> <p>At 10.4.1, pg. 87, AWS describes the use of a workflow monitor to monitor the subprocesses of an overall process.</p>
<p><b>Claim 19</b></p> <p>19. A method as in claim 1 further comprising providing the status of an activity by providing access to said central message repository.</p>	<p>At Sec. 10.3.1, pg. 85, AWS notes that monitoring, analysis and reporting tools/programs can access the data stored in the data store. See also, Figure 35, AWS, Sec. 10.4; Sec.10.3.1, pg. 85; Sec. 10.4.1 – 10.4.2, pgs. 87-91; and Figures 36-39.</p> <p>At 10.4.1, pg. 87, AWS describes the use of a workflow monitor to monitor the number of workitems stacking up in each activity.</p>
<p><b>Claim 20</b></p> <p>20. A method as in claim 1 wherein said status of a sub process is a simulated process.</p>	<p>See, Claim 17, above.</p> <p>At 10.4.1, pg. 87, AWS describes the use of a workflow monitor to monitor the subprocesses of an overall process.</p> <p>Further, at Sec. 11.3, pgs. 93-94, AWS notes that, since subprocesses will exist for parts of the processes to be implemented by the FlowMark system, the subprocess information needs to be taken into account when calculating volume information for server assessment.</p>
<p><b>Claim 21</b></p> <p>21. A method as in claim 1 wherein said status of an activity is a simulated process.</p>	<p>See, Claim 17, above.</p> <p>Further, at Sec. 13.3, pg. 111, AWS describes attaching users to the system and simulating their behavior and the work that it generates on the server. Such activity would include “simulating the API calls” caused by users, including the API calls generated through the applications that make up the activities of a process.</p>

<b>Claim 22</b>	
22. A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:	See, Claim 1, above.
monitoring a process, which is comprised of at least a first and second sub process, by generating original message data from each of said first and second sub process;	See, Claim 1, above.  A process can be made up of subprocesses. See, e.g., AWS, Sec. 8.1.3, pgs. 69-70 and Figure 30 (discussing the ability to "bundle" activities and subprocesses in a process); Sec. 11.3, pgs. 93-94 (noting that subprocesses can make up parts of processes).  At 10.4.1, pg. 87, AWS describes the use of a workflow monitor to monitor the subprocesses of an overall process.
transmitting said original message data from said first sub process, via a first monitoring message, to a central message repository;	See, Claim 1, above.
storing said original message data from said first sub process, in a transaction record in said central message repository;	See, Claim 1, above.
transmitting said original message data from said second sub process, via a second monitoring message, to said central message repository; and,	See, above with respect to first sub process.

storing said original message data from said second sub process, in said transaction record in said central message repository;	See, above with respect to first sub process.
wherein said original message data comprises the status of said sub processes.	See, Claim 1, above. At 10.4.1, pg. 87, AWS describes the use of a workflow monitor to monitor the subprocesses of an overall process.
<b>Claim 23</b>	
23. A method as in claim 22 further comprising determining the status of said process.	At Sec. 10.3.1, pg. 85, AWS notes that monitoring, analysis and reporting tools/programs can access the data stored in the data store. See also, Figure 35. AWS also describes the use of certain monitoring tools to "provide status information about all processes running in the system." AWS, Sec. 10.4.1. See also, AWS, Sec. 10.4.2, pgs. 89-91 and Figures 36 and 37.  "Using the audit trail information, one can obtain the status of every process instance in the FlowMark system." AWS, Sec. 10.2, pgs. 82-83.
<b>Claim 24</b>	
24. A method as in claim 22 wherein said original message data from each of said first and second sub processes comprises a sub process specific set of data.	A process can be made up of subprocesses. See, e.g., AWS, Sec. 8.1.3, pgs. 69-70 and Figure 30 (discussing the ability to "bundle" activities and subprocesses in a process). As noted by AWS, when a subprocess is complete (in the case of bundling, it is a "pattern" subprocess), the process continues on its normal path. Moreover, since each subprocess is part of the overall process, it can be managed and monitored just like any other activity or subprocess. See, AWS, Sec. 8.1.3, pgs. 69-70 and Figure 30; See also, AWS, Sec. 6, pg. 49 (applications "can store newly generated data in the output container, so that FlowMark can send this information to other activities in the process.").  See, Claim 1, above.
<b>Claim 27</b>	
27. A method as in claim 22 further comprising reviewing said central message repository.	See, Claims 2 and 6, above.  Further, at Sec. 10.4.1, pg. 87, AWS describes the use of a workflow monitor to monitor the subprocesses of an overall process.

<p><b>Claim 28</b></p> <p>28. A method as in claim 27 wherein reviewing said central message repository further comprises reviewing information from the group consisting of order information, customer information, process efficiency information, snapshot information, time slice information, daily information, weekly information, monthly information, trend information and performance information.</p>	<p>See, Claims 2 and 6, above.</p> <p>Further, at Sec. 10.4.1, pg. 87, AWS describes the use of a workflow monitor to monitor the subprocesses of an overall process. In addition to status information about all of the processes running in the system, the workflow monitor can display process and activity cycle times. See, AWS, Figure 36.</p> <p>AWS also describes the use of a business monitor to allow a user to review information from the audit trail data store to help track business goals, including time slice information, monthly information, trend information and performance information. See, AWS, Figures 38 and 39; Sec. 10.4.2, pgs. 89-91. As shown on Figure 39 of AWS, actual numbers from the audit trail records in the audit trail data store can be compared against the goals for such processes and certain data can be highlighted in red, indicating a negative tracking result against the targeted goal.</p>
<p><b>Claim 29</b></p> <p>29. A method as in claim 22 further comprising distributing process progress information in real time.</p>	<p>As noted at Sec. 10.4.2, pg. 89 of AWS, the purpose of the business monitor is to make the information "available to the executives on a real-time basis."</p> <p>Further, the workflow monitor gives users the ability to set triggers and alarms for conditions that might arise during the processing of the workflow tasks. For example, a trigger or alarm might be set for tracking when overall processing times are running too long or working times for particular activities are too long. AWS, Sec. 10.4.1, pg. 87.</p>
<p><b>Claim 30</b></p> <p>30. A method as in claim 29 further comprising distributing said process progress information through broadcasting.</p>	<p>AWS discloses that the monitor tool was developed in Java to allow for functionality through the Internet as well as enterprise networks. AWS, Sec. 10.4, pg. 87. Through the use of Java and various filters and security options, the monitors described by AWS, allow the system to provide status information to external entities, including external customers, other business units or outside vendors and business partners. AWS, Sec. 10.4.1, pg. 87.</p>

<p><b>Claim 31</b></p> <p>31. A method as in claim 29 further comprising distributing said process progress information through the Internet.</p>	<p>AWS discloses that the monitor tool was developed in Java to allow for functionality through the Internet as well as enterprise networks. AWS, Sec. 10.4, pg. 87. Through the use of Java and various filters and security options, the monitors described by AWS, allow the system to provide status information to external entities, including external customers, other business units or outside vendors and business partners. AWS, Sec. 10.4.1, pg. 87.</p>
<p><b>Claim 33</b></p> <p>33. A method as in claim 29 further comprising distributing said process progress information through an intranet.</p>	<p>AWS discloses that the monitor tool was developed in Java to allow for functionality through the Internet as well as enterprise networks. AWS, Sec. 10.4, pg. 87. Through the use of Java and various filters and security options, the monitors described by AWS, allow the system to provide status information to external entities, including external customers, other business units or outside vendors and business partners. AWS, Sec. 10.4.1, pg. 87.</p>
<p><b>Claim 34</b></p> <p>34. A method as in claim 29 further comprising distributing said process progress information through an extranet.</p>	<p>AWS discloses that the monitor tool was developed in Java to allow for functionality through the Internet as well as enterprise networks. AWS, Sec. 10.4, pg. 87. Through the use of Java and various filters and security options, the monitors described by AWS, allow the system to provide status information to external entities, including external customers, other business units or outside vendors and business partners. AWS, Sec. 10.4.1, pg. 87.</p>
<p><b>Claim 35</b></p> <p>35. A method as in claim 22 further comprising analyzing said central message repository in order to determine a process trend.</p>	<p>At 10.4.1, pg. 87, AWS describes the use of a workflow monitor to monitor the subprocesses of an overall process. In addition to status information about all of the processes running in the system, the workflow monitor can display process and activity cycle times. See, AWS, Figure 36.</p> <p>AWS also describes the use of a business monitor to allow a user to review information from the audit trail data store to help track business goals, including time slice information, monthly information, trend information and performance information. See, AWS, Figures 38 and 39; Sec. 10.4.2, pgs. 89-91. As shown on Figure 39 from AWS, actual numbers from the audit trail records in the audit trail data store can be compared against the goals for such processes and certain data can be highlighted in red, indicating a negative tracking result against the targeted goal.</p>

<b>Claim 36</b>	
<p>36. A method as in claim 35 wherein said process trend is selected from the group consisting of: time between subprocesses, variances by customer, variances by order amount, bottlenecks and seasonal variations.</p>	<p>See, Claim 35, above.</p> <p>Additionally, as shown on Figure 36 at pg. 88 of AWS, the workflow monitor can provide information concerning arrival, start and completion times, as well as times for work duration and overall elapsed cycle time. The primary goal of the workflow monitor is to provide status information about all processes running in the system. This includes the number of processes in the system, the number of workitems stacking up in each activity, process and activity cycle times, and the number of processes that are overdue. See, AWS, Sec. 10.4.1, pgs. 87-88; See also, Figure 39.</p> <p>Further, AWS indicates that the workflow monitor can provide a user with an ability to establish triggers or alarms tied to, among other things, bottlenecks (<i>i.e.</i>, work in a particular process step is stacking up too high.). AWS, Sec. 10.4.1, pg. 87.</p>
<b>Claim 37</b>	
<p>37. A method as in claim 36 wherein orders may be accelerated as a result of said analysis.</p>	<p>AWS indicates that the workflow monitor would allow a user to transfer or redistribute workitems. AWS, Sec. 10.4.1, pg. 87. For example, if a workitem for a given process instance is stalled because the worker responsible for such workitem is gone, the workitem can be transferred to another worker or supervisor for completion.</p> <p>As shown on Figure 36 on pg. 88, the workflow monitor is able to show all of the process that are overdue and all of the workitems that are stacking up, allowing a supervisor to address such issues, including redistributing or transferring such workitems (example shown is labeled "Product Assembly").</p>
<b>Claim 42</b>	
<p>42. An apparatus for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:</p>	<p>See, Claim 1, above.</p>



means for providing, through a monitoring message, at least part of said original message data to a central message repository;	
means for populating a transaction record in said central message repository with said original message data provided by said monitoring message;	
wherein said original message data comprises the status of a.	
<b>Claim 43</b>	
43. An apparatus as in claim 42 further comprising means for reviewing data collected in said transaction record.	See, Claim 2, above.
<b>Claim 44</b>	
44. An apparatus as in claim 42 further comprising means for broadcasting data collected in said transaction record.	See, Claim 30, above.
<b>Claim 45</b>	
45. An apparatus as in claim 42 further comprising means for providing the status of a process by providing access to said central message repository.	See, Claim 6, above.

<p><b>Claim 47</b></p> <p>47. An apparatus as in claim 42 further comprising means for providing the status of a sub process by providing access to said central message repository.</p>	<p>See, Claim 18, above.</p>
<p><b>Claim 48</b></p> <p>48. An apparatus as in claim 42 further comprising means for providing the status of an activity by providing access to said central message repository.</p>	<p>See, Claim 45, above.</p>
<p><b>Claim 49</b></p> <p>49. An apparatus for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:</p>	<p>See, Claim 22, above.</p>
<p>means for monitoring a process, which is comprised of at least a first and second sub process, by generating original message data from each of said first and second sub process;</p>	

means for transmitting said original message data from said first sub process, via a first monitoring message, to a central message repository;	
means for storing said original message data from said first sub process, in a transaction record in said central message repository;	
means for transmitting said original message data from said second sub process, via a second monitoring message, to said central message repository; and,	
means for storing said original message data from said second sub process, in said transaction record in said central message repository;	
wherein said original message data comprises the status of said sub processes.	
<b>Claim 50</b>	
50. An apparatus as in claim 49 further comprising means for reviewing said central message repository.	See, Claim 27, above.

<b>Claim 51</b>	
51. An apparatus as in claim 49 further comprising means for distributing process progress information through broadcasting.	See, Claim 30, above.
<b>Claim 55</b>	
55. A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:	See, Claim 1, above.
providing, through a monitoring message, at least part of said original message data to a central message repository;	
populating a transaction record in said central message repository with said original message data provided by said monitoring message;	
wherein said original message data comprises the status of a process.	

<b>Claim 56</b>	
56. A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:	See, Claims 1, 18 and 22, above.
providing, through a monitoring message, at least part of said original message data to a central message repository;	
populating a transaction record in said central message repository with said original message data provided by said monitoring message;	
wherein said original message data comprises the status of a sub process.	
<b>Claim 57</b>	
57. An apparatus for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:	See, Claims 1, 18 and 22, above.

means for providing, through a monitoring message, at least part of said original message data to a central message repository;	
means for populating a transaction record in said central message repository with said original message data provided by said monitoring message;	
wherein said original message data comprises the status of a sub process.	
<b>Claim 58</b>	
58. An apparatus for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:	See, Claim 1, above.
means for providing, through a monitoring message, at least part of said original message data to a central message repository;	
means for populating a transaction record in said central message repository with said original message data provided by said monitoring message;	

wherein said original message data comprises the status of an activity.	
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# **APPENDIX “C-2”**

## **CLAIMS CHART MAPPING OF ADVANCED WORKFLOW SOLUTIONS**

**IN VIEW OF**

**LEYMANN '111**

**TO THE CLAIM LIMITATIONS OF  
CLAIMS 7, 18, 25-26, 40-41 and 46-47  
OF THE '749 PATENT**



Claim Language of '749 Patent	Portions of Leymann '111 That Render The Limitation Obvious Under 35 U.S.C. § 103(a) In View of AWS
<p><b>Claim 7</b></p> <p>7. A method as in claim 1 further comprising adding, to said monitoring message, data other than said original message data.</p>	<p>This claim is rendered obvious under 35 U.S.C. § 103(a) by AWS (as applied to claim 1 in the preceding claim chart (C-1)), in view of Leymann '111.</p> <p>Specifically, Leymann '111 teaches the use of materialization/dematerialization programs on the data contained in the input and output containers which are used to pass data back and forth between the workflow system and the applications performing the activities that make up a process. Specifically, Leymann '111 teaches the use of a set of programs on the data contained in the output container once it is received from the application performing the activity. Leymann '111, col. 5, line 29 to col. 6, line 27.<sup>11</sup></p> <p>As described by Leymann '111, the results that are produced by the application performing the activity are put into an output container which is associated with such activity. Leymann '111, col. 9, lines 1-3.</p> <p>Once the application returns the associated output container to the workflow management system, the workflow management system can invoke a dematerialization chain, which is an ordered group of programs intended to act on the data contained in the output container. Leymann '111, col. 13, line 51 to col. 14, line 8. The programs can substitute or add data into the container, including, for example, adding references to data located outside of the container, or replacing references in the output container with the actual data associated with the reference. The programs can use other sources of data for enrichment of the data contained in the output container. Leymann '111, col. 13, line 51 to col. 14, line 8; col. 14, line 63 to col. 15, line 12.</p>
<p><b>Claim 18</b></p> <p>18. A method as in claim 1 further comprising providing the status of a sub process by providing access to said central message repository.</p>	<p>This claim was previously addressed in the preceding claim chart (C-1), where it was demonstrated that the claim was anticipated under 35 U.S.C. § 102 by AWS.</p> <p>In addition to being anticipated by AWS, this claim is also rendered obvious under 35 U.S.C. § 103(a) by AWS (as applied to claims 1 and 18 in the preceding claim chart (C-1)), in view of Leymann '111.</p> <p>Specifically, Leymann '111 discloses that a subprocess is a set of</p>

<sup>11</sup> It would have been obvious to combine AWS and Leymann '111, as both references discuss the FlowMark workflow management system. See, AWS at pg. vii; Leymann '111, col.7, lines 15-16.

	<p>activities that are defined separately as a regular process. When used within a process, it is treated as a "process activity" in that, it is invoked when the "process activity" is started and, at its completion, it returns the results generated through the output container associated with such process activity. See, Leymann '111, col. 8, lines 55-61, col. 9, lines 1-3, and col. 10, line 67 to col. 11, line 11.</p>
<b>Claim 25</b>	
<p>25. A method as in claim 22 wherein said first monitoring message further comprises altered original message data.</p>	<p>See, Claim 7, above.</p> <p>The dematerialization programs can also alter the data in the output container by encrypting it or compressing it. Specifically, as shown on FIGURE 2, programs (221) and (222) compress and encrypt the data in the output container after the application performing the activity sends the output container to the workflow management system. Leymann '111, col. 13, line 58 to col. 14, line 8; FIGURE 2.</p>
<b>Claim 26</b>	
<p>26. A method as in claim 22 wherein said first monitoring message further comprises data added to said original message data.</p>	<p>See, Claim 7, above.</p>
<b>Claim 40</b>	
<p>40. A method as in claim 22 wherein said second monitoring message further comprises altered original message data.</p>	<p>See, Claim 25, above.</p>
<b>Claim 41</b>	
<p>41. A method as in claim 22 wherein said second monitoring message further comprises data added to said original message data.</p>	<p>See, Claim 26, above.</p>
<b>Claim 46</b>	
<p>46. An apparatus as in claim 42 further comprising means for adding, to said monitoring message, data other than said original message data.</p>	<p>See, Claim 26, above.</p>

<b>Claim 47</b>	
47. An apparatus as in claim 42 further comprising means for providing the status of a sub process by providing access to said central message repository.	See, Claim 18, above.

# **APPENDIX “C-3”**

## **CLAIMS CHART MAPPING OF ADVANCED WORKFLOW SOLUTIONS**

**IN VIEW OF**

**LEYMANN '633**

**TO THE CLAIM LIMITATIONS OF  
CLAIMS 3-6, 8, 9, 29, 30,  
32, 39, 44, 51, 53 and 54  
OF THE '749 PATENT**

Claim Language of '749 Patent	Portions of Leymann '633 That Render The Limitation Obvious Under 35 U.S.C. § 103(a) In View of AWS
<p><b>Claim 3</b></p> <p>3. A method as in claim 1 wherein said original message data comprises at least one field of data selected from the group consisting of date data, time data, customer number data, materials data, quantity data and amount data.</p>	<p>This claim was previously addressed in the claim chart attached as C-1, where it was demonstrated that the claim was anticipated under 35 U.S.C. § 102 by AWS.</p> <p>In addition to being anticipated by AWS, this claim is also rendered obvious under 35 U.S.C. § 103(a) by AWS (as applied to claims 1 and 3 in the claim chart attached as C-1), in view of Leymann '633.</p> <p>Specifically, Leymann '633 teaches that the main purpose of the audit trail is to capture the history of the execution of a process instance. Leymann '633 further notes that "[m]ost workflow management systems store the audit trail directly into a relational database. The audit trail contains a record for each major event, such as the start or termination of a process or an activity. Leymann '633, col. 9, lines 21-39. Leymann '633 further teaches that the audit trail records can have a "timestamp field," containing the date and time of the event being recorded, and a "user field," which provides a mechanism for storing in the audit trail user data that is associated with the given process instance. Such "user data" could include a "customer number or the amount of a loan." Leymann '633, col. 9, line 42 to col. 10, line 15; FIGURE 1.<sup>12</sup></p>
<p><b>Claim 4</b></p> <p>4. A method as in claim 1 wherein said original message data comprises at least one field selected from the group consisting of PROCESS IDENTIFIER, SUB-PROCESS IDENTIFIER, ACTIVITY IDENTIFIER, CUSTOMER NUMBER, PART NUMBER, QUANTITY, DATE and TIME.</p>	<p>This claim was previously addressed in the claim chart attached as C-1, where it was demonstrated that the claim was anticipated under 35 U.S.C. § 102 by AWS.</p> <p>In addition to being anticipated by AWS, this claim is also rendered obvious under 35 U.S.C. § 103(a) by AWS (as applied to claims 1 and 4 in the claim chart attached as C-1), in view of Leymann '633.</p> <p>Specifically, Leymann '633 discloses that the audit trail records can contain the following fields: (i) Timestamp (as noted above); (ii) Process Instance Name (an identification of the process instance at issue (see AWS description for this claim)); (iii) Activity Name (identification of the activity within the process model that is at issue); (iv) Associated Object Identifier (identifies the object associated with the event being recorded); and (v) "User" (contains user data associated with the process instance, such as customer number or amount of a loan). Leymann '633, col. 9, line 42 to col. 10, line 15; FIGURE 1.</p>

<sup>12</sup> It would have been obvious to combine AWS and Leymann '633, as both references discuss the FlowMark workflow management system. See, AWS at pg. vii; Leymann '633 at col.4, lines 35-37.

<p><b>Claim 5</b></p> <p>5. A method as in claim 1 wherein said original message data comprises at least one field selected from the group consisting of ProID, SbProID, Custno, Partno, Qty, Date and Time.</p>	<p>See, Claim 4, above.</p>
<p><b>Claim 6</b></p> <p>6. A method as in claim 1 further comprising providing the status of a process by providing access to said central message repository.</p>	<p>This claim was previously addressed in the claim chart attached as C-1, where it was demonstrated that the claim was anticipated under 35 U.S.C. § 102 by AWS.</p> <p>In addition to being anticipated by AWS, this claim is also rendered obvious under 35 U.S.C. § 103(a) by AWS (as applied to claims 1 and 6 in the claim chart attached as C-1), in view of Leymann '633.</p> <p>Specifically, Leymann '633 teaches the use of a subscription means capable of accessing an audit trail stored within a database, said audit trail encompassing a multitude of audit trail records representing events that occurred during the execution of a workflow management system. The subscription means allows users to "subscribe" to certain events in the audit trail, such that they are notified should such events occur in any of the audit trail records that are being stored in the database. Leymann '633, col. 3, lines 8-25. All information about the current state of a process is stored in the database maintained by the server. Leymann '633, col. 9, lines 4-6.</p>
<p><b>Claim 8</b></p> <p>8. A method as in claim 1 further comprising updating said transaction record.</p>	<p>This claim was previously addressed in the claim chart attached as C-1, where it was demonstrated that the claim was anticipated under 35 U.S.C. § 102 by AWS.</p> <p>In addition to being anticipated by AWS, this claim is also rendered obvious under 35 U.S.C. § 103(a) by AWS (as applied to claims 1 and 8 in the claim chart attached as C-1), in view of Leymann '633.</p> <p>Specifically, Leymann '633 teaches that triggers can be set to notify a user upon the occurrence of an "update" to a table or entry in a table. Leymann '633, col. 10, lines 20-67.</p>
<p><b>Claim 9</b></p> <p>9. A method as in claim 8 further comprising updating said transaction record by:</p>	

<p>providing, through a second monitoring message, a second original message data to said transaction record; and,</p>	<p>This claim was previously addressed in the claim chart attached as C-1, where it was demonstrated that the claim was anticipated under 35 U.S.C. § 102 by AWS.</p> <p>In addition to being anticipated by AWS, this claim is also rendered obvious under 35 U.S.C. § 103(a) by AWS (as applied to claims 1, 8 and 9 in the claim chart attached as C-1), in view of Leymann '633.</p> <p>Specifically, Leymann '633 notes that triggers can be set to notify a user upon the occurrence of an "update" to a table or entry in a table. Leymann '633, col. 10, lines 20-67.</p>
<p>populating said transaction record with said second original message data provided by said second monitoring message.</p>	<p>See, above discussion for previous limitation.</p>
<p><b>Claim 29</b></p>	
<p>29. A method as in claim 22 further comprising distributing process progress information in real time.</p>	<p>This claim was previously addressed in the claim chart attached as C-1, where it was demonstrated that the claim was anticipated under 35 U.S.C. § 102 by AWS.</p> <p>In addition to being anticipated by AWS, this claim is also rendered obvious under 35 U.S.C. § 103(a) by AWS (as applied to claims 1, 22 and 29 in the claim chart attached as C-1), in view of Leymann '633.</p> <p>Specifically, Leymann '633 teaches the use of a subscription means as part of or as an extension of the database containing the audit trail records. The subscription means allows users to "subscribe" to certain events, records or data and to establish triggers to notify them (e.g., by e-mail) upon the occurrence of an event, including the progress of a process. Leymann '633, col. 3, lines 8-25; col. 10, lines 20-67; col. 11, lines 42-62.</p>
<p><b>Claim 30</b></p>	
<p>30. A method as in claim 29 further comprising distributing said process progress information through broadcasting.</p>	<p>This claim was previously addressed in the claim chart attached as C-1, where it was demonstrated that the claim was anticipated under 35 U.S.C. § 102 by AWS.</p> <p>In addition to being anticipated by AWS, this claim is also rendered obvious under 35 U.S.C. § 103(a) by AWS (as applied to claims 1, 22, 29 and 30 in the claim chart attached as C-1), in view of Leymann '633.</p> <p>Specifically, Leymann '633 teaches the use of a subscription</p>

	<p>means as part of or as an extension of the database containing the audit trail records. The subscription means allows users to “subscribe” to certain events, records or data and to establish triggers to notify them upon the occurrence of an event, including the progress of a process. The appropriate action to notify the subscriber is defined by the user in establishing the trigger. Any desired notification mechanism can be implemented, which would include the use of broadcasting. Leymann ’633, col. 3, lines 8-25; col. 10, lines 20-67; col. 11, lines 42-62.</p>
<p><b>Claim 32</b></p>	
<p>32. A method as in claim 29 further comprising distributing said process progress information through Wireless Application Protocol.</p>	<p>This claim is rendered obvious under 35 U.S.C. § 103(a) by AWS (as applied to claims 1, 22, and 29 in the claim chart attached as C-1), in view of Leymann ’633.</p> <p>AWS discloses that the monitor tool was developed in Java to allow for functionality through the Internet as well as enterprise networks. AWS, Sec. 10.4, pg. 87. Moreover, AWS discloses that FlowMark allows mobile or “disconnected users” to perform activities while disconnected from the workflow management system, allowing the user to synchronize when reconnected to the network. Sec. 8.2.3, pgs. 73-74.</p> <p>Leymann ’633 teaches the use of a subscription means as part of or as an extension of the database containing the audit trail records. The subscription means allows users to “subscribe” to certain events, records or data and to establish triggers to notify them upon the occurrence of an event, including the progress of a process. The appropriate action to notify the subscriber is defined by the user in establishing the trigger. Any desired notification mechanism can be implemented, which would include the use of a communication utilizing the Wireless Access Protocol. Leymann ’633, col. 3, lines 8-25; col. 10, lines 20-67; col. 11, lines 42-62.</p>
<p><b>Claim 39</b></p>	
<p>39. A method as in claim 22 further comprising providing a report via an XML link to said central message repository.</p>	<p>This claim is rendered obvious under 35 U.S.C. § 103(a) by AWS, in view of Leymann ’633.</p> <p>AWS discloses that the monitor tool was developed in Java to allow for functionality through the Internet as well as enterprise networks. Sec. 10.4, pg. 87. AWS further discloses that the workflow monitor can provide a user with an ability to establish triggers or alarms, which can be used to notify the user upon the occurrence of certain events or conditions (e.g., work in a particular process step is stacking up too high.). AWS, Sec. 10.4.1, pg. 87.</p> <p>Leymann ’633 teaches the use of a subscription means as part of or as an extension of the database containing the audit trail records. The subscription means allows users to “subscribe” to certain events, records or data and to establish triggers to notify</p>



	them upon the occurrence of an event, including the progress of a process. The appropriate action to notify the subscriber is defined by the user in establishing the trigger. Any desired notification mechanism can be implemented, which would include the use of an XML link to the audit trail data store. Leymann '633, col. 3, lines 8-25; col. 10, lines 20-67; col. 11, lines 42-62.
<b>Claim 44</b>	
44. An apparatus as in claim 42 further comprising means for broadcasting data collected in said transaction record.	See, Claim 30, above.
<b>Claim 51</b>	
51. An apparatus as in claim 49 further comprising means for distributing process progress information through broadcasting.	See, Claim 30, above.
<b>Claim 53</b>	
53. An apparatus as in claim 49 further comprising means for providing a report via an XML link to said central message repository.	See, Claim 39, above.
<b>Claim 54</b>	
54. An apparatus as in claim 49 further comprising means for distributing said process progress information through Wireless Application Protocol.	See, Claim 32, above.

# **APPENDIX “D”**

**CLAIMS CHART MAPPING OF**

**BUHANNIC**

**TO THE CLAIM LIMITATIONS OF  
CLAIMS 1, 42, 55 AND 58  
OF THE '749 PATENT**

Claim Language of '749 Patent	Portion of U.S. Patent Application Publication No. 2002/0038276 That Meets the Limitation
<p><b>Claim 1</b></p> <p>1. A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:</p>	<p><b>Asynchronous Messaging Environment</b></p> <p>At paragraph [0014] Buhannic describes a trade state processing system having a node including a message broker server coupled to the servers in the trade processing system. Paragraph [0014] specifies that the message broker server may be Java Message Service (JMS) compliant. The Java Message Service was a well-known asynchronous messaging service.</p> <p><b>Original Message</b></p> <p>Paragraph [0017] of Buhannic describes how the message broker server tracks messages between the servers to coordinate the trading of securities. The messages between the servers are original messages.</p> <p><b>Original Message Data</b></p> <p>Paragraph [0016] of Buhannic describes how each server can include status information for transaction in messages passed by that server. This status information is original message data.</p>
<p>providing, through a monitoring message, at least part of said original message data to a central message repository;</p>	<p><b>Monitoring Message</b></p> <p>At paragraph [0020], Buhannic discloses that, when a message related to a trade is received by the message broker server, the contents of the message are used to determine the status of a trade. The status of the trade is then updated in the centralized database. In order to update the centralized database, a message must be sent from the message broker server to the central database. The message from the message broker server to the central database is a monitoring message.</p> <p><b>Central Message Repository</b></p> <p>Paragraph [0022] of Buhannic describes the use of a centralized database to track the trade status through all phases of a trade process and among the disparate systems.</p>

<p>populating a transaction record in said central message repository with said original message data provided by said monitoring message;</p>	<p><b>Transaction Record</b></p> <p>Paragraph [0017] describes creating a record in the central database associated with a trade. The record may be associated with, for example, a transaction number. Buhannic at paragraphs [0017]-[0019]. The record is updated with the trade state as described at paragraph [0020]. The update to the record may occur, for example, by inserting the proper state between the applicable tags of the record. This record is a transaction record.</p> <p>When a trade request message is received, a state model, i.e. a dynamic record of the request, is created in centralized database 112 and a proper state is assigned to the record. Buhannic at paragraph [0017]. The trade state may be correlated to a transaction number or other indicator in the record. Buhannic at paragraphs [0017]-[0019]. The record can be constantly updated with the status of each trade between the various parties at any time. Buhannic at paragraph [0020]. Upon receipt of each subsequent message relating to a trade the message broker updates the trade state by inserting the proper state between the "state" tags in the XML child element. Buhannic at paragraph [0020]</p> <p>As discussed above, the status used to update the record in the centralized database 112 can be included in an original message sent from a server. Thus, Buhannic discloses the step of populating a record (a transaction record) in a centralized database (a central message repository) with data (original message data) from a message received by the message broker server relating to a given trade.</p>
<p>wherein said original message data comprises the status of an activity.</p>	<p><b>Status of an Activity</b></p> <p>Paragraph [0016] of Buhannic describes how each server can include status information for a transaction in messages passed by that server. The data (original message data) in each of the messages passed by these servers is used to determine a new status of the trade (status of an activity) as discussed at paragraph [0020]. Thus, as described at paragraph [0022] the status of a trade can be tracked throughout all phases of the trade process and amongst the disparate system.</p> <p>Examples of such status is given in paragraphs [0017]-[0019] and [0021] and include statuses such as "Registered", "Credit Approved", "Executed", etc.</p>

<b>Claim 42</b>	
42. An apparatus for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:	See, Claim 1, above.
means for providing, through a monitoring message, at least part of said original message data to a central message repository;	
means for populating a transaction record in said central message repository with said original message data provided by said monitoring message;	
wherein said original message data comprises the status of a.	
<b>Claim 55</b>	
55. A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:	See, Claim 1, above.
providing, through a monitoring message, at least part of said original message data to a central message repository;	
populating a transaction record in said central message repository with said original message data provided by said monitoring message;	
wherein said original message data comprises the status of a process.	

<b>Claim 58</b>	
58. An apparatus for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:	See, Claim 1, above.
means for providing, through a monitoring message, at least part of said original message data to a central message repository;	
means for populating a transaction record in said central message repository with said original message data provided by said monitoring message;	
wherein said original message data comprises the status of an activity.	

**CERTIFICATE OF SERVICE UNDER 37 C.F.R. 1.248**


Applicant hereby serves the Notification under 37 C.F.R. 4.565 in the above referenced case to:

Joseph E. Chovanes  
5 Great Valley Parkway, Suite 329  
Malvern, PA 19355

As per U.S.C. §1.248 service is made via first class mail on November 1, 2011.

Respectfully submitted,

Sprinkle IP Law Group



Ariyeh Akmal  
Reg. No. 51,688

Dated: November 1, 2011

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Fax. (512) 371-9088

Enclosures: Appendix A - G

# **APPENDIX “G”**

## **COPY OF REPLACEMENT PTO/SB/08a AND PTO/SB/08b FORMS**



<b>INFORMATION DISCLOSURE STATEMENT</b>				Control Number	90/009,961	
				Application Number	09/737,494	
				Filing Date	December 15, 2000	
				First Named Inventor	Vincent R. Cyr	
				Group Art Unit	2193 (Prior Examination)	
				Examiner Name	INGBERG, Todd (Prior Examination)	
Sheet	1	of	1	Attorney Docket Number	OPEN2200	
U.S. PATENT DOCUMENTS						
Examiner Initials	Cite No.	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines Where Relevant Passages or Figures Appear
		Number-Kind Code (if known)				
	A1	US	7003781	02-21-2006	Blackwell et al.	
	A2	US	6122633	09-19-2000	Leymann et al.	
	A3	US	6073111	06-06-2000	Leymann et al.	
	A4	US	20020038276	06-26-2001	Buhannic et al.	
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FOREIGN PATENT DOCUMENTS						
Examiner Initials	Cite No.	Foreign Patent Document		Publication Date MM-DD-YYYY (Number 43)	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines Where Relevant Passages or Figures Appear
		Country Code-Number-Kind Code (if known)				
Examiner Signature					Date Considered	

<b>INFORMATION DISCLOSURE STATEMENT</b>				<b>Control Number</b>	90/009,961
				<b>Application Number</b>	09/737,494
				<b>Filing Date</b>	December 15, 2000
				<b>First Named Inventor</b>	Vincent R. Cyr
				<b>Group Art Unit</b>	2193 (Prior Examination)
				<b>Examiner Name</b>	INGBERG, Todd (Prior Examination)
Sheet	1	of	1	<b>Atty Docket Number</b>	OPEN2200

**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published	T <sup>2</sup>
	C1	LEYMANN, FRANK, and ROLLER, DIETER, Production Workflow Concepts and Techniques, Upper Saddle River: Prentice-Hall, Inc., July 30, 1999, 508 pgs., ISBN 0-13-021753-0, with attached Copyright Certificate from Library of Congress	
	C2	HOFFMANN, MARC, SHUTE, DAVID, and EBBERS, MIKE, Image and Workflow Library: Advanced Workflow Solutions using IBM FlowMark, January 1999, 151 pgs., IBM Corp., NY, SG24-5371-00, available at <a href="http://redbooks.ibm.com">http://redbooks.ibm.com</a> .	

Examiner Signature	Date Considered	
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## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	11314453
<b>Application Number:</b>	90009961
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	6640
<b>Title of Invention:</b>	
<b>First Named Inventor/Applicant Name:</b>	
<b>Correspondence Address:</b>	- - - - - - -
<b>Filer:</b>	Ari G. Akmal/Delia Narvaiz
<b>Filer Authorized By:</b>	Ari G. Akmal
<b>Attorney Docket Number:</b>	
<b>Receipt Date:</b>	01-NOV-2011
<b>Filing Date:</b>	
<b>Time Stamp:</b>	18:18:41
<b>Application Type:</b>	Reexam (Third Party)

### Payment information:

Submitted with Payment	no
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### File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Reexam Miscellaneous Incoming Letter	OPEN2200_Reexam_Transmittal.pdf	76594 34bd669bce024263bd4a939c624c0142139af2ad	no	2
<b>Warnings:</b>					
<b>Information:</b>					
2	Receipt of Corrected Original Ex Parte Request	OPEN2200_Corr_Req_Reexam.pdf	2714623 6151bf7d187c1568ab4009e084f576b20230c7ad	no	51
<b>Warnings:</b>					
<b>Information:</b>					
3	Receipt of Corrected Original Ex Parte Request	OPEN2200_AppA-G.pdf	4370514 eb7bc22a42f3c64405d118d4fa0226a3629374c5	no	97
<b>Warnings:</b>					
<b>Information:</b>					
<b>Total Files Size (in bytes):</b>			7161731		
<p><b>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</b></p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b>  <b>If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</b></p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b>  <b>If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</b></p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b>  <b>If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</b></p>					



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Bib Data Sheet

CONFIRMATION NO. 6640

<b>SERIAL NUMBER</b> 90/009,961	<b>FILING OR 371(c) DATE</b> 11/01/2011 <b>RULE</b>	<b>CLASS</b> 717	<b>GROUP ART UNIT</b> 3992	<b>ATTORNEY DOCKET NO.</b> OPEN2200
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**APPLICANTS**  
 7,062,749, Residence Not Provided;  
 YYZ LLC. (OWNER), CHADDS FORD, PA;  
 SPRINKLE IP LAW GROUP (3RD.PTY.REQ.), AUSTIN, TX;  
 SPRINKLE IP LAW GROUP, AUSTIN, TX

**\*\* CONTINUING DATA \*\*\*\*\***  
 This application is a REX of 09/737,494 12/15/2000 PAT 7,062,749

**\*\* FOREIGN APPLICATIONS \*\*\*\*\***

Foreign Priority claimed <input type="checkbox"/> yes <input type="checkbox"/> no	<b>STATE OR COUNTRY</b>	<b>SHEETS DRAWING</b>	<b>TOTAL CLAIMS</b> 58	<b>INDEPENDENT CLAIMS</b> 8
35 USC 119 (a-d) conditions met <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> Met after Allowance				
Verified and Acknowledged	Examiner's Signature	Initials		

**ADDRESS**  
 37158

**TITLE**  
 MEASURING, MONITORING AND TRACKING ENTERPRISE COMMUNICATIONS AND PROCESSES

<b>FILING FEE RECEIVED</b> 2520	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	<input type="checkbox"/> All Fees
		<input type="checkbox"/> 1.16 Fees ( Filing )
		<input type="checkbox"/> 1.17 Fees ( Processing Ext. of time )
		<input type="checkbox"/> 1.18 Fees ( Issue )
		<input type="checkbox"/> Other _____
		<input type="checkbox"/> Credit



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REEXAM CONTROL NUMBER	FILING OR 371 (c) DATE	PATENT NUMBER
90/009,961	11/01/2011	7062749

SPRINKLE IP LAW GROUP  
1301 W. 25th STREET  
SUITE 408  
AUSTIN, TX 78705

**CONFIRMATION NO. 6640**  
**REEXAMINATION REQUEST**  
**NOTICE**



Date Mailed: 11/03/2011

**NOTICE OF REEXAMINATION REQUEST FILING DATE**

*(Third Party Requester)*

Requester is hereby notified that the filing date of the request for reexamination is 11/01/2011, the date that the filing requirements of 37 CFR § 1.510 were received.

A decision on the request for reexamination will be mailed within three months from the filing date of the request for reexamination. (See 37 CFR 1.515(a)).

A copy of the Notice is being sent to the person identified by the requester as the patent owner. Further patent owner correspondence will be the latest attorney or agent of record in the patent file. (See 37 CFR 1.33). Any paper filed should include a reference to the present request for reexamination (by Reexamination Control Number).

cc: Patent Owner  
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JOSEPH E. CHOVANES  
SUITE 329  
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MALVERN, PA 19355

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Legal Instruments Examiner  
Central Reexamination Unit 571-272-7705; FAX No. 571-273-9900



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
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REEXAM CONTROL NUMBER	FILING OR 371 (c) DATE	PATENT NUMBER
90/009,961	11/01/2011	7062749

**CONFIRMATION NO. 6640  
REEXAM ASSIGNMENT NOTICE**

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JOSEPH E. CHOVANES  
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Date Mailed: 11/03/2011

**NOTICE OF ASSIGNMENT OF REEXAMINATION REQUEST**

The above-identified request for reexamination has been assigned to Art Unit 3992. All future correspondence to the proceeding should be identified by the control number listed above and directed to the assigned Art Unit.

A copy of this Notice is being sent to the latest attorney or agent of record in the patent file or to all owners of record. (See 37 CFR 1.33(c)). If the addressee is not, or does not represent, the current owner, he or she is required to forward all communications regarding this proceeding to the current owner(s). An attorney or agent receiving this communication who does not represent the current owner(s) may wish to seek to withdraw pursuant to 37 CFR 1.36 in order to avoid receiving future communications. If the address of the current owner(s) is unknown, this communication should be returned within the request to withdraw pursuant to Section 1.36.

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Legal Instruments Examiner  
Central Reexamination Unit 571-272-7705; FAX No. 571-273-9900

# Litigation Search Report CRU 3999

Reexam Control No. 90/009,961

**TO: Mark Reinhart**  
**Location: CRU**  
**Art Unit: 3992**  
**Date: 11/03/2011**

**From: Patricia Volpe**  
**Location: CRU 3999**  
**MDE 5D30**  
**Phone: (571) 272-6825**  
**Patricia.volpe@uspto.gov**

## Search Notes

Litigation Search for U.S. Patent Number: **7,062,749**

Status (**OPEN**) 2:11cv6602 *Intersystems Corporation v. Yyz, Llc*

Status (**OPEN**) 2:11cv1609 *Yyz, Llc v. Metastorm, Inc et al*

- 1) I performed a KeyCite Search in Westlaw, which retrieves all history on the patent including any litigation.
- 2) I performed a search on the patent in Lexis CourtLink for any open dockets or closed cases.
- 3) I performed a search in Lexis in the Federal Courts and Administrative Materials databases for any cases found.
- 4) I performed a search in Lexis in the IP Journal and Periodicals database for any articles on the patent.
- 5) I performed a search in Lexis in the news databases for any articles about the patent or any articles about litigation on this patent.





Date of Printing: Oct 25, 2011

**KEYCITE**

**US PAT 7062749 MEASURING, MONITORING AND TRACKING ENTERPRISE COMMUNICATIONS AND PROCESSES, Assignee: Promenix, Inc. (Jun 13, 2006)**

**History****Direct History**

=> **1 MEASURING, MONITORING AND TRACKING ENTERPRISE COMMUNICATIONS AND PROCESSES, US PAT 7062749, 2006 WL 1639007 (U.S. PTO Utility Jun 13, 2006) (NO. 09/737494)**

**Patent Family**

**2 ENTERPRISE COMMUNICATION AND PROCESS TRACKING METHOD FOR ASYNCHRONOUS MESSAGING ENVIRONMENT, INVOLVES COLLECTING ORIGINAL MESSAGE PART INTO CENTRAL MESSAGE REPOSITORY USING MONITORING MESSAGE, AND REVIEWING DATA IN REPOS, Derwent World Patents Legal 2004-060789**

**Assignments**

**3 Action: ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS). Number of Pages: 004, (DATE RECORDED: Jun 22, 2006)**  
**4 Action: ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS). Number of Pages: 006, (DATE RECORDED: Dec 15, 2000)**

**Patent Status Files**

.. Patent Suit(See LitAlert Entries),  
 .. Patent Suit(See LitAlert Entries),

**Docket Summaries**

**7 YYZ, LLC v. METASTORM, INC. ET AL, (E.D.PA. Mar 07, 2011) (NO. 2:11CV01609), (15 USC 1126 PATENT INFRINGEMENT)**  
**8 YYZ, LLC v. METASTORM, INC, (E.D.PA. Feb 07, 2011) (NO. 2:11CV00931), (35 USC 271 PATENT INFRINGEMENT)**

**Litigation Alert**

**9 Derwent LitAlert P2011-10-64 (Mar 07, 2011) Action Taken: cause - 15 USC 1126 - complaint for PATENT INFRINGEMENT**  
**10 Derwent LitAlert P2011-06-44 (Feb 07, 2011) Action Taken: cause - 35 USC 271 - complaint for**

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## PATENT INFRINGEMENT

**Prior Art (Coverage Begins 1976)**

- C** 11 BUILDING BUSINESS OBJECTS AND BUSINESS SOFTWARE APPLICATIONS USING DYNAMIC OBJECT DEFINITIONS OF INGREDIENTIAL OBJECTS, US PAT 6789252 (U.S. PTO Utility 2004)
- C** 12 BUSINESS COMPONENTS FRAMEWORK, US PAT 6601233 Assignee: Accenture LLP, (U.S. PTO Utility 2003)
- C** 13 DATA EXCHANGE SYSTEM AND METHOD, US PAT 6453356 Assignee: ADC Telecommunications, Inc., (U.S. PTO Utility 2002)
- C** 14 DISPLAY OF DETECTED EVENT FOR INFORMATION HANDLING SYSTEM, US PAT 6681245 Assignee: Fuji Xerox Co., Ltd., (U.S. PTO Utility 2004)
- C** 15 FAULT-TOLERANT METHOD OF COMMUNICATING BETWEEN PROCESSES IN A MULTI PROCESSOR SYSTEM BY KEEPING TRACK OF THE CURRENT NODE LOCATION OF MESSAGES, US PAT 5404501 Assignee: Motorola, Inc., (U.S. PTO Utility 1995)
- C** 16 FILTERING AN OBJECT INTERFACE DEFINITION TO DETERMINE SERVICES NEEDED AND PROVIDED, US PAT 5949998 Assignee: Sun Microsystems, Inc., (U.S. PTO Utility 1999)
- C** 17 MESSAGE BROKER APPARATUS, METHOD AND COMPUTER PROGRAM PRODUCT, US PAT 6510429 Assignee: International Business Machines, (U.S. PTO Utility 2003)
- C** 18 METHOD AND APPARATUS FOR TESTING CUSTOM-CONFIGURED SOFTWARE/HARDWARE INTEGRATION IN A COMPUTER BUILD-TO-ORDER MANUFACTURING PROCESS, US PAT 6543047 Assignee: Dell USA, L.P., (U.S. PTO Utility 2003)
- C** 19 METHOD AND SYSTEM FOR DISTRIBUTED TRANSACTION PROCESSING WITH ASYNCHRONOUS MESSAGE DELIVERY, US PAT 6529932 Assignee: Microsoft Corporation, (U.S. PTO Utility 2003)
- C** 20 METHOD AND SYSTEM FOR SPECIFYING AND IMPLEMENTING AUTOMATION OF BUSINESS PROCESSES, US PAT 6662355 Assignee: International Business Machines, (U.S. PTO Utility 2003)
- C** 21 METHODS AND SYSTEM FOR MESSAGE RESOURCE POOL WITH ASYNCHRONOUS AND SYNCHRONOUS MODES OF OPERATION, US PAT 6553438 Assignee: Intel Corporation, (U.S. PTO Utility 2003)
- A** 22 OBJECT-BASED ON-LINE TRANSACTION INFRASTRUCTURE, US PAT 6757710 Assignee: OneName Corporation, (U.S. PTO Utility 2004)
- C** 23 OBJECT-ORIENTED WORKFLOW FOR MULTI-ENTERPRISE COLLABORATION, US PAT 6397191 Assignee: i2 Technologies US, Inc., (U.S. PTO Utility 2002)
- C** 24 ONLINE SYSTEM AND METHOD OF LOCATING CONSUMER PRODUCT HAVING SPECIFIC CONFIGURATIONS IN THE ENTERPRISE PRODUCTION PIPELINE AND INVENTORY, US PAT 6901430 Assignee: Ford Motor Company, (U.S. PTO Utility 2005)
- C** 25 PROGRAM PRODUCT FOR MODULAR, PARALLEL, REMOTE SOFTWARE INSTALLATION WITH REPEATABLE, EXTERNALLY-INVOCABLE STEPS, US PAT 6460175 Assignee: International Business Machines, (U.S. PTO Utility 2002)

- C** 26 SYNCHRONIZATION MECHANISM FOR PROVIDING MULTIPLE READERS AND WRITERS ACCESS TO PERFORMANCE INFORMATION OF AN EXTENSIBLE COMPUTER SYSTEM, US PAT 5887167Assignee: Apple Computer, Inc., (U.S. PTO Utility 1999)
- C** 27 SYSTEM AND METHOD FOR NOTIFYING USERS ABOUT INFORMATION OR EVENTS OF AN ENTERPRISE, US PAT 6092102Assignee: University of Pittsburgh of the, (U.S. PTO Utility 2000)
- C** 28 SYSTEM FOR MINIMIZING NOTIFICATIONS IN WORKFLOW MANAGEMENT SYSTEM, US PAT 6725445Assignee: International Business Machines, (U.S. PTO Utility 2004)
- C** 29 SYSTEM TO TRANSITION AN ENTERPRISE TO A DISTRIBUTED INFRASTRUCTURE, US PAT 5960200Assignee: i-CUBE, (U.S. PTO Utility 1999)
- C** 30 SYSTEMS AND METHODS FOR THE AUTOMATIC REGISTRATION OF DEVICES, US PAT 6943681Assignee: Xanboo, Inc., (U.S. PTO Utility 2005)
- C** 31 SYSTEMS AND METHODS FOR MONITORING DATA SIGNALS ON A COMMUNICATIONS NETWORK, US PAT 6501950Assignee: BellSouth Intellectual Property, (U.S. PTO Utility 2002)
- C** 32 TOOL-INDEPENDENT SYSTEM FOR APPLICATION BUILDING IN AN OBJECT ORIENTED DEVELOPMENT ENVIRONMENT WITH DATA STORED IN REPOSITORY IN OMG COMPLIANT UML REPRESENTATION, US PAT 6018627Assignee: Unisys Corp., (U.S. PTO Utility 2000)
- C** 33 VISUAL DATA INTEGRATION SYSTEM AND METHOD, US PAT 6208345Assignee: ADC Telecommunications, Inc., (U.S. PTO Utility 2001)
- C** 34 WORKFLOW DISTRIBUTING APPARATUS AND METHOD, US PAT 6728947Assignee: R. R. Donnelley & Sons Company, (U.S. PTO Utility 2004)

**US District Court Civil Docket**

**U.S. District - Pennsylvania Eastern  
(Philadelphia)**

**2:11cv6602**

**Intersystems Corporation v. Yyz, Llc**

This case was retrieved from the court on Tuesday, October 25, 2011

<b>Date Filed:</b> 10/21/2011	<b>Class Code:</b>
<b>Assigned To:</b> Honorable J Curtis Joyner	<b>Closed:</b> No
<b>Referred To:</b>	<b>Statute:</b> 35:271
<b>Nature of suit:</b> Patent (830)	<b>Jury Demand:</b> Plaintiff
<b>Cause:</b> Patent Infringement	<b>Demand Amount:</b> \$0
<b>Lead Docket:</b> None	<b>NOS Description:</b> Patent
<b>Other Docket:</b> None	
<b>Jurisdiction:</b> Federal Question	

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Yyz, Llc  
Defendant

<b>Date</b>	<b>#</b>	<b>Proceeding Text</b>	<b>Source</b>
10/21/2011	1	COMPLAINT against YYZ, LLC ( Filing fee \$ 350 receipt number 051851.), filed by INTERSYSTEMS CORPORATION. (Attachments: # 1 Civil Cover Sheet)(mima, ) (Entered: 10/24/2011)	
10/21/2011	--	Summons Issued as to YYZ, LLC. One Forwarded To: Counsel on October 24, 2011 (mima, ) (Entered: 10/24/2011)	
10/21/2011	--	DEMAND for Trial by Jury by INTERSYSTEMS CORPORATION. (mima, ) (Entered: 10/24/2011)	
10/21/2011	2	Disclosure Statement Form pursuant to FRCP 7.1 by INTERSYSTEMS CORPORATION. (mima, ) (Entered: 10/24/2011)	
10/21/2011	3	REPORT on the filing or determination of an action regarding patent and/or trademark number(s). (mima, ) (Entered: 10/24/2011)	

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**US District Court Civil Docket**

**U.S. District - Pennsylvania Eastern  
(Philadelphia)**

**2:11cv1609**

**Yyz, Llc v. Metastorm, Inc et al**

This case was retrieved from the court on Monday, October 24, 2011

<b>Date Filed: 03/07/2011</b>	<b>Class Code:</b>
<b>Assigned To: Honorable J Curtis Joyner</b>	<b>Closed: No</b>
<b>Referred To:</b>	<b>Statute: 15:1126</b>
<b>Nature of suit: Patent (830)</b>	<b>Jury Demand: Defendant</b>
<b>Cause: Patent Infringement</b>	<b>Demand Amount: \$0</b>
<b>Lead Docket: None</b>	<b>NOS Description: Patent</b>
<b>Other Docket: None</b>	
<b>Jurisdiction: Federal Question</b>	

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Date	#	Proceeding Text	Source
03/07/2011	1	COMPLAINT against All Defendants ( Filing fee \$ 350 receipt number 038989.), filed by YYZ, LLC.(ks, ) (Additional attachment(s) added on 3/8/2011: # 1 Civil Cover Sheet) (ks, ). (Entered: 03/08/2011)	
03/07/2011	--	2 Summonses Issued as to All Defendants. Forwarded To: Counsel on 3/8/11 (ks, ) . (Entered: 03/08/2011)	
03/07/2011	2	REPORT on the filing or determination of an action regarding patent and/or trademark number(s) 7,062,749 B2, 7,603,674 B2. (ks, ) (Entered: 03/08/2011)	
03/07/2011	3	Disclosure Statement Form pursuant to FRCP 7.1 by YYZ, LLC.(ks, ) (Entered: 03/08/2011)	
03/17/2011	4	Praecipe to Issue Alias Summons by YYZ, LLC. (CHOVANES, JOSEPH) Modified on 3/18/2011 (nd). (Entered: 03/17/2011)	
03/18/2011	--	Alias Summons Issued as to METASTORM, INC., AND OPENTEXT CORPORATION. FORWARDED TO PLAINTIFFS COUNSEL. (sg, ) (Entered: 03/18/2011)	
04/27/2011	5	ANSWER to 1 Complaint and , COUNTERCLAIM against YYZ, LLC by OPENTEXT CORPORATION, METASTORM, INC.. (Attachments: # 1 Certificate of Service)(VOLPE, ANTHONY) (Entered: 04/27/2011)	
04/27/2011	6	Disclosure Statement Form pursuant to FRCP 7.1 including Vignette Partnership, LP with Certificate of Service by METASTORM, INC.. (Attachments: # 1 Certificate of Service) (VOLPE, ANTHONY) (Entered: 04/27/2011)	
04/27/2011	7	Disclosure Statement Form pursuant to FRCP 7.1 including FMR LLC with Certificate of Service by OPENTEXT CORPORATION. (Attachments: # 1 Certificate of Service)(VOLPE, ANTHONY) (Entered: 04/27/2011)	
04/27/2011	8	MOTION for Pro Hac Vice for Steven R. Sprinkle filed by METASTORM, INC., OPENTEXT CORPORATION.Certificate of Service.(VOLPE, ANTHONY) (Entered: 04/27/2011)	
04/27/2011	9	MOTION for Pro Hac Vice for Scott S. Crocker filed by METASTORM, INC., OPENTEXT CORPORATION.Certificate of Service.(VOLPE, ANTHONY) (Entered: 04/27/2011)	

- 04/27/2011 10 MOTION for Pro Hac Vice for Ariyeh G. Akmal filed by METASTORM, INC., OPENTEXT CORPORATION. Certificate of Service. (VOLPE, ANTHONY) (Entered: 04/27/2011)
- 05/02/2011 11 ORDER THAT THE MOTION FOR ADMISSION PRO HAC VICE OF STEVEN R. SPRINKLE IS GRANTED ON BEHALF OF THE DEFENDANTS. SIGNED BY HONORABLE J. CURTIS JOYNER ON 5/2/2011. 5/3/2011 ENTERED AND COPIES MAILED AND E-MAILED. (sg, ) (Entered: 05/03/2011)
- 05/02/2011 12 ORDER THAT THE MOTION FOR ADMISSION PRO HAC VICE OF ARIYEH G. AKMAL IS GRANTED ON BEHALF OF THE DEFENDANTS. SIGNED BY HONORABLE J. CURTIS JOYNER ON 5/2/2011. 5/3/2011 ENTERED AND COPIES MAILED AND E-MAILED. (sg, ) (Entered: 05/03/2011)
- 05/02/2011 13 ORDER THAT THE MOTION FOR ADMISSION PRO HAC VICE OF SCOTT S. CROCKER IS GRANTED ON BEHALF OF THE DEFENDANTS. SIGNED BY HONORABLE J. CURTIS JOYNER ON 5/2/2011. 5/3/2011 ENTERED AND COPIES MAILED AND E-MAILED. (sg, ) (Entered: 05/03/2011)
- 05/04/2011 14 NOTICE of Appearance by RYAN WILLIAM O'DONNELL on behalf of METASTORM, INC., OPENTEXT CORPORATION with Certificate of Service (O'DONNELL, RYAN) (Entered: 05/04/2011)
- 05/05/2011 15 NOTICE of Hearing: PRETRIAL CONFERENCE SET FOR 5/25/2011 at 2:00 PM IN JUDGE CHAMBERS BEFORE HONORABLE J. CURTIS JOYNER. (sc, ) (Entered: 05/05/2011)
- 05/16/2011 16 ANSWER to 5 Answer to Complaint, Counterclaim with Certificate of Service by YYZ, LLC. (CHOVANES, JOSEPH) (Entered: 05/16/2011)
- 05/19/2011 17 Discovery Plan by All Parties. (CHOVANES, JOSEPH) (Entered: 05/19/2011)
- 05/27/2011 18 Minute Entry for proceedings held before HONORABLE J. CURTIS JOYNER: Pretrial Conference held on 5/25/2011. (sg, ) (Entered: 05/27/2011)
- 06/01/2011 19 SCHEDULING ORDER: DISCOVERY DUE BY 3/26/2012. MOTION FOR SUMMARY JUDGMENT DUE BY 4/26/2012. TRIAL POOL SET FOR 5/29/2012. SIGNED BY HONORABLE J. CURTIS JOYNER ON 5/31/2011. 6/2/2011 ENTERED AND COPIES E-MAILED. (sg, ) (Entered: 06/02/2011)
- 09/29/2011 20 APPLICATION FOR PRO HAC VICE OF PETER H. CHANG FOR YYZ, LLC. PROPOSED ORDER, CERTIFICATE OF SERVICE. (sg, ) (Main Document 20 replaced on 9/30/2011) (sg, ). (Entered: 09/30/2011)
- 09/29/2011 21 APPLICATION FOR PRO HAC VICE OF BRADFORD J. BLACK FOR YYZ, LLC. PROPOSED ORDER, CERTIFICATE OF SERVICE. (sg, ) (Entered: 09/30/2011)
- 09/29/2011 22 APPLICATION FOR PRO HAC VICE OF ANDREW GRANT HAMILL FOR YYZ, LLC. PROPOSED ORDER, CERTIFICATE OF SERVICE. (sg, ) (Entered: 09/30/2011)
- 10/04/2011 23 ORDER THAT THE APPLICATION OF ATTORNEY ANDREW GRANT HAMILL FOR POR HAC VICE for YYZ, LLC IS GRANTED. SIGNED BY HONORABLE J. CURTIS JOYNER ON 10/3/2011. 10/5/2011 ENTERED AND COPIES MAILED AND E-MAILED. (sg, ) (Entered: 10/05/2011)
- 10/04/2011 24 ORDER THAT THE APPLICATION OF ATTORNEY BRADFORD J. BLACK FOR POR HAC VICE for YYZ, LLC IS GRANTED. SIGNED BY HONORABLE J. CURTIS JOYNER ON 10/3/2011. 10/5/2011 ENTERED AND COPIES MAILED AND E-MAILED. (sg, ) (Entered: 10/05/2011)
- 10/04/2011 25 ORDER THAT THE APPLICATION OF ATTORNEY PETER H. CHANG FOR POR HAC VICE for YYZ, LLC IS GRANTED. SIGNED BY HONORABLE J. CURTIS JOYNER ON 10/3/2011. 10/5/2011 ENTERED AND COPIES MAILED AND E-MAILED. (sg, ) (Entered: 10/05/2011)

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**US District Court Civil Docket**

**U.S. District - Pennsylvania Eastern  
(Philadelphia)**

**2:11cv931**

**Yyz, Llc v. Metastorm, Inc**

This case was retrieved from the court on Wednesday, February 09, 2011

<b>Date Filed: 02/07/2011</b>	<b>Class Code:</b>
<b>Assigned To: Honorable J Curtis Joyner</b>	<b>Closed: No</b>
<b>Referred To:</b>	<b>Statute: 35:271</b>
<b>Nature of suit: Patent (830)</b>	<b>Jury Demand: None</b>
<b>Cause: Patent Infringement</b>	<b>Demand Amount: \$0</b>
<b>Lead Docket: None</b>	<b>NOS Description: Patent</b>
<b>Other Docket: None</b>	
<b>Jurisdiction: Federal Question</b>	

**Litigants**

**Attorneys**

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Metastorm, Inc  
Defendant

<b>Date</b>	<b>#</b>	<b>Proceeding Text</b>	<b>Source</b>
02/07/2011	1	COMPLAINT against METASTORM, INC. ( Filing fee \$ 350 receipt number 037237.), filed by YYZ, LLC. (Attachments: # 1 Civil Cover Sheets)(mima, ) (Entered: 02/08/2011)	
02/07/2011	2	REPORT on the filing or determination of an action regarding patent and/or trademark number(s) 7,062,749 & 7,603,674. (mima, ) (Entered: 02/08/2011)	
02/07/2011	--	Summons Issued as to METASTORM, INC.. One Forwarded To: Counsel on February 8, 2011 (mima, ) (Entered: 02/08/2011)	

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737494 (09) 7062749 June 13, 2006

UNITED STATES PATENT AND TRADEMARK OFFICE GRANTED PATENT

**7062749**

Get Drawing Sheet 1 of 8  
Access PDF of Official Patent \*  
Order Patent File History / Wrapper from REEDFAX®  
Link to Claims Section

June 13, 2006

Measuring, monitoring and tracking enterprise communications and processes

**REEXAM-LITIGATE:**

NOTICE OF LITIGATION

YYZ, LLC v. Metastorm, Inc, Filed February 7, 2011, D.C. E.D. Pennsylvania, Doc. No. 2:11cv931

NOTICE OF LITIGATION

YYZ, LLC v. Metastorm, Inc et al, Filed March 7, 2011, D.C. E.D. Pennsylvania, Doc. No. 2:11cv1609

**APPL-NO:** 737494 (09)

**FILED-DATE:** December 15, 2000

**GRANTED-DATE:** June 13, 2006

**ASSIGNEE-PRE-ISSUE:**

December 15, 2000 - ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS)., PROMENIX, INC. CHADDS FORD PENNSYLVANIA 19317, Reel and Frame Number: 011376/0563

**ASSIGNEE-AT-ISSUE:**

Promenix, Inc., Chadds Ford, PENNSYLVANIA, United States of America (US), United States company or corporation (02)

**ASSIGNEE-AFTER-ISSUE:**

June 22, 2006 - ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS)., YYZ LLC 130 COMMONS CT. CHADDS FORD PENNSYLVANIA 19317, 130 COMMONS CT., CHADDS FORD, PENNSYLVANIA, UNITED STATES OF AMERICA (US), 19317, Reel and Frame Number: 017823/0577

**PRIM-EXMR:** Ingberg, Todd

**CORE TERMS:** sub-process, message, database, monitoring, customer, identifier, messaging, quote, asynchronous, user, simulation, module, queue, quantity, broker, path, custno, qty, manufacture, matno, ship, num, amt, repository, factory, screen, new processes, flexibility, simulating, simulated

**ENGLISH-ABST:**

The present invention comprises apparatus and systems for measuring, monitoring, tracking and simulating enterprise communications and processes. A central message repository or database is constructed, comprised of monitoring messages sent from process messaging systems. The database may then be accessed or queried as desired. A simulation tool assists in reviewing present and proposed processes and sub-processes before modifying existent systems or creating new systems.

Source: **Legal > / . . . / > Utility, Design and Plant Patents** [i](#)

Terms: **patno=7062749** (Suggest Terms for My Search)

View: Custom

Segments: Abst, Appl-no, Assignee, Assigneeaftissue, Assigneeatissue, Assigneepreissue, Cert-correction, Date, Exmr, Filed-date, Granted-date, Lit-reex, Prim-exmr, Reexam-litigate, Reissue

Date/Time: Tuesday, October 25, 2011 - 7:41 PM EDT

In

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# Patent Assignment Abstract of Title

## Total Assignments: 2

Application #: 09737494

Filing Dt: 12/15/2000

Patent #: 7062749

Issue Dt: 06/13/2006

PCT #: NONE

Publication #: US20030225923

Pub Dt: 12/04/2003

Inventors: Vincent R. Cyr, Kenneth Fritz

Title: MEASURING, MONITORING AND TRACKING ENTERPRISE COMMUNICATIONS AND PROCESSES

## Assignment: 1

Reel/Frame: 011376 / 0563 Received: 01/02/2001 Recorded: 12/15/2000 Mailed: 03/09/2001 Pages: 6

Conveyance: ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS).

Assignors: CYR, VINCENT R.

Exec Dt: 12/07/2000

FRITZ, KENNETH

Exec Dt: 12/08/2000

Assignee: PROMENIX, INC.

130 COMMONS COURT  
CHADDS FORD, PENNSYLVANIA 19317

Correspondent: JOSEPH E. CHOVANES  
2047 LOCUST STREET  
PHILADELPHIA, PA 19103

## Assignment: 2

Reel/Frame: 017823 / 0577 Received: 06/22/2006 Recorded: 06/22/2006 Mailed: 06/22/2006 Pages: 4

Conveyance: ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS).

Assignor: PROMENIX, INC.

Exec Dt: 06/16/2006

Assignee: YYZ LLC

130 COMMONS CT.  
CHADDS FORD, PENNSYLVANIA 19317

Correspondent: JOSEPH E. CHOVANES  
5 GREAT VALLEY PARKWAY  
MALVERN, PA 19355

Search Results as of: 11/03/2011 07:52 AM



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United States Patent and Trademark Office  
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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
90/009,961	11/01/2011	7,062,749	OPEN2200	6640

37158 7590 11/04/2011

JOSEPH E. CHOVANES  
SUITE 329  
5 GREAT VALLEY PARKWAY  
MALVERN, PA 19355

EXAMINER

ART UNIT PAPER NUMBER

DATE MAILED: 11/04/2011

Please find below and/or attached an Office communication concerning this application or proceeding.

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THIRD PARTY REQUESTER'S CORRESPONDENCE ADDRESS  
SPRINKLE IP LAW GROUP  
1301 W. 25th STREET  
SUITE 408  
AUSTIN, TX 78705

Date:  
**MAILED**

NOV 04 2011

**CENTRAL REEXAMINATION UNIT**

**EX PARTE REEXAMINATION COMMUNICATION TRANSMITTAL FORM**

REEXAMINATION CONTROL NO. : 90009961  
PATENT NO. : 7062749  
ART UNIT : 3991

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified ex parte reexamination proceeding (37 CFR 1.550(f)).

Where this copy is supplied after the reply by requester, 37 CFR 1.535, or the time for filing a reply has passed, no submission on behalf of the ex parte reexamination requester will be acknowledged or considered (37 CFR 1.550(g)).



<b>Ex Parte Reexamination Interview Summary – Pilot Program for Waiver of Patent Owner's Statement</b>	Control No.	Patent For Which Reexamination is Requested
	90/009,961 Examiner	7,062,749 Art Unit 3992

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address. --

**All participants (USPTO official and patent owner):**

- (1) Patricia Volpe, CRU (3)  
(2) Joseph E. Chovanes, 33481 (4)

Date of Telephonic Interview: 04 November 2011.

The USPTO official requested waiver of the patent owner's statement pursuant to the pilot program for waiver of patent owner's statement in *ex parte* reexamination proceedings.\*

- The patent owner **agreed** to waive its right to file a patent owner's statement under 35 U.S.C. 304 in the event reexamination is ordered for the above-identified patent.
- The patent owner **did not agree** to waive its right to file a patent owner's statement under 35 U.S.C. 304 at this time.

The patent owner is not required to file a written statement of this telephone communication under 37 CFR 1.560(b) or otherwise. However, any disagreement as to this interview summary must be brought to the immediate attention of the USPTO, and no later than one month from the mailing date of this interview summary. Extensions of time are governed by 37 CFR 1.550(c).

\*For more information regarding this pilot program, see *Pilot Program for Waiver of Patent Owner's Statement in Ex Parte Reexamination Proceedings*, 75 Fed. Reg. 47269 (August 5, 2010), available on the USPTO Web site at <http://www.uspto.gov/patents/law/notices/2010.jsp>.

- USPTO personnel were unable to reach the patent owner.

The patent owner may contact the USPTO personnel at the telephone number provided below if the patent owner decides to waive the right to file a patent owner's statement under 35 U.S.C. 304.

/Patricia Volpe/ (571) 272-6825  
Signature and telephone number of the USPTO official who contacted or attempted to contact the patent owner.

cc: Requester (if third party requester)



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
90/009,961	11/01/2011	7,062,749	OPEN2200	6640

37158            7590            12/01/2011

JOSEPH E. CHOVANES  
SUITE 329  
5 GREAT VALLEY PARKWAY  
MALVERN, PA 19355

EXAMINER

ART UNIT            PAPER NUMBER

DATE MAILED: 12/01/2011

Please find below and/or attached an Office communication concerning this application or proceeding.



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(THIRD PARTY REQUESTER'S CORRESPONDENCE ADDRESS)

Sprinkle IP Law Group  
1301 W. 25<sup>th</sup> Street  
Suite 408  
Austin, TX 78705

**MAILED**

**DEC 01 2011**

CENTRAL REEXAMINATION UNIT

**EX PARTE REEXAMINATION COMMUNICATION TRANSMITTAL FORM**

REEXAMINATION CONTROL NO. 90/009,961.

PATENT NO. 7,062,749.

ART UNIT 3992.

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified *ex parte* reexamination proceeding (37 CFR 1.550(f)).

Where this copy is supplied after the reply by requester, 37 CFR 1.535, or the time for filing a reply has passed, no submission on behalf of the *ex parte* reexamination requester will be acknowledged or considered (37 CFR 1.550(g)).

<b>Order Granting / Denying Request For Ex Parte Reexamination</b>	<b>Control No.</b> 90/009,961	<b>Patent Under Reexamination</b> 7,062,749
	<b>Examiner</b> RACHNA DESAI	<b>Art Unit</b> 3992

**--The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

The request for *ex parte* reexamination filed 01 November 2011 has been considered and a determination has been made. An identification of the claims, the references relied upon, and the rationale supporting the determination are attached.

Attachments: a)  PTO-892,      b)  PTO/SB/08,      c)  Other: \_\_\_\_\_

1.  The request for *ex parte* reexamination is GRANTED.

RESPONSE TIMES ARE SET AS FOLLOWS:

For Patent Owner's Statement (Optional): TWO MONTHS from the mailing date of this communication (37 CFR 1.530 (b)). **EXTENSIONS OF TIME ARE GOVERNED BY 37 CFR 1.550(c).**

For Requester's Reply (optional): TWO MONTHS from the **date of service** of any timely filed Patent Owner's Statement (37 CFR 1.535). **NO EXTENSION OF THIS TIME PERIOD IS PERMITTED.** If Patent Owner does not file a timely statement under 37 CFR 1.530(b), then no reply by requester is permitted.

2.  The request for *ex parte* reexamination is DENIED.

This decision is not appealable (35 U.S.C. 303(c)). Requester may seek review by petition to the Commissioner under 37 CFR 1.181 within ONE MONTH from the mailing date of this communication (37 CFR 1.515(c)). **EXTENSION OF TIME TO FILE SUCH A PETITION UNDER 37 CFR 1.181 ARE AVAILABLE ONLY BY PETITION TO SUSPEND OR WAIVE THE REGULATIONS UNDER 37 CFR 1.183.**

In due course, a refund under 37 CFR 1.26 ( c ) will be made to requester:

- a)  by Treasury check or,  
b)  by credit to Deposit Account No. \_\_\_\_\_, or  
c)  by credit to a credit card account, unless otherwise notified (35 U.S.C. 303(c)).

--	--	--

cc:Requester ( if third party requester )

## DETAILED ACTION

### Decision on Request

1. A substantial new question of patentability affecting claims 1-58 of United States Patent Number 7,062,749 B2 is raised by the request for *ex parte* reexamination.

### References Cited in the Request

2. The request cites the following prior art references:

Leymann, Frank, and Roller, Dieter, Production Workflow Concepts and Techniques, Upper Saddle River, Prentice-Hall, Inc., July 30, 1999\*, ISBN 0-13-021753-0 (hereafter "Production Workflow").

US Patent No. 7,003,781 issued to Blackwell et al. (hereafter "Blackwell").

Hoffmann, Marc, Shute, David, and Ebberts, Mike, *Image and Workflow Library: Advanced Workflow Solutions using IBM FlowMark*, International Business Machines Corporation, January 1999, SG24-5371-00 (hereafter "AWS")

US Patent No. 2002/0038276 issued to Buhannic et al. (hereafter "Buhannic")

\*\*US Patent No. 6,122,633 issued to Leymann et al. (hereafter "Leymann '633").

\*\*US Patent No. 6,073,111 issued to Leymann et al. (hereafter "Leymann '111")

\*Without evidence to the contrary, Examiner presumes the date of the prior art reference is the publication date provided by the United States Copyright Office.

Art Unit: 3992

\*\*These references were cited as secondary references in the Request and are not relied upon as raising a substantial new question of patentability.

### **Issues Raised by Request**

Issue 1: The Requester alleges (pages 11-21) that Production Workflow raises a substantial new question of patentability regarding claims 1-58. Production Workflow was published July 30, 1999 which predates the filing date of the '749 patent. Production Workflow is new prior art that was not previously before the examiner at the time of allowance.

Issue 2: The Requester alleges (pages 22-30) that Blackwell raises a substantial new question of patentability regarding claims 1-6, 8-11, 14-17, 19, 21-24, 27, 31-34, 38, 42-43, 45-50, 52, and 54-58. Blackwell was filed on May 5, 2000 which predates the filing date of the '749 patent. Blackwell is new prior art that was not previously before the examiner at the time of allowance.

Issue 3: The Requester alleges (pages 31-43) that Advanced Workflow Solutions (AWS), either alone or in combination, raises a substantial new question of patentability regarding claims 1-37, 39-51, and 53-58. AWS was published January 1999 which predates the filing date of the '749 Patent. AWS is new prior art that was not previously before the examiner at the time of allowance.

Art Unit: 3992

Issue 4: The Requester alleges (pages 44-50) that Buhannic, either alone or in combination, raises a substantial new question of patentability regarding claims 1, 42, 55, and 58. Buhannic was filed on June 26, 2001 and claims priority to a provisional application filed on June 26, 2000 which predates the filing date of the '749 Patent. Buhannic is new prior art that was not previously before the examiner at the time of allowance.

### **Background**

3. Claims 1-58 are being requested in the instant request for reexamination and are current claims in the '749 Patent that issued June 13, 2006 from application 09/737,494 filed on December 15, 2000.

The '749 patent relates to an apparatus and systems for measuring, monitoring, tracking and simulating enterprise communications and processes in an asynchronous messaging environment. For each original message sent within a process, sub-process or activity, the preferred embodiments of the present invention send a separate monitoring message containing data from the central message repository or database. This data may include date, time, customer number, materials, quantity, amount, or other information, and be copied from the original message. Through a monitoring message, at least part of said original message data is provided to a central message repository and a transaction record in the central message repository is populated with the original message data provided by said monitoring message.

### Prosecution History

4. Claims 1-58 are the current claims in the '749 Patent that issued June 13, 2006 from application 09/737,494 filed on December 15, 2000.

Application 09/737,494 was originally filed with claims 1-42 which were subject to a Restriction Requirement on 05/26/2004. In response to the Restriction Requirement, Applicant elected original claims 1-27 and also provided an amendment cancelling claims 1-27 and adding new claims 43-84. The Examiner issued a non-final rejection on 08/26/2004 rejecting claims 43-69, 71-81, and 83-84 under 35 U.S.C. 103(a) as being unpatentable over Template Software in view of EDI. Claims 70 and 82 were rejected under 35 U.S.C. 103(a) as being unpatentable over Template Software in view of EDI and further in view of The XML Handbook. In response to the non-final rejection, Applicant filed amendments and a response on 11/09/2004. The amendment added claims 85-100 and amended claims 43, 45-48, 59-60, 62, 64-65, 73, 76, 80, and 83. In response to Applicant's amendments and response, the Examiner issued an Examiner's amendment adding the word "activity" to original claim 73 and notice of allowability on 02/14/2006. The notice of allowability indicated on page 3, "*When taken in combination or singularly, the references do not teach the central message repository and the claim limitations supporting the operations of the invention.*". The notice of allowability further state with respect to the Template reference that ". . .*the monitor function focuses on the transaction and processes but fails to show the original message data*". The Examiner points to pages 18-23 of Applicant's response as highlighting the differences between the prior art and the invention.



### Substantial New Question

5. In view of the prosecution history, it is considered that the evaluation of a prior art reference (or combination of references) that teaches or suggests *a central message repository or providing, through a monitoring message, at least part of said original message data*, would raise a substantial new question of patentability.

### Analysis

Issue 1: The Production Workflow reference is new prior art. Production Workflow teaches, among other things, asynchronous communication between various pieces of an application using messaging. See page 317, section 9.4 and page 92, section 3.4.4. Production Workflow discloses messaging is used by a workflow management server to asynchronously invoke activity implementations on clients by sending a message containing input data. When the activity implementation is complete, a message containing an output container is communicated to the workflow management server by the activity implementation. The output container included in the message communicated to the workflow management server is the original message data. See section 3.4.4 on page 92 and section 10.5.1 on pages 378-379. Production Workflow discloses access to the database of the workflow management system is accomplished through the DBMS server using a DBMS client. Messaging is the underlying communication mechanism used between clients and servers and between servers and servers. See section 10.2, page 364. The output container received in a message from the activity implementation is stored in a

Art Unit: 3992

database. Production Workflow teaches that the workflow management system stores an entry in the audit trail for all relevant actions. The entry contains all the important information about the event. The message sent from the workflow management system to the DBMS server with the output container (original message data) is a monitoring message. See section 2.7.1 on page 45, section 7.6 on pages 274-277, and page 57. Production Workflow discloses a workflow management system that has a server with multiple server components and clients for implementing activities. One of the server components is a DBMS server used to access a centralized database.

Since these teachings are directly related to subject matter considered as the basis for allowability of the patent claims, a reasonable examiner would consider evaluation of the Production Workflow reference as important in determining the patentability of the claims. As such it is agreed that the Production Workflow reference raises a substantial new question of patentability with respect to claims 1-58 of the '749 Patent.

Issue 2: The Blackwell reference is new prior art. Blackwell teaches, among other things, an asynchronous messaging environment (see column 15, lines 16-26 and column 3, lines 43-48). Blackwell discloses messages are passed between applications using MQSeries. Blackwell discloses that a sensor operates to monitor API calls from a user application to a queue manager including MQPUT and MQGET. API calls include a message header and a message buffer containing the message itself. See column 12, lines 66-67, column 7, lines 7-9, column 4, lines 3-4, column 4, lines 64-column 5, line 13 and column 14, lines 59-61. See also column 3, lines 53-54, column 4, lines 5-9, column 6, lines 53-57, column 11, lines 42-51, and column 15, lines

Art Unit: 3992

51-55. Blackwell discloses intercepting an API call and generating an event comprising all or a portion of the data of the original message. See column 3, lines 53-54; column 4, lines 5-9; column 6, lines 53-57; column 11, lines 42-51; and column 15, lines 51-55. Blackwell discloses sending an event message containing the event to a database for storage. The event message is a monitoring message, containing original message data. See column 5, lines 26-36 and column 15, lines 61-63. The event message is stored in a database. See figures 13-14 and column 15, lines 61-63 which depicts a centralized transaction database.

Since these teachings are directly related to subject matter considered as the basis for allowability of the patent claims, a reasonable examiner would consider evaluation of the Blackwell reference as important in determining the patentability of the claims. As such it is agreed that the Blackwell reference raises a substantial new question of patentability with respect to claims 1-6, 8-11, 14-17, 19, 21-24, 27, 31-34, 38, 42-43, 45-50, 52, and 54-58 of the '749 Patent.

Issue 3: The AWS reference is new prior art. AWS teaches, among other things, a workflow management system (FlowMark) using the MQSeries messaging system to pass messages to applications that perform the activities of a business process. See section 6.3 on pages 51-52 and figure 25. The messages sent from an application performing an activity to FlowMark contain the output data from such application's performance of the activity. See section 6.3 on pages 51-52, section 6 on page 49, section 8.2.2 on page 72, and figure 25. FlowMark can record this output data in an audit trail record which is stored in an audit trail data store using the same MQSeries messaging system to send a separate message (a monitoring message) containing the

Art Unit: 3992

output data (original message data) from the application performing an activity to the audit trail data store (central message repository), where it is stored in an audit trail record (transaction record). See sections 10.2-10.4 on pages 82-91 and figure 35.

Since these teachings are directly related to subject matter considered as the basis for allowability of the patent claims, a reasonable examiner would consider evaluation of the AWS reference as important in determining the patentability of the claims. As such it is agreed that the AWS reference raises a substantial new question of patentability with respect to claims 1-37, 39-51, and 53-58 of the '749 Patent.

Issue 4: The Buhannic reference is new prior art. Buhannic teaches, among other things, the use of a Java Message Service compliant message broker server to pass messages between servers involved in a securities trade. See paragraph [0014]-[0017]. When the message broker server receives a message from a server related to a particular trade, the message broker server determines the status of that trade based on the content of the message received and sends the status of the trade by a separate communication to a centralized database. A record in the centralized database associated with that trade is updated with that status. See paragraphs [0017]-[0020].

Since these teachings are directly related to subject matter considered as the basis for allowability of the patent claims, a reasonable examiner would consider evaluation of the Buhannic reference as important in determining the patentability of the claims. As such it is agreed that the Buhannic reference raises a substantial new question of patentability with respect to claims 1, 42, 55, and 58 of the '749 Patent.

## **Conclusion**

### **Extensions of Time**

6. Extensions of time under 37 CFR 1.136(a) will not be permitted in these proceedings because the provisions of 37 CFR 1.136 apply only to "an applicant" and not to parties in a reexamination proceeding. Additionally, 35 U.S.C. 305 requires that reexamination proceedings "will be conducted with special dispatch" (37 CFR 1.550(a)). Extension of time in *ex parte* reexamination proceedings are provided for in 37 CFR 1.550(c).

### **Waiver of Right to File Patent Owner Statement**

7. In a reexamination proceeding, Patent Owner may waive the right under 37 C.F.R. 1.530 to file a Patent Owner Statement. The document needs to contain a statement that Patent Owner waives the right under 37 C.F.R. 1.530 to file a Patent Owner Statement and proof of service in the manner provided by 37 C.F.R. 1.248, if the request for reexamination was made by a third party requester, see 37 C.F.R. 1.550(f). The Patent Owner may consider using the following statement in a document waiving the right to file a Patent Owner Statement:

Patent Owner waives the right under 37 C.F.R. 1.530 to file a Patent Owner Statement.

### **Amendment in Reexamination Proceedings**

8. Patent Owner is notified that any proposed amendment to the specification and/or claims in this reexamination proceeding must comply with 37 CFR 1.530(d)-(j), must be formally presented pursuant to 37 CFR §1.52(a) and (b), and must contain any fees required by 37 CFR §1.20(c). See MPEP §2250(IV) for examples to assist in the preparation of proper proposed amendments in reexamination proceedings.

### **Submissions**

9. If the patent owner fails to file a timely and appropriate response to any Office action or any written statement of an interview required under 37 CFR §1.560(b), the ex parte reexamination proceeding will be terminated, and the Director will proceed to issue a certificate under 37 CFR §1.570 in accordance with the last office action.

### **Service of Papers**

10. After the filing of a request for reexamination by a third party requester, any document filed by either the patent owner or the third party requester must be served on the other party (or parties where two or more third party requester proceedings are merged) in the reexamination proceeding in the manner provided in 37 CFR 1.248. See 37 CFR 1.550(f).

### Notification of Concurrent Proceedings

11. The patent owner is reminded of the continuing responsibility under 37 CFR 1.565(a) to apprise the Office of any litigation activity, or other prior or concurrent proceeding, involving Patent No. 7,062,749 B2 throughout the course of this reexamination proceeding. The third party requester is also reminded of the ability to similarly apprise the Office of any such activity or proceeding throughout the course of this reexamination proceeding. See MPEP §§ 2207, 2282 and 2286.

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Art Unit: 3992

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Any inquiry concerning this communication should be directed to Rachna Desai at telephone number 571-272-4099.

/Rachna S Desai/  
Primary Examiner, Art Unit 3992

Conferees:

/C. S./  
Primary Examiner, Art Unit 3992

A handwritten signature in black ink, appearing to read 'Mark J. Reinhart', with a long horizontal flourish extending to the right.

MARK J. REINHART  
CRU SPE-AU 3992



<b>INFORMATION DISCLOSURE STATEMENT</b>			Control Number	90/009,961	
			Application Number	09/737,494	
			Filing Date	December 15, 2000	
			First Named Inventor	Vincent R. Cyr	
			Group Art Unit	2193 (Prior Examination)	
			Examiner Name	INGBERG, Todd (Prior Examination)	
Sheet	1	of	1	Attorney Docket Number	OPEN2200

**U.S. PATENT DOCUMENTS**

Examiner Initials	Cite No.	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines Where Relevant Passages or Figures Appear
		Number-Kind Code (if known)				
	A1	US	7003781	02-21-2006	Blackwell et al.	
	A2	US	6122633	09-19-2000	Leymann et al.	
	A3	US	6073111	06-06-2000	Leymann et al.	
	A4	US	20020038276	06-26-2001	Buhannic et al.	
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		Country Code-Number-Kind Code (if known)				

Examiner Signature	/Rachna Desai/	Date Considered	12/01/2011
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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.S./


<b>INFORMATION DISCLOSURE STATEMENT</b>			<b>Control Number</b>	90/009,961	
			<b>Application Number</b>	09/737,494	
			<b>Filing Date</b>	December 15, 2000	
			<b>First Named Inventor</b>	Vincent R. Cyr	
			<b>Group Art Unit</b>	2193 (Prior Examination)	
			<b>Examiner Name</b>	INGBERG, Todd (Prior Examination)	
Sheet	1	of	1	<b>Atty Docket Number</b>	OPEN2200

**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials	Cite No.	Include name of the author (In CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published	T <sup>2</sup>
	C1	LEYMANN, FRANK, and ROLLER, DIETER, Production Workflow Concepts and Techniques, Upper Saddle River: Prentice-Hall, Inc., July 30, 1999, 508 pgs., ISBN 0-13-021753-0, with attached Copyright Certificate from Library of Congress	
	C2	HOFFMANN, MARC, SHUTE, DAVID, and EBBERS, MIKE, Image and Workflow Library: Advanced Workflow Solutions using IBM FlowMark, January 1999, 151 pgs., IBM Corp., NY, SG24-5371-00, available at <a href="http://redbooks.ibm.com">http://redbooks.ibm.com</a> .	

