SYSTEM AND METHOD FOR CREATING AND MANIPULATING INFORMATION CONTAINERS WITH DYNAMIC REGISTERS

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates generally to computer systems in a multi-user mainframe or mini computer system, a client server network, or in local, wide area or public networks, and in particular, to computer networks for creating and manipulating information containers with dynamic interactive registers in a computer, media or publishing network, in order to manufacture information on, upgrade the utility of, and develop intelligence in, a computer network by offering the means to create and manipulate information containers with dynamic registers.

2. Description of the Related Art

In the present day, querying and usage of information resources on a computer network is accomplished by individuals directing a search effort by submitting key words or phrases to be compared to those key words or phrases contained in the content or description of that information resource, with indices and contents residing in a fixed location unchanging except by human input. Similarly, the class of storage medium upon which information resides, it class and subclass organizational structures, and its routes of access all remain fundamentally unaltered by ongoing user queries and usage. Only the direct and intended intervention of the owner of the information content or computer hosting site changes these parameters, normally accomplished manually by programmers or systems operators at their own discretion or the discretion of the site owner.

There exists currently in the art a limited means of interfacing a computer user with the information available on computer networks such as the world wide web. Primarily, these means are search engines. Search engines query thousands or tens of thousands of index pages per second to suggest the location of information while the user waits. While factual information can be accessed, the more complex, particular or subtle the inquiry, the more branches and sub-branches need to be explored in a time consuming fashion in order to have any chance of success. Further, there are no such automatic devices that reconstruct the information into more useful groupings or makes it more accessible according to factors

attached to the content by the content creator such as the space or time relevancy of its content, or factors attached to the content by the system's compilation and analysis of the accumulated biography of that specific content's readership.

The utility of wide area and public computer networks is thus greatly limited by the static information model and infrastructure upon which those networks operate.

One problem is that on a wide area or public network, specific content such as a document remains inert, except by the direct intervention of users, and is modified neither by patterns or history of usage on the network, or the existence of other content on the network.

Another problem is that content does not reside in an information infrastructure conducive to reconstruction by expert rule-based, fuzzy logic, or artificial intelligence based systems. Neither the intelligence of other information users nor the expert intelligence of an observant network computer system can be utilized in constructing, or re-constructing information resources. Where content resides in a fixed location and structure, "information" becomes something defined by the mind of the information provider rather than the mind of the information user, where the actual construction and utility of information exists. Information remains, like raw ore, in an unrefined state.

Another problem is that the class of storage medium upon which data resides cannot be system or user managed and altered according to the actual recorded and analyzed hierarchically graded usage of any given information resource residing on that storage medium except by statistical analysis of universal, undefined "hits" or visits to that page or site.

Another problem is that information resource groupings remain fixed on the given storage medium location according to the original installation by the resource author, not altered according to the actual recorded and analyzed hierarchically graded usage of that given information resource. Content itself remains inert, with no possibility of evolution.

A further problem with the prior art is that neither the search templates generated by those more knowledgeable in a given field of inquiry, nor the search strategies historically determined to be successful, or system-constructed according to analyses of search strategies historically determined to be successful, are available to inquiring users. A search template is here defined as one or more text phrases, graphics, video or audio bits, alone or in any defined outline or relational format designed to accomplish an inquiry. Internet or wide area network search may return dozens of briefs to a keyword or key phrase inquiry sometimes requiring the

time-consuming examination of multiple information resources or locations, with no historical relation to the success of any given search strategy.

A further problem is that there is limited means to add to, subtract from, or alter the information content of documents, databases, or sites without communicating with the owners or operators of those information resources, e.g., contacting, obtaining permission, negotiating and manually altering, adding or subtracting content. Additionally, once so altered, there is not a means to derive a proportionate value, and thereby a proportionate royalty as the information is used.

A final problem is that the physical residence of a body of data or its cyberspace location may not serve its largest body of users in the most expedient manner of access. Neither the expert intelligence of other information users nor the expert intelligence of an observant computer system is presently utilized by inherent network intelligence to analyze, re-design and construct access routes to information medium except by statistical analysis of universal, undefined "hits" or visits to that page or site.

Therefore, there is a need for a system and methods for creating and manipulating information containers with dynamic interactive registers defining more comprehensive information about contained content in a computer, media or publishing network, in order to manufacture information on, upgrade the utility of, and develop intelligence in, a computer network by providing a searching user the means to utilize the searches of other users or the historically determined and compiled searches of the system, a means to containerize information with multiple registers governing the interaction of that container, a means to re-classify the storage medium and location of information resources resident on the network, a means to allow the reconstruction of content into more useful formations, and a means to reconstruct the access routes to that information.

SUMMARY OF THE INVENTION

The present invention is a system and methods for manufacturing information on, upgrading the utility of, and developing intelligence in, a computer or digital network, local, wide area, public, corporate, or digital-based, supported, or enhanced physical media form or public or published media, or other by offering the means to create and manipulate information containers with dynamic registers.