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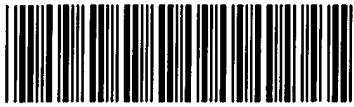
<b>Search Notes</b>  	<b>Application/Control No.</b> 90009961	<b>Applicant(s)/Patent Under Reexamination</b> 7,062,749
	<b>Examiner</b> RACHNA DESAI	<b>Art Unit</b> 3992

<b>SEARCHED</b>			
<b>Class</b>	<b>Subclass</b>	<b>Date</b>	<b>Examiner</b>

<b>SEARCH NOTES</b>		
<b>Search Notes</b>	<b>Date</b>	<b>Examiner</b>
Review of Patented File's Prosecution History	11/16/2011	RSD

<b>INTERFERENCE SEARCH</b>			
<b>Class</b>	<b>Subclass</b>	<b>Date</b>	<b>Examiner</b>

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<b>Reexamination</b> 	<b>Application/Control No.</b> 90009961	<b>Applicant(s)/Patent Under Reexamination</b> 7,062,749
	<b>Certificate Date</b>	<b>Certificate Number</b>

**Requester Correspondence Address:**
 Patent Owner
  Third Party

Sprinkle IP Law Group  
 1301 W. 25th Street  
 Suite 408  
 Austin, TX 78705

LITIGATION REVIEW <input type="checkbox"/>	RSD (examiner initials)	11/16/2011 (date)
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2:11cv6602 Intersystems Corporation v. Yyz LLC		WHL for EY
2:11cv1609 Yyz LLC v. Metastorm, Inc et al.		↓
2:11cv931 Yyz, LLC v. Metastorm Inc		↓

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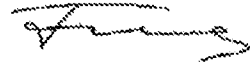
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Sprinkle IP Law Group  
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Tel. (512) 637-9220  
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Dated: February 1, 2012

Respectfully Submitted,



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**INFORMATION DISCLOSURE  
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Sheet 1 of 1**Complete if Known**

Application Number	CONTROL No. 90/009961
Filing Date	Dec. 15, 2000
First Named Inventor	Cyr, Vincent
Art Unit	3992
Examiner Name	Rachna Desai
Attorney Docket Number	YYZ RE-001

**U. S. PATENT DOCUMENTS**

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		US- 5,301,320			
		US- 5,581,691			
		US- 6,092,102			
		US- 6,256,676			
		US- 6,725,445			
		US- 6,961,735			
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		Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)				
		WO 00/46723	08/10/2000	MACINTYRE		
		EP 0 974 919 A2	01/26/2000	HITACHI		

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This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<b>(51) International Patent Classification <sup>7</sup> :</b>  <b>G06F 17/60</b>	<b>A2</b>	<b>(11) International Publication Number:</b> <b>WO 00/46723</b>  <b>(43) International Publication Date:</b> 10 August 2000 (10.08.00)
<b>(21) International Application Number:</b> PCT/US00/02933  <b>(22) International Filing Date:</b> 3 February 2000 (03.02.00)  <b>(30) Priority Data:</b> 60/118,493                      3 February 1999 (03.02.99)                      US 09/496,530                      2 February 2000 (02.02.00)                      US  <b>(71) Applicant:</b> ONESOFT CORPORATION [US/US]; Suite 250, 7010 Little River Turnpike, Annandale, VA 22003-9998 (US).  <b>(72) Inventors:</b> MACINTYRE, James, W.; 4613 Hillbrook Drive, Annandale, VA 22003 (US). KOBEISSI, Said; 5810 Wood Poppy Court, Burke, VA 22015 (US). PARKER, Eric; 245 Summer Street, Somerville, MA 02143 (US). MONTAN, Vasile; 6008 Lincolna Road, Alexandria, VA 22312 (US). BAILEY, Robert, L.; 8613 Running Fox Court, Fairfax Station, VA 22039 (US).  <b>(74) Agent:</b> MIRABITO, A., Jason; Mintz Levin Cohn Ferris Glovsky and Popeo PC, One Financial Center, Boston, MA 02111 (US).		<b>(81) Designated States:</b> AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>Without international search report and to be republished  upon receipt of that report.</i>
<b>(54) Title:</b> MODULAR SYSTEM AND METHOD FOR PROCESSING TRANSACTIONS		
<b>(57) Abstract</b>  A modular system for developing and processing network based transactions is made up of a four dimensional architecture or framework which can include four types of functional components or objects. These components include data management objects which access and move data within the system as part of the transaction, functional objects that can be used to transform or process the data, presentation objects which provide an interface to the customer or client in order to facilitate the transfer of information and control objects which determine when and how the data objects, functional objects and presentation objects should be applied to the data as part of the transaction. The system utilizes a standardized, extensible data structure for transferring the data between components or objects which allows the objects to be used as interchangeable building blocks of a comprehensive and flexible system architecture.		

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**MODULAR SYSTEM AND METHOD FOR PROCESSING TRANSACTIONS**

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## CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of U.S. Provisional Application No.

10 60/118493, filed February 3, 1999, which application and its appendices are hereby incorporated by reference in their entirety.

## STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH

Not Applicable

## REFERENCE TO MICROFICHE APPENDIX

15 Not Applicable

## BACKGROUND OF THE INVENTION

This invention relates to a computer system for processing transactions over a network and, more particularly, to a system which utilizes modular, data independent, components to perform transaction processing functions.

20 Conventional transaction processing systems are typically constructed by developing a custom system, based upon customer requirements, around a developer's core technology. The resulting system essentially implements a customer's business model in a transaction processing system. For each business model, a new system is developed around the same core technology.

In addition, a system developed for the sale of hardgoods, such as clothing or food is likely going to be very different from a system that provides access to a chat system or sells music or stock or options.

One of the disadvantages of this methodology is that, depending upon each  
5 customer's requirements, a custom system must be developed for each business model and changes to this custom system will require an investment in a new and substantial development effort. For example, a system may be developed to receive an order for a product, then ship the order and send out an invoice. Substantial effort would be required to add encryption to the transaction processing to enhance security, or give the  
10 system the ability to invoice an order and delay shipment until payment is received (for customers with poor payment history) or ship and invoice substitute products when an ordered product is discontinued or out of stock.

Accordingly, it is an object of this invention to provide an improved system for processing transactions.

15 It is another object of this invention to provide an improved system for processing transactions which is modular, data independent and can be easily adapted to accommodate varied customer business models and well as to be easily modified to accommodate changes in business model requirements.

#### SUMMARY OF THE INVENTION

20 The present invention is directed to methods of and systems for processing transactions that incorporate a four dimensional system architecture. This architecture divides the system into four basic types of modular components or program objects. These component types include: data management components or objects which can be

used to manipulate data within the system as part of the transaction; functional components or objects which can be used to transform or process the data; presentation components or objects which can be used to provide an interface to the customer or client in order to facilitate the transfer of information; and control components or objects which  
5 determine when and how the data objects, functional objects and presentation objects should be applied to implement and process the transaction. In accordance with a preferred embodiment of the present invention, the system utilizes a standardized, extensible data structure or interface for controlling the process flow as well as transferring the data between objects.

10 Alternatively, the present invention is directed to methods and systems for processing transactions that incorporate a four dimensional command architecture. This command architecture includes a system of modular commands that provide the fundamental building blocks used to create a transaction processing system. In accordance with the present invention, this architecture divides the system commands  
15 into four basic types. These command types include: data management commands which can be used to manipulate data within the system as part of the transaction; service commands which can be used to transform or process the data; presentation commands which can be used to provide an interface to the customer or client in order to facilitate the transfer of information; and control commands which determine when and how the  
20 data objects, functional objects and presentation objects should be applied to implement and process the transaction.

In accordance with the present invention, the system processes a transaction that is defined by a business or transactional model. The control component or object uses the business model to control the order and manner in which the data objects, the

functional or service objects and the presentation objects are used to process the transaction. The control component interacts with the data objects, the functional objects and the presentation objects, by exchanging structured data records with the predefined data, functional and presentation objects, in a predefined manner according to the

5 business or transaction model. This can be accomplished by invoking data objects, functional objects and presentation objects in a manner defined by the business or transactional model. Alternatively, this can be accomplished by invoking a set of commands in a predefined manner defined by the business or transactional model. The business or transaction model can be made up of one or more business or transactional

10 actions which make up a session during which the system interacts with a customer. Each business or transactional action can involve invoking one or more of the system objects which can process input from the customer and generate a response which is transferred to the customer.

A higher level monitoring system utilizing additional functional and data objects

15 can be integrated into the system to collect and report data relating to individual transactions and groups of transactions including providing forecasts and identifying trends, reporting business and financial information based upon several transactions.

In accordance with one embodiment of the present invention, the system can be configured to operate in a distributed processing environment where multiple servers,

20 configured in an array, can be used to execute each instance of a component or program object of the system. The system can further include load balancing capability to distribute both the front-end processing load (servicing incoming requests) and back-side (application services) processing load evenly and optimally over all the available servers in the system. The system dynamically balances the load according to the capacity of

each individual server in the system, thus a server with twice the capacity will receive twice the load.

According to another embodiment of the invention, a method is provided for constructing a transaction processing system. The method includes the step of defining a  
5 business model for the system. The method also includes the step of using a controller to control system software components (elements or objects) as a function of the business model to perform a series of business actions. The series of business actions make up a transaction. Each of the business actions includes at least one function call. A function call includes the steps of invoking a software component, passing data to the software  
10 component, and executing a software function as a function of the data. In one embodiment, the function call passes to the software component data in the form of structured data records utilizing an extensible markup language or a hypertext markup language such as may be used in a web page.

In another embodiment of the invention, the system for processing a transaction  
15 includes a computer processing system and associated memory, a plurality of independent program objects operatively coupled to the computer processing system, wherein each object is selected from a set of different program object types. The group of program object types consist of application object types adapted for providing data management services, service object types adapted for providing data transformation and  
20 monitoring services, presentation object types adapted for providing data presentation services to a participant in the transaction, and control object types adapted for controlling each of the other independent program objects for processing the transaction. Each of the independent program objects is adapted for communicating with another independent program object according to a common extensible interface or data

structure. In addition, any program object can be added or removed from the system without affecting the operation of the other program objects.

The business model can be defined as a set of business actions and each business action can be defined by set of object invocations or instances, which are used by a control component, or control commands to execute various functions provided by the other system components. The business action can be provided in the form of one or more markup language pages, each including one or more calls to any of the available system components or system commands. A business action can be initiated by a customer requesting access to a specific web document residing on a web server. In response to the request for the specified web document, the web server submits the corresponding markup language page (which defines the appropriate business action) to the controller. The controller parses the calls or commands to the system components or function in the order specified to complete the business action. When the business action is complete, a presentation component or function transmits the appropriate web page to the web server to be delivered to the customer.

Each of the system components can be preconfigured to support auditing and monitoring functions. Thus, the system can track and log every system component accessed or every system function performed. Specifically, the system can monitor every piece of content viewed as well as every product or service item viewed by a given customer. In addition, the invention further contemplates having the system developer assign or associate a customer category or rating with every piece of content and every product and service item available, such that the system can create a profile for each

customer as a function of each item of content viewed by a customer to allow the system to target products and services that are more suited to the customer's needs. Thus, every time a customer requests a specific web page, the system can update the customer's profile as a function of the category or rating for the content of the page requested.

5           In addition, the system can further include predefined auditing and monitoring functions that relate to the financial status of the transactional processing system. The system can monitor the goods and services sold and report, in real time, on the financial health of system on a business model by business model basis or for the system overall. Specifically, the system can report the profit and loss for a given business model, the  
10 total cost of ownership of the system and the return on investment of the system. This can be accomplished by enabling the system components to report transactional data to specialized financial modeling components which use the transaction data and other data (such as wholesale costs, margins, channel costs, return costs and execution costs) to continuously report the financial health of a business model or the entire system at any  
15 point in time.

#### BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing and other objects of this invention, the various features thereof, as well as the invention itself, may be more fully understood from the following description, when read together with the accompanying drawings in which:

20           FIGURE 1 is a diagrammatic view of the architecture of an e-commerce system according to one embodiment of the present invention;

FIGURE 2 is a diagrammatic view of a business model according to one embodiment of the present invention;

FIGURE 3 is a flowchart according to one embodiment of the invention for constructing the e-commerce system of FIGURE 1;

5        FIGURE 4 is a diagram of functions that make up a business action according to one embodiment of the present invention;

FIGURE 5 is a sample data item that holds information used by a service component;

10       FIGURE 6 is a sample data item that holds a user request information to be used by a service component;

FIGURE 7 is a sample data item that holds an audit trail of all actions that were performed during a session;

FIGURE 8 is a diagrammatic representation of a system for processing transactions according to one embodiment of the present invention;

15       FIGURE 9 is an example of an active server page (ASP) file which handles the request to view a targeted catalog; and

FIGURE 10 is an example of a data item which is managed by a Product Application Component type (ACT).

20       DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention is directed to methods of, and systems for, processing transactions. In order to facilitate a further understanding of the invention, a system for conducting Internet or electronic commerce (“e-commerce”) embodying the methods and systems of the present invention is described herein.



FIGURE 1 shows a modular system 100 according to the present invention which includes a plurality of components or program objects. The modular system 100 organizes the system program components or objects into one of four basic dimensions herein referred to as system component types. These component types can include:

5 application component types (ACTs) 130 which include program components or objects 132 that provide persistent data access and management functions; service component types (SCTs) 120 which include program components or objects 122 that can be used to provide services, for example, which manipulate, analyze and/or transform data; control component types or business model component types (BCTs) 112 which include  
10 program components or objects 114 that can be used to control the logical flow of a transaction; and determine when and how the other program components or objects are used, and presentation component types (PCTs) 140 which include program components or objects 142 that define how data is presented to entities external to the system such as a customer. The SCTs can include a financial modeling component 122A and a tracking  
15 and profiling component 122B that are described in further detail below.

The system can further include connector component types (CCTs) 160 and workstation component types (WCTs) 170. CCTs 160 include connector program components or objects 162 that interface with legacy systems 164. CCTs also interface with systems that can provide access to external services 166. CCTs that provide access  
20 to legacy data can be considered ACTs for purposes of this disclosure. CCTs convert data from those legacy systems into the common data representation language used by the present invention. CCTs that provide access to external services can be considered

SCTs for purposes of this disclosure. WCTs are BCTs that use available system data (provided by ACTs as may be modified by SCTs) in order to perform administrative functions on the system.

The BCTs 112 are part of the system control function or controller 110 which  
5 implements an e-commerce system according to one or more business models 200. A  
business model 200 includes one or more business actions 210. The business model 200  
informs the system controller 110 which data objects are to be used, which functions or  
services are to be performed (and in what order) and which presentation formats to use in  
a given business action. In addition, the functional objects can be independent of the  
10 data elements and interchangeable with each other. In accordance with one embodiment  
of the invention, the data objects are implemented in the form of application component  
types and the functional elements are implemented in the form of service component  
types. Preferably, SCTs can apply their services (e.g., cataloging, sorting, and searching)  
polymorphically to all types of data, i.e., to all ACTs.

15 Preferably, each of the ACTs 130, SCTs 120, BCTs 112 and PCTs 140 conform  
to a predefined program component or object protocol which defines the structure of the  
data elements and interfaces. In the illustrative embodiment, all the components of a  
given type are completely interchangeable with each other and can interact with  
components of any other type. In addition, each of the ACTs 130, SCTs 120, BCTs 112  
20 and PCTs 140 can utilize a common data structure and data interchange format 150 to  
facilitate the transfer of information between components.

Typically, a customer accesses a vendor web site residing on a web server 180  
using a browser on the customer's system 182 and software executed on the vendor's  
server system 182. From the customer's perspective, a typical vendor website is a

network of related documents. The customer can navigate from one document to the next by clicking on document links. Each time the customer clicks on a document link he is submitting a request to a web server 180 to retrieve a document from the web server 180. The customer is normally unaware of which web server 180 he is submitting the request to, and the web server 180 is normally not concerned with how each request is related to previous requests.

The e-commerce system 100 according to the present invention extends this idea by generating documents dynamically as they are requested. Through the use of HTML forms and "Cookies," the web server 180 collects customer information from the customer system 182 and passes it to the e-commerce system 100 along with the request. In accordance with the present invention, the web server's responds to this request differently than it would respond to a request for a simple web page. This request can invoke a complex set of objects or functions that generate predefined output to be displayed on the customer's browser. The e-commerce system 100 can use the received customer information (such as from HTML forms and "Cookies" that are received from the customer system 180 via the browser) to maintain state information which allows the system 100 to group together other requests into a series of related requests known as a session or transaction. The related requests that make up a session are typically made by the same browser and occur close enough together to be assumed to be made by the same customer. The system 100 can further require a customer to authenticate himself with a username and password or by presenting a certificate in order to be able to tie together a group of requests which are made by the same customer as part of a session and ultimately, a transaction. The system 100 can also use Cookies to track a customer in a session.

In accordance with the invention, an e-commerce system 100 incorporates one or more business models 200. As shown in FIGURE 2, each business model 200 is made up of a set of business actions 210 that the system 100 permits a customer to initiate. In one embodiment, the business actions 210 are performed by passing data in the form of at least one web page 220 between component types. In the illustrated embodiment, the business models are formatted according to Microsoft Active Server Page (ASP) format as defined by Microsoft Corporation, Redmond, Washington. However, the invention contemplates the use of any of a variety of common representation languages, including, Perl, COM objects written in C++, a variety of standardized markup languages and extensible formats, such as eXtensible Markup Language (XML), HTML, or SGML.

The resulting e-commerce system 100 can guide the customer through the steps of a transaction in a logical manner by providing links to appropriate 'next' actions as a result of successfully performing a prior action. However, the customer may bookmark a URL (a request) or may type a requested URL directly, so the e-commerce application cannot rely solely on the customer making the requests in a logical or expected order. A customer may request that a business action be performed at any time and it is the responsibility of the controller 110 to determine if it is appropriate to let the customer initiate the action.

Each time a customer submits a request, the server 180 initiates the performance of a business action, the controller 110 can: 1) determine whether the customer is permitted to perform this action; 2) determine whether the customer has supplied all the

necessary inputs to perform the action; 3) determine whether the customer has been given access to all data required to perform the action; and 4) determine whether the customer has successfully completed all prerequisite actions.

If all of these conditions are satisfied, then the controller 110 will permit the  
5 action to be performed. Otherwise the controller 110 must choose a more suitable action to perform. A more suitable action may be to request additional input, return an error message and ask the customer to choose an alternative action, attempt to process prerequisite actions, or any other action that the controller may determine is appropriate.

In accordance with one embodiment of the invention, the system 100 can include  
10 a more sophisticated controller 110 which can keep track of requested actions which were denied because of missing inputs or incomplete prerequisite actions so that it can perform these actions once the missing input is supplied or the prerequisite action is performed. For example, if a customer who must log in before viewing product information makes a view request before logging in, the controller 110 could request that  
15 the customer log in but save the prior request to view product information which can be performed after the customer has successfully logged in.

All of the business actions 210 available to customers of the system 100 as well as restrictions on what data the actions 210 require, what access controls are placed on the actions, etc. make up a Business Model 200. Using this information, the controller  
20 110 can operate by dispatching or invoking system components or objects to implement the business action 210. In accordance with the invention, the system components can be designed to operate independently of each other and the business action in order to provide a separation between the control of the system and the functions that the system

can perform. Services (for example, a “search” service) can be implemented without regard to the business data structure or logic that is associated with any given data object (for example, a “product catalog” or “chat room dialog”). New functions to be added and existing ones can be removed or replaced without affecting the performance of the rest of the system. The Business Model 200 itself to be replaced or modified as necessary to change the entire behavior of the system.

As shown in FIGURE 3, a method for constructing a system for conducting electronic commerce in accordance with the invention can include the following steps: A) defining a business or transactional model or models for the system, 300; B) utilizing each of the model(s) to select system components, i.e., application component types, service component types, presentation component types, and business model component types, 310; and C) assembling 320 the system components with core system components on a scaleable system platform (hardware and software), 320.

In accordance with present invention, the Business Model 200 can be created easily by a person having limited programming skills and can be easily swapped in and out of an otherwise complete system. The system architecture which uses a business model and a control component in accordance with the invention permits a website developer to put together a site by simply specifying the actions that a customer can perform. Preferably, there is limited interdependence between the control system and the functional components since the code that checks for prerequisite actions or data is not mixed with the code that performs the business action.

A Business Model Utility can be provided to assist a web site developer in creating an e-commerce system 100 just by pulling together all of the reusable

application, service, presentation and control components provided by the system into a logical flow of control. This can be accomplished by providing a “picklist” of functions that a site developer can select and order as desired. Alternatively, a “drag and drop” graphical interface can be provided to allow a site developer to create Business Models  
5 by arranging symbols representative of components in a manner similar to the way a person would arrange the symbols of a flow chart.

The system 100 according to the invention performs each Business Action 400 that the customer requests by invoking a series of services (service functions or methods) as shown in the example of FIGURE 4. The illustrated business action begins with an  
10 initial web server request 410. The request 410 can be a request for a web page that is transmitted by the customer’s browser. The actual page requested can be an ASP page that is used by Microsoft Internet Information Server (IIS) to invoke one or more ACTs, SCTs, or PCTs, to render a response in the form of an HTML page that is returned to the customer. The components can be implemented in the form of objects that conform to  
15 the Microsoft Component Object Model (COM) specification and executed on the Microsoft Transaction Server (MTS) platform. The web server request causes the business action 400 to call the component OneSession 430 and to invoke the function GetRequest of the component OneSession 430. The component OneSession 430 then passes data in the form of an XML page 412 to another component OneCatalog 432 in  
20 accordance with the business action 400. The component OneCatalog 432 invokes the GetItem function to obtain the catalog data for one or more product items (to be viewed or purchased) and appends the data to the XML page 416. Information concerning the product item or items can be received from the request as well as obtained when the component OneSession 430 restored the session data in the XML page as part of the

GetRequest function. The component OneTarget 434 invokes the Target function to add any targeting information to the XML page 418. The component OneAudit 436 invokes the log function to log the state of the transaction from the XML page 420. The component OneStore 438 uses the XML page 420 and style sheet such as eXtensible Style Sheet Language (XSL) formatted style sheet to render an HTML page that is transmitted to the customer containing content about the product items requested by the customer as well as any targeting information (e.g. product specials or related products). This process of calling components and passing data in the form of XML pages continues until the business action is complete.

10 A controller 110 uses a business model to provide the logic which controls the flow through web requests to a website and several controller/business models can be executed concurrently. In the illustrative embodiment, the system 100 can execute a separate business model for each customer accessing the website. Preferably, the initial input to the web server is a customer request which can spawn a separate business model instance to service each customer. The controller can be implemented as: a library of ASP functions (a business action can be an ASP page or a set of ASP pages), an ASP function which calls a COM or DCOM object, a Java serverlet, a CGI application, an ISAPI application, or an ISAPI filter. An e-commerce web site application can contain one or more business models or be limited to only one business model.

20 Preferably, all service components regardless of the functionality that they implement take the same form. Service components can act as data filters that take (XML) structured data as input, transform or process the data, and produce (XML) structured data as an output. In this way, services or functions can be chained together so that the output of one service or filter may be the input of the next service or filter. A



business action can be built by sequencing service components together with data manipulation functions in such a way that the action starts with the customer's request and ends with the HTML output by a presentation component that will be displayed on the customer's browser.

5           The Business Model specifies what services are invoked for each business action and what order the services or functions need to be executed. The controller makes sure that the services are executed in order and that the necessary data is passed from one service to the next as needed according to the business model. There is a possibility for each of the services to fail for some reason or other so the business model must support  
10 error handling which provides an alternative set of services to use in the case of failure.

In accordance with the invention, the data transferred between components is structured using a common data representation format language for all component types. Preferably, all the ACTs, SCTs, and PCTs conform to this common data representation model and use this common data representation language so that any component or  
15 object can interact with any other component or object to utilize any data which is passed to it. In the illustrative embodiment, the e-commerce system 100 uses XML as the common data representation language for all component types and all components are designed to communicate data structured according to a predefined XML schema.

In accordance with the invention, the service components can access other service  
20 components and application components in addition to the data that the services receive from the controller. Accessing additional data from other application components allows a service component to merge together data from multiple sources such as other services, application components and external systems. Accessing additional service components permits a single service component to implement complex service functions by

constructing a “pipeline” or sequence of functions which permit the complex Business Models to be easily created from a series of basic components. For example, the component OneAudit 436 can be a service component that parses the XML page 418 in order to: 1) pass session state information to a OneSession ACT which stores the session data; 2) pass the catalog data to a OneProfile SCT which creates customer profile information and updates the customer profile stored in the OneProfile ACT; and 3) pass audit information to a OneAudit ACT which tracks the status of the customer transaction.

In addition, as shown in FIGURE 1, additional component types such as CCTs 160 which interface the e-commerce system 100 with external services 166 and legacy systems and databases 164 can be included in accordance with the invention. The connector components 162 receive data from an external source, such as a legacy system 164, in the external source’s native format and convert the data to the common data representation language used by the system 100. Such data conversion allows the e-commerce system 100 to use the data as if the data is native to the system 100. The connector component types 160 can similarly access the services of an external system 166 in a way that conforms to the data and interface requirements of a service component type 120 allowing the e-commerce system 100 to use these external services 166 as if they are native to the system.

The types of services that can be provided within this framework are extensive and can include for example: Fill out an empty data structure with data from the various application components (data repositories); Remove data that the customer does not have access to; Create a log as to what transformations have taken place; Update customer targeting information based on the customer’s request for a specific web page or more information; Add in new information about products that are related to selected

ones or targeted to the current customer; Automatically discount the price of a product based on previous purchases; Sort data based on a customer's preferences or targeting profile; Determine the appropriate view for the resulting data and the customer's browser type and convert the data to an HTML format.

## 5 Service Components

In the illustrative embodiment, the service components essentially fit into one of several different categories: Request Processing Services, Data Transformation Services, and Monitoring Services. However, as a person having ordinary skill in the art will appreciate, the nature and types of services are extensible and additional categories can  
10 be added.

### Request Processing Services.

Preferably, every business action has to start with a request for a web page received from the customer. The request (for example, HTML form data) can be converted into an XML data structure to begin the business action or data received as  
15 part of the request (form data, cookie data, etc.) can be used to identify the customer and create an XML representation of a user session. Request Processing Services are unique in that they are the only services that do not require XML as an input. Request  
Processing Services can take data directly from the variables available in the web server and can create XML structure which includes all or some of this data. The Server  
20 variables come from a variety of places, for example the URL which contains the path and name of the HTML, ASP, or other page that is being requested. It can also contain any number of request variables. The server variables can come from the HTML form values which can be passed in either as a GET request function or a POST request

function. In a GET request, the values are passed in on the URL. In a POST request, the values are passed in on the standard input. All of these values are available to the web server and request being processed according to the business model. The server values can also come from cookies which get passed from the server to customer's computer and allow the server to track the customer throughout the system. In addition, the server values can come from system variables which are accessible from the web server through an operating system, a gateway interface or a hardware platform. For example, the OneAccess service controls the level of access each user has within the system 100.

#### Data Transformation Services

Data Transformation Services modify the data that is received by adding additional data, removing data, or changing data values. These services are typically only interested in a part or subset of the data that is passed in, although all the data in the XML page can be modified. They make their transformations to one or more predetermined data elements or fields, if they are present at all, and pass the other data through unmodified.

#### Monitoring Services

Monitoring Services typically do not modify the data. They pass it though, but extract predefined portions of the data to be saved in audit or log stores (ACTs), update the system or session state, or store in a persistent storage. The extracted data can be used for system performance monitoring and reporting.

Service components provide the functionality of the system 100. In accordance with the invention, each service component can contain its own data and may not even

require data at all. The system architecture provides for all service components to be applicable across all ACTs, but many service components can be applied only to specified types of data.

Preferably, an SCT utilizes one or more ACTs and exposes none of its own data, but can generate some non-ACT data to be displayed. SCTs can provide helping functions so the other components do not need to manipulate XML and SCTs may combine data from multiple ACTs. In one embodiment, each SCT function applies across all ACTs. Alternatively, the system may be designed whereby not all SCT functions apply across all ACTs. Preferably, there can be a class of ACTs which are 'salable' which can be used with any pure commerce function. In addition, a service component can have more than one function, service or method and a service component can use other service components.

The installation of a new SCT or a group of new SCTs can include an SCT installation package can be made up of the following: Documentation; a list of basic ACTs; a methods library, for example: OneItemSCT.dll (SCT interface with 1 or more methods defined); Registry Settings; Sample ASP file for each of the defined functions; and Default XSL views to edit and view any data generated/compiled by a services.

Many different types of data can be used in an e-commerce system, for example: customer information in an LDAP database, product information in a SQL Server database, Publications from a file system, news and securities information from a push data server, streaming video/audio from a multimedia database, and advisor information from an expert system.

In order to simplify how system components or objects access and store this data, all data is converted into a common data format, such as XML. This enables the system

components, objects and instances to be completely reusable even when the data they process comes from a vastly different data source and represents vastly different real world objects. For example, in one e-commerce system, the same data structure and components that can be used in one system to sell clothing can be used in another system  
5 to sell paint. The system can use a connector component to interface with a new data source and convert the data from the native representation to the common data format. This enables the e-commerce system 100 to use legacy data or access external services by using an interface component.

Preferably, each single data repository is encapsulated in an Application  
10 Component Type, such as an application object that can provide data methods which can include creating, deleting, retrieving, updating, and searching for a particular type of data, e.g., product data. These services are different than the services provided by SCTs in that they do not process data. They either accept new or updated data for storage and return nothing, or accept identifiers or query information and return data from their  
15 repository. In one embodiment, the data that is transmitted to or received from an ACT is in XML format.

All data in the system is accessed through an Application Component that allows the system to treat that data as if it resides in an XML data repository. The Application Component provides a core set of data services that may be used by other services to  
20 save and retrieve data.

All application components manage their own data and do not rely on the existence of other application components or services. An Application Component can sit on top of many different types of information management system depending on any

number of factors. Examples of Application Component Types (ACTs) are provided in the table below:

	<u>Information Type</u>	<u>Information Management System</u>
5	Hard Good Product	Relational Database
	Login Information	Microsoft LDAP Implementation
	Publications	File System
	Stock/Commodity Quotes	Push Data Server
	Streaming Video/Audio	Multimedia Database
	Personal Advisor	Expert System
10	Pattern Recognition	Neural Network
	Complex, Configurable Products	Object-Oriented Database

Preferably, all application components can include the ability to process their data in an XML format, however, it is not necessary that the ACT support an extensible schema. Preferably, all ACTs are provide basic functionality such as saving and retrieving a set of basic data attributes and elements. The ACT may support additional elements as needed. In one embodiment, the set of basic data attributes and elements is as follows:

Basic attributes

- 20 ID A unique string that identifies this data item within the type.
- TYPE String identifying the type of data.
- VERSION String identifying the version of the ACT that this data item was created under.
- SITE Identifier of site that this data item belongs to.

25 Basic Elements

- NAME Short descriptive name of the data item.
- DESCRIPTION Longer descriptive name of the data item.
- PRICE Base price of the good/service
- CREATOR Identifier of user who created this data item.

	CREATION_DATE	Date and time that the data item was created.
	UPDATED_DATE	Date and time that the data item was last updated.
	UPDATED_BY	Identifier of the user who last updated the data item.
	STATUS	Current status of the data item.
5	VISIBLE	Indicates if the data has a visual component or not.
	IMAGE_URL	URL of an image to associate with this data item.

Figure 10 shows an example of a data item which is managed by the OneProduct ACT.

#### ACT Data Services or Functions

10 Preferably, all Application Components support a common ACT Interface which provides predefined services or functions (methods), for example:

Create - the Create service creates a new data item and initializes it with the values specified in the input and saves it to persistent storage. It returns an item identifier to the data that it created. Regardless of the identifier that is passed in, Create will generate a new, unique identifier and assign it to the new data item. Create in one  
15 embodiment takes the following form:

Create([in] BSTR xmlOneItem, [out,retval] IDTYPE\* xmlOneItemId)

Destroy - the Destroy service removes the specified data item from persistent storage. The only pertinent data in the input is the identifier of the item to remove.

20 Destroy can take the following form: Destroy([in] IDTYPE xmlOneItemId)

GetItem - the GetItem service retrieves all or pieces of the specified data item from persistent storage and returns it to the calling component. The input data may be an item identifier or it may be an empty shell containing elements that are expected to be retrieved. GetItem uses the identifier to determine which data item to retrieve and uses



the input data as a guide on which elements to retrieve and send back. GetItem can take the following form:

GetItem([in] BSTR xmlOnItemIn, [out,retval] BSTR\* xmlOneItemOut)

5 SetItem - the SetItem service saves the specified data item to persistent storage overwriting any existing data for this data item. If the entire data item is not specified then only those elements which are specified will be overwritten and the remaining element values will remain the same. SetItem can take the following form: SetItem([in] BSTR xmlOneItem)

10 GetCollection - the GetCollection service retrieves all data items that match the data item on the input. The result is a OneCollection type item which contains all of the data items which match the specified one. The collection may be empty if no matches were found. GetCollection can take the following form:

GetCollection([in] BSTR xmlOnItemIn, [out,retval] BSTR\* xmlOneItemOut)

15 Each application component can include an ACT installation package including the following: 1) Documentation; 2) Library: OneItemACT.dll (ACT interface with Create, Destroy, GetItem, SetItem, GetCollection methods); 3) Registry Settings; 4) Database (scripts to create the database and populate if needed); 5) Sample ASP files to create, delete, edit, view and query an item; and 6) Default XSL views to edit, list and view an item.

20 Application Components allow other components to save and retrieve information in persistent storage and transfer data to and from other components in the form of XML data. The ACTs implement the data spectrum of the system. An ACT can provide methods, services or functions, other than the core set identified above, as may required to manipulate the data. An ACT can contain any data in the system including

data that represents a salable item. The four dimensional independent component architecture that uses ACTs and a common data format allows the Services (SCTs) provided to be polymorphic. Thus, for example, a sort service component can sort any data type that any ACT can provide in the common data format, such as, XML. This benefit comes from that fact that all SCTs are designed to interface with any and all ACT data. Preferably, an ACT provides no functionality beyond a core of set data management functions: Create, Destroy, GetItem, SetItem, Search. Preferably, an ACT can have no dependencies on other system components. In addition, a utility for creating ACTs can be provided.

10 In the illustrative embodiment of the invention, exemplary components can include OneAudit, OneCatalog, OneChat, OneEvent, OneInbox, OneInquiry, OneLink, OneNote, OneOrder, OneProduct, and OneSession. The following is a brief description of each of the functions.

The OneAudit service component monitors and logs order, payment, and other customer transactions.

The OneCatalog service component is used to manage a collection of product or similar items in a organized hierarchy. This collection of product or similar items may represent a page in an on-line catalog, an aisle in an online storefront, or any other hierarchy of items. An individual catalog may contain items of varying application component types - a single catalog can include hard good offerings, discussion groups and chats, or any combination of available application component types that are all related to a common theme. The system 100 can also include a OneCatalog application component that maintains the data required by the OneCatalog service component.

The OneCatalog service component can include a plurality of functions or methods. The functions can include, for example, ADDItemCatalog, CreateCatalog, DeleteCatalog, Destroy, GetCollection, GetItem, ModifyCatalog, RemoveItemFromCatalog, RemoveCatalog, and SetItem. Example of various

5 OneCatalog functions or methods are described below.

The AddItemToCatalog function adds the specified product item to the specified catalog section.

The CreateCatalog function creates an empty catalog within the specified parent catalog and returns its identifier.

10 The DeleteCatalog function removes the specified catalog from the system.

The Destroy function removes the specified OneCatalog instance from the system.

The GetCollection function gets a group of data items from the catalog database in accordance with predefined selection criteria provided to the function.

15 The GetItem function gets the contents of a OneCatalog item specified by the catalog ID.

The ModifyCatalog function modifies the properties of the specified OneCatalog section.

20 The RemoveItemFromCatalog function removes the specified item from the specified catalog section.

The RetrieveCatalog function retrieves the specified OneCatalog and places it in the RESPONSE section of the session. The request may specify how many levels of the catalog to retrieve.

The OneChat application component allows site users to discuss topics  
5 synchronously in multiple channels through a Java client. In the illustrative embodiment, the OneChat service can include a OneChat ACT, a Windows NT server process, and a Java applet.

OneChat differs from most components in that it implements a downloaded client application providing the following functionality, through an application component and  
10 not through a service component. Thus, active content instances are allowed for ACTs as well as passive content instances.

Channels - the ability for a user to participate in multiple ongoing chat channels.

Private chat - the ability for two users to create and use a private chat channel.

Invite - the ability to invite other users to join in the chat channel.

15 Join and Leave - the ability to enter into and exit from a chat channel.

Kick - the ability to disconnect a user from a chat channel; reserved for administrators.

Buddy Support - the ability to see the status of selected "buddy" users.

The OneEvent application component allows the display and management of any  
20 community event, e.g., a bake sale or car wash, within the system.

The OneInbox application component provides a means for storing work items and assigning them to workstation users. A work item is a reference to another ACT

item such as an Order or Inquiry, which is in need of intervention by the workstation user. The user checks his or her inbox for work items upon logging into work station.

It is important to understand that the “Inbox” is not an inbox in the sense of a place to store message or deliver email. It is a tool to assign application component instances that require external processing to a user who can perform that processing.

The Inquiry Application Component provides customer inquiry processing functionality for customer service and support. The Inquiry component application enables efficient management and tracking of the inquiries generated by the customers. The following provides examples of the methods services and functions, both standard interface and component-specific, that can apply to OneInquiry component.

AddInquiry creates a new inquiry and adds it to the inquiry queue for later processing.

Create is used to create an inquiry instance such as a question about a hard good product. The OneInquiry application component is responsible for generating a unique key (probably through a function in the utility module) and returning it to the caller in the idItemID parameter. The Create function sets up the mandatory fields of an item. Other elements have to be set individually via the Set method.

Destroy deletes the product item from storage.

GetInquiryID returns the unique identifier of the Inquiry.

GetInquiryStatus returns the status of the inquiry specified.

GetInquirySubmissionMethod returns the inquiry SubmissionMethodID.

GetInquiryID returns the unique identifier of the Inquiry.

RemoveInquiry removes an inquiry from the queue.

GetInquiryID returns the unique identifier of the Inquiry.

The OneLink application component allows a site to host a list of internet links which can be categorized into one or more hierarchical structures, similar to the directory structure provided by the Windows Explorer interface.

5           The OneNotes application component provides the ability to allow users to attach internal notes to application component instances (ACIs). The notes are intended for site-internal use only, allowing a business to maintain ad hoc information about customers, orders, or inquiries.

10           The OneOrder application component manages stored data relating to customer orders. The OneOrder service component manages Internet order creation, processing, and reference functionally. The following provides examples of the methods services and functions, both standard interface and component-specific, that can apply to this ACT.

15           AddToOrder adds an order item to an order in the specified session. It checks for an OrderID session variable and creates a new order item that references the OrderID session variable in the OrderItems table. If there is no OrderId in the specified session, the OneOrder SCT creates a new order in the Orders table, and creates a new order item that references the OrderId in the OrderItems table.

20           CalculateSubtotal calculates the subtotal of all order items from an order in the specified session. OneOrder checks the session for an OrderID and sums prices of all items in the order, multiplied by quantity, to return a total order price. If there is no order specified in the session, a subtotal of zero is returned. A new order will NOT be created.

The Create method creates a new OneOrder instance and initializes it with the values specified in an xmlOneOrder parameter. Create returns a OneOrder IDTYPE structure.

5 DeleteOrder deletes the order from the specified session. OneOrderSvc checks the session for an OrderID, deletes that order and order items from the Order and OrderItems database and removes it from the session.

The Destroy method removes the specified OneOrder instance.

The GetCollection method gets a collection of all orders.

10 The GetItem method retrieves all or specified elements of the OneOrder instance specified in the XML structure xmlOneOrderId.

GetOrder lists the order items from an order in the specified session.

OneOrderSvc checks the session for an OrderID and creates and returns an XML order string that represents the order. If there is no order specified in the session, an XML order string with no items is returned.

15 ListOrders lists previous orders placed by the user.

OneOrder checks the session for a non-guest user id, searches the OneOrder ACT for old orders owned by this user, and returns an XML order list string that represents all known orders. If no orders are found, OneOrder returns an XML order list string with no orders. This method can require authentication for use.

20 OrderStatus returns the status of an order. OneOrder checks the session for an OrderID and determines the status of the order specified by OrderID.

Purchase processes the purchase of the order in the specified session. OneOrder checks the session for an OrderID and executes Tax and Shipping computations,

processes the purchase with the Payment connector, and changes the orders' status to purchase.

This method requires authentication for use.

RemoveFromOrder removes the specified quantity of an order item from an order  
5 in the specified session. The OneOrder service component checks the session for an OrderID and removes the specified order item amount from that order. If Quantity is zero or greater than the total quantity, the whole order item and quantity are removed from the Order and OrderItems tables.

The SetItem method sets values in the specified OneOrder instance.

10 Split splits a single order into two, separately managed orders, each with unique order Ids. This method can require authentication for use.

The OneProduct application component manages creation, storage, and retrieval of hard good product offerings.

OneSession - the OneSession application component manages storage and  
15 retrieval of customer session information. It associates information about a user's actions during a session with the session. This data may be used by other service components or other services to make decisions based on the user's behavior, or to update customer profile information. The business model controls when session information is captured and destroyed. The following provides examples of the methods  
20 services and functions, both standard interface and component-specific that can apply to this component.

BeginRequest retrieves previously saved information from the OneSession ACT and restores the user's session. It does not require any data as input, but any data present will be copied to the output with the saved data.



Create creates a new OneSession instance and initializes it with the values specified in the OneSessionIn parameter. It returns the OneSession instance identifier. A OneSession instance may also be referred to as a “session profile.”

Destroy removes the specified OneSession Profile instance.

5 EndRequest is called at the end of a request to save the current state of the session to the database.

EndSession changes the status of the specified session profile to TERMINATED and fills in all associated properties. This method can only be called on session profiles that are not already terminated; if the session has already been terminated, an error is  
10 generated.

GetCollection is not implemented for this release of the OneSession component.

GetItem gets the contents of the session profile specified by the section ID.

SetItem updates the contents of the specified session profile with new values.

## 15 Presentation Components

Presentation components provide view generation services that are a special type of data transformation service. In accordance with the present invention, the presentation components take in XML data and produces data in a client viewable format such as, for example, an HTML formatted web page viewable through a web browser. A  
20 view generation service is typically one of the last services in a Business Model since it changes the data structure from one which is useful for understanding the data to one that is useful for formatting or presenting the data to the customer in a client application such as a web browser.

All of the requests that a customer makes from his initial request until the customer explicitly logs out or times out due to a period of inactivity can be tied together into a single session. The system 100 can start the recording of a session at the customer's initial request even before the customer has been authenticated. The system  
5 can use the information obtained prior to authentication to impact how the controller implements a business model. Preferably, every action that a customer can take within a session is controlled by a business model that is valid for the customer. It is therefore important to keep track of every action that the customer takes. For example, if any of the services rely on information which was generated by previously executed services,  
10 then this information must be stored and restored when the customer makes subsequent requests. This function can be provided the OneSession ACT. The OneSession ACT restores the customer session information to the XML data structure for the session every time it receives a request for a web page which invokes a business action. The system 100 stores the session data for each customer in the OneSession ACT.

15 In processing a request, the controller may call on a number of services to complete its task and each service function may use any number of data items (ACT data) in performing its service. Therefore, a single request may have many data items associated with processing the request and the system can group all or some of the data items into one larger data envelope that can be passed to each service used in processing  
20 the request. The services can use whatever data is needed and optionally add new data to the envelope, remove data from it, or modify existing data in it.

Preferably, each request performs only a single business action in the business model that defines the operation of the site and may rely on data that was generated on

previous requests. The state of the business model for each customer can be preserved across each of the requests. For example, an order is created the first time that a customer adds an item to his shopping cart. The same order is then updated each time the customer adds or removes an item and is processed when the customer checks out.

- 5 The identifier of the customer and the order must be maintained between each request to add an item, remove an item, checkout, or initiate any other action.

In one embodiment, a session ACT, such as OneSession, is provided to save and restore the session data in the session data envelope. The session data envelope can hold any of the data items that a given service may need to use or add to the session data item  
10 or alternatively, it can provide a pointer to a database or data item that a given service can use. This data can be used by other services later in the business action or model or by any service called in a subsequent request within the same session. The session ACT saves the current state of the session data envelope at the end of one request and restores it at the beginning of the next request.

15 Preferably, at the start of each request, the session ACT BeginRequest function is called. This function has no input data; it restores the session data based on the session identifier received from the customer's web browser's (such as from an HTML form or a "Cookie"). The session data is restored from the session ACT which holds whatever data was left in the session item when the previous request of the current session ended. At  
20 the end of the request, the session ACT EndRequest service can be called to save the data in persistent storage via the Session ACT. Services that need to maintain state within a session can use this ACT to hold their state information by inserting or modifying the fields in the XML of a particular session data item of the session data envelope. The

identifiers of any ACT items that are inserted into the session can be stored so that later functions can restore this information as needed.

In one embodiment, one particular ACT item identifier that is always present is the Customer item identifier. The Customer item identifies the customer who is using the session and becomes useful for profiling the customer after the customer has logged in. A unique but 'anonymous' Customer item can be used in the first request of a session to make sure that each session has a customer associated with it.

Figure 5 shows an example of a typical Session ACT data item. The data items that it contains, such as the Customer and Order data items, for example, can be saved and restored during the course of the session. Other services can obtain the full or partial contents of the session data item from the appropriate session ACT and can insert additional data into the session data to be held for the duration of the request or session. The data that is added or modified during the session can be provided in any valid XML data format and the system 100 will save and restore the data over the course of one or more sessions.

#### Request Data

The Session Service Component BeginRequest service is also responsible for retrieving information from the request (such as information provided by a CGI script, ASP script or Visual Basic script), converting it to XML and inserting it into the Session data item so it is available for all of the services which are called during this request.

This information can include: any data that was entered by the customer in a form, any variables on the URL, the customer's browser and local host information, information about the server and requested URL, and cookie and certificate information. Figure 6 shows request data which can be obtained from the web server variables, converted to

XML and placed in the Session data item. This information can be available to all services invoked during a specific request.

Some services utilize information concerning functions that have been performed by services that were called previously in the session. This is particularly true in the case of the services offered by the Audit Service Component which are responsible for saving this information and converting it into easily understandable summary data for performance monitoring and reporting services.

In one embodiment of the invention, every service component can add a description of each service (function) that it performed as well as any additional information, which the Audit Service Component can log, in the session data stored by the OneAudit ACT. For example, this information can include the following:

TYPE - The name of the service component

ACTION - The name of the service function which was performed

INFO - Optional information that further describes the service

15 END\_TIME - Day and time that the service completed

STATUS - 'Success' or an error code indicating the type of failure that occurred

ACT - Similar information for each ACT function that was called by the service function

A utility function can be provided to help service component developers to develop SCTs that add audit information to the session data. A function can also be provided to automatically add the ACT data to the audit information. Figure 7 shows an example of an Audit data item which was added to the session data by the Order Service Component while performing an AddToOrder.

## The Controller and Business Models

The controller 110 controls the customer flow through the system 100 which can present to the customer an e-commerce or online store. The nature of the world wide web allows a customer to have considerable freedom in determining where to go and what to do next by the links they select. This is accomplished by providing the customer with many links to choose from in response to each requested action. However, the customer can go outside the links provided by making requests by typing in a URL directly, or by selecting a book marked URL. In one embodiment, the Controller sits between the web server, which dispatches the request to be processed, and the services that are used to perform that action and generate the responsive web page. This way, the controller can make sure that no actions are performed outside of what is allowed by the customer or is appropriate for the current state of what he has done.

The Controller does this by applying a particular Business Model to every request that the customer makes. The Business Model governs what actions a customer may perform and what he must do prior to performing that action.

## The Controller

The controller operates to ensure that all of the customers actions fit within a predefined business model. The controller processes an action requested by a customer according to a business model defined for that customer or situation. As one having ordinary skill will appreciate, the relationship between the control component and the business model can vary such that a tightly integrated control component - business model based system can be used in an optimized and highly efficient system, requiring only limited functionality, whereas a more structured and clearly separated control

component - business model based system can be used when flexibility is valued more than efficiency. Both the control component and business model programming make up the code that can be used to execute each business action. However, as shown in FIGURE 3, whether the business model information is hard coded or created

5 dynamically, preferably, every business action includes the following information:

customer access privileges 330a that specify which customers may execute the business action,

prerequisite business actions 330b that must have been successfully completed by the customer before this business action can be executed,

10 required input data 330c that must be provided by the customer when requesting to execute the business action,

required content 330c which the business action uses during execution,

processing logic 330d which controls what the business action does,

output display format 330e for the data which is generated by the business action

15 and will be displayed to the customer, and possible next actions that a customer may choose from.

#### Business Action Level Access Control

The controller will utilize an SCT, such as an access service component, to determine if the customer has access to the requested action. If a customer attempts to perform an action that he is not permitted to perform, then the controller can be provided with a number of alternative actions or functions. The controller may give the customer an opportunity to upgrade his identity (e.g. guest customers can login as a registered customer, already registered customers may re-login as an administrative customer)

Alternatively, the controller may process a similar action that the customer does have access to or let the customer choose from a list of alternative actions. If nothing else, the controller can report to the customer that the customer does not have the proper privileges to perform the requested action.

## 5 Required Inputs

If the customer has not supplied all necessary inputs to perform the action, then the controller can redirect the customer to a form, such as an HTML form, that can be used to supply the missing information. Preferably, this form should be pre-filled with all of the information that the controller already knows and indicate which of the missing  
10 information is required. The customer can then modify the information, add to it any missing information, and resubmit the request. The customer can also choose to cancel the request either explicitly by clicking on a cancel button on the input form or implicitly by not supplying the additional information within a specific, allowed period of time.

## Data Access Control

15 Many business actions require access to information in addition to that input by the customer in order to proceed. For example, searching a product set, viewing product information, viewing customer information, viewing the contents of a catalog, require access to product, customer or catalog ACTs. This data may or may not be access controlled. The controller can utilize an SCT, such as an access service component, to  
20 determine if the requesting customer has been granted access to all data that is needed to perform the requested action. If the customer has not been granted sufficient access, then



the controller may direct the customer to a different action or return an error message.

#### Prerequisite Actions

Prior to initiating any business action, the controller can compare the prerequisite actions associated with a given business action with a log of the prior actions completed  
5 by the customer that is stored in an audit log or session log. The logging of prior actions completed can be performed by an SCT, such as a session service component, that tracks action completion and uses an ACT, such as a session log application component, to store a history of completed actions. If the customer has not performed a prerequisite action, then the controller can attempt to execute the prerequisite action instead. After  
10 the prerequisite action or actions are executed, the controller can reinitiate the prior action.

#### Business Model

The controller utilizes a business model in making all decisions. Specialized business models can be provided to allow turnkey installation for some common e-  
15 commerce applications. One example is a shopping controller which can include a business model that allows a customer to interact with a site directly through a catalog. The shopping controller can provide personalized presentation of dynamic catalog content to a customer. The customer can move through the sections of a virtual store, view detailed representations of products and  
20 services (hard-goods, digital content, chat rooms etc.) in an intuitive way. The client is then charged for all selected items purchased or services used. Some items or services may be free to customers.

In one embodiment, the system can include a predefined Business Model that incorporates a Targeting Controller. The Targeting Controller can include a business model that allows a customer to receive a completely personalized, targeted product and service offering from the virtual store. The Targeting Controller can utilize information  
5 provided by the customer as well as historical information about the customer's past buying habits and web pages viewed to create a customer profile, identifying the customer's interests. The Targeting Controller can use the customer profile to dynamically generate targeted product and service offerings during the customer session. This business model can reduce the amount of information that a customer needs to  
10 grapple with and increase the likelihood of making a sale before the customer goes to another website. The customer can also see detailed representations of any of the targeted hard-goods, digital content, chat rooms, or other items that might be of interest to the customer in an intuitive way and provide compensation (such as discounts) in appropriate ways for all items being purchased. This enables marketing information to  
15 be used effectively.

According to a preferred embodiment, a system according to the invention provides tracking and profiling as described below. The OneMeta ACT manages the meta-data categories and values which the system uses for targeting and profiling. It maintains a simple data structure such as that presented in the following table.

Meta-Data Category	Meta-Data Category Element
Age-Group	Senior
Age-Group	Teenager
Clothing-Type	Shoe

Material	Glass
Material	Leather
Interest	Sports

The OneUpSell ACT manages recommended upsell item(s) for any ACT instance. The OneUpSell ACT includes information such as that presented in the following table.

5

ACT	ID	Recommend ACT	Recommend ID
Product	11	Product	300
Product	11	Chat	82
Chat	4	Product	5
Product	7	Chat	12

The OneCrossSell ACT manages recommended upsell item(s) for any ACT instance. The OneCrossSell ACT includes information such as that presented in the following table.

ACT	ID	Meta-Data	Recommend ACT	Recommend ID	Recommend Meta-Data
Product	11		Product	300	
		Clothing-Type/Shoes			Clothing-Type/Socks
Chat	4		Chat	5	
Chat	4		Product	84	
Product	7				Interest/sports

The OneTarget ACT manages the meta-data tags associated with each ACT instance in the system (that has been tagged by our customer). The OneTarget ACT includes information such as that presented in the following table.

Application Component Type (ACT)	Instance ID	Meta-Data Tags
One Product	11	Age-Group/teenager, Clothing - Type/Shoe, Material/leather, Interest/sports
OneChat	6	Clothing-type/shoe
OneConference	12	Age-Group/teenager, Interest/sports
OneProduct	8	Age-Group/teenage, Material/leather

The OneProfile ACT tracks customer affinities for meta-data categories and meta-data tags. The OneProfile ACT includes information such as that presented in the following table.

User ID	Meta-Data Tag	Cumulative Points	Affinity	Relative Affinity	Customer
11	Material/Glass	10		10/267 = 03.745 %	
11	Age-Group/Teenager	58		58/267 = 21.723 %	
11	Clothing - Type/Shoe	115		115/267 = 43.071 %	
11	Age Group/Senior	1		1/267 = 00.375 %	
11	Material Leather	11		11/267 = 04.120%	
11	Interest/Sports	72		72/267 = 26.966%	
11	TOTAL:	267			
11	Material/*	22		22/267 = 8.240%	
11	Age-Group/*	59		59/267 = 22.097%	
11	Clothing-Type/*	115		115/267 = 43.071%	
11	Interest/*	72		72/267 = 26.966%	

5

The OneProfile SCT analyses the click-trail executed during a customer session (which is held in the OneSession ACT) to score the affinity of that customer session with meta-data tags placed on Application Component Type Instances touched during the click-through. This process works as follows. Assume the OneSession ACT contains

10 the click trail information listed below for a customer session.

Application Component Type (ACT)	Instance ID within the ACT	Number of Clicks
OneProduct	11	5
OneChat	6	10
OneConference	12	2
OneProduct	8	1

Assume the OneTarget ACT contains the meta-data tags listed below for the referenced ACT instances drawing on the OneMeta ACT to select meta-data categories and meta-

5 data tags within categories:

Application Component Type (ACT)	Instance ID	Meta-Data Tags
One Product	11	Age-Group/teenager, Clothing-Type/shoe, Material/leather, Interest/sports
OneChat	6	Clothing-type/shoe
OneConference	12	Age-Group/teenager, Interest/sports
OneProduct	8	Age-Group/teenager, Material/leather

Thus, with the given click-trail and targeting information OneProfile can extract the following affinity vector for this session:

Meta-Data Tag	Meta-Data Category Element
Age-Group/Teenager	$5 + 0 + 2 + 1 = 8$
Clothing Type/Shoe	$5 + 10 + 0 + 0 = 15$
Material/Leather	$5 + 0 + 0 + 1 = 6$
Interest/Sports	$5 + 0 + 2 + 0 = 7$
TOTAL:	This is 36 total affinity points

OneProfile can now draw the following conclusions about relative affinity this Session:

Meta-Data Tag	Relative Affinity This Session
Age-Group/Teenager	$8/36 = 22.222\%$
Clothing Type/Shoe	$15/36 = 41.667\%$
Material/Leather	$6/36 = 16.6667\%$
Interest/Sports	$7/36 = 19.445\%$
TOTAL:	This is still 36 total affinity points

5

The system can assume that this customer's previous affinity profile, stored in the

OneProfile ACT is as follows:

Meta-Data Tag	Cumulative Points Affinity	Relative Customer Affinity
Material/Glass	10	$10/231 = 04.329\%$
Age-Group/Teenager	50	$50/231 = 21.645\%$
Clothing-Type/Shoe	100	$100/231 = 43.290\%$
Age-Group/Senior	1	$1/231 = 00.433\%$

Material/Leather	5	5/231 = 02.165%
Interest/Sports	65	65/231 = 28.139%
TOTAL:	231	

**UPDATE**

The update method in the OneProfile SCT takes a customer session as input and updates this customer's affinity matrix in the OneProfile ACT. In this example, updating this customer's affinity matrix with this session results in the following new affinity matrix:

Meta-Data Tag	Cumulative Points Affinity	Relative Customer Affinity
Material/Glass	10	10/267 = 03.745%
Age-Group/Teenager	58	58/267 = 21.723%
Clothing-Type/Shoe	115	115/267 = 43.071%
Age-Group/Senior	1	1/671 = 00.375%
Material/Leather	11	11/267 = 04.120%
Interest/Sports	72	72/267 = 29.966%
TOTAL:	267	Approximately 100%
Material/*	22	22/267 = 8.240%
Age-Group/*	59	59/267 = 22.097%
Clothing-Type/*	115	115/267 = 43.071%
Interest/*	72	72/267 = 29.966%

5

Observe that this affinity matrix is stored not only by meta-data tag but also by meta-data category to support the targeting SCT's operations. (See the last four rows).

In one embodiment, the system renews customer profiles over time. Otherwise, the law of big numbers will introduces an averaging of affinity across all meta-data tags.

The OneProfile SCT, therefore, offers a renew method that takes two parameters indicating how much the profiles should be renewed and which profiles are old enough to merit renewing. A call to renew  $(x,y)$  with a large  $x$  wipes away more of a historical pattern and makes the profile more sensitive to current activities. A call to renew  $(x,y)$  with a smaller value for  $x$  allows current clicks to have a significant impact while including historical clicks in the calculation of affinity. The  $y$  parameter indicates which profiles are old enough to renew. Only customers whose total affinity point value is great than  $y$  will be affected by the renew operation.

```

If total affinity points  $\leq y$ 

    then skip this customer's profile in the renewal process

Else if (Cumulative Affinity Points)  $x \geq 1$ 

    then Cumulative Affinity Points = (Cumulative Affinity Points)  $x$ 

    else remove all trace of any affinity for this meta-data tag from the
    customer profile.
    
```

10

The OneTarget service component examines the relative customer affinities for meta-data tags and selects those ACT instances, which statistically are appealing. This can be done in a variety of ways.

To compute the absolute preference that a customer has for an ACT instance, the system sums his/her affinities for each meta-data tag on that ACT instance. Consider the above customer profile and the following application component type instance.

Application Component Type (ACT)	Instance	Meta-Data Tags
OneProduct	84	Age-Group/teenager, Interest/sports, Material/glass, Material/leather



The relative preference for this content instance is computed by summing the relative preferences for each tag. In this case the result is:

Age-Group/teenager 21.723% + Interest/sports 26.966% + Material/glass 3.745% + Material/leather 4.120% = 56.554%.

5 The absolute preference method in the OneTarget SCT should return a set of ACT instances in decreasing order of absolute preference. The system attaches a pair of parameters here where the first indicates a threshold of absolute preference and the second indicates a maximum number of instances to return. Passing in a 0 for either or both parameters indicates no bound.

10

*Absolute Preference (percent threshold, instance count threshold)*

In the running example here, this customer seems to care most about clothing-type, then interest, then age-group, and finally least about material. These affinities demonstrate the customer's preference by meta-data category. The CategoryPreference method in the OneTarget SCT performs a weighted average of affinity based on the meta-data tag's category. In this example the weights for this customer are: clothing-type (4), interest (3), age-group (2), material (1).

*Age-Group/teenager 27.723 \* 2 + Interest/sports 26.966 \* 3 + Material/glass 3.745 \* 1 + Material/leather 4/120 \* 1 = 55.466 + 80.898 + 3.745 + 4.120 = 144.229/7 = 20.604*

20 A high affinity for a particular value (say Interest/sports) has more impact if the Interest category frequently draws this customer's click and less impact if the Interest category is

not so compelling. Once again, the system uses the two parameters for percent threshold and absolute number of instances threshold with 0 in either/both places removing the restriction.

*CategoryPreference(percent threshold, instance count threshold)*

5

OneTarget has 2 more ACTs beneath it (beyond the meta-data tags on ACIs held in the OneTarget ACT). One ACT is called OneUpsell ACT and stores which particular ACT instance should be pushed either as an up-sell to some other ACT instance. The OneTarget SCT has a method called Upsell that takes an ACT/ID pair and responds with

10 a set of ACT instances to up-sell. It cuts off this list at threshold elements in the response. If 0 is passed in as the threshold then the number of instances in the response is not limited.

*Upsell (ACT, ID, threshold) returns the ACT instance(s) that we recommend upselling*

15

The other ACT OneTarget has beneath it is called OneCrossSell ACT and stores which ACT instances should be pushed as a cross-sell to some other ACT instance or meta-data tag. The OneTarget SCT has a method called CrossSell that works like this:

*CrossSell (ACT, ID, Meta-Data, threshold) returns the ACT instance that we recommend cross-selling*

20

The method can be invoked with either an ACT/ID pair or a Meta-data tag along with a threshold for the maximum number of instances to return and the method responds

with a set of recommended ACT instances to cross-sell. If 0 is passed in as the threshold then the number of instances in the response is not limited.

Another business model can be a Searching Controller. The Searching Controller can include a business model that allows a customer to receive an offering of items from a virtual store that match the customer's search criteria. This business model reduces the amount of information that a customer needs to grapple with and increases the likelihood of making a sale. It also gives the customer a certain sense of control. Once the products sought are found, the customer can see detailed representations of these hard-goods, digital content, chat rooms, and other items in an intuitive way and provide compensation in appropriate ways for all items being purchased. This business model can be used to appeal to and retain those customers that want to control their own destiny in a virtual store without having to walk through it section by section.

#### Workstations

Workstations can provide an administrator's view of data contained in ACTs or generated by SCTs. Workstations can also provide a customer's view of the same data. A workstation can contain business logic and control of its own or it can rely on the services and a business model. Any logic that is used in a service could be useable by other workstations and components.

A Workstation installation package includes the following: Documentation; List of required ACT and SCTs; ASP files to handle views; and XSL views for all data.

A Workstation can provide a view on top of ACTs and SCTs and can include external ASP, HTML, etc. A Workstation can also provide pure views with no business logic.

The e-commerce system can include a higher level monitoring and reporting system for collecting data about the operation of the transaction processing system over a period of time and reporting information relating to the performance of the system. The system can include sales channel modeling and reporting which is described in further  
5 detail in Appendix C. In addition, the system can include technical modeling and reporting as well.

Administrative functions are handled by role-based workstations. Role-based administrative workstations allow a company to distribute the responsibility for various administrative functions to any of the available administrative roles (such as content  
10 manager, marketing manager and channel manager). This provides the system with complete flexibility to distribute and redefine responsibilities as the developer requires.

In one embodiment, the e-commerce system can be adapted to run on a distributed processing system or server cluster, such as a Distributed Internet Server Array (DISA) available from Compaq Computer Corporation, Houston, Texas. This  
15 hardware platform provides scalability by allowing server resources to added as demand increases. As described in Appendix E, the system can provide both front-end and back-side load balancing to distribute the front end and back-side server loads to optimize server resources.

#### Financial Modeling

20 A preferred embodiment of a system according to the invention provides financial modeling for a developed e-commerce solution. The following is a simple, mathematical framework that quantifies performance in a sales channel. The model is presented in three tables. The first defines the variables involved. The second presents

business values that can be computed over the variables. The third table presents retained net profit. This model demonstrates the system’s ability to improve the customers’ retained net profit.

**Variables**

5

Variable	Definition
C	Average number of Customers
V	Average number of Visits per customer
P	Average number of customer contacts Per visit
O	Average number of Offers per contact
TO	Average number of Targeted Offers; offers of interest to the end customer
EO	Average number of Executed Offers; offers with agreed, executed terms of purchase
RO	Average number of Retained Offers; offers not returned or rejected after execution
OC	Average Offer Cost; cost of extending an offer to a customer
EC	Average Execution Cost; cost of executing an offer on behalf of a customer
RC	Average Return Cost; cost of accepting a return on behalf of a customer
CC	Average Channel Cost; amortized cost of building and maintaining the channel
UP	Average Unit Price
MP	Average Margin as a Percent of unit price
SP	Average number of Satisfactory customer contacts Per visit

**Business Functions**

Function		Equation
TotalOffers	=	$C*V*P*O$
Targeted Offer Percentage	=	$TO \div \text{Total Offers}$
Executed Offer Percentage	=	$EO \div \text{Total Offers}$
Retained Offer Percentage	=	$RO \div \text{Total Offers}$
Number of Returns	=	$EO-RO$
Executed Sales	=	$EO * UP$
Retained Sales	=	$RO * UP$
Executed Gross Profit	=	$\text{Executed Sales} * MP$
Retained Gross Profit	=	$\text{Retained Sales} * MP$
Retained Net Profit	=	$\text{Retained Gross Profit} - (\text{Total Offers} * OC) - (EO * BC) - ((EO - RO) * RC) - CC$
Return on Investment	=	$\text{Retained Net Profit} + ((\text{Total Offers} * OC) + (BO * BC) + ((BO-RO) * RC) - CC)$
OneSoft Profit Growth Factor	=	$\text{Retained Net Profit (Current System)} \div \text{Retained Net Profit (Reference System)}$
Return Comparison between channels	=	$\text{Retained Net Profit (Current System)} / \text{Retained Net Profit (Reference System)}$
Lifetime Value of the Customer Relationship in the Channel	=	$SP \div P$

**Profit/Return Equation**

The system can formulate a profit equation that ties all of the key variables together into a final number representing cash flow. The function is defined using the business functions above. In the table below, the system substitutes all the variables and presents the final equation.

Complete Retained Net Profit is:

(Retained Offers \* Average Unit Price \* Average Margin as a Percent of Unit Price) - (Total Offers \* Cost of Extending an Offer) - (Number of Executed Offers \* Cost of Executing an Offer) - (Number of Returns \* Cost of Processing a Return) - Amortized Channel Cost

<b>Complete Retained Net Profit Equation</b>
$(RO*UP*MP)-(C*V*P*O*OC)-(EO*EC)-((EO-RO)*RC)-CC$

The virtual channel, selling on the Internet, is attractive because it minimizes many of the costs incurred by doing business in other ways. Below the channel comparison function is applied to analyze the difference between Internet business and typical brick-and-mortar retail selling.

Compute Retained Net Profit (Current System) + Retained Net Profit (Reference System) over the first year with the following values for each of the necessary variables. The illustration below makes assumptions including what percentage of total offers are targeted, which percentage of those are executed, and which percentage of those are retained. The illustration also makes an assumption about what percentage of visits are customer satisfying in the online and in-store cases. This illustration assumes values in the context of a very successful in-store retailer taking full advantage of personalization mechanisms to be customer-centric on the Internet. The assumptions are indicated in the first few rows of the table.

<b>Retained Net Profit Equation:</b>	<b>Internet with OneSoft</b>	<b>Brick and Mortar Retail</b>
$(RO*UP*MP)-(C*V*P*O*OC)-(EO*EC)-((EO-RO)*RC)-CC$		
Targeted Offer Percentage	70%	60%
Executed Offer Percentage	15%	5%
Retained Offer Percentage	90%	80%
Satisfying Customer Contact Percentage	98%	80%
Retained Sales Revenue (RO*UP*MP)	\$141,750,000	\$720,000
Cost of Making Offers (C*V*P*O*OC)	\$60,000	\$80,000
Cost of Executing Offers (EO*EC)	\$90,000	\$8,000
Cost of Handling Returns ((EO~RO)*RC)	\$90,000	\$2,400

Cost of Selling up the Channel (CC)	\$200,000	\$500,000
C	50,000	10,000
V	5	2
P	4	2
O	6	2
TO	4,200,000	48,000
EO	900,000	4,000
RO	810,000	3,200
OC	\$0.01	\$1.00
EC	\$0.10	\$2.00
RC	\$1.00	\$3.00
CC	\$200,000.00	\$500,000.00
UP	\$500	\$500
MP	35%	45%
SP = Long Term Customer Value	980,000	32,000
Net Profit	\$141,310,000	\$129,600

In tabular form, this illustration indicates which elements most directly relate to the customer's profits within the virtual channel.

5 The table below indicates which variables system components address favorably.

Product and Service Lines	C	V	P	O	TO	EO	RO	OC	EC	RC	CC	UP	MP	SP
Internet Operations Center								*	*	*	*			*
Implementation Services								*	*	*	*			*
Virtual Channel Strategic Services	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Graphic/Multimedia Design Services	*	*	*	*		*	*			*	*	*	*	*
Community Application Components	*	*	*	*	*	*	*			*		*	*	*
Catalog Application Components					*	*	*	*	*	*	*	*	*	*
Customer Service Application Components	*	*	*	*		*	*		*	*		*	*	*
Offer-Targeting Service Components	*	*	*	*	*	*	*		*			*	*	*
Search Service Components	*	*	*	*	*	*	*			*		*	*	*
Customer Profiling Service Components	*	*	*	*	*	*	*			*		*	*	*
Virtual Store Design Service Components	*	*	*	*	*	*	*				*	*	*	*
Legacy System Connector Components	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Payment System	*	*	*	*		*	*		*	*	*	*	*	*

Connector Components														
Fulfillment System Connector Components	*	*	*	*		*	*		*	*	*	*	*	*
Business Model Components	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Marketing Components	*	*	*	*	*	*	*		*	*	*	*	*	*
System Monitoring components	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Sales Management Work Station Components	*	*	*	*	*	*	*		*	*	*	*	*	*
Application Management Work Station Components	*	*	*	*	*	*	*	*	*			*	*	*
Marketing Strategy Work Station Components	*	*	*	*	*	*	*	*	*	*		*	*	*
Business Modeling Work Station Components	*	*	*	*	*	*	*	*	*	*	*	*	*	*
System Monitor Work Station Components	*	*	*	*	*	*	*	*	*	*		*	*	*

One of the advantages of a system in accordance with the present invention is that each of the components are functionally independent, and thus do not require knowledge about other components to perform their function. This allows complex systems to

5 constructed the same way simple systems are constructed, by adding components in a “plug and play” fashion. Thus, standard e-commerce system types can be built as objects that can form the components of larger systems.

The invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiments are therefore to

10 be considered in respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all changes which come within the meaning and range of the equivalency of the claims are therefore intended to be embraced therein.



**A Modular System For Processing Network Based Transactions**

What is claimed is

1. A system for processing a transaction comprising:

5 a computer processing system and associated memory;  
a plurality of independent component modules operatively coupled to the  
computer processing system, wherein each module is selected from a group of modules  
consisting of

10 application component modules adapted for providing data management  
functions;

service component modules adapted for providing data transformation,  
monitoring, and commerce, functions;

presentation component modules adapted for providing data presentation  
functions; and

15 control component modules adapted for communicating with each of said  
independent modules for processing said transaction;

wherein each of the independent modules is adapted for providing at least one  
predefined function without the assistance of any other of said independent modules.

20 2. The system of claim 1 wherein the system includes a control component module  
adapted for communicating with at least one of the plurality of independent modules to  
process the transaction.

3. The system of claim 1 wherein each of the plurality of independent modules is adapted for communicating with any other independent component module according to a common extensible interface.

5 4. The system of claim 3 wherein the extensible interface comprises means for transmitting and receiving a data record according to an extensible protocol.

5. The system of claim 3 wherein each of the plurality of independent component modules is adapted for communicating with any other independent component module  
10 according to extensible data format.

6. The system of claim 5 wherein the extensible data format includes an extensible markup language.

15 7. The system of claim 1 wherein the system comprises an application component module adapted for providing data management functions.

8. The system of claim 7 wherein the data management functions include creating, deleting, retrieving, and modifying data.

20

9. The system of claim 7 wherein said application component module is an audit component module adapted for managing data generated as a function of monitoring and logging activities associated with said transaction.

10. The system of claim 7 wherein said application component module is a catalog component module adapted for managing data representative of a collection of products.

11. The system of claim 7 wherein said application component module is a  
5 communication component module adapted for managing data representative of communication information.

12. The system of claim 7 wherein said application component module is an event component module adapted for managing data representative of an event.

10

13. The system of claim 7 wherein said application component module is an orders component module adapted for managing data representative of customer orders.

14. The system of claim 7 wherein said application component module is adapted for  
15 managing data representative of customer session information.

15. The system of claim 7 wherein each of said plurality of application component modules provides functions which render an instance of an application component representative of data managed by said application component.

20

16. The system of claim 7 wherein said application component module provides data management functions in response to a request from a service component module.

17. The system of claim 1 wherein the system comprises a service component module adapted for providing a data transformation function.

18. The system of claim 17 wherein the data transformation function is a data  
5 filtering function.

19. The system of claim 17 wherein the service component module is adapted for providing a data monitoring function.

10 20. The system of claim 17 wherein the service component module is adapted for a data logging function.

21. The system of claim 17 wherein the service component module is adapted for providing a customer shopping basket function.

15

22. The system of claim 17 wherein the service component module is adapted to provide customer order services.

23. The system of claim 17 wherein the service component module is adapted to  
20 provide a customer access function.

24. The system of claim 17 wherein the service component module is adapted for communicating with at least one application component module.

25. The system of claim 1 wherein the system includes a presentation component module adapted for converting data to a data presentation format.

26. The system of claim 25 wherein the data presentation format is a hypertext  
5 markup language.

27. The system of claim 25 wherein said presentation component module is adapted for receiving data in an extensible data format and merging said received data with at least one presentation template in order to produce data in said data presentation format.  
10

28. The system of claim 27 wherein said extensible data format is an extensible markup language (XML); said presentation template is an extensible stylesheet language and said data presentation format is HTML.

15 29. The system of claim 1 wherein the system includes a control component module adapted for controlling at least one of said independent component modules for processing said transaction.

30. The system of claim 29 wherein said system includes a business action and  
20 business action defines which of said plurality of independent component modules are to be used by said control component module to process said transaction.

31. The system of claim 30 wherein said business action is defined in a dynamic web page format and said plurality of independent component modules are objects invoked by

said control component module as a function of information provided by a participant of said transaction.

32. The system of claim 31 wherein said dynamic web page is an Active Server Page  
5 (ASP) format and independent component modules are Component Object Model (COM) component modules.

33. The system of claim 29 wherein the business action is integrated with the control  
10 component module to provide one or more predefined business actions.

34. The system of claim 29 wherein the control component module is adapted for  
determining whether prerequisite actions are required before beginning a business action.

35. The system of claim 1 comprising a shopping controller including the control  
15 component module and a shopping business model adapted for allowing a user to interact with a catalog through a web site, and paying for items purchased.

36. The system of claim 1 comprising a shopping controller consisting of the control  
20 component module and a shopping business model, said shopping controller being adapted to allow a user to interact with a catalog through a web site and pay for items purchased.

37. The system of claim 1 comprising a searching controller, including the control  
component module and a searching business model, said searching controller being

adapted to allow a user to submit a search request of a list of items and to receive information that matches the user's search request.

38. The system of claim 1 further comprising connector component modules adapted  
5 for communicating with an external computer processing system to transmit data to or receive data from said external computer processing system.

39. The system of claim 38 wherein said connector component module is adapted for  
10 converting date received from said external computer processing system to a standardized data format.

40. The system of claim 38 wherein said connector component module is adapted for  
15 converting date sent to said external computer processing system to a non-standardized data format used by said external computer processing system.

41. A system for processing a transaction comprising:  
a computer processing system and associated memory;  
application component means for providing data management functions;  
service component means for providing data transformation and monitoring  
20 functions;  
presentation component means for providing data presentation functions;  
means for operatively coupling each of said application component means, said service component means to said computer processing means, and

control component means for controlling and said presentation component means to process said transaction in accordance with a business model.

42. A system according to claim 41 wherein said application component means is  
5 adapted for providing a plurality of data management functions with respect to a single database.

43. A system according to claim 41 wherein said service component means is adapted for invoking functions provided by said application component means.

10

44. A system for processing a transaction comprising:  
a computer processing system and associated memory;  
a control component adapted for controlling said computer processing system to process said transaction as a function of a predefined sequence of commands associated  
15 with a business model;

each of said commands being associated with a function utilized to computer processing system to process said transaction, and each of said commands being selected from the group consisting of

20

application commands for invoking functions associated with data management;

service commands for invoking functions associated with data transformation and monitoring; and

presentation commands for invoking functions associated with presenting data to participants of the transaction.



45. A method for processing a transaction, the steps of the method comprising:  
providing a computer processing system and associated memory;  
providing a plurality of independent component modules operatively coupled to  
the computer processing system, wherein each component module is selected from the

5 group of functions consisting of

data management functions utilizing an application component module;

data transformation and monitoring functions utilizing a service  
component module;

data presentation functions utilizing a presentation component module;

10 and

control functions utilizing at least one application component module,  
service component module or presentation component module to process said  
transaction.

15 46. The method of claim 45 further comprising the steps of:

invoking a plurality of said component modules as a function of a predefined  
sequence of functions provided by a business action.