The system of the present invention comprises an input device, an output device, a processor, a memory unit, a data storage device, and a means of communicating with other computers, network of computers, or digital-based, supported or enhanced physical media forms or public or published media. These components are preferably coupled by a bus and configured for multi-media presentation, but may also be distributed throughout a network according to the requirements of highest and best use.

The memory unit advantageously includes an information container made interactive with dynamic registers, a container editor, a search interface, a search engine, a search engine editor, system-wide hierarchical container gateways interacting with dynamic container registers, a gateway editor, a register editor, a data collection means with editor, a data reporting means with editor, an analysis engine with editor, an executing engine with editor, databases, and a means of communicating with other computers as above. These components may reside in a distributed fashion in any configuration on multiple computer systems or networks.

The present invention advantageously provides a container editor for creating containers, containerizing storing information in containers and defining and altering container registers. A container is an interactive nestable logical domain configurable as both subset and superset, including a minimum set of attributes coded into dynamic interactive evolving registers, containing any information component, digital code, file, search string, set, database, network, event or process, and maintaining a unique network-wide lifelong identity.

The container editor allows the authoring user to create containers and encapsulate any information component in a container with registers, establishing a unique network lifelong identity, characteristics, and parameters and rules of interaction. The authoring user defines and sets the register with a starting counter and/or mathematical description by utilizing menus and simple graphing tools or other tools appropriate to that particular register. The registers determine the interaction of that container with other containers, system components, system gateways, events and processes on the computer network.

Containers and registers, upon creation, may be universal or class-specific. The editor provides the means to create system-defined registers as well as the means to create other registers. The editor enables the register values to be set by the user or by the system, in which case the register value may be fixed or alterable by the user upon creation. Register values are

evolving or non-evolving for the duration of the life of the container on the system. Evolving registers may change through time, space, interaction, system history and other means.

System-defined registers comprise: (1) an historical container register, logging the history of the interaction of that container with other containers, events and processes on the network, (2) an historical system register, logging the history of pertinent critical and processes on the network, (3) a point register accumulating points based upon a hierarchically rated history of usage, (4) an identity register maintaining a unique network wide identification and access location for a given container, (5) a brokerage register maintaining a record of ownership percentage and economic values, and others.

The present invention also includes user-defined registers. User defined registers may be created wholly by the user and assigned a starting value, or simply assigned value by the user when that register is pre-existent in the system or acquired from another user, and then appended to any information container, or detached from any container.

Exemplary user-defined registers comprise (1) a report register, setting trigger levels for report sequences, content determination and delivery target, (2) a triple time register, consisting of a range, map, graph, list, curve or other representation designating time relevance, actively, assigning the time characteristics by which that container will act upon another container or process, passively, assigning the time characteristics by which that container be acted upon by another container or process, and neutrally, assigning the time characteristics by which that container will interact with another container or process, (3) a triple space register, consisting of a range, map, graph, list, curve or other representation designating the domain and determinants of space relevance, actively, assigning the space characteristics by which that content will act upon another container or process, passively, assigning the space, characteristics by which that content will be acted upon by another container or process, and neutrally, assigning the space characteristics by which that container will interact with another container or process, (4) a domain of influence register, determining the set, class and range of containers upon which that container will act, (5) a domain of receptivity register, determining the set, class and range of containers allowed to act upon that container, (6) a domain of neutrality register, determining the set, class and range of containers with which that container will interact, (7) a domain of containment register, determining the set, class and range of containers which that container may logically encompass, (8) a domain of inclusion register, determining the set, class and

range of containers by which that container might be encompassed, (9) an ownership register, recording the original ownership of that containers, (10) a proportionate ownership register, determining the proportionate ownership of that containers, (11) a creator profile register, describing the creator or creators of that container, (12) an ownership address register, maintaining the address of the creator or creators of that container, (13) a value register, assigning a monetary or credit value to that container, and (14) other registers created by users or the system.

Containers are nestable and configurable as both subset and superset and may be designated hierarchically according to inclusive range, such as image component, image, image file, image collection, image database, or if text, text fragment, sentence, paragraph, page, document, document collection, document, database, document library, or any arrangement wherein containers are defined as increasingly inclusive sets of sets of digital components.

The present invention also includes, structurally integrated into each container, or strategically placed within a network at container transit points, unique gateways, nestable in a hierarchical or set and class network scheme. Gateways gather and store container register information according to system-defined, system-generated, or user determined rules as containers exit and enter one another, governing how containers system processes or system components interact within the domain of that container, or after exiting and entering that container, and governing how containers, system components and system processes interact with that unique gateway, including how data collection and reporting is managed at that gateway. The gateways record the register information of internally nested sub and superset containers, transient containers and search templates, including the grade of access requested, and, acting as an agent of an analysis engine and execution engine, govern the traffic and interaction of those containers and searches with the information resource of which they are the gateway and other gateways. The gateways' record of internally nested and transient container registers, and its own interaction with those containers, is made available, according to a rules-based determination, to the process of the analysis engine by the data collection and/or data reporting means.