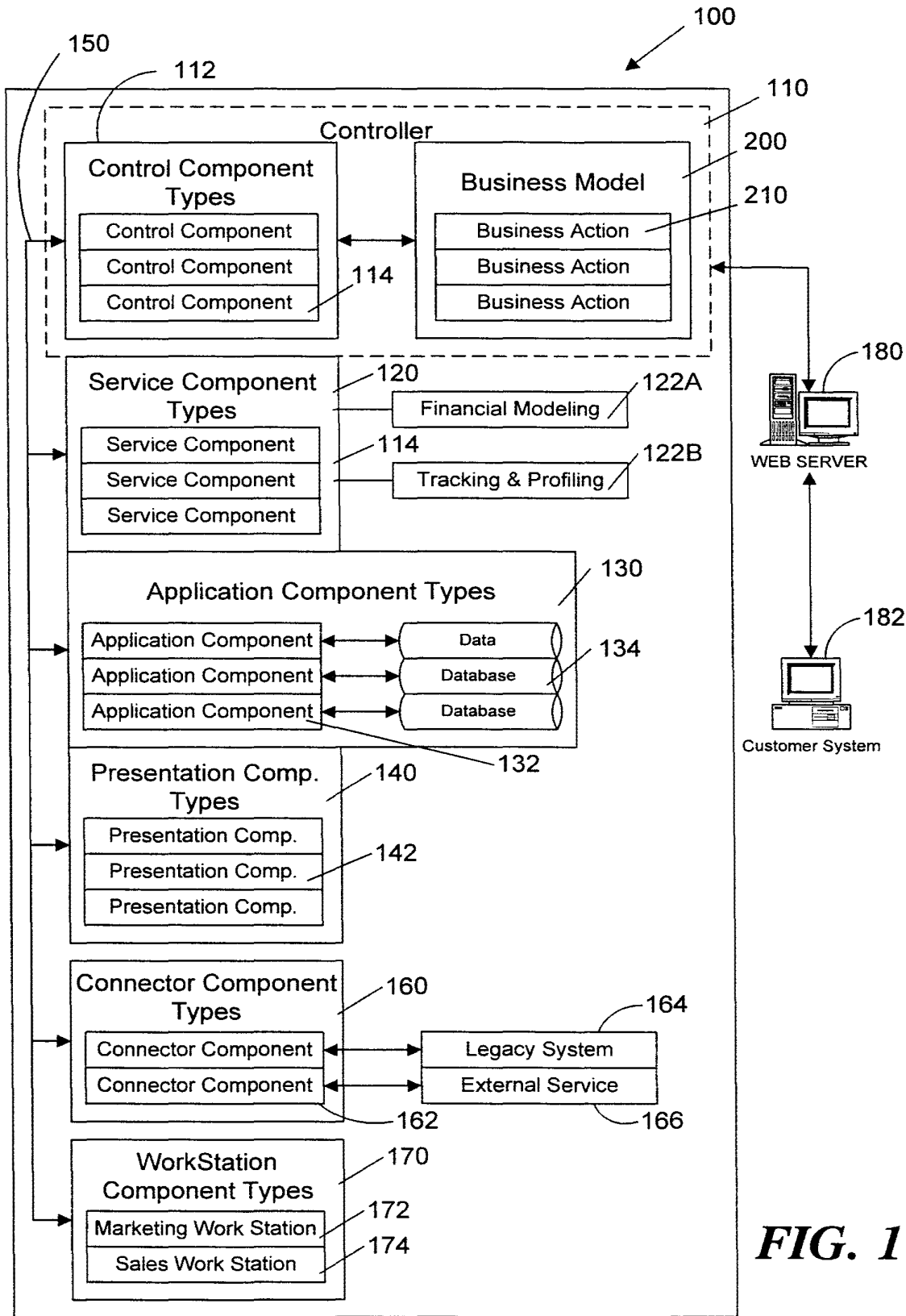
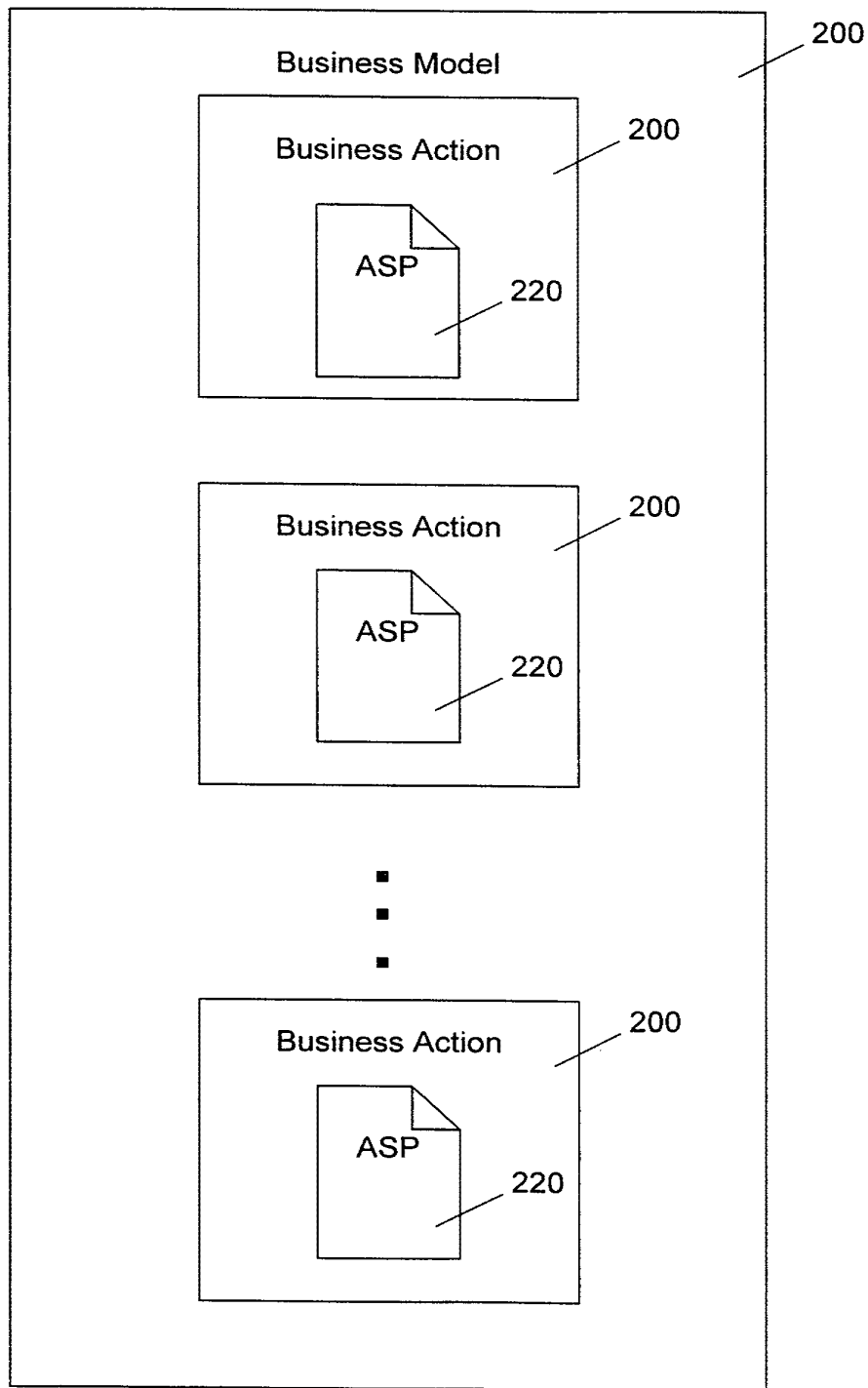
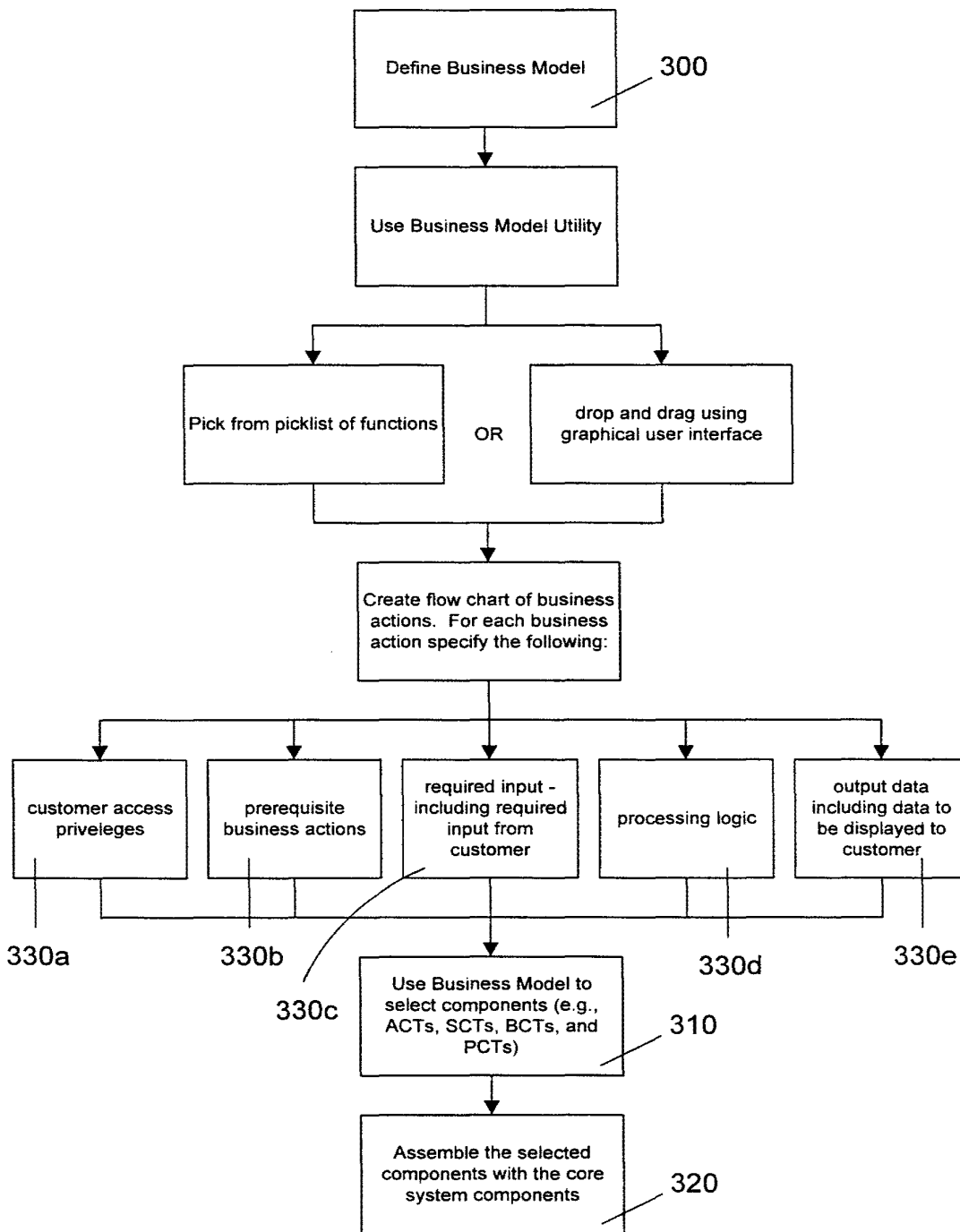


FIG. 1



**FIG. 2**



**FIG. 3**

Flow chart for constructing an e-commerce system

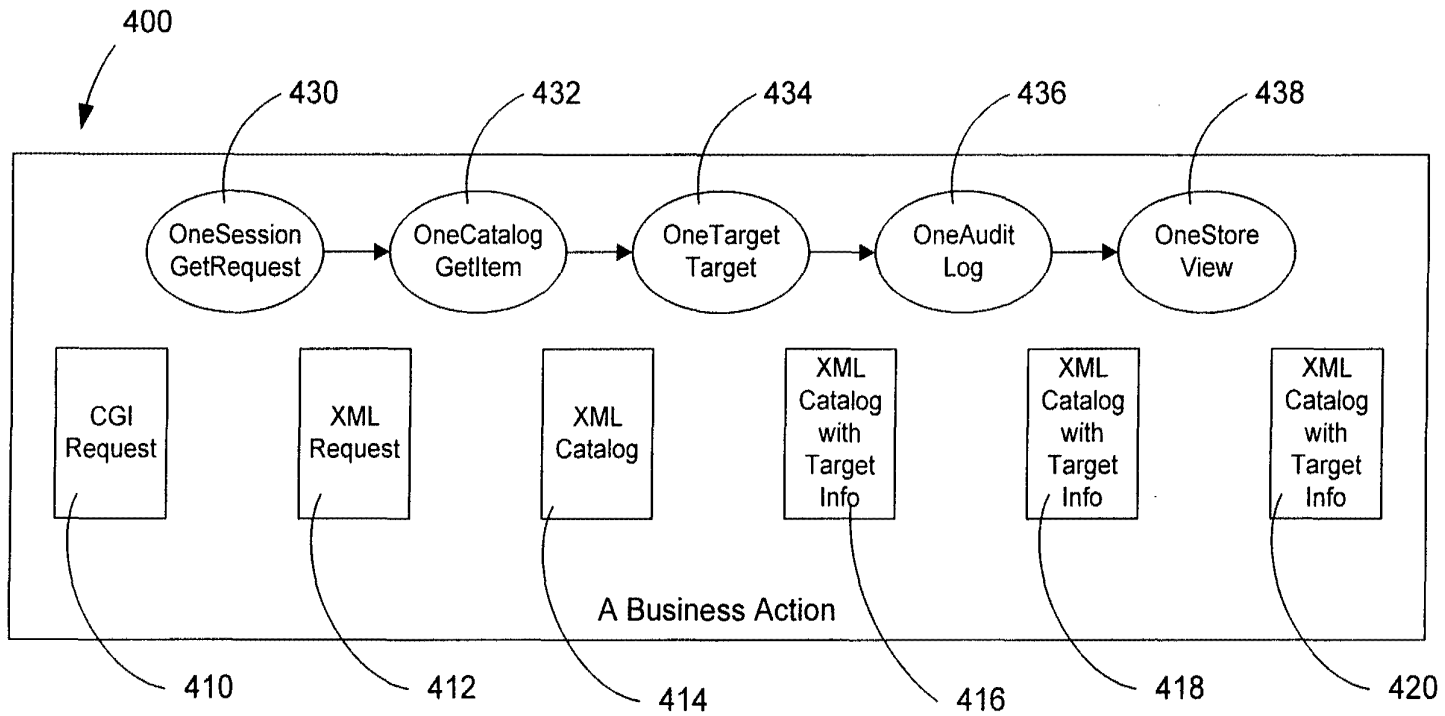


FIG. 4

```
<ONEITEM TYPE="OneSession" ID="0b6609fd730d99cfa1067445979c438d" VERSION="1"
SITE="Sportswarehouse" >
  ...
  <ONEITEM TYPE="OneCustomer" ID="vmontan" VERSION="1" SITE="Sportswarehouse" />
  <ONEITEM TYPE="OneOrder" ID="9873635" VERSION="1" SITE="Sportswarehouse" />
  ...
  <VARIABLE1>A Session specific variable value added by a service</VARIABLE1>
  <VARIABLE2>Another Session specific variable value</VARIABLE2>
  <VARIABLE3>A third value with <CHILD>children</CHILD></VARIABLE3>
  ...
</ONEITEM>
```

*The OneSession data item holds information generated by and used by the service components.*

**FIG. 5**

```
<ONEITEM TYPE="OneSession" ID="0b6609fd730d99cfa1067445979c438d" VERSION="1" SITE="Sportswarehouse" >
  ...
  <REQUEST>
    <VARIABLES>
      <ACTION>ViewCatalog</ACTION>
      <ID>203</ID>
    </VARIABLES>
    <SERVER_VARIABLES>
      <APPL_PHYSICAL_PATH>C:\inetpub\wwwroot\</APPL_PHYSICAL_PATH>
      <LOGON_USER/>
      <REMOTE_ADDR>204.176.12.67</REMOTE_ADDR>
      <HTTP_ACCEPT>*/</HTTP_ACCEPT>
      <HTTP_ACCEPT_LANGUAGE>en-us</HTTP_ACCEPT_LANGUAGE>
      <URL>ViewCatalog.asp</URL>
      <HTTP_USER_AGENT>Mozilla/4.0 (compatible; MSIE 5.0b2; Windows NT)</HTTP_USER_AGENT>
      <HTTP_REFERER/>
    </SERVER_VARIABLES>
    <COOKIES>
      <SITESERVER>ID=0b6609fd730d99cfa1067445979c438d</SITESERVER>
    </COOKIES>
    <CLIENT_CERTIFICATES/>
  </REQUEST>
  ...
</ONEITEM>
```

*The OneSession data item holds user request information to be used by the service components*

**FIG. 6**

```

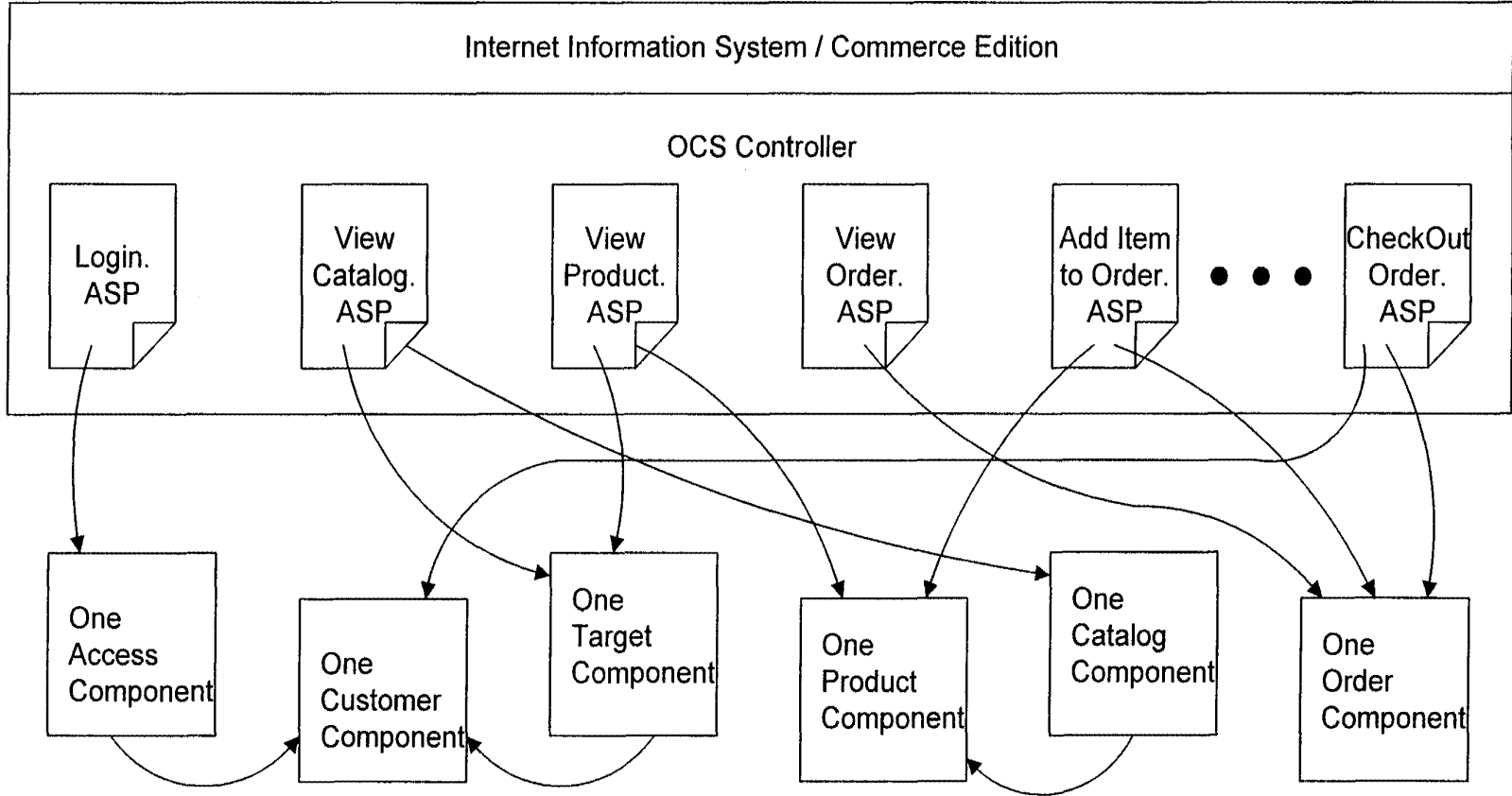
<ONEITEM TYPE="OneSession" ID="0b6609fd730d99cfa1067445979c438d" VERSION="1" SITE="Sportswarehouse" >
  ...
  <ONEITEM TYPE="OneAudit" >
    <SESSION_ID>0b6609fd730d99cfa1067445979c438d</SESSION_ID>
    <USER_ID>vmontan</USER_ID>
    <TYPE>OneOrder</TYPE>
    <ACTION>AddToOrder</ACTION>
    <INFO>optional additional service info</INFO>
    <STATUS>Success</STATUS>
    <END_TIME>11/12/1998 11:57:52</END_TIME>
    <ACT>
      <TYPE>OneOrder</TYPE>
      <ACTION>GetItem</ACTION>
      <INFO>91234</INFO>
      <END_TIME>11/12/1998 11:57:40</END_TIME>
      <STATUS>Success</STATUS>
    </ACT>
    <ACT>
      <TYPE>OneOrder</TYPE>
      <ACTION>SetItem</ACTION>
      <INFO>91234</INFO>
      <END_TIME>11/12/1998 11:57:48</END_TIME>
      <STATUS>Success</STATUS>
    </ACT>
  </ONEITEM>
  ...
</ONEITEM>

```

*The OneSession data item holds an audit trail of all actions that were performed in a session.*

**FIG. 7**





**FIG. 8**

```
<%@ Language=JavaScript %>
<!--#include file="ICS/functions.inc" -->
<%
    // Begin a request by converting request to XML
    sXML = ICSCallService("OneSession", "BeginRequest", "");

    // Get the contents of the catalog that was requested
    sXML = ICSCallService("OneCatalog", "GetCatalog", sXML);

    // Remove items which the user does not have access to
    xXML = ICSCallService("OneAccess", "AccessData", sXML);

    // Update targetting information and add in targetted products
    sXML = ICSCallService("OneTarget", "TargetProducts", sXML);

    // Get the appropriate view for the user
    sHTML = ICSCallService("OneSite", "ViewResults", sXML);
    Response.Write(sHTML);

    // Log the request and outcome of services to perform the request
    sXML = ICSCallService("OneAudit", "Log", sXML);

    // Save Session information
    sXML = ICSCallService("OneSession", "EndRequest", sXML);%>
```

*An ASP file which handles the request to view a targeted catalog.*

## ***FIG. 9***

10/10

```

<ONEITEM ID="1" TYPE="OneProduct" VERSION="1" SITE="SampleSite">
  <NAME>My Hard Good</NAME>
  <DESCRIPTION>This is the first hard good that I have for sale in my store.</
DESCRIPTION>
  <IMAGE_URL> /images/hardgood1.gif</IMAGE_URL>
  <PRICE>19.99</PRICE>
  <CREATOR>lbailey</CREATOR>
  <STATUS>1</STATUS>
  <VISIBLE>1</VISIBLE>
  <UPDATED_BY>lbailey</UPDATED_BY>
  <CREATION_DATE>10/12/69</CREATION_DATE>
  <UPDATE_DATE>10/12/69</UPDATE_DATE>
  <WEIGHT>1.4 lbs</WEIGHT>
  <HEIGHT>1 foot</HEIGHT>
  <WIDTH>1 foot</WIDTH>
  <DEPTH>1 foot</DEPTH>
  <THUMBNAIL>/images/hg1_thumbnail.gif</THUMBNAIL>
  <SKU>HG1IDENT</SKU>
  <EFFECTIVE_DATE>10/25/98</EFFECTIVE_DATE>
  <EXPIRATION_DATE>1/1/2000</EXPIRATION_DATE>
  <PRODUCT_STATUS>Available</PRODUCT_STATUS>
  <FEATURE ID="1">
    <CATEGORY>Size</CATEGORY>
    <VALUE ID="23">S</VALUE>
    <VALUE ID="24">M</VALUE>
    <VALUE ID="26">L</VALUE>
    <VALUE ID="27">XL</VALUE>
  </FEATURE>
  <FEATURE ID="2">
    <CATEGORY>Color</CATEGORY>
    <VALUE ID="29">Green</VALUE>
    <VALUE ID="32">Red</VALUE>
    <VALUE ID="34">Blue</VALUE>
  </FEATURE>
  <MANUFACTURERS>
    <COMPANY ID="12">
      <NAME>ACME Explosives</NAME>
      <BRANDNAME>ACME</BRANDNAME>
      <DESCRIPTION>Makers of things that go Boom.</DESCRIPTION>
      <COMPANY_IMAGE>/images/acme.gif</COMPANY_IMAGE>
      <COMPANY_URL>http://www.acme.com/</COMPANY_URL>
    </COMPANY>
  </MANUFACTURERS>
  <VENDORS>
    <COMPANY ID="13">
      <NAME>ACME Retail</NAME>
      <BRANDNAME>ACME</BRANDNAME>
      <DESCRIPTION>Distributor of things that go Boom.</DESCRIPTION>
      <COMPANY_IMAGE>/images/acme.gif</COMPANY_IMAGE>
      <COMPANY_URL>http://www.acme.com/</COMPANY_URL>
    </COMPANY>
  </VENDORS>
</ONEITEM>

```

*Example of a Product Application Component Data Item*

## FIG. 10



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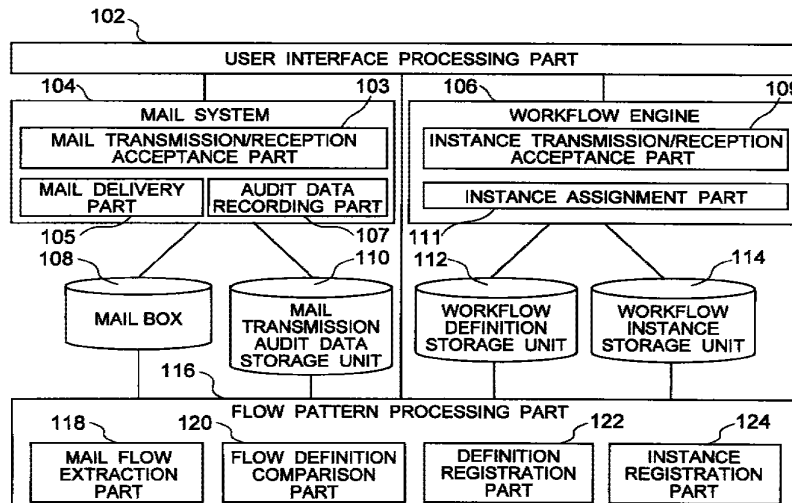
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(54) **Method of managing workflow based on electronic mail system**

(57) In a workflow management system, a mail instance can be easily registered as a workflow instance and workflow definitions, and a workflow instance can be replaced at any process stage by other workflow definitions including present workflow definitions. A mail flow pattern is extracted from a mail transmission audit data storage unit (110), and a flow definition comparison part (120) compares the mail flow pattern with the flow definitions stored in a workflow definition storage unit (112). A definition registration part (122) and an instance registration part (124) register the

mail flow pattern information as instance information of designated workflow definitions and as new workflow definitions. In accordance with predefined workflow definitions, intersectional workflow definitions and extended workflow definitions corresponding to a mail flow are selected and displayed. The mail flow pattern is registered in the workflow definition storage unit (112) as flow definitions based upon the flow definitions selected from among the displayed workflow definitions.

FIG. 1



## Description

### BACKGROUND OF THE INVENTION

#### Field of the Invention

**[0001]** The present invention relates to a workflow management method for a system in which works are performed via a network interconnecting user interfaces, and more particularly to a workflow management method for a system in which a combination of a mail system and a workflow management system are operated.

#### Description of the Related Art

**[0002]** In a workflow system, a flow of works by paper documents is changed to a flow of works by electronic chits and books realized on a computer system to perform works of circulation, acceptance and the like. Also in this country, the workflow system is applied to electronic mails, discussion database and the like.

**[0003]** A known workflow is disclosed, for example, in the article "Substantial Ability of Power Workflow", at pp. 61-71 in the March 1998 issue of the "Intranet" magazine published by Softbank-Sha. According to this article, the workflow management system defines a flow of works (documents) to automatically circulate the works in accordance with the definitions to thereby shorten the work time and improve the productivity. According to the article, the workflow management system has three constituent elements: workflow definition, execution, and administration. As the workflow definition, an electronic document to be circulated and circulation destinations of the document are defined. As the workflow execution, the document is circulated in accordance with the definitions. As the workflow administration, the process state of the circulated document is recorded to monitor the work progress, and a flow of works is statistically analyzed to provide tools for improving works. A workflow is defined through programming using scripts (language), storing a circulation order in a table, using a chart, or the like.

**[0004]** An example of a system capable of referring to audit data of sent mails is disclosed, for example, in "Electronic Mail System" of JP-A-7-336385. According to this technique, audit data of electronic mail circulation on a plurality of networks are stored in one storage unit of the networks, and any terminal at the plurality of networks can refer to audit data of mail circulation.

**[0005]** An approach to managing workflow definitions is disclosed, for example, in "Workflow System" of JP-A-8-123744. According to this technique, workflow definitions are distributed to and independently managed by a plurality of sections and departments, by linking different workflow definitions via input and output ports of each group of workflow definitions.

**[0006]** The above-described conventional techniques

are, however, associated with the following first to third problems.

**[0007]** First, after an electronic mail document is circulated, work progress is managed. In this case, in order to manage the works as a workflow instance, this workflow instance is required to be newly entered into a computer, resulting in a complicated operation. The electronic mail system of JP-A-7-336385 cannot generate a workflow instance by using audit data of mail circulation.

**[0008]** Second, it is not possible to reuse the flow of mail circulation as workflow definitions usable by other users. According to the above-cited article, process definitions corresponding to workflow definitions of this invention are generated by a process definition tool. Even if a flow of once circulated mails is again used with less modification, it is necessary to execute an operation for workflow definitions.

**[0009]** Third, even a circulated workflow instance cannot be reused as another workflow definition instance including a post-process, when the post-process becomes necessary for the instance. With the workflow system of JP-A-8-123744, when a user of workflow definitions is changed to another user, it is necessary to change the workflow definitions at the input and output ports, and the original workflow definitions cannot be changed at an optional position.

### SUMMARY OF THE INVENTION

**[0010]** It is a first object of the present invention to solve the first problem and provide a workflow management method capable of easily registering a mail instance as a workflow instance.

**[0011]** It is a second object of the present invention to solve the second problem and provide a workflow management method capable of easily registering a mail instance as workflow definitions.

**[0012]** It is a third object of the present invention to solve the third problem and provide a workflow management method capable of changing a workflow instance at any intermediate process stage to other workflow definitions including current workflow definitions.

(1) In order to achieve the above objects, in a workflow management method of this invention, audit data of sent mails and mail contents are stored, a mail flow pattern is extracted from the stored audit data of sent mails, the extracted mail flow pattern is compared with preloaded flow definition information to obtain a mail extended workflow or a mail intersectional workflow as a pattern of a workflow, and this pattern is registered as new workflow definitions. Extended workflow definition means workflow definition containing therein an intersectional workflow pattern, and intersectional workflow definition means workflow definition contained in the intersectional workflow pattern.

(2) In a workflow management method for managing a flow of works by referring to flow definition information of an instance, an extended workflow or an intersectional workflow for workflow definitions of an already entered workflow instance is derived from workflow definition information preloaded in storage means, and the workflow instance is recreated as instance information of the obtained workflow definitions.

(3) In a workflow management method of this invention, a mail flow of a selected mail is displayed, intersectional workflow definitions and extended workflow definitions matching the mail flow are derived from predefined workflow definitions and displayed, one of the displayed flow definitions is selected, and the mail flow is registered as flow definitions based upon the selected flow definition.

(4) In a workflow management method of this invention, a mail flow of a selected mail is displayed, intersectional workflow definitions and extended workflow definitions matching the mail flow are derived from predefined workflow definitions and displayed, and the mail flow is registered as an instance of the selected flow definitions.

(5) In a workflow management method of this invention, a mail flow is displayed, extended workflow definitions and intersectional workflow definitions of the displayed mail flow are displayed, and a workflow instance is recreated as an instance of the extended workflow definitions for workflow definitions which are original definitions of the displayed flow definitions.

(6) In a workflow management method of the invention, relations between extended workflows and intersectional workflows for a plurality of workflow definitions are stored and managed.

#### BRIEF DESCRIPTION OF THE DRAWINGS

##### [0013]

Fig. 1 is a functional block diagram illustrating a workflow management method according to a first embodiment of the invention.

Fig. 2 is a functional block diagram illustrating a workflow management method according to a second embodiment of the invention.

Fig. 3 is a diagram showing an example of a mail box according to the invention.

Fig. 4 is a diagram showing an example of audit data of sent mails according to the invention.

Fig. 5 is a diagram showing an example of workflow definitions.

Fig. 6 is a diagram showing an example of a workflow instance according to the invention.

Fig. 7 is a flow chart illustrating an operation of a user interface processing part shown in Fig. 1.

Fig. 8 is a flow chart illustrating an operation of a

mail flow extracting part shown in Fig. 1.

Fig. 9 is a diagram showing an example of a mail flow corresponding to audit data of sent mails according to the invention.

Fig. 10 is a flow chart illustrating a matching process to be executed by a workflow definition comparison part shown in Fig. 1.

Fig. 11 is a flow chart illustrating a process of a workflow definition registration part shown in Fig. 1.

Fig. 12 is a flow chart illustrating a process of a workflow instance registration part shown in Fig. 1.

Fig. 13 is a diagram showing an example of a mail flow display according to the invention.

Fig. 14A is a diagram showing an example of a workflow definition display obtained through extension of a mail flow according to the invention.

Fig. 14B is a diagram showing an example of a workflow definition display obtained through extraction of a mail flow according to the invention.

#### DETAILED DESCRIPTION OF THE EMBODIMENTS

**[0014]** Embodiments of the invention will be described in detail with reference to the accompanying drawings.

(1st Embodiment)

**[0015]** Fig. 1 is a functional block diagram illustrating a workflow management method according to the first embodiment of the invention. The functions illustrated in Fig. 1 are provided by a server of a client-server system realizing a workflow system.

**[0016]** Of the blocks shown in Fig. 1, a mail box 108, a mail transmission audit data storage unit 110, a workflow definition storage unit 112 and a workflow instance storage unit 114 are hardware having a storage function, and the other blocks including a user interface processing part 102, a mail system 104, a workflow engine 106 and a flow pattern processing part 116 are all software which executes programs. The mail system 104 and workflow engine 106 provide known functions.

**[0017]** The user interface processing part 102 calls a mail transmission/reception acceptance part 103 of the mail system 104 via a connection link. If a call is a mail transmission request, the mail transmission/reception acceptance part 103 calls a mail delivery part 105 which analyzes the contents of a mail to be transmitted and stores the mail in a mail box of a user who is specified by the contents of the mail or the address of the mail in the mail box 108. After the mail is delivered by the mail delivery part 105, an audit data recording part 107 stores assignment audit data in the mail transmission audit data storage unit 110. If a call is a mail reception request, the mail transmission/reception acceptance part 103 acquires a mail corresponding to a called user from the mail box 108 and outputs it to the user interface processing part 102.

**[0018]** The user interface processing part 102 also

calls an instance transmission/reception acceptance part 109 of the workflow engine 106 via a connection link. If a call is an instance transmission (transition) request, the instance transmission/reception acceptance part 109 calls an instance assignment part 111. The instance assignment part 111 acquires workflow definitions corresponding to an instance to be transmitted, from the workflow definition storage unit 112, determines a next assignment user to which the instance is delivered, in accordance with the workflow definition, and updates the workflow instance storage unit 114 so that the instance becomes an object to be processed by the next assignment user. If a call is an instance reception request, the instance transmission/reception acceptance part 109 acquires an instance corresponding to the called user from the workflow instance storage unit 114 and outputs it to the user interface processing part 102.

**[0019]** The user interface part 102 also calls the flow pattern processing unit part 115 via a directly connected link, reads information from the mail box 108, mail transmission/reception audit data storage unit 110 or workflow definition storage unit 112, and writes workflow definition information into the workflow definition storage unit 112 and a workflow instance into the workflow instance storage unit 114.

**[0020]** The flow-pattern processing part 116 includes a mail flow extraction part 118, a flow definition comparison part 120, a definition registration part 122 and an instance registration part 124. The invention is characterized in the provision of the flow pattern processing part 116 which is realized by programs providing the functions of these parts 118, 120, 122, and 124. The detailed flow charts illustrating the processes to be executed by the mail flow extraction part 118, flow definition comparison unit part 120, definition registration part 122 and instance registration part 124 are shown respectively in Figs. 8, 10, 11 and 12.

**[0021]** Fig. 3 shows an example of data stored in the mail box 108 shown in Fig. 1.

**[0022]** As shown in Fig. 3, the mail box 108 is constituted of a user list 302 and user specific mail boxes 304 assigned to respective users corresponding to fields of the list 302. In this example shown in Fig. 3, mail boxes 304 for users A and B are shown. The user specific mail box 304 is constituted of a mail sender field 306, a mail subject field 308, a carbon copy recipient field 310, a message ID field 312, a reference message (message for reference to the mail) ID field 314, and a mail content field 315. The message ID field 312 is an identifier which the mail system uniquely assigns to each mail. In this example shown in Fig. 3, the messages b98012001 and c98012101 of users B and C in the mail sender field 306, supplied to users C and B in the carbon copy recipient ID field 310, make reference to a similar message a98012001 of user A in the reference message ID field 314. In other words, this example shows a case where a mail having the message ID b98012001 and the mail

sender B and referring to the message ID a98012001, and a mail having the message ID c98012101 and the mail sender C and referring to the message ID a98012001 are stored in the mail box 108.

**[0023]** Fig. 4 shows an example of data stored in the mail transmission audit data storage unit 110 shown in Fig. 1.

**[0024]** As shown in Fig. 4, the mail transmission audit data storage unit 110 is constituted of a mail transmission date/time field 402, a mail sender field 404, a mail recipient field 406, a carbon copy recipient field 408, a message ID field 410, a reference message ID field 412, and a mail subject field 414. In the example shown in Fig. 4, mail transmission audit data of three days from 98/01/20, 13:00 to 98/01/22, 13:00 is given.

**[0025]** Fig. 5 shows an example of workflow definitions stored in the workflow definition storage unit 112 shown in Fig. 1.

**[0026]** As shown in Fig. 5, the workflow definitions 112 are constituted of activities representative of processes such as those indicated at 502 and 506 and arrows representative of process flows such as those indicated at 504. Of the activities representative of processes, the activities 502 are work activities corresponding to users including persons in charge and supervisors, and the activities 506 are control activities whereat a split condition is made to change the process flow. In the lower right area in Fig. 5, a correspondence table is provided which shows assignments 508 at each activity and corresponding workers 510. A, M and N are persons in charge, B and P are section managers, C is a department manager, and D is a planning person. After an instance is passed from a person 1 in charge to a section manager 1 and a department manager 1, revised or accepted instances are collected at a person 2 in charge. If the instance is accepted by a section manager 2, it is passed to a department manager 2. If the department manager 2 does not accept it, the instance is returned to the person 2 in charge. If the instance is accepted by the department manager 2, it is passed to a planning person, whereas if it is not accepted, the instance is again returned to the person 2 in charge.

**[0027]** Fig. 6 shows an example of instance information stored in the workflow instance storage unit 114 shown in Fig. 1.

**[0028]** As shown in Fig. 6, instance information is constituted of an instance ID 602, a definition ID 604, a state 606, workflow relevant data 608 and additive information 610. When an instance is generated, the workflow engine 106 assigns the instance a unique ID and changes the state each time the circulation destination of the instance is changed. In accordance with the workflow relevant data and workflow definition set by workers, the workflow engine 106 determines the next circulation destination or destinations. In the example shown in Fig. 6, after AA0001 and 0001 are allocated as the instance ID 602 and definition ID 604, the instance is passed to the section manager 2 shown in Fig. 5 as

indicated by the state 606 and accepted by the section manager 2 as indicated by the workflow relevant data 608, and a planning document is designated as the additive information 610.

**[0029]** Next, the operation of the workflow management method of this invention to be executed in response to a user operation will be described with reference to Figs. 7, 13 and 14.

**[0030]** Fig. 7 is a flow chart illustrating the operation of the user interface processing part 102 shown in Fig. 11. Fig. 13 is a diagram showing an example of a mail flow display, and Figs. 14A and 14B are diagrams showing examples of workflow definitions obtained through extension and extraction of a mail flow.

**[0031]** The mail flow shown in Fig. 13 is extracted from the mail transmission audit data storage unit 110 shown in Fig. 1. As shown in Fig. 13, the mail flow has a condition list (mail list) 1302 shown in the upper half area and a mail flow chart 1304 shown in the lower half area. The mail list 1302 includes date/time, mail sender activity, a subject and the like, and the mail flow chart 1304 shows the order of mail transmissions. In this example shown in Fig. 13, after an instance is transmitted from user A to users B and C, the users B and C return it to the user A.

**[0032]** Fig. 14A shows an extended workflow definition list obtained through extension of the mail flow upon clicking the "mail flow" shown in Fig. 13, and Fig. 14B shows an intersectional workflow definition list obtained through extraction of the mail flow upon clicking the "mail flow" shown on the upper left of Fig. 13. In the example shown in Fig. 14A, an extended workflow definition chart covering the whole work from the person in charge to the planning person is displayed upon clicking a planning proposal flow in an extended workflow definition area 1402. In the example shown in Fig. 14B, only a portion wherein an instance is passed from a person in charge to a section manager and a department manager and a presence/absence of a comment on a business trip report is returned to the person in charge, is extracted from the whole flow, upon clicking a business report flow in an intersectional workflow definition area 1404.

**[0033]** Referring to Fig. 7, the user interface processing part 102 displays the mail list 1302 shown in Fig. 13 (Step 702) and waits for an input of a mail or a user operation (Step 704). Upon a user operation is input, it is checked whether a mail flow of a selected mail is already extracted and whether the user operation is a mail flow extraction operation or a comparison operation (Step 706). If the user operation is the mail flow extraction operation or the mail flow is not still extracted, the flow stands by until it is confirmed that a user operation for the extraction is entered (Step 712) and thereafter the mail flow extraction part 118 extracts the mail flow (Step 714) to display a mail flow chart 1304 (Fig. 13) (Step 716).

**[0034]** If the judgement at Step 706 indicates that the operation is a definition comparison operation and if the

mail flow is already extracted, a user confirmation input is waited (Step 718), and the flow definition comparison part 120 performs a comparison process between the mail flow and workflow definitions (Step 720).

**[0035]** With this process, as shown in Figs. 14A and 14B, a list of definitions having the matched flows is displayed as the extended workflow definition list 1402 and intersectional workflow definition list 1404 (Step 722) to wait for an operation input (Step 708).

**[0036]** After a registration operation input or a user operation input is waited for (Step 708), if the user selects a flow in the definition list, the selected workflow definition is displayed as a flow definition chart 1406 (Fig. 14), whereas the registration operation is entered, it is checked whether the registration operation is a definition registration operation or an instance registration operation (Step 710). In the case of the definition registration operation, the definition registration part 122 registers workflow definitions (Step 724). In the case of the instance registration operation, the instance registration part 124 registers a workflow instance (Step 726). If the operation input is neither the definition registration or the instance registration, the flow waits for a mail/operation selection input (Step 704).

**[0037]** Next, with reference to Figs. 8 and 9, the detailed operation of the mail flow extraction part 714 will be described.

**[0038]** Fig. 8 is a flow chart illustrating an operation of extracting a mail flow from the mail transmission audit data storage unit 110 shown in Fig. 1. Fig. 9 is a diagram illustrating how a mail flow stored in the storage unit 110 is extracted.

**[0039]** First, it is checked from the mail transmission audit data storage unit 110 whether the selected mail has a reference message (Step 802). As shown in Fig. 9, the reference message is identified by the reference message ID in the reference message ID field 412 in the mail transmission audit data storage unit 110 which stores mail transmission audit data in the order of transmission. If there is audit data of the reference message, a mail corresponding to the audit data is selected (Step 804) and it is checked again whether the selected mail has the reference message (Step 802). If there is no audit data of the reference message, the mail sender activity in the audit data of the selected mail is used as a start activity of the mail flow (Step 806). The mail sender activity is the activity described in the recipient field 404 of the mail transmission audit data storage unit 110.

**[0040]** The reason why the reference message is again checked at Step 802 after the audit data is once selected at Step 804, is to search the first written mail by checking links of reference messages. Namely, by sequentially searching reference messages, a mail having no reference message can be found which is the first written mail.

**[0041]** The above operations will be described specifically with reference to Fig. 9. A mail flow shown in a



lower area in Fig. 9 is extracted from the mail transmission audit data shown in a higher area in Fig. 9. If a selected mail has a reference message, a mail corresponding to the reference message is selected, whereas if a selected mail has no reference message, the mail sender activity in the selected audit data is used as a mail flow start activity. Mails having the message ID of the start activity as the reference message IDs are searched. If there is such audit data, an arrow is added between the mail sender activity of the first selected audit data and the mail sender activity of the next searched audit data to draw a mail flow. In the example shown in Fig. 9, assuming that audit data 902 having the message ID of c98012101 of the activity C is first selected, audit data 904 having a message ID a98012001 as the reference message ID of the activity C is selected. In this case, since the audit data 904 has no reference message, the activity A (906) which is the mail sender activity of the audit data 904 is used as the flow start activity.

**[0042]** Reverting to Fig. 8, audit data having the message ID of the selected audit data as its reference message ID is searched from the mail transmission audit data storage unit 110 (Step 808) to judge whether there is any such audit data (Step 810). If there is such audit data, the sender activity of the searched audit data and an arrow connecting the sender activity of the searched audit data and the sender activity of the selected audit data are added to the mail flow chart (Step 812). The selected audit data is replaced by the searched audit data (Step 814) to thereafter return to Step 808 whereat the above operations are repeated.

**[0043]** The above operations will be described with reference to Fig. 9. As the audit data having the message ID of a98012001 of the mail audit data 904 of the sender activity A, there are two sets of audit data 908 and 902 having the message IDs b98012001 and c98012101 respectively of the sender activities B and C. Therefore, arrows between A and B and between A and C are added. Since audit data 910 has the message ID of the audit data 908 as its reference message ID, an arrow is added between the activities B and A from B to A. Similarly, activities B, C and D and arrows between A and B, between B and C and between C and D are added.

**[0044]** If at Step 810 shown in Fig. 8 there is no audit data having the message ID of the selected audit data as its reference message ID, mail audit data including the same mail sender activity as the mail recipient activity of the first selected audit data and having a later date/time is searched from another branch of the graph (step 816). If there is such audit data, an arrow is added between the sender activity of the first selected audit data and the sender activity of the searched sender audit data, whereas if there is no such audit data, the process is terminated.

**[0045]** The above operations will be described with reference to Fig. 9. Since there is no mail audit data

having as its reference message the audit data 902 of the sender activity C, audit data including the recipient activity A of the audit data 902 and having a later date/time is searched. The sender activity or audit data 910 is such audit data, so that an arrow is added between the sender activity C (912) of the audit data 902 and the sender activity A (914) of the audit data 910. With the above operations, a mail flow 916 shown in Fig. 9 can be generated.

**[0046]** Next, the detailed operation to be executed by the workflow definition comparison part 120 will be described with reference to Figs. 10 and 14.

**[0047]** Fig. 10 is a flow chart illustrating the operation of the workflow definition comparison part 120 shown in Fig. 1. Figs. 14A and 14B show examples of workflow definitions obtained through extension or extraction of the mail flow.

**[0048]** First, a mail flow of a designated mail is selected to show the mail flow such as shown in Fig. 13 (Step 1002). The workflow definitions are selected as shown in Fig. 14A or 14B (Step 1004). Next, the start activity of the mail flow is selected to select a group of activities having the same contents as in the sender field of the start activity, and the contents of the selected first activity are replaced by the selected group name (Step 1005). For example, "A" of the mail flow chart shown in Fig. 13 is replaced by "person in charge". Next, the start activity of the replaced mail flow chart is compared with the start activity of the workflow definition chart (Step 1006) to check whether they are coincident (Step S1008). For example, the start activity of the mail flow chart shown in Fig.13 is compared with the start activity of the workflow definition chart shown in Fig. 14A or 14B. If not coincident and there is the next definition, the flow returns to Step 1004 (Step 1018) to compare the next definition in a manner similar to the above operation. If coincident, the next activities are selected (Step 1010) to repeat the comparison starting at Step 1005 until it becomes that there is no next activity of either mail flow activity or workflow activity. If there is no next activity, it is judged which of the mail flow activity and workflow activity becomes absent (Step 1012). If the workflow activity becomes absent first, the selected definitions are used as the intersectional workflow (Step 1014), whereas if the mail flow activity becomes absent first, the selected definitions are used as the extended workflow (Step 1016) to thereafter advance to Step 1018.

**[0049]** Fig. 14A shows an example of the extended workflow, and Fig. 14B shows an example of the intersectional workflow. As compared to the mail flow chart 1304 shown in Fig. 13, the extended workflow includes the mail flow chart whereas the intersectional workflow is included in the mail flow chart.

**[0050]** Next, the operation of the workflow definition registration part 122 will be described.

**[0051]** Fig. 11 is a flow chart illustrating the operation of the workflow definition registration part 122 shown in

Fig. 1.

**[0052]** First, it is checked whether the workflow definition chart selected at Step 708 shown in Fig. 7 is an extended workflow or an intersectional workflow (Step 1102). If the workflow definition chart is the intersectional workflow, the intersectional workflow definitions are compared with the mail flow definitions generated at Step 714 shown in Fig. 7 to thereby add definitions not contained in the intersectional workflow definitions but contained in the mail flow (Step 1104). If the workflow definition chart is the extended workflow chart, the extended workflow definitions are compared with the mail flow definitions to thereby delete definitions contained in the extended workflow and not contained in the mail flow (Step 1106). The newly formed definitions are registered in the workflow definition storage unit 112 (Step 1108).

**[0053]** Next, the operation of the workflow instance registration part 124 will be described with reference to Fig. 12. Fig. 12 is a flow chart illustrating the operation of the workflow instance registration part 124 shown in Fig. 1.

**[0054]** First, it is checked whether the workflow definitions selected at Step S708 shown in Fig. 7 have a split condition (Step 1202). If not, the flow advances to Step 1208, whereas if they have a split condition, the condition of the split selected by the mail flow is read (Step 1204) to set workflow relevant data of an instance which satisfies the split condition (Step 1206). Thereafter, the state of the instance corresponding to the last activity of the mail flow and the a definition ID of the selected workflow definitions are set (Step 1208). A unique instance ID is set and the selected mail flow is registered in the workflow instance storage unit 114 as the instance of the selected definitions (Step 1210).

**[0055]** As described above, according to this embodiment, circulation is not required to start from the workflow system, but it can be first started from the mail system and then a workflow instance can be easily entered. It is therefore possible to distribute a load on the workflow system to the mail system. Since the workflow definitions can be easily formed by using audit data of mail circulation, the number of work processes for forming workflow definitions can be reduced. When workflow definitions and instances are generated from the mail flow by referring to already formed workflow definitions, mail flow definitions and workflow definitions are compared on a display screen. It is therefore easy to determine the workflow definitions.

**[0056]** In the above embodiment, a combination of the mail system and workflow system is used. The invention is also applicable to only a workflow system. In the following, a second embodiment applying the invention only to a workflow system will be described.

(2nd Embodiment)

**[0057]** Fig. 2 is a functional block diagram illustrating

a workflow management method according to the second embodiment of the invention.

**[0058]** The configuration of the second embodiment is simplified more than that shown in Fig. 1. This system is constituted of a user interface processing part 102, a workflow engine 106, a workflow definition storage unit 112, a workflow instance storage unit 114, a workflow audit data storage unit 202, and a flow pattern processing part 116 made of a flow definition comparison part 120 and an instance registration part 124. The user interface processing part 102, workflow engine 106 and flow pattern processing part 116 other than the storage units 112, 114 and 202 are made of software.

**[0059]** The user interface processing part 102 calls an instance transmission/reception acceptance part 109 of the workflow engine 106 via a connection link. If a call is an instance transmission (transition) request, the instance transmission/reception acceptance part 109 calls an instance assignment part 111. The instance assignment part 111 acquires workflow definitions corresponding to an instance to be transmitted, from the workflow definition storage unit 112, determines a next assignment user to which the instance is delivered, in accordance with the workflow definition, and updates the workflow instance storage unit 114 so that the instance becomes an object to be processed by the next assignment user. If a call is an instance reception request, the instance transmission/reception acceptance part 109 acquires an instance corresponding to the called user from the workflow instance storage unit 114 and outputs it to the user interface processing part 102.

**[0060]** Data stored in the workflow audit data storage unit 202 is similar to that stored in the mail transmission audit data storage unit 110 shown in Fig. 1. However, the reference message ID and message ID are replaced by an instance ID.

**[0061]** In this embodiment, it is possible to register an already entered and circulated workflow as an instance of other similar workflow definitions. Therefore, even an instance whose processes are not still determined to the last process, can be processed as a workflow instance. Furthermore, since the composition relationship of workflow definitions can be obtained, management of workflow definitions is easy.

**[0062]** In the system shown in Fig. 2, a workflow instance is processed and workflow definitions corresponding to the instance are already present. Therefore, it is not necessary as in the case of mail analysis in the system shown in Fig. 1 to extract workflow definitions and register them.

**[0063]** As described so far, the invention has the following advantages: (1) Circulation is not required to start from the workflow system, but it can be first started from the mail system and then a workflow instance can be easily entered. It is therefore possible to distribute a load on the workflow system to the mail system. (2) Since the workflow definitions can be easily formed by

using audit data of mail circulation, the number of work processes for forming workflow definitions can be reduced. (3) When workflow definitions and instances are generated from the mail flow by referring to already formed workflow definitions, mail flow definitions and workflow definitions are compared on a display screen. It is therefore easy to determine the workflow definitions. (4) It is possible to register an already entered and circulated workflow as an instance of other similar workflow definitions. Therefore, even an instance whose processes are not still determined to the last process, can be processed as a workflow instance. (5) Furthermore, since the composition relationship of workflow definitions can be obtained, management of workflow definitions is easy.

### Claims

1. A workflow management method for managing mail transmission/reception and a flow of works in accordance with workflow definition information for defining a flow of works, the method comprising the steps of:
  - a) storing mail transmission audit data;
  - b) comparing (720) pattern information of a mail flow derived from the mail transmission audit data with preloaded workflow definition information, to obtain an extended workflow or an intersectional workflow of the mail flow; and
  - c) registering (724, 726) the mail flow pattern information including the extended workflow or the intersectional workflow in the workflow definition information as new workflow definition information.
2. A workflow management method for managing a flow of works in accordance with workflow definition information for defining a flow of works, the method comprising the steps of:
  - deriving an extended workflow or an intersectional workflow of workflow definitions of an already circulated workflow instance from workflow definition information stored in storage means (112); and
  - recreating the workflow instance as instance information of the workflow definitions derived from the storage means.
3. A workflow management method according to claim 1, wherein said step c) comprises the subsidiary steps of:
  - c1) displaying (716) a mail flow selected from the mail transmission audit data;
  - c2) displaying (722) intersectional workflow definitions or extended workflow definitions in
- predefined workflow definitions matching the mail flow; and
- c3) registering (724, 726) the mail flow as new flow definitions based upon the flow definition selected from the displayed flow definitions.
4. A workflow management method according to claim 1, wherein said step b) comprises the subsidiary steps of:
  - b1) judging (802) whether there is a reference message which refers to a selected mail, when the mail flow is derived from the mail transmission audit data;
  - b2) if there is audit data having the reference message, selecting (804) a mail corresponding to the history;
  - b3) if there is no audit data having the reference message, setting (806) a sender activity of the audit data of the selected mail as a start activity of the mail flow to be derived;
  - b4) searching (808) audit data containing a message identifier of the selected audit data as an identifier of the reference message, from the mail transmission audit data;
  - b5) if there is such audit data, adding (812) an arrow between the sender activity of the selected audit data and the sender activity of the searched audit data;
  - b6) replacing (814) the selected audit data by the searched audit data and repeating said steps b4) and b5);
  - b7) if there is no audit data containing a message identifier of the selected audit data as an identifier of the reference message, searching (816) from another graph branch mail audit data having a sender activity same as the sender activity of the selected audit data and a later date and time; and
  - b8) if a search result indicates that there is such audit data, adding (818) an arrow between the sender activity of the selected audit data and the sender activity of the searched audit data.
5. A workflow management method according to claim 1, wherein said step c) comprises the subsidiary steps of:
  - c1) judging (1102) whether the workflow definition information selected from storage means is an extended workflow or an intersectional workflow;
  - c2) if the intersectional workflow, comparing (1104) the intersectional workflow definitions with the mail flow derived from the stored mail transmission audit data, and generating flow definitions by adding definitions not present in

- the mail flow from the intersectional workflow definitions;
- c3) if the extended workflow, comparing (1106) extended workflow definitions with the mail flow derived from the stored mail transmission audit data, and generating flow definitions by deleting definitions not present in the mail flow from the extended workflow definitions; and
- c4) registering (1108) the flow definitions generated at said step c2) or c3) as new workflow definitions.
6. A workflow management method using a processing apparatus, comprising the steps of:
- deriving a mail flow from stored mail transmission audit data or from contents of mails;
- selecting (1202) workflow definitions from storage means and checking whether the workflow definitions have a split condition;
- if there is a split condition, reading (1204) the split condition selected by the mail flow and setting workflow relevant data of an instance satisfying the split condition;
- setting (1208) a state of the instance corresponding to a last activity of the mail flow and a definition identifier of the selected workflow definitions; and
- registering (1210) the selected mail flow as an instance of the selected workflow definitions.
7. A storage medium storing a program for a processing apparatus to execute a workflow management method for managing mail transmission/reception and a flow of works in accordance with workflow definition information for defining a flow of works, the method comprising the steps of:
- a) storing mail transmission audit data;
- b) comparing (720) pattern information of a mail flow derived from the mail transmission audit data with preloaded workflow definition information, to obtain an extended workflow or an intersectional workflow of the mail flow; and
- c) registering (724, 726) the mail flow pattern information including the extended workflow or the intersectional workflow in the workflow definition information as new workflow definition information.
8. A workflow management method using a processing apparatus comprising the steps of:
- a) comparing (720) flow pattern information of electronic mails derived from mail transmission audit data with preloaded workflow definition information; and
- b) in accordance with a comparison result, registering (724, 726) the flow pattern information to the workflow definition information as new workflow definitions.
9. A workflow management method using a processing apparatus comprising the steps of:
- a) comparing (720) flow definitions in flow pattern information of electronic mails derived from mail transmission audit data with flow definitions in preloaded workflow definition information; and
- b) if the flow definitions are coincident, registering (724) the flow pattern information to the workflow definition information as new workflow definitions.
10. A workflow management system for managing mail transmission/reception and a flow of works in accordance with workflow definition information for defining a flow of works, comprising:
- a) means (107) for storing mail transmission audit data;
- b) means (120) for comparing pattern information of a mail flow derived from the mail transmission audit data with preloaded workflow definition information, to obtain an extended workflow or an intersectional workflow of the mail flow; and
- c) means (122) for registering the mail flow pattern information including the extended workflow or the intersectional workflow in the workflow definition information as new workflow definition information.
11. A workflow management method for managing mail transmission/reception and a flow of works in accordance with workflow definition information for defining a flow of works, the method comprising the steps of:
- displaying (702) a mail flow of a selected mail;
- deriving (714) at least one of intersectional workflow definitions and extended workflow definitions matching the mail flow, of predefined workflow definitions, and displaying the derived flow definitions;
- selecting one of the displayed flow definitions; and
- registering (724) the mail flow as flow definitions based upon the selected flow definition.
12. A workflow management method for managing mail transmission/reception and a flow of works in accordance with workflow definition information for defining a flow of works, the method comprising the steps of:

displaying (702) a mail flow;  
displaying (714) extended workflow definitions  
and intersectional workflow definitions of the  
displayed mail flow in accordance with  
preloaded workflow definitions; and 5  
recreating (726) a workflow instance as an  
instance of the workflow definitions containing  
the displayed flow definitions.

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FIG. 1

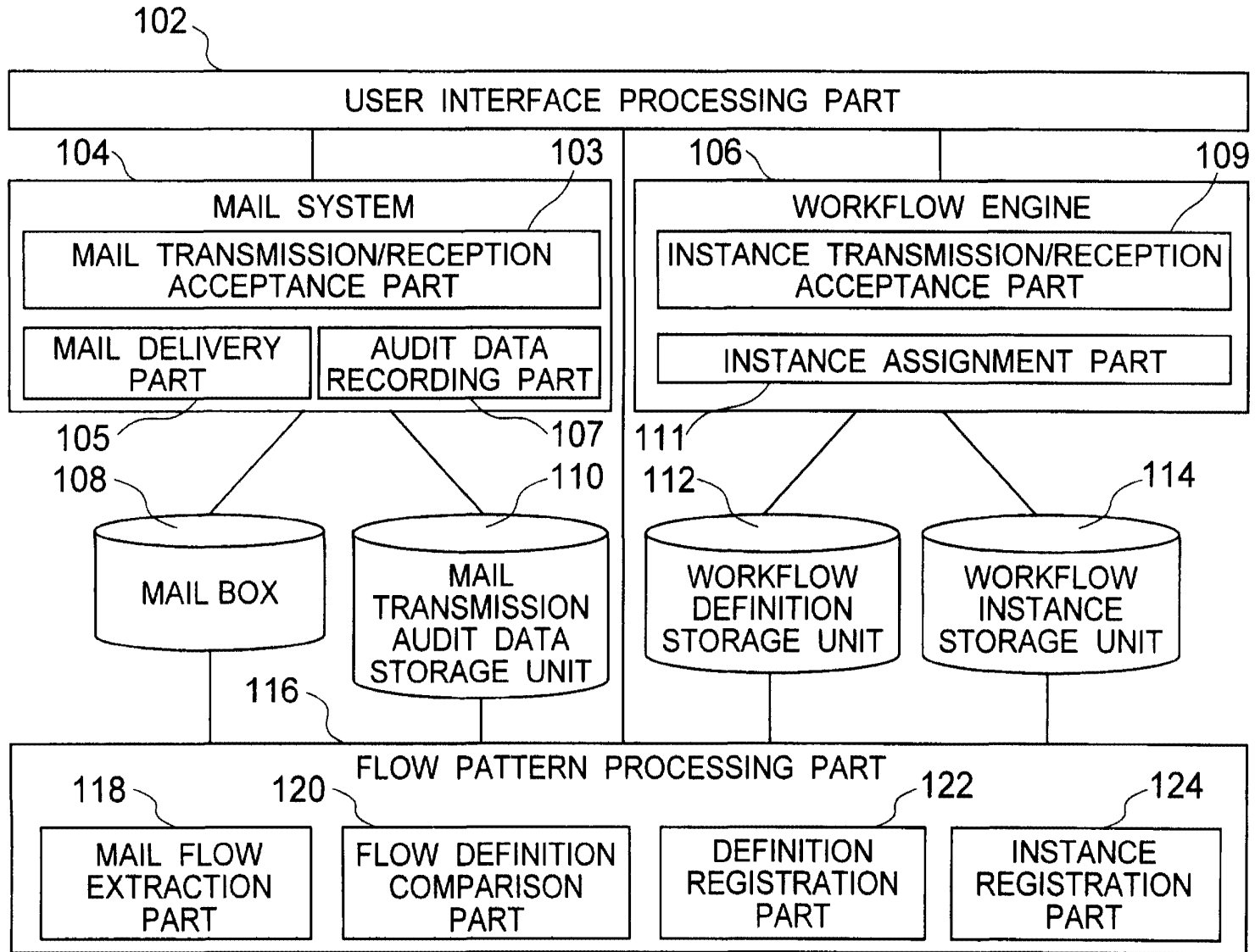
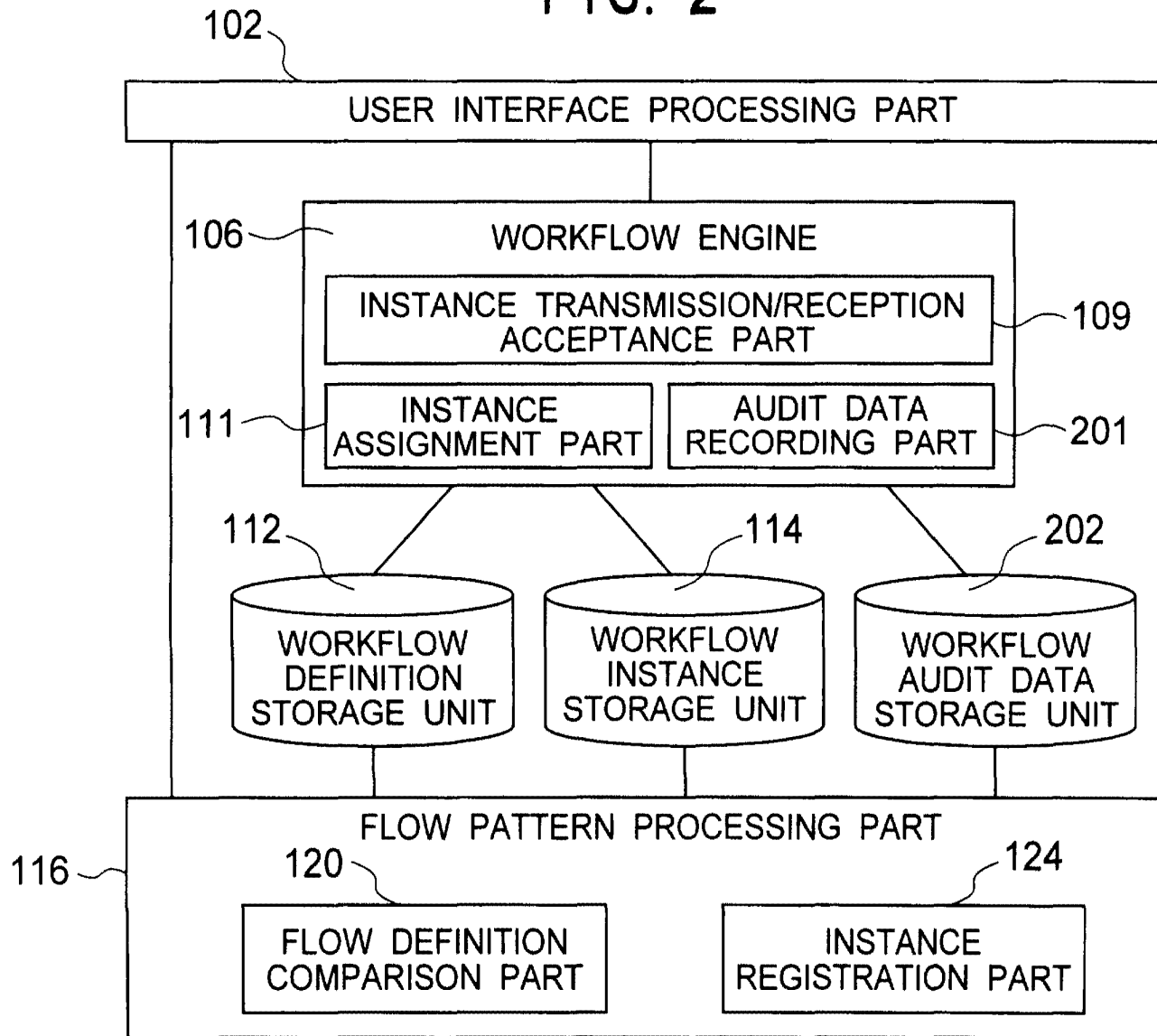
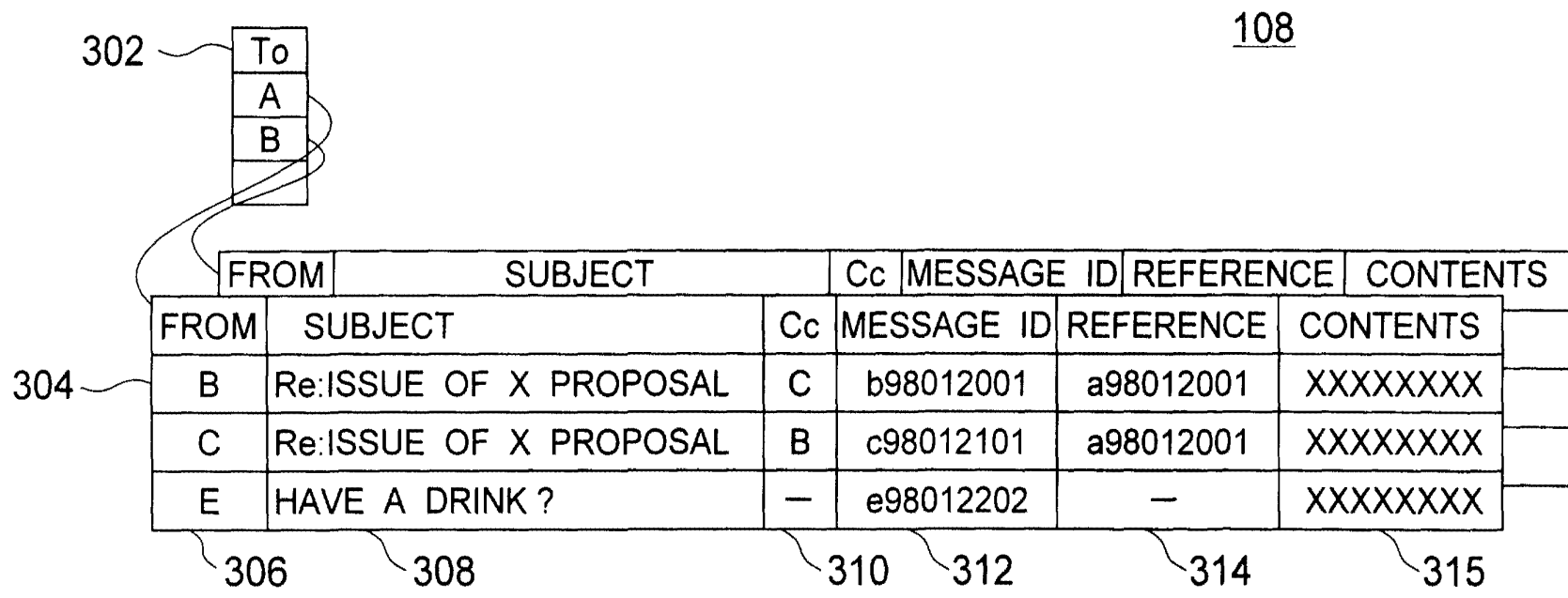


FIG. 2



# FIG. 3



13

EP 0 974 919 A2



# FIG. 4

110

DATE/TIME	FROM	To	Cc	MESSAGE ID	REFERENCE	SUBJECT
...	...	...	...	...	...	...
98/01/20 13:00	A	B,C	—	a98012001		ISSUE OF X PROPOSAL
98/01/20 15:00	B	A	C	b98012001	a98012001	Re:ISSUE OF X PROPOSAL
...	...	...	...	...	...	...
98/01/21 10:00	C	A	B	c98012101	a98012001	Re:ISSUE OF X PROPOSAL
...	...	...	...	...	...	...
98/01/22 09:00	A	B	—	a98012201	b98012001	Re <sup>-2</sup> :ISSUE OF X PROPOSAL
...	...	...	...	...	...	...
98/01/22 10:00	B	C	A	b98012201	a98012201	Re <sup>-3</sup> :ISSUE OF X PROPOSAL
...	...	...	...	...	...	...
98/01/22 13:00	C	D	A,B	b98012201	a98012201	Re <sup>-4</sup> :ISSUE OF X PROPOSAL

FIG. 5

112

15

EP 0 974 919 A2

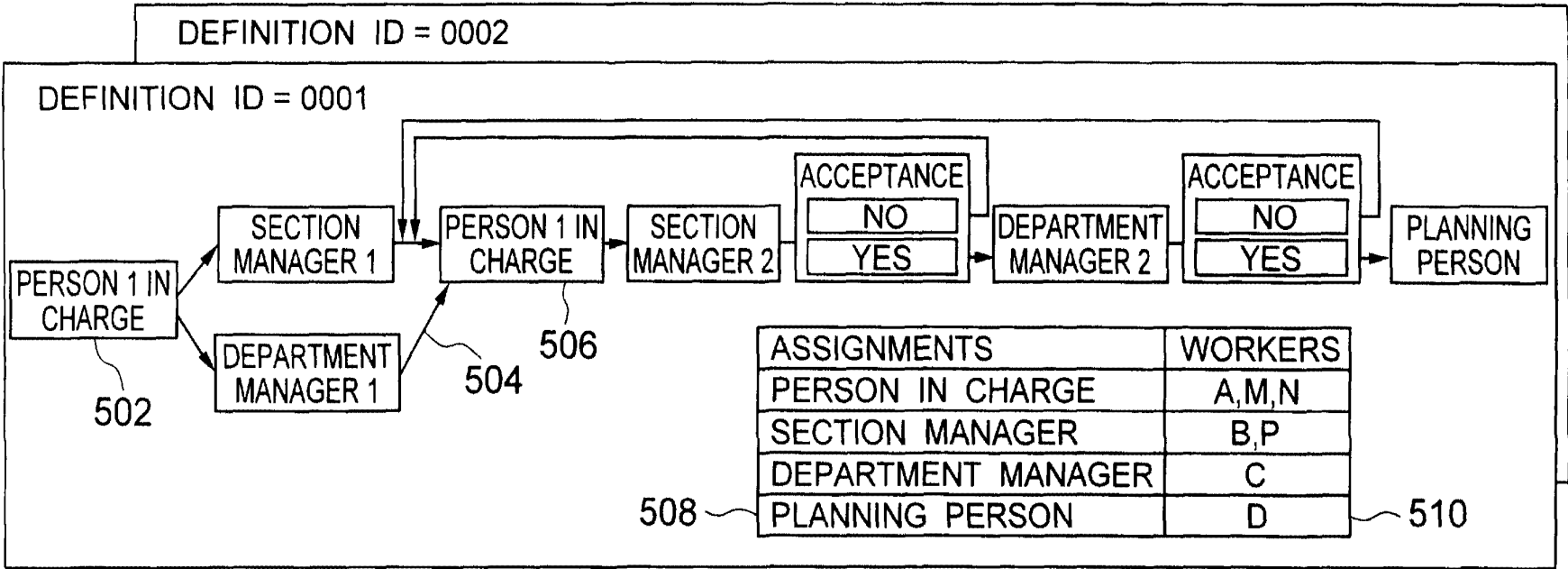


FIG. 6

114

INSTANCE ID	DEFINITION ID	STATE	WORKFLOW RELEVANT DATA	ADDITIVE INFORMATION
AA0001	0001	SUPERVISOR 2	ACCEPT = YES	PLANNING DOCUMENT.doc

FIG. 7

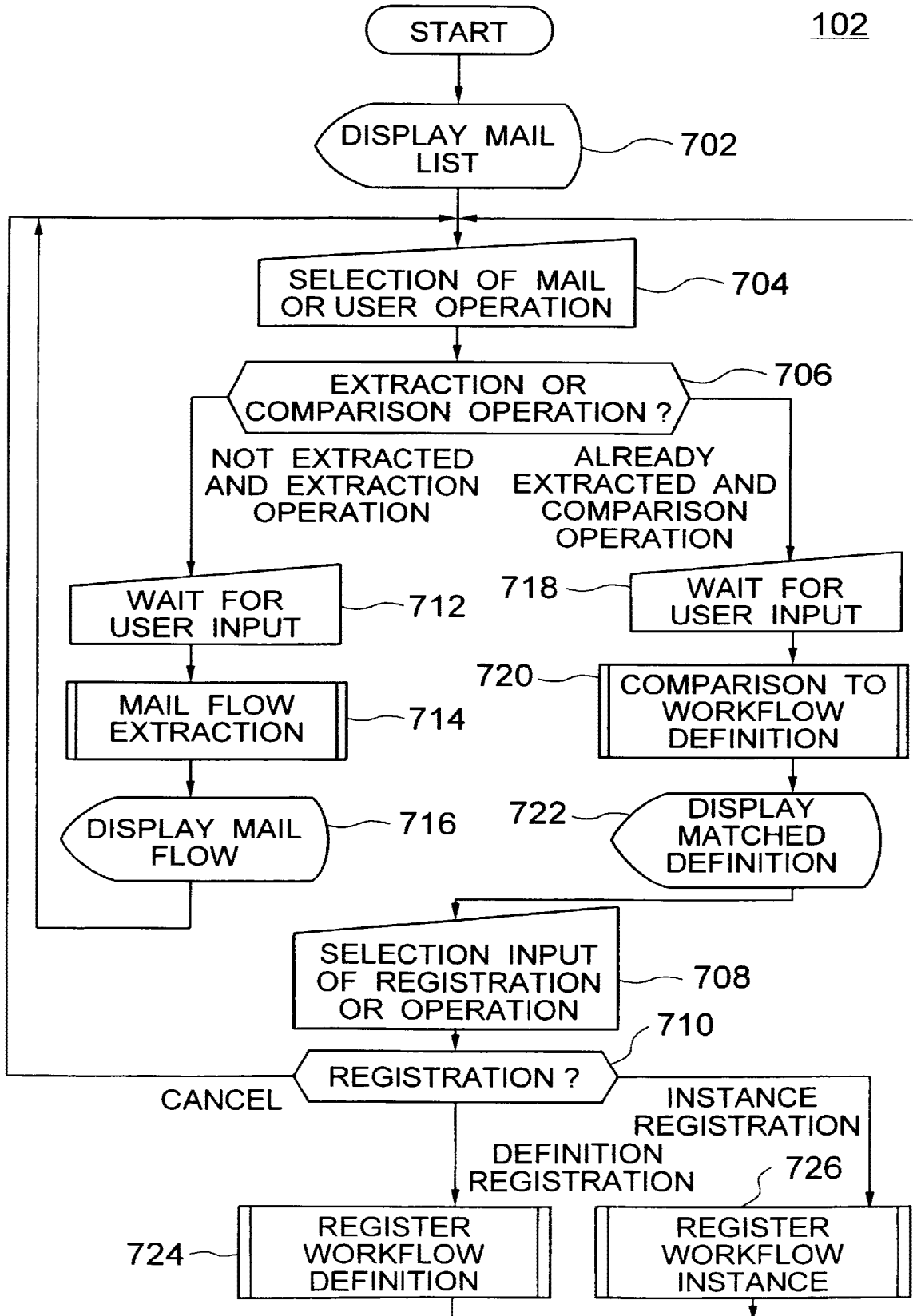
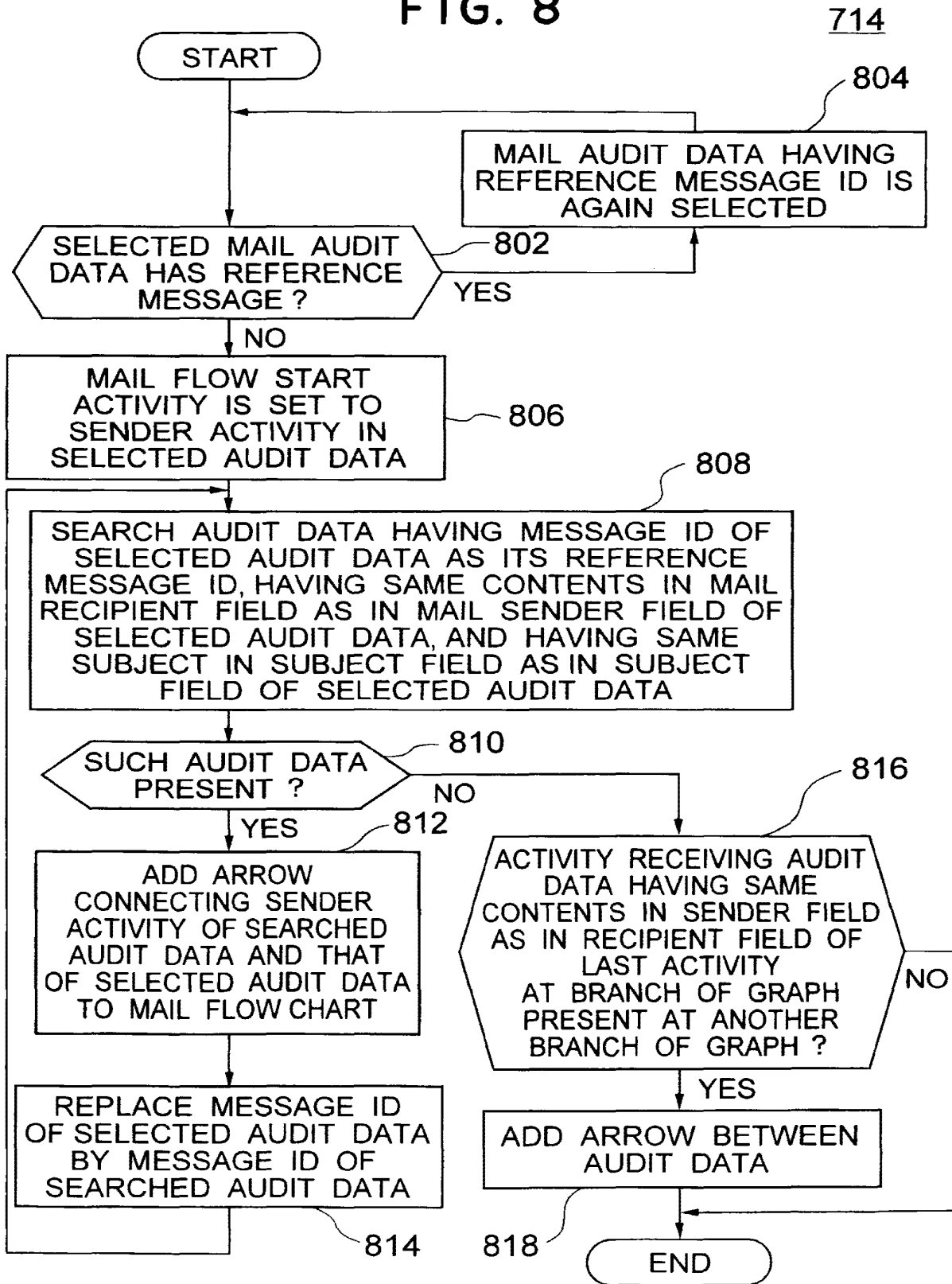


FIG. 8



# FIG. 9

DATE/TIME	FROM	To	Cc	MESSAGE ID	REFERENCE	SUBJECT
...	...	...	...	...	...	...
98/01/20 13:00	A	B,C	—	a98012001	—	ISSUE OF X PROPOSAL
98/01/20 15:00	B	A	C	b98012001	a98012001	Re:ISSUE OF X PROPOSAL
...	...	...	...	...	...	...
98/01/21 10:00	C	A	B	c98012101	a98012001	Re:ISSUE OF X PROPOSAL
...	...	...	...	...	...	...
98/01/22 09:00	A	B	—	a98012201	b98012001	Re-2:ISSUE OF X PROPOSAL
...	...	...	...	...	...	...
98/01/22 10:00	B	C	A	b98012201	a98012201	Re-3:ISSUE OF X PROPOSAL
...	...	...	...	...	...	...
98/01/22 13:00	C	D	A,B	b98012201	a98012201	Re-4:ISSUE OF X PROPOSAL

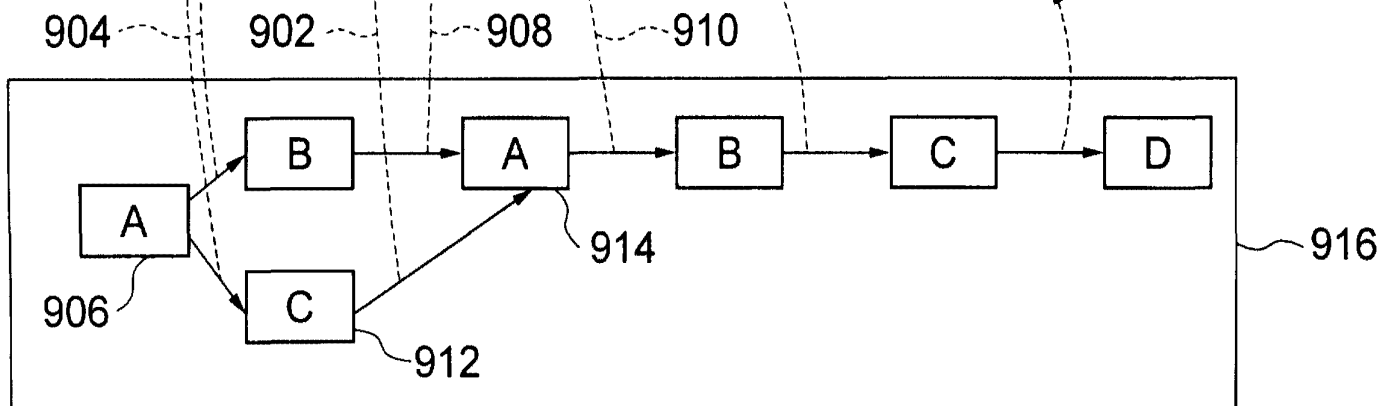


FIG. 10

120

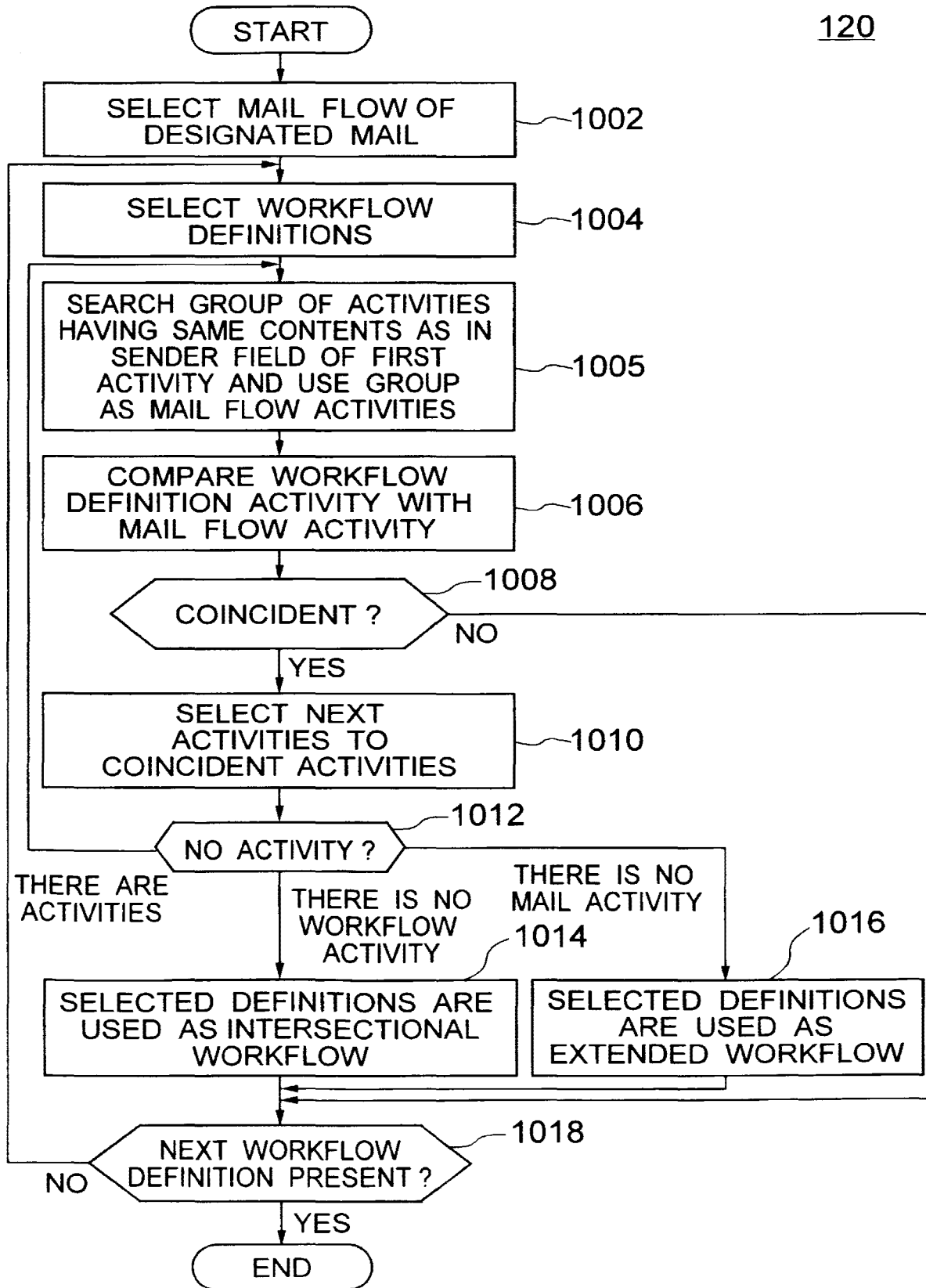


FIG. 11

122

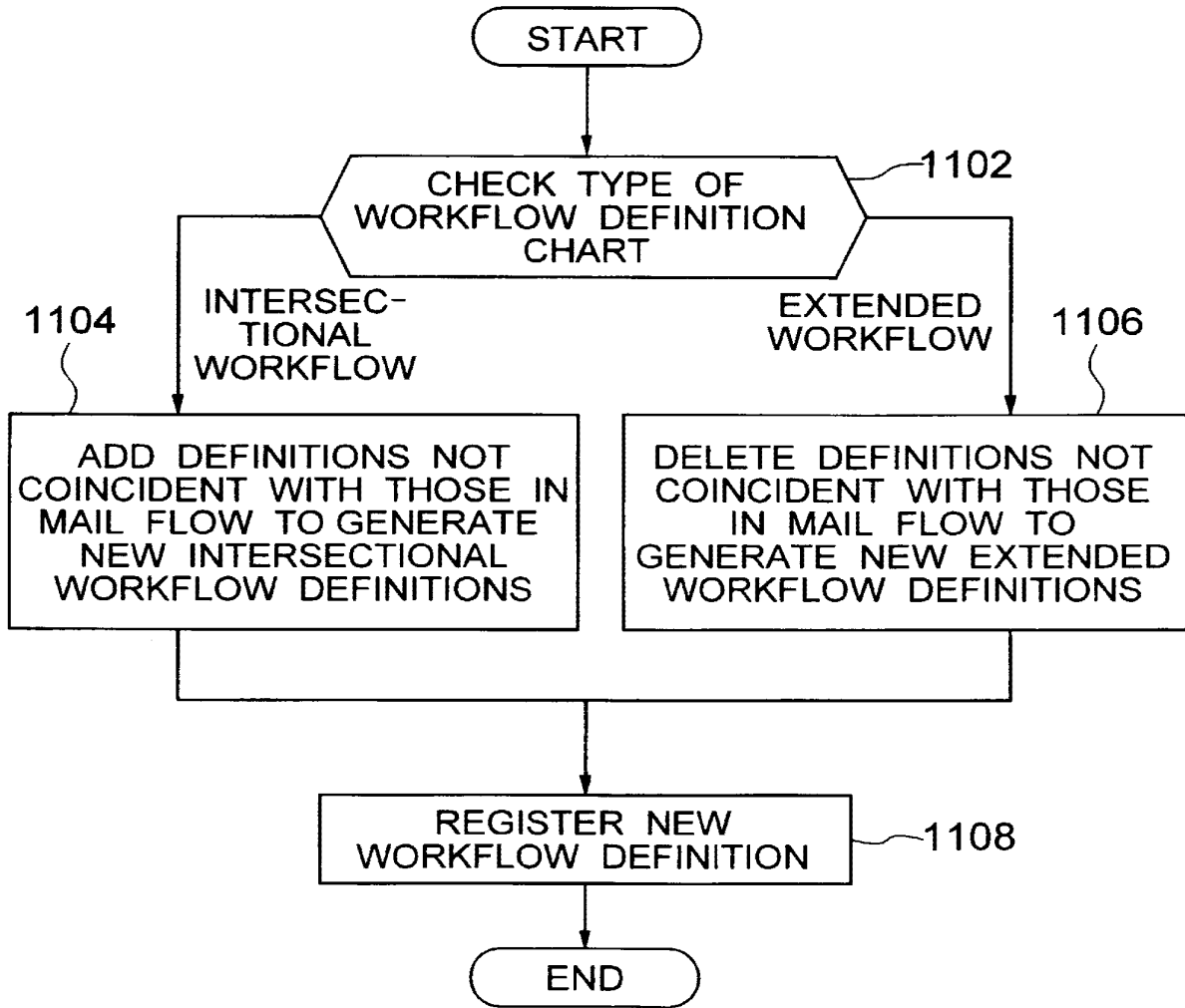




FIG. 12

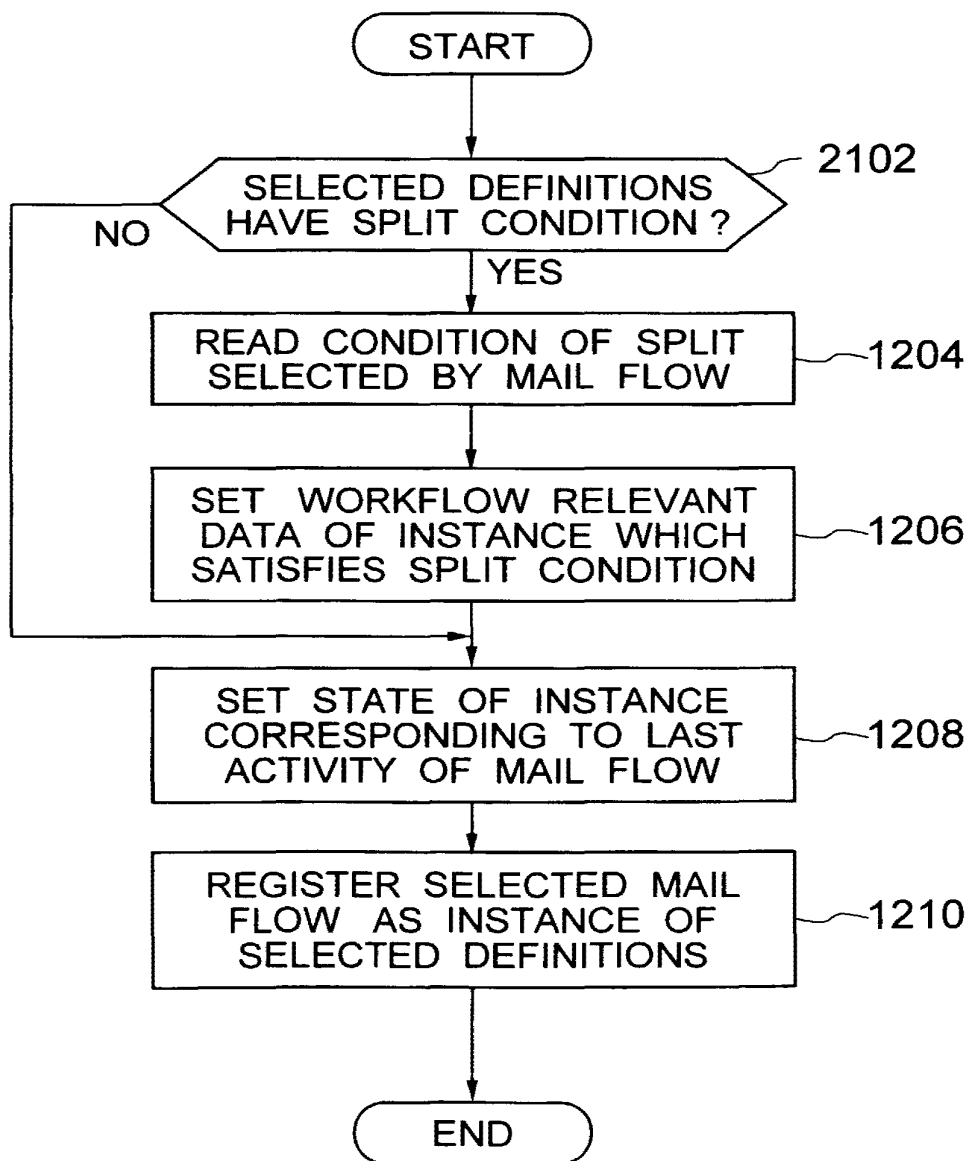
124

FIG. 13

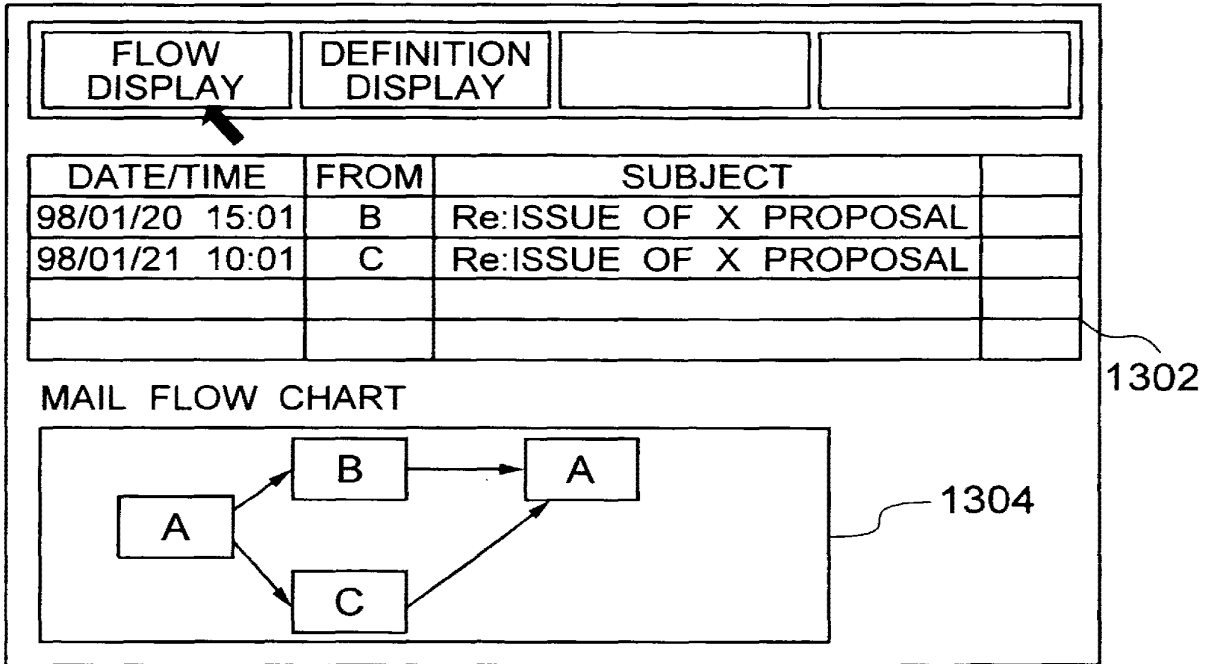
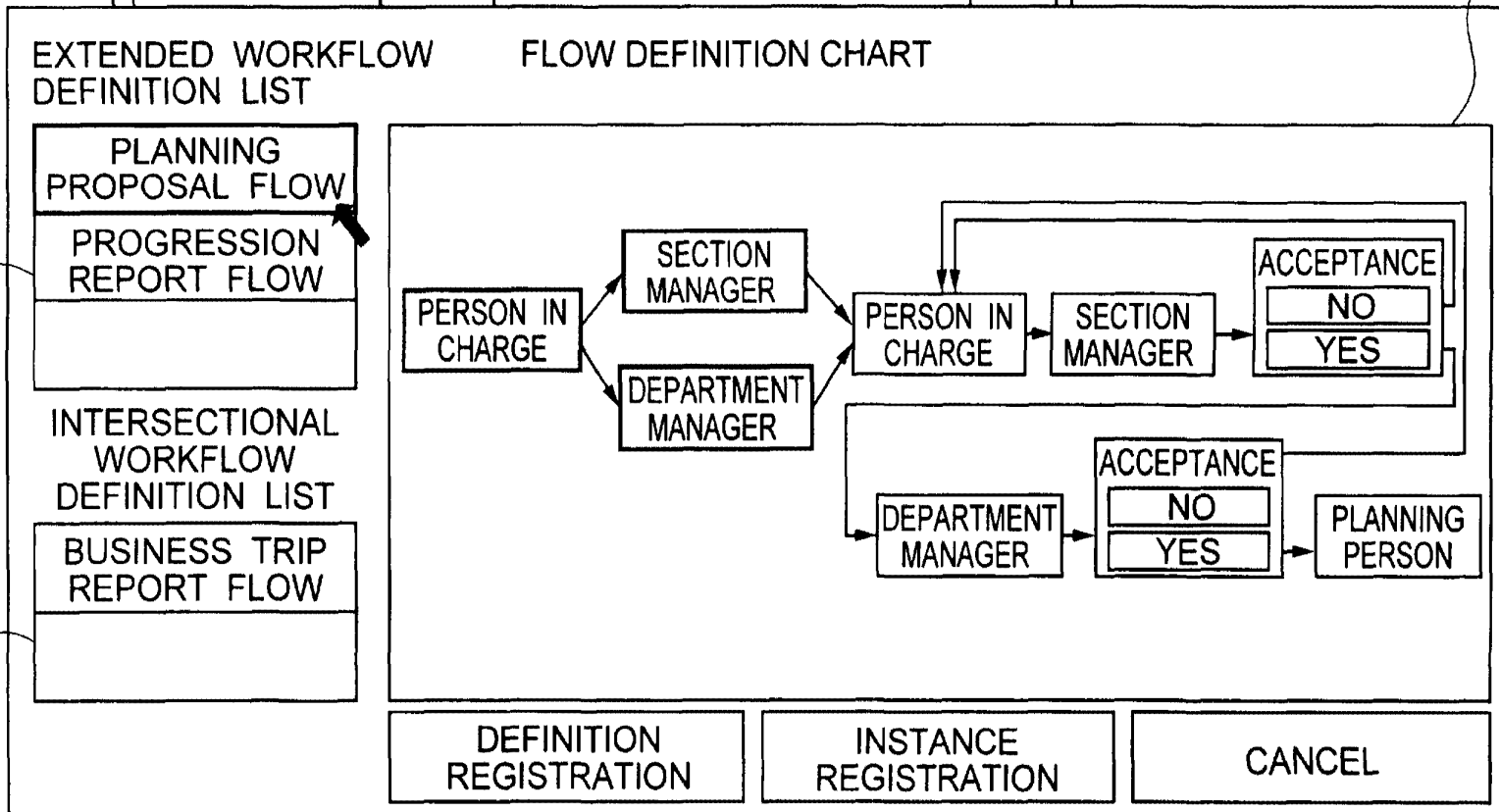


FIG. 14A

FLOW DISPLAY	DEFINITION DISPLAY		
DATE/TIME	FROM	SUBJECT	
98/01/20 15:01	B	Re:ISSUE OF X PROPOSAL	
98/01/21 10:01	C	Re:ISSUE OF X PROPOSAL	

1406

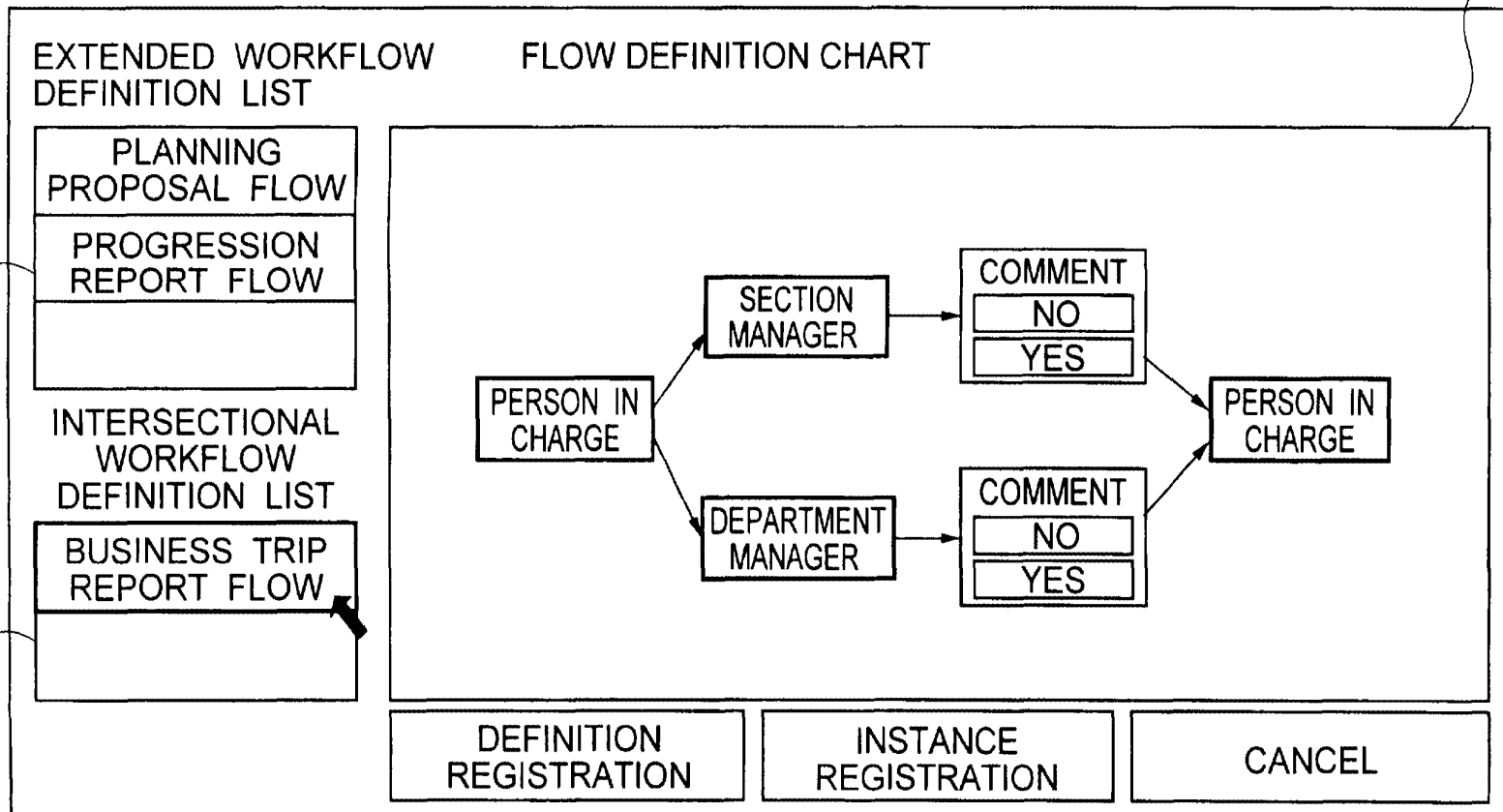


24

EP 0 974 919 A2

FIG. 14B

1406



25

EP 0 974 919 A2

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Art Unit : 3992  
Examiner : Rachna Desai  
Patent No. : 7,062,749  
Filed : December 15, 2000  
Control No. : 90/009,961  
Inventors : Vincent R. Cyr  
          : Kenneth Fritz  
Docket No. : YYZ RE-001

Title : MEASURING, MONITORING AND TRACKING ENTERPRISE  
COMMUNICATIONS AND PROCESSES

**DECLARATION UNDER 37 C.F.R. §1.131**

I, Vincent R. Cyr, make this declaration in support of YYZ's Owner's Statement, filed herewith, and in the above identified reexamination, and do hereby declare the following:

1. I am a named inventor of the above-identified patent (the "749 patent" or the "patent").
2. I am the managing partner of YYZ LLC, the owner of the patent.
3. I have been duly authorized by YYZ LLC to file this declaration.
4. I have read the Order Granting Request For Ex Parte Reexamination dated December 1, 2011 (the "Order") in connection with the present reexamination.
5. The Order, at page 6, identifies a substantial new question of patentability according to the patent and the prosecution history as arising from a reference or combination of references that teach or suggest "a central message repository or providing, through a monitoring message, at least part of said original message data." (emphasis in original.)
6. In the Order, a book by Leymann, Frank, and Roller, Dieter, Production

Workflow Concepts and Techniques, Upper Saddle River, Prentice-Hall, Inc., ISBN 0-13-021753-0 (hereafter "Production Workflow") is identified as raising a substantial new question of patentability with respect to claims 1-58 of the '749 Patent.