The present invention also includes a means of data storage at any given gateway.

The present invention also includes a data collection means, residing anywhere on the network, or located at one or more hierarchical levels of nestable container gateways for

gathering information from other gateways and analysis engines according to system, system-generated or user determined rules. The data collection means manages the gathering of data regarding network-wide user choices, usage and information about information, by collecting it from container and gateway registers as those containers and gateways pass through one another. Such statistics as frequency, pattern, and range of time, space and logical class is collected as directed by the analysis engine, and made that data available to the analysis engine by advancing it directly to the analysis engine, or incrementally, to the next greater hierarchically inclusive collection level. The rules of data collection may be manually set or altered by the system manager, or set by the system and altered by the system in its evolutionary capacity.

The present invention also includes a data reporting means, located at one or more hierarchical levels of nestable container gateways for submitting information to other gateways and analysis engines according to system, system-generated or user determined rules. The data reporting means manages the sending of data from the registers, gateways and search templates in a frequency, pattern, and range of time, space and logical class as directed by the analysis engine, and makes that data available to the analysis engine by advancing it directly to the analysis engine, or incrementally to the next greater hierarchically inclusive reporting level. The rules of data collection may be manually set or altered by the system manager, or set by the system and altered by the system in its evolutionary capacity. The data reporting means may be established to work in concert, in redundancy, or in contiguous or interwoven threads of hierarchically nested containers.

The present invention also includes an analysis engine that receives, reports and collects information regarding the interaction of user searches with gateways and container registers, as well as container registers with other container registers, and container registers with gateways. The analysis engine analyzes the information submitted by the gateways and instructs the execution engine to create new information containers, content assemblages, storage schemes, access routes, search templates, and gateway instructions. The analysis engine includes an editor that provides a system manager with a means of editing the operating principles of that engine, governing data reporting, data collection, search template loading, gateway instructions, and other.

The present invention also includes an execution engine, fulfilling the instructions of the analysis engine, to create new information containers, content sun and superset assemblages, storage schemes, access routes, search templates, and gateway instructions. The execution engine includes an editor that provides a system manager with a means of editing the operating principles of that engine, governing data reporting, data collection, search template loading, gateway instructions, and other.

The present invention also includes a search interface or browser. The search interface provides a means for a searching user to submit, record and access search streams or phrases generated historically by himself, other users, or the system. Search streams or phrases of other users are those that have been historically determined by the system to have the highest probability of utility to the searching user. Search streams or phrases generated by the system are those that have been constructed by the system through the analysis engine based upon the same criteria.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a block diagram of a first and preferred embodiment of a system constructed according to the present invention.

FIG. **2 A** is block diagram of a preferred embodiment of the memory unit.

FIG. **2 B** is an exemplary embodiment of a computer network showing computer servers, personal computers, workstations, Internet, Wide Area Networks, Intranets in relationship with containers and gateways.

FIG. **2B1** is an exemplary embodiment of a computer network showing computer servers, personal computers, workstations, Internet, Wide Area Networks, Intranets in relationship with containers and gateways and exemplary locations of gateway storage in proximity to one or more of the various sites.

FIGS. **2C** through **2H** are exemplary embodiments in block diagram form of computer network components showing a possible placement of nested containers, computer servers, gateways, and the software components named in Fig. 2 A on a network.

FIG. **3A** is a graphical representation for one embodiment of a container having a plurality of containers nested within that container.

FIG. **3C** is a drawing showing elements that might be logically encapsulated by a container. FIG. **4** is a drawing of an information container showing a gateway and registers logically

encapsulating containerized elements.

FIG. **5** is a flowchart showing a preferred method for the containerization process and container editor operating on the communication device.

FIG. **6** is a flowchart showing a preferred method for searching for containers within a node.

FIG. **7** is a flowchart further showing a preferred method for searching for containers over one or more gateways.

FIG. **8** is a flowchart showing a method for performing the data collection and reporting on containers.

FIG. **9** is a flowchart showing the operation of the analysis engine.

FIG. **10** is a flowchart showing the operation of the execution engine.

FIG. **11** is a flowchart showing the operation of the gateway editor.

FIG. **12** is a flowchart showing the operation of the gateway process.

FIG. **13A** is a drawing showing an example of nested containers, gateways, registers, analysis engines and an execution engine prior to container reconstruction as depicted in 13 B, 13 C and 13 D.

FIG. **13B** is a drawing showing the reconstructed nested containers of Figure 13A.

FIG. **13C** is a drawing showing further reconstruction of nested containers, with a container relocated to reside within another container.

FIG. **13D** is a drawing showing a flowchart of the reconstruction process

FIG. **14** is a drawing showing the screen interface of the container editor.

FIG. **15** is a drawing showing the screen interface of the gateway editor.

FIG. **16** is a drawing showing the screen interface of the search interface.

FIG. **17** is a drawing of a generic application program showing a drop-down menu link, and a button link to the containerization process or container editor.

DESCRIPTION OF THE PREFERRED EMBODIMENT

THE SYSTEM

Referring now to FIG. **1**, a preferred embodiment of a system **10** for creating and manipulating information containers with dynamic interactive registers in a computer, media, or publishing network **201** in order to manufacture information on, upgrade the utility of, and develop intelligence in that network **201**, is shown. The system **10** preferably comprises an input device **24**, an output device **16**, a processor **18**, a memory unit **22**, a data storage device **20**, and a communication device **26** operating on a network **201**. The input device **24**, an output device **16**, a processor **18**, a memory unit **22**, a data storage device **20**, are preferably coupled together by a bus **12** in a von Neumann architecture. Those skilled in the art will realize that these components **24**, **16**, **18**, **22**, **20**, and **26** may be coupled together according to various other computer architectures including any physical distribution of components linked together by the communication device **26** without departing from the spirit or scope of the present invention, and may be infinitely nested or chained, both as computer systems within a network **202**, and as networks within networks **201**.

The output device **16** preferably comprises a computer monitor for displaying high-resolution graphics and speakers for outputting high fidelity audio signals. The output device **16** is used to display various user interfaces **110**, **125**, **210**, **300**, **510**, **610**, **710**, as will be described below, for searching for and containerizing information, and editing the container gateways, containers, container registers, the data reporting means and the data collection means, and the search, analysis and execution engines. The author uses the input device **24** to manipulate icons, text, charts or graphs, or to select objects or text, in the process of packaging, searching or editing in a conventional manner such as in the Macintosh of Windows operating systems.

The processor **18** preferably executes programmed instruction steps, generates commands, stores data and analyzes data configurations according to programmed instruction steps that are stored in the memory unit **22** and in the data storage device **20**. The processor **22** is preferably a microprocessor such as the Motorola 680(x)0, the Intel 80(x)86 or Pentium, Pentium II, and successors, or processors made by AMD, or Cyrix CPU of the any class.

The memory unit **22** is preferably a predetermined amount of dynamic random access memory, a read-only memory, or both. The memory unit **22** stores data, operating systems, and programmed instructions steps, and manages the operations of all hardware and software components in the system **10** and on the network **201**, utilizing the communication device **26**

whenever necessary or expeditious to link multiple computer systems **202** within the network **201.**

The data storage device **20** is preferably a disk storage device for storing data and programmed instruction steps. In the exemplary embodiment, the data storage device **20** is a hard disk drive. Historical recordings of network usage are stored on distributed and centralized data storage devices **20**.

The preferred embodiment of the input device **24** comprises a keyboard, microphone, and mouse type controller. Data and commands to the system **10** are input through the input device **24**.

The present invention also includes a communication device **26**. The communication device **26** underlies and sustains the operations of, referring now also to Fig **2** the analysis **400** and execution **500** engines, the data reporting **600** and collection **700** means, the container editor **110,** the search interface **300,** and the search engine **320,** providing the means to search, access, move, copy, utilize or otherwise perform operations with and on data. The communication device **26** utilizes one or more of the following technologies: modem, infrared, microwave, laser, photons, electrons, wave phenomena, cellular carrier, satellite, laser, router hub, direct cabling, physical transport, radio, broadcast or cable TV or other to communicate with other computers, digital-supported television, computer networks, or digital-based or supported public or published media, or physical media forms, on any a local, wide area, public, or any computer-based computer supported, or computer interfaced network, including but not limited to the Internet. It also allows for the functioning and distribution of any container **100** or container component herein described to reside anywhere on any computer system in any configuration on that local, wide area, public, or corporate computer-based or computer related network, or digital-based or supported media form.

Referring now to Figure **2 A**, a preferred embodiment of the memory unit **22** is shown. The memory unit includes: an interactive information container **100**, a container editor **110**, container registers **120**, a container register editor **125**, system-wide hierarchical container gateways **200**, gateway storage **205**, gateway editors **210**, engine editors **510**, a search interface **300**, search engine **320**, analysis engine **400**, execution engine **500**, a data reporting module, **600**, a data reporting editor **610**, a data collection module **700**, a data collection editor **710**, screen interfaces (GUI's) **936**, menu or access buttons from generic computer programs **937**,

and databases **900**, all residing in memory optimized between a data storage means **20** such as magnetic, optical, laser, or other fixed storage, and a memory means **22** such as RAM. The memory unit **22** functions by operating on communications network **12** with a communication device **26** on multiple computer systems **202** within the network **201**. These components will be described first briefly in the following paragraphs, then in more detail with reference to Figures 3 A through 17.