7. In the Order, US Patent No. 7,003,781 issued to Blackwell et al. (hereafter "Blackwell") is identified as raising a substantial new question of patentability with respect to claims 1-6, 8-11, 14-17, 19, 21-24, 27, 31-34, 38, 42-43, 45-50, 52, and 54-58 of the '749 Patent.
8. In the Order, US Patent Publication No. 2002/0038276 issued to Buhannic et al. (hereafter "Buhannic") is identified as raising a substantial new question of patentability with respect to claims 1, 42, 55, and 58 of the '749 Patent.
9. I have read and understand the Production Workflow, Blackwell and Buhannic references and the corresponding material in the Order concerning Production Workflow, Blackwell and Buhannic.
10. Assuming for the moment that Production Workflow, Blackwell and Buhannic function as the Order proposes, the inventions defined and set forth in at least independent claims 1, 22, 42, 49, 55-58 (the "independent claims") of the patent were conceived in this country at least as early as December 31, 1999 which is before the copyright date printed on the Production Workflow reference; well before the filing date of Blackwell (May 5, 2000) and well before the priority date of Buhannic (June 26, 2000); and there was diligent reduction to practice following conception.
11. Conception of the inventions defined by the independent claims was at least as

early as December 31, 1999, is illustrated in Exhibits A-E hereto and my testimony below.

12. Exhibit A is a memorandum I prepared for our customers of my company Promenix, Inc. dated August 1998.
13. I do not claim that conception dated from Exhibit A, rather Exhibit A is the first evidence I can find that I began to recognize and appreciate the components of the inventions defined in the independent claims.
14. At about the date of Exhibit A, Promenix was engaged in installing Enterprise Application Integration systems in companies using SAP's R/3, as shown in the Exhibit.
15. Exhibit A came about because I got interested in the capabilities of Intelligent Messaging to solve Application Integration issues. Even with systems with applications designed to work together, like R/3, legacy apps, "add-on" systems and communication backbones create integration issues.
16. Intelligent messaging helps address these issues by, as I noted at the time:

### **Intelligent Messaging Can Help**

Intelligent messaging is the transformation and transmission of data from/to specific locations based upon specific data content across multiple hardware and software platforms. Intelligent messaging comprises asynchronous communications, rules-based decisions, and message routing. Full-powered intelligent messaging is capable of dynamic, real-time, application and maintenance of business logic abstracted from individual application systems. [Page 5, Exhibit A.]

17. During 1999, I increasingly became interested by the possibilities of messaging in what was the then-new field of business monitoring.
18. During 1999, I conceived of the inventions as defined by at least the independent claims by forming a definite and permanent idea of the complete and operable inventions realized and defined by the independent claims.
19. During 1999, I formed a definite and permanent idea that monitoring messages could be used from a messaging system (e.g., IBM MQSeries) with a central message repository and providing, through a monitoring message, at least part of said original message data to that repository in order to identify the status of a business process and its various elements. Such could be used internally for status updates, disseminated to prospective customers, used by investors, etc. I also began to, after conception, diligently reduce the inventions defined by the claims to practice.
20. Exhibit B is a spreadsheet initially created by me in our offices in Chadds Ford, PA on January 11, 2000, after I formed the definite and permanent idea referred to in the paragraph above and in my effort to diligently reduce the inventions as defined by the claims to practice. A screen printout of the document properties of Exhibit B (first page of the Exhibit) shows the creation date of January 11, 2000.
21. The spreadsheet at page 3 of Exhibit B shows, at the first tab labeled Process Elements, and the third page of the Exhibit (the tabs are reprinted at page 2 of Exhibit B) a sample business process broken into possible subelements in preparation for the sample run of the second tab of Exhibit B.



22. The spreadsheet at page 4 of Exhibit B shows, at the second tab of Exhibit B , a sample run of a simulation of a process with subprocesses, as well as data. This run was undertaken on our SAP R/3 installation in our offices, and was undertaken at least in part to capture data through a monitoring message (“original message data”) in a database or central message repository.
23. Exhibit C shows (XML) code that was developed and used in constructing sample runs, such as the one shown in Exhibit C. Such code would be used in the course of providing, through a monitoring message, at least part of original message data to a central message repository in order to identify the status of a business process and its various elements, and the code shown in Exhibit C was developed by me, and others under my direction, such as Kenneth Fritz, the co-inventor and employee at Promenix at the time in Promenix’ offices in Chadds Ford.
24. The process, simulation, and data referred to in Exhibits A - C were the monitoring messages and the central message repository of the independent claims of the patent, each of which reference a monitoring message and central message repository.
25. Exhibit D was prepared by me on March 9, 2000 in my office at Chadds Ford, PA in my continuing diligent effort to reduce the inventions as defined by the claims to practice.
26. Exhibit D is an initial draft of an internal specification regarding design parameters of the inventions defined by the claims of the patent.
27. Exhibit D also contains information that was also used in the patent. See the

Introduction in light of the Background section of the patent; Diagram 1 of Exhibit D in light of exemplary Figure 1 and Figure 2 of the patent.

28. Exhibit D also contains references to monitoring messages and database or central message repository as defined in the independent claims.

a. For example, the final paragraph of the Introduction section states:

Using MQSeries and MQSeries Integrator, we are going to simulate a process and its related sub-processes. As each event takes place, we are going to send messages with information pertaining to that event through MQSI to a database. This database will hold the messages (in XML format), which we will use to report against. The diagram 1.0 shows the overall layout of this concept.

(as well as the referenced diagram 1.0 on the next page of Exhibit D.)

b. For example, the final paragraph of the Development Approach states:

Database update – This process will take XML event messages from MQSI and insert them into a database of messages. The key needs to be defined which will allow for inquiry and reporting. The entire XML message will be placed in one field of the database.

29. Co-inventor Kenneth Fritz had been assisting me in diligently reducing the claims to practice. Mr. Fritz did so at our offices in Chadds Ford, and evidence of his diligence is seen Exhibit E, which is draft documentation of a model, written in Visual Basic 6.0 and utilizing IBM's MQSeries ActiveX objects, dated August 7, 2000. Exhibit E also contains information that was also used in the patent. See, e.g., Figure 1 of Exhibit E and Figure 5 of the patent.

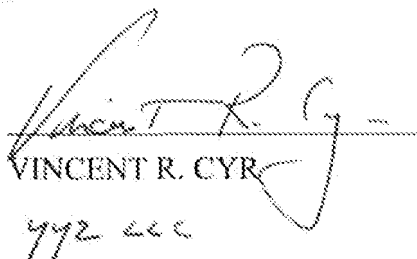
30. Therefore the methods and apparatus in accordance with at least the independent claims of the patent were conceived at least as early as December 31, 1999 and diligently reduced to practice following conception by

constructing and writing software code and documentation in accordance with Exhibits A-E and conducting tests that established that the methods and apparatus of the inventions defined by the claims worked for their intended purposes, which all occurred prior to the 2000 copyright date of Production Workflow, the May 5, 2000 filing date of Blackwell and the June 26, 2000 priority date of Buhannic.

31. Moreover, it should be noted, the above recitation is in support of the Owner's Response to the substantial new question of patentability, and as noted in that response, I have filed this declaration only to antedate the use of Production Workflow, Blackwell and Buhannic, and have assumed only for the purposes here that such do serve as prior art. However, as noted in our Response, we also do not believe the references are prior art for reasons set forth therein, and we do, in the event an Office Action is issued with regard to Production Workflow, Blackwell and/or Buhannic as references, reserve all rights to file further and supplemental declarations antedating Production Workflow, Blackwell and Buhannic.

The undersigned declares that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and thus such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: February 1, 2012

  
VINCENT R. CYR  
492 LLC

# **EXHIBIT A**

**Systems Integration:  
Using Intelligent Messaging with SAP R/3™**

**Vincent R. Cyr**  
President, Promenix Inc.

**August 1998**

## Executive Summary

Implementing SAP R/3 involves many elements; Business process understanding, software configuration, education of users and support personnel, and a myriad of other related activities. One of the more challenging elements involves the integration of R/3 with all of the other systems in your organization (and possibly with systems external to your organization). This paper provides an insight to the use of *Intelligent Messaging* (IM) to speed up the integration process as well as providing a long-term strategy for additional integration efforts.

Whether you believe in *Best in Class* or *Best of Breed*, the fact remains that heterogeneous systems exist in your organization and they probably will continue to do so for many years to come. In fact, given the proliferation of packaged applications, custom development tools, and Internet –based applications, heterogeneous systems are likely to increase in number rather than decrease. The need for integrating these systems continues to challenge all organizations.

Intelligent messaging provides several benefits to an organization: asynchronous communications, data transformation, message routing, and most importantly, rules-based decision processes. All of these components combined make for a flexible, reliable, and maintainable infrastructure for application integration efforts. With the abstraction of business logic away from individual programs, changes can be made much more quickly and with fewer staff. People are more focused on solving the business problem instead of the technical problems regarding the integration of these disparate systems.

Using the following sections, a cohesive strategy can be developed to enable your organization to solve these integration problems.

## **Challenges of Systems Integration**

Today, more than ever, well-executed systems integration efforts are the difference between successful implementations of software solutions and failures destined to the "great idea, bad implementation" trash heap. There is no magic potion, no silver bullet, when it comes to linking these multi-architected, multi-OS, multi-communication protocol environments. In most cases, if there are two systems that can be integrated efficiently, it is most likely an accident rather than a planned occurrence. If the need for integration is going to continue to expand at these rates, what we need is an understanding of the elements affecting our abilities to deliver. What tools, methods, and approaches could we use to increase our likelihood of success? Let us understand the elements affecting systems integration: Business processes, heterogeneous systems, scarcity of talent, and the pace of change.

### ***Understanding of Business Processes***

As more and more companies embrace ERP core solutions, by necessity, they become more focused on the core business process rather than the event or base transaction. This process focused view has been impressed upon our organizations since Hammer & Champy published "Reengineering the Corporation". In addition, SAP AG has made process-oriented configuration of their R/3 software product easier and easier as each new release of the software is produced.

Unfortunately, very few legacy systems are process oriented. They are transaction and/or event based. This presents a problem when trying to establish integration points with an ERP system that is being implemented based on process threads. This means that business and systems analysts are required to understand how a legacy system fits within an entire process. This work should evolve into process maps that detail what system is involved in which part of the process. This is a vital and crucial step in the systems integration process that will lead to a better understanding of the systems that run your organization. Time consuming? Yes. A waste of time? Absolutely not! This is the reference point for your organization's application portfolio. It is from this that you can determine what system stays, goes, or needs to be phased out over time. It outlines areas that can be supplemented or replaced by your ERP system. It also provides visible identification of areas where additional software (non-ERP) may add value in a process thread.

You do not need to do this in one giant step. Start one process thread at a time. Require all new application development efforts to include supporting process diagrams and flows. As systems are being upgraded, add these process tasks to the effort. Over time, this discipline can become a natural part of your organization's work habits.

### ***Systems, Systems, and more Systems***

The proliferation of software and the solutions that can be provided by that software continues at what seems to be an unending pace. Legacy systems, once thought to have limited existences, now are being given new life as a result of Year 2000 efforts. Instead of turning them off, their value to the organization continues into the next millennium.

The packaged software supply continues to grow as the barrier to entry for software companies continues to be limited only by ideas and people to execute them; capital is plentiful and there are no other real assets to buy. These range from large ERP packages to small, "point solution" packages designed to solve a unique business function. The result of this: more software packages for you to incorporate into your organization that meet specific business processes and functions.

Robust application development environments and tools such as Borland's Delphi, Microsoft's Visual Studio, and others, are allowing for the creation of new software systems by internal application development departments at a blistering pace. Instead of large development projects aimed at the whole corporation, departments are now able to create their own applications very quickly. With the increased presence of the Internet and E-Commerce, the need for more systems, quickly, is increased. The result: more systems to integrate with existing systems.

When you put all of these factors together, you get systems, systems, and more systems with no relief in sight! What is even more problematic is that these systems need to communicate with each other. As mentioned earlier, businesses are becoming more process-oriented in how they behave. Systems must be integrated to support these processes. If you cannot stop the proliferation of systems, you must find a way to link them together quickly, efficiently, and in a way that long-term support and maintenance is possible.

### The Talent Shortage

Numerous studies are confirming what has been known for several years – there are not enough skilled resources to do the work that is required. The Information Technology Association of America estimates that there are currently 340,000 unfilled positions in the computer industry. Studies from the American Electronics Association show that graduates in computer science and math decreased 29% from 1985 to 1996. With an industry growth rate exceeding 15%, it becomes quite apparent that there is a major talent shortage (Figure 1.)

What does this mean to those having to integrate systems? It means you must find methods and tools that can make those resources that you have more productive. You need to re-think the traditional approaches to systems integration; the coding of point-to-point program interfaces that link a program from one system to a program in another system. This traditional approach is labor intensive, something that you do not have available. In addition, this approach lends itself to inconsistencies in development,

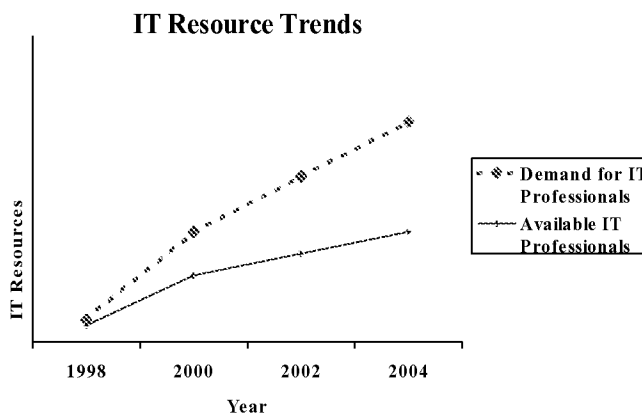


Figure 1.

implementation, and support.



## ***Reductions in Timeframes***

When was the last time a project was allowed 36 months, 24 months, or even 18 months to complete? In today's fast-paced business climate, systems projects have short timeframes of 3–6 months. If there are many systems to integrate, there is no time to code these integration points together. There is no time to learn a new programming language or architecture. The only activity you have time for is figuring out where these integration points need to be and how you can patch it together quickly. The pressure to speed up integration is not about to end. Therefore, new ways to improve productivity reduce learning curves, and focus on value-added activities needs to be embraced.

## **Intelligent Messaging Can Help**

Intelligent messaging is the transformation and transmission of data from/to specific locations based upon specific data content across multiple hardware and software platforms. Intelligent messaging comprises asynchronous communications, rules-based decisions, and message routing. Full-powered intelligent messaging is capable of dynamic, real-time, application and maintenance of business logic abstracted from individual application systems. Let's examine these components in more detail.

### ***Asynchronous Communications***

Asynchronous communications means that when an application is sending data to another application, the sending application does not wait for the receiving application to process the data before moving on. In military terms, think of this as a "fire and forget" process similar to a cruise missile after it has been launched. The ship or aircraft, once a launch has been executed, can sail or fly wherever it wants to with a highly confident assurance that the missile will reach its target without any other assistance. The assumption is clear: if I send it, it will be processed.

Now, with asynchronous communications, it is prudent to include a queuing mechanism in order to make sure that in the event that the receiving system is not active, data is not lost. This queuing is also important for situations that require rollbacks or reruns of processing. These queues act as data buckets that hold data temporarily until the appropriate applications acknowledge that it is safe to empty the buckets. Keep in mind that the acknowledgement is primarily to the queuing mechanism; not the sending application. The sending application is busy doing something else at this time; not waiting around for some acknowledgement.

This is beneficial because an application that uses asynchronous communications does not need to wait around for a response from some external system before continuing its processing. Networks do not have to maintain open sessions across applications waiting for responses. In short, applications and networks become more efficient. Data can be processed and routed with much more expediency. With the increased need for bandwidth of the network, moving messages is much more "bandwidth friendly" than synchronous communications within a network or across larger WANs.

### ***Rules-Based Decisions***

Application logic, in its essence, is really an organization of decisions needing to be applied to a specific piece of data. These are the rules that must be followed in order for information to be produced. Given the computer's strength in processing rules, the more the rules of an application can be organized, optimized, and de-coupled from the file-handling and data handling routines, the more the power of the computer can be utilized. In addition, these rules can also be managed and maintained more effectively;

an extremely valuable attribute given today's rapidly changing business demands. There is a simplicity that can be achieved by instructing the computer to do a specific action when the data contains a certain value.

## ***Routing***

A message, like a letter sent to a friend, has no value unless it is received. For letters, we have learned to trust FedEx to guarantee delivery to the right destination. All FedEx letters go to Memphis, their destinations are determined, and then they are put onto the plane going to that destination. That is what routing does for intelligent messaging. Messages have destinations that are determined in various ways; some destinations are pre-defined, some are based upon data content, and some are based upon lack of content. Routing takes the message, determines the correct destination, and sends it on its way. It is like a large mail-sorter; look at the address and send it on its way. One important element is the ability to take one inbound message and send different pieces to different locations. This provides a very efficient method of sending data to many places with a single input message.

## ***Dynamic Application and Maintenance of Business Logic***

There is one element that is not inherent to intelligent messaging but is such a critical component, it needs to be considered. The rules and routing are very powerful in the organization of your business logic. However, if these are static, hard-coded, difficult-to-maintain blobs of code, they do nothing in making your systems adaptable and flexible. Unless this business logic can be easy to change and maintain, your change request will sit in some development queue that will be accessed sometime in the year 2000 – right behind the 500 requests that came in before yours. Do not worry, your business unit manager will make sure that no area of his business will change for the next few years. Remember the talent shortage? Remember the reduced timeframes? You may have a long wait if you do not have anyone around who can make these changes. What you must consider is a solution that will enable you to change these applications much faster than the traditional development path. You must have rules that are easy to develop and maintain.

## SAP R/3

Much has already been said and written about SAP and its client/server ERP product, R/3. It is a powerful core enterprise package that has become the backoffice application infrastructure for thousands of companies. Since its existence in your organization is either real or imminent, your task is to integrate your existing systems to it. You may have to also integrate new add-on functionality as part of the R/3 implementation project. You also may have to integrate it with other companies that you do business with. All of these scenarios are real and their challenges can sometimes be minimal or they can be quite extensive. Fortunately, the ability to integrate these systems with R/3 has improved dramatically over the past few years; mainly as a result of SAP embracing an asynchronous messaging architecture.

### ***Messaging Inherent within SAP***

In 1994, SAP introduced Application Link Enabling (ALE). Designed to promote R/3 to R/3 communications, this architecture used messages from business scenarios to communicate asynchronously from one R/3 system to another. For example, the process of distributing changes to a customer master record from a central R/3 system to R/3 systems located in other divisions or plants was accomplished by sending a message (in the form of an SAP Intermediate Document record (IDOC)) to the target systems at the time of the customer record change. This architecture has since evolved to now be the core of the new Business Framework from SAP. This framework promotes a "loosely-coupled" integration between different R/3 modules. This allows for the propagation of R/3 systems to satisfy business requirements while maintaining integration between components. This is accomplished using the asynchronous messaging approach of ALE and IDOCs. It is important to note that R/3, while capable of these messaging capabilities, is first and foremost a business application package, not an intelligent messaging package. R/3 should not be designated as your message hub. It is your core application software that can efficiently and effectively operate in an asynchronous message architecture.

## **Value Provided to SAP R/3 by Intelligent Messaging**

Whether intentional or unintentional, by implementing SAP R/3, you have started the introduction of a message-oriented architecture into your organization. This added benefit provided by R/3 will move your organization away from inflexible, inefficient, hard-to-manage systems to those that are more adaptive and flexible to your company's demands.

### ***Flexible, Adaptive Integration Architecture***

As mentioned earlier, systems within an organization change almost daily. New systems are created, old ones are changed, and some are taken out of service. Business needs are constantly challenging the organization to have information readily at hand. Given SAP R/3's flexible approach to message exchange, if you can move data from and to R/3 via this method, you can start making your new and existing systems just as flexible and adaptive. Intelligent messaging can help turn these static, inflexible systems into a continuation of a business process that includes R/3. Changes can be made quicker. Systems can be added or removed quicker. Your R/3 system will now be able to exchange information within your organization as well as to systems external to your organization. This improves and enriches the information within the R/3 system and your organization. You increase the return on your investment in R/3.

### ***Abstraction of Application Logic Away from Programs***

One of the benefits of R/3's ALE approach is that the need to perform programming in R/3 to integrate systems has been greatly reduced. Since there are many different business scenarios that have been developed by SAP into ALE/IDOC combinations, many interfaces require little to no programming at all in R/3. Business rules can be configured for the appropriate logic and messages can be routed based upon those rules. If the target or source systems are enabled by intelligent messaging, the need for any programming to be performed has been greatly reduced. If a change is required to support a new business rule, R/3 and the related systems can be changed very quickly. Programs do not have to be changed, compiled, or promoted. The skill set required to perform these changes may already exist within your organization.

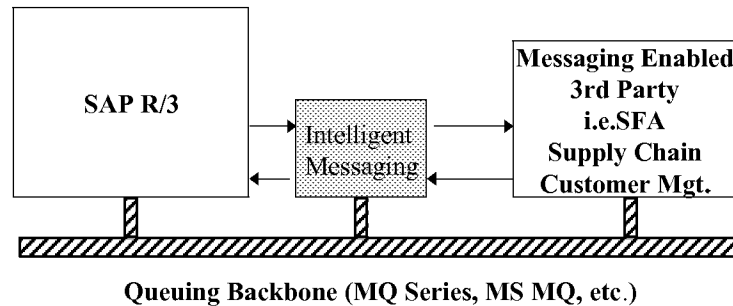
### ***Focused Efforts of Solving Business Problems, Not Technology Problems***

Too often in our business, the integration effort ends up focusing on the technical challenges instead on solving the business problem. This is not a fault of the people working on these issues. It is a result of not having a common approach to integrating these systems, not having a message-oriented architecture that makes data easier to move and distribute, and not having business rules abstracted from the programs to allow for quicker, easier changes.

There is only so much time in a day. Do you want your people trying to figure out how to get an ASCII file into EBCDIC or do you want them determining what rule and route to apply if the data is coming from a specific, high-volume customer? Using R/3 and intelligent-messaging, it becomes easier to focus on the business problem, not the technology problem.

## Enhanced Functionality from Legacy and Third Party Applications

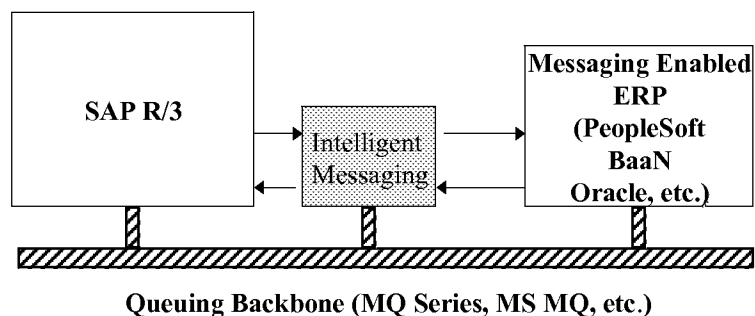
The following diagrams depict various applications of intelligent messaging with SAP R/3. As you can see, the flexibility that is gained from intelligent messaging is only limited to the ingenuity of your people. The first diagram shows a third-party application, such as sales force automation (SFA) connected to R/3.



Using the formatting, rules, and routing capability of the intelligent messaging software, R/3 to non-R/3 communications can be integrated

This speeds up the integration process and reduces the need for the 3rd party software to write integration points for every ERP or legacy system. Instead, they write to a common messaging API.

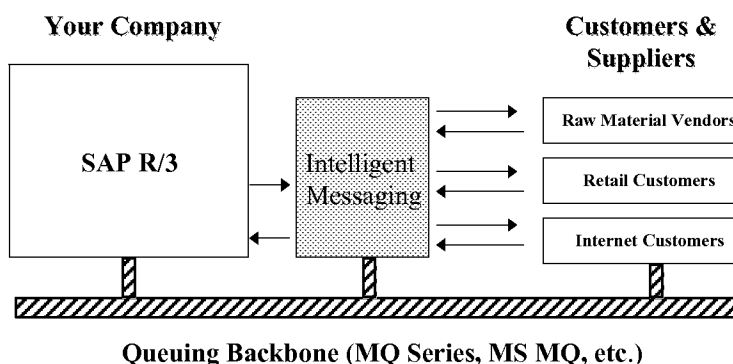
In the next figure, intelligent messaging is used to connect SAP R/3 with another ERP package such as PeopleSoft or BaaN. Because of acquisitions and industry consolidations, many organizations are finding themselves with more than one ERP system. Intelligent messaging can be used to leverage the investments made in both packages.



Using the formatting, rules, and routing capability of the intelligent messaging software, R/3 to other ERP packages within an organization can be integrated.

This speeds up the integration process and reduces the need to wait for a standards group to define each ERP process. The ERP vendors "message enable" their packages (i.e. SAP's ALE) in order to facilitate this communication.

As your organization increases its electronic communication with external customers and suppliers, using intelligent messaging will permit you to apply specific rules and routing information to your data depending on the data content. Certain customers may have priority over others. Certain vendors may receive certain messages based on the nature of the parts being supplied.



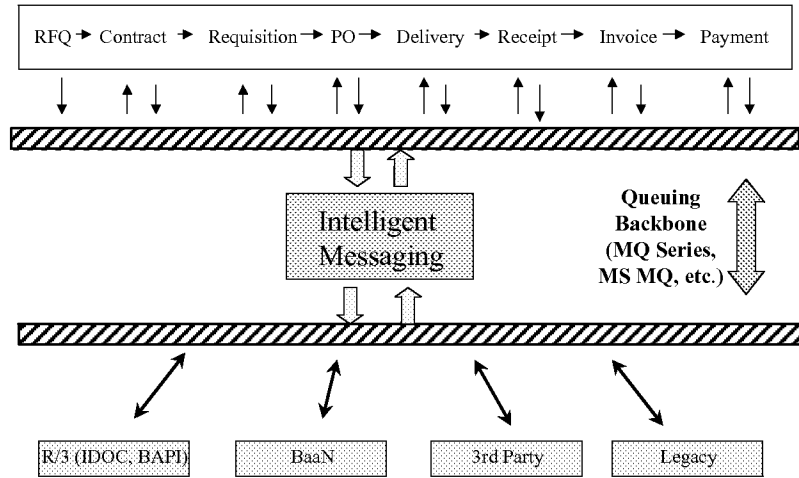
Using the formatting, rules, and routing capability of the intelligent messaging software, R/3 information to non-SAP systems of suppliers and customers can be integrated. This cross-organizational interchange of information improves the total order to fulfillment to cash process.

It is important to remember that your partners have many systems that are disparate from your own. Using intelligent messaging, they are able to keep their systems while still being able to take advantage of cross-organizational information flows.

This last diagram presents a more process-oriented view of intelligent messaging and how all of these pieces start to fit together. As you can see, a process-oriented approach coupled with intelligent messaging leads to a workflow-driven organization that has messages traveling from business event to event via the intelligent messaging engine. This messaging engine exchanges information with various systems (legacy, ERP, 3rd party) as the process is executed.

## Process Oriented Application Integration

### Procurement Process Flow



## Conclusion

There are many challenges when implementing systems. Business process design, software configuration, training, resistance to change, etc. One challenge that is common to all organizations is the need to integrate all of these systems together. Alone, each system performs a specific piece of a complete business process. Using SAP R/3, more of these processes can be integrated within one application package. However, the legacy systems that remain, the additional third-party software, and internal custom development, all must be tied together with R/3. Intelligent messaging, with its asynchronous architecture, flexibility, and abstraction of business logic, provides a solution to bringing these disparate pieces together. Keep in mind, there are no silver bullets. This still requires strategic thinking, careful planning, and commitment to execution. The short-term payback is an accelerated method in completing your integration efforts for your R/3 implementation. The long-term payback is an integration architecture that lends itself to faster response to changing business needs.

## About Promenix

Promenix is a systems integration service provider focusing on Enterprise Application Integration around SAP R/3. Located outside of Philadelphia, PA, Promenix helps its customers integrate their legacy and 3rd-party packages with SAP R/3 using such integration software as MQ Series from IBM and MQ Series Integrator from New Era of Networks, Inc.

They can be reached at (610) 361-1560, [www.promenix.com](http://www.promenix.com).



# **EXHIBIT B**

Home Layout Tables Font Charts SmartArt Sentences Formulas Data Review Format

Fill Align Wrap Text General Normal Bold Insert

Font Color Background Color Text Color Text Direction Numbering Bullets Indentation Paragraph Spacing Language

PROCESS	SUBPROCESS	CUSTNO	CUSTOMER	ADDRESS	EMAIL	MATHUM	MATNAME	UOM	PRICE	QTY	QUOTENUM	ORDERDATE	PRODUCTION_NUM	PRODUCTION_I
ORDER TO CASH	INQUIRY	5030	DOW CHEMIR MIDLAND	INFO@PRC		800003	WIDGET	BOX	2.50	2				
ORDER TO CASH	INQUIRY	5001	VF CORP GREENSBORO	INFO@PRC		800004	GADGET	CASE	10.00	3				
ORDER TO CASH	INQUIRY	5002	EASTMAN CHEM CO	INFO@PRC		800005	BRAKE	BOX	1.00	2				
ORDER TO CASH	INQUIRY	5003	EASTMAN CHEM CO	INFO@PRC		800006	3/4 BOLT	BOX	4.00	10				
ORDER TO CASH	INQUIRY	5004	PTMERY BOW	INFO@PRC		800006	3/4 BOLT	BOX	4.00	11				
ORDER TO CASH	INQUIRY	5005	VANGUARD VALLEY	INFO@PRC		800027	BUPER	FACE	1.35	15				

**General : Summary** Contents : Custom

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Last saved by: VCYR

Revision number:

Total editing time:

Process	Sub-Process	Inputs	Outputs	Org. Units	Date In	Time In	Date Out	Time Out	Status
Order-to-cash	Receive Customer Inquiry	Material BOM Customer	Customer Inquiry	Sales org. Division Sales Office Sales Group Distr. Channel					
Order-to-cash	Provide Customer Quotation	Material BOM Business Partner Time Customer Inquiry	Customer Quotation	Sales org. Division Sales Office Sales Group Distr. Channel					
Order-to-cash	Create Customer Outline Agreement	Material Batch Business Partner Time Customer Inquiry Customer Quotation	Customer Outline Agreement	Sales org. Division Sales Office Sales Group Distr. Channel					
Order-to-cash	Create Sales Order	Material Batch Business Partner Time Customer Inquiry Customer Quotation	Sales Order Production Order Manufacturing Order Purchase Req.	Sales org. Division Sales Office Sales Group Distr. Channel					
Order-to-cash	Ship Product	Material Batch Business Partner Time Customer Sales Order Customer Credit Account Customer Inquiry Customer Quotation Customer Contract Sales Promotion	Outbound Delivery	Shipping Point					
Order-to-cash	Invoice Customer	Material Batch Business Partner Time Customer Sales Order Customer Contract Customer Credit Account Customer Inquiry Customer Quotation Customer Contract	Customer Billing Document						
Order-to-cash	Receive Payment	Invoice Number Material Customer							

Process	Sub-Process	Inputs	Outputs	Org. Units	Date In	Time In	Date Out	Time Out	Status
Order-to-cash	Receive Customer Inquiry	Material BOM Business Partner Customer	Customer Inquiry	Sales org. Division Sales Office Sales Group Distr. Channel					
Order-to-cash	Provide Customer Quotation	Material BOM Business Partner Time Customer Inquiry	Customer Quotation	Sales org. Division Sales Office Sales Group Distr. Channel					
Order-to-cash	Create Customer Outline Agreement	Material Batch Business Partner Time Customer Credit Account Customer Inquiry Customer Quotation	Customer Outline Agreement	Sales org. Division Sales Office Sales Group Distr. Channel					
Order-to-cash	Create Sales Order	Material Batch Business Partner Time Customer Credit Account Customer Inquiry Customer Quotation Customer Contract Sales Promotion	Sales Order Production Order Manufacturing Order Purchase Req.	Sales org. Division Sales Office Sales Group Distr. Channel					
Order-to-cash	Ship Product	Material Batch Business Partner Time Customer Sales Order Customer Credit Account Customer Inquiry Customer Quotation Customer Contract	Outbound Delivery	Shipping Point					
Order-to-cash	Invoice Customer	Material Batch Business Partner Time Customer Sales Order Customer Contract Customer Complaint Order Credit Memo Request Debit Memo Request Returns	Customer Billing Document						
Order-to-cash	Receive Payment	Invoice Number Material Customer Amount							



ORDER TO CASH	AGREEMENT	5031 GP	ATLANTA, G/ INFO@PRC	800029 LYE	POUND	3.44	5	200027				NET/30
ORDER TO CASH	ORDER	5000 DOW CHEM	MIDLAND, MI INFO@PRC	800003 WIDGET	BOX	2.00	2	200001	800000	03/27/00		NET/30
ORDER TO CASH	ORDER	5001 VF CORP	GREENSBORO INFO@PRC	800004 GADGET	CASE	10.00	3	200002	800001	03/27/00		NET/30
ORDER TO CASH	ORDER	5002 EASTMAN	C-KINGSPT, INFO@PRC	800005 BRAKE	BOX	3.00	2	200003	800002	03/28/00		NET/30
ORDER TO CASH	ORDER	5002 EASTMAN	C-KINGSPT, INFO@PRC	800006 3/4 BOLT	BOX	4.00	10	200003	800002	03/28/00		NET/30
ORDER TO CASH	ORDER	5003 PITNEY	BOW STAMFORD, INFO@PRC	800006 3/4 BOLT	BOX	4.00	11	200004	800003	03/27/00		2/10
ORDER TO CASH	ORDER	5004 VANGUARD	VALLEY FOR INFO@PRC	800007 PAPER	CASE	13.00	12	200005	800004	03/27/00		2/10
ORDER TO CASH	ORDER	5005 SMITH	KLINE-PHILADELPH- INFO@PRC	800008 COTTON	CASE	4.00	12	200006	800005	03/29/00		NET/30
ORDER TO CASH	ORDER	5005 SMITH	KLINE-PHILADELPH- INFO@PRC	800007 PAPER	CASE	13.00	22	200006	800005	03/29/00		NET/30
ORDER TO CASH	ORDER	5005 SMITH	KLINE-PHILADELPH- INFO@PRC	800025 CAPSULES	CASE	5.00	34	200006	800005	03/29/00		NET/30
ORDER TO CASH	ORDER	5005 SMITH	KLINE-PHILADELPH- INFO@PRC	800010 SUGAR	BARREL	65.00	5	200006	800005	03/29/00		NET/30
ORDER TO CASH	ORDER	5006 KODAK	ROCHESTER INFO@PRC	800009 SILVER	OZ	23.00	21	200007	800006	03/27/00		NET/30
ORDER TO CASH	ORDER	5007 XEROX	STAMFORD, INFO@PRC	800010 TONER	PIECE	25.00	11	200008	800007	03/27/00		NET/30
ORDER TO CASH	ORDER	5008 COCA-COLA	ATLANTA, G/ INFO@PRC	800010 SUGAR	BARREL	65.00	2	200009	800008	03/27/00		NET/30
ORDER TO CASH	ORDER	5009 EXXON-MOB	HOUSTON, T INFO@PRC	800011 1" PIPE	FT	4.00	23	200010	800009	03/27/00		NET/30
ORDER TO CASH	ORDER	5010 ENRON	HOUSTON, T INFO@PRC	800012 6" PIPE	FT	2.43	11	200011	800010	03/27/00		NET/30
ORDER TO CASH	ORDER	5011 DUPONT	WILMINGTON INFO@PRC	800013 POLYMER	BIN	335.23	24	200012	800011	03/27/00		NET/30
ORDER TO CASH	ORDER	5012 CHEVRON	SAN RAMON INFO@PRC	800014 MBE ADDI	BARREL	465.80	54	200013	800012	03/30/00		NET/30
ORDER TO CASH	ORDER	5013 CHASE	NEW YORK, INFO@PRC	800015 PENS	CASE	15.00	43	200014	800013	03/30/00		2/10
ORDER TO CASH	ORDER	5014 FIDELITY	BOSTON, MA INFO@PRC	800016 BROCHUR	PIECE	6.00	1000	200015	800014	03/30/00		2/10
ORDER TO CASH	ORDER	5015 WILLIAMS	HOUSTON, T INFO@PRC	800017 FIBER	ROLL	1000.00	2	200016	800015	03/30/00		NET/30
ORDER TO CASH	ORDER	5016 UNION	CARB-HOUSTON, T INFO@PRC	800018 POLY-ETH	BARREL	544.00	3	200017	800016	03/30/00		NET/30
ORDER TO CASH	ORDER	5017 GM	DETROIT, MI INFO@PRC	800019 WINDSHIE	PIECE	433.00	300	200018	800017	03/30/00		NET/30
ORDER TO CASH	ORDER	5018 FORD	DEARBORN, INFO@PRC	800020 STEERING	PIECE	322.00	300	200019	800018	03/30/00		NET/30
ORDER TO CASH	ORDER	5019 IBM	ARMONK, NY INFO@PRC	800021 TRANSIST	EACH	100.00	1000	200020	800019	03/30/00		NET/30
ORDER TO CASH	ORDER	5019 IBM	ARMONK, NY INFO@PRC	800027 MEMORY	EACH	304.00	1000	200020	800019	03/30/00		NET/30
ORDER TO CASH	ORDER	5021 INTEL	SANTA CLAR INFO@PRC	800023 SAND	TON	45.00	5	200021	800020	03/27/00		NET/30
ORDER TO CASH	ORDER	5022 PHILIPS	NEW YORK, INFO@PRC	800024 FILAMENT	FT	1.00	25	200022	800021	04/02/00		NET/30
ORDER TO CASH	ORDER	5023 ELI LILLY	INDIANAPOL INFO@PRC	800025 CAPSULES	CASE	5.00	20	200023	800022	03/27/00		NET/30
ORDER TO CASH	ORDER	5024 AMD	SANTA CLAR INFO@PRC	800026 SILICON	PIECE	2000.00	3	200024	800023	03/27/00		NET/30
ORDER TO CASH	ORDER	5025 APPLIED	MAT-SANTA CLAR INFO@PRC	800027 MEMORY	PIECE	304.00	20	200025	800024	04/02/00		NET/30
ORDER TO CASH	ORDER	5030 KRAFT	CHICAGO, IL INFO@PRC	800028 MILK	GAL	2.59	30	200026	800025	04/02/00		NET/30
ORDER TO CASH	ORDER	5031 GP	ATLANTA, G/ INFO@PRC	800029 LYE	POUND	3.44	5	200027	800026	04/02/00		NET/30
ORDER TO CASH	SCHEDULE	5000 DOW CHEM	MIDLAND, MI INFO@PRC	800003 WIDGET	BOX	2.00	2	200001	800000	03/27/00	410000	03/29/00 LOCAL
ORDER TO CASH	SCHEDULE	5001 VF CORP	GREENSBORO INFO@PRC	800004 GADGET	CASE	10.00	3	200002	800001	03/27/00	410001	03/29/00 LOCAL
ORDER TO CASH	SCHEDULE	5002 EASTMAN	C-KINGSPT, INFO@PRC	800005 BRAKE	BOX	3.00	2	200003	800002	03/28/00	410002	03/30/00 OFFSHORE
ORDER TO CASH	SCHEDULE	5002 EASTMAN	C-KINGSPT, INFO@PRC	800006 3/4 BOLT	BOX	4.00	10	200003	800002	03/28/00	410002	03/30/00 OFFSHORE
ORDER TO CASH	SCHEDULE	5003 PITNEY	BOW STAMFORD, INFO@PRC	800006 3/4 BOLT	BOX	4.00	11	200004	800003	03/27/00	410003	03/29/00 LOCAL
ORDER TO CASH	SCHEDULE	5004 VANGUARD	VALLEY FOR INFO@PRC	800007 PAPER	CASE	13.00	12	200005	800004	03/27/00	410004	03/29/00 LOCAL
ORDER TO CASH	SCHEDULE	5005 SMITH	KLINE-PHILADELPH- INFO@PRC	800008 COTTON	CASE	4.00	12	200006	800005	03/29/00	410005	03/31/00 LOCAL
ORDER TO CASH	SCHEDULE	5005 SMITH	KLINE-PHILADELPH- INFO@PRC	800007 PAPER	CASE	13.00	22	200006	800005	03/29/00	410005	03/31/00 LOCAL
ORDER TO CASH	SCHEDULE	5005 SMITH	KLINE-PHILADELPH- INFO@PRC	800025 CAPSULES	CASE	5.00	34	200006	800005	03/29/00	410005	03/31/00 LOCAL
ORDER TO CASH	SCHEDULE	5005 SMITH	KLINE-PHILADELPH- INFO@PRC	800010 SUGAR	BARREL	65.00	5	200006	800005	03/29/00	410005	03/31/00 LOCAL
ORDER TO CASH	SCHEDULE	5006 KODAK	ROCHESTER INFO@PRC	800009 SILVER	OZ	23.00	21	200007	800006	03/27/00	410006	03/29/00 OFFSHORE
ORDER TO CASH	SCHEDULE	5007 XEROX	STAMFORD, INFO@PRC	800010 TONER	PIECE	25.00	11	200008	800007	03/27/00	410007	03/29/00 OFFSHORE
ORDER TO CASH	SCHEDULE	5008 COCA-COLA	ATLANTA, G/ INFO@PRC	800010 SUGAR	BARREL	65.00	2	200009	800008	03/27/00	410008	03/29/00 OFFSHORE
ORDER TO CASH	SCHEDULE	5009 EXXON-MOB	HOUSTON, T INFO@PRC	800011 1" PIPE	FT	4.00	23	200010	800009	03/27/00	410009	03/29/00 LOCAL
ORDER TO CASH	SCHEDULE	5010 ENRON	HOUSTON, T INFO@PRC	800012 6" PIPE	FT	2.43	11	200011	800010	03/27/00	410010	03/29/00 LOCAL
ORDER TO CASH	SCHEDULE	5011 DUPONT	WILMINGTON INFO@PRC	800013 POLYMER	BIN	335.23	24	200012	800011	03/27/00	410011	03/29/00 LOCAL
ORDER TO CASH	SCHEDULE	5012 CHEVRON	SAN RAMON INFO@PRC	800014 MBE ADDI	BARREL	465.80	54	200013	800012	03/30/00	410012	04/01/00 LOCAL
ORDER TO CASH	SCHEDULE	5013 CHASE	NEW YORK, INFO@PRC	800015 PENS	CASE	15.00	43	200014	800013	03/30/00	410013	04/01/00 LOCAL
ORDER TO CASH	SCHEDULE	5014 FIDELITY	BOSTON, MA INFO@PRC	800016 BROCHUR	PIECE	6.00	1000	200015	800014	03/30/00	410014	04/01/00 LOCAL
ORDER TO CASH	SCHEDULE	5015 WILLIAMS	HOUSTON, T INFO@PRC	800017 FIBER	ROLL	1000.00	2	200016	800015	03/30/00	410015	04/01/00 LOCAL
ORDER TO CASH	SCHEDULE	5016 UNION	CARB-HOUSTON, T INFO@PRC	800018 POLY-ETH	BARREL	544.00	3	200017	800016	03/30/00	410016	04/01/00 OFFSHORE
ORDER TO CASH	SCHEDULE	5017 GM	DETROIT, MI INFO@PRC	800019 WINDSHIE	PIECE	433.00	300	200018	800017	03/30/00	410017	04/01/00 OFFSHORE
ORDER TO CASH	SCHEDULE	5018 FORD	DEARBORN, INFO@PRC	800020 STEERING	PIECE	322.00	300	200019	800018	03/30/00	410018	04/01/00 OFFSHORE
ORDER TO CASH	SCHEDULE	5019 IBM	ARMONK, NY INFO@PRC	800021 TRANSIST	EACH	100.00	1000	200020	800019	03/30/00	410019	04/01/00 OFFSHORE
ORDER TO CASH	SCHEDULE	5019 IBM	ARMONK, NY INFO@PRC	800027 MEMORY	EACH	304.00	1000	200020	800019	03/30/00	410019	04/01/00 OFFSHORE
ORDER TO CASH	SCHEDULE	5021 INTEL	SANTA CLAR INFO@PRC	800023 SAND	TON	45.00	5	200021	800020	03/27/00	410020	03/29/00 LOCAL
ORDER TO CASH	SCHEDULE	5022 PHILIPS	NEW YORK, INFO@PRC	800024 FILAMENT	FT	1.00	25	200022	800021	04/02/00	410021	04/04/00 LOCAL
ORDER TO CASH	SCHEDULE	5023 ELI LILLY	INDIANAPOL INFO@PRC	800025 CAPSULES	CASE	5.00	20	200023	800022	03/27/00	410022	03/29/00 OFFSHORE
ORDER TO CASH	SCHEDULE	5024 AMD	SANTA CLAR INFO@PRC	800026 SILICON	PIECE	2000.00	3	200024	800023	03/27/00	410023	03/29/00 LOCAL
ORDER TO CASH	SCHEDULE	5025 APPLIED	MAT-SANTA CLAR INFO@PRC	800027 MEMORY	PIECE	304.00	20	200025	800024	04/02/00	410024	04/04/00 LOCAL
ORDER TO CASH	SCHEDULE	5030 KRAFT	CHICAGO, IL INFO@PRC	800028 MILK	GAL	2.59	30	200026	800025	04/02/00	410025	04/04/00 LOCAL
ORDER TO CASH	SCHEDULE	5031 GP	ATLANTA, G/ INFO@PRC	800029 LYE	POUND	3.44	5	200027	800026	04/02/00	410026	04/04/00 LOCAL

ORDER TO CASH SHIP	5000 DOW CHEM	MIDLAND, MI	INFO@PRC	800003 WIDGET	BOX	2.00	2	200001	800000	03/27/00	410000	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH SHIP	5001 VF CORP	GREENSBORO	INFO@PRC	800004 GADGET	CASE	10.00	3	200002	800001	03/27/00	410001	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH SHIP	5002 EASTMAN	CH KINGSPT	INFO@PRC	800005 BRAKE	BOX	3.00	2	200003	800002	03/28/00	410002	03/30/00 OFFSHORE	NET/30	04/01/00
ORDER TO CASH SHIP	5002 EASTMAN	CH KINGSPT	INFO@PRC	800006 3/4 BOLT	BOX	4.00	10	200003	800002	03/28/00	410002	03/30/00 OFFSHORE	NET/30	04/01/00
ORDER TO CASH SHIP	5003 PITNEY BOW	STAMFORD, CT	INFO@PRC	800006 3/4 BOLT	BOX	4.00	11	200004	800003	03/27/00	410003	03/29/00 LOCAL	2/10	03/31/00
ORDER TO CASH SHIP	5004 VANGUARD	VALLEY FOR	INFO@PRC	800007 PAPER	CASE	13.00	12	200005	800004	03/27/00	410004	03/29/00 LOCAL	2/10	03/31/00
ORDER TO CASH SHIP	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800008 COTTON	CASE	4.00	12	200006	800005	03/29/00	410005	03/31/00 LOCAL	NET/30	04/02/00
ORDER TO CASH SHIP	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800007 PAPER	CASE	13.00	22	200006	800005	03/29/00	410005	03/31/00 LOCAL	NET/30	04/02/00
ORDER TO CASH SHIP	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800025 CAPSULE	CASE	5.00	34	200006	800005	03/29/00	410005	03/31/00 LOCAL	NET/30	04/02/00
ORDER TO CASH SHIP	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800010 SUGAR	BARREL	65.00	5	200006	800005	03/29/00	410005	03/31/00 LOCAL	NET/30	04/02/00
ORDER TO CASH SHIP	5006 KODAK	ROCHESTER	INFO@PRC	800009 SILVER	OZ	23.00	21	200007	800006	03/27/00	410006	03/29/00 OFFSHORE	NET/30	03/31/00
ORDER TO CASH SHIP	5007 XEROX	STAMFORD, CT	INFO@PRC	800010 TONER	PIECE	25.00	11	200008	800007	03/27/00	410007	03/29/00 OFFSHORE	NET/30	03/31/00
ORDER TO CASH SHIP	5008 COCA-COLA	ATLANTA, GA	INFO@PRC	800010 SUGAR	BARREL	65.00	2	200009	800008	03/27/00	410008	03/29/00 OFFSHORE	NET/30	03/31/00
ORDER TO CASH SHIP	5009 EXXON-MOB	HOUSTON, TX	INFO@PRC	800011 1" PIPE	FT	4.00	23	200010	800009	03/27/00	410009	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH SHIP	5010 ENRON	HOUSTON, TX	INFO@PRC	800012 6" PIPE	FT	2.43	11	200011	800010	03/27/00	410010	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH SHIP	5011 DUPONT	WILMINGTON	INFO@PRC	800013 POLYMER	BIN	335.23	24	200012	800011	03/27/00	410011	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH SHIP	5012 CHEVRON	SAN RAMON	INFO@PRC	800014 MBE ADDT	BARREL	465.80	54	200013	800012	03/30/00	410012	04/01/00 LOCAL	NET/30	04/03/00
ORDER TO CASH SHIP	5013 CHASE	NEW YORK, NY	INFO@PRC	800015 PENS	CASE	15.00	43	200014	800013	03/30/00	410013	04/01/00 LOCAL	2/10	04/03/00
ORDER TO CASH SHIP	5014 FIDELITY	BOSTON, MA	INFO@PRC	800016 BROCHUR	PIECE	6.00	1000	200015	800014	03/30/00	410014	04/01/00 LOCAL	2/10	04/03/00
ORDER TO CASH SHIP	5015 WILLIAMS	HOUSTON, TX	INFO@PRC	800017 FIBER	ROLL	1000.00	2	200016	800015	03/30/00	410015	04/01/00 LOCAL	NET/30	04/03/00
ORDER TO CASH SHIP	5016 UNION CARB	HOUSTON, TX	INFO@PRC	800018 POLY-ETH	BARREL	544.00	3	200017	800016	03/30/00	410016	04/01/00 OFFSHORE	NET/30	04/03/00
ORDER TO CASH SHIP	5017 GM	DETROIT, MI	INFO@PRC	800019 WINDSHIE	PIECE	433.00	300	200018	800017	03/30/00	410017	04/01/00 OFFSHORE	NET/30	04/03/00
ORDER TO CASH SHIP	5018 FORD	DEARBORN, MI	INFO@PRC	800020 STEERING	PIECE	322.00	300	200019	800018	03/30/00	410018	04/01/00 OFFSHORE	NET/30	04/03/00
ORDER TO CASH SHIP	5019 IBM	ARMONK, NY	INFO@PRC	800021 TRANSIST	EACH	100.00	1000	200020	800019	03/30/00	410019	04/01/00 OFFSHORE	NET/30	04/03/00
ORDER TO CASH SHIP	5019 IBM	ARMONK, NY	INFO@PRC	800027 MEMORY	EACH	304.00	1000	200020	800019	03/30/00	410019	04/01/00 OFFSHORE	NET/30	04/03/00
ORDER TO CASH SHIP	5021 INTEL	SANTA CLAR	INFO@PRC	800023 SAND	TON	45.00	5	200021	800020	03/27/00	410020	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH SHIP	5022 PHILIPS	NEW YORK, NY	INFO@PRC	800024 FILIMENT	FT	1.00	25	200022	800021	04/02/00	410021	04/04/00 LOCAL	NET/30	04/06/00
ORDER TO CASH SHIP	5023 ELI LILLY	INDIANAPOL	INFO@PRC	800025 CAPSULE	CASE	5.00	20	200023	800022	03/27/00	410022	03/29/00 OFFSHORE	NET/30	03/31/00
ORDER TO CASH SHIP	5024 AMD	SANTA CLAR	INFO@PRC	800026 SILICON	PIECE	2000.00	3	200024	800023	03/27/00	410023	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH SHIP	5025 APPLIED MATS	SANTA CLAR	INFO@PRC	800027 MEMORY	PIECE	304.00	20	200025	800024	04/02/00	410024	04/04/00 LOCAL	NET/30	04/06/00
ORDER TO CASH SHIP	5030 KRAFT	CHICAGO, IL	INFO@PRC	800028 MILK	GAL	2.59	30	200026	800025	04/02/00	410025	04/04/00 LOCAL	NET/30	04/06/00
ORDER TO CASH SHIP	5031 GP	ATLANTA, GA	INFO@PRC	800029 LYE	POUND	3.44	5	200027	800026	04/02/00	410026	04/04/00 LOCAL	NET/30	04/06/00
ORDER TO CASH INVOICE	5000 DOW CHEM	MIDLAND, MI	INFO@PRC	800003 WIDGET	BOX	2.00	2	200001	800000	03/27/00	410000	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH INVOICE	5001 VF CORP	GREENSBORO	INFO@PRC	800004 GADGET	CASE	10.00	3	200002	800001	03/27/00	410001	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH INVOICE	5002 EASTMAN	CH KINGSPT	INFO@PRC	800005 BRAKE	BOX	3.00	2	200003	800002	03/28/00	410002	03/30/00 OFFSHORE	NET/30	04/01/00
ORDER TO CASH INVOICE	5002 EASTMAN	CH KINGSPT	INFO@PRC	800006 3/4 BOLT	BOX	4.00	10	200003	800002	03/28/00	410002	03/30/00 OFFSHORE	NET/30	04/01/00
ORDER TO CASH INVOICE	5003 PITNEY BOW	STAMFORD, CT	INFO@PRC	800006 3/4 BOLT	BOX	4.00	11	200004	800003	03/27/00	410003	03/29/00 LOCAL	2/10	03/31/00
ORDER TO CASH INVOICE	5004 VANGUARD	VALLEY FOR	INFO@PRC	800007 PAPER	CASE	13.00	12	200005	800004	03/27/00	410004	03/29/00 LOCAL	2/10	03/31/00
ORDER TO CASH INVOICE	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800008 COTTON	CASE	4.00	12	200006	800005	03/29/00	410005	03/31/00 LOCAL	NET/30	04/02/00
ORDER TO CASH INVOICE	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800007 PAPER	CASE	13.00	22	200006	800005	03/29/00	410005	03/31/00 LOCAL	NET/30	04/02/00
ORDER TO CASH INVOICE	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800025 CAPSULE	CASE	5.00	34	200006	800005	03/29/00	410005	03/31/00 LOCAL	NET/30	04/02/00
ORDER TO CASH INVOICE	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800010 SUGAR	BARREL	65.00	5	200006	800005	03/29/00	410005	03/31/00 LOCAL	NET/30	04/02/00
ORDER TO CASH INVOICE	5006 KODAK	ROCHESTER	INFO@PRC	800009 SILVER	OZ	23.00	21	200007	800006	03/27/00	410006	03/29/00 OFFSHORE	NET/30	03/31/00
ORDER TO CASH INVOICE	5007 XEROX	STAMFORD, CT	INFO@PRC	800010 TONER	PIECE	25.00	11	200008	800007	03/27/00	410007	03/29/00 OFFSHORE	NET/30	03/31/00
ORDER TO CASH INVOICE	5008 COCA-COLA	ATLANTA, GA	INFO@PRC	800010 SUGAR	BARREL	65.00	2	200009	800008	03/27/00	410008	03/29/00 OFFSHORE	NET/30	03/31/00
ORDER TO CASH INVOICE	5009 EXXON-MOB	HOUSTON, TX	INFO@PRC	800011 1" PIPE	FT	4.00	23	200010	800009	03/27/00	410009	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH INVOICE	5010 ENRON	HOUSTON, TX	INFO@PRC	800012 6" PIPE	FT	2.43	11	200011	800010	03/27/00	410010	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH INVOICE	5011 DUPONT	WILMINGTON	INFO@PRC	800013 POLYMER	BIN	335.23	24	200012	800011	03/27/00	410011	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH INVOICE	5012 CHEVRON	SAN RAMON	INFO@PRC	800014 MBE ADDT	BARREL	465.80	54	200013	800012	03/30/00	410012	04/01/00 LOCAL	NET/30	04/03/00
ORDER TO CASH INVOICE	5013 CHASE	NEW YORK, NY	INFO@PRC	800015 PENS	CASE	15.00	43	200014	800013	03/30/00	410013	04/01/00 LOCAL	2/10	04/03/00
ORDER TO CASH INVOICE	5014 FIDELITY	BOSTON, MA	INFO@PRC	800016 BROCHUR	PIECE	6.00	1000	200015	800014	03/30/00	410014	04/01/00 LOCAL	2/10	04/03/00
ORDER TO CASH INVOICE	5015 WILLIAMS	HOUSTON, TX	INFO@PRC	800017 FIBER	ROLL	1000.00	2	200016	800015	03/30/00	410015	04/01/00 LOCAL	NET/30	04/03/00
ORDER TO CASH INVOICE	5016 UNION CARB	HOUSTON, TX	INFO@PRC	800018 POLY-ETH	BARREL	544.00	3	200017	800016	03/30/00	410016	04/01/00 OFFSHORE	NET/30	04/03/00
ORDER TO CASH INVOICE	5017 GM	DETROIT, MI	INFO@PRC	800019 WINDSHIE	PIECE	433.00	300	200018	800017	03/30/00	410017	04/01/00 OFFSHORE	NET/30	04/03/00
ORDER TO CASH INVOICE	5018 FORD	DEARBORN, MI	INFO@PRC	800020 STEERING	PIECE	322.00	300	200019	800018	03/30/00	410018	04/01/00 OFFSHORE	NET/30	04/03/00
ORDER TO CASH INVOICE	5019 IBM	ARMONK, NY	INFO@PRC	800021 TRANSIST	EACH	100.00	1000	200020	800019	03/30/00	410019	04/01/00 OFFSHORE	NET/30	04/03/00
ORDER TO CASH INVOICE	5019 IBM	ARMONK, NY	INFO@PRC	800027 MEMORY	EACH	304.00	1000	200020	800019	03/30/00	410019	04/01/00 OFFSHORE	NET/30	04/03/00
ORDER TO CASH INVOICE	5021 INTEL	SANTA CLAR	INFO@PRC	800023 SAND	TON	45.00	5	200021	800020	03/27/00	410020	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH INVOICE	5022 PHILIPS	NEW YORK, NY	INFO@PRC	800024 FILIMENT	FT	1.00	25	200022	800021	04/02/00	410021	04/04/00 LOCAL	NET/30	04/06/00
ORDER TO CASH INVOICE	5023 ELI LILLY	INDIANAPOL	INFO@PRC	800025 CAPSULE	CASE	5.00	20	200023	800022	03/27/00	410022	03/29/00 OFFSHORE	NET/30	03/31/00
ORDER TO CASH INVOICE	5024 AMD	SANTA CLAR	INFO@PRC	800026 SILICON	PIECE	2000.00	3	200024	800023	03/27/00	410023	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH INVOICE	5025 APPLIED MATS	SANTA CLAR	INFO@PRC	800027 MEMORY	PIECE	304.00	20	200025	800024	04/02/00	410024	04/04/00 LOCAL	NET/30	04/06/00
ORDER TO CASH INVOICE	5030 KRAFT	CHICAGO, IL	INFO@PRC	800028 MILK	GAL	2.59	30	200026	800025	04/02/00	410025	04/04/00 LOCAL	NET/30	04/06/00
ORDER TO CASH INVOICE	5031 GP	ATLANTA, GA	INFO@PRC	800029 LYE	POUND	3.44	5	200027	800026	04/02/00	410026	04/04/00 LOCAL	NET/30	04/06/00

# **EXHIBIT C**



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<!-- DOCTYPE DOCUMENT SYSTEM "dtdname.dtd" -->
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    <SUBPROCESS>
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        <CUSTNAME/>
        <ADDRESS/>
        <EMAIL/>
      </CUSTOMER>
      <MATERIAL>
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        <MATNAME/>
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        <PRICE/>
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        </MANUFACT_DATA>
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      </SALES_DATA>
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    <EVENT_DATE/>
    <EVENT_TIME/>
  </PROCESS>
</PROCESS_DOC>
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<!-- DOCTYPE DOCUMENT SYSTEM "dtdname.dtd" -->
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      </CUSTNO>

      <CUSTNAME>
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      <ADDRESS>
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      <EMAIL>
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      <MATNAME>
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      <PRICE>
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    </MATERIAL>

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      <ORDERNUM>
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      <ORDERDATE>
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```

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  <PRODUCTION_DATE>
  </PRODUCTION_DATE>

  <PRODUCTION_LOC>
  </PRODUCTION_LOC>

  <PRODUCTION_STATUS>
  </PRODUCTION_STATUS>
```

```
</MANUFACT_DATA>
```

```
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  <TERMS>
  </TERMS>

  <DATE>
  </DATE>
```

```
</INVOICE_DATA>
```

```
</SALES_DATA>
</SUBPROCESS>
</PROCESS>
```

```
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      <ADDRESS>
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    </CUSTOMER>

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</PRODUCTION\_NUM>

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<PRODUCTION\_STATUS>  
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</SUBPROCESS>  
</PROCESS>

# **EXHIBIT D**

**Process Metrics Project**  
**March 9, 2000**

Design Specification 1.0

<b>Last Revised By:</b>	<b>Date</b>	<b>Additions</b>
Vincent Cyr	March 9, 2000	Initial Draft

## Introduction

The activities that take place within a company to conduct its business are organized into processes. Each process is comprised of sub-processes that break down the process into more discreet elements – eventually becoming transactions. For example, the activity of a business that involves making products and selling them for money is known as “Order-to-Cash”. This process is broken down into sub-processes that deal with the individual steps - first obtaining a prospective customer – to the manufacturing of product(s), shipping, and invoicing of that customer.

Each of these sub-processes is triggered by an event that passes information to the next sub-process so that action can be carried out. Often, an application may be responsible for one or more of these sub-processes. In the case of SAP, its integrated applications allow for many of the sub-processes activities to be carried out within the entire SAP R/3 system.

However, in many cases, some of the sub-processes are carried out by different applications or in the cases of e-commerce, may be carried out by entirely different organizations or companies.

How then, does someone inside the organization or outside the organization know at what point their particular order resides? Calling someone may cause a cascading number of phone calls, e-mails, faxes, system look-ups, etc. to determine status of the order. This is highly inefficient and results in poor customer response and service. In addition, being able to measure performance across the sub-processes would have value to those in the organization trying to determine inefficiencies in their operations. Imagine the ability to know how long it took to go from order to manufacturing to shipping during each step of the process. Imagine being able to know exactly where in the process an order is even if your company is not performing one or more sub-processes. This project is intended to demonstrate how we can use messaging to make this possible.

Using MQSeries and MQSeries Integrator, we are going to simulate a process and its related sub-processes. As each event takes place, we are going to send messages with information pertaining to that event through MQSI to a database. This database will hold the messages (in XML format), which we will use to report against. The diagram 1.0 shows the overall layout of this concept.



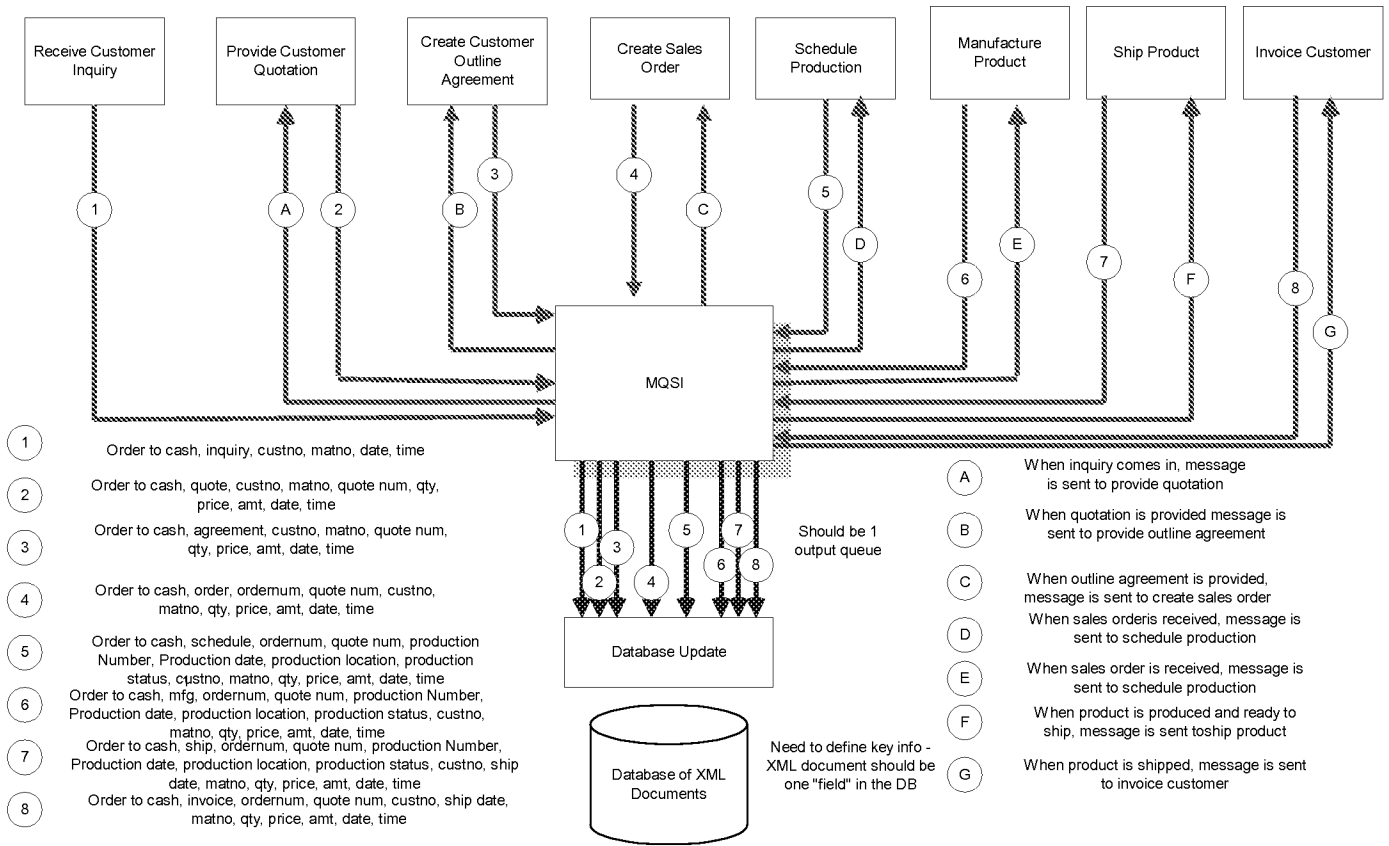
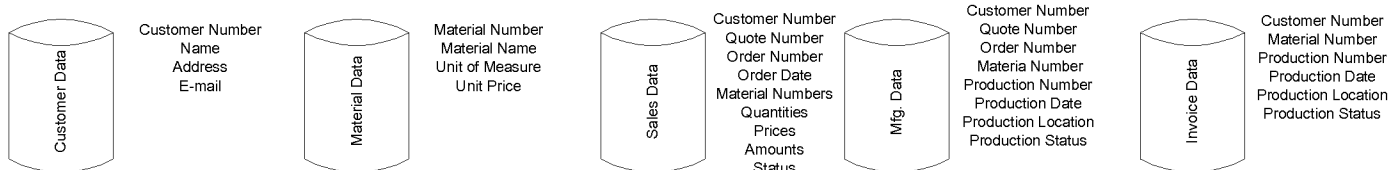


Diagram 1.0

## Development Approach

We should approach development by stubbing out pieces of functionality and validating the design in a step-by-step approach. We will then build upon these pieces as we increase capability. We will build the following components:

**Process Engine** – This will be the application that simulates the applications that perform the sub-processes of the main process. The main process will be Order-to-Cash. The sub-processes are: Inquiry, Quotation, Outline Agreement, Sales Order, Schedule Production, Manufacture, Ship, and Invoice. The Process Engine (PE) should be one program (C++ or Java Servlet) that has each of the sub-processes as a separate function within the application. All inputs and outputs should use MQSeries queues. MQSI application group/message types to distinguish messages from sub-processes. The PE will need to access various databases in order to obtain information about customers, materials, sales, manufacturing, shipping, and invoicing. Load programs may need to be developed to create sample data for these databases. We must also have a method for varying the time intervals between processes (throttling) to simulate real-life time lags between sub-process steps. For example, it may take 1 day between ordering a product and manufacturing a product, we need to show that variation so when we report the results, they appear realistic. The PE should be developed so that we can test the message flow first, then we can add database access and fill out the message structures.

**MQSeries Integrator** – MQSI will be the formatting and routing engine of this design. There will be several different formats coming into MQSI from the various sub-processes. The app group/message type in the MQRFH will determine which format to use. There will be one outbound format that will be used to send all event information to a database that will store all event messages. This format should be XML and one document should consist of all of the possible data elements across the process. These messages will all be placed on one output queue. The other outbound formats will be messages sent to the next sub-process in the process thread; on another queue, separate from the XML queue.

**Database update** – This process will take XML event messages from MQSI and insert them into a database of messages. The key needs to be defined which will allow for inquiry and reporting. The entire XML message will be placed in one field of the database. There should be a cleanup routine to purge older messages (all related to each other) based on a date or key parameter. Extraction of information from the database will be both inquiries against a particular order/customer/material/sub-process or a more generic statistical presentation of data across the entire process. Many of these inquiries are yet to be defined. Presentation of the information will be web-based using XSL style sheets.

At this point in the design, we should stub these pieces out and put as much together to test out these concepts. We will test these components and determine how to move forward from this point.

## **XML Document**

One XML document is to be used for all of the messages coming out of each sub-process of the entire process thread. The data elements include:

### **Process**

- Sub-process name (1 or more)

- Sub-process info (1 or more)

  - Date

  - Time

  - Customer (1)

    - Customer Number

    - Customer Name

    - Customer Address

    - Customer E-mail

  - Material (1 or more)

    - Material Number

    - Material Name

    - Unit of Measure

    - Price

    - Quantity

  - Sales Data (1)

    - Quotation Number

    - Order Number

    - Order Date

    - Manufacturing Data (1)

      - Production Number

      - Production Date

      - Production Location

      - Production Status

    - Invoice Data (1)

      - Amount

      - Terms

      - Date



# **EXHIBIT E**

<b>Author</b>	<b>Date</b>	<b>Description</b>
Ken Fritz	08/07/2000	Initial Draft

## **About Process Metrics Simulator**

The Process Metrics Simulator is the first version of a utility developed to model and simulate business processes. The simulator currently implements a simple 8 process business production model which simulates realistic processes by including process latency and stoppage capability. Latency is independently modifiable by process section. Each section receives a message from the previous section by way of MQSeries messaging. This data transfer is in a standard XML format which has been included in the resource directory of the development directory.

The program is initialized by a file which must be located in the c:\process\ directory on the users machine, called ProcessSim.ini. The file should be somewhat self explanatory; however, see the detailed documentation for more information.

This software was written in Visual Basic 6.0 and utilizes IBM's MQSeries ActiveX objects.

# Process Metrics Simulator, 1.0a Documentation

Author	Date	Description
Ken Fritz	08/07/2000	Detailed Software Documentation, Initial Draft

## I. Basic Design Goals

The simulator is intended to be a flexible utility to model business processes utilizing a variety of messaging constructs and formats. In its final version it will:

- Be written in a platform independent language
- Utilize multiple messaging transports (ie. Tibco, MQSeries)
- Utilize flexible message formats
- Allow for dynamic construction of business processes (Snap-in model)
- Allow for user interaction in setting latency and message drops/stoppage.

Currently, the simulator is in a very basic alpha development version which does the following:

- Supports a basic 8 process production model.
- Utilizes MQSeries messaging
- Allows for user configurable latency settings
- Supports only one basic XML message format.
- Written in Visual Basic 6.0

This document covers only the alpha version currently available.

## II. User Interface

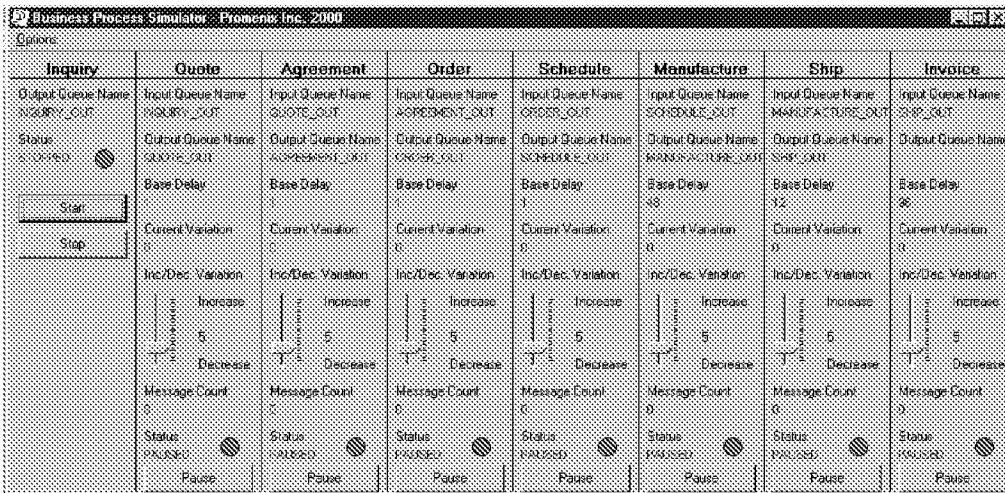


Figure 1 – Process Simulator GUI

The GUI for the process simulator is shown in Figure 1. The GUI allows the user to control all runtime parameters of the package which are limited to the following:

- Starting/Stopping by process
- Latency per process

Also, the GUI will indicate settings for pre-runtime configurable options:

- Input/Output Queue Names
- Base Variation

Finally, the GUI will also indicate dynamic parameters including final latency (delay), message count, and status of each process.

### III. Sample Configuration File

Note: This file must be located in "C:\Process\\*" directory and named processsim.ini

<pre>[Common]  QMGR = CONF01 CHARACTERSET = 437 DBQNAME = DB_IN MQSI_Q_OUT = TESTQ  [Inquiry]  OUTPUTQNAME = INQUIRY_OUT INITIAL_STATUS = 0 XMLFILE = "c:\inquiry.txt"  [Quote]  INPUTQNAME = INQUIRY_OUT OUTPUTQNAME = QUOTE_OUT BASEVARIATION = 1 INITVARIATION = 5 XMLFILE = "c:\test.xml"  [Agreement]  INPUTQNAME = QUOTE_OUT OUTPUTQNAME = AGREEMENT_OUT BASEVARIATION = 1 INITVARIATION = 5 XMLFILE = "c:\test.xml"  [OrderProcess]  INPUTQNAME = AGREEMENT_OUT OUTPUTQNAME = ORDER_OUT BASEVARIATION = 1 INITVARIATION = 5 XMLFILE = "c:\test.xml"  [Schedule]  INPUTQNAME = ORDER_OUT OUTPUTQNAME = SCHEDULE_OUT BASEVARIATION = 1 INITVARIATION = 5 XMLFILE = "c:\test.xml"  [Manufacture]  INPUTQNAME = SCHEDULE_OUT OUTPUTQNAME = MANUFACTURE_OUT BASEVARIATION = 48</pre>	<p>The queue manager to be used The MQSeries character set Database queue name MQSI output queue</p> <p>Settings for Inquiry process</p> <p>Output queue Initial status (0 = Stopped, 1 = Running) XML document file</p> <p>Settings for quote process</p> <p>Input queue name Output queue name Base variation (Delay) setting Initial random seed value (variation can be MAX +5 if this is 5) XML Document file</p> <p>Agreement process</p> <p>Settings are the same for the rest of these processes as for quote process.</p>
--	--



<pre> INITVARIATION = 5 XMLFILE = "c:\test.xml"  [Ship]  INPUTQNAME = MANUFACTURE_OUT OUTPUTQNAME = SHIP_OUT BASEVARIATION = 12 INITVARIATION = 5 XMLFILE = "c:\test.xml"  [Invoice]  INPUTQNAME = SHIP_OUT OUTPUTQNAME = INVOICE_OUT BASEVARIATION = 96 INITVARIATION = 5 XMLFILE = "c:\test.xml" </pre>	
---	--

#### IV. Sample XML Document Format

```

<PROCESS>
  ORDER_TO_CASH
  <SUBPROCESS>
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    <CUSTOMER>
      <CUSTNO>5000</CUSTNO>
      <CUSTNAME>DOW CHEMICAL</CUSTNAME>
      <CITY>MIDLAND</CITY>
      <STATE>MI</STATE>
      <EMAIL>INFO@PROMENIX.COM</EMAIL>
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  </SUBPROCESS>
  <EVENT_DATE />
  <EVENT_TIME />
</PROCESS>

```

## V. Basic theory of operation

Initialization process:

1. Call ReadINI
  - a. Open the ini file (must be c:\process\processsim.ini)
  - b. Read all global variables from the INI
2. Call InitGUI
  - a. Initialize labels and display settings
  - b. Set status flags
  - c. Set initial timer intervals
3. Call InitXMLFiles
  - a. Load XML files into memory from disk
4. Call InitDOMS
  - a. Create DOM Objects for each process
  - b. Load XML from InitXMLFiles into DOMs
  - c. Parse XML
5. Call StartTimers
  - a. Set initial timer intervals to 100 ms
  - b. By doing so, starts message processing

Initial process (trigger process)

1. Load initial dummy values into the pre-existing XML DOM
2. Generate a random TID
  - a. Done with following formula: Year & Month & Day & Timer \* Rnd (Where timer is seconds past midnight)
3. Dump XML to variable
4. Write contents of variable to the output queue and DB/MQSI queue

Messages are processed in the following sequence by a generic process:

1. Listener listens on input queue for the process
2. Message listener tries to retrieve a message with no wait interval.
  - a. If message not available, timer interval set to 5000 (5 seconds) to allow processor to do other things while waiting for another message to arrive.
  - b. If the message is there, processing continues
3. When message arrives, retrieve correlation ID
4. Set GUI parameters
  - a. Timer interval to 100 (100 milliseconds)
  - b. Change status to "Running" if it was "Paused"
  - c. Change indicator from red to green
5. Create XMLDOM object
6. Load retrieved message into DOM and parse
7. Load values from retrieved message into variables (Currently static – should be dynamic in future)
8. Create random delay value
9. Using the XMLDOM created in the initialization for the base document, load values from the retrieved message into the new message
10. Change the time and date on the message by adding the delay value
11. Dump the XML from the DOM object into a variable
12. Write the contents of the variable to an MQ message having the same correlation ID as the previous to both the output queue and the MQSI/DB Output queue.

## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	11977644
<b>Application Number:</b>	90009961
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	6640
<b>Title of Invention:</b>	MEASURING, MONITORING AND TRACKING ENTERPRISE COMMUNICATIONS AND PROCESSES
<b>First Named Inventor/Applicant Name:</b>	7,062,749
<b>Customer Number:</b>	37158
<b>Filer:</b>	Joseph E. Chovanes
<b>Filer Authorized By:</b>	
<b>Attorney Docket Number:</b>	OPEN2200
<b>Receipt Date:</b>	01-FEB-2012
<b>Filing Date:</b>	01-NOV-2011
<b>Time Stamp:</b>	16:58:14
<b>Application Type:</b>	Reexam (Third Party)

### Payment information:

Submitted with Payment	no
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### File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Reexam Timely Patent Owner's Stmt in Resp to Order	961ostmt.pdf	280229 <small>adf0c9d9d6af6df0fe8c8923ffe605de0d5648c6</small>	no	13

### Warnings:

### Information:

2	Miscellaneous Incoming Letter	Certserv.pdf	77966	no	1
			81640e4b062a3335f5458520fa21acddf75e c30f		

**Warnings:**

**Information:**

3	Transmittal Letter	961ids-2.pdf	3417279	no	103
			966038a003efd922cbb75475ef48ab896b4 782a7		

**Warnings:**

**Information:**

4	Rule 130, 131 or 132 Affidavits	961sig-2.pdf	1549915	no	46
			19a539e63ab4214d547f846167e6b8e1d2e c8906		

**Warnings:**

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**Information:**

<b>Total Files Size (in bytes):</b>	5325389
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**This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.**

**New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Art Unit : 3992  
Examiner : Rachna Desai  
Patent No. : 7,062,749  
Filed : December 15, 2000  
Control No. : 90/009,961  
Inventors : Vincent R. Cyr  
Kenneth Fritz  
Docket No. : YYZ RE-001

Title : MEASURING, MONITORING AND TRACKING ENTERPRISE  
COMMUNICATIONS AND PROCESSES

**STATEMENT BY PATENT OWNER IN REEXAMINATION UNDER MPEP**  
**§1.530**

OWNER, YYZ LLC, of US Patent No. 7,062,749 (the “ ‘749 patent” or the “patent”) in the above identified reexamination, hereby files this Owner’s Statement under MPEP § 1.530.

The references cited in the Order Granting Request For Ex Parte Reexamination dated December 1, 2011 (the “Order”), it is submitted, are not relevant to the inventions as defined by the claims of the patent.

**I. INTRODUCTION**

The Order, at paragraph 5, provides that “[i]n view of the prosecution history, it is considered that the evaluation of a prior art reference (or combination of references) that teaches or suggests a central message repository or providing, through a monitoring message, at least part of said original message data, would raise a substantial new question of patentability.”

The Order went on to identify the following references as possibly raising issues:

1) Leymann, Frank, and Roller, Dieter, Production Workflow Concepts and Techniques, Upper Saddle River, Prentice-Hall, Inc., ISBN 0-13-021753-0 (hereafter "Production Workflow").

2) US Patent No. 7,003,781 issued to Blackwell et al. (hereafter "Blackwell").

3) Hoffmann, Marc, Shute, David, and Ebbers, Mike, Image and Workflow Library: Advanced Workflow Solutions using IBM FlowMark, International Business Machines Corporation, January 1999, SG24-5371-00 (hereafter "AWS")

4) US Patent No. 2002/0038276 issued to Buhannic et al. (hereafter "Buhannic")

## II. REMARKS

Applicant herewith encloses a Declaration Under 37 C.F.R. § 1.131 by Mr. Vincent Cyr (the "Cyr declaration") a named inventor on the patent and managing partner of YYZ LLC, the owner of the patent. In his Declaration Mr. Cyr swears that the inventions defined and set forth in at least independent claims 1, 22, 42, 49, 55-58 (the "independent claims") of the patent were conceived at least as early as December 31, 1999 and diligently reduced to practice following conception, and therefore at least conception occurred prior to the 2000 copyright date of Production Workflow, the May 5, 2000 filing date of Blackwell and the June 26, 2000 priority date of Buhannic. (Cyr declaration at paras. 10, 18-19, 30.)

The Order, at page 6, identifies a substantial new question of patentability as arising from a reference or combination of references that teach or suggest "a central message repository or providing, through a monitoring message, at least part of said original message data."

Issue 1

Issue 1 of the Order identifies Production Workflow as raising a substantial new question of patentability with respect to claims 1-58 of the '749 Patent. Applicant respectfully traverses the Office's statement of the issue. Production Workflow is antedated by the Cyr declaration in light of Production Workflow's copyright notice, present on the reverse side of Production Workflow's title page as filed by requester, as 2000, not 1999 as the Copyright Office's entry in its database would have it. Additionally, the Library of Congress Cataloging-in-Publication data, also on the reverse side of the title page, has a date of 2000. Moreover, assuming *arguendo* that Production Workflow was registered as the Copyright Office's database, it is not a printed publication under the Court of Appeals for the Federal Circuit's holding in *In re Lister*, 583 F.3d 1307 (Fed. Cir. 2009) and therefore cannot function as prior art. Finally, Production Workflow is simply not prior art – it teaches a different method and apparatus than the inventions defined by the claims here, and, in fact, in one of the few similar components Production Workflow teaches away from the inventions as defined by the claims.