Those skilled in the art will realize that these components might also be stored in contiguous blocks of memory, and that software components or portions thereof may reside in the memory unit **22** or the data storage means **20.**

The present invention includes information containers **100** as noted above. The information container **100** is a logically defined data enclosure which encapsulates any element or digital segment (text, graphic, photograph, audio, video, or other), or set of digital segments, or referring now to FIG. **3 C,** any system component or process, or other containers or sets of containers. A container **100** at minimum includes in its construction a logically encapsulated portion of cyberspace, a register and a gateway. A container **100** at minimum encapsulates a single digital bit, a single natural number or the logical description of another container, and at maximum all defined cyberspace, existing, growing and to be discovered, including but not limited to all containers, defined and to be defined in cyberspace. A container **100** contains the code to enable it to interact with the components enumerated in 2 A, and to reconstruct itself internally and manage itself on the network **201.**

The container **100** also includes container registers **120**. Container registers **120** are interactive dynamic values appended to the logical enclosure of an information container **100,** and serve to govern the interaction of that container **100** with other containers **100,** container gateways **200** and the system **10,** and to record the historical interaction of that container **100** on the system **10**. Container registers **120** may be values alone or contain code to establish certain parameters in interaction with other containers **100** or gateways **200.**

The present invention also includes container gateways **200.** Container gateways **200** are logically defined gateways residing both on containers **100** and independently in the system **10.** Gateways **200** govern the interactions of containers **100** within their domain, and alter the registers **120** of transiting containers **100** upon ingress and egress.

The present invention also includes container gateway storage **205** to hold the data collected from registers **120** of transient containers **100** in order to make it available to the data collection means **700** and the data reporting means **600**, and to store the rules governing the operations of its particular gateway **200**, governing transiting containers upon ingress and egress, and governing the interactive behavior of containers **100** within the container **100** to which that gateway **200** is attached. Gateway storage **205** may be located on gateways **200** themselves, containers **100** or anywhere on the network **202**, **201**, including but not limited to Internet, Intranet, LAN, WAN, according to best analysis and use.

The memory unit **22** also includes an execution engine **500** to perform the functions on the system **10** as directed by the analysis engine after its analysis of data from the data reporting means **600**, the data collection means **700**, and the search interface **300**.

The memory unit **22** also includes a search interface **300**, by which the user enters, selects or edits search phrases or digital strings to be used by the search engine **320** to locate containers **100**.

The memory unit **22** also includes an analysis engine **400** which performs rules based or other analysis upon the data collected from the search interface **300** and the data collection **700** and data reporting **600** means.

The memory unit **22** also includes a data reporting means **600**, by which means the information collected by gateways **200** from transient containers **100** is sent to the analysis engine **400**.

The memory unit **22** also includes a data collection means **700**, by which means the analysis engine **400** gathers the information collected by gateways **200** from transient containers **100**.

The memory unit **22** also includes a container editor **110** for creating, selecting, acquiring, modifying and appending registers **120** and gateways **200** to containers **100**, for creating, selecting, acquiring, and modifying containers, and for selecting content **01** to encapsulate.

The memory unit **22** also includes a register editor **125**, for creating, selecting, acquiring and modifying container registers **120** and establishing and adjusting the values therein.

The memory unit **22** also includes a gateway editor **210**, by which means the user determines the rules governing the interaction of a given gateway **210** with the registers **120** of

transient containers **100,** governing transiting containers upon ingress and egress, and governing the interactive behavior of containers within the container to which that gateway is attached.

The memory unit **22** also includes databases **900,** by which means the analysis engine **400,** the execution engine **500**, the gateways **100**, the editors **110**, **125**, **210**, **510**, **610**, **710**, and the search interface **300**, store information for later use.

The memory unit **22** present invention also includes a search engine **320** by which means the user is able to locate containers **100** and, referring now to Fig. **4**, containerized elements **01**.

The memory unit **22** present invention also includes an engine editor **510,** by which means the user establishes the rules and operating procedures for the analysis engine **400** and the execution engine **500**.

The memory unit **22** present invention also includes a reporting means editor **610**, by which means the user establishes the rules and schedule under which the information collected by gateways **200** from transient containers **100** will be sent to the analysis engine **400**.

The memory unit **22** present invention also includes a collection means editor **710,** by which means the user establishes the rules and schedule under which the analysis engine **400** will gathers the information collected by gateways **200** from transient containers **100**.

The memory unit **22** present invention also includes screen interfaces (GUI's) **936**, specifically designed to simplify and enhance the operations of the container editor **110**, the gateway editor **210**, and the search interface **300**.

The present invention also includes a menu or button access **937**, by which a user utilizing any generic computer program may access the system **10** or the container editor **110** from a menu selection(s) or button(s) within that program.

The present invention also includes a computer, media or publishing network **201**, comprising computers, digital devices and digital media **202** and a communication device **26**, within which the components enumerated in Fig. **2 A** interact, compiling, analyzing, and altering containers **100** and the network **201**according to information gathered from container registers **120**.

The memory unit **22** also includes one or more computers **202**, by which means the components of Fig **1** sustain the operations described in Fig. **2 A.**

The memory unit **22** also includes flat or relational databases **900**, used where, and as required. Databases are used to store search phrases, search templates, system history for the

analysis engine and execution engine, container levels and container, sites and digital elements, or any and all storage required to operate the system.

Referring now to FIG. **2 B,** a drawing of a computer network **201** as a system **10,** showing a possible placement of nested containers **100**, computer servers, gateways **200**, on the sites described below. (Note: Fig. 2 B utilizes in parts the same numbering scheme as Fig. 13 A, 13 B, 13 C, 13 D and as Fig. 2 A.) In FIG. **2 B** various exemplary sites are shown, any or all of which might interact dynamically within the system. Site 1 shows a single workstation with a container and gateway connected to an Intranet. .(Individual containers may be a floppy or CD-Rom to be downloaded or inserted.) Site 2 shows a server with a gateway in relationship to various containers.. Site 3 shows an Internet web page with a container residing on it. Site 4 shows a personal computer with containers and a gateway connected to the Internet. Site 5 shows a configuration of multiple servers and containers on a Wide Area Network.. Site 6 shows a workstations with a gateway and containers within a container connected to a Wide Area Network. Site 7 shows an independent gateway, capable of acting as a data collection and data reporting site as it gathers data from the registers of transiting containers, and as an agent of the execution engine as it alters the registers of transient containers. A container **100** contains the code to enable it to interact with the components enumerated in **2A,** and to reconstruct itself internally and manage itself on the network **201.** The code resides in and with the container in its registers and gateway definitions and controls. Additional system code resides in all sites to manage the individual and collective operation and oversight of the components enumerated in **2A**, with the specific components distributed amongst the sites according to the requirements of optimization.

Referring now to Fig. **2 B 1** various exemplary sites are shown as described above in Fig. **2 B**, with the addition of possible location of one or more gateway storage **205** locations.

Referring now to Figures **2 C** through **2 H**, various exemplary sites with one or more of the logical components of the system 10 in relationship are shown. Site 1 comprises an interactive information container **100**, a container editor **110**, container registers **120**, a container register editor **125**, system-wide hierarchical container gateways **200**, gateway storage **205**, gateway editors **210**, engine editors **510**, a search interface **300**, search engine **320**, analysis engine **400**, execution engine **500**, a data reporting means **600**, a data reporting means editor **610**, a data collection means **700**, a data collection means editor **710**, and databases **900**, all

residing on data storage means **20**, utilizing the memory unit to function **22**, operating on communications network **12** with a communication device **26.**

Site 2 comprises an interactive information container **100**, a container editor **110**, container registers **120**, a container register editor **125**, system-wide hierarchical container gateways **200**, gateway storage **205**, gateway editors **210**, engine editors **510,** search engine **320**, analysis engine **400**, execution engine **500**, a data reporting means **600**, a data reporting means editor **610**, a data collection means **700**, a data collection means editor **710**, and databases **900**, all residing on data storage means **20,** utilizing the memory unit to function **22**, operating on communications network **12** with a communication device **26.**

Site 3 comprises an interactive information container 100, a container editor **110**, container registers **120**, a container register editor **125**, hierarchical container gateways 200, gateway storage 205, gateway editors **210**, and databases **900**, all residing on data storage means **20,** utilizing the memory unit to function **22**, operating on communications network **12** with a communication device **26.**

Site 4 comprises an interactive information container **100**, a container editor **110**, container registers **120**, a container register editor **125**, hierarchical container gateways **200**, gateway storage **205**, gateway editors **210**, a search interface **300**, and databases **900**, all residing on data storage means **20**, utilizing the memory unit to function **22**, operating on communications network **12** with a communication device **26.**

Site 5 comprises an interactive information container **100**, container registers **120**, a container register editor **125**, hierarchical container gateways **200**, gateway storage **205,** and databases **900**, all residing on data storage means **20**, accessed and utilized by non-resident memory unit **22**, operating on communications network **12** with a communication device **26.**

Site 6 includes an independent analysis engine **400,** execution engine **500**, data collection means **700**, and data reporting means **600** gateway editors **210**, engine editors **510,** a data reporting means editor **610**, a data collection means **700**, a data collection means editor **710**, and databases **900**, all residing on data storage means **20**, utilizing the memory unit to function **22**, operating on communications network **12** with a communication device **26.**

Referring now to FIG. **3 A** and FIG. **3 B**, a block diagram of several nested information containers is shown, including examples of elements, e.g., code **1100**, text **1200**, audio **1300**, video **1400**, photograph **1500**, graphic images **1600**, and examples of possible container level

classifications in increasing size, e.g., element **10900000**, document **10800000**, database **10700000**, warehouse **10600000**, domain **10500000**,and continuing increasingly larger on Fig **3 (B)**, subject **10400000**, field **10300000**, master field **10200000**, species **10100000**. Containers may be infinitely nested and assigned any class, super class or sub class scheme and description by the creator of the container to govern nesting within that container. In addition to digital elements, containers may also include system process and components, including containerization itself.