Production Workflow (requester's Exhibit C1) was accompanied by a printout purporting to be from the Copyright Office. The Office accepted requester's printout as evidence of a 1999 date for Production Workflow. However, as is seen below, the title page's reverse side of Production Workflow identifies its copyright as being 2000, not 1999:

Library of Congress Cataloging-in-Publication Data

Leymann, Frank.  
 Production workflow : concepts and techniques / Frank Leymann.  
 Dieter Roller.  
 p. cm.  
 ISBN 0-13-021753-0  
 1. Management information systems 2. Workflow-Management.  
 3. Production management-Data processing. I. Roller, D. (Dieter).  
 1951- II. Title.  
 T58.6.L495 2000  
 658.5--dc21 CIP

Editorial/Production Supervision: *Craig Little*  
 Acquisitions Editor: *Mike Meehan*  
 Manufacturing Manager: *Pat Brown*  
 Marketing Manager: *Bryan Gambrel*  
 Cover Design Director: *Jayne Conte*  
 Cover Design: *Anthony Gemmellaro*  
 Composition: *PreTeX, Inc.*

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 Upper Saddle River, New Jersey 07458



With all due respect to requester and the Office, the best evidence here for the truth of the matter asserted is Production Workflow – the reference – itself. The Copyright Office registration page is not competent evidence as it is an entry in a database with all the attendant possible inaccuracies accompanying such an entry.

Production Workflow also identifies its Library of Congress Cataloging-in-Publication date as 2000:

Library of Congress Cataloging-in-Publication Data

Leymann, Frank.  
 Production workflow : concepts and techniques / Frank Leymann.  
 Dieter Roller.  
 p. cm.  
 ISBN 0-13-021753-0  
 1. Management information systems 2. Workflow-Management.  
 3. Production management-Data processing. I. Roller, D. (Dieter).  
 1951- II. Title.  
 T58.6.L495 2000  
 658.5--dc21 CIP

Editorial/Production Supervision: *Craig Little*  
 Acquisitions Editor: *Mike Meehan*  
 Manufacturing Manager: *Pat Brown*  
 Marketing Manager: *Bryan Gambrel*  
 Cover Design Director: *Jayne Conte*  
 Cover Design: *Anthony Gemmellaro*  
 Composition: *PreTeX, Inc.*

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The Library of Congress data, present on the reference itself, provides further evidence that Production Workflow should be dated 2000, not 1999.

The Office, based on the best evidence, should therefore disregard Production Workflow as a reference. It is antedated by the facts set out in the Cyr declaration.

Moreover, and assuming again that the Office would date Production Workflow in 1999 (over Applicant's objection) there is no evidence showing Production Workflow was actually disseminated in 1999 – a crucial question in light of the 2000 copyright date and the 2000 Library of Congress Cataloging-in-Publication date. In *Lister*, the Federal Circuit held that simple registration in the Copyright Office database, without more, does not make a printed publication. There is no search facility in the Copyright Office with keyword searching, and there was no evidence in *Lister, as here*, that the publication claimed as invalidating art had actually been accessed. Therefore, under the authority of *Lister*, and even if the Office assumes the date of Production Workflow is 1999 (despite the contrary evidence) Production Workflow would not be a printed publication.

The Office should therefore disregard Production Workflow as a reference as there is no evidence that it was available to the public before the December 31, 1999 conception date and subsequent diligent reduction to practice established by the Cyr declaration.

Finally, it should be noted that Production Workflow simply teaches a different invention, and therefore is not prior art. There is no monitoring message nor central message repository in Production Workflow, and the various citations provided in the Order do not show their presence in Production Workflow.

At pages 6-7 of the Order, the Office states that:

The output container received in a message from the activity implementation is stored in a database. Production Workflow teaches that the workflow management system stores an entry in the audit trail for all relevant actions. The entry contains all the important information about the event. The message sent from the workflow management system to the DBMS server with the output container (original message data) is a monitoring message. See section 2.7.1 on page 45, section 7.6 on pages 274-277, and page 57. Production Workflow discloses a workflow management system that has a server with multiple server components and clients for implementing activities. One of the server components is a DBMS server used to access a centralized database.

But, it is submitted, Production Workflow actually teaches away from any storage of an output container -- the Office's hypothetical storage of an output container is not possible because it would make Production Workflow unworkable:

In a nutshell, within this global transaction the workflow management system materializes the input container for the implementation to be launched, changes the state of the activity to "activated", and communicates with the responsible execution component to launch the user provided transaction. Then, the transaction itself runs. Upon completion, the output container is sent to the workflow server. The workflow server stores that container into the workflow management system's database, checks the activity's exit condition, updates the state of the activity accordingly, if appropriate it continues navigating through the underlying process model, and produces work items. **Because of the negative impact of such a long transaction on the overall throughput this approach cannot even be considered in practice.** Instead, as we show in section 10.5.8 on page 384, the required transaction can be run as a "stratified transaction."

(Production Workflow at 277, emphasis added.)

Turning to the internal reference cited in Production Workflow immediately above, at 384, Production Workflow teaches again that "Running all operations a [sic] as a regular transaction is not possible because it would require holding long locks in databases. The notion of stratified transactions helps here."

Stratified transactions then occur as a result of a "program execution agent" and

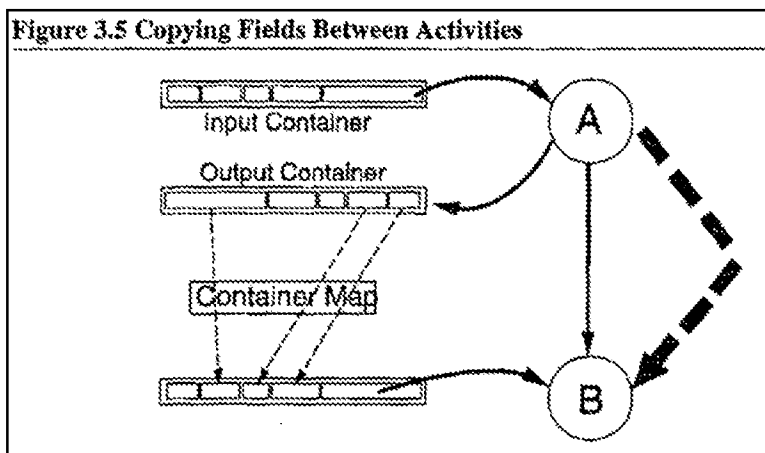
other components as set forth in the following pages of Production Workflow. There is no database with output container in those pages – there cannot be as noted above – it would lead to system stoppage.

Note also that the storage of an output container leads to stoppage of the system because, unlike the teachings of the present inventions as defined by the claims, the output container is the original in workflow. *It isn't a monitoring message with a copy of original message data – it is original message data.* That is why the system stops – it can't have the output container locked up in a database – there would be no workflow.

The actual function of an output container, as Production Workflow makes clear, is to transfer data to an input container from another activity implementation:

#### Making Data Available

Processes and activities have containers associated with them. These containers are only locally available and not available globally. Thus, the input container of an activity is only available to the appropriate activity. If another activity needs data from a previous activity's output container or from the process input container, this data must be made available to the activity by copying the intonation from the other containers. Specifying which data needs to be copied from where is the purpose of *data connectors*. Figure 3.5 shows how data is copied from the output container of one activity to the input container of the next activity.



The dashed arrow is the data connector. It indicates that the output container of activity A should be copied to the input container of activity B. The output container of an activity is typically different in structure as are the contained fields from the input container of another activity. Fields may have different names and different types. Thus, the simple specification of a data connector is not sufficient; it is also necessary to specify the appropriate container map. This map specifies which field from the output container is used to fill a field in the input container. The map also specifies what data transformation is to be performed, if any, before the data is stored in the input container. Data connectors can not only be drawn between the output container of one activity and the input container of another activity but can also be drawn between the input container and the output container of the same activity.

(Production Workflow at 81-82)

Therefore, and contrary to the Office's assertion, there is no storage nor copy of a stored output container – the output container is for moving data to the next input container, whether in the course of the same or another activity. A data connector, not a database, helps the data fields in the input and output container be consistent.

The Order also seems to imply that an audit trail is created which is the result of a monitoring message and, since the Order states a monitoring message is the same as an output container copy, the audit trail must be the equivalent of a central message repository as claimed. But with all due respect, that is not what Production Workflow teaches. First there is no monitoring message. Second, the audit trail of Production Workflow is created by a Workflow Execution server:

#### 10.3.5 Workflow Execution Server

The main work of the workflow management system is carried out by the workflow execution server. It starts and finishes processes, navigates from one activity to the next, performs staff resolution, and sends appropriate requests to the program execution server or program execution agent for launching the activity implementation. It manages work items and the associated work lists. **It also writes the audit trail.**

(Production Workflow at 372, emphasis added.)

Recall that the output container is not used to do anything except provide data to an input container. There is no reference in Production Workflow to it being copied (probably because it would lock up the system if it were.) Therefore, the audit trail would not have a copy of the output container.

Production Workflow's audit trail does not appear to be the result of the messaging system – see Figure 10.10 – but rather the Workflow Execution Server. Therefore, there is no central message repository in Workflow Production, created by a monitoring message or otherwise, and there is no monitoring message, and Applicant respectfully requests the Office withdraw identification of Production Workflow as raising a substantial new question of patentability for the reasons given above.

#### Issue 2

Issue 2 of the Order identifies the Blackwell reference as raising a substantial new question of patentability with respect to claims 1-6, 8-11, 14-17, 19, 21-24, 27, 31-34, 38, 42-43, 45-50, 52, and 54-58 of the '749 Patent. Applicant respectfully traverses the Office's statement of the issue. Blackwell is antedated by the Cyr declaration showing conception at least as early as December 31, 1999, with diligent effort towards reduction to practice. Therefore, Applicant respectfully requests the office withdraw identification of Blackwell as raising a substantial new question of patentability for the reasons given above.

#### Issue 3

Issue 3 of the Order identifies the AWS reference as raising a substantial new question of patentability with respect to claims 1-37, 39-51, and 53-58 of the '749 Patent.

Applicant respectfully traverses the Office's statement of the issue.

AWS states nowhere that an audit trail is constructed by a monitoring message. AWS in fact, and in the Office's cited pages, states specifically that there is no information from a data container in the audit trail, that AWS can't do it, and the only information available are object attributes – information about the object or container, not information from the container. AWS notes that the container could be looked at but since Flowmark can only make data available through descriptions Flowmark is limited:

**Description:**

For most events, the description of the object for which the status change is recorded is now available. This is the **first step** in making data container information available in the audit trail. So far, the only custom information in the audit trail were **object attributes**, such as process instance name. The current implementation requires the use of the `data_container_field_name` method, and parsing of the description field if more than one data element is contained in the description. Although it is possible to gain access to container data through the persistent object key (for example, get the persistent key, query the work item from the server, and get access to the input container), we strongly recommend that you only do this in rare exceptions, as it involves client-server API calls. **Making data available only through the descriptions is still a limitation**, but a future version of FlowMark should provide a better implementation.

(AWS at 83, emphasis added.)

With all due respect the Office is simply incorrect in its assertions with regards to AWS, and the referenced pages show that AWS does not do what the Office would have it do. Therefore, Applicant respectfully requests the Office withdraw identification of AWS as raising a substantial new question of patentability for the reasons given above.

Issue 4

Issue 4 of the Order identifies the Buhannic reference as raising a substantial new question of patentability with respect to claims with respect to claims 1, 42, 55, and 58 of

the '749 Patent. Applicant respectfully traverses the Office's statement of the issue. Buhannic is antedated by the Cyr declaration showing conception at least as early as December 31, 1999, with diligent effort towards reduction to practice. Therefore, Applicant respectfully requests the office withdraw identification of Buhannic as raising a substantial new question of patentability for the reasons given above.

Therefore, in light of the above, Applicant respectfully requests the Office withdraw its identification of the issues raised in its Order, and permit the claims of the '749 patent to go to reissue.

Other Matters

In the event Applicant is seen as having a duty of litigation disclosure here, three matters have involved the '749 patent, all related cases in the Eastern District of Pennsylvania:

- 1) YYZ, LLC v. MetaStorm, Inc., 2011-cv-00931 (filed 02/07/2011, terminated 03/07/11;
- 2) YYZ, LLC v. MetaStorm, Inc., et. al., 2011-cv-01609 (filed 03/07/2011, Settlement Agreement executed January 31, 2012 (to be terminated); and,
- 3) InterSystems Corp. v. YYZ, LLC, 2011-cv-06602 (filed 10/21/2011, terminated 01/03/12.

It also should be noted by the Office that OpenText (the requester, by its counsel here) has agreed to not file any further permissive statement in this reexamination, and so should not be responding to this Owner's Statement. (OpenText has been served with a copy of this owner's statement as per the rules.)

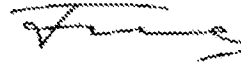
Note also that Applicant reserves all rights with regard to any substantive response; this Owner's Statement is meant to bring certain matters to the Office's attention. Therefore, it should be specifically noted that Applicant reserves all rights with regard to this reexamination, and this Owner's statement is not intended to waive any rights. Applicant is accepting for the limited purpose of its statement herein the Office's various assertions in the Order, however, such acceptance herein is in no way to be construed as agreement with said assertions by Applicant, and Applicant respectfully but strenuously traverses all assertions in the Order (and of course, in the request for reexamination.)

In view of the foregoing arguments, all claims are believed to be in condition for confirmation over the prior art of record. Therefore, this response is believed to be a complete response to the Order. However, Applicant reserves the right to set forth further arguments in future papers supporting the patentability of any of the claims, including the separate patentability of the dependent claims not explicitly addressed herein. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. The absence of a reply to a specific rejection, issue or comment in the Order does not signify agreement with or concession of that rejection, issue or comment. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper.



Dated: February 1, 2012

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "Joe Chovanes", with a horizontal line above it.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
90/009,961	11/01/2011	7,062,749	OPEN2200	6640

37158 7590 06/14/2012

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MALVERN, PA 19355

EXAMINER

ART UNIT PAPER NUMBER

DATE MAILED: 06/14/2012

Please find below and/or attached an Office communication concerning this application or proceeding.



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Austin, TX 78705

**EX PARTE REEXAMINATION COMMUNICATION TRANSMITTAL FORM**

REEXAMINATION CONTROL NO. 90/009,961.

PATENT NO. 7,062,749.

ART UNIT 3992.

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified *ex parte* reexamination proceeding (37 CFR 1.550(f)).

Where this copy is supplied after the reply by requester, 37 CFR 1.535, or the time for filing a reply has passed, no submission on behalf of the *ex parte* reexamination requester will be acknowledged or considered (37 CFR 1.550(g)).

<b>Office Action in Ex Parte Reexamination</b>	Control No. 90/009,961	Patent Under Reexamination 7,062,749
	Examiner RACHNA DESAI	Art Unit 3992

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

- a  Responsive to the communication(s) filed on 01 February 2012.      b  This action is made FINAL.  
c  A statement under 37 CFR 1.530 has not been received from the patent owner.

A shortened statutory period for response to this action is set to expire 2 month(s) from the mailing date of this letter. Failure to respond within the period for response will result in termination of the proceeding and issuance of an *ex parte* reexamination certificate in accordance with this action. 37 CFR 1.550(d). **EXTENSIONS OF TIME ARE GOVERNED BY 37 CFR 1.550(c).** If the period for response specified above is less than thirty (30) days, a response within the statutory minimum of thirty (30) days will be considered timely.

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1.  Notice of References Cited by Examiner, PTO-892.      3.  Interview Summary, PTO-474.  
2.  Information Disclosure Statement, PTO/SB/08.      4.  \_\_\_\_\_.

Part II SUMMARY OF ACTION

- 1a.  Claims 1-58 are subject to reexamination.  
1b.  Claims \_\_\_\_\_ are not subject to reexamination.  
2.  Claims \_\_\_\_\_ have been canceled in the present reexamination proceeding.  
3.  Claims \_\_\_\_\_ are patentable and/or confirmed.  
4.  Claims 1-58 are rejected.  
5.  Claims \_\_\_\_\_ are objected to.  
6.  The drawings, filed on \_\_\_\_\_ are acceptable.  
7.  The proposed drawing correction, filed on \_\_\_\_\_ has been (7a)  approved (7b)  disapproved.  
8.  Acknowledgment is made of the priority claim under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All b)  Some\* c)  None      of the certified copies have  
1  been received.  
2  not been received.  
3  been filed in Application No. \_\_\_\_\_.  
4  been filed in reexamination Control No. \_\_\_\_\_.  
5  been received by the International Bureau in PCT application No. \_\_\_\_\_.  
\* See the attached detailed Office action for a list of the certified copies not received.  
9.  Since the proceeding appears to be in condition for issuance of an *ex parte* reexamination certificate except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte* Quayle, 1935 C.D. 11, 453 O.G. 213.  
10.  Other: \_\_\_\_\_

cc: Requester (if third party requester)

**Reexamination**

1. An Ex Parte Reexamination has been granted for claims 1-58 of U.S. 7,062,749
- B2. See Order, mailed 12/01/2011. Patent Owner submitted a statement on 02/01/2012.

**References Submitted by Requester**

2. The following references have been cited as establishing a substantial new question of patentability. See Order, mailed 12/01/2011.

Leymann, Frank, and Roller, Dieter, Production Workflow Concepts and Techniques, Upper Saddle River, Prentice-Hall, Inc., July 30, 1999, ISBN 0-13-021753-0 (hereafter "Production Workflow").

US Patent No. 7,003,781 issued to Blackwell et al. (hereafter "Blackwell").

Hoffmann, Marc, Shute, David, and Ebberts, Mike, *Image and Workflow Library: Advanced Workflow Solutions using IBM FlowMark*, International Business Machines Corporation, January 1999, SG24-5371-00 (hereafter "AWS")

US Patent No. 2002/0038276 issued to Buhannic et al. (hereafter "Buhannic")

US Patent No. 6,122,633 issued to Leymann et al. (hereafter "Leymann '633").

US Patent No. 6,073,111 issued to Leymann et al. (hereafter "Leymann '111")

***Declaration under 37 CFR 1.131***

3. The declaration filed on 02/01/2012 under 37 CFR 1.131 has been considered but is ineffective to overcome the Production Workflow, Blackwell, and Buhannic references.

**37 CFR 1.131(b)** provides three ways in which an applicant can establish prior invention of the claimed subject matter. The showing of facts must be sufficient to show:

(A) >(actual)< reduction to practice of the invention prior to the effective date of the reference; or

(B) conception of the invention prior to the effective date of the reference coupled with due diligence from prior to the reference date to a subsequent (actual) reduction to practice; or

(C) conception of the invention prior to the effective date of the reference coupled with due diligence from prior to the reference date to the filing date of the application (constructive reduction to practice).

The evidence submitted is insufficient to establish a conception of the invention prior to the effective date of the Production Workflow, Blackwell, and Buhannic references. While conception is the mental part of the inventive act, it must be capable of proof, such as by demonstrative evidence or by a complete disclosure to another. Conception is more than a vague idea of how to solve a problem. The requisite means themselves and their interaction must also be comprehended. See *Mergenthaler v. Scudder*, 1897 C.D. 724, 81 O.G. 1417 (D.C. Cir. 1897).

MPEP 715.07 states:

Art Unit: 3992

The essential thing to be shown under **37 CFR 1.131** is priority of invention and this may be done by any satisfactory evidence of the fact. FACTS, not conclusions, must be alleged. Evidence in the form of exhibits may accompany the affidavit or declaration. Each exhibit relied upon should be specifically referred to in the affidavit or declaration, in terms of what it is relied upon to show. For example, the allegations of fact might be supported by submitting as evidence one or more of the following:

(A) attached sketches;

(B) attached blueprints;

(C) attached photographs;

(D) attached reproductions of notebook entries;

(E) an accompanying model;

(F) attached supporting statements by witnesses, where verbal disclosures are the evidence relied upon. *Ex parte Ovshinsky*, 10 USPQ2d 1075 (Bd. Pat. App. & Inter. 1989);

(G) testimony given in an interference. Where interference testimony is used, the applicant must point out which parts of the testimony are being relied on; examiners cannot be expected to search the entire interference record for the evidence. *Ex parte Homan*, 1905 C.D. 288 (Comm'r Pat. 1905);

(H) Disclosure documents ( **MPEP § 1706**) may be used as documentary evidence of conception.

Exhibits and models must comply with the requirements of **37 CFR 1.91** to be entered into an application file. See also **MPEP § 715.07(d)**.

A general allegation that the invention was completed prior to the date of the reference is not sufficient. *Ex parte Saunders*, 1883 C.D. 23, 23 O.G. 1224 (Comm'r Pat. 1883). Similarly, a declaration by the inventor to the effect that his or her invention was conceived or reduced to practice prior to the reference date, without a statement of facts demonstrating the correctness of this conclusion, is insufficient to satisfy **37 CFR 1.131**.

**37 CFR 1.131(b)** requires that original exhibits of drawings or records, or photocopies thereof, accompany and form part of the affidavit or declaration or their absence satisfactorily explained. In *Ex parte Donovan*, 1890 C.D. 109, 52 O.G. 309 (Comm'r Pat. 1890) the court stated

If the applicant made sketches he should so state, and produce and describe them; if the sketches were made and lost, and their contents remembered, they should be reproduced and furnished in place of the originals. The same course should be pursued if the disclosure was by means of models. If neither sketches nor models are relied

Art Unit: 3992

upon, but it is claimed that verbal disclosures, sufficiently clear to indicate definite conception of the invention, were made the witness should state as nearly as possible the language used in imparting knowledge of the invention to others.

MPEP 715.07 further states:

The affidavit or declaration and exhibits must clearly explain which facts or data applicant is relying on to show completion of his or her invention prior to the particular date. Vague and general statements in broad terms about what the exhibits describe along with a general assertion that the exhibits describe a reduction to practice "amounts essentially to mere pleading, unsupported by proof or a showing of facts" and, thus, does not satisfy the requirements of **37 CFR 1.131(b)**. *In re Borkowski*, 505 F.2d 713, 184 USPQ 29 (CCPA 1974). Applicant must give a clear explanation of the exhibits pointing out exactly what facts are established and relied on by applicant. 505 F.2d at 718-19, 184 USPQ at 33. See also *In re Harry*, 333 F.2d 920, 142 USPQ 164 (CCPA 1964) (Affidavit "asserts that facts exist but does not tell what they are or when they occurred.").

In the Declaration filed on 02/01/2012, the evidence submitted is insufficient to establish a conception of the invention prior to the effective date of the Production Workflow, Blackwell, and Buhannic references. While conception is the mental part of the inventive act, it must be capable of proof, such as by demonstrative evidence or by a complete disclosure to another. Patent Owner fails to provide evidence of conception in the form of exhibits accompanying the affidavit or declaration. Each exhibit relied upon should be specifically referred to in the affidavit or declaration, in terms of what it is relied upon to show. With respect to Exhibit A, PO states "I do not claim that conception dated from Exhibit A" (paragraph 13 on page 3 of the Declaration). With respect to Exhibits B-E, Patent Owner relies on these exhibits to demonstrate due diligence, not conception.



Art Unit: 3992

Paragraphs 18-19 on page 4 state that during 1999, the PO conceived of the invention; however, a general allegation that the invention was completed prior to the date of the reference is not sufficient. *Ex parte Saunders*, 1883 C.D. 23, 23 O.G. 1224 (Comm'r Pat. 1883). Similarly, a declaration by the inventor to the effect that his or her invention was conceived or reduced to practice prior to the reference date, without a statement of facts demonstrating the correctness of this conclusion, is insufficient to satisfy 37 CFR 1.131. 37 CFR 1.131(b) requires that original exhibits of drawings or records, or photocopies thereof, accompany and form part of the affidavit or declaration or their absence satisfactorily explained. Thus, PO has failed to provide proof of conception prior to the effective date of the Production Workflow, Blackwell, and Buhannic references.

The evidence submitted is insufficient to establish diligence from a date prior to the date of reduction to practice of the Production Workflow, Blackwell, and Buhannic references to either a constructive reduction to practice or an actual reduction to practice.

Declarant relies on Exhibits B-E to demonstrate diligence. However, these exhibits are insufficient to establish diligence. With respect to Exhibit B, it is noted that the "Modified" date indicates a date of January 30, 2012. Thus, it is unclear whether the contents of Exhibit B have been modified as of this date or not. Further, it is noted with respect to Exhibit C, that the actual dates of acts relied on to establish diligence must be provided. See **MPEP § 715.07(a)** regarding the diligence requirement. Exhibit C provides no date as to when the xml code was developed. Further, there is no evidence

provided to demonstrate diligence from August 7, 2000 (the date for Exhibit E) to date of filing (December 15, 2000). An applicant must account for the entire period during which diligence is required. *Gould v. Schawlow*, 363 F.2d 908, 919, 150 USPQ 634, 643 (CCPA 1966). The period during which diligence is required must be accounted for by either affirmative acts or acceptable excuses. *Rebstock v. Flouret*, 191 USPQ 342, 345 (Bd. Pat. Inter. 1975); *Rieser v. Williams*, 225 F.2d 419, 423, 118 USPQ 96, 100 (CCPA 1958). See MPEP 2138.06. Accordingly, the evidence submitted is insufficient to establish diligence from a date prior to the date of reduction to practice of the Production Workflow, Blackwell, and Buhannic references to either a constructive reduction to practice or an actual reduction to practice.

Further, with respect to statements in paragraph 30 on pages 6-7, PO argues the independent claims of the patent were conceived at least as early as December 31, 1999; however, a general allegation that the invention was completed prior to the date of the reference is not sufficient. *Ex parte Saunders*, 1883 C.D. 23, 23 O.G. 1224 (Comm'r Pat. 1883). Similarly, a declaration by the inventor to the effect that his or her invention was conceived or reduced to practice prior to the reference date, without a statement of facts demonstrating the correctness of this conclusion, is insufficient to satisfy 37 CFR 1.131. 37 CFR 1.131(b) requires that original exhibits of drawings or records, or photocopies thereof, accompany and form part of the affidavit or declaration or their absence satisfactorily explained. Thus, PO has failed to provide proof of conception prior to the effective date of the Production Workflow, Blackwell, and Buhannic references.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

***Issue 1***

6. Claims 1-58 are rejected under 35 USC 102(b) as being unpatentable by Production Workflow (see Appendix A, incorporated by reference).

These rejections are ADOPTED as proposed in Appendix A.

***Issue 2***

7. Claims 1-6, 8-11, 14-17, 19, 21, 42-43, 45, 48, 55, and 58 are rejected under 35 U.S.C. 102 (e) as being unpatentable by Blackwell (see Appendix B-1, incorporated by reference). These rejections are ADOPTED as proposed in Appendix B-1.

The rejection for claim 46 is NOT ADOPTED as it refers to the rejections of claim 7 which are not provided in the claim chart in Appendix B-1. Further, Blackwell does not disclose a means for adding, to said monitoring message, data other than said original message data.

***Issue 3***

8. Claims 22-24, 27, 31-34, 38, 47, 49, 50, 52, 54, and 56-57 are rejected under 35 U.S.C. 103 (a) as being obvious over Blackwell in view of One of Ordinary Skill in the Art (see Appendix B-2, incorporated by reference). These rejections are ADOPTED

Art Unit: 3992

WITH MODIFICATION as proposed in Appendix B-2. The modification is to provide a legally based obviousness statement in addition to that proposed in Appendix B-2.

Blackwell discloses some events are in the same local transaction or unit of work (columns 13-14). Since tracking multiple events associated with a process (or single transaction) was known in the art, it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine the monitoring of a sub process in a system where events of a process (single unit of work) are monitored because processes with multiple events entail multiple sub processes and a skilled artisan could have combined the elements as claimed with no change in their respective functions, and the combination yielded nothing more than predictable results to one of ordinary skill in the art.

***Issue 4***

9. Claims 1-6, 8-24, 27-31, 33-37, 42-45, 47-51, and 55-58 are rejected under 35 U.S.C. 102 (b) as being unpatentable by AWS (see Appendix C-1, incorporated by reference). These rejections are ADOPTED as proposed in Appendix C-1.

***Issue 5***

10. Claims 7, 18, 25-26, 40-41, and 46-47 are rejected under 35 U.S.C. 103 (a) as being obvious over AWS in view of Leymann '111 (see Appendix C-2, incorporated by reference).

Art Unit: 3992

These rejections are ADOPTED WITH MODIFICATION as proposed in Appendix C-2. The modification is to provide a legally based obviousness statement in addition to that proposed in Appendix C-2.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to have combined the teachings of AWS and Leymann '111 because both discuss features of the FlowMark system (see column 7, lines 15-16 of Leymann '111) and it would have been obvious to implement the features of Leymann '111 within the FlowMark workflow management system described by AWS because enhancing a particular system with a known technique (such as by improving the integration of applications in a WFMS as taught by Leymann, column 4, lines 15-18 ) is within the ordinary capabilities of one skilled in the art. Thus, one of ordinary skill in the art would have been capable of applying Leymann's techniques to the FlowMark system that was ready for improvement and the results would have been predictable to one of ordinary skill in the art.

### ***Issue 6***

11. Claims 3-6, 8, 9, 29-30, 32, 39, 44, 51, 53 and 54 are rejected under 35 U.S.C. 103 (a) as being obvious over AWS in view of Leymann '633 (see Appendix C-3, incorporated by reference).

These rejections are ADOPTED WITH MODIFICATION as proposed in Appendix C-3. The modification is to provide a legally based obviousness statement.

Art Unit: 3992

It would have been obvious to a person of ordinary skill in the art at the time of the invention to have combined the teachings of AWS and Leymann '633 because both discuss features of the FlowMark system (see column 4, lines 35-37 of Leymann '633) and it would have been obvious to implement the features of Leymann '633 within the FlowMark workflow management system described by AWS because enhancing a particular system with a known technique (such as by providing a subscription-means as part of a WFMS as taught by Leymann, column 3, lines 8-25) is within the ordinary capabilities of one skilled in the art. Thus, one of ordinary skill in the art would have been capable of applying Leymann's techniques to the FlowMark system that was ready for improvement and the results would have been predictable to one of ordinary skill in the art.

### ***Issue 7***

12. Claims 1, 42, 55, and 58 are rejected under 35 U.S.C. 102 (e) as being unpatentable by Buhannic (see Appendix D-1, incorporated by reference).

### ***Response to Arguments***

Art Unit: 3992 .

13. The Declaration Under 37 CFR 1.131 by Mr. Vincent Cyr has been considered but is ineffective to overcome the Production Workflow, Blackwell, and Buhannic references for reasons stated above under "Declaration under 37 CFR 1.131".

With respect to Issue 1, PO argues Production Workflow is antedated by Cyr Declaration in light of Production Workflow's copyright notice. PO argues the copyright date is 2000, not 1999 as the Copyright Office's entry in its database has it. PO argues the Library of Congress Cataloging -in-Publication data has a date of 2000. PO argues even if Production Workflow was registered in the Copyright Office's database, it is not a printed publication under the Court of Appeals for the Federal Circuit's holding in *In re Lister*, 583 F.3D 1307 (Fed. Cir. 2009) and cannot function as prior art. PO argues the Copyright Office registration page is not competent evidence as it is an entry in a database with all the attendant possible inaccuracies accompanying an entry. PO argues the Office should disregard Production Workflow as a reference as there is no evidence showing Production Workflow as disseminated in 1999 – a crucial question in light of the 2000 copyright date and the 2000 Library of Congress Cataloging-in-Publication date. PO argues simple registration in the Copyright Office database, without more, does not make a printed publication (*Lister*). PO argues there is no search facility in the Copyright Office with keyword searching and there was no evidence in *Lister*, as here, that the publication claimed as invalidating art had actually been accessed. Therefore, PO argues under the authority of *Lister*, and even if the Office assumes the date of Production Workflow is 1999, Production Workflow would not be a printed publication.



Examiner disagrees. Initially, it is noted that the reference in question in *In re Lister* was based on the date an unpublished manuscript was deposited and registered with the Copyright office, and not the "date of publication" for a published document deposited with the Copyright Office. In *in re Lister*, the issue was whether depositing a manuscript with the Copyright Office made the manuscript publicly available. The dispute in *In re Lister* is not whether a "date of publication" listed by the Copyright Office is the date of publication, but rather whether a manuscript deposited with a Copyright Office becomes a publically available document. The manuscript in *In re Lister* was not accorded a "date of publication" from the Copyright Office as is the case here.

With respect to "Production Workflow", the document was published according to the Public Copyright Catalog. The Public Catalog from the Copyright Office indicates that the "Date of Publication" was July 30, 1999. A publication is defined by the 1976 Copyright Act as follows:

*"Publication" is the distribution of copies or phonorecords of work to the public by sale or other transfer of ownership, or by rental lease, or lending. The offering to distribute copies or phonorecords to a group of persons for purposes of further distribution, public performance, or public display constitutes publication. A public performance or display of work does not itself constitute publication"*

Copyright, on the other hand, is a form of protection provided by the laws of the United States to the authors of "original works of authorship". The protection is available to

both published and unpublished works. See "Copyright Basics" available at <http://www.copyright.gov/circs/circ01.pdf#page=3>.

Thus, Examiner finds the July 30, 1999 "date of publication" to be the date the "Production Workflow" reference was distributed to the public. Further, the Copyright Office states in its "Copyright Registration for Derivative Works" on page 3 (available <http://www.copyright.gov/circs/circ14.pdf>) :

*"The following do not constitute publication: performing the work, preparing phonorecords, or sending the work to the Copyright Office. The date of publication is the month, day, and year when the work for which registration is sought was first published". If the work has not been published, no date of publication should be given on the application".*

In other words, the "date of publication" is the date where the publication was distributed to the public *by sale or other transfer of ownership, or by rental lease, or lending. The offering to distribute copies or phonorecords to a group of persons for purposes of further distribution, public performance, or public display constitutes publication.* A "date of publication" is not assigned to a document by the Copyright Office if it was not published.

Further with respect to Issue 1, PO argues the Cyr declaration shows conception as early as December 31, 1999, with diligent effort towards reduction to practice. PO argues the Office should withdraw Production Workflow in light of the Cyr declaration antedating the reference. The Declaration Under 37 CFR 1.131 by Mr. Vincent Cyr has

Art Unit: 3992

been considered but is ineffective to overcome the Production Workflow, Blackwell, and Buhannic references for reasons stated above under "Declaration under 37 CFR 1.131".

PO further argues the teachings of Production Workflow. PO argues Production Workflow teaches away from any storage of an output container and that any storage of an output container would make Production Workflow unworkable citing page 277. PO argues page 384 of Production Workflow teaches that "running all operations a [sic] as a regular transaction is not possible because it would require holding long locks in databases. The notion of stratified transactions helps here". PO argues stratified transactions occur as a result of a "program execution agent" and other components and that there is no database with an output container as it would lead to system stoppage.

Examiner disagrees. PO addresses the scenario when the system crashes and an activity implementation that is a transaction has failed or there has been an abnormal termination of the activity implementation such as through the crash. The cited sections on pages 277 and 384 by the PO discuss activities that are terminated abnormally in the case where the system crashes, but does not apply to all activities that have successfully completed prior to a system crash. The citation on page 277 pointed to by the PO is with respect to the situation in which the failure of the execution component that launched the transaction implementing the active activity. In this case, the user-provided transaction is included into the internal transaction processing of the workflow management system resulting in a single global transaction. Production Workflow at the cited paragraph on page 277 goes on to say that "within this global transaction...".

Art Unit: 3992

In other words, the citations on page 277 and 384 are not discussing the output containers sent to the workflow server which stores the container into the workflow management system's database for activities that have been completed. As cited in the Request for Reexamination (Appendix A), Production Workflow discloses output containers received in messages from activity implementations are stored in a database. See Appendix A for specific citations.

PO argues the only function of the output container is to transfer data to an input container from another activity implementation, but there is not storage or copy of a stored output container.

Examiner disagrees.

In addition to the citations included in Appendix A of the Request for Reexamination, see for example page 198, fifth paragraph which states "when an activity implementation A returns, the workflow management system invokes the dematerialization chain  $D_1-D_m(A)$ . When  $D_m(A)$  returns, the workflow management system considers the output container of the activity implementation to be constructed and stores it in the workflow management system's database.

PO argues there is no monitoring message and that the audit trail of Production Workflow is created by a Workflow Execution Server. Examiner disagrees that there is no monitoring message as the message sent from the workflow management system to the DBMS server with the output container is a monitoring message. Further, Production Workflow expressly states that the audit trail includes the output produced by the activity. See page 45. With respect to PO's argument that the audit trail is not a

result of the messaging system but rather the workflow execution server, Examiner finds that it is the workflow management system that stores an entry into the audit trail for all relevant actions. Production Workflow indicates such as on pages 364 and 366 that messaging is the underlying communication mechanism used between clients and servers and servers and servers. Further, the audit trail can be stored in a relational database. See page 47.

With respect to the Blackwell reference, PO argues the Cyr declaration shows conception as early as December 31, 1999, with diligent effort towards reduction to practice. PO argues the Office should withdraw Blackwell in light of Blackwell being antedated by the Cyr declaration. The Declaration Under 37 CFR 1.131 by Mr. Vincent Cyr has been considered but is ineffective to overcome the Production Workflow, Blackwell, and Buhannic references for reasons stated above under "Declaration under 37 CFR 1.131".

With respect to the rejections under AWS, PO argues AWS does not teach the audit trail is constructed by a monitoring message and that there is no information from a data container in the audit trail. PO argues AWS at page 83 notes that the container can be looked at but since Flowmark can only make data available through descriptions, Flowmark is limited. Examiner disagrees. Flowmark indicates that it is possible to gain access to container data through the persistent object key, but only suggests doing so in rare exceptions to avoid client-server API calls. Thus, Flowmark does not teach that the audit trail cannot contain information from a data container, just that it should be used in rare circumstances.

With respect to the Buhannic reference, PO argues the Cyr declaration shows conception as early as December 31, 1999, with diligent effort towards reduction to practice. PO argues the Office should withdraw Buhannic in light of the Cyr declaration antedating the Buhannic reference. The Declaration Under 37 CFR 1.131 by Mr. Vincent Cyr has been considered but is ineffective to overcome the Production Workflow, Blackwell, and Buhannic references for reasons stated above under "Declaration under 37 CFR 1.131".

#### ***Information Disclosure Statement***

14. Where patents, publications, and other such items of information are submitted by a party (patent owner or requester) in compliance with the requirements of the rules, the requisite degree of consideration to be given to such information will normally be limited by the degree to which the party filing the information citation has explained the content and relevance of the information. The initials of the examiner placed adjacent to the citations on the form PTO/SB/08A or 08B or its equivalent, without an indication to the contrary in the record, do not signify that the information has been considered by the examiner any further than to the extent noted above. The Information Disclosure Statements filed 02/01/2012 has been given due consideration.

#### ***Conclusion***

### ***Submissions***

15. In order to ensure full consideration of any amendments, affidavits or declarations, or other documents as evidence of patentability, such documents must be submitted in response to this Office action. Submissions after the next Office action, which is intended to be a final action, will be governed by the requirements of 37 CFR 1.116, after final rejection and 37 CFR 41.33 after appeal, which will be strictly enforced.

### ***Notification of Concurrent Proceedings***

16. The patent owner is reminded of the continuing responsibility under 37 CFR 1.565(a) to apprise the Office of any litigation activity, or other prior or concurrent proceeding, involving Patent No. 7,062,749 B2, throughout the course of this reexamination proceeding. The third party requester is also reminded of the ability to similarly apprise the Office of any such activity or proceeding throughout the course of this reexamination proceeding. See MPEP §§ 2207, 2282 and 2286.

### ***Extension of Time***

17. Extensions of time under 37 CFR 1.136(a) will not be permitted in these proceedings because the provisions of 37 CFR 1.136 apply only to "an applicant" and

Art Unit: 3992

not to parties in a reexamination proceeding. Additionally, 35 U.S.C. 305 requires that reexamination proceedings "will be conducted with special dispatch" (37 CFR 1.550(a)).

Extension of time in *ex parte* reexamination proceedings are provided for in 37 CFR 1.550(c).

18. All correspondence relating to this *ex parte* reexamination proceeding should be directed:

By Mail to: Mail Stop *Ex Parte* Reexam  
Central Reexamination Unit  
Commissioner for Patents  
United States Patent & Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450

By FAX to: (571) 273-9900  
Central Reexamination Unit

By hand: Customer Service Window  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

Registered users of EFS-Web may alternatively submit such correspondence via the electronic filing system EFS-Web, at:

<https://efs.uspto.gov/efile/myportal/efs-registered>

EFS-Web offers the benefit of quick submission to the particular area of the Office that needs to act on the correspondence. Also, EFS-Web submissions are "soft scanned" (i.e., electronically uploaded) directly into the official file for the reexamination



Application/Control Number: 90/009,961

Page 22

Art Unit: 3992

proceeding, which offers parties the opportunity to review the content of their submissions after the "soft scanning" process is complete.

Any inquiry concerning this communication should be directed to the Central Reexamination Unit at telephone number 571-272-7705.

/Rachna S Desai/  
Primary Examiner  
Central Reexamination Unit – Art Unit 3992

Conferees:

/Adam L Basehoar/

Primary Examiner, Art Unit 3992

ALEXANDER J. KOSOWSKI  
Supervisory Patent Reexamination Specialist  
CRU -- Art Unit 3992



<b>INFORMATION DISCLOSURE STATEMENT</b>				Control Number	<b>90/009,961</b>
				Application Number	<b>09/737,494</b>
				Filing Date	<b>December 15, 2000</b>
				First Named Inventor	<b>Vincent R. Cyr</b>
				Group Art Unit	<b>2193 (Prior Examination)</b>
Examiner Name				<b>INGBERG, Todd (Prior Examination)</b>	
Sheet	<b>1</b>	of	<b>1</b>	Attorney Docket Number	<b>OPEN2200</b>

**U.S. PATENT DOCUMENTS**

Examiner Initials	Cite No.	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines Where Relevant Passages or Figures Appear
		Number-Kind Code (if known)				
	<b>A1</b>	US	<b>7003781</b>	<b>02-21-2006</b>	<b>Blackwell et al.</b>	
	<b>A2</b>	US	<b>6122633</b>	<b>09-19-2000</b>	<b>Leymann et al.</b>	
	<b>A3</b>	US	<b>6073111</b>	<b>06-06-2000</b>	<b>Leymann et al.</b>	
	<b>A4</b>	US	<b>20020038276</b>	<b>06-26-2001</b>	<b>Buhannic et al.</b>	
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**FOREIGN PATENT DOCUMENTS**

Examiner Initials	Cite No.	Foreign Patent Document		Publication Date MM-DD-YYYY (Number 43)	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines Where Relevant Passages or Figures Appear
		Country Code-Number-Kind Code (if known)				

Examiner Signature	/Rachna Desai/	Date Considered	06/08/2012
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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.S./

<b>INFORMATION DISCLOSURE STATEMENT</b>				Control Number	90/009,961
				Application Number	09/737,494
				Filing Date	December 15, 2000
				First Named Inventor	Vincent R. Cyr
				Group Art Unit	2193 (Prior Examination)
				Examiner Name	INGBERG, Todd (Prior Examination)
Sheet	1	of	1	Atty Docket Number	OPEN2200
<b>NON PATENT LITERATURE DOCUMENTS</b>					
Examiner Initials	Cite No.	Include name of the author (In CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published			T <sup>2</sup>
	C1	LEYMANN, FRANK, and ROLLER, DIETER, Production Workflow Concepts and Techniques, Upper Saddle River: Prentice-Hall, Inc., July 30, 1999, 508 pgs., ISBN 0-13-021753-0, with attached Copyright Certificate from Library of Congress			
	C2	HOFFMANN, MARC, SHUTE, DAVID, and EBBERS, MIKE, Image and Workflow Library: Advanced Workflow Solutions using IBM FlowMark, January 1999, 151 pgs., IBM Corp., NY, SG24-5371-00, available at <a href="http://redbooks.ibm.com">http://redbooks.ibm.com</a> .			
Examiner Signature	/Rachna Desai/			Date Considered	06/08/2012

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.S./

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT***(Use as many sheets as necessary)*

Sheet 1 of 1

**Complete if Known**

Application Number	CONTROL No. 90/009961
Filing Date	Dec. 15, 2000
First Named Inventor	Cyr, Vincent
Art Unit	3992
Examiner Name	Rachna Desai
Attorney Docket Number	YYZ PE 001

**U. S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number Number-Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 5,301,320			
		US- 5,581,691			
		US- 6,092,102			
		US- 6,256,676			
		US- 6,725,445			
		US- 6,961,735			
		US- 6,970,945			
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**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		WO 00/46723	08/10/2000	MACINTYRE		
		EP 0 974 919 A2	01/26/2000	HITACHI		


Examiner Signature	/Rachna Desai/	Date Considered	06/08/2012
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.S./

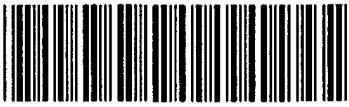
<b>Reexamination</b> 	<b>Application/Control No.</b> 90009961	<b>Applicant(s)/Patent Under Reexamination</b> 7,062,749
	<b>Certificate Date</b>	<b>Certificate Number</b>

<b>Requester Correspondence Address:</b>	<input type="checkbox"/> <b>Patent Owner</b>	<input checked="" type="checkbox"/> <b>Third Party</b>
Sprinkle IP Law Group 1301 W. 25th Street Suite 408 Austin, TX 78705		

<b>LITIGATION REVIEW</b> <input checked="" type="checkbox"/>	<b>RSD</b> (examiner initials)	11/16/2011 (date)
Case Name		Director Initials
2:11cv6602 Intersystems Corporation v. Yyz LLC		ASR BY
2:11cv1609 Yyz LLC v. Metastorm, Inc et al.		↓
2:11cv931 Yyz, LLC v. Metastorm Inc		

<b>COPENDING OFFICE PROCEEDINGS</b>	
<b>TYPE OF PROCEEDING</b>	<b>NUMBER</b>

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<b>Search Notes</b> 	<b>Application/Control No.</b> 90009961	<b>Applicant(s)/Patent Under Reexamination</b> 7,062,749
	<b>Examiner</b> RACHNA DESAI	<b>Art Unit</b> 3992

<b>SEARCHED</b>			
<b>Class</b>	<b>Subclass</b>	<b>Date</b>	<b>Examiner</b>

<b>SEARCH NOTES</b>		
<b>Search Notes</b>	<b>Date</b>	<b>Examiner</b>
Review of Patented File's Prosecution History	11/16/2011	RSD

<b>INTERFERENCE SEARCH</b>			
<b>Class</b>	<b>Subclass</b>	<b>Date</b>	<b>Examiner</b>

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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
90/009,961	11/01/2011	7,062,749	OPEN2200	6640

37158                      7590                      08/07/2012

JOSEPH E. CHOVANES  
SUITE 329  
5 GREAT VALLEY PARKWAY  
MALVERN, PA 19355

EXAMINER

ART UNIT                      PAPER NUMBER

DATE MAILED: 08/07/2012

Please find below and/or attached an Office communication concerning this application or proceeding.



**DO NOT USE IN PALM PRINTER**

(THIRD PARTY REQUESTER'S CORRESPONDENCE ADDRESS)

Sprinkle IP Law Group  
1301 W. 25<sup>th</sup> Street  
Suite 408  
Austin, TX 78705

**EX PARTE REEXAMINATION COMMUNICATION TRANSMITTAL FORM**

REEXAMINATION CONTROL NO. 90/009,961.

PATENT NO. 7,062,749.

ART UNIT 3992.

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified *ex parte* reexamination proceeding (37 CFR 1.550(f)).

Where this copy is supplied after the reply by requester, 37 CFR 1.535, or the time for filing a reply has passed, no submission on behalf of the *ex parte* reexamination requester will be acknowledged or considered (37 CFR 1.550(g)).



<b>Ex Parte Reexamination Interview Summary</b>	Control No. 90/009,961	Patent Under Reexamination 7,062,749
	Examiner RACHNA DESAI	Art Unit 3992

All participants (USPTO personnel, patent owner, patent owner's representative):

- |                               |  |
|-------------------------------|--|
| (1) <u>Rachna Desai</u>       | (3) <u>Adam Basehoar</u>                         |
| (2) <u>Alexander Kosowski</u> | (4) <u>Joseph E. Chovanes and Vincent R. Cyr</u> |

Date of Interview: 08/02/2012

Type: a)  Telephonic b)  Video Conference  
c)  Personal (copy given to: 1)  patent owner 2)  patent owner's representative)

Exhibit shown or demonstration conducted: d)  Yes e)  No.  
If Yes, brief description: \_\_\_\_\_

Agreement with respect to the claims f)  was reached. g)  was not reached. h)  N/A.  
Any other agreement(s) are set forth below under "Description of the general nature of what was agreed to..."

Claim(s) discussed: 1.

Identification of prior art discussed: Production Workflow; Blackwell; AWS; Buhannic, Leymann '633; Leymann '111 of record.

Description of the general nature of what was agreed to if an agreement was reached, or any other comments:  
See Continuation Sheet.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims patentable, if available, must be attached. Also, where no copy of the amendments that would render the claims patentable is available, a summary thereof must be attached.)

A FORMAL WRITTEN RESPONSE TO THE LAST OFFICE ACTION MUST INCLUDE PATENT OWNER'S STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. (See MPEP § 2281). IF A RESPONSE TO THE LAST OFFICE ACTION HAS ALREADY BEEN FILED, THEN PATENT OWNER IS GIVEN **ONE MONTH** FROM THIS INTERVIEW DATE TO PROVIDE THE MANDATORY STATEMENT OF THE SUBSTANCE OF THE INTERVIEW (37 CFR 1.560(b)). THE REQUIREMENT FOR PATENT OWNER'S STATEMENT CAN NOT BE WAIVED. **EXTENSIONS OF TIME ARE GOVERNED BY 37 CFR 1.550(c).**

/Rachna S Desai/  
Primary Examiner, Art Unit 3992



cc: Requester (if third party requester)

Continuation of Description of the general nature of what was agreed to if an agreement was reached, or any other comments: PO's representative reviewed the teachings of the '749 patent. PO's representative then discussed the office action and presented distinctions between the prior art references and the claims of the '749 Patent. Specifically, PO's representative argued the prior art references failed to disclose "providing, through a monitoring message, at least part of said original message data to a central message repository" and "populating a transaction record in said central message repository with said original message data provided by said monitoring message". See also the attached agenda. PO will formally submit arguments for further consideration. No agreement was reached..

---

**To:** Rachna Desai, AU 3992, USP **From:** Joseph Chovanes

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**Fax:** 15712734099 **Pages:** 2

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**Re:** Reexaminations **Date:** Jul 31, 2012

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**Urgent For Review Please Comment Please Reply For Information**

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**• Comments:**

Enclosed please find Applicant's proposed agenda for the Interview on Control Nos. 90/009,960 and 90/009,931 scheduled for Thursday, August 2, 2012 in the Randolph Building at noon.

Thank you.

www.myfax.com

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Art Unit : 3992  
Examiners : Rachna Desai, Adam Basehoar  
Filed : December 15, 2000  
Control Nos. : 90/009,961, 90/009,960  
Inventors : Vincent R. Cyr  
Kenneth Fritz  
Docket Nos. : Prom RE-001, 002

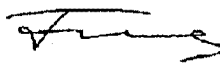
Title : MEASURING, MONITORING AND TRACKING ENTERPRISE  
COMMUNICATIONS AND PROCESSES

**PROPOSED AGENDA**

Applicant YYZ, Inc. gratefully acknowledges the Examiners' availability for an Interview in the above referenced reexaminations. Inasmuch as the Interviews on both reexaminations shall occur at the same time, Applicant submits this proposed agenda for both cases:

- 1) Review of teachings of patents under reexamination;
- 2) Review of first Office Actions;
- 3) Review of Workflow Technology, including but not limited to as taught by the references;
- 4) Review of the claims in the patents under reexamination, including dependent claims, in light of the references.

Respectfully Submitted,



Joseph E. Chovanes  
Registration No. 33,481  
Suite 329  
5 Great Valley Parkway  
Malvern, PA 19355  
(610) 648-3994

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Art Unit : 3992  
Examiner : Rachna Desai  
Patent No. : 7,062,749  
Filed : December 15, 2000  
Control No. : 90/009,961  
Inventors : Vincent R. Cyr  
              Kenneth Fritz  
Docket No. : YYZ RE-001

Title : MEASURING, MONITORING AND TRACKING ENTERPRISE  
COMMUNICATIONS AND PROCESSES

**DECLARATION UNDER 37 C.F.R. §1.131**

I, Kenneth Fritz, make this declaration in support of YYZ's Response to the first Office Action, filed herewith, and in the above identified reexamination, and do hereby declare the following:

1. I am a named inventor of the above-identified patent (the "749 patent" or the "patent").
2. I was employed by Promenix, Inc. ("Promenix") the prior owner of the above referenced patent, in 2000.
3. I had been at Promenix from September, 1998 to fall 2003 and was primarily responsible for programming, architecture and other technical issues.
4. Promenix was a small company with a maximum of thirty seven employees at any one time, located in a small multiroom office complex in Chadds Ford PA.
5. Promenix was in the business of implementing enterprise application software. These implementations, almost invariably in large enterprises, take months and are often extremely complicated as those enterprises have existing legacy systems, multiple locations, and multiple stakeholders, and may be integrating

other types of new technology as well at the same time.

6. I am making this declaration in the reexamination of the above referenced patent. In what follows, I do not recall greater detail aside from what I have set forth herein, as it was over twelve years ago.
7. Nor do I have documents evidencing such discussions, as Promenix did not generate many documents because of its size (we had no such thing as inventor notebooks) and as far as I know notebooks) and as far as I know Promenix kept very few documents of those it did generate when Promenix went out of business in 2006. Generally if we needed to communicate, it was our custom and practice to do so in personal meetings or over the telephone.
8. I do recall discussing Exhibit A, a document created by Vincent Cyr, (“Vince”) President of Promenix and my co-inventor, in our offices in Chadds Ford, PA on or about the time he created it, January 11, 2000.
9. Vince had generated Exhibit A in the course of attempting to explore construction of a prototype and used our SAP R/3 installation in our offices, at least in part to capture data through a monitoring message (“original message data”) in a database or central message repository.
10. On or about March 9, 2000, Vince, I and Matthew Franklin (“Matt”) of Promenix specifically discussed the document attached here as Exhibit B, which also had been prepared by Vince.
11. As I mentioned above, Promenix was a small company, with our resources devoted to enterprise installs, yet Vince directed me to develop a prototype of the technology shown by Exhibit B as it was sufficiently promising to engage

upon a development campaign.

12. I began work on the prototype immediately, and for the next six months, I worked on it almost daily, using the server at Promenix, including researching, writing code for messaging software and screen displays, running tests of the code and other usual and customary tasks to get a software prototype running. My work on the prototype was interrupted only by my need to work on Promenix's revenue generating business.
13. I also had regular, almost daily conversations regarding elements of the prototype, with Vince and Matt.
14. On or about August 9, 2000, I presented Vince and Matt with the document attached here as Exhibit C which was, as it states, documentation of the first working prototype of the inventions of the independent claims of the patent. I also showed Vince and Matt the prototype, as it worked and was existing on our server, and I specifically recall observing how monitoring messages could be used from a messaging system (e.g., IBM MQSeries) and provide at least part of said original message data to a record in a central message repository in order to identify the status of a business process and its various elements, in accordance with claim 1 and the other independent claims of the patent.
15. That is, I specifically recall presenting to Vince and Matt,
  1. A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:
    - providing, through a monitoring message, at least part of said original message data to a central message repository;
    - populating a transaction record in said central message repository with

said original message data provided by said monitoring message;  
wherein said original message data comprises the status of an activity.

which is claim 1 of the patent, and I also recall presenting them with the other elements of the other independent claims.

16. Therefore, from on or about March 9, 2000 to on or about August 9, 2000, I worked almost daily, interrupted only by my work on Promenix's revenue generating business, on the inventions defined and set forth in at least independent claims 1, 22, 42, 49, 55-58 (the "independent claims") of the above referenced patent.

The undersigned declares that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and thus such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: August 12, 2012

  
\_\_\_\_\_  
KENNETH FRITZ



# **EXHIBIT A**

Home Layout Tables Charts SmartArt Font Alignment Data Review

Font: Arial, Size 10, Bold, Italic, Underline, Text Color, Paragraph Spacing, Bullets, Numbering, Indentation, Orientation, Language, Font Color, Background Color, Borders, Styles, Conditional Formatting, Insert

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General Summary Contents Custom

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Printed: Thursday, March 16, 2000 6:49 PM

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Revision number:

Total editing time:

OK Cancel

PROCESS	SUBPROCESS	CUSTNO	CUSTOMER	ADDRESS	EMAIL	MATHUM	MATNAME	UOM	PRICE	QTY	QUOTENUM	ORDERDATE	PRODUCTION_NUM	PRODUCTION_I
ORDER TO CASH	INQUIRY	5085	VF CORP	GREENSBORO NC	INFO@PRC	800015	PENS	CASE	10.00	20	200014			
ORDER TO CASH	INQUIRY	5086	VF CORP	GREENSBORO NC	INFO@PRC	800016	PENS	CASE	10.00	20	200015			
ORDER TO CASH	INQUIRY	5087	FIBER	MOLE		800017	FIBER	MOLE	1000.00	2	200016			
ORDER TO CASH	INQUIRY	5088	POLYETH	BARRREL		800018	POLYETH	BARRREL	540.00	3	200017			
ORDER TO CASH	INQUIRY	5089	WINDSHE	PIECE		800019	WINDSHE	PIECE	400.00	300	200018			
ORDER TO CASH	INQUIRY	5090	STEERING	PIECE		800020	STEERING	PIECE	320.00	300	200019			
ORDER TO CASH	INQUIRY	5091	TRANSIST	EACH		800021	TRANSIST	EACH	100.00	1000	200020			
ORDER TO CASH	INQUIRY	5092	MEMORY	EACH		800022	MEMORY	EACH	200.00	1000	200021			
ORDER TO CASH	INQUIRY	5093	SAND	TON		800023	SAND	TON	45.00	5	200022			
ORDER TO CASH	INQUIRY	5094	FLAMENT	FT		800024	FLAMENT	FT	1.00	20	200023			
ORDER TO CASH	INQUIRY	5095	CAPSLULE	CASE		800025	CAPSLULE	CASE	5.00	20	200024			
ORDER TO CASH	INQUIRY	5096	SILICON	PIECE		800026	SILICON	PIECE	2000.00	3	200025			

Process	Sub-Process	Inputs	Outputs	Org. Units	Date In	Time In	Date Out	Time Out	Status
Order-to-cash	Receive Customer Inquiry	Material BOM Customer	Customer Inquiry	Sales org. Division Sales Group Distr. Channel					
Order-to-cash	Provide Customer Quotation	Material BOM Business Partner Time Customer Inquiry	Customer Quotation	Sales org. Division Sales Office Sales Group Distr. Channel					
Order-to-cash	Create Customer Outline Agreement	Material Batch Business Partner Time Customer Inquiry Customer Quotation	Customer Outline Agreement	Sales org. Division Sales Office Sales Group Distr. Channel					
Order-to-cash	Create Sales Order	Material Batch Business Partner Time Customer Inquiry Customer Quotation	Sales Order Production Order Manufacturing Order Purchase Req.	Sales org. Division Sales Office Sales Group Distr. Channel					
Order-to-cash	Ship Product	Material Batch Business Partner Time Customer Sales Order Customer Credit Account Customer Inquiry Customer Quotation Customer Contract Sales Promotion	Outbound Delivery	Shipping Point					
Order-to-cash	Invoice Customer	Material Batch Business Partner Time Customer Sales Order Customer Contract Customer Credit Account Customer Inquiry Customer Quotation Customer Contract	Customer Billing Document						
Order-to-cash	Receive Payment	Invoice Number Material Customer							

Process	Sub-Process	Inputs	Outputs	Org. Units	Date In	Time In	Date Out	Time Out	Status
Order-to-cash	Receive Customer Inquiry	Material BOM Business Partner Customer	Customer Inquiry	Sales org. Division Sales Office Sales Group Distr. Channel					
Order-to-cash	Provide Customer Quotation	Material BOM Business Partner Time Customer Inquiry	Customer Quotation	Sales org. Division Sales Office Sales Group Distr. Channel					
Order-to-cash	Create Customer Outline Agreement	Material Batch Business Partner Time Customer Credit Account Customer Inquiry Customer Quotation	Customer Outline Agreement	Sales org. Division Sales Office Sales Group Distr. Channel					
Order-to-cash	Create Sales Order	Material Batch Business Partner Time Customer Credit Account Customer Inquiry Customer Quotation Customer Contract Sales Promotion	Sales Order Production Order Manufacturing Order Purchase Req.	Sales org. Division Sales Office Sales Group Distr. Channel					
Order-to-cash	Ship Product	Material Batch Business Partner Time Customer Sales Order Customer Credit Account Customer Inquiry Customer Quotation Customer Contract	Outbound Delivery	Shipping Point					
Order-to-cash	Invoice Customer	Material Batch Business Partner Time Customer Sales Order Customer Contract Customer Complaint Order Credit Memo Request Debit Memo Request Returns	Customer Billing Document						
Order-to-cash	Receive Payment	Invoice Number Material Customer Amount							





ORDER TO CASH SHIP	5000 DOW CHEM	MIDLAND, MI	INFO@PRC	800003 WIDGET	BOX	2.00	2	200001	800000	03/27/00	410000	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH SHIP	5001 VF CORP	GREENSBORO	INFO@PRC	800004 GADGET	CASE	10.00	3	200002	800001	03/27/00	410001	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH SHIP	5002 EASTMAN	CH KINGSPT	INFO@PRC	800005 BRAKE	BOX	3.00	2	200003	800002	03/28/00	410002	03/30/00 OFFSHORE	NET/30	04/01/00
ORDER TO CASH SHIP	5002 EASTMAN	CH KINGSPT	INFO@PRC	800006 3/4 BOLT	BOX	4.00	10	200003	800002	03/28/00	410002	03/30/00 OFFSHORE	NET/30	04/01/00
ORDER TO CASH SHIP	5003 PITNEY BOW	STAMFORD, CT	INFO@PRC	800006 3/4 BOLT	BOX	4.00	11	200004	800003	03/27/00	410003	03/29/00 LOCAL	2/10	03/31/00
ORDER TO CASH SHIP	5004 VANGUARD	VALLEY FOR	INFO@PRC	800007 PAPER	CASE	13.00	12	200005	800004	03/27/00	410004	03/29/00 LOCAL	2/10	03/31/00
ORDER TO CASH SHIP	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800008 COTTON	CASE	4.00	12	200006	800005	03/29/00	410005	03/31/00 LOCAL	NET/30	04/02/00
ORDER TO CASH SHIP	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800007 PAPER	CASE	13.00	22	200006	800005	03/29/00	410005	03/31/00 LOCAL	NET/30	04/02/00
ORDER TO CASH SHIP	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800025 CAPSULES	CASE	5.00	34	200006	800005	03/29/00	410005	03/31/00 LOCAL	NET/30	04/02/00
ORDER TO CASH SHIP	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800010 SUGAR	BARREL	65.00	5	200006	800005	03/29/00	410005	03/31/00 LOCAL	NET/30	04/02/00
ORDER TO CASH SHIP	5006 KODAK	ROCHESTER	INFO@PRC	800009 SILVER	OZ	23.00	21	200007	800006	03/27/00	410006	03/29/00 OFFSHORE	NET/30	03/31/00
ORDER TO CASH SHIP	5007 XEROX	STAMFORD, CT	INFO@PRC	800010 TONER	PIECE	25.00	11	200008	800007	03/27/00	410007	03/29/00 OFFSHORE	NET/30	03/31/00
ORDER TO CASH SHIP	5008 COCA-COLA	ATLANTA, GA	INFO@PRC	800010 SUGAR	BARREL	65.00	2	200009	800008	03/27/00	410008	03/29/00 OFFSHORE	NET/30	03/31/00
ORDER TO CASH SHIP	5009 EXXON-MOB	HOUSTON, TX	INFO@PRC	800011 1" PIPE	FT	4.00	23	200010	800009	03/27/00	410009	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH SHIP	5010 ENRON	HOUSTON, TX	INFO@PRC	800012 6" PIPE	FT	2.43	11	200011	800010	03/27/00	410010	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH SHIP	5011 DUPONT	WILMINGTON	INFO@PRC	800013 POLYMER	BIN	335.23	24	200012	800011	03/27/00	410011	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH SHIP	5012 CHEVRON	SAN RAMON	INFO@PRC	800014 MBE ADDT	BARREL	465.80	54	200013	800012	03/30/00	410012	04/01/00 LOCAL	NET/30	04/03/00
ORDER TO CASH SHIP	5013 CHASE	NEW YORK, NY	INFO@PRC	800015 PENS	CASE	15.00	43	200014	800013	03/30/00	410013	04/01/00 LOCAL	2/10	04/03/00
ORDER TO CASH SHIP	5014 FIDELITY	BOSTON, MA	INFO@PRC	800016 BROCHUR	PIECE	6.00	1000	200015	800014	03/30/00	410014	04/01/00 LOCAL	2/10	04/03/00
ORDER TO CASH SHIP	5015 WILLIAMS	HOUSTON, TX	INFO@PRC	800017 FIBER	ROLL	1000.00	2	200016	800015	03/30/00	410015	04/01/00 LOCAL	NET/30	04/03/00
ORDER TO CASH SHIP	5016 UNION CARB	HOUSTON, TX	INFO@PRC	800018 POLY-ETH	BARREL	544.00	3	200017	800016	03/30/00	410016	04/01/00 OFFSHORE	NET/30	04/03/00
ORDER TO CASH SHIP	5017 GM	DETROIT, MI	INFO@PRC	800019 WINDSHIE	PIECE	433.00	300	200018	800017	03/30/00	410017	04/01/00 OFFSHORE	NET/30	04/03/00
ORDER TO CASH SHIP	5018 FORD	DEARBORN, MI	INFO@PRC	800020 STEERING	PIECE	322.00	300	200019	800018	03/30/00	410018	04/01/00 OFFSHORE	NET/30	04/03/00
ORDER TO CASH SHIP	5019 IBM	ARMONK, NY	INFO@PRC	800021 TRANSIST	EACH	100.00	1000	200020	800019	03/30/00	410019	04/01/00 OFFSHORE	NET/30	04/03/00
ORDER TO CASH SHIP	5019 IBM	ARMONK, NY	INFO@PRC	800027 MEMORY	EACH	304.00	1000	200020	800019	03/30/00	410019	04/01/00 OFFSHORE	NET/30	04/03/00
ORDER TO CASH SHIP	5021 INTEL	SANTA CLAR	INFO@PRC	800023 SAND	TON	45.00	5	200021	800020	03/27/00	410020	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH SHIP	5022 PHILIPS	NEW YORK, NY	INFO@PRC	800024 FILIMENT	FT	1.00	25	200022	800021	04/02/00	410021	04/04/00 LOCAL	NET/30	04/06/00
ORDER TO CASH SHIP	5023 ELI LILLY	INDIANAPOL	INFO@PRC	800025 CAPSULES	CASE	5.00	20	200023	800022	03/27/00	410022	03/29/00 OFFSHORE	NET/30	03/31/00
ORDER TO CASH SHIP	5024 AMD	SANTA CLAR	INFO@PRC	800026 SILICON	PIECE	2000.00	3	200024	800023	03/27/00	410023	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH SHIP	5025 APPLIED MATS	SANTA CLAR	INFO@PRC	800027 MEMORY	PIECE	304.00	20	200025	800024	04/02/00	410024	04/04/00 LOCAL	NET/30	04/06/00
ORDER TO CASH SHIP	5030 KRAFT	CHICAGO, IL	INFO@PRC	800028 MILK	GAL	2.59	30	200026	800025	04/02/00	410025	04/04/00 LOCAL	NET/30	04/06/00
ORDER TO CASH SHIP	5031 GP	ATLANTA, GA	INFO@PRC	800029 LYE	POUND	3.44	5	200027	800026	04/02/00	410026	04/04/00 LOCAL	NET/30	04/06/00
ORDER TO CASH INVOICE	5000 DOW CHEM	MIDLAND, MI	INFO@PRC	800003 WIDGET	BOX	2.00	2	200001	800000	03/27/00	410000	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH INVOICE	5001 VF CORP	GREENSBORO	INFO@PRC	800004 GADGET	CASE	10.00	3	200002	800001	03/27/00	410001	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH INVOICE	5002 EASTMAN	CH KINGSPT	INFO@PRC	800005 BRAKE	BOX	3.00	2	200003	800002	03/28/00	410002	03/30/00 OFFSHORE	NET/30	04/01/00
ORDER TO CASH INVOICE	5002 EASTMAN	CH KINGSPT	INFO@PRC	800006 3/4 BOLT	BOX	4.00	10	200003	800002	03/28/00	410002	03/30/00 OFFSHORE	NET/30	04/01/00
ORDER TO CASH INVOICE	5003 PITNEY BOW	STAMFORD, CT	INFO@PRC	800006 3/4 BOLT	BOX	4.00	11	200004	800003	03/27/00	410003	03/29/00 LOCAL	2/10	03/31/00
ORDER TO CASH INVOICE	5004 VANGUARD	VALLEY FOR	INFO@PRC	800007 PAPER	CASE	13.00	12	200005	800004	03/27/00	410004	03/29/00 LOCAL	2/10	03/31/00
ORDER TO CASH INVOICE	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800008 COTTON	CASE	4.00	12	200006	800005	03/29/00	410005	03/31/00 LOCAL	NET/30	04/02/00
ORDER TO CASH INVOICE	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800007 PAPER	CASE	13.00	22	200006	800005	03/29/00	410005	03/31/00 LOCAL	NET/30	04/02/00
ORDER TO CASH INVOICE	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800025 CAPSULES	CASE	5.00	34	200006	800005	03/29/00	410005	03/31/00 LOCAL	NET/30	04/02/00
ORDER TO CASH INVOICE	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800010 SUGAR	BARREL	65.00	5	200006	800005	03/29/00	410005	03/31/00 LOCAL	NET/30	04/02/00
ORDER TO CASH INVOICE	5006 KODAK	ROCHESTER	INFO@PRC	800009 SILVER	OZ	23.00	21	200007	800006	03/27/00	410006	03/29/00 OFFSHORE	NET/30	03/31/00
ORDER TO CASH INVOICE	5007 XEROX	STAMFORD, CT	INFO@PRC	800010 TONER	PIECE	25.00	11	200008	800007	03/27/00	410007	03/29/00 OFFSHORE	NET/30	03/31/00
ORDER TO CASH INVOICE	5008 COCA-COLA	ATLANTA, GA	INFO@PRC	800010 SUGAR	BARREL	65.00	2	200009	800008	03/27/00	410008	03/29/00 OFFSHORE	NET/30	03/31/00
ORDER TO CASH INVOICE	5009 EXXON-MOB	HOUSTON, TX	INFO@PRC	800011 1" PIPE	FT	4.00	23	200010	800009	03/27/00	410009	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH INVOICE	5010 ENRON	HOUSTON, TX	INFO@PRC	800012 6" PIPE	FT	2.43	11	200011	800010	03/27/00	410010	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH INVOICE	5011 DUPONT	WILMINGTON	INFO@PRC	800013 POLYMER	BIN	335.23	24	200012	800011	03/27/00	410011	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH INVOICE	5012 CHEVRON	SAN RAMON	INFO@PRC	800014 MBE ADDT	BARREL	465.80	54	200013	800012	03/30/00	410012	04/01/00 LOCAL	NET/30	04/03/00
ORDER TO CASH INVOICE	5013 CHASE	NEW YORK, NY	INFO@PRC	800015 PENS	CASE	15.00	43	200014	800013	03/30/00	410013	04/01/00 LOCAL	2/10	04/03/00
ORDER TO CASH INVOICE	5014 FIDELITY	BOSTON, MA	INFO@PRC	800016 BROCHUR	PIECE	6.00	1000	200015	800014	03/30/00	410014	04/01/00 LOCAL	2/10	04/03/00
ORDER TO CASH INVOICE	5015 WILLIAMS	HOUSTON, TX	INFO@PRC	800017 FIBER	ROLL	1000.00	2	200016	800015	03/30/00	410015	04/01/00 LOCAL	NET/30	04/03/00
ORDER TO CASH INVOICE	5016 UNION CARB	HOUSTON, TX	INFO@PRC	800018 POLY-ETH	BARREL	544.00	3	200017	800016	03/30/00	410016	04/01/00 OFFSHORE	NET/30	04/03/00
ORDER TO CASH INVOICE	5017 GM	DETROIT, MI	INFO@PRC	800019 WINDSHIE	PIECE	433.00	300	200018	800017	03/30/00	410017	04/01/00 OFFSHORE	NET/30	04/03/00
ORDER TO CASH INVOICE	5018 FORD	DEARBORN, MI	INFO@PRC	800020 STEERING	PIECE	322.00	300	200019	800018	03/30/00	410018	04/01/00 OFFSHORE	NET/30	04/03/00
ORDER TO CASH INVOICE	5019 IBM	ARMONK, NY	INFO@PRC	800021 TRANSIST	EACH	100.00	1000	200020	800019	03/30/00	410019	04/01/00 OFFSHORE	NET/30	04/03/00
ORDER TO CASH INVOICE	5019 IBM	ARMONK, NY	INFO@PRC	800027 MEMORY	EACH	304.00	1000	200020	800019	03/30/00	410019	04/01/00 OFFSHORE	NET/30	04/03/00
ORDER TO CASH INVOICE	5021 INTEL	SANTA CLAR	INFO@PRC	800023 SAND	TON	45.00	5	200021	800020	03/27/00	410020	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH INVOICE	5022 PHILIPS	NEW YORK, NY	INFO@PRC	800024 FILIMENT	FT	1.00	25	200022	800021	04/02/00	410021	04/04/00 LOCAL	NET/30	04/06/00
ORDER TO CASH INVOICE	5023 ELI LILLY	INDIANAPOL	INFO@PRC	800025 CAPSULES	CASE	5.00	20	200023	800022	03/27/00	410022	03/29/00 OFFSHORE	NET/30	03/31/00
ORDER TO CASH INVOICE	5024 AMD	SANTA CLAR	INFO@PRC	800026 SILICON	PIECE	2000.00	3	200024	800023	03/27/00	410023	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH INVOICE	5025 APPLIED MATS	SANTA CLAR	INFO@PRC	800027 MEMORY	PIECE	304.00	20	200025	800024	04/02/00	410024	04/04/00 LOCAL	NET/30	04/06/00
ORDER TO CASH INVOICE	5030 KRAFT	CHICAGO, IL	INFO@PRC	800028 MILK	GAL	2.59	30	200026	800025	04/02/00	410025	04/04/00 LOCAL	NET/30	04/06/00
ORDER TO CASH INVOICE	5031 GP	ATLANTA, GA	INFO@PRC	800029 LYE	POUND	3.44	5	200027	800026	04/02/00	410026	04/04/00 LOCAL	NET/30	04/06/00

# **EXHIBIT B**



**Process Metrics Project**  
**March 9, 2000**

Design Specification 1.0

<b>Last Revised By:</b>	<b>Date</b>	<b>Additions</b>
Vincent Cyr	March 9, 2000	Initial Draft

## Introduction

The activities that take place within a company to conduct its business are organized into processes. Each process is comprised of sub-processes that break down the process into more discreet elements – eventually becoming transactions. For example, the activity of a business that involves making products and selling them for money is known as “Order-to-Cash”. This process is broken down into sub-processes that deal with the individual steps - first obtaining a prospective customer – to the manufacturing of product(s), shipping, and invoicing of that customer.

Each of these sub-processes is triggered by an event that passes information to the next sub-process so that action can be carried out. Often, an application may be responsible for one or more of these sub-processes. In the case of SAP, its integrated applications allow for many of the sub-processes activities to be carried out within the entire SAP R/3 system.

However, in many cases, some of the sub-processes are carried out by different applications or in the cases of e-commerce, may be carried out by entirely different organizations or companies.

How then, does someone inside the organization or outside the organization know at what point their particular order resides? Calling someone may cause a cascading number of phone calls, e-mails, faxes, system look-ups, etc. to determine status of the order. This is highly inefficient and results in poor customer response and service. In addition, being able to measure performance across the sub-processes would have value to those in the organization trying to determine inefficiencies in their operations. Imagine the ability to know how long it took to go from order to manufacturing to shipping during each step of the process. Imagine being able to know exactly where in the process an order is even if your company is not performing one or more sub-processes. This project is intended to demonstrate how we can use messaging to make this possible.

Using MQSeries and MQSeries Integrator, we are going to simulate a process and its related sub-processes. As each event takes place, we are going to send messages with information pertaining to that event through MQSI to a database. This database will hold the messages (in XML format), which we will use to report against. The diagram 1.0 shows the overall layout of this concept.

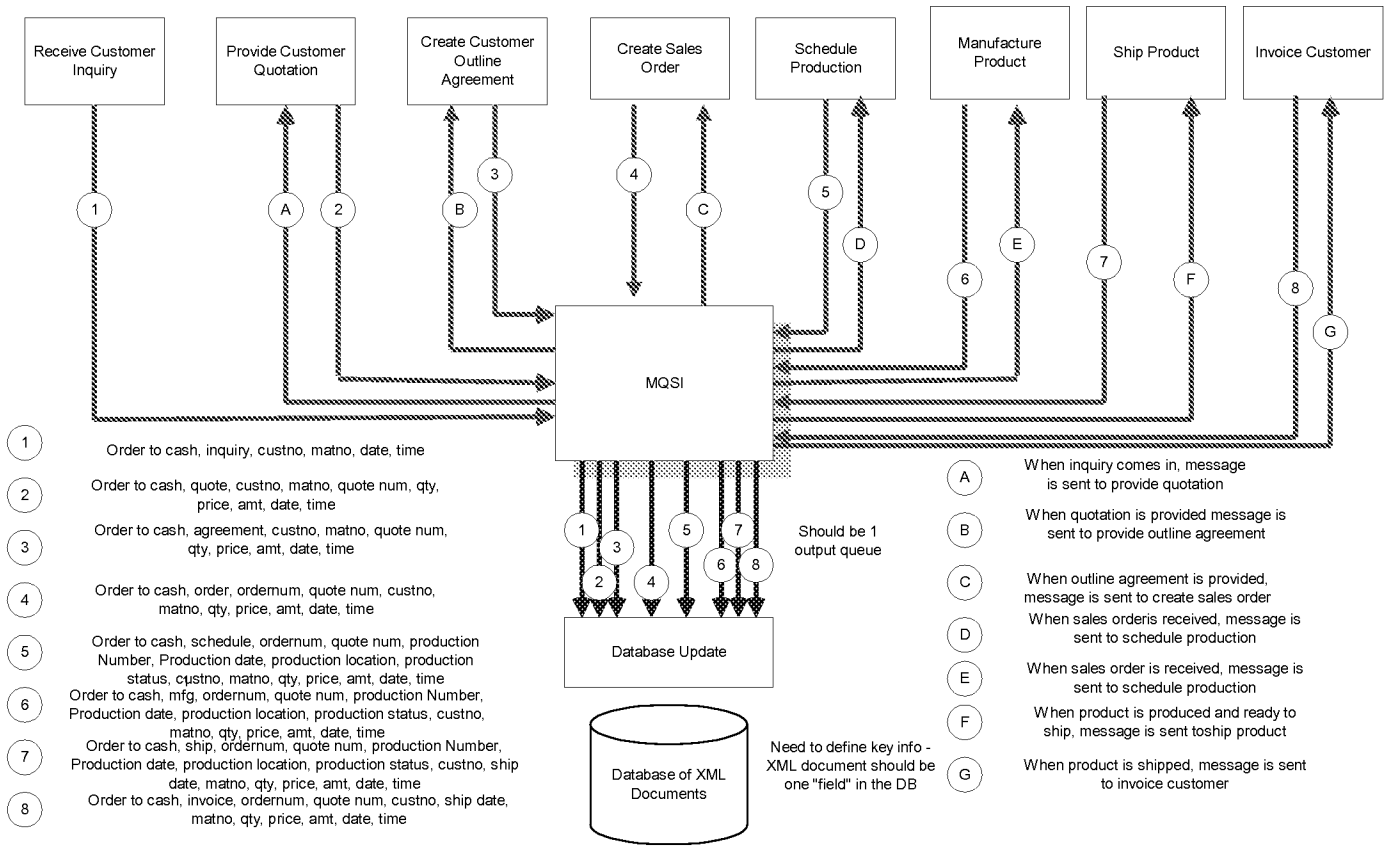
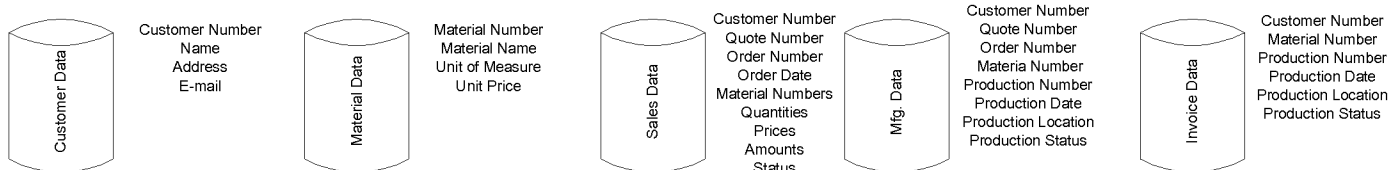


Diagram 1.0

## Development Approach

We should approach development by stubbing out pieces of functionality and validating the design in a step-by-step approach. We will then build upon these pieces as we increase capability. We will build the following components:

**Process Engine** – This will be the application that simulates the applications that perform the sub-processes of the main process. The main process will be Order-to-Cash. The sub-processes are: Inquiry, Quotation, Outline Agreement, Sales Order, Schedule Production, Manufacture, Ship, and Invoice. The Process Engine (PE) should be one program (C++ or Java Servlet) that has each of the sub-processes as a separate function within the application. All inputs and outputs should use MQSeries queues. MQSI application group/message types to distinguish messages from sub-processes. The PE will need to access various databases in order to obtain information about customers, materials, sales, manufacturing, shipping, and invoicing. Load programs may need to be developed to create sample data for these databases. We must also have a method for varying the time intervals between processes (throttling) to simulate real-life time lags between sub-process steps. For example, it may take 1 day between ordering a product and manufacturing a product, we need to show that variation so when we report the results, they appear realistic. The PE should be developed so that we can test the message flow first, then we can add database access and fill out the message structures.

**MQSeries Integrator** – MQSI will be the formatting and routing engine of this design. There will be several different formats coming into MQSI from the various sub-processes. The app group/message type in the MQRFH will determine which format to use. There will be one outbound format that will be used to send all event information to a database that will store all event messages. This format should be XML and one document should consist of all of the possible data elements across the process. These messages will all be placed on one output queue. The other outbound formats will be messages sent to the next sub-process in the process thread; on another queue, separate from the XML queue.

**Database update** – This process will take XML event messages from MQSI and insert them into a database of messages. The key needs to be defined which will allow for inquiry and reporting. The entire XML message will be placed in one field of the database. There should be a cleanup routine to purge older messages (all related to each other) based on a date or key parameter. Extraction of information from the database will be both inquiries against a particular order/customer/material/sub-process or a more generic statistical presentation of data across the entire process. Many of these inquiries are yet to be defined. Presentation of the information will be web-based using XSL style sheets.

At this point in the design, we should stub these pieces out and put as much together to test out these concepts. We will test these components and determine how to move forward from this point.

## **XML Document**

One XML document is to be used for all of the messages coming out of each sub-process of the entire process thread. The data elements include:

### **Process**

- Sub-process name (1 or more)

- Sub-process info (1 or more)

  - Date

  - Time

  - Customer (1)

    - Customer Number

    - Customer Name

    - Customer Address

    - Customer E-mail

  - Material (1 or more)

    - Material Number

    - Material Name

    - Unit of Measure

    - Price

    - Quantity

  - Sales Data (1)

    - Quotation Number

    - Order Number

    - Order Date

    - Manufacturing Data (1)

      - Production Number

      - Production Date

      - Production Location

      - Production Status

    - Invoice Data (1)

      - Amount

      - Terms

      - Date

# **EXHIBIT C**

<b>Author</b>	<b>Date</b>	<b>Description</b>
Ken Fritz	08/07/2000	Initial Draft

## **About Process Metrics Simulator**

The Process Metrics Simulator is the first version of a utility developed to model and simulate business processes. The simulator currently implements a simple 8 process business production model which simulates realistic processes by including process latency and stoppage capability. Latency is independently modifiable by process section. Each section receives a message from the previous section by way of MQSeries messaging. This data transfer is in a standard XML format which has been included in the resource directory of the development directory.

The program is initialized by a file which must be located in the c:\process\ directory on the users machine, called ProcessSim.ini. The file should be somewhat self explanatory; however, see the detailed documentation for more information.

This software was written in Visual Basic 6.0 and utilizes IBM's MQSeries ActiveX objects.

# Process Metrics Simulator, 1.0a Documentation

Author	Date	Description
Ken Fritz	08/07/2000	Detailed Software Documentation, Initial Draft

## I. Basic Design Goals

The simulator is intended to be a flexible utility to model business processes utilizing a variety of messaging constructs and formats. In its final version it will:

- Be written in a platform independent language
- Utilize multiple messaging transports (ie. Tibco, MQSeries)
- Utilize flexible message formats
- Allow for dynamic construction of business processes (Snap-in model)
- Allow for user interaction in setting latency and message drops/stoppage.

Currently, the simulator is in a very basic alpha development version which does the following:

- Supports a basic 8 process production model.
- Utilizes MQSeries messaging
- Allows for user configurable latency settings
- Supports only one basic XML message format.
- Written in Visual Basic 6.0

This document covers only the alpha version currently available.

## II. User Interface

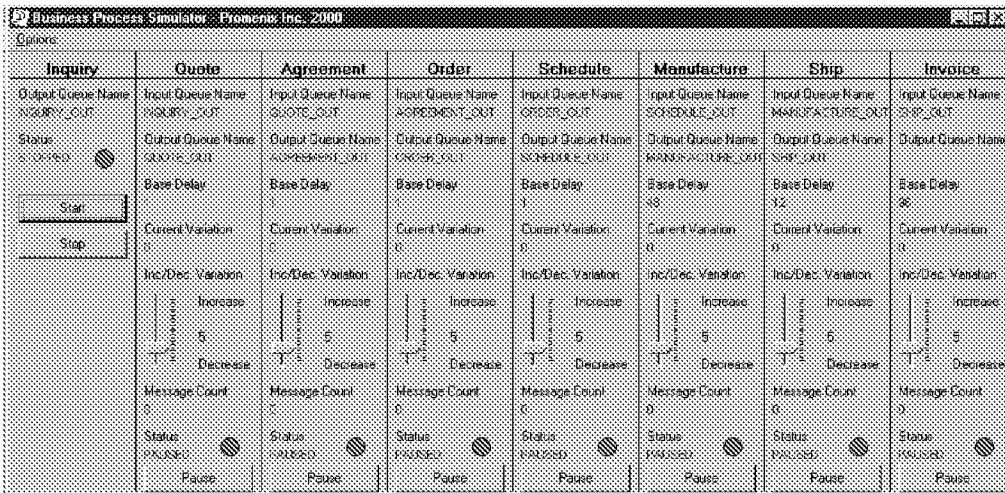


Figure 1 – Process Simulator GUI

The GUI for the process simulator is shown in Figure 1. The GUI allows the user to control all runtime parameters of the package which are limited to the following:

- Starting/Stopping by process
- Latency per process



Also, the GUI will indicate settings for pre-runtime configurable options:

- Input/Output Queue Names
- Base Variation

Finally, the GUI will also indicate dynamic parameters including final latency (delay), message count, and status of each process.

### III. Sample Configuration File

Note: This file must be located in "C:\Process\\*" directory and named processsim.ini

<pre>[Common]  QMGR = CONF01 CHARACTERSET = 437 DBQNAME = DB_IN MQSI_Q_OUT = TESTQ  [Inquiry]  OUTPUTQNAME = INQUIRY_OUT INITIAL_STATUS = 0 XMLFILE = "c:\inquiry.txt"  [Quote]  INPUTQNAME = INQUIRY_OUT OUTPUTQNAME = QUOTE_OUT BASEVARIATION = 1 INITVARIATION = 5 XMLFILE = "c:\test.xml"  [Agreement]  INPUTQNAME = QUOTE_OUT OUTPUTQNAME = AGREEMENT_OUT BASEVARIATION = 1 INITVARIATION = 5 XMLFILE = "c:\test.xml"  [OrderProcess]  INPUTQNAME = AGREEMENT_OUT OUTPUTQNAME = ORDER_OUT BASEVARIATION = 1 INITVARIATION = 5 XMLFILE = "c:\test.xml"  [Schedule]  INPUTQNAME = ORDER_OUT OUTPUTQNAME = SCHEDULE_OUT BASEVARIATION = 1 INITVARIATION = 5 XMLFILE = "c:\test.xml"  [Manufacture]  INPUTQNAME = SCHEDULE_OUT OUTPUTQNAME = MANUFACTURE_OUT BASEVARIATION = 48</pre>	<p>The queue manager to be used The MQSeries character set Database queue name MQSI output queue</p> <p>Settings for Inquiry process</p> <p>Output queue Initial status (0 = Stopped, 1 = Running) XML document file</p> <p>Settings for quote process</p> <p>Input queue name Output queue name Base variation (Delay) setting Initial random seed value (variation can be MAX +5 if this is 5) XML Document file</p> <p>Agreement process</p> <p>Settings are the same for the rest of these processes as for quote process.</p>
--	--

<pre> INITVARIATION = 5 XMLFILE = "c:\test.xml"  [Ship]  INPUTQNAME = MANUFACTURE_OUT OUTPUTQNAME = SHIP_OUT BASEVARIATION = 12 INITVARIATION = 5 XMLFILE = "c:\test.xml"  [Invoice]  INPUTQNAME = SHIP_OUT OUTPUTQNAME = INVOICE_OUT BASEVARIATION = 96 INITVARIATION = 5 XMLFILE = "c:\test.xml" </pre>	
---	--

#### IV. Sample XML Document Format

```

<PROCESS>
  ORDER_TO_CASH
  <SUBPROCESS>
    SHIP
    <CUSTOMER>
      <CUSTNO>5000</CUSTNO>
      <CUSTNAME>DOW CHEMICAL</CUSTNAME>
      <CITY>MIDLAND</CITY>
      <STATE>MI</STATE>
      <EMAIL>INFO@PROMENIX.COM</EMAIL>
    </CUSTOMER>
    <MATERIAL>
      <MATNUM>800003</MATNUM>
      <MATNAME>WIDGET</MATNAME>
      <UOM>BOX</UOM>
      <PRICE>2</PRICE>
      <QTY>2</QTY>
    </MATERIAL>
    <SALES_DATA>
      <QUOTENUM>200001</QUOTENUM>
      <ORDERNUM>800000</ORDERNUM>
      <ORDERDATE>3/27/00</ORDERDATE>
    </SALES_DATA>
    <MANUFACT_DATA>
      <PRODUCTION_NUM>410000</PRODUCTION_NUM>
      <PRODUCTION_DATE>3/29/00</PRODUCTION_DATE>
      <PRODUCTION_LOC>LOCAL</PRODUCTION_LOC>
      <PRODUCTION_STATUS />
    </MANUFACT_DATA>
    <INVOICE_DATA>
      <AMT />
      <TERMS>NET/30</TERMS>
      <SHIP_DATE>3/31/00</SHIP_DATE>
      <INVOICE_DATE />
    </INVOICE_DATA>
  </SUBPROCESS>
  <EVENT_DATE />
  <EVENT_TIME />
</PROCESS>

```

## V. Basic theory of operation

Initialization process:

1. Call ReadINI
  - a. Open the ini file (must be c:\process\processsim.ini)
  - b. Read all global variables from the INI
2. Call InitGUI
  - a. Initialize labels and display settings
  - b. Set status flags
  - c. Set initial timer intervals
3. Call InitXMLFiles
  - a. Load XML files into memory from disk
4. Call InitDOMS
  - a. Create DOM Objects for each process
  - b. Load XML from InitXMLFiles into DOMs
  - c. Parse XML
5. Call StartTimers
  - a. Set initial timer intervals to 100 ms
  - b. By doing so, starts message processing

Initial process (trigger process)

1. Load initial dummy values into the pre-existing XML DOM
2. Generate a random TID
  - a. Done with following formula: Year & Month & Day & Timer \* Rnd (Where timer is seconds past midnight)
3. Dump XML to variable
4. Write contents of variable to the output queue and DB/MQSI queue

Messages are processed in the following sequence by a generic process:

1. Listener listens on input queue for the process
2. Message listener tries to retrieve a message with no wait interval.
  - a. If message not available, timer interval set to 5000 (5 seconds) to allow processor to do other things while waiting for another message to arrive.
  - b. If the message is there, processing continues
3. When message arrives, retrieve correlation ID
4. Set GUI parameters
  - a. Timer interval to 100 (100 milliseconds)
  - b. Change status to "Running" if it was "Paused"
  - c. Change indicator from red to green
5. Create XMLDOM object
6. Load retrieved message into DOM and parse
7. Load values from retrieved message into variables (Currently static – should be dynamic in future)
8. Create random delay value
9. Using the XMLDOM created in the initialization for the base document, load values from the retrieved message into the new message
10. Change the time and date on the message by adding the delay value
11. Dump the XML from the DOM object into a variable
12. Write the contents of the variable to an MQ message having the same correlation ID as the previous to both the output queue and the MQSI/DB Output queue.

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Art Unit : 3992  
Examiner : Rachna Desai  
Patent No. : 7,062,749  
Filed : December 15, 2000  
Control No. : 90/009,961  
Inventors : Vincent R. Cyr  
              Kenneth Fritz  
Docket No. : YYZ RE-001

Title : MEASURING, MONITORING AND TRACKING ENTERPRISE  
          COMMUNICATIONS AND PROCESSES

**DECLARATION UNDER 37 C.F.R. §1.132**

I, Matthew Franklin, make this declaration in support of YYZ's Response to the first Office Action, filed herewith, and in the above identified reexamination, and do hereby declare the following:

1. I was a cofounder, Vice President and employee of Promenix, Inc. ("Promenix") the prior owner of the above referenced patent, in 2000. I was employed by Promenix from 1998, when we founded the company, to 2006, which was after the time Promenix transferred ownership of the above referenced patent to YYZ, Inc., the present owner.
2. My background is in the information technology area and I have worked consistently in that area for 22 years. I am still working in that area.
3. The two inventors on the above referenced patent, Vincent Cyr and Kenneth Fritz were also at Promenix in 2000, and I became familiar with their work, through almost daily observation and discussion, as Promenix was a small company with a maximum of thirty seven employees at any one time, located in a small multiroom office complex in Chadds Ford PA.

4. Promenix was in the business of implementing enterprise application software. These implementations, almost invariably in large enterprises, take months and are often extremely complicated as those enterprises have existing legacy systems, multiple locations, and multiple stakeholders, and may be integrating other types of new technology as well at the same time.
5. Promenix became interested in alternative revenue streams, areas we could explore without being subject to the vagaries of the enterprise market, as large enterprise installs of the type we did could be subject to a boom or bust mentality.
6. In pursuing those alternate streams, Vincent Cyr, (“Vince”) President of Promenix, in 1998, began to become interested in messaging technology, which formed a possible backbone for enterprise installs, in that messaging often provides a protocol for transmitting information among disparate programs and systems.
7. In 1998, Vince and I started discussing possible uses of messaging technology in a business context. In August 1998 Vince and I discussed Exhibit A, in our offices in Chadds Ford, which was a document Vince had created exploring messaging technology for our customers.
8. In 1999 we had further discussions and Vince formed at some point during that year I believe a definite and permanent idea that monitoring messages could be used from a messaging system (e.g., IBM MQSeries) with a central message repository and providing, through a monitoring message, at least part of said original message data to that repository in order to identify the status of a

business process and its various elements. During our discussions that year, we discussed how that information could be used internally for status updates, disseminated to prospective customers, used by investors, etc.

9. I specifically recall the 1999 conversations because they took place as we were also working on an unrelated patent application during 1999, which we filed on New Year's Day 2000. At least some conversations about Vince's conception of the inventions of the above referenced patent took place as we were working on drafts and other materials in relation to that New Year's Day application.
10. I do not recall greater detail aside from what I have set forth here however as it was over twelve years ago. Nor do I have documents evidencing any discussions, as Promenix did not generate many documents because of its size (we had no such thing as inventor notebooks) and as far as I know Promenix kept very few documents of those it did generate when Promenix went out of business in 2006. Generally if we needed to communicate, it was our custom and practice to do so in personal meetings or over the telephone.
11. I do recall discussing Exhibit B, a document created by Vince in our offices in Chadds Ford, PA on or about the time he created it, January 11, 2000.
12. Vince had generated Exhibit B in the course of attempting to explore construction of a prototype and used our SAP R/3 installation in our offices, at least in part to capture data through a monitoring message ("original message data") in a database or central message repository.
13. On or about March 9, 2000, Vince, I and Kenneth Fritz ("Ken") specifically discussed the document attached here as Exhibit C, which had been prepared

by Vince.

14. As I mentioned above, Promenix was a small company, with our resources devoted to enterprise installs, yet Vince and I decided that the technology shown by Exhibit C was sufficiently promising to engage upon a development campaign, and Ken was assigned to build a prototype, with Vince's and my guidance.
15. Ken began work on the prototype immediately, and for the next six months, he, I and Vince had regular, almost daily conversations regarding elements of the prototype, interrupted only by our need to work on Promenix's revenue generating business.
16. I was aware Ken was working almost daily on the prototype because, I explained above, Promenix was housed in a small multiroom office complex, and I saw Ken everyday he and I were there.
17. On or about August 9, 2000, Ken presented Vince and I with the document attached here as Exhibit D which was as it states, the first working prototype of the inventions of the independent claims of the patent. Ken also showed us the prototype as it worked and was existing on our server, and I specifically recall observing how monitoring messages could be used from a messaging system (e.g., IBM MQSeries) and provide at least part of said original message data to a central message repository in order to identify the status of a business process and its various elements, in accordance with claim 1 and the other independent claims of the patent.
18. That is, I specifically recall Ken presenting to Vince and I,

1. A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:
  - providing, through a monitoring message, at least part of said original message data to a central message repository;
  - populating a transaction record in said central message repository with said original message data provided by said monitoring message;
  - wherein said original message data comprises the status of an activity.

which is claim 1 of the patent, and I also recall Ken presenting to us the other elements of the other independent claims.

19. Therefore, from on or about March 9, 2000 to on or about August 9, 2000, I observed Ken working almost daily, interrupted only by his work on Promenix's revenue generating business, on the inventions defined and set forth in at least independent claims 1, 22, 42, 49, 55-58 (the "independent claims") of the above referenced patent.

The undersigned declares that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and thus such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: August 12, 2012

/Matthew Franklin/

MATTHEW FRANKLIN



# **EXHIBIT A**

# **Systems Integration: Using Intelligent Messaging with SAP R/3™**

**Vincent R. Cyr**  
President, Promenix Inc.

**August 1998**

## Executive Summary

Implementing SAP R/3 involves many elements; Business process understanding, software configuration, education of users and support personnel, and a myriad of other related activities. One of the more challenging elements involves the integration of R/3 with all of the other systems in your organization (and possibly with systems external to your organization). This paper provides an insight to the use of *Intelligent Messaging* (IM) to speed up the integration process as well as providing a long-term strategy for additional integration efforts.

Whether you believe in *Best in Class* or *Best of Breed*, the fact remains that heterogeneous systems exist in your organization and they probably will continue to do so for many years to come. In fact, given the proliferation of packaged applications, custom development tools, and Internet –based applications, heterogeneous systems are likely to increase in number rather than decrease. The need for integrating these systems continues to challenge all organizations.

Intelligent messaging provides several benefits to an organization: asynchronous communications, data transformation, message routing, and most importantly, rules-based decision processes. All of these components combined make for a flexible, reliable, and maintainable infrastructure for application integration efforts. With the abstraction of business logic away from individual programs, changes can be made much more quickly and with fewer staff. People are more focused on solving the business problem instead of the technical problems regarding the integration of these disparate systems.

Using the following sections, a cohesive strategy can be developed to enable your organization to solve these integration problems.

## **Challenges of Systems Integration**

Today, more than ever, well-executed systems integration efforts are the difference between successful implementations of software solutions and failures destined to the "great idea, bad implementation" trash heap. There is no magic potion, no silver bullet, when it comes to linking these multi-architected, multi-OS, multi-communication protocol environments. In most cases, if there are two systems that can be integrated efficiently, it is most likely an accident rather than a planned occurrence. If the need for integration is going to continue to expand at these rates, what we need is an understanding of the elements affecting our abilities to deliver. What tools, methods, and approaches could we use to increase our likelihood of success? Let us understand the elements affecting systems integration: Business processes, heterogeneous systems, scarcity of talent, and the pace of change.

### ***Understanding of Business Processes***

As more and more companies embrace ERP core solutions, by necessity, they become more focused on the core business process rather than the event or base transaction. This process focused view has been impressed upon our organizations since Hammer & Champy published "Reengineering the Corporation". In addition, SAP AG has made process-oriented configuration of their R/3 software product easier and easier as each new release of the software is produced.

Unfortunately, very few legacy systems are process oriented. They are transaction and/or event based. This presents a problem when trying to establish integration points with an ERP system that is being implemented based on process threads. This means that business and systems analysts are required to understand how a legacy system fits within and entire process. This work should evolve into process maps that detail what system is involved in which part of the process. This is a vital and crucial step in the systems integration process that will lead to a better understanding of the systems that run your organization. Time consuming? Yes. A waste of time? Absolutely not! This is the reference point for your organization's application portfolio. It is from this that you can determine what system stays, goes, or needs to be phased out over time. It outlines areas that can be supplemented or replaced by your ERP system. It also provides visible identification of areas where additional software (non-ERP) may add value in a process thread.

You do not need to do this in one giant step. Start one process thread at a time. Require all new application development efforts to include supporting process diagrams and flows. As systems are being upgraded, add these process tasks to the effort. Over time, this discipline can become a natural part of your organization's work habits.

### ***Systems, Systems, and more Systems***

The proliferation of software and the solutions that can be provided by that software continues at what seems to be an unending pace. Legacy systems, once thought to have limited existences, now are being given new life as a result of Year 2000 efforts. Instead of turning them off, their value to the organization continues into the next millennium.

The packaged software supply continues to grow as the barrier to entry for software companies continues to be limited only by ideas and people to execute them; capital is plentiful and there are no other real assets to buy. These range from large ERP packages to small, "point solution" packages designed to solve a unique business function. The result of this: more software packages for you to incorporate into your organization that meet specific business processes and functions.

Robust application development environments and tools such as Borland's Delphi, Microsoft's Visual Studio, and others, are allowing for the creation of new software systems by internal application development departments at a blistering pace. Instead of large development projects aimed at the whole corporation, departments are now able to create their own applications very quickly. With the increased presence of the Internet and E-Commerce, the need for more systems, quickly, is increased. The result: more systems to integrate with existing systems.

When you put all of these factors together, you get systems, systems, and more systems with no relief in sight! What is even more problematic is that these systems need to communicate with each other. As mentioned earlier, businesses are becoming more process-oriented in how they behave. Systems must be integrated to support these processes. If you cannot stop the proliferation of systems, you must find a way to link them together quickly, efficiently, and in a way that long-term support and maintenance is possible.

## The Talent Shortage

Numerous studies are confirming what has been known for several years – there are not enough skilled resources to do the work that is required. The Information Technology Association of America estimates that there are currently 340,000 unfilled positions in the computer industry. Studies from the American Electronics Association show that graduates in computer science and math decreased 29% from 1985 to 1996. With an industry growth rate exceeding 15%, it becomes quite apparent that there is a major talent shortage (Figure 1.)

What does this mean to those having to integrate systems? It means you must find methods and tools that can make those resources that you have more productive. You need to re-think the traditional approaches to systems integration; the coding of point-to-point program interfaces that link a program from one system to a program in another system. This traditional approach is labor intensive, something that you do not have available. In addition, this approach lends itself to inconsistencies in development,

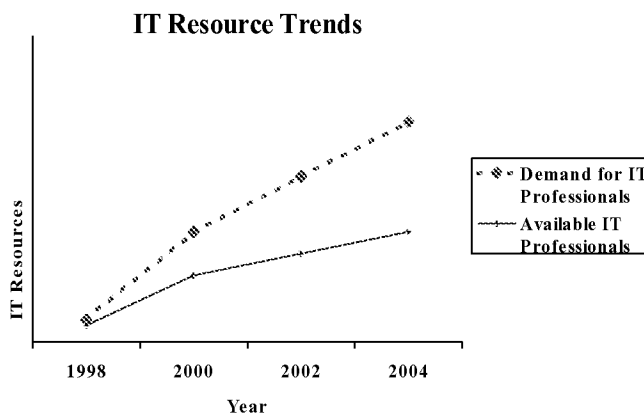


Figure 1.

implementation, and support.

## ***Reductions in Timeframes***

When was the last time a project was allowed 36 months, 24 months, or even 18 months to complete? In today's fast-paced business climate, systems projects have short timeframes of 3–6 months. If there are many systems to integrate, there is no time to code these integration points together. There is no time to learn a new programming language or architecture. The only activity you have time for is figuring out where these integration points need to be and how you can patch it together quickly. The pressure to speed up integration is not about to end. Therefore, new ways to improve productivity reduce learning curves, and focus on value-added activities needs to be embraced.

## **Intelligent Messaging Can Help**

Intelligent messaging is the transformation and transmission of data from/to specific locations based upon specific data content across multiple hardware and software platforms. Intelligent messaging comprises asynchronous communications, rules-based decisions, and message routing. Full-powered intelligent messaging is capable of dynamic, real-time, application and maintenance of business logic abstracted from individual application systems. Let's examine these components in more detail.

### ***Asynchronous Communications***

Asynchronous communications means that when an application is sending data to another application, the sending application does not wait for the receiving application to process the data before moving on. In military terms, think of this as a "fire and forget" process similar to a cruise missile after it has been launched. The ship or aircraft, once a launch has been executed, can sail or fly wherever it wants to with a highly confident assurance that the missile will reach its target without any other assistance. The assumption is clear: if I send it, it will be processed.

Now, with asynchronous communications, it is prudent to include a queuing mechanism in order to make sure that in the event that the receiving system is not active, data is not lost. This queuing is also important for situations that require rollbacks or reruns of processing. These queues act as data buckets that hold data temporarily until the appropriate applications acknowledge that it is safe to empty the buckets. Keep in mind that the acknowledgement is primarily to the queuing mechanism; not the sending application. The sending application is busy doing something else at this time; not waiting around for some acknowledgement.

This is beneficial because an application that uses asynchronous communications does not need to wait around for a response from some external system before continuing its processing. Networks do not have to maintain open sessions across applications waiting for responses. In short, applications and networks become more efficient. Data can be processed and routed with much more expediency. With the increased need for bandwidth of the network, moving messages is much more "bandwidth friendly" than synchronous communications within a network or across larger WANs.

### ***Rules-Based Decisions***

Application logic, in its essence, is really an organization of decisions needing to be applied to a specific piece of data. These are the rules that must be followed in order for information to be produced. Given the computer's strength in processing rules, the more the rules of an application can be organized, optimized, and de-coupled from the file-handling and data handling routines, the more the power of the computer can be utilized. In addition, these rules can also be managed and maintained more effectively;

an extremely valuable attribute given today's rapidly changing business demands. There is a simplicity that can be achieved by instructing the computer to do a specific action when the data contains a certain value.

## ***Routing***

A message, like a letter sent to a friend, has no value unless it is received. For letters, we have learned to trust FedEx to guarantee delivery to the right destination. All FedEx letters go to Memphis, their destinations are determined, and then they are put onto the plane going to that destination. That is what routing does for intelligent messaging. Messages have destinations that are determined in various ways; some destinations are pre-defined, some are based upon data content, and some are based upon lack of content. Routing takes the message, determines the correct destination, and sends it on its way. It is like a large mail-sorter; look at the address and send it on its way. One important element is the ability to take one inbound message and send different pieces to different locations. This provides a very efficient method of sending data to many places with a single input message.

## ***Dynamic Application and Maintenance of Business Logic***

There is one element that is not inherent to intelligent messaging but is such a critical component, it needs to be considered. The rules and routing are very powerful in the organization of your business logic. However, if these are static, hard-coded, difficult-to-maintain blobs of code, they do nothing in making your systems adaptable and flexible. Unless this business logic can be easy to change and maintain, your change request will sit in some development queue that will be accessed sometime in the year 2000 – right behind the 500 requests that came in before yours. Do not worry, your business unit manager will make sure that no area of his business will change for the next few years. Remember the talent shortage? Remember the reduced timeframes? You may have a long wait if you do not have anyone around who can make these changes. What you must consider is a solution that will enable you to change these applications much faster than the traditional development path. You must have rules that are easy to develop and maintain.

## **SAP R/3**

Much has already been said and written about SAP and its client/server ERP product, R/3. It is a powerful core enterprise package that has become the backoffice application infrastructure for thousands of companies. Since its existence in your organization is either real or imminent, your task is to integrate your existing systems to it. You may have to also integrate new add-on functionality as part of the R/3 implementation project. You also may have to integrate it with other companies that you do business with. All of these scenarios are real and their challenges can sometimes be minimal or they can be quite extensive. Fortunately, the ability to integrate these systems with R/3 has improved dramatically over the past few years; mainly as a result of SAP embracing an asynchronous messaging architecture.

### ***Messaging Inherent within SAP***

In 1994, SAP introduced Application Link Enabling (ALE). Designed to promote R/3 to R/3 communications, this architecture used messages from business scenarios to communicate asynchronously from one R/3 system to another. For example, the process of distributing changes to a customer master record from a central R/3 system to R/3 systems located in other divisions or plants was accomplished by sending a message (in the form of an SAP Intermediate Document record (IDOC)) to the target systems at the time of the customer record change. This architecture has since evolved to now be the core of the new Business Framework from SAP. This framework promotes a "loosely-coupled" integration between different R/3 modules. This allows for the propagation of R/3 systems to satisfy business requirements while maintaining integration between components. This is accomplished using the asynchronous messaging approach of ALE and IDOCs. It is important to note that R/3, while capable of these messaging capabilities, is first and foremost a business application package, not an intelligent messaging package. R/3 should not be designated as your message hub. It is your core application software that can efficiently and effectively operate in an asynchronous message architecture.



## **Value Provided to SAP R/3 by Intelligent Messaging**

Whether intentional or unintentional, by implementing SAP R/3, you have started the introduction of a message-oriented architecture into your organization. This added benefit provided by R/3 will move your organization away from inflexible, inefficient, hard-to-manage systems to those that are more adaptive and flexible to your company's demands.

### ***Flexible, Adaptive Integration Architecture***

As mentioned earlier, systems within an organization change almost daily. New systems are created, old ones are changed, and some are taken out of service. Business needs are constantly challenging the organization to have information readily at hand. Given SAP R/3's flexible approach to message exchange, if you can move data from and to R/3 via this method, you can start making your new and existing systems just as flexible and adaptive. Intelligent messaging can help turn these static, inflexible systems into a continuation of a business process that includes R/3. Changes can be made quicker. Systems can be added or removed quicker. Your R/3 system will now be able to exchange information within your organization as well as to systems external to your organization. This improves and enriches the information within the R/3 system and your organization. You increase the return on your investment in R/3.

### ***Abstraction of Application Logic Away from Programs***

One of the benefits of R/3's ALE approach is that the need to perform programming in R/3 to integrate systems has been greatly reduced. Since there are many different business scenarios that have been developed by SAP into ALE/IDOC combinations, many interfaces require little to no programming at all in R/3. Business rules can be configured for the appropriate logic and messages can be routed based upon those rules. If the target or source systems are enabled by intelligent messaging, the need for any programming to be performed has been greatly reduced. If a change is required to support a new business rule, R/3 and the related systems can be changed very quickly. Programs do not have to be changed, compiled, or promoted. The skill set required to perform these changes may already exist within your organization.

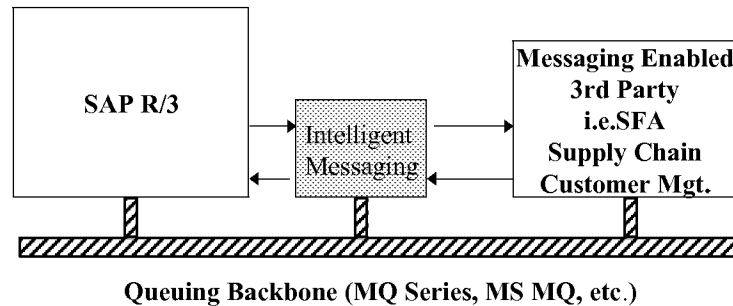
### ***Focused Efforts of Solving Business Problems, Not Technology Problems***

Too often in our business, the integration effort ends up focusing on the technical challenges instead on solving the business problem. This is not a fault of the people working on these issues. It is a result of not having a common approach to integrating these systems, not having a message-oriented architecture that makes data easier to move and distribute, and not having business rules abstracted from the programs to allow for quicker, easier changes.

There is only so much time in a day. Do you want your people trying to figure out how to get an ASCII file into EBCDIC or do you want them determining what rule and route to apply if the data is coming from a specific, high-volume customer? Using R/3 and intelligent-messaging, it becomes easier to focus on the business problem, not the technology problem.

## Enhanced Functionality from Legacy and Third Party Applications

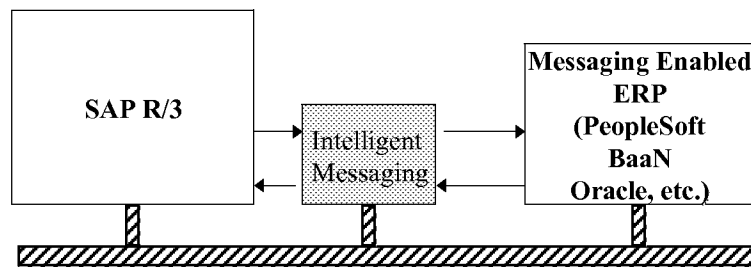
The following diagrams depict various applications of intelligent messaging with SAP R/3. As you can see, the flexibility that is gained from intelligent messaging is only limited to the ingenuity of your people. The first diagram shows a third-party application, such as sales force automation (SFA) connected to R/3.



Using the formatting, rules, and routing capability of the intelligent messaging software, R/3 to non-R/3 communications can be integrated

This speeds up the integration process and reduces the need for the 3rd party software to write integration points for every ERP or legacy system. Instead, they write to a common messaging API.

In the next figure, intelligent messaging is used to connect SAP R/3 with another ERP package such as PeopleSoft or BaaN. Because of acquisitions and industry consolidations, many organizations are finding themselves with more than one ERP system. Intelligent messaging can be used to leverage the investments made in both packages.

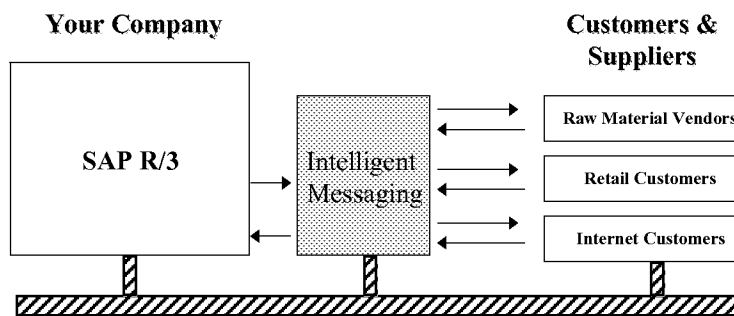


**Queuing Backbone (MQ Series, MS MQ, etc.)**

Using the formatting, rules, and routing capability of the intelligent messaging software, R/3 to other ERP packages within an organization can be integrated.

This speeds up the integration process and reduces the need to wait for a standards group to define each ERP process. The ERP vendors "message enable" their packages (i.e. SAP's ALE) in order to facilitate this communication.

As your organization increases its electronic communication with external customers and suppliers, using intelligent messaging will permit you to apply specific rules and routing information to your data depending on the data content. Certain customers may have priority over others. Certain vendors may receive certain messages based on the nature of the parts being supplied.



**Queuing Backbone (MQ Series, MS MQ, etc.)**

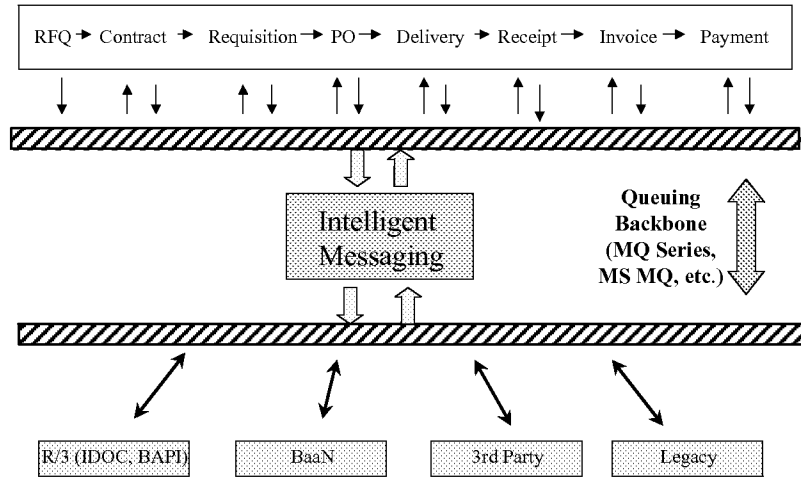
Using the formatting, rules, and routing capability of the intelligent messaging software, R/3 information to non-SAP systems of suppliers and customers can be integrated. This cross-organizational interchange of information improves the total order to fulfillment to cash process.

It is important to remember that your partners have many systems that are disparate from your own. Using intelligent messaging, they are able to keep their systems while still being able to take advantage of cross-organizational information flows.

This last diagram presents a more process-oriented view of intelligent messaging and how all of these pieces start to fit together. As you can see, a process-oriented approach coupled with intelligent messaging leads to a workflow-driven organization that has messages traveling from business event to event via the intelligent messaging engine. This messaging engine exchanges information with various systems (legacy, ERP, 3rd party) as the process is executed.

# Process Oriented Application Integration

## Procurement Process Flow



## Conclusion

There are many challenges when implementing systems. Business process design, software configuration, training, resistance to change, etc. One challenge that is common to all organizations is the need to integrate all of these systems together. Alone, each system performs a specific piece of a complete business process. Using SAP R/3, more of these processes can be integrated within one application package. However, the legacy systems that remain, the additional third-party software, and internal custom development, all must be tied together with R/3. Intelligent messaging, with its asynchronous architecture, flexibility, and abstraction of business logic, provides a solution to bringing these disparate pieces together. Keep in mind, there are no silver bullets. This still requires strategic thinking, careful planning, and commitment to execution. The short-term payback is an accelerated method in completing your integration efforts for your R/3 implementation. The long-term payback is an integration architecture that lends itself to faster response to changing business needs.

## About Promenix

Promenix is a systems integration service provider focusing on Enterprise Application Integration around SAP R/3. Located outside of Philadelphia, PA, Promenix helps its customers integrate their legacy and 3rd-party packages with SAP R/3 using such integration software as MQ Series from IBM and MQ Series Integrator from New Era of Networks, Inc.

They can be reached at (610) 361-1560, [www.promenix.com](http://www.promenix.com).

# **EXHIBIT B**



Process	Sub-Process	Inputs	Outputs	Org. Units	Date In	Time In	Date Out	Time Out	Status
Order-to-cash	Receive Customer Inquiry	Material BOM Customer	Customer Inquiry	Sales org. Division Sales Office Sales Group Distr. Channel					
Order-to-cash	Provide Customer Quotation	Material BOM Business Partner Time Customer Inquiry	Customer Quotation	Sales org. Division Sales Office Sales Group Distr. Channel					
Order-to-cash	Create Customer Outline Agreement	Material Batch Business Partner Time Customer Inquiry Customer Quotation	Customer Outline Agreement	Sales org. Division Sales Office Sales Group Distr. Channel					
Order-to-cash	Create Sales Order	Material Batch Business Partner Time Customer Inquiry Customer Quotation	Sales Order Production Order Manufacturing Order Purchase Req.	Sales org. Division Sales Office Sales Group Distr. Channel					
Order-to-cash	Ship Product	Material Batch Business Partner Time Customer Sales Order Customer Credit Account Customer Inquiry Customer Quotation Customer Contract Sales Promotion	Outbound Delivery	Shipping Point					
Order-to-cash	Invoice Customer	Material Batch Business Partner Time Customer Sales Order Customer Contract Customer Inquiry Customer Quotation Customer Contract	Customer Billing Document						
Order-to-cash	Receive Payment	Invoice Number Material Customer							



Process	Sub-Process	Inputs	Outputs	Org. Units	Date In	Time In	Date Out	Time Out	Status
Order-to-cash	Receive Customer Inquiry	Material BOM Business Partner Customer	Customer Inquiry	Sales org. Division Sales Office Sales Group Distr. Channel					
Order-to-cash	Provide Customer Quotation	Material BOM Business Partner Time Customer Inquiry	Customer Quotation	Sales org. Division Sales Office Sales Group Distr. Channel					
Order-to-cash	Create Customer Outline Agreement	Material Batch Business Partner Time Customer Credit Account Customer Inquiry Customer Quotation	Customer Outline Agreement	Sales org. Division Sales Office Sales Group Distr. Channel					
Order-to-cash	Create Sales Order	Material Batch Business Partner Time Customer Credit Account Customer Inquiry Customer Quotation Customer Contract Sales Promotion	Sales Order Production Order Manufacturing Order Purchase Req.	Sales org. Division Sales Office Sales Group Distr. Channel					
Order-to-cash	Ship Product	Material Batch Business Partner Time Customer Sales Order Customer Credit Account Customer Inquiry Customer Quotation Customer Contract	Outbound Delivery	Shipping Point					
Order-to-cash	Invoice Customer	Material Batch Business Partner Time Customer Sales Order Customer Contract Customer Complaint Order Credit Memo Request Debit Memo Request Returns	Customer Billing Document						
Order-to-cash	Receive Payment	Invoice Number Material Customer Amount							



ORDER TO CASH	AGREEMENT	5031 GP	ATLANTA, G/ INFO@PRC	800029 LYE	POUND	3.44	5	200027										NET/30
ORDER TO CASH	ORDER	5000 DOW	CHEM/MIDLAND, MI INFO@PRC	800003 WIDGET	BOX	2.00	2	200001	800000	03/27/00								NET/30
ORDER TO CASH	ORDER	5001 VF CORP	GREENSBORO/ INFO@PRC	800004 GADGET	CASE	10.00	3	200002	800001	03/27/00								NET/30
ORDER TO CASH	ORDER	5002 EASTMAN	C-KINGSPT, INFO@PRC	800005 BRAKE	BOX	3.00	2	200003	800002	03/28/00								NET/30
ORDER TO CASH	ORDER	5002 EASTMAN	C-KINGSPT, INFO@PRC	800006 3/4 BOLT	BOX	4.00	10	200003	800002	03/28/00								NET/30
ORDER TO CASH	ORDER	5003 PITNEY	BOW STAMFORD, INFO@PRC	800006 3/4 BOLT	BOX	4.00	11	200004	800003	03/27/00								2/10
ORDER TO CASH	ORDER	5004 VANGUARD	VALLEY FOR INFO@PRC	800007 PAPER	CASE	13.00	12	200005	800004	03/27/00								2/10
ORDER TO CASH	ORDER	5005 SMITH	KLINE/PHILADELPH INFO@PRC	800008 COTTON	CASE	4.00	12	200006	800005	03/29/00								NET/30
ORDER TO CASH	ORDER	5005 SMITH	KLINE/PHILADELPH INFO@PRC	800007 PAPER	CASE	13.00	22	200006	800005	03/29/00								NET/30
ORDER TO CASH	ORDER	5005 SMITH	KLINE/PHILADELPH INFO@PRC	800025 CAPSULE/	CASE	5.00	34	200006	800005	03/29/00								NET/30
ORDER TO CASH	ORDER	5005 SMITH	KLINE/PHILADELPH INFO@PRC	800010 SUGAR	BARREL	65.00	5	200006	800005	03/29/00								NET/30
ORDER TO CASH	ORDER	5006 KODAK	ROCHESTER/ INFO@PRC	800009 SILVER	OZ	23.00	21	200007	800006	03/27/00								NET/30
ORDER TO CASH	ORDER	5007 XEROX	STAMFORD, INFO@PRC	800010 TONER	PIECE	25.00	11	200008	800007	03/27/00								NET/30
ORDER TO CASH	ORDER	5008 COCA-COLA	ATLANTA, G/ INFO@PRC	800010 SUGAR	BARREL	65.00	2	200009	800008	03/27/00								NET/30
ORDER TO CASH	ORDER	5009 EXXON-MOB	HOUSTON, T INFO@PRC	800011 1" PIPE	FT	4.00	23	200010	800009	03/27/00								NET/30
ORDER TO CASH	ORDER	5010 ENRON	HOUSTON, T INFO@PRC	800012 6" PIPE	FT	2.43	11	200011	800010	03/27/00								NET/30
ORDER TO CASH	ORDER	5011 DUPONT	WILMINGTON/ INFO@PRC	800013 POLYMER	BIN	335.23	24	200012	800011	03/27/00								NET/30
ORDER TO CASH	ORDER	5012 CHEVRON	SAN RAMON/ INFO@PRC	800014 MBE ADDIT	BARREL	465.80	54	200013	800012	03/30/00								NET/30
ORDER TO CASH	ORDER	5013 CHASE	NEW YORK, INFO@PRC	800015 PENS	CASE	15.00	43	200014	800013	03/30/00								2/10
ORDER TO CASH	ORDER	5014 FIDELITY	BOSTON, M/ INFO@PRC	800016 BROCHUR	PIECE	6.00	1000	200015	800014	03/30/00								2/10
ORDER TO CASH	ORDER	5015 WILLIAMS	HOUSTON, T INFO@PRC	800017 FIBER	ROLL	1000.00	2	200016	800015	03/30/00								NET/30
ORDER TO CASH	ORDER	5016 UNION	CARB/HOUSTON, T INFO@PRC	800018 POLY-ETH	BARREL	544.00	3	200017	800016	03/30/00								NET/30
ORDER TO CASH	ORDER	5017 GM	DETROIT, MI INFO@PRC	800019 WINDSHIE	PIECE	433.00	300	200018	800017	03/30/00								NET/30
ORDER TO CASH	ORDER	5018 FORD	DEARBORN, INFO@PRC	800020 STEERING	PIECE	322.00	300	200019	800018	03/30/00								NET/30
ORDER TO CASH	ORDER	5019 IBM	ARMONK, NY INFO@PRC	800021 TRANSIST-EACH		100.00	1000	200020	800019	03/30/00								NET/30
ORDER TO CASH	ORDER	5019 IBM	ARMONK, NY INFO@PRC	800027 MEMORY	EACH	304.00	1000	200020	800019	03/30/00								NET/30
ORDER TO CASH	ORDER	5021 INTEL	SANTA CLAR/ INFO@PRC	800023 SAND	TON	45.00	5	200021	800020	03/27/00								NET/30
ORDER TO CASH	ORDER	5022 PHILIPS	NEW YORK, INFO@PRC	800024 FILAMENT	FT	1.00	25	200022	800021	04/02/00								NET/30
ORDER TO CASH	ORDER	5023 ELI LILLY	INDIANAPOL/ INFO@PRC	800025 CAPSULE/	CASE	5.00	20	200023	800022	03/27/00								NET/30
ORDER TO CASH	ORDER	5024 AMD	SANTA CLAR/ INFO@PRC	800026 SILICON	PIECE	2000.00	3	200024	800023	03/27/00								NET/30
ORDER TO CASH	ORDER	5025 APPLIED	MAT/SANTA CLAR INFO@PRC	800027 MEMORY	EPIECE	304.00	20	200025	800024	04/02/00								NET/30
ORDER TO CASH	ORDER	5030 KRAFT	CHICAGO, IL INFO@PRC	800028 MILK	GAL	2.59	30	200026	800025	04/02/00								NET/30
ORDER TO CASH	ORDER	5031 GP	ATLANTA, G/ INFO@PRC	800029 LYE	POUND	3.44	5	200027	800026	04/02/00								NET/30
ORDER TO CASH	SCHEDULE	5000 DOW	CHEM/MIDLAND, MI INFO@PRC	800003 WIDGET	BOX	2.00	2	200001	800000	03/27/00	410000	03/29/00	LOCAL					NET/30
ORDER TO CASH	SCHEDULE	5001 VF CORP	GREENSBORO/ INFO@PRC	800004 GADGET	CASE	10.00	3	200002	800001	03/27/00	410001	03/29/00	LOCAL					NET/30
ORDER TO CASH	SCHEDULE	5002 EASTMAN	C-KINGSPT, INFO@PRC	800005 BRAKE	BOX	3.00	2	200003	800002	03/28/00	410002	03/30/00	OFFSHORE					NET/30
ORDER TO CASH	SCHEDULE	5002 EASTMAN	C-KINGSPT, INFO@PRC	800006 3/4 BOLT	BOX	4.00	10	200003	800002	03/28/00	410002	03/30/00	OFFSHORE					NET/30
ORDER TO CASH	SCHEDULE	5003 PITNEY	BOW STAMFORD, INFO@PRC	800006 3/4 BOLT	BOX	4.00	11	200004	800003	03/27/00	410003	03/29/00	LOCAL					NET/30
ORDER TO CASH	SCHEDULE	5004 VANGUARD	VALLEY FOR INFO@PRC	800007 PAPER	CASE	13.00	12	200005	800004	03/27/00	410004	03/29/00	LOCAL					NET/30
ORDER TO CASH	SCHEDULE	5005 SMITH	KLINE/PHILADELPH INFO@PRC	800008 COTTON	CASE	4.00	12	200006	800005	03/29/00	410005	03/31/00	LOCAL					NET/30
ORDER TO CASH	SCHEDULE	5005 SMITH	KLINE/PHILADELPH INFO@PRC	800007 PAPER	CASE	13.00	22	200006	800005	03/29/00	410005	03/31/00	LOCAL					NET/30
ORDER TO CASH	SCHEDULE	5005 SMITH	KLINE/PHILADELPH INFO@PRC	800025 CAPSULE/	CASE	5.00	34	200006	800005	03/29/00	410005	03/31/00	LOCAL					NET/30
ORDER TO CASH	SCHEDULE	5005 SMITH	KLINE/PHILADELPH INFO@PRC	800010 SUGAR	BARREL	65.00	5	200006	800005	03/29/00	410005	03/31/00	LOCAL					NET/30
ORDER TO CASH	SCHEDULE	5006 KODAK	ROCHESTER/ INFO@PRC	800009 SILVER	OZ	23.00	21	200007	800006	03/27/00	410006	03/29/00	OFFSHORE					NET/30
ORDER TO CASH	SCHEDULE	5007 XEROX	STAMFORD, INFO@PRC	800010 TONER	PIECE	25.00	11	200008	800007	03/27/00	410007	03/29/00	OFFSHORE					NET/30
ORDER TO CASH	SCHEDULE	5008 COCA-COLA	ATLANTA, G/ INFO@PRC	800010 SUGAR	BARREL	65.00	2	200009	800008	03/27/00	410008	03/29/00	OFFSHORE					NET/30
ORDER TO CASH	SCHEDULE	5009 EXXON-MOB	HOUSTON, T INFO@PRC	800011 1" PIPE	FT	4.00	23	200010	800009	03/27/00	410009	03/29/00	LOCAL					NET/30
ORDER TO CASH	SCHEDULE	5010 ENRON	HOUSTON, T INFO@PRC	800012 6" PIPE	FT	2.43	11	200011	800010	03/27/00	410010	03/29/00	LOCAL					NET/30
ORDER TO CASH	SCHEDULE	5011 DUPONT	WILMINGTON/ INFO@PRC	800013 POLYMER	BIN	335.23	24	200012	800011	03/27/00	410011	03/29/00	LOCAL					NET/30
ORDER TO CASH	SCHEDULE	5012 CHEVRON	SAN RAMON/ INFO@PRC	800014 MBE ADDIT	BARREL	465.80	54	200013	800012	03/30/00	410012	04/01/00	LOCAL					NET/30
ORDER TO CASH	SCHEDULE	5013 CHASE	NEW YORK, INFO@PRC	800015 PENS	CASE	15.00	43	200014	800013	03/30/00	410013	04/01/00	LOCAL					NET/30
ORDER TO CASH	SCHEDULE	5014 FIDELITY	BOSTON, M/ INFO@PRC	800016 BROCHUR	PIECE	6.00	1000	200015	800014	03/30/00	410014	04/01/00	LOCAL					NET/30
ORDER TO CASH	SCHEDULE	5015 WILLIAMS	HOUSTON, T INFO@PRC	800017 FIBER	ROLL	1000.00	2	200016	800015	03/30/00	410015	04/01/00	LOCAL					NET/30
ORDER TO CASH	SCHEDULE	5016 UNION	CARB/HOUSTON, T INFO@PRC	800018 POLY-ETH	BARREL	544.00	3	200017	800016	03/30/00	410016	04/01/00	OFFSHORE					NET/30
ORDER TO CASH	SCHEDULE	5017 GM	DETROIT, MI INFO@PRC	800019 WINDSHIE	PIECE	433.00	300	200018	800017	03/30/00	410017	04/01/00	OFFSHORE					NET/30
ORDER TO CASH	SCHEDULE	5018 FORD	DEARBORN, INFO@PRC	800020 STEERING	PIECE	322.00	300	200019	800018	03/30/00	410018	04/01/00	OFFSHORE					NET/30
ORDER TO CASH	SCHEDULE	5019 IBM	ARMONK, NY INFO@PRC	800021 TRANSIST-EACH		100.00	1000	200020	800019	03/30/00	410019	04/01/00	OFFSHORE					NET/30
ORDER TO CASH	SCHEDULE	5019 IBM	ARMONK, NY INFO@PRC	800027 MEMORY	EACH	304.00	1000	200020	800019	03/30/00	410019	04/01/00	OFFSHORE					NET/30
ORDER TO CASH	SCHEDULE	5021 INTEL	SANTA CLAR/ INFO@PRC	800023 SAND	TON	45.00	5	200021	800020	03/27/00	410020	03/29/00	LOCAL					NET/30
ORDER TO CASH	SCHEDULE	5022 PHILIPS	NEW YORK, INFO@PRC	800024 FILAMENT	FT	1.00	25	200022	800021	04/02/00	410021	04/04/00	LOCAL					NET/30
ORDER TO CASH	SCHEDULE	5023 ELI LILLY	INDIANAPOL/ INFO@PRC	800025 CAPSULE/	CASE	5.00	20	200023	800022	03/27/00	410022	03/29/00	OFFSHORE					NET/30
ORDER TO CASH	SCHEDULE	5024 AMD	SANTA CLAR/ INFO@PRC	800026 SILICON	PIECE	2000.00	3	200024	800023	03/27/00	410023	03/29/00	LOCAL					NET/30
ORDER TO CASH	SCHEDULE	5025 APPLIED	MAT/SANTA CLAR INFO@PRC	800027 MEMORY	EPIECE	304.00	20	200025	800024	04/02/00	410024	04/04/00	LOCAL					NET/30
ORDER TO CASH	SCHEDULE	5030 KRAFT	CHICAGO, IL INFO@PRC	800028 MILK	GAL	2.59	30	200026	800025	04/02/00	410025	04/04/00	LOCAL					NET/30
ORDER TO CASH	SCHEDULE	5031 GP	ATLANTA, G/ INFO@PRC	800029 LYE	POUND	3.44	5	200027	800026	04/02/00	410026	04/04/00	LOCAL					NET/30

ORDER TO CASH	SHIP	5000 DOW CHEM	MIDLAND, MI	INFO@PRC	800003 WIDGET	BOX	2.00	2	200001	800000	03/27/00	410000	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH	SHIP	5001 VF CORP	GREENSBORO	INFO@PRC	800004 GADGET	CASE	10.00	3	200002	800001	03/27/00	410001	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH	SHIP	5002 EASTMAN	CH KINGSPT	INFO@PRC	800005 BRAKE	BOX	3.00	2	200003	800002	03/28/00	410002	03/30/00 OFFSHORE	NET/30	04/01/00
ORDER TO CASH	SHIP	5002 EASTMAN	CH KINGSPT	INFO@PRC	800006 3/4 BOLT	BOX	4.00	10	200003	800002	03/28/00	410002	03/30/00 OFFSHORE	NET/30	04/01/00
ORDER TO CASH	SHIP	5003 PITNEY BOW	STAMFORD, CT	INFO@PRC	800006 3/4 BOLT	BOX	4.00	11	200004	800003	03/27/00	410003	03/29/00 LOCAL	2/10	03/31/00
ORDER TO CASH	SHIP	5004 VANGUARD	VALLEY FOR	INFO@PRC	800007 PAPER	CASE	13.00	12	200005	800004	03/27/00	410004	03/29/00 LOCAL	2/10	03/31/00
ORDER TO CASH	SHIP	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800008 COTTON	CASE	4.00	12	200006	800005	03/29/00	410005	03/31/00 LOCAL	NET/30	04/02/00
ORDER TO CASH	SHIP	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800007 PAPER	CASE	13.00	22	200006	800005	03/29/00	410005	03/31/00 LOCAL	NET/30	04/02/00
ORDER TO CASH	SHIP	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800025 CAPSULE	CASE	5.00	34	200006	800005	03/29/00	410005	03/31/00 LOCAL	NET/30	04/02/00
ORDER TO CASH	SHIP	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800010 SUGAR	BARREL	65.00	5	200006	800005	03/29/00	410005	03/31/00 LOCAL	NET/30	04/02/00
ORDER TO CASH	SHIP	5006 KODAK	ROCHESTER	INFO@PRC	800009 SILVER	OZ	23.00	21	200007	800006	03/27/00	410006	03/29/00 OFFSHORE	NET/30	03/31/00
ORDER TO CASH	SHIP	5007 XEROX	STAMFORD, CT	INFO@PRC	800010 TONER	PIECE	25.00	11	200008	800007	03/27/00	410007	03/29/00 OFFSHORE	NET/30	03/31/00
ORDER TO CASH	SHIP	5008 COCA-COLA	ATLANTA, GA	INFO@PRC	800010 SUGAR	BARREL	65.00	2	200009	800008	03/27/00	410008	03/29/00 OFFSHORE	NET/30	03/31/00
ORDER TO CASH	SHIP	5009 EXXON-MOB	HOUSTON, TX	INFO@PRC	800011 1" PIPE	FT	4.00	23	200010	800009	03/27/00	410009	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH	SHIP	5010 ENRON	HOUSTON, TX	INFO@PRC	800012 6" PIPE	FT	2.43	11	200011	800010	03/27/00	410010	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH	SHIP	5011 DUPONT	WILMINGTON	INFO@PRC	800013 POLYMER	BIN	335.23	24	200012	800011	03/27/00	410011	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH	SHIP	5012 CHEVRON	SAN RAMON	INFO@PRC	800014 MBE ADDT	BARREL	465.80	54	200013	800012	03/30/00	410012	04/01/00 LOCAL	NET/30	04/03/00
ORDER TO CASH	SHIP	5013 CHASE	NEW YORK, NY	INFO@PRC	800015 PENS	CASE	15.00	43	200014	800013	03/30/00	410013	04/01/00 LOCAL	2/10	04/03/00
ORDER TO CASH	SHIP	5014 FIDELITY	BOSTON, MA	INFO@PRC	800016 BROCHUR	PIECE	6.00	1000	200015	800014	03/30/00	410014	04/01/00 LOCAL	2/10	04/03/00
ORDER TO CASH	SHIP	5015 WILLIAMS	HOUSTON, TX	INFO@PRC	800017 FIBER	ROLL	1000.00	2	200016	800015	03/30/00	410015	04/01/00 LOCAL	NET/30	04/03/00
ORDER TO CASH	SHIP	5016 UNION CARB	HOUSTON, TX	INFO@PRC	800018 POLY-ETH	BARREL	544.00	3	200017	800016	03/30/00	410016	04/01/00 OFFSHORE	NET/30	04/03/00
ORDER TO CASH	SHIP	5017 GM	DETROIT, MI	INFO@PRC	800019 WINDSHIE	PIECE	433.00	300	200018	800017	03/30/00	410017	04/01/00 OFFSHORE	NET/30	04/03/00
ORDER TO CASH	SHIP	5018 FORD	DEARBORN, MI	INFO@PRC	800020 STEERING	PIECE	322.00	300	200019	800018	03/30/00	410018	04/01/00 OFFSHORE	NET/30	04/03/00
ORDER TO CASH	SHIP	5019 IBM	ARMONK, NY	INFO@PRC	800021 TRANSIST	EACH	100.00	1000	200020	800019	03/30/00	410019	04/01/00 OFFSHORE	NET/30	04/03/00
ORDER TO CASH	SHIP	5019 IBM	ARMONK, NY	INFO@PRC	800027 MEMORY	EACH	304.00	1000	200020	800019	03/30/00	410019	04/01/00 OFFSHORE	NET/30	04/03/00
ORDER TO CASH	SHIP	5021 INTEL	SANTA CLAR	INFO@PRC	800023 SAND	TON	45.00	5	200021	800020	03/27/00	410020	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH	SHIP	5022 PHILIPS	NEW YORK, NY	INFO@PRC	800024 FILIMENT	FT	1.00	25	200022	800021	04/02/00	410021	04/04/00 LOCAL	NET/30	04/06/00
ORDER TO CASH	SHIP	5023 ELI LILLY	INDIANAPOL	INFO@PRC	800025 CAPSULE	CASE	5.00	20	200023	800022	03/27/00	410022	03/29/00 OFFSHORE	NET/30	03/31/00
ORDER TO CASH	SHIP	5024 AMD	SANTA CLAR	INFO@PRC	800026 SILICON	PIECE	2000.00	3	200024	800023	03/27/00	410023	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH	SHIP	5025 APPLIED MAT	SANTA CLAR	INFO@PRC	800027 MEMORY	PIECE	304.00	20	200025	800024	04/02/00	410024	04/04/00 LOCAL	NET/30	04/06/00
ORDER TO CASH	SHIP	5030 KRAFT	CHICAGO, IL	INFO@PRC	800028 MILK	GAL	2.59	30	200026	800025	04/02/00	410025	04/04/00 LOCAL	NET/30	04/06/00
ORDER TO CASH	SHIP	5031 GP	ATLANTA, GA	INFO@PRC	800029 LYE	POUND	3.44	5	200027	800026	04/02/00	410026	04/04/00 LOCAL	NET/30	04/06/00
ORDER TO CASH	INVOICE	5000 DOW CHEM	MIDLAND, MI	INFO@PRC	800003 WIDGET	BOX	2.00	2	200001	800000	03/27/00	410000	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH	INVOICE	5001 VF CORP	GREENSBORO	INFO@PRC	800004 GADGET	CASE	10.00	3	200002	800001	03/27/00	410001	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH	INVOICE	5002 EASTMAN	CH KINGSPT	INFO@PRC	800005 BRAKE	BOX	3.00	2	200003	800002	03/28/00	410002	03/30/00 OFFSHORE	NET/30	04/01/00
ORDER TO CASH	INVOICE	5002 EASTMAN	CH KINGSPT	INFO@PRC	800006 3/4 BOLT	BOX	4.00	10	200003	800002	03/28/00	410002	03/30/00 OFFSHORE	NET/30	04/01/00
ORDER TO CASH	INVOICE	5003 PITNEY BOW	STAMFORD, CT	INFO@PRC	800006 3/4 BOLT	BOX	4.00	11	200004	800003	03/27/00	410003	03/29/00 LOCAL	2/10	03/31/00
ORDER TO CASH	INVOICE	5004 VANGUARD	VALLEY FOR	INFO@PRC	800007 PAPER	CASE	13.00	12	200005	800004	03/27/00	410004	03/29/00 LOCAL	2/10	03/31/00
ORDER TO CASH	INVOICE	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800008 COTTON	CASE	4.00	12	200006	800005	03/29/00	410005	03/31/00 LOCAL	NET/30	04/02/00
ORDER TO CASH	INVOICE	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800007 PAPER	CASE	13.00	22	200006	800005	03/29/00	410005	03/31/00 LOCAL	NET/30	04/02/00
ORDER TO CASH	INVOICE	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800025 CAPSULE	CASE	5.00	34	200006	800005	03/29/00	410005	03/31/00 LOCAL	NET/30	04/02/00
ORDER TO CASH	INVOICE	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800010 SUGAR	BARREL	65.00	5	200006	800005	03/29/00	410005	03/31/00 LOCAL	NET/30	04/02/00
ORDER TO CASH	INVOICE	5006 KODAK	ROCHESTER	INFO@PRC	800009 SILVER	OZ	23.00	21	200007	800006	03/27/00	410006	03/29/00 OFFSHORE	NET/30	03/31/00
ORDER TO CASH	INVOICE	5007 XEROX	STAMFORD, CT	INFO@PRC	800010 TONER	PIECE	25.00	11	200008	800007	03/27/00	410007	03/29/00 OFFSHORE	NET/30	03/31/00
ORDER TO CASH	INVOICE	5008 COCA-COLA	ATLANTA, GA	INFO@PRC	800010 SUGAR	BARREL	65.00	2	200009	800008	03/27/00	410008	03/29/00 OFFSHORE	NET/30	03/31/00
ORDER TO CASH	INVOICE	5009 EXXON-MOB	HOUSTON, TX	INFO@PRC	800011 1" PIPE	FT	4.00	23	200010	800009	03/27/00	410009	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH	INVOICE	5010 ENRON	HOUSTON, TX	INFO@PRC	800012 6" PIPE	FT	2.43	11	200011	800010	03/27/00	410010	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH	INVOICE	5011 DUPONT	WILMINGTON	INFO@PRC	800013 POLYMER	BIN	335.23	24	200012	800011	03/27/00	410011	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH	INVOICE	5012 CHEVRON	SAN RAMON	INFO@PRC	800014 MBE ADDT	BARREL	465.80	54	200013	800012	03/30/00	410012	04/01/00 LOCAL	NET/30	04/03/00
ORDER TO CASH	INVOICE	5013 CHASE	NEW YORK, NY	INFO@PRC	800015 PENS	CASE	15.00	43	200014	800013	03/30/00	410013	04/01/00 LOCAL	2/10	04/03/00
ORDER TO CASH	INVOICE	5014 FIDELITY	BOSTON, MA	INFO@PRC	800016 BROCHUR	PIECE	6.00	1000	200015	800014	03/30/00	410014	04/01/00 LOCAL	2/10	04/03/00
ORDER TO CASH	INVOICE	5015 WILLIAMS	HOUSTON, TX	INFO@PRC	800017 FIBER	ROLL	1000.00	2	200016	800015	03/30/00	410015	04/01/00 LOCAL	NET/30	04/03/00
ORDER TO CASH	INVOICE	5016 UNION CARB	HOUSTON, TX	INFO@PRC	800018 POLY-ETH	BARREL	544.00	3	200017	800016	03/30/00	410016	04/01/00 OFFSHORE	NET/30	04/03/00
ORDER TO CASH	INVOICE	5017 GM	DETROIT, MI	INFO@PRC	800019 WINDSHIE	PIECE	433.00	300	200018	800017	03/30/00	410017	04/01/00 OFFSHORE	NET/30	04/03/00
ORDER TO CASH	INVOICE	5018 FORD	DEARBORN, MI	INFO@PRC	800020 STEERING	PIECE	322.00	300	200019	800018	03/30/00	410018	04/01/00 OFFSHORE	NET/30	04/03/00
ORDER TO CASH	INVOICE	5019 IBM	ARMONK, NY	INFO@PRC	800021 TRANSIST	EACH	100.00	1000	200020	800019	03/30/00	410019	04/01/00 OFFSHORE	NET/30	04/03/00
ORDER TO CASH	INVOICE	5019 IBM	ARMONK, NY	INFO@PRC	800027 MEMORY	EACH	304.00	1000	200020	800019	03/30/00	410019	04/01/00 OFFSHORE	NET/30	04/03/00
ORDER TO CASH	INVOICE	5021 INTEL	SANTA CLAR	INFO@PRC	800023 SAND	TON	45.00	5	200021	800020	03/27/00	410020	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH	INVOICE	5022 PHILIPS	NEW YORK, NY	INFO@PRC	800024 FILIMENT	FT	1.00	25	200022	800021	04/02/00	410021	04/04/00 LOCAL	NET/30	04/06/00
ORDER TO CASH	INVOICE	5023 ELI LILLY	INDIANAPOL	INFO@PRC	800025 CAPSULE	CASE	5.00	20	200023	800022	03/27/00	410022	03/29/00 OFFSHORE	NET/30	03/31/00
ORDER TO CASH	INVOICE	5024 AMD	SANTA CLAR	INFO@PRC	800026 SILICON	PIECE	2000.00	3	200024	800023	03/27/00	410023	03/29/00 LOCAL	NET/30	03/31/00
ORDER TO CASH	INVOICE	5025 APPLIED MAT	SANTA CLAR	INFO@PRC	800027 MEMORY	PIECE	304.00	20	200025	800024	04/02/00	410024	04/04/00 LOCAL	NET/30	04/06/00
ORDER TO CASH	INVOICE	5030 KRAFT	CHICAGO, IL	INFO@PRC	800028 MILK	GAL	2.59	30	200026	800025	04/02/00	410025	04/04/00 LOCAL	NET/30	04/06/00
ORDER TO CASH	INVOICE	5031 GP	ATLANTA, GA	INFO@PRC	800029 LYE	POUND	3.44	5	200027	800026	04/02/00	410026	04/04/00 LOCAL	NET/30	04/06/00

# **EXHIBIT C**

**Process Metrics Project**  
**March 9, 2000**

Design Specification 1.0

<b>Last Revised By:</b>	<b>Date</b>	<b>Additions</b>
Vincent Cyr	March 9, 2000	Initial Draft

## Introduction

The activities that take place within a company to conduct its business are organized into processes. Each process is comprised of sub-processes that break down the process into more discreet elements – eventually becoming transactions. For example, the activity of a business that involves making products and selling them for money is known as “Order-to-Cash”. This process is broken down into sub-processes that deal with the individual steps - first obtaining a prospective customer – to the manufacturing of product(s), shipping, and invoicing of that customer.

Each of these sub-processes is triggered by an event that passes information to the next sub-process so that action can be carried out. Often, an application may be responsible for one or more of these sub-processes. In the case of SAP, its integrated applications allow for many of the sub-processes activities to be carried out within the entire SAP R/3 system.

However, in many cases, some of the sub-processes are carried out by different applications or in the cases of e-commerce, may be carried out by entirely different organizations or companies.

How then, does someone inside the organization or outside the organization know at what point their particular order resides? Calling someone may cause a cascading number of phone calls, e-mails, faxes, system look-ups, etc. to determine status of the order. This is highly inefficient and results in poor customer response and service. In addition, being able to measure performance across the sub-processes would have value to those in the organization trying to determine inefficiencies in their operations. Imagine the ability to know how long it took to go from order to manufacturing to shipping during each step of the process. Imagine being able to know exactly where in the process an order is even if your company is not performing one or more sub-processes. This project is intended to demonstrate how we can use messaging to make this possible.

Using MQSeries and MQSeries Integrator, we are going to simulate a process and its related sub-processes. As each event takes place, we are going to send messages with information pertaining to that event through MQSI to a database. This database will hold the messages (in XML format), which we will use to report against. The diagram 1.0 shows the overall layout of this concept.

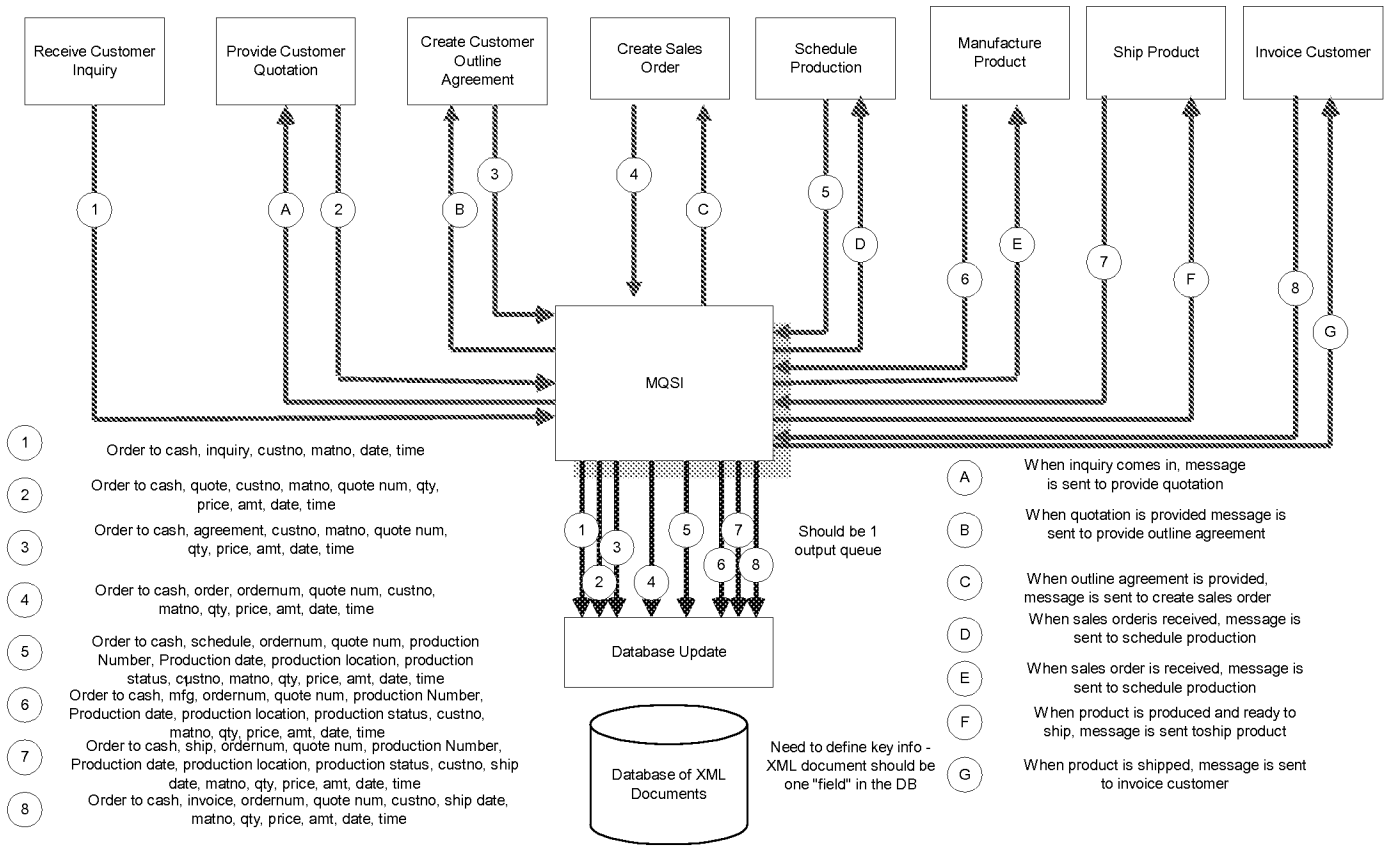
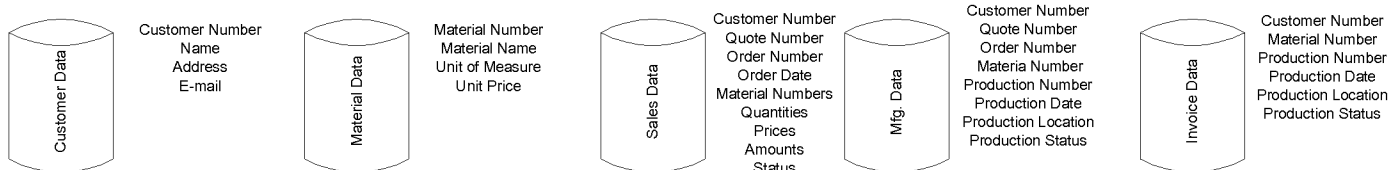


Diagram 1.0



## Development Approach

We should approach development by stubbing out pieces of functionality and validating the design in a step-by-step approach. We will then build upon these pieces as we increase capability. We will build the following components:

**Process Engine** – This will be the application that simulates the applications that perform the sub-processes of the main process. The main process will be Order-to-Cash. The sub-processes are: Inquiry, Quotation, Outline Agreement, Sales Order, Schedule Production, Manufacture, Ship, and Invoice. The Process Engine (PE) should be one program (C++ or Java Servlet) that has each of the sub-processes as a separate function within the application. All inputs and outputs should use MQSeries queues. MQSI application group/message types to distinguish messages from sub-processes. The PE will need to access various databases in order to obtain information about customers, materials, sales, manufacturing, shipping, and invoicing. Load programs may need to be developed to create sample data for these databases. We must also have a method for varying the time intervals between processes (throttling) to simulate real-life time lags between sub-process steps. For example, it may take 1 day between ordering a product and manufacturing a product, we need to show that variation so when we report the results, they appear realistic. The PE should be developed so that we can test the message flow first, then we can add database access and fill out the message structures.

**MQSeries Integrator** – MQSI will be the formatting and routing engine of this design. There will be several different formats coming into MQSI from the various sub-processes. The app group/message type in the MQRFH will determine which format to use. There will be one outbound format that will be used to send all event information to a database that will store all event messages. This format should be XML and one document should consist of all of the possible data elements across the process. These messages will all be placed on one output queue. The other outbound formats will be messages sent to the next sub-process in the process thread; on another queue, separate from the XML queue.

**Database update** – This process will take XML event messages from MQSI and insert them into a database of messages. The key needs to be defined which will allow for inquiry and reporting. The entire XML message will be placed in one field of the database. There should be a cleanup routine to purge older messages (all related to each other) based on a date or key parameter. Extraction of information from the database will be both inquiries against a particular order/customer/material/sub-process or a more generic statistical presentation of data across the entire process. Many of these inquiries are yet to be defined. Presentation of the information will be web-based using XSL style sheets.

At this point in the design, we should stub these pieces out and put as much together to test out these concepts. We will test these components and determine how to move forward from this point.

## **XML Document**

One XML document is to be used for all of the messages coming out of each sub-process of the entire process thread. The data elements include:

### **Process**

- Sub-process name (1 or more)

- Sub-process info (1 or more)

  - Date

  - Time

  - Customer (1)

    - Customer Number

    - Customer Name

    - Customer Address

    - Customer E-mail

  - Material (1 or more)

    - Material Number

    - Material Name

    - Unit of Measure

    - Price

    - Quantity

  - Sales Data (1)

    - Quotation Number

    - Order Number

    - Order Date

    - Manufacturing Data (1)

      - Production Number

      - Production Date

      - Production Location

      - Production Status

    - Invoice Data (1)

      - Amount

      - Terms

      - Date

# **EXHIBIT D**

<b>Author</b>	<b>Date</b>	<b>Description</b>
Ken Fritz	08/07/2000	Initial Draft

## **About Process Metrics Simulator**

The Process Metrics Simulator is the first version of a utility developed to model and simulate business processes. The simulator currently implements a simple 8 process business production model which simulates realistic processes by including process latency and stoppage capability. Latency is independently modifiable by process section. Each section receives a message from the previous section by way of MQSeries messaging. This data transfer is in a standard XML format which has been included in the resource directory of the development directory.

The program is initialized by a file which must be located in the c:\process\ directory on the users machine, called ProcessSim.ini. The file should be somewhat self explanatory; however, see the detailed documentation for more information.

This software was written in Visual Basic 6.0 and utilizes IBM's MQSeries ActiveX objects.

# Process Metrics Simulator, 1.0a Documentation

Author	Date	Description
Ken Fritz	08/07/2000	Detailed Software Documentation, Initial Draft

## I. Basic Design Goals

The simulator is intended to be a flexible utility to model business processes utilizing a variety of messaging constructs and formats. In its final version it will:

- Be written in a platform independent language
- Utilize multiple messaging transports (ie. Tibco, MQSeries)
- Utilize flexible message formats
- Allow for dynamic construction of business processes (Snap-in model)
- Allow for user interaction in setting latency and message drops/stoppage.

Currently, the simulator is in a very basic alpha development version which does the following:

- Supports a basic 8 process production model.
- Utilizes MQSeries messaging
- Allows for user configurable latency settings
- Supports only one basic XML message format.
- Written in Visual Basic 6.0

This document covers only the alpha version currently available.

## II. User Interface

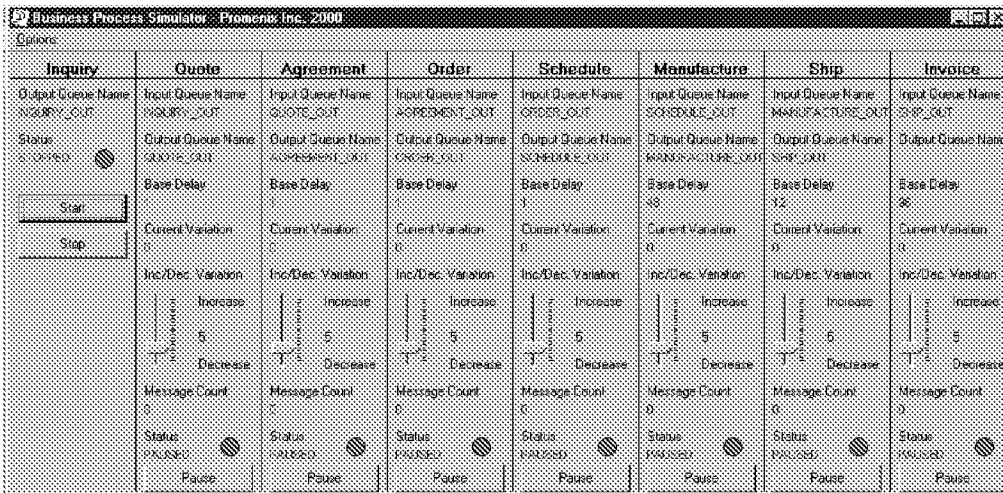


Figure 1 – Process Simulator GUI

The GUI for the process simulator is shown in Figure 1. The GUI allows the user to control all runtime parameters of the package which are limited to the following:

- Starting/Stopping by process
- Latency per process

Also, the GUI will indicate settings for pre-runtime configurable options:

- Input/Output Queue Names
- Base Variation

Finally, the GUI will also indicate dynamic parameters including final latency (delay), message count, and status of each process.

### III. Sample Configuration File

Note: This file must be located in "C:\Process\\*" directory and named processsim.ini

<pre>[Common]  QMGR = CONF01 CHARACTERSET = 437 DBQNAME = DB_IN MQSI_Q_OUT = TESTQ  [Inquiry]  OUTPUTQNAME = INQUIRY_OUT INITIAL_STATUS = 0 XMLFILE = "c:\inquiry.txt"  [Quote]  INPUTQNAME = INQUIRY_OUT OUTPUTQNAME = QUOTE_OUT BASEVARIATION = 1 INITVARIATION = 5 XMLFILE = "c:\test.xml"  [Agreement]  INPUTQNAME = QUOTE_OUT OUTPUTQNAME = AGREEMENT_OUT BASEVARIATION = 1 INITVARIATION = 5 XMLFILE = "c:\test.xml"  [OrderProcess]  INPUTQNAME = AGREEMENT_OUT OUTPUTQNAME = ORDER_OUT BASEVARIATION = 1 INITVARIATION = 5 XMLFILE = "c:\test.xml"  [Schedule]  INPUTQNAME = ORDER_OUT OUTPUTQNAME = SCHEDULE_OUT BASEVARIATION = 1 INITVARIATION = 5 XMLFILE = "c:\test.xml"  [Manufacture]  INPUTQNAME = SCHEDULE_OUT OUTPUTQNAME = MANUFACTURE_OUT BASEVARIATION = 48</pre>	<p>The queue manager to be used The MQSeries character set Database queue name MQSI output queue</p> <p>Settings for Inquiry process</p> <p>Output queue Initial status (0 = Stopped, 1 = Running) XML document file</p> <p>Settings for quote process</p> <p>Input queue name Output queue name Base variation (Delay) setting Initial random seed value (variation can be MAX +5 if this is 5) XML Document file</p> <p>Agreement process</p> <p>Settings are the same for the rest of these processes as for quote process.</p>
--	--

INITVARIATION = 5 XMLFILE = "c:\test.xml"	
[Ship]	
INPUTQNAME = MANUFACTURE_OUT OUTPUTQNAME = SHIP_OUT BASEVARIATION = 12 INITVARIATION = 5 XMLFILE = "c:\test.xml"	
[Invoice]	
INPUTQNAME = SHIP_OUT OUTPUTQNAME = INVOICE_OUT BASEVARIATION = 96 INITVARIATION = 5 XMLFILE = "c:\test.xml"	

#### IV. Sample XML Document Format

```

<PROCESS>
  ORDER_TO_CASH
  <SUBPROCESS>
    SHIP
    <CUSTOMER>
      <CUSTNO>5000</CUSTNO>
      <CUSTNAME>DOW CHEMICAL</CUSTNAME>
      <CITY>MIDLAND</CITY>
      <STATE>MI</STATE>
      <EMAIL>INFO@PROMENIX.COM</EMAIL>
    </CUSTOMER>
    <MATERIAL>
      <MATNUM>800003</MATNUM>
      <MATNAME>WIDGET</MATNAME>
      <UOM>BOX</UOM>
      <PRICE>2</PRICE>
      <QTY>2</QTY>
    </MATERIAL>
    <SALES_DATA>
      <QUOTENUM>200001</QUOTENUM>
      <ORDERNUM>800000</ORDERNUM>
      <ORDERDATE>3/27/00</ORDERDATE>
    </SALES_DATA>
    <MANUFACT_DATA>
      <PRODUCTION_NUM>410000</PRODUCTION_NUM>
      <PRODUCTION_DATE>3/29/00</PRODUCTION_DATE>
      <PRODUCTION_LOC>LOCAL</PRODUCTION_LOC>
      <PRODUCTION_STATUS />
    </MANUFACT_DATA>
    <INVOICE_DATA>
      <AMT />
      <TERMS>NET/30</TERMS>
      <SHIP_DATE>3/31/00</SHIP_DATE>
      <INVOICE_DATE />
    </INVOICE_DATA>
  </SUBPROCESS>
  <EVENT_DATE />
  <EVENT_TIME />
</PROCESS>

```

## V. Basic theory of operation

Initialization process:

1. Call ReadINI
  - a. Open the ini file (must be c:\process\processsim.ini)
  - b. Read all global variables from the INI
2. Call InitGUI
  - a. Initialize labels and display settings
  - b. Set status flags
  - c. Set initial timer intervals
3. Call InitXMLFiles
  - a. Load XML files into memory from disk
4. Call InitDOMS
  - a. Create DOM Objects for each process
  - b. Load XML from InitXMLFiles into DOMs
  - c. Parse XML
5. Call StartTimers
  - a. Set initial timer intervals to 100 ms
  - b. By doing so, starts message processing

Initial process (trigger process)

1. Load initial dummy values into the pre-existing XML DOM
2. Generate a random TID
  - a. Done with following formula: Year & Month & Day & Timer \* Rnd (Where timer is seconds past midnight)
3. Dump XML to variable
4. Write contents of variable to the output queue and DB/MQSI queue

Messages are processed in the following sequence by a generic process:

1. Listener listens on input queue for the process
2. Message listener tries to retrieve a message with no wait interval.
  - a. If message not available, timer interval set to 5000 (5 seconds) to allow processor to do other things while waiting for another message to arrive.
  - b. If the message is there, processing continues
3. When message arrives, retrieve correlation ID
4. Set GUI parameters
  - a. Timer interval to 100 (100 milliseconds)
  - b. Change status to "Running" if it was "Paused"
  - c. Change indicator from red to green
5. Create XMLDOM object
6. Load retrieved message into DOM and parse
7. Load values from retrieved message into variables (Currently static – should be dynamic in future)
8. Create random delay value
9. Using the XMLDOM created in the initialization for the base document, load values from the retrieved message into the new message
10. Change the time and date on the message by adding the delay value
11. Dump the XML from the DOM object into a variable
12. Write the contents of the variable to an MQ message having the same correlation ID as the previous to both the output queue and the MQSI/DB Output queue.



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Art Unit : 3992  
Examiner : Rachna Desai  
Patent No. : 7,062,749  
Filed : December 15, 2000  
Control No. : 90/009,961  
Inventors : Vincent R. Cyr  
                  Kenneth Fritz  
Docket No. : Prom RE-001

Title : MEASURING, MONITORING AND TRACKING ENTERPRISE  
COMMUNICATIONS AND PROCESSES

**DECLARATION UNDER 37 C.F.R. §1.131**

I, Vincent R. Cyr, make this second declaration in support of YYZ's Response to the first Office Action, filed herewith, and in the above identified reexamination, and do hereby declare the following:

1. I am a named inventor of the above-identified patent (the "749 patent" or the "patent").
2. I am the manager of YYZ LLC, the owner of the patent.
3. I have been duly authorized by YYZ LLC to file this declaration. I have previously filed a declaration in this reexamination and adopt that declaration herein by reference (the "first declaration").
4. I was a cofounder, President and employee of Promenix, Inc. ("Promenix") the prior owner of the above referenced patent, in 2000. I was employed by Promenix from 1998, when we founded the company, to 2006, which was after the time Promenix transferred ownership of the above referenced patent to YYZ, Inc., the present owner.
5. My background is in the information technology area and I have worked in that

area for 27 years.

6. Promenix was a small company with a maximum of thirty seven employees at any one time, located in a small multiroom office complex in Chadds Ford PA.
7. Promenix was in the business of implementing enterprise application software. These implementations, almost invariably in large enterprises, take months and are often extremely complicated as those enterprises have existing legacy systems, multiple locations, and multiple stakeholders, and may be integrating other types of new technology as well at the same time.
8. Promenix became interested in alternative revenue streams, areas we could explore without being subject to the vagaries of the enterprise market, as large enterprise installs of the type we did could be subject to a boom or bust mentality.
9. In pursuing those alternate streams, I began to become interested in messaging technology, which formed a possible backbone for enterprise installs, in that messaging often provides a protocol for transmitting information among disparate programs and systems.
10. In 1998, I started discussing possible uses of messaging technology in a business context with Matthew Franklin (“Matt”) of Promenix. In August 1998 I discussed Exhibit A with Matt, in our offices in Chadds Ford, which was a document I had created exploring messaging technology for our customers.
11. In 1999 Matt and I had further discussions and I formed at some point during that year a definite and permanent idea that monitoring messages could be used

from a messaging system (e.g., IBM MQSeries) with a central message repository and providing, through a monitoring message, at least part of said original message data to that repository in order to identify the status of a business process and its various elements. During our discussions that year, we discussed how that information could be used internally for status updates, disseminated to prospective customers, used by investors, etc.

12. I specifically recall the 1999 conversations because they took place as we were also working on an unrelated patent application during 1999, which we filed on New Year's Day 2000. At least some conversations about my conception of the inventions of the above referenced patent took place as we were working on drafts and other materials in relation to that New Year's Day application.
13. I do not recall greater detail aside from what I have set forth here however as it was over twelve years ago. Nor do I have documents evidencing any discussions, as Promenix did not generate many documents because of its size (we had no such thing as inventor notebooks) and Promenix kept very few documents of those it did generate when Promenix went out of business in 2006. Generally if we needed to communicate, it was our custom and practice to do so in personal meetings or over the telephone.
14. I do recall discussing Exhibit B, a document created by me in our offices in Chadds Ford, PA, with Matt and Kenneth Fritz ("Ken") of Promenix on or about the time I created it, January 11, 2000. Note the creation date is superimposed though the properties screen, however, the modification date of January 30, 2012 also seen in the properties screen was a result of my or Mr.

Chovanes (our patent counsel) preparing the exhibit in the course of attaching it to my first declaration referred to above. No changes to the document were made on that date.

15. I had generated Exhibit B in the course of attempting to explore construction of a prototype and used our SAP R/3 installation in our offices, at least in part to capture data through a monitoring message (“original message data”) in a database or central message repository.
16. On or about March 9, 2000, Ken, Matt and I specifically discussed the document attached here as Exhibit C, which had been prepared by me.
17. As I mentioned above, Promenix was a small company, with our resources devoted to enterprise installs, yet Matt and I decided that the technology shown by Exhibit C was sufficiently promising to engage upon a development campaign, and Ken was assigned to build a prototype, with Matt’s and my guidance.
18. Ken began work on the prototype immediately, and for the next six months, he, I and Matt had regular, almost daily conversations regarding elements of the prototype, interrupted only by our need to work on Promenix’s revenue generating business.
19. I was aware Ken was working almost daily on the prototype because, I explained above, Promenix was housed in a small multiroom office complex, and I saw Ken everyday he and I were there.
20. On or about August 9, 2000, Ken presented Matt and I with the document attached here as Exhibit D which was as it states, the first working prototype of

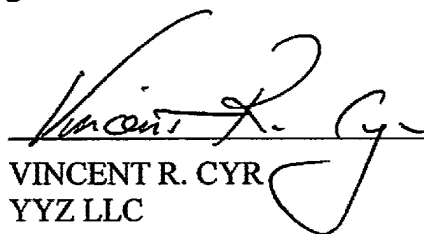
the inventions of the independent claims of the patent. Ken also showed us the prototype as it worked and was existing on our server, and I specifically recall observing how monitoring messages could be used from a messaging system (e.g., IBM MQSeries) and provide at least part of said original message data to a central message repository in order to identify the status of a business process and its various elements, in accordance with claim 1 and the other independent claims of the patent.

21. That is, I specifically recall Ken presenting to Matt and I,
  1. A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:
    - providing, through a monitoring message, at least part of said original message data to a central message repository;
    - populating a transaction record in said central message repository with said original message data provided by said monitoring message;
    - wherein said original message data comprises the status of an activity.which is claim 1 of the patent, and I also recall Ken presenting to us the other elements of the other independent claims.
22. Therefore, from on or about March 9, 2000 to on or about August 9, 2000, I observed Ken working almost daily, interrupted only by his work on Promenix's revenue generating business, on the inventions defined and set forth in at least independent claims 1, 22, 42, 49, 55-58 (the "independent claims") of the above referenced patent.

The undersigned declares that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title

18 of the United States Code and thus such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: August 12, 2012

  
VINCENT R. CYR  
YYZ LLC

# **EXHIBIT A**

**Systems Integration:  
Using Intelligent Messaging with SAP R/3™**

**Vincent R. Cyr**  
President, Promenix Inc.

**August 1998**



## Executive Summary

Implementing SAP R/3 involves many elements; Business process understanding, software configuration, education of users and support personnel, and a myriad of other related activities. One of the more challenging elements involves the integration of R/3 with all of the other systems in your organization (and possibly with systems external to your organization). This paper provides an insight to the use of *Intelligent Messaging* (IM) to speed up the integration process as well as providing a long-term strategy for additional integration efforts.

Whether you believe in *Best in Class* or *Best of Breed*, the fact remains that heterogeneous systems exist in your organization and they probably will continue to do so for many years to come. In fact, given the proliferation of packaged applications, custom development tools, and Internet –based applications, heterogeneous systems are likely to increase in number rather than decrease. The need for integrating these systems continues to challenge all organizations.

Intelligent messaging provides several benefits to an organization: asynchronous communications, data transformation, message routing, and most importantly, rules-based decision processes. All of these components combined make for a flexible, reliable, and maintainable infrastructure for application integration efforts. With the abstraction of business logic away from individual programs, changes can be made much more quickly and with fewer staff. People are more focused on solving the business problem instead of the technical problems regarding the integration of these disparate systems.

Using the following sections, a cohesive strategy can be developed to enable your organization to solve these integration problems.

## **Challenges of Systems Integration**

Today, more than ever, well-executed systems integration efforts are the difference between successful implementations of software solutions and failures destined to the "great idea, bad implementation" trash heap. There is no magic potion, no silver bullet, when it comes to linking these multi-architected, multi-OS, multi-communication protocol environments. In most cases, if there are two systems that can be integrated efficiently, it is most likely an accident rather than a planned occurrence. If the need for integration is going to continue to expand at these rates, what we need is an understanding of the elements affecting our abilities to deliver. What tools, methods, and approaches could we use to increase our likelihood of success? Let us understand the elements affecting systems integration: Business processes, heterogeneous systems, scarcity of talent, and the pace of change.

### ***Understanding of Business Processes***

As more and more companies embrace ERP core solutions, by necessity, they become more focused on the core business process rather than the event or base transaction. This process focused view has been impressed upon our organizations since Hammer & Champy published "Reengineering the Corporation". In addition, SAP AG has made process-oriented configuration of their R/3 software product easier and easier as each new release of the software is produced.

Unfortunately, very few legacy systems are process oriented. They are transaction and/or event based. This presents a problem when trying to establish integration points with an ERP system that is being implemented based on process threads. This means that business and systems analysts are required to understand how a legacy system fits within an entire process. This work should evolve into process maps that detail what system is involved in which part of the process. This is a vital and crucial step in the systems integration process that will lead to a better understanding of the systems that run your organization. Time consuming? Yes. A waste of time? Absolutely not! This is the reference point for your organization's application portfolio. It is from this that you can determine what system stays, goes, or needs to be phased out over time. It outlines areas that can be supplemented or replaced by your ERP system. It also provides visible identification of areas where additional software (non-ERP) may add value in a process thread.

You do not need to do this in one giant step. Start one process thread at a time. Require all new application development efforts to include supporting process diagrams and flows. As systems are being upgraded, add these process tasks to the effort. Over time, this discipline can become a natural part of your organization's work habits.

### ***Systems, Systems, and more Systems***

The proliferation of software and the solutions that can be provided by that software continues at what seems to be an unending pace. Legacy systems, once thought to have limited existences, now are being given new life as a result of Year 2000 efforts. Instead of turning them off, their value to the organization continues into the next millennium.

The packaged software supply continues to grow as the barrier to entry for software companies continues to be limited only by ideas and people to execute them; capital is plentiful and there are no other real assets to buy. These range from large ERP packages to small, "point solution" packages designed to solve a unique business function. The result of this: more software packages for you to incorporate into your organization that meet specific business processes and functions.