Referring now to FIG. **3 C**, a block diagram of an information container system is shown, listing, without any relationship indicated, some of the possible system components and processes, or sets thereof, that may be encapsulated as elements **01** in an information container **100.** An information container 100 may include one or more of the following: any unique, container **100**, gateway **200**, output device **16**, input device **24**, output device process **160**, input device process **240**, data storage device **20**, data storage device process **2000**, processor **18**, bus **12**, content **01**, search process **02**, interface **04**, memory unit **22**, communication device **26**, search interface **300**, search process **98**, network **201**, class of device, process or content **999**, class of process at any unique class of device **990**, process at any unique device **99**, editor **110**, **125**, **210**, **510**, **610**, **710**, engine **320**, **400**, **500**, containerization process **1098**, or process **08**.

Any container may include (n) other containers, to infinity. The use of value evolving container registers **120** in conjunction with gateways **200**, data reporting modules **600**, data collection modules **700**, the analysis engine **400**, and the execution engine **500** provides the information container **100** with extensive knowledge of the use, operation of its internal contents, prior to, during and after those contents' residence within that container **100**, and extensive knowledge of the use, operation and contents of the system **10** external to itself, and allows the container **100** to establish and evolve its own identity and course of interaction on the system **10**. Further, containers **100**, as logical enclosures, can exist and operate independent of their digital contents, whether encapsulating audio, video, text, graphic, or other.

Referring now to FIG. **4**, a block diagram of an information container **100** is shown. The information container **100** is a logically defined data enclosure which encapsulates any element, digital segment (text, graphic, photograph, audio, video, or other), set of digital segments as described above with reference to FIG. **3 (C)**, any system component or process, or other

containers or sets of containers. The container **100** comprises the containerized elements **01**, registers **120** and a gateway **200**.

Registers **120** appended to an information container **110** are unique in that they operate independently of the encapsulated contents, providing rules of interaction, history of interaction, identity and interactive life to that container **100** through the duration of its existence on a network **201**, without requiring reference to, or interaction with, its specific contents. They enable a container **100** to establish an identity independent of its contents. Additionally, registers **120** are unique in that their internal values evolve through interaction with other containers **100**, gateways **200**, the analysis engine **400**, the execution engine **500**, and the choices made by the users in the search interface **300**, the container editor **110**, the register editor **125**, the gateway editor **210**, the engine editor **510**. Registers **120** are also unique in that they can interact with any register of a similar definition on any container **100** residing on the network **201**, independent of that container's contents. Registers **120**, once constructed, may be copied and appended to other containers **100** with their internal values reset, to form new containers. Register values, when collected at gateways **200** and made available to the analysis engine **400** through the data collection means **700** and the data reporting means **600**, provide an entirely new layer of network observation and analysis and operational control through the execution engine **500**. Registers **120** accomplish not only a real time information about information system, but also a real time information about information usage on a network. Further, because the user base of a network determines usage, the system **10**, in gathering information about information usage, is observing the choices of the human mind. When these choices are submitted to the analysis of a rules-based or other analysis engine **400**, the system **10** becomes capable of becoming progressively more responsive to the need of the user base, in effect, learning to become more useful by utilizing the execution engine **500** to create system-wide changes by altering the rules of gateway **200** interaction and thereby altering the registers **120** of transient containers **100** and establishing a complete evolutionary cycle of enhanced utility.

Further, in establishing the pre-defined registers as described in the following four paragraphs, the following unique aspects of information about information are utilized for the first time: 1) the dynamic governance of information according to its utility through time, in active, passive and neutral aspects, as explained below; 2) the dynamic governance of

information according to its utility through space in active, passive and neutral aspects, as explained below; 3) the dynamic governance of information according to its ownership, as explained below; 4) the dynamic governance of information according to its unique history of interaction as an identity on a network, as explained below; 5) the dynamic governance of information according to the history of the system on which it exists, as explained below; 6) the dynamic governance of information according to established rules of interaction, in active, passive and neutral aspects, as explained below; 7) the dynamic governance of information according to the profile of its creator, as explained below; 8) the dynamic governance of information according to the value established by its ongoing usage, as explained below; 9) the dynamic governance of information according to it distributed ownership, as explained below; 10) the dynamic governance of information according to what class of information it might be incorporated into, and according to what class of information container it might incorporate, as explained below; 11) the dynamic governance of information according to self-reporting, as explained below.

Referring now to Fig **4**, registers **120** may be (1) pre-defined, (2) created by the user or acquired by the user, or (3) system-defined or system-created. Pre-defined registers **120** are those immediately available for selection by the user within a given container editor as part of that container editor, in order that the user may append any of those registers **120** to a container **100** and define values for those registers **120** where required. Registers **120** created by the user are those conceived and created by a specific user or user group and made immediately available for selection by the user or user group in conjunction with any of a wide number of container editors, in order that the user may append any of those registers **120** to a container **100** and define values for those registers **120** where required. Registers **120** acquired by the user are those registers existing network-wide **201**, created by the user base, that might be located and acquired by the user in order that the user may append any of those registers **120** to a container **100** and define values for those registers **120** where required. System-defined registers are those registers whose values are set and/or controlled by the system **10**. System-created registers are those registers created by the system **10**.