Robust application development environments and tools such as Borland's Delphi, Microsoft's Visual Studio, and others, are allowing for the creation of new software systems by internal application development departments at a blistering pace. Instead of large development projects aimed at the whole corporation, departments are now able to create their own applications very quickly. With the increased presence of the Internet and E-Commerce, the need for more systems, quickly, is increased. The result: more systems to integrate with existing systems.

When you put all of these factors together, you get systems, systems, and more systems with no relief in sight! What is even more problematic is that these systems need to communicate with each other. As mentioned earlier, businesses are becoming more process-oriented in how they behave. Systems must be integrated to support these processes. If you cannot stop the proliferation of systems, you must find a way to link them together quickly, efficiently, and in a way that long-term support and maintenance is possible.

### The Talent Shortage

Numerous studies are confirming what has been known for several years – there are not enough skilled resources to do the work that is required. The Information Technology Association of America estimates that there are currently 340,000 unfilled positions in the computer industry. Studies from the American Electronics Association show that graduates in computer science and math decreased 29% from 1985 to 1996. With an industry growth rate exceeding 15%, it becomes quite apparent that there is a major talent shortage (Figure 1.)

What does this mean to those having to integrate systems? It means you must find methods and tools that can make those resources that you have more productive. You need to re-think the traditional approaches to systems integration; the coding of point-to-point program interfaces that link a program from one system to a program in another system. This traditional approach is labor intensive, something that you do not have available. In addition, this approach lends itself to inconsistencies in development,

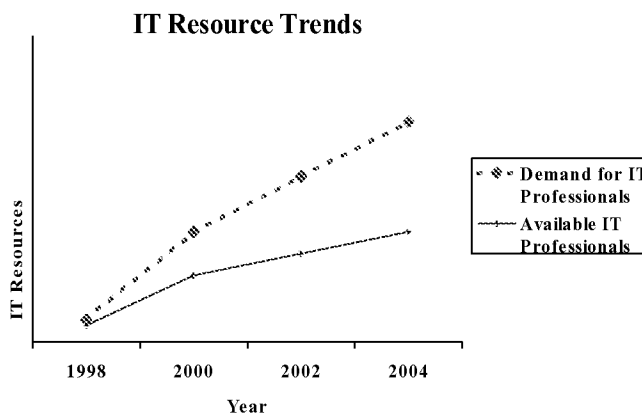


Figure 1.

implementation, and support.

## ***Reductions in Timeframes***

When was the last time a project was allowed 36 months, 24 months, or even 18 months to complete? In today's fast-paced business climate, systems projects have short timeframes of 3–6 months. If there are many systems to integrate, there is no time to code these integration points together. There is no time to learn a new programming language or architecture. The only activity you have time for is figuring out where these integration points need to be and how you can patch it together quickly. The pressure to speed up integration is not about to end. Therefore, new ways to improve productivity reduce learning curves, and focus on value-added activities needs to be embraced.

## **Intelligent Messaging Can Help**

Intelligent messaging is the transformation and transmission of data from/to specific locations based upon specific data content across multiple hardware and software platforms. Intelligent messaging comprises asynchronous communications, rules-based decisions, and message routing. Full-powered intelligent messaging is capable of dynamic, real-time, application and maintenance of business logic abstracted from individual application systems. Let's examine these components in more detail.

### ***Asynchronous Communications***

Asynchronous communications means that when an application is sending data to another application, the sending application does not wait for the receiving application to process the data before moving on. In military terms, think of this as a "fire and forget" process similar to a cruise missile after it has been launched. The ship or aircraft, once a launch has been executed, can sail or fly wherever it wants to with a highly confident assurance that the missile will reach its target without any other assistance. The assumption is clear: if I send it, it will be processed.

Now, with asynchronous communications, it is prudent to include a queuing mechanism in order to make sure that in the event that the receiving system is not active, data is not lost. This queuing is also important for situations that require rollbacks or reruns of processing. These queues act as data buckets that hold data temporarily until the appropriate applications acknowledge that it is safe to empty the buckets. Keep in mind that the acknowledgement is primarily to the queuing mechanism; not the sending application. The sending application is busy doing something else at this time; not waiting around for some acknowledgement.

This is beneficial because an application that uses asynchronous communications does not need to wait around for a response from some external system before continuing its processing. Networks do not have to maintain open sessions across applications waiting for responses. In short, applications and networks become more efficient. Data can be processed and routed with much more expediency. With the increased need for bandwidth of the network, moving messages is much more "bandwidth friendly" than synchronous communications within a network or across larger WANs.

### ***Rules-Based Decisions***

Application logic, in its essence, is really an organization of decisions needing to be applied to a specific piece of data. These are the rules that must be followed in order for information to be produced. Given the computer's strength in processing rules, the more the rules of an application can be organized, optimized, and de-coupled from the file-handling and data handling routines, the more the power of the computer can be utilized. In addition, these rules can also be managed and maintained more effectively;

an extremely valuable attribute given today's rapidly changing business demands. There is a simplicity that can be achieved by instructing the computer to do a specific action when the data contains a certain value.

## ***Routing***

A message, like a letter sent to a friend, has no value unless it is received. For letters, we have learned to trust FedEx to guarantee delivery to the right destination. All FedEx letters go to Memphis, their destinations are determined, and then they are put onto the plane going to that destination. That is what routing does for intelligent messaging. Messages have destinations that are determined in various ways; some destinations are pre-defined, some are based upon data content, and some are based upon lack of content. Routing takes the message, determines the correct destination, and sends it on its way. It is like a large mail-sorter; look at the address and send it on its way. One important element is the ability to take one inbound message and send different pieces to different locations. This provides a very efficient method of sending data to many places with a single input message.

## ***Dynamic Application and Maintenance of Business Logic***

There is one element that is not inherent to intelligent messaging but is such a critical component, it needs to be considered. The rules and routing are very powerful in the organization of your business logic. However, if these are static, hard-coded, difficult-to-maintain blobs of code, they do nothing in making your systems adaptable and flexible. Unless this business logic can be easy to change and maintain, your change request will sit in some development queue that will be accessed sometime in the year 2000 – right behind the 500 requests that came in before yours. Do not worry, your business unit manager will make sure that no area of his business will change for the next few years. Remember the talent shortage? Remember the reduced timeframes? You may have a long wait if you do not have anyone around who can make these changes. What you must consider is a solution that will enable you to change these applications much faster than the traditional development path. You must have rules that are easy to develop and maintain.

## SAP R/3

Much has already been said and written about SAP and its client/server ERP product, R/3. It is a powerful core enterprise package that has become the backoffice application infrastructure for thousands of companies. Since its existence in your organization is either real or imminent, your task is to integrate your existing systems to it. You may have to also integrate new add-on functionality as part of the R/3 implementation project. You also may have to integrate it with other companies that you do business with. All of these scenarios are real and their challenges can sometimes be minimal or they can be quite extensive. Fortunately, the ability to integrate these systems with R/3 has improved dramatically over the past few years; mainly as a result of SAP embracing an asynchronous messaging architecture.

### ***Messaging Inherent within SAP***

In 1994, SAP introduced Application Link Enabling (ALE). Designed to promote R/3 to R/3 communications, this architecture used messages from business scenarios to communicate asynchronously from one R/3 system to another. For example, the process of distributing changes to a customer master record from a central R/3 system to R/3 systems located in other divisions or plants was accomplished by sending a message (in the form of an SAP Intermediate Document record (IDOC)) to the target systems at the time of the customer record change. This architecture has since evolved to now be the core of the new Business Framework from SAP. This framework promotes a "loosely-coupled" integration between different R/3 modules. This allows for the propagation of R/3 systems to satisfy business requirements while maintaining integration between components. This is accomplished using the asynchronous messaging approach of ALE and IDOCs. It is important to note that R/3, while capable of these messaging capabilities, is first and foremost a business application package, not an intelligent messaging package. R/3 should not be designated as your message hub. It is your core application software that can efficiently and effectively operate in an asynchronous message architecture.

## **Value Provided to SAP R/3 by Intelligent Messaging**

Whether intentional or unintentional, by implementing SAP R/3, you have started the introduction of a message-oriented architecture into your organization. This added benefit provided by R/3 will move your organization away from inflexible, inefficient, hard-to-manage systems to those that are more adaptive and flexible to your company's demands.

### ***Flexible, Adaptive Integration Architecture***

As mentioned earlier, systems within an organization change almost daily. New systems are created, old ones are changed, and some are taken out of service. Business needs are constantly challenging the organization to have information readily at hand. Given SAP R/3's flexible approach to message exchange, if you can move data from and to R/3 via this method, you can start making your new and existing systems just as flexible and adaptive. Intelligent messaging can help turn these static, inflexible systems into a continuation of a business process that includes R/3. Changes can be made quicker. Systems can be added or removed quicker. Your R/3 system will now be able to exchange information within your organization as well as to systems external to your organization. This improves and enriches the information within the R/3 system and your organization. You increase the return on your investment in R/3.

### ***Abstraction of Application Logic Away from Programs***

One of the benefits of R/3's ALE approach is that the need to perform programming in R/3 to integrate systems has been greatly reduced. Since there are many different business scenarios that have been developed by SAP into ALE/IDOC combinations, many interfaces require little to no programming at all in R/3. Business rules can be configured for the appropriate logic and messages can be routed based upon those rules. If the target or source systems are enabled by intelligent messaging, the need for any programming to be performed has been greatly reduced. If a change is required to support a new business rule, R/3 and the related systems can be changed very quickly. Programs do not have to be changed, compiled, or promoted. The skill set required to perform these changes may already exist within your organization.

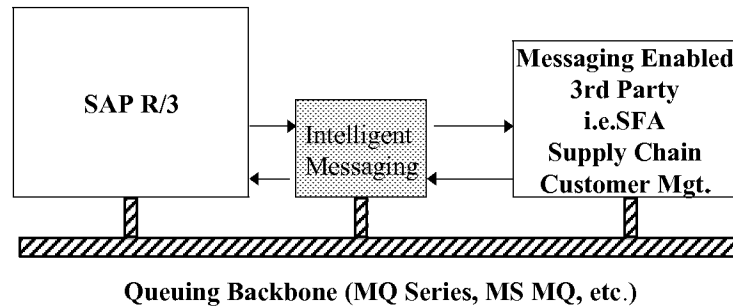
### ***Focused Efforts of Solving Business Problems, Not Technology Problems***

Too often in our business, the integration effort ends up focusing on the technical challenges instead on solving the business problem. This is not a fault of the people working on these issues. It is a result of not having a common approach to integrating these systems, not having a message-oriented architecture that makes data easier to move and distribute, and not having business rules abstracted from the programs to allow for quicker, easier changes.

There is only so much time in a day. Do you want your people trying to figure out how to get an ASCII file into EBCDIC or do you want them determining what rule and route to apply if the data is coming from a specific, high-volume customer? Using R/3 and intelligent-messaging, it becomes easier to focus on the business problem, not the technology problem.

## Enhanced Functionality from Legacy and Third Party Applications

The following diagrams depict various applications of intelligent messaging with SAP R/3. As you can see, the flexibility that is gained from intelligent messaging is only limited to the ingenuity of your people. The first diagram shows a third-party application, such as sales force automation (SFA) connected to R/3.

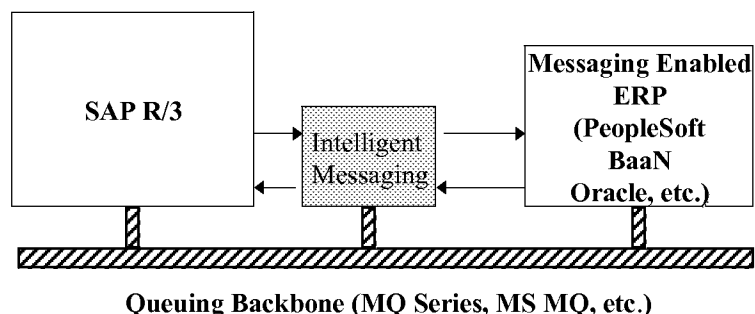


Using the formatting, rules, and routing capability of the intelligent messaging software, R/3 to non-R/3 communications can be integrated

This speeds up the integration process and reduces the need for the 3rd party software to write integration points for every ERP or legacy system. Instead, they write to a common messaging API.

In the next figure, intelligent messaging is used to connect SAP R/3 with another ERP package such as PeopleSoft or BaaN. Because of acquisitions and industry consolidations, many organizations are finding themselves with more than one ERP system. Intelligent messaging can be used to leverage the investments made in both packages.

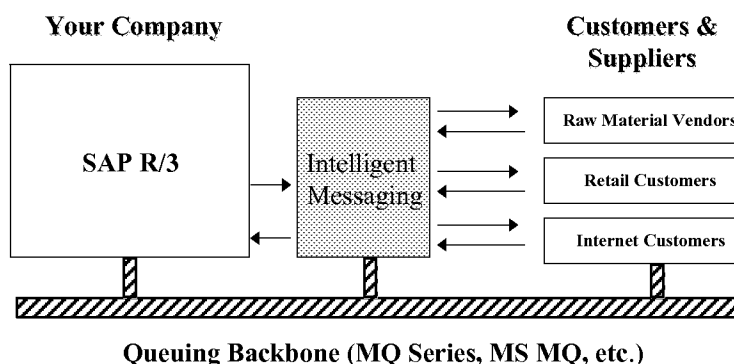




Using the formatting, rules, and routing capability of the intelligent messaging software, R/3 to other ERP packages within an organization can be integrated.

This speeds up the integration process and reduces the need to wait for a standards group to define each ERP process. The ERP vendors "message enable" their packages (i.e. SAP's ALE) in order to facilitate this communication.

As your organization increases its electronic communication with external customers and suppliers, using intelligent messaging will permit you to apply specific rules and routing information to your data depending on the data content. Certain customers may have priority over others. Certain vendors may receive certain messages based on the nature of the parts being supplied.



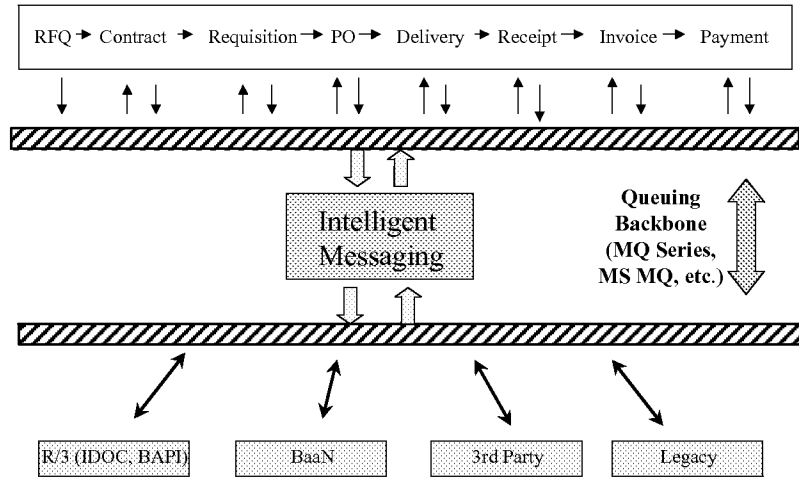
Using the formatting, rules, and routing capability of the intelligent messaging software, R/3 information to non-SAP systems of suppliers and customers can be integrated. This cross-organizational interchange of information improves the total order to fulfillment to cash process.

It is important to remember that your partners have many systems that are disparate from your own. Using intelligent messaging, they are able to keep their systems while still being able to take advantage of cross-organizational information flows.

This last diagram presents a more process-oriented view of intelligent messaging and how all of these pieces start to fit together. As you can see, a process-oriented approach coupled with intelligent messaging leads to a workflow-driven organization that has messages traveling from business event to event via the intelligent messaging engine. This messaging engine exchanges information with various systems (legacy, ERP, 3rd party) as the process is executed.

## Process Oriented Application Integration

### Procurement Process Flow



## Conclusion

There are many challenges when implementing systems. Business process design, software configuration, training, resistance to change, etc. One challenge that is common to all organizations is the need to integrate all of these systems together. Alone, each system performs a specific piece of a complete business process. Using SAP R/3, more of these processes can be integrated within one application package. However, the legacy systems that remain, the additional third-party software, and internal custom development, all must be tied together with R/3. Intelligent messaging, with its asynchronous architecture, flexibility, and abstraction of business logic, provides a solution to bringing these disparate pieces together. Keep in mind, there are no silver bullets. This still requires strategic thinking, careful planning, and commitment to execution. The short-term payback is an accelerated method in completing your integration efforts for your R/3 implementation. The long-term payback is an integration architecture that lends itself to faster response to changing business needs.

## About Promenix

Promenix is a systems integration service provider focusing on Enterprise Application Integration around SAP R/3. Located outside of Philadelphia, PA, Promenix helps its customers integrate their legacy and 3rd-party packages with SAP R/3 using such integration software as MQ Series from IBM and MQ Series Integrator from New Era of Networks, Inc.

They can be reached at (610) 361-1560, [www.promenix.com](http://www.promenix.com).

# **EXHIBIT B**

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Cell Formatting

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4	ORDER TO CASH	INQUIRY	5003	EASTMAN	OSKAYOCT	INFO@PRC	800006	3/4 BOLT	BOX	4.00	10					
5	ORDER TO CASH	INQUIRY	5004	PTNEY BOW	STAMFORD	INFO@PRC	800008	3/4 BOLT	BOX	4.50	11					
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78	ORDER TO CASH	INQUIRY	5077	SMITH KLINE	PHILADEL	PH INFO@PRC										
79	ORDER TO CASH	INQUIRY	5078	SMITH KLINE	PHILADEL	PH INFO@PRC										
80	ORDER TO CASH	INQUIRY	5079	SMITH KLINE	PHILADEL	PH INFO@PRC										

General: Summary Contents Custom

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500025	MEMO	500317	BARREL	480.00	2	200014
500026 <td>MEMO</td> <td>500318</td> <td>BARREL</td> <td>15.00</td> <td>2</td> <td>200014</td>	MEMO	500318	BARREL	15.00	2	200014
500027 <td>MEMO</td> <td>500319</td> <td>BARREL</td> <td>15.00</td> <td>2</td> <td>200014</td>	MEMO	500319	BARREL	15.00	2	200014
500028 <td>MEMO</td> <td>500320</td> <td>BARREL</td> <td>15.00</td> <td>2</td> <td>200014</td>	MEMO	500320	BARREL	15.00	2	200014
500029 <td>MEMO</td> <td>500321</td> <td>BARREL</td> <td>15.00</td> <td>2</td> <td>200014</td>	MEMO	500321	BARREL	15.00	2	200014
500030 <td>MEMO</td> <td>500322</td> <td>BARREL</td> <td>15.00</td> <td>2</td> <td>200014</td>	MEMO	500322	BARREL	15.00	2	200014
500031 <td>MEMO</td> <td>500323</td> <td>BARREL</td> <td>15.00</td> <td>2</td> <td>200014</td>	MEMO	500323	BARREL	15.00	2	200014
500032 <td>MEMO</td> <td>500324</td> <td>BARREL</td> <td>15.00</td> <td>2</td> <td>200014</td>	MEMO	500324	BARREL	15.00	2	200014
500033 <td>MEMO</td> <td>500325</td> <td>BARREL</td> <td>15.00</td> <td>2</td> <td>200014</td>	MEMO	500325	BARREL	15.00	2	200014
500034 <td>MEMO</td> <td>500326</td> <td>BARREL</td> <td>15.00</td> <td>2</td> <td>200014</td>	MEMO	500326	BARREL	15.00	2	200014
500035 <td>MEMO</td> <td>500327</td> <td>BARREL</td> <td>15.00</td> <td>2</td> <td>200014</td>	MEMO	500327	BARREL	15.00	2	200014
500036 <td>MEMO</td> <td>500328</td> <td>BARREL</td> <td>15.00</td> <td>2</td> <td>200014</td>	MEMO	500328	BARREL	15.00	2	200014
500037 <td>MEMO</td> <td>500329</td> <td>BARREL</td> <td>15.00</td> <td>2</td> <td>200014</td>	MEMO	500329	BARREL	15.00	2	200014
500038 <td>MEMO</td> <td>500330</td> <td>BARREL</td> <td>15.00</td> <td>2</td> <td>200014</td>	MEMO	500330	BARREL	15.00	2	200014
500039 <td>MEMO</td> <td>500331</td> <td>BARREL</td> <td>15.00</td> <td>2</td> <td>200014</td>	MEMO	500331	BARREL	15.00	2	200014
500040 <td>MEMO</td> <td>500332</td> <td>BARREL</td> <td>15.00</td> <td>2</td> <td>200014</td>	MEMO	500332	BARREL	15.00	2	200014
500041 <td>MEMO</td> <td>500333</td> <td>BARREL</td> <td>15.00</td> <td>2</td> <td>200014</td>	MEMO	500333	BARREL	15.00	2	200014
500042 <td>MEMO</td> <td>500334</td> <td>BARREL</td> <td>15.00</td> <td>2</td> <td>200014</td>	MEMO	500334	BARREL	15.00	2	200014
500043 <td>MEMO</td> <td>500335</td> <td>BARREL</td> <td>15.00</td> <td>2</td> <td>200014</td>	MEMO	500335	BARREL	15.00	2	200014
500044 <td>MEMO</td> <td>500336</td> <td>BARREL</td> <td>15.00</td> <td>2</td> <td>200014</td>	MEMO	500336	BARREL	15.00	2	200014
500045 <td>MEMO</td> <td>500337</td> <td>BARREL</td> <td>15.00</td> <td>2</td> <td>200014</td>	MEMO	500337	BARREL	15.00	2	200014
500046 <td>MEMO</td> <td>500338</td> <td>BARREL</td> <td>15.00&lt;/</td>	MEMO	500338	BARREL	15.00</		

Process	Sub-Process	Inputs	Outputs	Org. Units	Date In	Time In	Date Out	Time Out	Status
Order-to-cash	Receive Customer Inquiry	Material BOM Customer	Customer Inquiry	Sales org. Division Sales Office Sales Group Dist. Channel					
Order-to-cash	Provide Customer Quotation	Material BOM Business Partner Time Customer Inquiry	Customer Quotation	Sales org. Division Sales Office Sales Group Dist. Channel					
Order-to-cash	Create Customer Outline Agreement	Material Batch Business Partner Time Customer Inquiry Customer Quotation	Customer Outline Agreement	Sales org. Division Sales Office Sales Group Dist. Channel					
Order-to-cash	Create Sales Order	Material Batch Business Partner Time Customer Inquiry Customer Quotation	Sales Order Production Order Manufacturing Order Purchase Req.	Sales org. Division Sales Office Sales Group Dist. Channel					
Order-to-cash	Ship Product	Material Batch Business Partner Time Customer Sales Order Customer Credit Account Customer Inquiry Customer Quotation Customer Contract Sales Promotion	Outbound Delivery	Shipping Point					
Order-to-cash	Invoice Customer	Material Batch Business Partner Time Customer Sales Order Customer Contract Customer Credit Account Customer Inquiry Customer Quotation Customer Contract	Customer Billing Document						
Order-to-cash	Receive Payment	Invoice Number Material Customer							

Process	Sub-Process	Inputs	Outputs	Org. Units	Date In	Time In	Date Out	Time Out	Status
Order-to-cash	Receive Customer Inquiry	Material BOM Business Partner Customer	Customer Inquiry	Sales org. Division Sales Office Sales Group Distr. Channel					
Order-to-cash	Provide Customer Quotation	Material BOM Business Partner Time Customer Inquiry	Customer Quotation	Sales org. Division Sales Office Sales Group Distr. Channel					
Order-to-cash	Create Customer Outline Agreement	Material Batch Business Partner Time Customer Credit Account Customer Inquiry Customer Quotation	Customer Outline Agreement	Sales org. Division Sales Office Sales Group Distr. Channel					
Order-to-cash	Create Sales Order	Material Batch Business Partner Time Customer Credit Account Customer Inquiry Customer Quotation Customer Contract Sales Promotion	Sales Order Production Order Manufacturing Order Purchase Req.	Sales org. Division Sales Office Sales Group Distr. Channel					
Order-to-cash	Ship Product	Material Batch Business Partner Time Customer Sales Order Customer Credit Account Customer Inquiry Customer Quotation Customer Contract	Outbound Delivery	Shipping Point					
Order-to-cash	Invoice Customer	Material Batch Business Partner Time Customer Sales Order Customer Contract Customer Complaint Order Credit Memo Request Debit Memo Request Returns	Customer Billing Document						
Order-to-cash	Receive Payment	Invoice Number Material Customer Amount							

PROCESS	SUBPROCESS	CUSTNO	CUSTNAME	ADDRESS	EMAIL	MATNUM	MATNAME	UOM	PRICE	QTY	QUOTENUM	ORDERNUM	ORDERDATE	PRODUCTION_NUM	PRODUCTION_DATE	PRODUCTION_LOC	PRODUCTION_STATUS	AMT	TERMS	SHIP_DATE	INVOICE_DATE	EVENT_DATE	EVENT_TIME
ORDER_TO_CASH	INQUIRY	5000	DOW CHEM	MIDLAND, MI	INFO@PRC	800003	WIDGET	BOX	2.00	2								NET/30					
ORDER_TO_CASH	INQUIRY	5001	VF CORP	GREENSBORO	INFO@PRC	800004	GADGET	CASE	10.00	3								NET/30					
ORDER_TO_CASH	INQUIRY	5002	EASTMAN C	KINGSPO	INFO@PRC	800005	BRAKE	BOX	3.00	2								NET/30					
ORDER_TO_CASH	INQUIRY	5002	EASTMAN C	KINGSPO	INFO@PRC	800006	3/4 BOLT	BOX	4.00	10								NET/30					
ORDER_TO_CASH	INQUIRY	5003	PITNEY BOW	STAMFORD	INFO@PRC	800006	3/4 BOLT	BOX	4.00	11								2/10					
ORDER_TO_CASH	INQUIRY	5004	VANGUARD	VALLEY FOR	INFO@PRC	800007	PAPER	CASE	13.00	12								2/10					
ORDER_TO_CASH	INQUIRY	5005	SMITH KLINE	PHILADELPH	INFO@PRC	800008	COTTON	CASE	4.00	12								NET/30					
ORDER_TO_CASH	INQUIRY	5005	SMITH KLINE	PHILADELPH	INFO@PRC	800007	PAPER	CASE	13.00	22								NET/30					
ORDER_TO_CASH	INQUIRY	5005	SMITH KLINE	PHILADELPH	INFO@PRC	800025	CAPSULES	CASE	5.00	34								NET/30					
ORDER_TO_CASH	INQUIRY	5005	SMITH KLINE	PHILADELPH	INFO@PRC	800010	SUGAR	BARREL	65.00	5								NET/30					
ORDER_TO_CASH	INQUIRY	5006	KODAK	ROCHESTER	INFO@PRC	800009	SILVER	OZ	23.00	21								NET/30					
ORDER_TO_CASH	INQUIRY	5007	XEROX	STAMFORD	INFO@PRC	800010	TONER	PIECE	25.00	11								NET/30					
ORDER_TO_CASH	INQUIRY	5008	COCA-COLA	ATLANTA, GA	INFO@PRC	800010	SUGAR	BARREL	65.00	2								NET/30					
ORDER_TO_CASH	INQUIRY	5009	EXXON-MOB	HOUSTON, TX	INFO@PRC	800011	1" PIPE	FT	4.00	23								NET/30					
ORDER_TO_CASH	INQUIRY	5010	ENRON	HOUSTON, TX	INFO@PRC	800012	6" PIPE	FT	2.43	11								NET/30					
ORDER_TO_CASH	INQUIRY	5011	DUPONT	WILMINGTON	INFO@PRC	800013	POLYMER	BIN	335.23	24								NET/30					
ORDER_TO_CASH	INQUIRY	5012	CHEVRON	SAN RAMON	INFO@PRC	800014	MBE ADDI	BARREL	465.80	54								NET/30					
ORDER_TO_CASH	INQUIRY	5013	CHASE	NEW YORK	INFO@PRC	800015	PENS	CASE	15.00	43								2/10					
ORDER_TO_CASH	INQUIRY	5014	FIDELITY	BOSTON, MA	INFO@PRC	800016	BROCHUR	PIECE	6.00	1000								2/10					
ORDER_TO_CASH	INQUIRY	5015	WILLIAMS	HOUSTON, TX	INFO@PRC	800017	FIBER	ROLL	1000.00	2								NET/30					
ORDER_TO_CASH	INQUIRY	5016	UNION CARB	HOUSTON, TX	INFO@PRC	800018	POLY-ETH	BARREL	544.00	3								NET/30					
ORDER_TO_CASH	INQUIRY	5017	GM	DETROIT, MI	INFO@PRC	800019	WINDSHIE	PIECE	433.00	300								NET/30					
ORDER_TO_CASH	INQUIRY	5018	FORD	DEARBORN	INFO@PRC	800020	STEERING	PIECE	322.00	300								NET/30					
ORDER_TO_CASH	INQUIRY	5019	IBM	ARMONK, NY	INFO@PRC	800021	TRANSIST	EACH	100.00	1000								NET/30					
ORDER_TO_CASH	INQUIRY	5019	IBM	ARMONK, NY	INFO@PRC	800027	MEMORY	EACH	304.00	1000								NET/30					
ORDER_TO_CASH	INQUIRY	5021	INTEL	SANTA CLAR	INFO@PRC	800023	SAND	TON	45.00	5								NET/30					
ORDER_TO_CASH	INQUIRY	5022	PHILIPS	NEW YORK	INFO@PRC	800024	FILIMENT	FT	1.00	25								NET/30					
ORDER_TO_CASH	INQUIRY	5023	ELLILLY	INDIANAPOL	INFO@PRC	800025	CAPSULES	CASE	5.00	20								NET/30					
ORDER_TO_CASH	INQUIRY	5024	AMD	SANTA CLAR	INFO@PRC	800026	SILICON	PIECE	2000.00	3								NET/30					
ORDER_TO_CASH	INQUIRY	5025	APPLIED MAT	SANTA CLAR	INFO@PRC	800027	MEMORY	PIECE	304.00	20								NET/30					
ORDER_TO_CASH	INQUIRY	5030	KRAFT	CHICAGO, IL	INFO@PRC	800028	MILK	GAL	2.59	30								NET/30					
ORDER_TO_CASH	INQUIRY	5031	GP	ATLANTA, GA	INFO@PRC	800029	LYE	POUND	3.44	5								NET/30					
ORDER_TO_CASH	QUOTE	5000	DOW CHEM	MIDLAND, MI	INFO@PRC	800003	WIDGET	BOX	2.00	2	200001							NET/30					
ORDER_TO_CASH	QUOTE	5001	VF CORP	GREENSBORO	INFO@PRC	800004	GADGET	CASE	10.00	3	200002							NET/30					
ORDER_TO_CASH	QUOTE	5002	EASTMAN C	KINGSPO	INFO@PRC	800005	BRAKE	BOX	3.00	2	200003							NET/30					
ORDER_TO_CASH	QUOTE	5002	EASTMAN C	KINGSPO	INFO@PRC	800006	3/4 BOLT	BOX	4.00	10	200003							NET/30					
ORDER_TO_CASH	QUOTE	5003	PITNEY BOW	STAMFORD	INFO@PRC	800006	3/4 BOLT	BOX	4.00	11	200004							2/10					
ORDER_TO_CASH	QUOTE	5004	VANGUARD	VALLEY FOR	INFO@PRC	800007	PAPER	CASE	13.00	12	200005							2/10					
ORDER_TO_CASH	QUOTE	5005	SMITH KLINE	PHILADELPH	INFO@PRC	800008	COTTON	CASE	4.00	12	200006							NET/30					
ORDER_TO_CASH	QUOTE	5005	SMITH KLINE	PHILADELPH	INFO@PRC	800007	PAPER	CASE	13.00	22	200006							NET/30					
ORDER_TO_CASH	QUOTE	5005	SMITH KLINE	PHILADELPH	INFO@PRC	800025	CAPSULES	CASE	5.00	34	200006							NET/30					
ORDER_TO_CASH	QUOTE	5005	SMITH KLINE	PHILADELPH	INFO@PRC	800010	SUGAR	BARREL	65.00	5	200006							NET/30					
ORDER_TO_CASH	QUOTE	5006	KODAK	ROCHESTER	INFO@PRC	800009	SILVER	OZ	23.00	21	200007							NET/30					
ORDER_TO_CASH	QUOTE	5007	XEROX	STAMFORD	INFO@PRC	800010	TONER	PIECE	25.00	11	200008							NET/30					
ORDER_TO_CASH	QUOTE	5008	COCA-COLA	ATLANTA, GA	INFO@PRC	800010	SUGAR	BARREL	65.00	2	200009							NET/30					
ORDER_TO_CASH	QUOTE	5009	EXXON-MOB	HOUSTON, TX	INFO@PRC	800011	1" PIPE	FT	4.00	23	200010							NET/30					
ORDER_TO_CASH	QUOTE	5010	ENRON	HOUSTON, TX	INFO@PRC	800012	6" PIPE	FT	2.43	11	200011							NET/30					
ORDER_TO_CASH	QUOTE	5011	DUPONT	WILMINGTON	INFO@PRC	800013	POLYMER	BIN	335.23	24	200012							NET/30					
ORDER_TO_CASH	QUOTE	5012	CHEVRON	SAN RAMON	INFO@PRC	800014	MBE ADDI	BARREL	465.80	54	200013							NET/30					
ORDER_TO_CASH	QUOTE	5013	CHASE	NEW YORK	INFO@PRC	800015	PENS	CASE	15.00	43	200014							2/10					
ORDER_TO_CASH	QUOTE	5014	FIDELITY	BOSTON, MA	INFO@PRC	800016	BROCHUR	PIECE	6.00	1000	200015							2/10					
ORDER_TO_CASH	QUOTE	5015	WILLIAMS	HOUSTON, TX	INFO@PRC	800017	FIBER	ROLL	1000.00	2	200016							NET/30					
ORDER_TO_CASH	QUOTE	5016	UNION CARB	HOUSTON, TX	INFO@PRC	800018	POLY-ETH	BARREL	544.00	3	200017							NET/30					
ORDER_TO_CASH	QUOTE	5017	GM	DETROIT, MI	INFO@PRC	800019	WINDSHIE	PIECE	433.00	300	200018							NET/30					
ORDER_TO_CASH	QUOTE	5018	FORD	DEARBORN	INFO@PRC	800020	STEERING	PIECE	322.00	300	200019							NET/30					
ORDER_TO_CASH	QUOTE	5019	IBM	ARMONK, NY	INFO@PRC	800021	TRANSIST	EACH	100.00	1000	200020							NET/30					
ORDER_TO_CASH	QUOTE	5019	IBM	ARMONK, NY	INFO@PRC	800027	MEMORY	EACH	304.00	1000	200020							NET/30					
ORDER_TO_CASH	QUOTE	5021	INTEL	SANTA CLAR	INFO@PRC	800023	SAND	TON	45.00	5	200021							NET/30					
ORDER_TO_CASH	QUOTE	5022	PHILIPS	NEW YORK	INFO@PRC	800024	FILIMENT	FT	1.00	25	200022							NET/30					
ORDER_TO_CASH	QUOTE	5023	ELLILLY	INDIANAPOL	INFO@PRC	800025	CAPSULES	CASE	5.00	20	200023							NET/30					
ORDER_TO_CASH	QUOTE	5024	AMD	SANTA CLAR	INFO@PRC	800026	SILICON	PIECE	2000.00	3	200024							NET/30					
ORDER_TO_CASH	QUOTE	5025	APPLIED MAT	SANTA CLAR	INFO@PRC	800027	MEMORY	PIECE	304.00	20	200025							NET/30					
ORDER_TO_CASH	QUOTE	5030	KRAFT	CHICAGO, IL	INFO@PRC	800028	MILK	GAL	2.59	30	200026							NET/30					
ORDER_TO_CASH	AGREEMENT	5000	DOW CHEM	MIDLAND, MI	INFO@PRC	800003	WIDGET	BOX	2.00	2	200001							NET/30					
ORDER_TO_CASH	AGREEMENT	5001	VF CORP	GREENSBORO	INFO@PRC	800004	GADGET	CASE	10.00	3	200002							NET/30					
ORDER_TO_CASH	AGREEMENT	5002	EASTMAN C	KINGSPO	INFO@PRC	800005	BRAKE	BOX	3.00	2	200003							NET/30					
ORDER_TO_CASH	AGREEMENT	5002	EASTMAN C	KINGSPO	INFO@PRC	800006	3/4 BOLT	BOX	4.00	10	200003							NET/30					
ORDER_TO_CASH	AGREEMENT	5003	PITNEY BOW	STAMFORD	INFO@PRC	800006	3/4 BOLT	BOX	4.00	11	200004							2/10					
ORDER_TO_CASH	AGREEMENT	5004	VANGUARD	VALLEY FOR	INFO@PRC	800007	PAPER	CASE	13.00	12	200005							2/10					
ORDER_TO_CASH	AGREEMENT	5005	SMITH KLINE	PHILADELPH	INFO@PRC	800008	COTTON	CASE	4.00	12	200006							NET/30					
ORDER_TO_CASH	AGREEMENT	5005	SMITH KLINE	PHILADELPH	INFO@PRC	800007	PAPER	CASE	13.00	22	200006							NET/30					
ORDER_TO_CASH	AGREEMENT	5005	SMITH KLINE	PHILADELPH	INFO@PRC	800025	CAPSULES	CASE	5.00	34	200006							NET/30					
ORDER_TO_CASH	AGREEMENT	5005	SMITH KLINE	PHILADELPH	INFO@PRC	800010	SUGAR	BARREL	65.00	5	200006							NET/30					
ORDER_TO_CASH	AGREEMENT	5006	KODAK	ROCHESTER	INFO@PRC	800009	SILVER	OZ	23.00	21	200007							NET/30					
ORDER_TO_CASH	AGREEMENT	5007	XEROX	STAMFORD	INFO@PRC	800010	TONER	PIECE	25.00	11	200008							NET/30					
ORDER_TO_CASH	AGREEMENT	5008	COCA-COLA	ATLANTA, GA	INFO@PRC	800010	SUGAR	BARREL	65.00	2	200009							NET/30					
ORDER_TO_CASH	AGREEMENT	5009	EXXON-MOB	HOUSTON, TX	INFO@PRC	800011	1" PIPE	FT	4.00	23													





ORDER TO CASH	SHIP	5000 DOW CHEM	MIDLAND, MI	INFO@PRC	800003	WIDGET	BOX	2.00	2	200001	800000	03/27/00	410000	03/29/00	LOCAL	NET/30	03/31/00
ORDER TO CASH	SHIP	5001 VF CORP	GREENSBORO	INFO@PRC	800004	GADGET	CASE	10.00	3	200002	800001	03/27/00	410001	03/29/00	LOCAL	NET/30	03/31/00
ORDER TO CASH	SHIP	5002 EASTMAN	CH KINGSPT	INFO@PRC	800005	BRAKE	BOX	3.00	2	200003	800002	03/28/00	410002	03/30/00	OFFSHORE	NET/30	04/01/00
ORDER TO CASH	SHIP	5002 EASTMAN	CH KINGSPT	INFO@PRC	800006	3/4 BOLT	BOX	4.00	10	200003	800002	03/28/00	410002	03/30/00	OFFSHORE	NET/30	04/01/00
ORDER TO CASH	SHIP	5003 PITNEY BOW	STAMFORD, CT	INFO@PRC	800006	3/4 BOLT	BOX	4.00	11	200004	800003	03/27/00	410003	03/29/00	LOCAL	2/10	03/31/00
ORDER TO CASH	SHIP	5004 VANGUARD	VALLEY FOR	INFO@PRC	800007	PAPER	CASE	13.00	12	200005	800004	03/27/00	410004	03/29/00	LOCAL	2/10	03/31/00
ORDER TO CASH	SHIP	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800008	COTTON	CASE	4.00	12	200006	800005	03/29/00	410005	03/31/00	LOCAL	NET/30	04/02/00
ORDER TO CASH	SHIP	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800007	PAPER	CASE	13.00	22	200006	800005	03/29/00	410005	03/31/00	LOCAL	NET/30	04/02/00
ORDER TO CASH	SHIP	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800025	CAPSULES	CASE	5.00	34	200006	800005	03/29/00	410005	03/31/00	LOCAL	NET/30	04/02/00
ORDER TO CASH	SHIP	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800010	SUGAR	BARREL	65.00	5	200006	800005	03/29/00	410005	03/31/00	LOCAL	NET/30	04/02/00
ORDER TO CASH	SHIP	5006 KODAK	ROCHESTER	INFO@PRC	800009	SILVER	OZ	23.00	21	200007	800006	03/27/00	410006	03/29/00	OFFSHORE	NET/30	03/31/00
ORDER TO CASH	SHIP	5007 XEROX	STAMFORD, CT	INFO@PRC	800010	TONER	PIECE	25.00	11	200008	800007	03/27/00	410007	03/29/00	OFFSHORE	NET/30	03/31/00
ORDER TO CASH	SHIP	5008 COCA-COLA	ATLANTA, GA	INFO@PRC	800010	SUGAR	BARREL	65.00	2	200009	800008	03/27/00	410008	03/29/00	OFFSHORE	NET/30	03/31/00
ORDER TO CASH	SHIP	5009 EXXON-MOB	HOUSTON, TX	INFO@PRC	800011	1" PIPE	FT	4.00	23	200010	800009	03/27/00	410009	03/29/00	LOCAL	NET/30	03/31/00
ORDER TO CASH	SHIP	5010 ENRON	HOUSTON, TX	INFO@PRC	800012	6" PIPE	FT	2.43	11	200011	800010	03/27/00	410010	03/29/00	LOCAL	NET/30	03/31/00
ORDER TO CASH	SHIP	5011 DUPONT	WILMINGTON	INFO@PRC	800013	POLYMER	BIN	335.23	24	200012	800011	03/27/00	410011	03/29/00	LOCAL	NET/30	03/31/00
ORDER TO CASH	SHIP	5012 CHEVRON	SAN RAMON	INFO@PRC	800014	MBE ADDT	BARREL	465.80	54	200013	800012	03/30/00	410012	04/01/00	LOCAL	NET/30	04/03/00
ORDER TO CASH	SHIP	5013 CHASE	NEW YORK, NY	INFO@PRC	800015	PENS	CASE	15.00	43	200014	800013	03/30/00	410013	04/01/00	LOCAL	2/10	04/03/00
ORDER TO CASH	SHIP	5014 FIDELITY	BOSTON, MA	INFO@PRC	800016	BROCHUR	PIECE	6.00	1000	200015	800014	03/30/00	410014	04/01/00	LOCAL	2/10	04/03/00
ORDER TO CASH	SHIP	5015 WILLIAMS	HOUSTON, TX	INFO@PRC	800017	FIBER	ROLL	1000.00	2	200016	800015	03/30/00	410015	04/01/00	LOCAL	NET/30	04/03/00
ORDER TO CASH	SHIP	5016 UNION CARB	HOUSTON, TX	INFO@PRC	800018	POLY-ETH	BARREL	544.00	3	200017	800016	03/30/00	410016	04/01/00	OFFSHORE	NET/30	04/03/00
ORDER TO CASH	SHIP	5017 GM	DETROIT, MI	INFO@PRC	800019	WINDSHIE	PIECE	433.00	300	200018	800017	03/30/00	410017	04/01/00	OFFSHORE	NET/30	04/03/00
ORDER TO CASH	SHIP	5018 FORD	DEARBORN, MI	INFO@PRC	800020	STEERING	PIECE	322.00	300	200019	800018	03/30/00	410018	04/01/00	OFFSHORE	NET/30	04/03/00
ORDER TO CASH	SHIP	5019 IBM	ARMONK, NY	INFO@PRC	800021	TRANSIST	EACH	100.00	1000	200020	800019	03/30/00	410019	04/01/00	OFFSHORE	NET/30	04/03/00
ORDER TO CASH	SHIP	5019 IBM	ARMONK, NY	INFO@PRC	800027	MEMORY	EACH	304.00	1000	200020	800019	03/30/00	410019	04/01/00	OFFSHORE	NET/30	04/03/00
ORDER TO CASH	SHIP	5021 INTEL	SANTA CLAR	INFO@PRC	800023	SAND	TON	45.00	5	200021	800020	03/27/00	410020	03/29/00	LOCAL	NET/30	03/31/00
ORDER TO CASH	SHIP	5022 PHILIPS	NEW YORK, NY	INFO@PRC	800024	FILIMENT	FT	1.00	25	200022	800021	04/02/00	410021	04/04/00	LOCAL	NET/30	04/06/00
ORDER TO CASH	SHIP	5023 ELI LILLY	INDIANAPOL	INFO@PRC	800025	CAPSULES	CASE	5.00	20	200023	800022	03/27/00	410022	03/29/00	OFFSHORE	NET/30	03/31/00
ORDER TO CASH	SHIP	5024 AMD	SANTA CLAR	INFO@PRC	800026	SILICON	PIECE	2000.00	3	200024	800023	03/27/00	410023	03/29/00	LOCAL	NET/30	03/31/00
ORDER TO CASH	SHIP	5025 APPLIED MAT	SANTA CLAR	INFO@PRC	800027	MEMORY	PIECE	304.00	20	200025	800024	04/02/00	410024	04/04/00	LOCAL	NET/30	04/06/00
ORDER TO CASH	SHIP	5030 KRAFT	CHICAGO, IL	INFO@PRC	800028	MILK	GAL	2.59	30	200026	800025	04/02/00	410025	04/04/00	LOCAL	NET/30	04/06/00
ORDER TO CASH	SHIP	5031 GP	ATLANTA, GA	INFO@PRC	800029	LVE	POUND	3.44	5	200027	800026	04/02/00	410026	04/04/00	LOCAL	NET/30	04/06/00
ORDER TO CASH	INVOICE	5000 DOW CHEM	MIDLAND, MI	INFO@PRC	800003	WIDGET	BOX	2.00	2	200001	800000	03/27/00	410000	03/29/00	LOCAL	NET/30	03/31/00
ORDER TO CASH	INVOICE	5001 VF CORP	GREENSBORO	INFO@PRC	800004	GADGET	CASE	10.00	3	200002	800001	03/27/00	410001	03/29/00	LOCAL	NET/30	03/31/00
ORDER TO CASH	INVOICE	5002 EASTMAN	CH KINGSPT	INFO@PRC	800005	BRAKE	BOX	3.00	2	200003	800002	03/28/00	410002	03/30/00	OFFSHORE	NET/30	04/01/00
ORDER TO CASH	INVOICE	5002 EASTMAN	CH KINGSPT	INFO@PRC	800006	3/4 BOLT	BOX	4.00	10	200003	800002	03/28/00	410002	03/30/00	OFFSHORE	NET/30	04/01/00
ORDER TO CASH	INVOICE	5003 PITNEY BOW	STAMFORD, CT	INFO@PRC	800006	3/4 BOLT	BOX	4.00	11	200004	800003	03/27/00	410003	03/29/00	LOCAL	2/10	03/31/00
ORDER TO CASH	INVOICE	5004 VANGUARD	VALLEY FOR	INFO@PRC	800007	PAPER	CASE	13.00	12	200005	800004	03/27/00	410004	03/29/00	LOCAL	2/10	03/31/00
ORDER TO CASH	INVOICE	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800008	COTTON	CASE	4.00	12	200006	800005	03/29/00	410005	03/31/00	LOCAL	NET/30	04/02/00
ORDER TO CASH	INVOICE	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800007	PAPER	CASE	13.00	22	200006	800005	03/29/00	410005	03/31/00	LOCAL	NET/30	04/02/00
ORDER TO CASH	INVOICE	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800025	CAPSULES	CASE	5.00	34	200006	800005	03/29/00	410005	03/31/00	LOCAL	NET/30	04/02/00
ORDER TO CASH	INVOICE	5005 SMITH KLINE	PHILADELPH	INFO@PRC	800010	SUGAR	BARREL	65.00	5	200006	800005	03/29/00	410005	03/31/00	LOCAL	NET/30	04/02/00
ORDER TO CASH	INVOICE	5006 KODAK	ROCHESTER	INFO@PRC	800009	SILVER	OZ	23.00	21	200007	800006	03/27/00	410006	03/29/00	OFFSHORE	NET/30	03/31/00
ORDER TO CASH	INVOICE	5007 XEROX	STAMFORD, CT	INFO@PRC	800010	TONER	PIECE	25.00	11	200008	800007	03/27/00	410007	03/29/00	OFFSHORE	NET/30	03/31/00
ORDER TO CASH	INVOICE	5008 COCA-COLA	ATLANTA, GA	INFO@PRC	800010	SUGAR	BARREL	65.00	2	200009	800008	03/27/00	410008	03/29/00	OFFSHORE	NET/30	03/31/00
ORDER TO CASH	INVOICE	5009 EXXON-MOB	HOUSTON, TX	INFO@PRC	800011	1" PIPE	FT	4.00	23	200010	800009	03/27/00	410009	03/29/00	LOCAL	NET/30	03/31/00
ORDER TO CASH	INVOICE	5010 ENRON	HOUSTON, TX	INFO@PRC	800012	6" PIPE	FT	2.43	11	200011	800010	03/27/00	410010	03/29/00	LOCAL	NET/30	03/31/00
ORDER TO CASH	INVOICE	5011 DUPONT	WILMINGTON	INFO@PRC	800013	POLYMER	BIN	335.23	24	200012	800011	03/27/00	410011	03/29/00	LOCAL	NET/30	03/31/00
ORDER TO CASH	INVOICE	5012 CHEVRON	SAN RAMON	INFO@PRC	800014	MBE ADDT	BARREL	465.80	54	200013	800012	03/30/00	410012	04/01/00	LOCAL	NET/30	04/03/00
ORDER TO CASH	INVOICE	5013 CHASE	NEW YORK, NY	INFO@PRC	800015	PENS	CASE	15.00	43	200014	800013	03/30/00	410013	04/01/00	LOCAL	2/10	04/03/00
ORDER TO CASH	INVOICE	5014 FIDELITY	BOSTON, MA	INFO@PRC	800016	BROCHUR	PIECE	6.00	1000	200015	800014	03/30/00	410014	04/01/00	LOCAL	2/10	04/03/00
ORDER TO CASH	INVOICE	5015 WILLIAMS	HOUSTON, TX	INFO@PRC	800017	FIBER	ROLL	1000.00	2	200016	800015	03/30/00	410015	04/01/00	LOCAL	NET/30	04/03/00
ORDER TO CASH	INVOICE	5016 UNION CARB	HOUSTON, TX	INFO@PRC	800018	POLY-ETH	BARREL	544.00	3	200017	800016	03/30/00	410016	04/01/00	OFFSHORE	NET/30	04/03/00
ORDER TO CASH	INVOICE	5017 GM	DETROIT, MI	INFO@PRC	800019	WINDSHIE	PIECE	433.00	300	200018	800017	03/30/00	410017	04/01/00	OFFSHORE	NET/30	04/03/00
ORDER TO CASH	INVOICE	5018 FORD	DEARBORN, MI	INFO@PRC	800020	STEERING	PIECE	322.00	300	200019	800018	03/30/00	410018	04/01/00	OFFSHORE	NET/30	04/03/00
ORDER TO CASH	INVOICE	5019 IBM	ARMONK, NY	INFO@PRC	800021	TRANSIST	EACH	100.00	1000	200020	800019	03/30/00	410019	04/01/00	OFFSHORE	NET/30	04/03/00
ORDER TO CASH	INVOICE	5019 IBM	ARMONK, NY	INFO@PRC	800027	MEMORY	EACH	304.00	1000	200020	800019	03/30/00	410019	04/01/00	OFFSHORE	NET/30	04/03/00
ORDER TO CASH	INVOICE	5021 INTEL	SANTA CLAR	INFO@PRC	800023	SAND	TON	45.00	5	200021	800020	03/27/00	410020	03/29/00	LOCAL	NET/30	03/31/00
ORDER TO CASH	INVOICE	5022 PHILIPS	NEW YORK, NY	INFO@PRC	800024	FILIMENT	FT	1.00	25	200022	800021	04/02/00	410021	04/04/00	LOCAL	NET/30	04/06/00
ORDER TO CASH	INVOICE	5023 ELI LILLY	INDIANAPOL	INFO@PRC	800025	CAPSULES	CASE	5.00	20	200023	800022	03/27/00	410022	03/29/00	OFFSHORE	NET/30	03/31/00
ORDER TO CASH	INVOICE	5024 AMD	SANTA CLAR	INFO@PRC	800026	SILICON	PIECE	2000.00	3	200024	800023	03/27/00	410023	03/29/00	LOCAL	NET/30	03/31/00
ORDER TO CASH	INVOICE	5025 APPLIED MAT	SANTA CLAR	INFO@PRC	800027	MEMORY	PIECE	304.00	20	200025	800024	04/02/00	410024	04/04/00	LOCAL	NET/30	04/06/00
ORDER TO CASH	INVOICE	5030 KRAFT	CHICAGO, IL	INFO@PRC	800028	MILK	GAL	2.59	30	200026	800025	04/02/00	410025	04/04/00	LOCAL	NET/30	04/06/00
ORDER TO CASH	INVOICE	5031 GP	ATLANTA, GA	INFO@PRC	800029	LVE	POUND	3.44	5	200027	800026	04/02/00	410026	04/04/00	LOCAL	NET/30	04/06/00

# **EXHIBIT C**

**Process Metrics Project**  
**March 9, 2000**

Design Specification 1.0

<b>Last Revised By:</b>	<b>Date</b>	<b>Additions</b>
Vincent Cyr	March 9, 2000	Initial Draft

## Introduction

The activities that take place within a company to conduct its business are organized into processes. Each process is comprised of sub-processes that break down the process into more discreet elements – eventually becoming transactions. For example, the activity of a business that involves making products and selling them for money is known as “Order-to-Cash”. This process is broken down into sub-processes that deal with the individual steps - first obtaining a prospective customer – to the manufacturing of product(s), shipping, and invoicing of that customer.

Each of these sub-processes is triggered by an event that passes information to the next sub-process so that action can be carried out. Often, an application may be responsible for one or more of these sub-processes. In the case of SAP, its integrated applications allow for many of the sub-processes activities to be carried out within the entire SAP R/3 system.

However, in many cases, some of the sub-processes are carried out by different applications or in the cases of e-commerce, may be carried out by entirely different organizations or companies.

How then, does someone inside the organization or outside the organization know at what point their particular order resides? Calling someone may cause a cascading number of phone calls, e-mails, faxes, system look-ups, etc. to determine status of the order. This is highly inefficient and results in poor customer response and service. In addition, being able to measure performance across the sub-processes would have value to those in the organization trying to determine inefficiencies in their operations. Imagine the ability to know how long it took to go from order to manufacturing to shipping during each step of the process. Imagine being able to know exactly where in the process an order is even if your company is not performing one or more sub-processes. This project is intended to demonstrate how we can use messaging to make this possible.

Using MQSeries and MQSeries Integrator, we are going to simulate a process and its related sub-processes. As each event takes place, we are going to send messages with information pertaining to that event through MQSI to a database. This database will hold the messages (in XML format), which we will use to report against. The diagram 1.0 shows the overall layout of this concept.

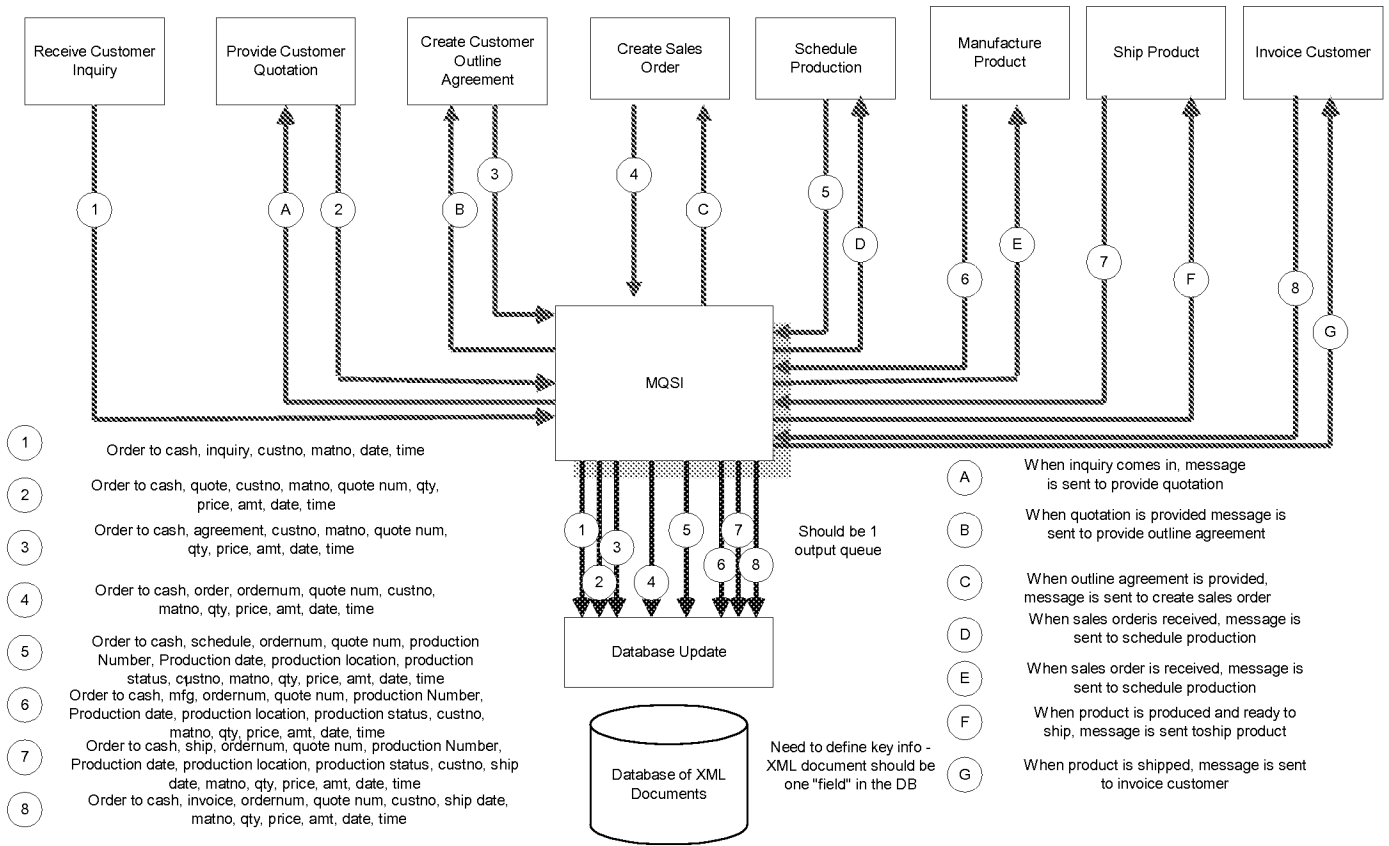
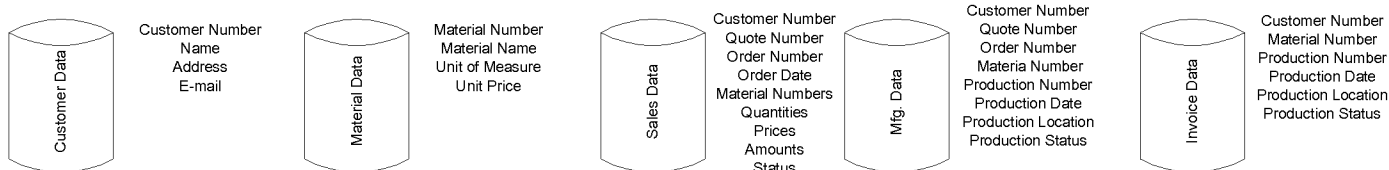


Diagram 1.0

## Development Approach

We should approach development by stubbing out pieces of functionality and validating the design in a step-by-step approach. We will then build upon these pieces as we increase capability. We will build the following components:

**Process Engine** – This will be the application that simulates the applications that perform the sub-processes of the main process. The main process will be Order-to-Cash. The sub-processes are: Inquiry, Quotation, Outline Agreement, Sales Order, Schedule Production, Manufacture, Ship, and Invoice. The Process Engine (PE) should be one program (C++ or Java Servlet) that has each of the sub-processes as a separate function within the application. All inputs and outputs should use MQSeries queues. MQSI application group/message types to distinguish messages from sub-processes. The PE will need to access various databases in order to obtain information about customers, materials, sales, manufacturing, shipping, and invoicing. Load programs may need to be developed to create sample data for these databases. We must also have a method for varying the time intervals between processes (throttling) to simulate real-life time lags between sub-process steps. For example, it may take 1 day between ordering a product and manufacturing a product, we need to show that variation so when we report the results, they appear realistic. The PE should be developed so that we can test the message flow first, then we can add database access and fill out the message structures.

**MQSeries Integrator** – MQSI will be the formatting and routing engine of this design. There will be several different formats coming into MQSI from the various sub-processes. The app group/message type in the MQRFH will determine which format to use. There will be one outbound format that will be used to send all event information to a database that will store all event messages. This format should be XML and one document should consist of all of the possible data elements across the process. These messages will all be placed on one output queue. The other outbound formats will be messages sent to the next sub-process in the process thread; on another queue, separate from the XML queue.

**Database update** – This process will take XML event messages from MQSI and insert them into a database of messages. The key needs to be defined which will allow for inquiry and reporting. The entire XML message will be placed in one field of the database. There should be a cleanup routine to purge older messages (all related to each other) based on a date or key parameter. Extraction of information from the database will be both inquiries against a particular order/customer/material/sub-process or a more generic statistical presentation of data across the entire process. Many of these inquiries are yet to be defined. Presentation of the information will be web-based using XSL style sheets.

At this point in the design, we should stub these pieces out and put as much together to test out these concepts. We will test these components and determine how to move forward from this point.

## **XML Document**

One XML document is to be used for all of the messages coming out of each sub-process of the entire process thread. The data elements include:

### **Process**

- Sub-process name (1 or more)

- Sub-process info (1 or more)

  - Date

  - Time

  - Customer (1)

    - Customer Number

    - Customer Name

    - Customer Address

    - Customer E-mail

  - Material (1 or more)

    - Material Number

    - Material Name

    - Unit of Measure

    - Price

    - Quantity

  - Sales Data (1)

    - Quotation Number

    - Order Number

    - Order Date

    - Manufacturing Data (1)

      - Production Number

      - Production Date

      - Production Location

      - Production Status

    - Invoice Data (1)

      - Amount

      - Terms

      - Date



# **EXHIBIT D**

<b>Author</b>	<b>Date</b>	<b>Description</b>
Ken Fritz	08/07/2000	Initial Draft

## **About Process Metrics Simulator**

The Process Metrics Simulator is the first version of a utility developed to model and simulate business processes. The simulator currently implements a simple 8 process business production model which simulates realistic processes by including process latency and stoppage capability. Latency is independently modifiable by process section. Each section receives a message from the previous section by way of MQSeries messaging. This data transfer is in a standard XML format which has been included in the resource directory of the development directory.

The program is initialized by a file which must be located in the c:\process\ directory on the users machine, called ProcessSim.ini. The file should be somewhat self explanatory; however, see the detailed documentation for more information.

This software was written in Visual Basic 6.0 and utilizes IBM's MQSeries ActiveX objects.

# Process Metrics Simulator, 1.0a Documentation

Author	Date	Description
Ken Fritz	08/07/2000	Detailed Software Documentation, Initial Draft

## I. Basic Design Goals

The simulator is intended to be a flexible utility to model business processes utilizing a variety of messaging constructs and formats. In its final version it will:

- Be written in a platform independent language
- Utilize multiple messaging transports (ie. Tibco, MQSeries)
- Utilize flexible message formats
- Allow for dynamic construction of business processes (Snap-in model)
- Allow for user interaction in setting latency and message drops/stoppage.

Currently, the simulator is in a very basic alpha development version which does the following:

- Supports a basic 8 process production model.
- Utilizes MQSeries messaging
- Allows for user configurable latency settings
- Supports only one basic XML message format.
- Written in Visual Basic 6.0

This document covers only the alpha version currently available.

## II. User Interface

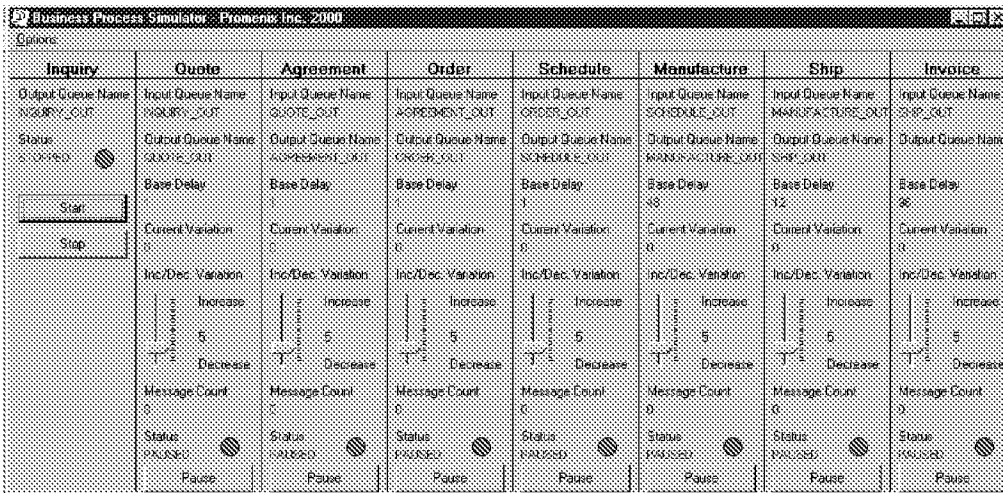


Figure 1 – Process Simulator GUI

The GUI for the process simulator is shown in Figure 1. The GUI allows the user to control all runtime parameters of the package which are limited to the following:

- Starting/Stopping by process
- Latency per process

Also, the GUI will indicate settings for pre-runtime configurable options:

- Input/Output Queue Names
- Base Variation

Finally, the GUI will also indicate dynamic parameters including final latency (delay), message count, and status of each process.

### III. Sample Configuration File

Note: This file must be located in "C:\Process\\*" directory and named processsim.ini

<pre>[Common]  QMGR = CONF01 CHARACTERSET = 437 DBQNAME = DB_IN MQSI_Q_OUT = TESTQ  [Inquiry]  OUTPUTQNAME = INQUIRY_OUT INITIAL_STATUS = 0 XMLFILE = "c:\inquiry.txt"  [Quote]  INPUTQNAME = INQUIRY_OUT OUTPUTQNAME = QUOTE_OUT BASEVARIATION = 1 INITVARIATION = 5 XMLFILE = "c:\test.xml"  [Agreement]  INPUTQNAME = QUOTE_OUT OUTPUTQNAME = AGREEMENT_OUT BASEVARIATION = 1 INITVARIATION = 5 XMLFILE = "c:\test.xml"  [OrderProcess]  INPUTQNAME = AGREEMENT_OUT OUTPUTQNAME = ORDER_OUT BASEVARIATION = 1 INITVARIATION = 5 XMLFILE = "c:\test.xml"  [Schedule]  INPUTQNAME = ORDER_OUT OUTPUTQNAME = SCHEDULE_OUT BASEVARIATION = 1 INITVARIATION = 5 XMLFILE = "c:\test.xml"  [Manufacture]  INPUTQNAME = SCHEDULE_OUT OUTPUTQNAME = MANUFACTURE_OUT BASEVARIATION = 48</pre>	<p>The queue manager to be used The MQSeries character set Database queue name MQSI output queue</p> <p>Settings for Inquiry process</p> <p>Output queue Initial status (0 = Stopped, 1 = Running) XML document file</p> <p>Settings for quote process</p> <p>Input queue name Output queue name Base variation (Delay) setting Initial random seed value (variation can be MAX +5 if this is 5) XML Document file</p> <p>Agreement process</p> <p>Settings are the same for the rest of these processes as for quote process.</p>
--	--

INITVARIATION = 5 XMLFILE = "c:\test.xml"	
[Ship]	
INPUTQNAME = MANUFACTURE_OUT OUTPUTQNAME = SHIP_OUT BASEVARIATION = 12 INITVARIATION = 5 XMLFILE = "c:\test.xml"	
[Invoice]	
INPUTQNAME = SHIP_OUT OUTPUTQNAME = INVOICE_OUT BASEVARIATION = 96 INITVARIATION = 5 XMLFILE = "c:\test.xml"	

#### IV. Sample XML Document Format

```

<PROCESS>
  ORDER_TO_CASH
  <SUBPROCESS>
    SHIP
    <CUSTOMER>
      <CUSTNO>5000</CUSTNO>
      <CUSTNAME>DOW CHEMICAL</CUSTNAME>
      <CITY>MIDLAND</CITY>
      <STATE>MI</STATE>
      <EMAIL>INFO@PROMENIX.COM</EMAIL>
    </CUSTOMER>
    <MATERIAL>
      <MATNUM>800003</MATNUM>
      <MATNAME>WIDGET</MATNAME>
      <UOM>BOX</UOM>
      <PRICE>2</PRICE>
      <QTY>2</QTY>
    </MATERIAL>
    <SALES_DATA>
      <QUOTENUM>200001</QUOTENUM>
      <ORDERNUM>800000</ORDERNUM>
      <ORDERDATE>3/27/00</ORDERDATE>
    </SALES_DATA>
    <MANUFACT_DATA>
      <PRODUCTION_NUM>410000</PRODUCTION_NUM>
      <PRODUCTION_DATE>3/29/00</PRODUCTION_DATE>
      <PRODUCTION_LOC>LOCAL</PRODUCTION_LOC>
      <PRODUCTION_STATUS />
    </MANUFACT_DATA>
    <INVOICE_DATA>
      <AMT />
      <TERMS>NET/30</TERMS>
      <SHIP_DATE>3/31/00</SHIP_DATE>
      <INVOICE_DATE />
    </INVOICE_DATA>
  </SUBPROCESS>
  <EVENT_DATE />
  <EVENT_TIME />
</PROCESS>

```

## V. Basic theory of operation

Initialization process:

1. Call ReadINI
  - a. Open the ini file (must be c:\process\processsim.ini)
  - b. Read all global variables from the INI
2. Call InitGUI
  - a. Initialize labels and display settings
  - b. Set status flags
  - c. Set initial timer intervals
3. Call InitXMLFiles
  - a. Load XML files into memory from disk
4. Call InitDOMS
  - a. Create DOM Objects for each process
  - b. Load XML from InitXMLFiles into DOMs
  - c. Parse XML
5. Call StartTimers
  - a. Set initial timer intervals to 100 ms
  - b. By doing so, starts message processing

Initial process (trigger process)

1. Load initial dummy values into the pre-existing XML DOM
2. Generate a random TID
  - a. Done with following formula: Year & Month & Day & Timer \* Rnd (Where timer is seconds past midnight)
3. Dump XML to variable
4. Write contents of variable to the output queue and DB/MQSI queue

Messages are processed in the following sequence by a generic process:

1. Listener listens on input queue for the process
2. Message listener tries to retrieve a message with no wait interval.
  - a. If message not available, timer interval set to 5000 (5 seconds) to allow processor to do other things while waiting for another message to arrive.
  - b. If the message is there, processing continues
3. When message arrives, retrieve correlation ID
4. Set GUI parameters
  - a. Timer interval to 100 (100 milliseconds)
  - b. Change status to "Running" if it was "Paused"
  - c. Change indicator from red to green
5. Create XMLDOM object
6. Load retrieved message into DOM and parse
7. Load values from retrieved message into variables (Currently static – should be dynamic in future)
8. Create random delay value
9. Using the XMLDOM created in the initialization for the base document, load values from the retrieved message into the new message
10. Change the time and date on the message by adding the delay value
11. Dump the XML from the DOM object into a variable
12. Write the contents of the variable to an MQ message having the same correlation ID as the previous to both the output queue and the MQSI/DB Output queue.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Art Unit : 3992  
Examiner : Rachna Desai  
Patent No. : 7,062,749  
Filed : December 15, 2000  
Control No. : 90/009,961  
Inventors : Vincent R. Cyr  
Kenneth Fritz  
Docket No. : YYZ RE-001

Title : MEASURING, MONITORING AND TRACKING ENTERPRISE  
COMMUNICATIONS AND PROCESSES

**DECLARATION UNDER 37 C.F.R. §1.132**

I, Dieter Roller, make this declaration in support of YYZ in the above identified reexamination, and do hereby declare the following:

1. I was an employee of IBM Germany Development Inc., Böblingen, Germany (“IBM Germany”) for 33 years, where I was the lead architect for IBM's workflow management system (IBM MQSeries Workflow), the Senior Development Manager for IBM's mainframe office suite, and a senior architect on the IBM team that defined WSFL (“Web Services Flow Language”) and BPEL (“Business Process Execution Language”). I retired in May 2007 as an IBM Senior Technical Staff Member and a member of the IBM Academy of Technology.
2. I have authored and coauthored many articles concerning workflow, business processes, messaging and related technologies in journals and conference proceedings. A partial listing includes:

1. F. Leymann and D. Roller, Production Workflow - Concepts and Techniques (PTR Prentice Hall, 2000)

2. T. Unger, D. Roller, Applying Processes for User-driven Refinement of People Activities. In: Proceedings of the 14th IEEE International EDOC Conference (EDOC 2010).
3. T. Scheibler, D. Roller, F. Leymann, Executing Pipes-and-Filters with Workflows. In: ICIW 2010.
4. T. Scheibler, F. Leymann, D. Roller, From Pipes-and-Filters to Workflows, International Conference on Interoperability for Enterprise Software and Applications (I-ESA) 2010.
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16. F. Leymann and D. Roller, Workflow based applications, IBM Systems Journal 36(1) (1997) 102-123
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3. I hold more than 45 patents in the area of workflow management and transaction processing.
4. I hold an MS in physics from the University of Stuttgart, and am currently pursuing my PhD with Professor Leymann at the Institute of Architecture of Application Systems (IAAS) located at the University of Stuttgart, concentrating on optimization of flows.
5. I have written, worked on, and specialized in workflow, business process, messaging and related technologies for many years.
6. As noted above I am the coauthor of the book "Production Workflow Concepts and Techniques," Upper Saddle River, Prentice-Hall, Inc., ISBN 0-13-021753-0 (2000) (hereafter "Production Workflow.") Frank Leymann, my coauthor, and I had written Production Workflow as a textbook to document the state-of-the-art of workflow technology as a middleware technology and provide a theoretical foundation.
7. I understand Production Workflow has been applied as a prior art reference against the above-identified patent (the "'749 patent.")
8. I am the coinventor of U.S. Patent No. 6,073,111 entitled "Container Materialization/Dematerialization for Reduced Dataload and Improved Data-Coherency in Workflow-Management Systems" issued June 6, 2000 (hereafter "the '111 patent"). Frank Leymann and I were coinventors on the '111 patent

while we were at IBM Germany, and I understand the '111 patent has been applied as a prior art reference against the '749 patent.

9. I am the coinventor of U.S. Patent No. 6,122,633 entitled "Subscription within workflow management systems" issued Sept. 19, 2000 (hereafter "the '633 patent"). Frank Leymann and I were coinventors on the '633 patent while we were at IBM Germany, and I understand the '633 patent has been applied as a prior art reference against the '749 patent.
10. I am familiar with the reference Hoffmann, Marc, Shute, David, and Ebbers, Mike, *Image and Workflow Library: Advanced Workflow Solutions using IBM FlowMark*, International Business Machines Corporation, January 1999, SG24-5371-00 (hereafter "AWS") as it taught an IBM workflow product that was the predecessor to IBM's MQSeries Workflow of which I was the lead architect for IBM, and I understand AWS has been applied as a prior art reference against the '749 patent.
11. I am familiar with the technology taught in the references I have listed above, which for purposes of this declaration I will call "Workflow Technology."
12. I have reviewed the '749 patent, and am familiar with the technology taught by that patent, which for purposes of this declaration I will call "Message Broker Technology."
13. Workflow Technology utilizes messaging technology for its internal processing (see, for example, *Production Workflow* at p. 92) however, Workflow Technology, as seen in the references above and as I have used the term here, is a different technology than the Message Broker Technology taught by the '749

patent.

14. More specifically, Claim 1 of the '749 patent defines the invention of the claim as being:

1. A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:

providing, through a monitoring message, at least part of said original message data to a central message repository;

populating a transaction record in said central message repository with said original message data provided by said monitoring message;

wherein said original message data comprises the status of an activity.

15. Workflow Technology does not teach the elements of the claim and in fact has elements different from, and works differently, from the invention of the claim. In Workflow Technology there is an audit trail written by the workflow system to some datastore. AWS, for example, writes the audit trail to a flat file, MQSeries Workflow, a state-of-the-art workflow management system in 2000, uses a relational database to store the information.

16. The audit trail contains information about the execution of a business process, such as the start of a process or the finishing of a particular activity within the process.

17. The workflow engine runs its whole processing as a transaction so that the

information in the audit trail database correctly reflects the actions of the processes that the workflow engine carries out.

18. As of 2000, workflow engines were using data store technology (flat file or more likely databases) to store the audit trail information. Evidence for this approach is the '633 patent that Leymann and I had written, that exploits database technology to provide subscriptions for the audit trail information.
19. Since the audit trail is written as a record to a flat file or a database, it is by definition not a message and thus the elements of Message Broker Technology as taught by Claim 1 of the '749 patent, such as monitoring message and message repository, do not apply.
20. As of 2000, workflow engines were not directly generating messages that could be used by the message broker either, and it would have been significantly more efficient to have the workflow engine do so. Also, had they done so, using messaging for audit trail has the additional advantage that the location of the message repository is not confined to the location of the workflow engine.
21. Messaging technology also allows an application to insert message into a local queue and have the messaging system forward the message to a remote queue so that the message repository can be managed at a location most suitable. Furthermore, the messaging approach allows to easily combine the messages delivered by different workflow engines into a single repository, so that queries across multiple workflow engines are feasible, something which is quite difficult to achieve with the workflow data storage technology of 2000.

22. In summary, workflow technology as of 2000, was just writing information about the execution of business processes to an audit trail, managed in a data base.
23. Therefore the monitoring message and central message repository elements of independent Claim 1 of the '749 patent are missing and not taught by Workflow Technology. This also means that other limitations in Claim 1 including: "populating a transaction record in said central message repository with said original message data provided by said monitoring message..." and "retrieving information from the central message repository" are not taught as well by Workflow Technology.
24. I note that the other independent claims in the '749 patent are claims 22, 42, 49, and 55-58, and they share the same limitations of Claim 1 with regard to a monitoring message and a central message repository as well as operations and/or apparatus regarding the central messaging repository. Workflow Technology does not teach the elements of these claims either and has elements different from, and works differently, from the invention of these claims for the same reasons as I gave above with regard to Claim 1.
25. I have been engaged by YYZ, Inc. at a rate of €150 per hour, plus expenses, to provide my expertise in this matter. I have no contingent or other interest in any outcome in this matter.
26. My statements made and evidence given are done using my independent and professional judgment not contingent upon my engagement by YYZ, and are as complete, accurate, and unbiased as I can make them.

The undersigned declares that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and thus such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: August 12, 2012

Dieter Roller  
DIETER ROLLER

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Art Unit : 3992  
Examiner : Rachna Desai  
Patent No. : 7,062,749  
Filed : December 15, 2000  
Control No. : 90/009,961  
Inventors : Vincent R. Cyr  
Kenneth Fritz  
Docket No. : Prom RE-001

Title : MEASURING, MONITORING AND TRACKING ENTERPRISE  
COMMUNICATIONS AND PROCESSES

**INTERVIEW SUMMARY**

The Patent Owner ("PO") gratefully notes the Examiner's grant of an Interview, held August 2, 2012, before Examiners Basehoar, Desai and Kosowski in the above referenced examination. Vincent Cyr, coinventor, and the undersigned were also present. The Interview was conducted in accordance with PO's proposed agenda, attached herewith and transmitted previously to the Office.

At the Interview, the undersigned reviewed the teachings of the '749 patent and U.S. Patent No. 7,603,674 following which the undersigned discussed the Office Action and presented distinctions between the prior art references and the claims of the '749 and '674 patents. Specific attention was devoted to the monitoring message and central database repository elements in the claims, and the lack of either element in the prior art references. No agreement was reached.

PO and the undersigned gratefully acknowledge the courtesy shown to them by the Examiners.

Respectfully Submitted,

/joseph e chovanes/

Joseph E. Chovanes  
Registration No. 33,481  
Suite 329  
5 Great Valley Parkway  
Malvern, PA 19355  
(610) 648-3994

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Art Unit : 3992  
Examiners : Rachna Desai, Adam Basehoar  
Filed : December 15, 2000  
Control Nos. : 90/009,961, 90/009,960  
Inventors : Vincent R. Cyr  
              Kenneth Fritz  
Docket Nos. : Prom RE-001, 002

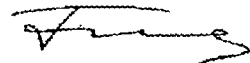
Title : MEASURING, MONITORING AND TRACKING ENTERPRISE  
          COMMUNICATIONS AND PROCESSES

**PROPOSED AGENDA**

Applicant YYZ, Inc. gratefully acknowledges the Examiners' availability for an Interview in the above referenced reexaminations. Inasmuch as the Interviews on both reexaminations shall occur at the same time, Applicant submits this proposed agenda for both cases:

- 1) Review of teachings of patents under reexamination;
- 2) Review of first Office Actions;
- 3) Review of Workflow Technology, including but not limited to as taught by the references;
- 4) Review of the claims in the patents under reexamination, including dependent claims, in light of the references.

Respectfully Submitted,



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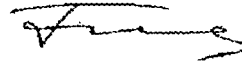
**CERTIFICATE OF SERVICE**

I, the undersigned, hereby certify that a copy of the enclosed documents was served according to 37 C.F.R. § 1.248 and MPEP 2249 on the requester in this reexamination by first class mail on August 14, 2012:

Ariyeh Akmal  
Sprinkle IP Law Group  
1301 West 25th Street, Suite 408  
Austin, Texas 78705  
Tel. (512) 637-9220  
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Dated: August 14, 2012

Respectfully Submitted,



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## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	13496086
<b>Application Number:</b>	90009961
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	6640
<b>Title of Invention:</b>	MEASURING, MONITORING AND TRACKING ENTERPRISE COMMUNICATIONS AND PROCESSES
<b>First Named Inventor/Applicant Name:</b>	7,062,749
<b>Customer Number:</b>	37158
<b>Filer:</b>	Joseph E. Chovanes
<b>Filer Authorized By:</b>	
<b>Attorney Docket Number:</b>	OPEN2200
<b>Receipt Date:</b>	14-AUG-2012
<b>Filing Date:</b>	01-NOV-2011
<b>Time Stamp:</b>	17:27:40
<b>Application Type:</b>	Reexam (Patent Owner)

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### File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Response after non-final action-owner timely	961resp.pdf	120693 <small>cd8c5031923c1c748f545704622e1986da71f6f9</small>	no	12

### Warnings:

### Information:

2	Rule 130, 131 or 132 Affidavits	961kf.pdf	1051360	no	23
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<b>Warnings:</b>					
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<b>Information:</b>					
3	Rule 130, 131 or 132 Affidavits	961mf.pdf	1365638	no	37
			0d9d70e242823f756cf209eabd497493847 6ebef		
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4	Rule 130, 131 or 132 Affidavits	961vc.pdf	1392698	no	38
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5	Rule 130, 131 or 132 Affidavits	dr691001.pdf	342662	no	8
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<b>Total Files Size (in bytes):</b>				5161614	

**This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.**

**New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Art Unit : 3992  
Examiner : Rachna Desai  
Patent No. : 7,062,749  
Filed : December 15, 2000  
Control No. : 90/009,961  
Inventors : Vincent R. Cyr  
                  Kenneth Fritz  
Docket No. : Prom RE-001  
  
Title : MEASURING, MONITORING AND TRACKING ENTERPRISE  
          COMMUNICATIONS AND PROCESSES

**RESPONSE TO FIRST OFFICE ACTION**

THE PATENT OWNER, YYZ LLC, of US Patent No. 7,062,749 (the “ ‘749 patent” or the “patent”) in the above identified reexamination, hereby timely files this Response, within the two month period set for response, to the first Office Action in the above captioned reexamination.

The Patent Owner (“PO”) gratefully notes the Examiner’s grant of an Interview, held August 2, 2012, before Examiners Basehoar, Desai and Kosowski in the above referenced examination. An Interview Summary will be provided separately as appropriate.

PO has provided herewith declarations under 37 C.F.R. §1.131 of the inventors Vincent Cyr and Kenneth Fritz. PO has also provided herewith declarations under 37 C.F.R. §1.132 of corroborating witness Matthew Franklin and expert witness Dieter H. Roller.

The references in the case are:

- 1) Leymann, Frank, and Roller, Dieter, Production Workflow Concepts and Techniques, Upper Saddle River, Prentice-Hall, Inc., ISBN 0-13-021753-0 (hereafter "Production Workflow").
- 2) US Patent No. 7,003,781 issued to Blackwell et al. (hereafter "Blackwell").
- 3) Hoffmann, Marc, Shute, David, and Ebbers, Mike, Image and Workflow Library: Advanced Workflow Solutions using IBM FlowMark, International Business Machines Corporation, January 1999, SG24-5371-00 (hereafter "AWS").
- 4) Leymann '633 - (U.S. Patent No. 6,122,633, published 09/19/2000).
- 5) Leymann '111 - (U.S. Patent No. 6,073,111, published 06/06/2000).
- 6) US Patent No. 2002/0038276 issued to Buhannic et al. (hereafter "Buhannic").

PO has provided herewith three declarations that, it submits, provide sufficient facts to swear behind the Blackwell and Buhannic references. (PO notes that it now understands the Production Workflow reference was published on or about August 1999, and so is not seeking at this time to swear behind that reference.)

The Cyr, Fritz and Franklin declarations all provide facts surrounding the Exhibits provided therewith. It should be noted as well, that they all swear under penalty of perjury that the details they recall are from over twelve years ago, that the original assignee, Promenix, was a small company, did most of its communicating among the employees through personal meetings and telephone calls, did not keep inventor notebooks and the like, and it kept very few documents at all when it went out of business in 2006. (Cyr Declar. at 13, Fritz Declar. at 6-7, Franklin Declar. at 10.) Therefore PO has accumulated what it is able to prove its case regarding conception diligence and

reduction to practice, and the evidence it has adduced is what presently exists. (See 37 C.F.R. 1.131: “Original exhibits of drawings or records, or photocopies thereof, must accompany and form part of the affidavit or declaration or their absence must be satisfactorily explained.”)

The conception date for the purposes here as proven through the Cyr, Fritz and Franklin declarations is on or about March 9, 2000, the date of Exhibit B of the Fritz declaration, and the date of Exhibit C of the Cyr and Franklin declarations. Each of the declarants swear that it was on or about that date that Cyr, the author of the document discussed its contents with them. (Cyr Declar. at 16-18, Fritz Declar. at 10-11, Franklin Declar. at 13-14.)

As noted in that Exhibit at page 2, that the “Process Metrics Project” of the Exhibit is going to use MQSeries and MQSeries Integrator, “to simulate a process and its related sub-processes. As each event takes place, we are going to send messages with information pertaining to that event through MQSI to a database. This database will hold the messages (in XML format), which we will use to report against. The diagram 1.0 shows the overall layout of this concept.” The diagram 1.0 referred to shows original XML messages with original message data being inserted into a one field of a database of messages. The Exhibit therefore shows conception: Vince Cyr’s definite and permanent idea that monitoring messages could be used from a messaging system (e.g., IBM MQSeries) with a central message repository and providing, through a monitoring message, at least part of said original message data to that repository in order to retrieve information from that database about the status of a business process and its various elements. See, e.g., Claim 1 of the ‘749 patent.

Each declarant then describes the due diligence exercised by ken fritz to conception. See, e.g. the Cyr declaration: “Ken began work on the prototype immediately, and for the next six months, he, I and Matt had regular, almost daily conversations regarding elements of the prototype, interrupted only by our need to work on Promenix’s revenue generating business.” (Cyr Declar. at 18-21, Fritz Declar. at 12-15, Franklin Declar. at 15-18.) Both Matt and Vince saw Ken work on the prototype consistently. As Ken Fritz notes at paragraph 12 of his declaration:

I began work on the prototype immediately, and for the next six months, I worked on it almost daily, using the server at Promenix, including researching, writing code for messaging software and screen displays, running tests of the code and other usual and customary tasks to get a software prototype running. My work on the prototype was interrupted only by my need to work on Promenix’s revenue generating business.

Ken Fritz exercised due diligence. See e.g. *Mycogen Plant Sci., Inc. v. Monsanto Co.*, 252 F.3d 1306, 1316 (Fed. Cir. 2001): “Proof of reasonable diligence, however, does not require a party to work constantly on the invention or to drop all other work. See *Bey v. Kollonitsch*, 806 F.2d 1024, 1028, 231 U.S.P.Q. (BNA) 967, 970 (Fed. Cir. 1986); *In re Nelson*, 57 C.C.P.A. 893, 420 F.2d 1079, 1081, 164 U.S.P.Q. (BNA) 458, 459 (CCPA 1970); *Gould v. Schawlow*, 53 C.C.P.A. 1403, 363 F.2d 908, 919, 150 U.S.P.Q. (BNA) 634, 643 (CCPA 1966).”

On or about August 9, 2000, Ken Fritz provided presented Vince and Matt with the document attached to his declaration as Exhibit C, documentation of the first working prototype of the inventions of the independent claims of the patent. Ken Fritz notes at



paragraph 14 of his declaration:

I also showed Vince and Matt the prototype, as it worked and was existing on our server, and I specifically recall observing how monitoring messages could be used from a messaging system (e.g., IBM MQSeries) and provide at least part of said original message data to a record in a central message repository in order to identify the status of a business process and its various elements, in accordance with claim 1 and the other independent claims of the patent.

As the Exhibit (C to the Fritz declaration, D to the Cyr and Franklin declarations) notes:

The Process Metrics Simulator is the first version of a utility developed to model and simulate business processes. The simulator currently implements a simple 8 process business production model which simulates realistic processes by including process latency and stoppage capability. Latency is independently modifiable by process section. Each section receives a message from the previous section by way of MQSeries messaging. This data transfer is in a standard XML format which has been included in the resource directory of the development directory. (Page 1.) The messages are then written to the database through the MQSI/DB Output queue. (Page 3.)

Moreover, each declarant notes they specifically recall observing the prototype function according to claim 1 of the present patent. (Cyr Declar. at 20-21, Fritz Declar. at 14-15, Franklin Declar. at 17-18.)

By declarations and documents, PO has shown the conception on or about March 9, 2000, due diligence running from conception, and a first prototype showing reduction

to practice, on or about August 9, 2000. Therefore, PO swears behind the Blackwell and Buhannic references, which have priority dates of May 5, 2000 and June 26, 2000 respectively. Those references are not prior art to the present patent.

PO also respectfully traverses the rejections of the Office Action.

The following rejections all involve similar references:

- under 35 U.S.C. 102(b) of claims 1-58 as being anticipated by Production Workflow;
- under 35 U.S.C. 102(b) of claims 1-6, 8-24, 27-31, 33-37, 42-45, 47-51, and 55-58 as being anticipated by AWS;
- under 35 U.S.C. 103(a) of claims 7, 18, 25-26, 40-41, and 46-47 as unpatentable over AWS in view of Leymann '111; and,
- under 35 U.S.C. 103(a) of claims 3-6, 8, 9, 29-30, 32, 39, 44, 51, 53 and 54 as unpatentable over AWS in view of Leymann '633

As PO has noted previously, none of these contain a monitoring message nor a central message database. PO further refers here to its expert, Dieter Roller, who in his attached declaration makes more clear the differences.

Mr. Roller's credentials are impeccable. He, along with Frank Leymann, coauthored the Production Workflow reference: he has literally written the book on what he calls Workflow Technology. He and Leymann were also coinventors on Leymann '111 and Leymann '633 and Mr. Roller was IBM's lead architect on its replacement to AWS. Mr. Roller further notes in the attached declaration he has over 45 patents and has written, worked on, and specialized in workflow, business process, messaging and related technologies for many years:

6. As noted above I am the coauthor of the book "Production Workflow Concepts and Techniques," Upper Saddle River, Prentice-Hall, Inc., ISBN 0-13-021753-0 (2000) (hereafter "Production Workflow.") Frank Leymann, my coauthor,

and I had written Production Workflow as a textbook to document the state-of-the-art of workflow technology as a middleware technology and provide a theoretical foundation.

7. I understand Production Workflow has been applied as a prior art reference against the above-identified patent (the "'674 patent.")

8. I am the coinventor of U.S. Patent No. 6,073,111 entitled "Container Materialization/Dematerialization for Reduced Dataload and Improved Data-Coherency in Workflow-Management Systems" issued June 6, 2000 (hereafter "the '111 patent"). Frank Leymann and I were coinventors on the '111 patent while we were at IBM Germany, and I understand the '111 patent has been applied as a prior art reference against the '674 patent.

9. I am the coinventor of U.S. Patent No. 6,122,633 entitled "Subscription within workflow management systems" issued Sept. 19, 2000 (hereafter "the '633 patent"). Frank Leymann and I were coinventors on the '633 patent while we were at IBM Germany, and I understand the '633 patent has been applied as a prior art reference against the '674 patent.

10. I am familiar with the reference Hoffmann, Marc, Shute, David, and Ebbers, Mike, Image and Workflow Library: Advanced Workflow Solutions using IBM FlowMark, International Business Machines Corporation, January 1999, SG24-5371-00 (hereafter "AWS") as it taught an IBM workflow product that was the predecessor to IBM's MQSeries Workflow of which I was the lead architect for IBM, and I understand AWS has been applied as a prior art reference against the '674 patent.

11. I am familiar with the technology taught in the references I have listed above, which for purposes of this declaration I will call "Workflow Technology."

12. I have reviewed the '674 patent, and am familiar with the technology taught by that patent, which for purposes of this declaration I will call "Message Broker Technology."

13. Workflow Technology utilizes messaging technology for its internal processing (see, for example, Production Workflow at p. 92) however, Workflow Technology, as seen in the references above and as I have used the term here, is a different technology than the Message Broker Technology taught by the '674 patent.

14. More specifically, Claim 1 of the '674 patent defines the invention of the claim as being:

1. A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one

original message comprised of original message data, comprising:  
providing, through a monitoring message, at least part of said original message data to a central message repository;  
populating a transaction record in said central message repository with said original message data provided by said monitoring message wherein said original message data comprises status information of at least one action selected from the group consisting of activity, sub process and process; and,  
retrieving information from the central message repository.

15. Workflow Technology does not teach the elements of the claim and in fact has elements different from, and works differently, from the invention of the claim. In Workflow Technology there is an audit trail written by the workflow system to some datastore. AWS, for example, writes the audit trail to a flat file, MQSeries Workflow, a state-of-the-art workflow management system in 2000, uses a relational database to store the information.

16. The audit trail contains information about the execution of a business process, such as the start of a process or the finishing of a particular activity within the process.

17. The workflow engine runs its whole processing as a transaction so that the information in the audit trail database correctly reflects the actions of the processes that the workflow engine carries out.

18. As of 2000, workflow engines were using data store technology (flat file or more likely databases) to store the audit trail information. Evidence for this approach is the '633 patent that Leymann and I had written, that exploits database technology to provide subscriptions for the audit trail information.

19. Since the audit trail is written as a record to a flat file or a database, it is by definition not a message and thus the elements of Message Broker Technology as taught by Claim 1 of the '674 patent, such as monitoring message and message repository, do not apply.

20. As of 2000, workflow engines were not directly generating messages that could be used by the message broker either, and it would have been significantly more efficient to have the workflow engine do so. Also, had they done so, using messaging for audit trail has the additional advantage that the location of the message repository is not confined to the location of the workflow engine.

21. Messaging technology also allows an application to insert message into a local queue and have the messaging system forward the message to a remote queue so that the message repository can be managed at a location most suitable. Furthermore, the messaging approach allows to easily combine the messages delivered by different workflow engines into a single repository, so that queries

across multiple workflow engines are feasible, something which is quite difficult to achieve with the workflow data storage technology of 2000.

22. In summary, workflow technology as of 2000, was just writing information about the execution of business processes to an audit trail, managed in a data base.

23. Therefore the monitoring message and central message repository elements of independent Claim 1 of the '674 patent are missing and not taught by Workflow Technology. This also means that other limitations in Claim 1 including: "populating a transaction record in said central message repository with said original message data provided by said monitoring message..." and "retrieving information from the central message repository" are not taught as well by Workflow Technology.

24. I note that the other independent claims in the '674 patent are claims 46, 51, 70, 90, 135, 140 and 154, and they share the same limitations of Claim 1 with regard to a monitoring message and a central message repository as well as operations and/or apparatus regarding the central messaging repository. Workflow Technology does not teach the elements of these claims either and has elements different from, and works differently, from the invention of these claims for the same reasons as I gave above with regard to Claim 1.

Roller Declaration at paragraphs 6-24.

Mr. Roller makes clear that Workflow Technology does not anticipate nor make obvious the inventions of the present claims. Therefore, PO respectfully requests the rejections identified above under the Workflow technology references be withdrawn.

As noted above, PO believes it has sworn behind the Blackwell and Buhannic references. In the event the Office disagrees, PO traverses the rejections under those references.

As to Buhannic:

- claims 1, 42, 55 and 58 are rejected under 35 U.S.C. 102(e) as being anticipated by Buhannic

-

Buhannic as filed from its priority date, however, is not prior art. Buhannic claims priority from a provisional application filed on June 26, 2000, but that provisional

is so general that it does not act as prior art here – it has none of the elements of the claims. See Buhannic 60/214,256.

Therefore, PO respectfully requests the rejections identified above under Buhannic be withdrawn.

As to Blackwell the rejections are:

- 1-6, 8-11, 14-17, 19,21,42-43,45,48, 55, and 58 are rejected under 35 U.S.C. 102(e) as being anticipated by Blackwell; and,
- 22-24, 27, 31-34, 38, 47, 49, 50, 52, 54, and 56-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blackwell.

PO respectfully submits Blackwell does not have either a monitoring message nor a central message database. As noted in Blackwell, sensors 14 intercept API calls, create an event from the calls and provide the event to an analyzer 10 and local database 20 attached to the analyzer. Col. 5, lines 14-18. It is unclear if Blackwell collects original message data as is needed for a monitoring message in the present patent, but PO is unable to find any specific reference that it does. It is certainly clear that Blackwell has no central message repository as in the present patent. Blackwell notes specifically that a “local event database” 20 is attached to each analyzer 12 and is expressly called a “local event database” by Blackwell. Col. 5, lines 34-36 and Figure 1. Thus it may collect more than one event on a single sensor 14’s path, but it certainly is not fed by anything other than that single sensor. *Id.* Blackwell’s “local event database” is not, by definition, a central message repository of the present patent.

Therefore, PO respectfully requests the rejections identified above under Blackwell be withdrawn.

Therefore, in light of the above, Applicant respectfully requests the Office

withdraw its rejections and permit a Certificate of Reexamination to issue confirming the validity of all claims of the '674 patent.

Other Matters

In the event PO is seen as having a duty of litigation disclosure here, three matters have involved the '749 patent, all related cases in the Eastern District of Pennsylvania:

- 1) YYZ, LLC v. MetaStorm, Inc., 2011-cv-00931 (filed 02/07/2011, terminated 03/07/11);
- 2) YYZ, LLC v. MetaStorm, Inc., et. al., 2011-cv-01609 (filed 03/07/2011, Settlement Agreement executed January 31, 2012 (terminated 02/08/12); and,
- 3) InterSystems Corp. v. YYZ, LLC, 2011-cv-06602 (filed 10/21/2011, terminated 01/03/12.)

In view of the foregoing arguments, all claims are believed to be in condition for confirmation over the prior art of record. Therefore, this response is believed to be a complete response to the Office Action. However, PO reserves the right to set forth further arguments in future papers supporting the patentability of any of the claims, including the separate patentability of the dependent claims not explicitly addressed herein. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. The absence of a reply to a specific rejection, issue or comment in the

Office Action does not signify agreement with or concession of that rejection, issue or comment. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper.

Respectfully Submitted,

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
90/009,961	11/01/2011	7,062,749	OPEN2200	6640
37158	7590	09/18/2012	EXAMINER	
JOSEPH E. CHOVANES SUITE 329 5 GREAT VALLEY PARKWAY MALVERN, PA 19355			BASEHOAR, ADAM L	
			ART UNIT	PAPER NUMBER
			3992	
			MAIL DATE	DELIVERY MODE
			09/18/2012	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.



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**SEP 18 2012**

**CENTRAL REEXAMINATION UNIT**

## **EX PARTE REEXAMINATION COMMUNICATION TRANSMITTAL FORM**

REEXAMINATION CONTROL NO. 90/009,961.

PATENT NO. 7,062,749.

ART UNIT 3992.

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified *ex parte* reexamination proceeding (37 CFR 1.550(f)).

Where this copy is supplied after the reply by requester, 37 CFR 1.535, or the time for filing a reply has passed, no submission on behalf of the *ex parte* reexamination requester will be acknowledged or considered (37 CFR 1.550(g)).

<b>Office Action in Ex Parte Reexamination</b>	<b>Control No.</b> 90/009,961	<b>Patent Under Reexamination</b> 7,062,749
	<b>Examiner</b> ADAM BASEHOAR	<b>Art Unit</b> 3992

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

- a  Responsive to the communication(s) filed on 14 August 2012.      b  This action is made FINAL.  
c  A statement under 37 CFR 1.530 has not been received from the patent owner.

A shortened statutory period for response to this action is set to expire 2 month(s) from the mailing date of this letter. Failure to respond within the period for response will result in termination of the proceeding and issuance of an *ex parte* reexamination certificate in accordance with this action. 37 CFR 1.550(d). **EXTENSIONS OF TIME ARE GOVERNED BY 37 CFR 1.550(c).** If the period for response specified above is less than thirty (30) days, a response within the statutory minimum of thirty (30) days will be considered timely.

**Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:**

1.  Notice of References Cited by Examiner, PTO-892.      3.  Interview Summary, PTO-474.  
2.  Information Disclosure Statement, PTO/SB/08.      4.  \_\_\_\_\_.

**Part II SUMMARY OF ACTION**

- 1a.  Claims 1-58 are subject to reexamination.  
1b.  Claims \_\_\_\_\_ are not subject to reexamination.  
2.  Claims \_\_\_\_\_ have been canceled in the present reexamination proceeding.  
3.  Claims \_\_\_\_\_ are patentable and/or confirmed.  
4.  Claims 1-58 are rejected.  
5.  Claims \_\_\_\_\_ are objected to.  
6.  The drawings, filed on \_\_\_\_\_ are acceptable.  
7.  The proposed drawing correction, filed on \_\_\_\_\_ has been (7a)  approved (7b)  disapproved.  
8.  Acknowledgment is made of the priority claim under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All b)  Some\* c)  None of the certified copies have  
1  been received.  
2  not been received.  
3  been filed in Application No. \_\_\_\_\_.  
4  been filed in reexamination Control No. \_\_\_\_\_.  
5  been received by the International Bureau in PCT application No. \_\_\_\_\_.  
\* See the attached detailed Office action for a list of the certified copies not received.  
9.  Since the proceeding appears to be in condition for issuance of an *ex parte* reexamination certificate except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte* Quayle, 1935 C.D. 11, 453 O.G. 213.  
10.  Other: \_\_\_\_\_

cc: Requester (if third party requester)

Art Unit: 3992

### DETAILED ACTION

1. This Office action addresses claims 1-58 of United States Patent Number 7,062,749 B2 (Cyr et al), for which it has been determined in the Order Granting Ex Parte Reexamination (hereafter the "Order") mailed 12/01/2011 that a substantial new question of patentability was raised in the Request for Ex Parte reexamination filed on 11/01/2011 (hereafter the "Request"). Claims 1-58 are subject to reexamination. This is a Final Office Action in response to the Response to First Office Action filed 08/14/2012.

### Reexamination

2. The patent owner is reminded of the continuing responsibility under 37 CFR 1.565(a) to apprise the Office of any litigation activity, or other prior or concurrent proceeding, involving Patent No. 7,062,749 B2, throughout the course of this reexamination proceeding. The third party requester is also reminded of the ability to similarly apprise the Office of any such activity or proceeding throughout the course of this reexamination proceeding. See MPEP §§ 2207, 2282 and 2286.

### *References Submitted by Requester*

3. The following six references were been cited and applied against the claims in the Non-Final Action, mailed 06/14/2012.

Leymann, Frank, and Roller, Dieter, Production Workflow Concepts and Techniques, Upper Saddle River, Prentice-Hall, Inc., July 30, 1999, ISBN 0-13-021753-0 (hereafter "**Production Workflow**").

US Patent No. 7,003,781 issued to Blackwell et al. (hereafter "**Blackwell**").

Art Unit: 3992

Hoffmann, Marc, Shute, David, and Ebbers, Mike, *Image and Workflow Library: Advanced Workflow Solutions using IBM FlowMark*, International Business Machines Corporation, January 1999, SG24-5371-00 (hereafter "AWS")

US Patent No. 2002/0038276 issued to Buhannic et al. (hereafter "**Buhannic**")

US Patent No. 6,122,633 issued to Leymann et al. (hereafter "**Leymann '633**").

US Patent No. 6,073,111 issued to Leymann et al. (hereafter "**Leymann '111**")

### **Response to Arguments**

4. Patent Owner's arguments, the Vincent R. Cyr 1.131 Declaration, the Kenneth Fritz 1.131 Declaration, the Matthew Franklin 1.131 Declaration, and the Dieter Roller 1.132 Declaration, all filed 08/14/2012, have each been fully considered and are discussed below with regard to the rejections as set forth in the last Office action.

#### The Cyr, Fritz, and Franklin 1.131 Declarations – Swearing Back of References

The Cyr, Fritz, and Franklin declarations filed on 08/14/2012 under 37 CFR 1.131 have been considered but are ineffective to overcome the Buhannic and Blackwell references.

The declarations must state FACTS and produce such documentary evidence and exhibits in support thereof as are available to show conception and completion of invention in this country or in a NAFTA or WTO member country (MPEP §715.07(C)), at least the conception being at a date prior to the effective date of the reference. Where there has not been reduction to practice prior to the date of the reference, the patent owner must also show diligence in the completion of his or her invention from a time just prior to the date of the reference continuously up to the date of an actual reduction to practice or up to the date of filing his or her application

Art Unit: 3992

(filing constitutes a constructive reduction to practice, 37 CFR 1.131). The Examiner notes that the Cyr, Fritz, and Franklin declarations do not appear to attempt to individually address the two distinct critical periods related to the Blackwell and Buhannic references. Instead, in order to antedate the Blackwell and Buhannic references, the Cyr, Fritz, and Franklin declarations attempt to present facts sufficient to show conception of the invention at least as early as March 9, 2000 coupled with due diligence during a single critical period from March 9, 2000 to an actual reduction to practice on August 9, 2000. For the purposes of analysis below the Examiner notes that the critical period necessary to antedate both the Blackwell and Buhannic references is May 4, 2000 (i.e., the date just prior to the earlier filed Blackwell reference (05/05/2000)) to August 9, 2000 (i.e., the stated date of actual reduction to practice of the claimed invention).

### **Conception**

Conception is the mental part of the inventive act, but it must be capable of proof, as by drawings, complete disclosure to another person, etc. In *Mergenthaler v. Scudder*, 1897 C.D. 724, 81 O.G. 1417 (D.C. Cir. 1897), it was established that conception is more than a mere vague idea of how to solve a problem; the means themselves and their interaction must be comprehended also. The inventor must form a definite and permanent idea of the complete and operable invention to establish conception. Accordingly, there must be contemporaneous recognition and appreciation of the invention for there to be conception wherein it is settled that in establishing conception a party must show possession of every feature recited in the count, and that every limitation of the count must have been known to the inventor at the time of the alleged conception.

Art Unit: 3992

The 37 CFR 1.131 declaration must establish possession of either the whole invention claimed or something falling within the claim (such as a species of a claimed genus), in the sense that the claim as a whole reads on it. In *re Tanczyn*, 347 F.2d 830, 146 USPQ 298 (CCPA 1965). The declaration and exhibits must clearly explain which facts or data patent owner is relying on to show conception of the invention prior to the effective dates of the references. Vague and general statements in broad terms about what the exhibits describe along with a general assertion that the exhibits describe conception “amounts essentially to mere pleading, unsupported by proof or a showing of facts” and, thus, does not satisfy the requirements of 37 CFR 1.131(b). In *re Borkowski*, 505 F.2d 713, 184 USPQ 29 (CCPA 1974). Patent Owner must give a clear explanation of the exhibits pointing out exactly what facts are established and relied on by Patent Owner. 505 F.2d at 718-19, 184 USPQ at 33. See also *In re Harry*, 333 F.2d 920, 142 USPQ 164 (CCPA 1964) (Affidavit “asserts that facts exist but does not tell what they are or when they occurred.”). The essential thing to be shown under 37 CFR 1.131 is priority of invention and this may be done by any satisfactory evidence of the facts. FACTS, not conclusions, must be alleged.

The combination of the corroborating statements made in the Cyr, Fritz, and Franklin declarations (Cyr Declaration: Paragraphs 10-16; Fritz Declaration: Paragraphs 8-10; Franklin Declaration: Paragraphs 7-13) as well as the evidence presented in Exhibits A, B, and C (see: Cyr Declaration), some of which were previously explained to show specific features of the limitations for at least the independent claims in the previously submitted Cyr Declaration filed 02/01/2012 (Cyr Declaration 02/01/2012: Paragraphs 12-22 and 24-28), at least establishes conception of the invention on or about March 9, 2000. The evidence and declarations provide

Art Unit: 3992

facts showing that the inventor had a definite and permanent idea of the complete and operable invention in addition to a complete disclosure of said invention to another person. Therefore the evidence and declarations provided are deemed sufficient to show conception of the invention on or about March 09, 2000 or prior to the effective dates of the Blackwell and Buhannic references for at least the independent claims.

### **Diligence**

The critical period for diligence for a first conceiver but second reducer begins not at the time of conception of the first conceiver but just prior to the entry in the field of the party who was first to reduce to practice and continues until the first conceiver reduces to practice. *Hull v. Davenport*, 90 F.2d 103, 105, 33 USPQ 506, 508 (CCPA 1937) ("lack of diligence from the time of conception to the time immediately preceding the conception date of the second conceiver is not regarded as of importance except as it may have a bearing upon his subsequent acts"). An applicant must account for the entire period during which diligence is required. *Gould v. Schawlow*, 363 F.2d 908, 919, 150 USPQ 634, 643 (CCPA 1966) (Merely stating that there were no weeks or months that the invention was not worked on is not enough.); *In re Harry*, 333 F.2d 920, 923, 142 USPQ 164, 166 (CCPA 1964) (statement that the subject matter "was diligently reduced to practice" is not a showing but a mere pleading). A 2-day period lacking activity has been held to be fatal. *In re Mulder*, 716 F.2d 1542, 1545, 219 USPQ 189, 193 (Fed. Cir. 1983) (37 CFR 1.131 issue); *Fitzgerald v. Arbib*, 268 F.2d 763, 766, 122 USPQ 530, 532 (CCPA 1959) (Less than 1 month of inactivity during critical period). The period during which diligence is required must be accounted for by either affirmative acts or acceptable excuses. It is further



Art Unit: 3992

noted that the work relied upon to show reasonable diligence must be directly related to the reduction to practice of the invention in issue.

The evidence submitted in the Cyr, Fritz, and Franklin declarations are insufficient to establish diligence from a date prior to the date of reduction to practice of the Blackwell and Buhannic references to August 9, 2000 (i.e., the stated date of actual reduction to practice of the claimed invention). The Cyr, Fritz, and Franklin declarations are completely silent on the showing of facts of any evidence of diligence during the critical period. Each of the submitted declarations make similar corroborating statements as to why there is an absence of any specific evidence of diligence during the critical period (Cyr Declaration: Paragraph 13; Fritz Declaration: Paragraphs 6-7; Franklin Declaration: Paragraph 10). Additionally each of the submitted declarations make similar corroborating statements about the reasonable diligence conducted on an "almost daily" basis (Cyr Declaration: Paragraphs 18-19; Fritz Declaration: Paragraphs 12-13; Franklin Declaration: Paragraphs 15-16). The Examiner notes that 37 C.F.R. 1.131 does provide for the ability to satisfactorily explain the absence of original exhibits or records necessary for showing certain facts (37 C.F.R. 1.131(b): "Original exhibits of drawings or records, or photocopies thereof, must accompany and form part of the affidavit or declaration or their absence must be satisfactorily explained"). However, because the critical period extends over many months, mere corroborating statements in the declarations do not cure the fact that there is a complete lack of any specific evidence during said critical period. Therefore, said corroborating statements that the inventors worked diligently to reduce the invention to practice amount to a mere pleading and not a showing of facts.

Art Unit: 3992

**Reduction to Practice**

In general, proof of actual reduction to practice requires a showing of the invention in a physical or tangible form that shows every element of the count and a showing that the invention actually existed and worked for its intended purpose. The invention must have been sufficiently tested and evidence to said testing provided to demonstrate that it will work for its intended purpose.

The evidence submitted is insufficient to establish applicant's alleged actual reduction to practice of the invention in this country or a NAFTA or WTO member country after the effective dates of the Blackwell and Buhannic references. The Cyr, Fritz, and Franklin declarations rely on Exhibit D ("Process Metrics Simulator, 1.0a Documentation"), as documentation of the first working prototype of the inventions of the independent claims of the patent, and provide corroborating statements for showing actual reduction to practice of the invention on or about August 9, 2000 (Cyr Declaration: Paragraphs 20-21; Fritz Declaration: Paragraphs 14-15; Franklin Declaration: Paragraphs 17-18). Outside of the corroborating statements the declarations are silent on showing actual facts in the evidence that provide proof that the invention actually existed and worked for its intended purpose. The statements are thus insufficient because they fail to provide a clear explanation of Exhibit D with an appropriate mapping to the claimed subject matter. It is unclear to the Examiner how the features provided/described in the "very basic alpha development version" (Exhibit D: Page 2) of the Process Metrics Simulator reads on all the claimed elements of the independent claims. Additionally, it is noted that the evidence provided for showing actual reduction to practice is

Art Unit: 3992

completely absent any showing of testing to demonstrate that the invention worked for its intended purpose.

Summary: For the above reasons the declarations filed Under 37 CFR 1.131 are deemed sufficient to establish conception on or about March 9, 2000, but are not sufficient to prove diligence or actual reduction to practice.

#### The 1.132 Dieter Roller Declaration

The PO appears to rely solely on the contents of the Roller Declaration to overcome the teachings of the Production Workflow and AWS references by showing that said references do not teach or suggest a monitoring message or central message database as described in the claims (Arguments: pp. 6-9). However, the Roller Declaration under 37 CFR 1.132 filed 08/14/2012 is insufficient to overcome the rejection of claims 1-58 based upon the various rejections in combination with the Production Workflow and/or AWS references as set forth in the last Office action because the Roller Declaration fails set forth facts that are commensurate in scope with the claims.

The Examiner recognizes that the expert Dieter Roller appears to be directly connected with a plurality of the applied references (Roller Declaration: Paragraphs 6-10). The Roller declaration attempts to differentiate the Production Workflow and AWS references (i.e., labeled "Workflow Technology") from the claims of the '749 patent (i.e., labeled "Message Broker Technology")(Roller Declaration: Paragraphs 11-18). However, the statements in the Roller declaration do not overcome the Production Workflow and AWS references as applied to claims

Art Unit: 3992

of the '749 patent. Specifically, the Roller declaration states that in Workflow Technology a generated audit trail containing information about the execution of a business process is written to a flat file or relational database to store the information (Roller Declaration: Paragraphs 15-18), but that since the audit trail is written as a record to a flat file or a database, it is by definition not a message and thus the elements of claim 1 of the '749 patent do not apply (Roller Declaration: Paragraph 19). The Roller declaration further summarizes that workflow technology as of 2000, was just writing information about the execution of business processes to an audit trail, managed in a database (Roller Declaration: Paragraph 22). However, the Roller declaration does not explain what the definition of a message must be and specifically does not do so in view of the '749 patent claim language. From the AWS example in the Roller declaration, it is unclear how the explained audit trail which contains process execution information and is then stored in a database for future monitoring/reporting (see AWS: Pages 84-86) cannot be equated to a monitoring message and/or central message repository. As claimed, given the broadest reasonable interpretation, what constitutes a message is merely a transmittable information container that holds process related data. Additionally, the statements in the Roller declaration to the location of the message repository in relation to a distributed workflow system (Roller Declaration: Paragraphs 20-21) do not appear relevant at least as they are related to the independent claims of the '749 patent, which appear silent on the actual location and/or networked structure of the claimed messaging environment.

Thus, the various rejections involving the Production Workflow and AWS references are maintained.

Art Unit: 3992

The Buhannic Reference

With regard to the Buhannic reference the PO argues that while the Buhannic reference claims priority to provisional application No. 60/214,256, filed on 06/26/2000, said provisional is so general that it does not act as prior art in that it describes none of the elements of the claims (Arguments: Pages 9-10). First, the Examiner notes that the Buhannic reference also claims priority to provisional application No. 60/298,083, filed on 06/15/2001, who's date is after the effective date of the '749 patent (12/15/2000), and thus cannot be utilized to establish a prior art date.

Second, the Examiner respectfully disagrees with the PO's general argument that the relied upon 60/214,256 provisional application fails to provides support for all the elements of at least the independent claims. The Examiner notes that the Buhannic reference is entitled to the benefit of the filing date of the provisional application if the provisional application properly supports the subject matter relied upon to make the rejection in compliance with 35 U.S.C. 112, first paragraph. The PO has not precisely pointed out which elements of the claims are not specifically supported by the disclosure of the 60/214,256 provisional application, outside a general statement of it being "so general that it does not act as prior art." In response, the Examiner points out, in view of independent claim 1, that the 60/214,256 provisional application supports an asynchronous messaging broker system (60/214,256: Page 8: "Through a suite of servers and messaging software...message broker sits at the hub"), whereby information from messages passed between a plurality entities of the system are stored via monitoring messages in a central message repository (60/214,256: Page 6: "State Transition Model...tracks the state of each deal which it must pass through during its lifetime...trade, client, and dealer, are kept

Art Unit: 3992

informed on a real-time basis of the state of their trade"; Pages 11-12: "maintain the state of an order...receives a message...creates a state-model...assigns it a proper state...and caches it to a backing storage device to ensure it's persistence...updates the state, and again caches it for future use...tracking the order's state in real-time, based upon many automated, electronic messages...enables remote and asynchronous process"), whereby said information can be later retrieved from the repository (60/214,256: Page 5: "Single access point...connect to one location...on our global network"; Page 6: "Participants of the trade, client, and dealer, are kept informed on a real-time basis of the state of their trade"; Pages 13-14: "Status real-time information (Trade-flow technology)").

The Examiner notes that the claimed monitoring message is not defined in such a way to preclude the teachings of Buhannic. Therefore, the effective date of the Buhannic reference as utilized against at least the independent claims of the '749 patent remains 06/26/2000, the date of the 60/214,256 provisional application. Thus, the rejections involving the Buhannic reference are maintained.

#### The Blackwell Reference

With regard to the Blackwell reference, PO argues that Blackwell does not teach or suggest a monitoring message or a central message repository (Arguments: Pages 10-11). PO argues that it is unclear if Blackwell collects original message data as disclosed by the '749 patent. Additionally, PO argues that Blackwell clearly has no central message repository, as claimed, and that the specifically named "local event database" 20 of Blackwell is only fed by a

Art Unit: 3992

single sensor 14 and thus is not a central message repository. The Examiner respectfully disagrees with the PO.

Blackwell clearly teaches utilizing a message passing technique whereby a plurality of messages passed between various applications running on a plurality of processors of a distributed data processing system are monitored for certain predetermined criteria by sensors, and if said criteria is satisfied by a given message, storing all or a portion of the content of the message as a generated event and passing the generated events to a transaction database to be stored for future retrieval/analysis (Blackwell: column 3, lines 42-57; column 5, lines 14-35). Blackwell specifically teaches wherein the information captured in the monitoring message was from the original message data (Blackwell: column 5, line 49-column 6, line 13: "determine...an amount of information to be collected from the event data packet...the amount of information contained in the generated event depends on the filter rule specification"; column 6, lines 39-62; column 14, line 45-column 15, line 57: "sends messages to various distributed applications...messaging is preferably employed to send data between processors...run independently and asynchronously relative to each other...captured event data flows back to the analyzer 10 from the sensors 14...track the flow of one or more transactions...sort the collected event data...such as message descriptor and the user data"). Blackwell explicitly states that the transaction database 20 is populated with event messages from multiple sensors 14 and operates on the stored event data with a data analysis module (Blackwell: column 15, lines 59-66: "receives event messages from the sensors 14, stores the event messages in the transaction database")(Figs. 13 & 14). Clearly the transaction database of Blackwell is a central message repository in that it stores and allows dynamic querying against all the event data captured by

Art Unit: 3992

various sensors in the distributed data processing system (Blackwell: column 16, lines 3-53).

The monitoring message and central messaging repository, as currently claimed, do not preclude the teachings of Blackwell. Therefore the rejections involving the Blackwell reference are maintained.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

***Issue 1***



Art Unit: 3992

7. Claims 1-58 are rejected under 35 USC 102(b) as being unpatentable by Production Workflow (see Appendix A, incorporated by reference).

These rejections are ADOPTED as proposed in Appendix A.

*Issue 2*

8. Claims 1-6, 8-11, 14-17, 19, 21, 42-43, 45, 48, 55, and 58 are rejected under 35 U.S.C. 102 (e) as being unpatentable by Blackwell (see Appendix B-1, incorporated by reference).

These rejections are ADOPTED as proposed in Appendix B-1.

The rejection for claim 46 is NOT ADOPTED as it refers to the rejections of claim 7 which are not provided in the claim chart in Appendix B-1. Further, Blackwell does not disclose a means for adding, to said monitoring message, data other than said original message data.

*Issue 3*

9. Claims 22-24, 27, 31-34, 38, 47, 49, 50, 52, 54, and 56-57 are rejected under 35 U.S.C. 103 (a) as being obvious over Blackwell in view of One of Ordinary Skill in the Art (see Appendix B-2, incorporated by reference). These rejections are ADOPTED WITH MODIFICATION as proposed in Appendix B-2. The modification is to provide a legally based obviousness statement in addition to that proposed in Appendix B-2.

Blackwell discloses some events are in the same local transaction or unit of work (columns 13-14). Since tracking multiple events associated with a process (or single transaction) was known in the art, it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine the monitoring of a sub process in a system where events of a

Art Unit: 3992

process (single unit of work) are monitored because processes with multiple events entail multiple sub processes and a skilled artisan could have combined the elements as claimed with no change in their respective functions, and the combination yielded nothing more than predictable results to one of ordinary skill in the art.

*Issue 4*

10. Claims 1-6, 8-24, 27-31, 33-37, 42-45, 47-51, and 55-58 are rejected under 35 U.S.C. 102 (b) as being unpatentable by AWS (see Appendix C-1, incorporated by reference). These rejections are ADOPTED as proposed in Appendix C-1.

*Issue 5*

11. Claims 7, 18, 25-26, 40-41, and 46-47 are rejected under 35 U.S.C. 103 (a) as being obvious over AWS in view of Leymann '111 (see Appendix C-2, incorporated by reference).

These rejections are ADOPTED WITH MODIFICATION as proposed in Appendix C-2. The modification is to provide a legally based obviousness statement in addition to that proposed in Appendix C-2.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to have combined the teachings of AWS and Leymann '111 because both discuss features of the FlowMark system (see column 7, lines 15-16 of Leymann '111) and it would have been obvious to implement the features of Leymann '111 within the FlowMark workflow management system described by AWS because enhancing a particular system with a known technique (such as by improving the integration of applications in a WFMS as taught by

Art Unit: 3992

Leymann, column 4, lines 15-18 ) is within the ordinary capabilities of one skilled in the art.

Thus, one of ordinary skill in the art would have been capable of applying Leymann's techniques to the FlowMark system that was ready for improvement and the results would have been predictable to one of ordinary skill in the art.

### *Issue 6*

12. Claims 3-6, 8, 9, 29-30, 32, 39, 44, 51, 53 and 54 are rejected under 35 U.S.C. 103 (a) as being obvious over AWS in view of Leymann '633 (see Appendix C-3, incorporated by reference).

These rejections are ADOPTED WITH MODIFICATION as proposed in Appendix C-3. The modification is to provide a legally based obviousness statement.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to have combined the teachings of AWS and Leymann '633 because both discuss features of the FlowMark system (see column 4, lines 35-37 of Leymann '633) and it would have been obvious to implement the features of Leymann '633 within the FlowMark workflow management system described by AWS because enhancing a particular system with a known technique (such as by providing a subscription-means as part of a WFMS as taught by Leymann, column 3, lines 8-25) is within the ordinary capabilities of one skilled in the art. Thus, one of ordinary skill in the art would have been capable of applying Leymann's techniques to the FlowMark system that was ready for improvement and the results would have been predictable to one of ordinary skill in the art.

Art Unit: 3992

*Issue 7*

13. Claims 1, 42, 55, and 58 are rejected under 35 U.S.C. 102 (e) as being unpatentable by Buhannic (see Appendix D-1, incorporated by reference).

Art Unit: 3992

***Conclusion***

**THIS ACTION IS MADE FINAL.**

A shortened statutory period for response to this action is set to expire 2 months from the mailing date of this action.

**Extensions of time under 37 CFR 1.136(a) do not apply in reexamination proceedings.** The provisions of 37 CFR 1.136 apply only to "an applicant" and not to parties in a reexamination proceeding. Further, in 35 U.S.C. 305 and in 37 CFR 1.550(a), it is required that reexamination proceedings "will be conducted with special dispatch within the Office."

**Extensions of time in reexamination proceedings are provided for in 37 CFR 1.550(c).** A request for extension of time must be filed on or before the day on which a response to this action is due, and it must be accompanied by the petition fee set forth in 37 CFR 1.17(g). The mere filing of a request will not effect any extension of time. An extension of time will be granted only for sufficient cause, and for a reasonable time specified.

The filing of a timely first response to this final rejection will be construed as including a request to extend the shortened statutory period for an additional month, which will be granted even if previous extensions have been granted. In no event however, will the statutory period for response expire later than SIX MONTHS from the mailing date of the final action. See MPEP § 2265.

All correspondence relating to this ex parte reexamination proceeding should be directed:

By Mail to:        Mail Stop *Ex Parte* Reexam  
                          Central Reexamination Unit  
                          Commissioner for Patents  
                          United States Patent & Trademark Office

Art Unit: 3992

P.O. Box 1450  
Alexandria, VA 22313-1450

By FAX to: (571) 273-9900  
Central Reexamination Unit

By hand: Customer Service Window  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

Registered users of EFS-Web may alternatively submit such correspondence via the electronic filing system EFS-Web, at:

**<https://efs.uspto.gov/efile/myportal/efs-registered>**


EFS-Web offers the benefit of quick submission to the particular area of the Office that needs to act on the correspondence. Also, EFS-Web submissions are "soft scanned" (i.e., electronically uploaded) directly into the official file for the reexamination proceeding, which offers parties the opportunity to review the content of their submissions after the "soft scanning" process is complete.

Any inquiry concerning this communication or earlier communications from the Reexamination Legal Advisor or Examiner, or as to the status of this proceeding, should be directed to the Central Reexamination Unit at telephone number 571-272-7705.

/Adam L Basehoar/  
Primary Examiner, Art Unit 3992

Conferees:

/JDC/


<b>Search Notes</b>  	<b>Application/Control No.</b>  90009961	<b>Applicant(s)/Patent Under Reexamination</b>  7,062,749
	<b>Examiner</b>  ADAM BASEHOAR	<b>Art Unit</b>  3992

<b>SEARCHED</b>			
<b>Class</b>	<b>Subclass</b>	<b>Date</b>	<b>Examiner</b>

<b>SEARCH NOTES</b>		
<b>Search Notes</b>	<b>Date</b>	<b>Examiner</b>
Review of Patented File's Prosecution History	11/16/2011	RSD
Reviewed Applied Prior Art	9/17/2012	ALB

<b>INTERFERENCE SEARCH</b>			
<b>Class</b>	<b>Subclass</b>	<b>Date</b>	<b>Examiner</b>

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<b>Reexamination</b> 	<b>Application/Control No.</b> 90009961	<b>Applicant(s)/Patent Under Reexamination</b> 7,062,749
	<b>Certificate Date</b>	<b>Certificate Number</b>

**Requester Correspondence Address:**       **Patent Owner**       **Third Party**

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 1301 W. 25th Street  
 Suite 408  
 Austin, TX 78705

<b>LITIGATION REVIEW</b> <input checked="" type="checkbox"/>	<b>ALB</b> (examiner initials)	09/17/2012 (date)
Case Name	Director Initials	
2:11cv6602 Intersystems Corporation v. Yyz LLC	ALB, sy	
2:11cv1609 Yyz LLC v. Metastorm, Inc et al.	↓	
2:11cv931 Yyz, LLC v. Metastorm Inc		

COPENDING OFFICE PROCEEDINGS	
TYPE OF PROCEEDING	NUMBER
1. None Found	

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## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	14208900
<b>Application Number:</b>	90009961
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	6640
<b>Title of Invention:</b>	MEASURING, MONITORING AND TRACKING ENTERPRISE COMMUNICATIONS AND PROCESSES
<b>First Named Inventor/Applicant Name:</b>	7,062,749
<b>Customer Number:</b>	37158
<b>Filer:</b>	Joseph E. Chovanes
<b>Filer Authorized By:</b>	
<b>Attorney Docket Number:</b>	OPEN2200
<b>Receipt Date:</b>	13-NOV-2012
<b>Filing Date:</b>	01-NOV-2011
<b>Time Stamp:</b>	08:00:45
<b>Application Type:</b>	Reexam (Patent Owner)

### Payment information:

Submitted with Payment	no
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### File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Reexam Miscellaneous Incoming Letter	961agda.pdf	76156 <small>3d3ad3330822e0e17be823bc0833c9255f7c7cb72</small>	no	3

### Warnings:

### Information:

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Art Unit : 3992  
Examiner : Rachna Desai  
Patent No. : 7,062,749  
Filed : December 15, 2000  
Control No. : 90/009,961  
Inventors : Vincent R. Cyr  
Kenneth Fritz  
Docket No. : Prom RE-001  
  
Title : MEASURING, MONITORING AND TRACKING ENTERPRISE  
COMMUNICATIONS AND PROCESSES

**RESPONSE TO FINAL OFFICE ACTION**

THE PATENT OWNER, YYZ LLC, of US Patent No. 7,062,749 (the “ ‘749 patent” or the “patent”) in the above identified reexamination, hereby timely files this Response, within the two month shortened period for response, to the final Office Action in the above captioned reexamination, dated September 18, 2012. (This response is being filed on the next business day after the Sunday expiration of the two month period.)

The Patent Owner (“PO”) gratefully notes the Examiner’s grant of an Interview, held November 14, 2012, before Examiners Basehoar, Wassum and Kosowski in the above referenced examination. An Interview Summary is provided herewith.

The references in the case are:

- 1) Leymann, Frank, and Roller, Dieter, Production Workflow Concepts and Techniques, Upper Saddle River, Prentice-Hall, Inc., ISBN 0-13-021753-0 (hereafter "Production Workflow").
- 2) US Patent No. 7,003,781 issued to Blackwell et al. (hereafter "Blackwell").
- 3) Hoffmann, Marc, Shute, David, and Ebbers, Mike, Image and

Workflow Library: Advanced Workflow Solutions using IBM FlowMark, International Business Machines Corporation, January 1999, SG24-5371-00 (hereafter "AWS").

4) Leymann '633 - (U.S. Patent No. 6,122,633, published 09/19/2000).

5) Leymann '111 - (U.S. Patent No. 6,073,111, published 06/06/2000).

6) US Patent No. 2002/0038276 issued to Buhannic et al. (hereafter "Buhannic").

As PO noted at the Interview, there are three limitations distinguishing the present invention as defined by the claims from the art before the Office: 1) messaging broker; 2) monitoring message; and 3) central message repository. PO submits that each of these limitations, which are shown and defined in the specification, limit the scope of the present invention as defined by the claims, and therefore make the claims patentable over the cited art.

Claim 1 of the '749 patent defines the invention of the claim as being:

1. A computerized method for use in an asynchronous messaging environment, wherein said messaging environment comprises at least one original message comprised of original message data, comprising:

providing, through a monitoring message, at least part of said original message data to a central message repository;

populating a transaction record in said central message repository with said original message data provided by said monitoring message;

wherein said original message data comprises the status of an activity.

“Monitoring message” is defined and limited in the specification as being created from a messaging component of a “messaging broker.” There is no other type of “message” claimed here. It is necessary for a messaging broker and a monitoring

message to be present in order to practice the invention as taught by the claims. The monitoring message is then sent from the messaging broker to a central message repository or database. Thus it is necessary for a central message repository, receiving data from a monitoring message, to be present in order to practice the invention as taught by the claims. (See, e.g., Figure 2, Col. 3, line 51 to Col. 4 line 67.)

In other words, the progression as taught by the specification and present claims is:

messaging broker → monitoring message → central message repository

(Note also monitoring message is defined in terms of a messaging broker – without a messaging broker there can be no monitoring message. Thus, the messaging broker is present in the definition of monitoring message – even though the words “messaging broker” do not appear in the claims. Without a messaging broker however there can be no monitoring message. *Id.*)

Dieter Roller, co-author and co-inventor on the references, states flatly and without equivocation in his second declaration provided herewith that messaging brokers (also known as message brokers), monitoring messages and central message repositories are not found in the Workflow Technology references. His word and knowledge is probably unparalleled in this area. PO therefore, in light of the limitations contained in the specification and the claims with regard to the terms: 1) messaging brokers; 2) monitoring messages; and, 3) central message repositories, and the further exposition of Dieter Roller on the lack of those limitations in the Workflow Technology references, of which he was co-author and co-inventor, respectfully requests the claims in the present case be allowed over the Workflow Technology references of record.

Two other references are also in the case, Buhannic and Blackwell. Taking Buhannic first, the provisional in Buhannic shows, as the Office had noted, a messaging broker (60/214,256 at p. 9: “Explanation as to how the ‘invention’ actually works, i.e. technical description of the invention A JMS compliant message broker sits at the hub of this ‘BUS’. There are several translation engines, which subscribe to messages coming from the various ‘value added’ services. These ‘value added’ services in turn subscribe to messages coming from users, requiring said services, also linked up to the JMS compliant message broker. In some cases there will not be any translation, from client to service, required, but in most cases a translation engine will consume the incoming ‘request’ or ‘response’ and translate it for the ultimate consumer; user or service.”)

As PO had noted at the interview, Buhannic refers to a message broker, but *nowhere* refers to the monitoring message limitation of the present claims. And therefore Buhannic cannot have a central message repository either, as there is no monitoring message to populate that repository and so no ability to create the central messaging repository in Buhannic.

The Office refers to a State Model as providing status in Buhannic. (Office Action at 12, *citing* pp. 11-12 of Buhannic.) But that State Model has *nothing* to do with the message broker or a monitoring message and indeed appears to be original messages sent through the system for order execution: “In or several transaction servers, a ‘state transition’ process exists to maintain the state of an order to buy or sell a security. As it receives a message which indicates an intention to trade, it creates a state-model of this ‘request’, assigns it a proper ‘state’ (in this case “registered”) and caches it to a backing storage device to ensure it's persistence. Upon receiving each subsequent message (valid

bid, execution, or cancellation) of this 'request', the state-transition process obtains its prior state, evaluates the new state of the trade based upon the message received, updates its state, and again caches it for future use.” Buhannic at 12.)

With all due respect, that is not invalidating of the present claims at all – the State Model of Buhannic and its “messages” cannot be equated to a monitoring message nor central message repository of the present invention.

Finally, the Office has also cited Blackwell as an invalidating reference. As with the other references, Blackwell does not have either the monitoring message nor the central message repository of the present claims. The Blackwell sensors 14 intercept function or API calls and create an event from the calls: they do not create monitoring messages. (See Col. 5, lines 36-43: “FIG. 2 illustrates the control flow of the sensor 14. At step 210 an application 16 makes a function call belonging to the set of functions monitored by the associated sensor 14. In the preferred embodiment, at step 212, a tricoder function is invoked instead of the standard function. A tricoder function yields program control to the sensor 14 via path 201 for analyzer 10 related processing.”)

Since as noted above with regard to the other references, without a monitoring message, there can be no central message repository. (See also, e.g., Col. 5, lines 34-36 and Figure 1, where Blackwell notes specifically that a “local event database” 20 is attached to each analyzer 12 and is expressly called a “local event database” by Blackwell.)

Therefore, and with all due respect, PO respectfully traverses the rejections of the Office Action:

- under 35 U.S.C. 102(b) of claims 1-58 as being anticipated by Production Workflow;

- under 35 U.S.C. 102(b) of claims 1-6, 8-24, 27-31, 33-37, 42-45, 47-51, and 55-58 as being anticipated by AWS;
- under 35 U.S.C. 103(a) of claims 7, 18, 25-26, 40-41, and 46-47 as unpatentable over AWS in view of Leymann '111;
- under 35 U.S.C. 103(a) of claims 3-6, 8, 9, 29-30, 32, 39, 44, 51, 53 and 54 as unpatentable over AWS in view of Leymann '633;
- claims 1, 42, 55 and 58 are rejected under 35 U.S.C. 102(e) as being anticipated by Buhannic;
- 1-6, 8-11, 14-17, 19,21,42-43,45,48, 55, and 58 are rejected under 35 U.S.C. 102(e) as being anticipated by Blackwell; and,
- 22-24, 27, 31-34, 38, 47, 49, 50, 52, 54, and 56-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blackwell.

PO, submits, as shown above, that the limitations of 1) messaging brokers; 2) monitoring messages; and, 3) central message repositories common to all claims are nowhere in the references cited by the Office.

Therefore, in light of the above, Applicant respectfully requests the Office withdraw its rejections and permit a Certificate of Reexamination to issue confirming the validity of all claims of the '794 patent.

\* \* \*

In the event and despite the above the Office does not conclude the Buhannic and Blackwell references are not invalidating art, PO provides the following alternative argument regarding diligence and reduction to practice.

PO had provided, in its prior response, declarations under 37 C.F.R. §1.131 of the inventors Vincent Cyr and Kenneth Fritz with attached exhibits. PO had also provided a declaration under 37 C.F.R. §1.132 of corroborating witness Matthew Franklin with



attached exhibits.

The Office Action stated the declarations and exhibits established a conception date but did not establish diligence nor a reduction to practice. (pp. 6-9.) PO respectfully traverses the finding of the Office.

As to diligence, PO respectfully submits the Office is incorrect in finding that the “Cyr, Fritz, and Franklin declarations are completely silent on the showing of facts of any evidence of diligence during the critical period.” (p. 7). Rather, each of the declarations specially provides facts of evidence of diligence. (see, e.g., Fritz Declar. at ¶12: “I began work on the prototype immediately, and for the next six months, I worked on it almost daily, using the server at Promenix, including researching, writing code for messaging software and screen displays, running tests of the code and other usual and customary tasks to get a software prototype running. My work on the prototype was interrupted only by my need to work on Promenix’s revenue generating business.” Mr. Fritz therefore specifically notes he began work on the prototype almost immediately (which is a fact); for the next six months he worked on it almost daily using the server at Promenix (which are a number of facts including a recitation of facts regarding almost daily activities over six months); including researching during that six month period of almost daily work (facts); writing code for messaging software and screen displays during that six month period of almost daily work (facts); running tests of the code during that six month period of almost daily work (facts); and other usual and customary tasks to get a software prototype running during that six month period of almost daily work (facts). (See also Cyr Declar. at 18-21, Fritz Declar. at 12-15, Franklin Declar. at 15-18.)

The Office goes on to note that each of the submitted declarations make similar

corroborating statements as to why there is an absence of any specific evidence of diligence during the critical period (Cyr Declaration: Paragraph 13; Fritz Declaration: Paragraphs 6-7; Franklin Declaration: Paragraph 10). But that is understandable as Promenix was a small business as the witnesses testified; the witnesses interacted almost daily. Moreover, the facts were of twelve years ago, so it is understandable why they would interact almost daily and have almost identical observations; there wasn't too much else to see in a small business such as Promenix.

Finally PO notes Exhibit C to the Fritz declaration is documentation of the first working prototype of the inventions of the independent claims of the patent. Ken Fritz notes at paragraph 14 of his declaration:

I also showed Vince and Matt the prototype, as it worked and was existing on our server, and I specifically recall observing how monitoring messages could be used from a messaging system (e.g., IBM MQSeries) and provide at least part of said original message data to a record in a central message repository in order to identify the status of a business process and its various elements, in accordance with claim 1 and the other independent claims of the patent.

Moreover, each declarant notes they specifically recall observing the prototype function according to claim 1 of the present patent. (Cyr Declar. at 20-21, Fritz Declar. at 14-15, Franklin Declar. at 17-18.) Thus, it is respectfully submitted, the Office is not correct when it says as it did at page 8 of the Office Action that "Outside of the corroborating statements the declarations are silent on showing actual facts in the evidence that provide proof that the invention actually existed and worked for its intended purpose." Each declaration provides facts showing the invention worked for its

intended purpose. See also page 1 of Exhibit C:

Author	Date	Description
Ken Fritz	08/07/2000	Initial Draft

**About Process Metrics Simulator**

The Process Metrics Simulator is the first version of a utility developed to model and simulate business processes. The simulator currently implements a simple S process business production model which simulates realistic processes by including process latency and stoppage capability. Latency is independently modifiable by process section. Each section receives a message from the previous section by way of MQSeries messaging. This data transfer is in a standard XML format which has been included in the resource directory of the development directory.

Refers to messaging broker, monitoring message and message repository

As noted above, this argument regarding the critical dates is presented only in the alternative to PO's above arguments regarding all references failing to teach, suggest or refer to the limitations of the claims as noted above.

\* \* \*

In view of the foregoing arguments, all claims are believed to be in condition for confirmation over the prior art of record. Therefore, this response is believed to be a complete response to the Office Action. However, PO reserves the right to set forth further arguments in future papers supporting the patentability of any of the claims, including the separate patentability of the dependent claims not explicitly addressed herein. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. The absence of a reply to a specific rejection, issue or comment in the Office Action does not signify agreement with or concession of that rejection, issue or comment. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper.

Respectfully Submitted,

/joseph e chovanes/

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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Art Unit : 3992  
Examiner : Rachna Desai  
Patent No. : 7,062,749  
Filed : December 15, 2000  
Control No. : 90/009,961  
Inventors : Vincent R. Cyr  
Kenneth Fritz  
Docket No. : Prom RE-001

Title : MEASURING, MONITORING AND TRACKING ENTERPRISE  
COMMUNICATIONS AND PROCESSES

**INTERVIEW SUMMARY**

The Patent Owner (“PO”) gratefully notes the Examiner’s grant of an Interview, held November 14, 2012, before Examiners Basehoar, Wassum and Kosowski in the above referenced examination. Vincent Cyr, coinventor, and the undersigned were also present. The Interview was primarily conducted in accordance with PO’s proposed agenda, attached herewith and transmitted previously to the Office, and PO also raised the 37 C.F.R. §1.131 declarations and exhibits. As to the latter issue, the Office was kind enough to listen to PO’s presentation despite PO not presenting it on PO’s proposed agenda.

The undersigned also reviewed the teachings of U.S. Patents No. 7,603,674 and 7,062,749, following which the undersigned discussed the final Office Action dated September 19, 2012 and presented distinctions between the prior art references and the claims of the ‘674 and ‘749 patents. The ‘674 patent was primarily referenced but both patents share the limitations as to all claims that were specifically reviewed, 1) “messaging broker,” 2) “monitoring message,” and 3) “central database repository.” PO

noted that those limitations, as defined and set forth in the specification of both patents, and as read into the claims of both patents as is proper under the law, are not shown in the prior art references.

The Office noted that the reading of the definitions of the limitations for each of 1) “messaging broker,” 2) “monitoring message,” and 3) “central database repository” from the specification into the claims of the patents may well be properly limiting and so distinguish the claims from the references before the Office, which, PO noted, do not have the limitations. Therefore, the Office may well issue of the Certificate of Reexamination requested by PO in order to conclude this Reexamination.

PO and the undersigned gratefully acknowledge the courtesy shown to them by the Examiners.

Respectfully Submitted,

/joseph e chovanes/

Joseph E. Chovanes  
Registration No. 33,481  
Suite 329  
5 Great Valley Parkway  
Malvern, PA 19355  
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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Art Unit : 3992  
Examiner : Rachna Desai  
Patent No. : 7,062,749  
Filed : December 15, 2000  
Control No. : 90/009,961  
Inventors : Vincent R. Cyr  
              Kenneth Fritz  
Docket No. : YYZ RE-001

Title : MEASURING, MONITORING AND TRACKING ENTERPRISE  
          COMMUNICATIONS AND PROCESSES

**AGENDA FOR AFTER FINAL INTERVIEW**

PATENT OWNER, YYZ LLC, (“PO”) of US Patent No. 7,062,749 (the “ ‘749 patent” or the “patent”) in the above identified reexamination hereby files this Agenda for After Final Interview.

This case and the related case 90/009,960 both share rejections of all claims (the “rejections”.) Prior to filing PO’s response and possible appeal in both cases, PO comes before both Examiners, pursuant to Supervisor Kosowski’s direction to file this agenda, so that the following matters may be reviewed. Insofar as both rejections share art and language, PO respectfully suggests the Interview be with both Examiners and Supervisor Kowalski, as had been the prior Interview, held August 2, 2012, before Examiners Basehoar, Desai and Kosowski.

As an initial matter, PO notes the Buhannic reference (US Provisional Application No. 60/214,256) had not been previously cited by the Office. The Office had cited the Buhannic utility application publication (US Patent No. 2002/0038276) but that reference was not filed prior to the present application. The Office now has rejected the claims over the Buhannic provisional, on a final, which is essentially a new rejection on final on a new reference (the Buhannic provisional.) PO respectfully but strenuously

traverses the present posture of the cases therefore as it is at least unfair to be facing a new reference for the first time on a final rejection in a reexamination.

In the rejections in this case and the related case two limitations distinguish the claims at issue (the “claims”) from the prior art cited by the Office: 1) “monitoring message” and 2) “central message repository.”

#### Monitoring Message

Monitoring message is defined in the specification:

A messaging component is added to the messaging broker, through methods known in the art. This messaging component creates a "monitoring" message for each original message received by the broker. This monitoring message contains, in this embodiment, specific data generated from the original messages passing between the sub-processes. The monitoring message with its data is then sent from the messaging broker to a central database repository or database (the terms "repository" or "database" are used interchangeably throughout.)

(Col. 3, lines 55-65.)

#### Central Message Repository

Central message repository is defined in the specification:

This central message repository or database is comprised of intonation passing through the enterprise. In effect, the database provides a collection point or an "end point" for the asynchronous communications, and so allows the flexibility of asynchronous communications to be combined with the precision of synchronous communications. The database can be reviewed in any number of ways. For example, the database can be queried to obtain specific intonation about that particular order or customer or could be examined across larger time spans such as days, weeks, or months, to gauge trends or performance.

(Col. 3, lines 20-30.)

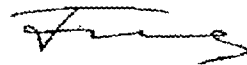


PO has put forth evidence and argument to distinguish the art because the monitoring message and central message repository limitations are not shown in the art cited by the Office, see, e.g., the Declaration of Dieter Roller introduced by PO. Mr. Roller is co-inventor and co-author on the plurality of the cited art, (1) Leymann, Frank, and Roller, Dieter, Production Workflow Concepts and Techniques; 2) Leymann '633 - (U.S. Patent No. 6,122,633); 3) Leymann '111 - (U.S. Patent No. 6,073,111).

Mr. Roller states unequivocally in his declaration that the monitoring message and central message repository limitations are not shown in the art cited by the Office, and the Office, with all due respect, may have not quite perceived neither the Roller declaration nor the nature of the claimed limitations. Moreover, PO will show the remaining two references, those aside from the Roller references, Blackwell US Patent No. 7,003,781 and Buhannic, US Provisional Application No. 60/214,256, are distinguishable from the limitations as well.

Accordingly, and regard to all the art, PO will provide the Office with specific review of the limitations of the claims references above in light of the specific passages of the prior art cited by the Office and will respectfully show how those references do not mean what the Office would have them mean with regard to the above referenced limitations.

Respectfully Submitted,



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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Art Unit : 3992  
Examiner : Rachna Desai  
Patent No. : 7,062,749  
Filed : December 15, 2000  
Control No. : 90/009,961  
Inventors : Vincent R. Cyr  
Kenneth Fritz  
Docket No. : YYZ RE-001

Title : MEASURING, MONITORING AND TRACKING ENTERPRISE  
COMMUNICATIONS AND PROCESSES

**SECOND DECLARATION UNDER 37 C.F.R. §1.132**

I, Dieter Roller, make this second declaration in support of YYZ in the above identified reexamination, and do hereby declare the following:

1. I had previously signed a first declaration in this matter on August 12, 2012. (Exhibit A hereto.) All the statements I made therein remain true and correct.
2. “Messaging Broker Technology” as I used the term therein, and as taught by the ‘749 patent, includes three elements: 1) messaging brokers (also known as “message brokers”; 2) monitoring messages; and 3) central message repository. None of those elements are present in the “Workflow Technology” that I also discussed in my first declaration.
3. I have been engaged by YYZ, Inc. at a rate of €150 per hour, plus expenses, to provide my expertise in this matter. I have no contingent or other interest in any outcome in this matter.
4. My statements made and evidence given are done using my independent and professional judgment not contingent upon my engagement by YYZ, and are as complete, accurate, and unbiased as I can make them.

The undersigned declares that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and thus such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: November 12, 2012

Dieter Roller  
DIETER ROLLER

**CERTIFICATE OF SERVICE**

I, the undersigned, hereby certify that a copy of the enclosed documents was served according to 37 C.F.R. § 1.248 and MPEP 2249 on the requester in this reexamination by first class mail on November 19, 2012:

Ariyeh Akmal  
Sprinkle IP Law Group  
1301 West 25th Street, Suite 408  
Austin, Texas 78705  
Tel. (512) 637-9220  
Fax. (512) 371-9088

Respectfully Submitted,

/joseph e chovanes/

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## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	14268965
<b>Application Number:</b>	90009961
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	6640
<b>Title of Invention:</b>	MEASURING, MONITORING AND TRACKING ENTERPRISE COMMUNICATIONS AND PROCESSES
<b>First Named Inventor/Applicant Name:</b>	7,062,749
<b>Customer Number:</b>	37158
<b>Filer:</b>	Joseph E. Chovanes
<b>Filer Authorized By:</b>	
<b>Attorney Docket Number:</b>	OPEN2200
<b>Receipt Date:</b>	19-NOV-2012
<b>Filing Date:</b>	01-NOV-2011
<b>Time Stamp:</b>	17:59:44
<b>Application Type:</b>	Reexam (Patent Owner)

### Payment information:

Submitted with Payment	no
------------------------	----

### File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Reexam Response to Final Rejection	961fnlr.pdf	171634 <small>62ee73e7bc24072a7091e5eb9f2671b0921a915b</small>	no	10

### Warnings:

### Information:

2	Applicant summary of interview with examiner	961ints.pdf	1430190	no	5
			3d373b226394f391552942321d3e959c7c987979		
<b>Warnings:</b>					
<b>Information:</b>					
3	Rule 130, 131 or 132 Affidavits	961dr2.pdf	470180	no	2
			c3f0e6aec9ab930aa5fa42cb09ff1e2295aa94e4		
<b>Warnings:</b>					
<b>Information:</b>					
4	Reexam Certificate of Service	certserv.pdf	63576	no	1
			498aa386f5610425ea06ad4f9c1ddd06dcaaeffe		
<b>Warnings:</b>					
<b>Information:</b>					
<b>Total Files Size (in bytes):</b>			2135580		

**This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.**

**New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
90/009,961	11/01/2011	7,062,749	OPEN2200	6640
37158	7590	12/21/2012	EXAMINER	
JOSEPH E. CHOVANES SUITE 329 5 GREAT VALLEY PARKWAY MALVERN, PA 19355			BASEHOAR, ADAM L	
			ART UNIT	PAPER NUMBER
			3992	
			MAIL DATE	DELIVERY MODE
			12/21/2012	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



**DO NOT USE IN PALM PRINTER**

(THIRD PARTY REQUESTER'S CORRESPONDENCE ADDRESS)

Sprinkle IP Law Group

1301 W. 25th Street

Suite 408

Austin, TX 78705

**EX PARTE REEXAMINATION COMMUNICATION TRANSMITTAL FORM**

REEXAMINATION CONTROL NO. 90/009,961.

PATENT NO. 7,062,749.

ART UNIT 3992.

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified *ex parte* reexamination proceeding (37 CFR 1.550(f)).

Where this copy is supplied after the reply by requester, 37 CFR 1.535, or the time for filing a reply has passed, no submission on behalf of the *ex parte* reexamination requester will be acknowledged or considered (37 CFR 1.550(g)).



### **DETAILED ACTION**

1. This Office action addresses claims 1-58 of United States Patent Number 7,062,749 B2 (Cyr et al), for which it has been determined in the Order Granting Ex Parte Reexamination (hereafter the "Order") mailed 12/01/2011 that a substantial new question of patentability was raised in the Request for Ex Parte reexamination filed on 11/01/2011 (hereafter the "Request"). This is a response to the Patent Owner's (PO) entered Response to Final Office Action filed 11/19/2012. In view of PO's response, as discussed below in the Response to Arguments and Statement of Reasons for Patentability and/or Confirmation sections, original claims 1-58 are confirmed.

### **Response to Arguments**

2. Patent Owner's arguments and the second Dieter Roller 1.132 Declaration, each filed on 11/19/2012, have each been fully considered and are discussed below with regard to the rejections as set forth in the Final Office action mailed 09/18/2012.

In view of the Interview held 11/14/2012, PO initially argues that each limitation of a messaging broker, monitoring message, and central message repository limit the scope of the present invention as defined by the claims (Response To Final Office Action: Pages 2-3). PO states that the claimed monitoring message is defined and limited in the specification as being created from a messaging component of a messaging broker. PO further states that no other type of message is being claimed here and that "It is necessary for a messaging broker and a monitoring message to be present in order to practice the invention as taught in the claims." With regard to the central message repository, PO similarly states that "it is necessary for a central message repository, receiving data from a monitoring message, to be present in order to

Art Unit: 3992

practice the invention as taught by the claims." Finally, PO unequivocally states that since a monitoring message is defined in terms of a messaging broker, there can be no monitoring message without a messaging broker.

The Examiner agrees with PO's definition of a monitoring message and its relationship with a messaging broker and central message repository. The specification makes it clear that a monitoring message must be generated by a messaging component of a centralized messaging broker (See Specification: Fig 2; column 3, line 51-column 4, line 20: "messaging component is added to the messaging broker...This messaging component creates a 'monitoring' message for each original message received by the broker...messaging broker receives the message...it will create a monitoring message."), said generated monitoring message then being sent to the central message repository by said message broker (See Specification: column 3, lines 58-61).

Therefore, a messaging broker component is fundamentally necessary to be present in order to practice the invention as taught in the claims. As such, said definition will be applied below when discussing PO's additional arguments to the claims as they specifically relate to the applied references.

#### The 1.132 Dieter Roller Declarations

As previously discussed in the Final Office Action (09/18/12), the first Roller Declaration filed 08/14/12 attempted to differentiate the Production Workflow and AWS references (i.e., labeled "Workflow Technology") from the claims of the '749 patent (i.e., labeled "Message Broker Technology"), summarizing that the utilized Workflow Technology did not teach or suggest the claimed monitoring message and message repository (First Roller Declaration: Paragraphs 11-19 & 23). The expert Dieter Roller being directly connected with a plurality of

Art Unit: 3992

the applied references such as Production Workflow, AWS, and the two Leymann references (First Roller Declaration: Paragraphs 6-10). The second Roller Declaration expounded on the definition described above, stating that the Message Broker Technology previously discussed in the first declaration must include messaging brokers and that the Workflow Technology previously discussed in the first declaration did not teach said feature (Second Roller Declaration: Paragraph 2: “None of those elements are present in the “Workflow Technology” that I also discussed in the my first declaration.”)

PO presents corresponding arguments in light of the second Roller Declaration, stating that in light of the limitations contained in the specification and the claims and in view of the Roller declarations, that the Workflow Technology references clearly lack the limitations of messaging brokers, monitoring messages, and central message repositories (Response To Final Office Action: Page 3). In light of PO’s arguments and the factual evidence submitted in the second Roller Declaration as related to the definition discussed above, the Examiner agrees with PO. The Workflow Technology as described in the Production Workflow, AWS, Leymann '111, and Leymann '633 references does not appear to specifically teach the necessary messaging broker creating monitoring messages for populating a central message repository.

Thus, the rejections involving the Production Workflow, AWS, Leymann '111, and Leymann '633 references are withdrawn.

#### The Buhannic Reference

With regard to the Buhannic reference the PO argues, via the Buhannic reference’s priority claim to provisional application No. 60/214,256, that the cited “State Model has nothing to do with the message broker or a monitoring message and indeed appears to be original

Art Unit: 3992

messages sent through the system for order execution” (Response To Final Office Action: Pages 4-5). PO further states that the State Model of Buhannic and its "messages" cannot be equated to a monitoring message nor central message repository of the present invention. In light of PO's arguments and upon further examination of Buhannic in view of the definition discussed above, the Examiner agrees with PO. While Buhannic clearly teaches a Message Broker Server that receives original messages communicating between various local and external servers, Buhannic does not clearly teach wherein the Message Broker Server creates the claimed monitoring message. At best Buhannic appears to disclose generating a state model in a database that is a dynamic record of a transaction based on received original messages. It is not clear from Buhannic that the Message Broker Server creates a monitoring message as required by the claims in order to create and/or update the state model based on original messages.

Thus, the rejections involving the Buhannic reference are withdrawn.

#### The Blackwell Reference

With regard to the Blackwell reference, PO argues that Blackwell does not teach or suggest a monitoring message or a central message repository (Response To Final Office Action: Page 5). PO argues that the sensors 14 of Blackwell intercept function or API calls and create an event from the calls, but they do not create monitoring messages. In light of PO's arguments and upon further examination of Blackwell in view of the definition discussed above, the Examiner agrees with PO. Blackwell teaches a plurality of sensors in a distributed data processing system, wherein the sensors act as agents that reside in the space of a monitored application and operate to collect information on calls that particular sensor is monitoring (Blackwell: column 4, lines 55-62; column 5, lines 14-35). Blackwell further teaches that each sensor is associated with

Art Unit: 3992

filter rules that determine the conditions which trigger event generation/reporting as well as the amount of information to be collected (Blackwell: column 5, lines 50-56; column 15, lines 28-45). However, the plurality of sensors of Blackwell cannot reasonably be equated with a messaging component of the centralized messaging broker of the invention necessary to create monitoring messages and therefore the event data generated by the sensors are by definition not monitoring messages as required by the claims.

Thus, the rejections involving the Blackwell reference are withdrawn.

The Cyr, Fritz, and Franklin 1.131 & 1.132 Declarations – Swearing Back of References

With regard to the previously filed Cyr, Fritz, and Franklin declarations, the PO further and alternatively argues (Response To Final Office Action: Pages 6-9) that said declarations help antedate the Buhannic and Blackwell references by clearly establishing both diligence and an actual reduction to practice. The Examiner notes that PO's arguments to this point are considered moot in view of PO's persuasive arguments discussed above with regard to the Buhannic and Blackwell references.

Summary:

As shown above all previous prior art rejections have been withdrawn regarding claims 1-58.

**STATEMENT OF REASONS FOR PATENTABILITY AND/OR CONFIRMATION**

3. Claims 1-58 are confirmed.

Art Unit: 3992

The following is an examiner's statement of reasons for patentability and/or confirmation of claims 1-58 found in this reexamination proceeding. Claims 1-58 are confirmed over the prior art that was explained in the Request and determined to raise a substantial new question of patentability in the Order granting reexamination and over the prior art that was applied and discussed by the examiner in the present reexamination proceeding because of the following:

Regarding independent claim 1, as more specifically discussed above, the proposed prior art does not teach generating a monitoring message, wherein the monitoring message was created by a messaging broker, and providing the monitoring message to a central message repository.

Regarding additional independent claims 22, 42, 49, and 55-58, the additional independent claims each recite substantially similar limitations as discussed above with regard to independent claim 1 and are thus patentable and/or confirmable based on the same rationale.

Regarding dependent claims 2-21, 23-41, 43-48, and 50-54, the claims are dependent on patentable and/or confirmable claims, and are therefore also patentable and/or confirmed.

Any comments considered necessary by PATENT OWNER regarding the above statement must be submitted promptly to avoid processing delays. Such submission by the patent owner should be labeled: "Comments on Statement of Reasons for Patentability and/or Confirmation" and will be placed in the reexamination file.

Art Unit: 3992

*Conclusion*

4. All correspondence relating to this ex parte reexamination proceeding should be directed as follows:

By U.S. Postal Service Mail to:

Mail Stop Ex Parte Reexam  
ATTN: Central Reexamination Unit  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

By FAX to:

(571) 273-9900  
Central Reexamination Unit

By hand to:

Customer Service Window  
Randolph Building  
401 Dulany St.  
Alexandria, VA 22314

By EFS-Web:

Registered users of EFS-Web may alternatively submit such correspondence via the electronic filing system EFS-Web, at

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EFS-Web offers the benefit of quick submission to the particular area of the Office that needs to act on the correspondence. Also, EFS-Web submissions are “soft scanned” (i.e., electronically uploaded) directly into the official file for the reexamination proceeding, which offers parties the opportunity to review the content of their submissions after the “soft scanning” process is complete.

Art Unit: 3992

Any inquiry concerning this communication or earlier communications from the Reexamination Legal Advisor or Examiner, or as to the status of this proceeding, should be directed to the Central Reexamination Unit at telephone number (571) 272-7705.

/Adam L Basehoar/

Primary Examiner, Art Unit 3992

Conferees:

/JDC/

/Alexander J Kosowski/

Supervisory Patent Examiner, Art Unit 3992








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BIB DATA SHEET

CONFIRMATION NO. 6640

<b>SERIAL NUMBER</b> 90/009,961	<b>FILING or 371(c) DATE</b> 11/01/2011 <b>RULE</b>	<b>CLASS</b> 717	<b>GROUP ART UNIT</b> 3992	<b>ATTORNEY DOCKET NO.</b> OPEN2200		
<b>APPLICANTS</b> 7,062,749, Residence Not Provided; YYZ LLC. (OWNER), CHADDS FORD, PA; SPRINKLE IP LAW GROUP (3RD.PTY.REQ.), AUSTIN, TX; SPRINKLE IP LAW GROUP, AUSTIN, TX  <b>** CONTINUING DATA *****</b> This application is a REX of 09/737,494 12/15/2000 PAT 7,062,749  <b>** FOREIGN APPLICATIONS *****</b>  <b>** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **</b>						
Foreign Priority claimed <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 35 USC 119(a-d) conditions met <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Verified and Acknowledged <u>/ADAM L BASEHOAR/</u> Examiner's Signature		<input type="checkbox"/> Met after Allowance Initials _____	<b>STATE OR COUNTRY</b>	<b>SHEETS DRAWINGS</b>	<b>TOTAL CLAIMS</b> 58	<b>INDEPENDENT CLAIMS</b> 8
<b>ADDRESS</b> JOSEPH E. CHOVANES SUITE 329 5 GREAT VALLEY PARKWAY MALVERN, PA 19355 UNITED STATES						
<b>TITLE</b> MEASURING, MONITORING AND TRACKING ENTERPRISE COMMUNICATIONS AND PROCESSES						
<b>FILING FEE RECEIVED</b> 2520	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		<input type="checkbox"/> All Fees <input type="checkbox"/> 1.16 Fees (Filing) <input type="checkbox"/> 1.17 Fees (Processing Ext. of time) <input type="checkbox"/> 1.18 Fees (Issue) <input type="checkbox"/> Other _____ <input type="checkbox"/> Credit			

<b>Search Notes</b>  	<b>Application/Control No.</b>  90009961	<b>Applicant(s)/Patent Under Reexamination</b>  7,062,749
	<b>Examiner</b>  ADAM BASEHOAR	<b>Art Unit</b>  3992

<b>SEARCHED</b>			
<b>Class</b>	<b>Subclass</b>	<b>Date</b>	<b>Examiner</b>

<b>SEARCH NOTES</b>		
<b>Search Notes</b>	<b>Date</b>	<b>Examiner</b>
Review of Patented File's Prosecution History	11/16/2011	RSD
Reviewed Applied Prior Art	9/17/2012	ALB
Reviewed Applied Prior Art in view PO's Response to Final Rejection	12/12/2012	ALB

<b>INTERFERENCE SEARCH</b>			
<b>Class</b>	<b>Subclass</b>	<b>Date</b>	<b>Examiner</b>

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<b>Ex Parte Reexamination Interview Summary</b>	<b>Control No.</b> 90/009,961	<b>Patent Under Reexamination</b> 7,062,749
	<b>Examiner</b> ADAM BASEHOAR	<b>Art Unit</b> 3992

All participants (USPTO personnel, patent owner, patent owner's representative):

- |                               |  |
|-------------------------------|--|
| (1) <u>ADAM BASEHOAR</u>      | (3) <u>Luke Wassum</u>                             |
| (2) <u>Alexander Kosowski</u> | (4) <u>Joseph E. Chovanes &amp; Vincent R. Cyr</u> |

Date of Interview: 14 November 2012

Type: a)  Telephonic b)  Video Conference  
c)  Personal (copy given to: 1)  patent owner 2)  patent owner's representative)

Exhibit shown or demonstration conducted: d)  Yes e)  No.  
If Yes, brief description: \_\_\_\_\_

Agreement with respect to the claims f)  was reached. g)  was not reached. h)  N/A.  
Any other agreement(s) are set forth below under "Description of the general nature of what was agreed to..."

Claim(s) discussed: 1.

Identification of prior art discussed: Production Workflow, Blackwell, Advanced Workflow Solutions (AWS), Buhannic, Leymann '633, and Leymann '111 references of record.

Description of the general nature of what was agreed to if an agreement was reached, or any other comments:  
See Continuation Sheet.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims patentable, if available, must be attached. Also, where no copy of the amendments that would render the claims patentable is available, a summary thereof must be attached.)

A FORMAL WRITTEN RESPONSE TO THE LAST OFFICE ACTION MUST INCLUDE PATENT OWNER'S STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. (See MPEP § 2281). IF A RESPONSE TO THE LAST OFFICE ACTION HAS ALREADY BEEN FILED, THEN PATENT OWNER IS GIVEN **ONE MONTH** FROM THIS INTERVIEW DATE TO PROVIDE THE MANDATORY STATEMENT OF THE SUBSTANCE OF THE INTERVIEW (37 CFR 1.560(b)). THE REQUIREMENT FOR PATENT OWNER'S STATEMENT CAN NOT BE WAIVED. **EXTENSIONS OF TIME ARE GOVERNED BY 37 CFR 1.550(c).**

/Adam L Basehoar/  
Primary Examiner, Art Unit 3992

cc: Requester (if third party requester)

Continuation of Description of the general nature of what was agreed to if an agreement was reached, or any other comments: PO's representative initially discussed the previously submitted 37 C.F.R. 1.131 declarations and related exhibits, each provided for swearing behind the Blackwell and Buhannic references. Additionally, the content disclosed in the 37 C.F.R. 1.132 Dieter Roller declaration was discussed as it related to the monitoring message and central message repository limitations with regard to the corresponding Production Workflow, AWS, and Leymann references. PO's representative also discussed their belief that the relied upon teachings in the Buhannic reference are not fully supported based on its provisional application No. 60/214,256. More specifically, PO's representative argued that the prior art references were lacking the concept of the claimed "monitoring message" and "central message repository" as it related to a message broker in the claimed messaging environment. PO's representative provided specific citations to the specification to help further define/clarify the scope of said limitations. See also the attached agenda. PO was to formally submit arguments for further consideration. Said submitted arguments to more specifically define the role and context of the message broker, monitoring messages, and central message repository as required by the claims as currently presented. No specific agreement was reached.

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Art Unit : 3992  
Examiner : Rachna Desai  
Patent No. : 7,062,749  
Filed : December 15, 2000  
Control No. : 90/009,961  
Inventors : Vincent R. Cyr  
                  Kenneth Fritz  
Docket No. : Prom RE-001  
  
Title : MEASURING, MONITORING AND TRACKING ENTERPRISE  
          COMMUNICATIONS AND PROCESSES


**RESPONSE TO FINAL OFFICE ACTION**

THE PATENT OWNER, YYZ LLC, of US Patent No. 7,062,749 (the “ ‘749 patent” or the “patent”) in the above identified reexamination, hereby timely files this Response, within the two month shortened period for response, to the final Office Action in the above captioned reexamination, dated September 18, 2012. (This response is being filed on the next business day after the Sunday expiration of the two month period.)

The Patent Owner (“PO”) gratefully notes the Examiner’s grant of an Interview, held November 14, 2012, before Examiners Basehoar, Wassum and Kosowski in the above referenced examination. An Interview Summary is provided herewith.

The references in the case are:

- 1) Leymann, Frank, and Roller, Dieter, Production Workflow Concepts and Techniques, Upper Saddle River, Prentice-Hall, Inc., ISBN 0-13-021753-0 (hereafter "Production Workflow").
- 2) US Patent No. 7,003,781 issued to Blackwell et al. (hereafter "Blackwell").
- 3) Hoffmann, Marc, Shute, David, and Ebbers, Mike, Image and

<b>Reexamination</b> 	<b>Application/Control No.</b> 90009961	<b>Applicant(s)/Patent Under Reexamination</b> 7,062,749
	<b>Certificate Date</b>	<b>Certificate Number</b> C1

<b>Requester Correspondence Address:</b>	<input type="checkbox"/> <b>Patent Owner</b>	<input checked="" type="checkbox"/> <b>Third Party</b>
Sprinkle IP Law Group 1301 W. 25th Street Suite 408 Austin, TX 78705		

<b>LITIGATION REVIEW</b> <input checked="" type="checkbox"/>	<b>ALB</b> (examiner initials)	12/12/2012 (date)
Case Name	Director Initials	
2:11cv6602 Intersystems Corporation v. Yyz LLC	/AJK/ for IY	
2:11cv1609 Yyz LLC v. Metastorm, Inc et al.	/AJK/ for IY	
2:11cv931 Yyz, LLC v. Metastorm Inc	/AJK/ for IY	

<b>COPENDING OFFICE PROCEEDINGS</b>	
<b>TYPE OF PROCEEDING</b>	<b>NUMBER</b>
1. None Found	

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<b>Notice of Intent to Issue Ex Parte Reexamination Certificate</b>	<b>Control No.</b> 90/009,961	<b>Patent Under Reexamination</b> 7,062,749
	<b>Examiner</b> ADAM BASEHOAR	<b>Art Unit</b> 3992

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

1.  Prosecution on the merits is (or remains) closed in this *ex parte* reexamination proceeding. This proceeding is subject to reopening at the initiative of the Office or upon petition. Cf. 37 CFR 1.313(a). A Certificate will be issued in view of
  - (a)  Patent owner's communication(s) filed: 19 November 2012.
  - (b)  Patent owner's failure to file an appropriate timely response to the Office action mailed: \_\_\_\_\_.
  - (c)  Patent owner's failure to timely file an Appeal Brief (37 CFR 41.31).
  - (d)  The decision on appeal by the  Board of Patent Appeals and Interferences  Court dated \_\_\_\_\_
  - (e)  Other: \_\_\_\_\_.
2. The Reexamination Certificate will indicate the following:
  - (a) Change in the Specification:  Yes  No
  - (b) Change in the Drawing(s):  Yes  No
  - (c) Status of the Claim(s):
    - (1) Patent claim(s) confirmed: 1-58.
    - (2) Patent claim(s) amended (including dependent on amended claim(s)): \_\_\_\_\_
    - (3) Patent claim(s) canceled: \_\_\_\_\_.
    - (4) Newly presented claim(s) patentable: \_\_\_\_\_.
    - (5) Newly presented canceled claims: \_\_\_\_\_.
    - (6) Patent claim(s)  previously  currently disclaimed: \_\_\_\_\_
    - (7) Patent claim(s) not subject to reexamination: \_\_\_\_\_.
3.  Note the attached statement of reasons for patentability and/or confirmation. Any comments considered necessary by patent owner regarding reasons for patentability and/or confirmation must be submitted promptly to avoid processing delays. Such submission(s) should be labeled: "Comments On Statement of Reasons for Patentability and/or Confirmation."
4.  Note attached NOTICE OF REFERENCES CITED (PTO-892).
5.  Note attached LIST OF REFERENCES CITED (PTO/SB/08 or PTO/SB/08 substitute).
6.  The drawing correction request filed on \_\_\_\_\_ is:  approved  disapproved.
7.  Acknowledgment is made of the priority claim under 35 U.S.C. § 119(a)-(d) or (f).
  - a)  All b)  Some\* c)  None of the certified copies have
    - been received.
    - not been received.
    - been filed in Application No. \_\_\_\_\_.
    - been filed in reexamination Control No. \_\_\_\_\_.
    - been received by the International Bureau in PCT Application No. \_\_\_\_\_.

\* Certified copies not received: \_\_\_\_\_.
8.  Note attached Examiner's Amendment.
9.  Note attached Interview Summary (PTO-474).
10.  Other: \_\_\_\_\_.

**All correspondence** relating to this reexamination proceeding should be directed to the **Central Reexamination Unit** at the mail, FAX, or hand-carry addresses given at the end of this Office action.

/Adam L Basehoar/  
Primary Examiner, Art Unit 3992

cc: Requester (if third party requester)





US007062749C1

(12) **EX PARTE REEXAMINATION CERTIFICATE** (9471st)

**United States Patent**

**Cyr et al.**

(10) **Number:** **US 7,062,749 C1**

(45) **Certificate Issued:** **Jan. 10, 2013**

(54) **MEASURING, MONITORING AND TRACKING ENTERPRISE COMMUNICATIONS AND PROCESSES**

(75) Inventors: **Vincent R. Cyr**, Glen Mills, PA (US); **Kenneth Fritz**, Glen Mills, PA (US)

(73) Assignee: **YYZ LLC**, Chadds Ford, PA (US)

**Reexamination Request:**

No. 90/009,961, Nov. 1, 2011

**Reexamination Certificate for:**

Patent No.: **7,062,749**  
Issued: **Jun. 13, 2006**  
Appl. No.: **09/737,494**  
Filed: **Dec. 15, 2000**

(51) **Int. Cl.**  
**G06F 9/44** (2006.01)

(52) **U.S. Cl.** ..... **717/103; 709/231**

(58) **Field of Classification Search** ..... None  
See application file for complete search history.

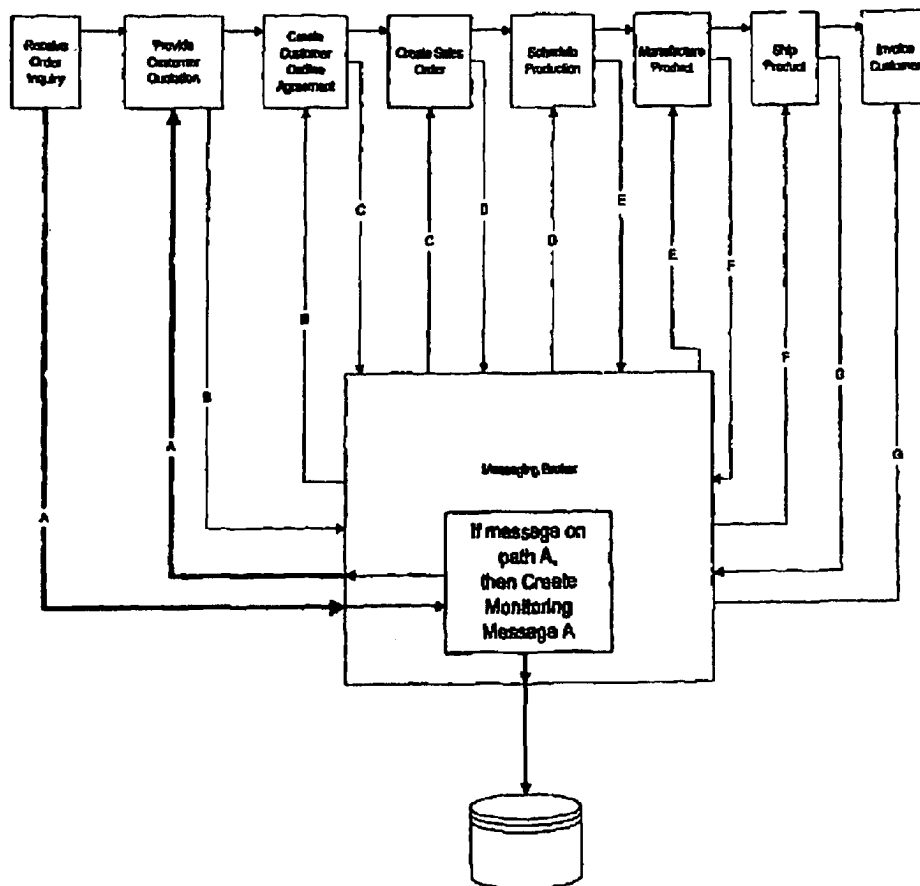
(56) **References Cited**

To view the complete listing of prior art documents cited during the proceeding for Reexamination Control Number 90/009,961, please refer to the USPTO's public Patent Application Information Retrieval (PAIR) system under the Display References tab.

*Primary Examiner* — Adam Basehoar

(57) **ABSTRACT**

The present invention comprises apparatus and systems for measuring, monitoring, tracking and simulating enterprise communications and processes. A central message repository or database is constructed, comprised of monitoring messages sent from process messaging systems. The database may then be accessed or queried as desired. A simulation tool assists in reviewing present and proposed processes and sub-processes before modifying existent systems or creating new systems.



**1**  
**EX PARTE**  
**REEXAMINATION CERTIFICATE**  
**ISSUED UNDER 35 U.S.C. 307**

NO AMENDMENTS HAVE BEEN MADE TO  
THE PATENT

**2**  
AS A RESULT OF REEXAMINATION, IT HAS BEEN  
DETERMINED THAT:

The patentability of claims 1-58 is confirmed.

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