Registers **120** are user or user-base created or system-created values or ranges made available by the system **10** to attach to a unique container, and hold system-set, user-set, or system-evolved values. Values may be numeric, may describe domains of time or space, or may

provide information about the container **100**, the user, or the system **10**. Registers **120** may be active, passive or interactive and may evolve with system use. Pre-defined registers include, but are not limited to, system history **110000**, container history **101000**, active time **102000**, passive time **103000**, neutral time **104000**, active space **111000**, passive space **112000**, neutral space **113000**, containment **105000**, inclusion **106000**, identity **114000**, value **115000**, ownership **107000**, ownership addresses **116000**, proportionate ownership **117000**, creator profile **108000**, receptivity **118000**, influence **119000**, points **109000**, others **120000**, reporting **121000**, neutrality **122000**, acquire **123000**, create **124000**, content title **125000**, content key phrase(s) **126000**, and content description **127000**, security **12800**, and parent rules **129000**.

Pre-defined registers comprise an historical container register **101000**, logging the history of the interaction of that container **100** with other containers, events and processes on the network **201**, an historical system register **110000**, logging the history of pertinent critical and processes on the network, a point register **109000** accumulating points based upon a hierarchically rated history of usage, an identity register **114000** maintaining a unique network wide identification and access location for a given container specifying a unique time and place of origin and original residence, a proportionate ownership register **117000** maintaining a record of ownership percentage and economic values, and others **120000**.

User-defined registers include a report register **121000** setting trigger levels for report sequences, content determination and delivery target, three time registers, consisting of a range, map, graph, list, curve or other designating time relevance, **102000** assigning the time characteristics by which that container will act upon another container or process, **103000** assigning the time characteristics by which that container be acted upon by another container or process, and **104000** assigning the time characteristics by which that container will interact with another container or process, three space registers, consisting of a range, map, graph, list, curve or other designating the domain and determinants of space relevance, **111000** assigning the space characteristics by which that content will act upon another container or process, **112000** assigning the space, characteristics by which that content will be acted upon by another container or process, and **113000** assigning the space characteristics by which that container will interact with another container or process, a domain of influence register **119000**, determining the set, class and range of containers upon which that container will act, a domain of receptivity register **118000**, determining the set, class and range of containers allowed to act upon that

container, a domain of neutrality register **122000**, determining the set, class and range of containers with which that container will interact, a domain of containment register **105000**, determining the set, class and range of containers which that container may logically encompass, a domain of inclusion **106000** register, determining the set, class and range of containers by which that container might be encapsulated, an ownership register **107000**, recording the original ownership of that containers, a creator profile register **108000**, describing the creator or creators of that container, an ownership address register **116000**, maintaining the address of the creator or creators of that container, a value register **115000**, assigning a monetary or credit value to that container, other registers **120000** created by users or the system, a reporting register **121000**, determining the content, scheduling and recipients of information about that container, a neutrality register **122000**, an acquire register **123000**, enabling the user to search and utilize other registers residing on the network, a create register **124000**, enabling the user to construct a new register, a content title register **125000**, naming the contents of the container, a content key register, **126000**, identifying the container contents with a key phrase generated by the user and/or the system based upon successful usage of that phrase in conjunction with the utilization of the information within that container **100**, a content description register **127000**, identifying the container contents with additional description, a security register **128000**, controlling container security, and a parent container register **129000**, storing the rules governing container interaction as dictated by the parent (encapsulating) container.

The container also includes a gateway **200** and gateway storage **205.**

Gateways **200** are logically defined passageways residing both on containers **100** and independently in the system **10**. Gateways **200** govern the interactions of containers **100** encapsulated within their domain by reading and storing register **120** information of containers entering and exiting that container **100**.

The present invention also includes container gateway storage **205.** Gateway storage **205** stores information regarding the residence, absence, transience, and alteration of encapsulated and encapsulating containers **100**, and their attached registers **120, holding** the data collected from registers **120** of transient containers **100** in order to make it available to the data collection means **700** and the data reporting means **600**, and storing the rules governing the operations of its particular gateway **200**.

Referring now to FIG. **5**, a flow chart of the preferred method for creating a container **100**.is shown.

Input is received from the user selecting a container level through use of a drop-down menu **10100**. A menu of all possible container classes within the subset and superset scheme of multiple hierarchically nested containers, i.e.; element, document, file, database, warehouse, domain, and more, is displayed on the output device **10200.** Input is received from the user selecting a class **10300.**

A graphic representation of a container in that class, with registers common to all containers as well as registers unique to its class is displayed **10301.**

Input is received from the user choosing to "create" **10400**, "edit" **10500**, or "locate" **10600**.

When the input of "create" **10400** is received from the user, a container template in that class appears **10410**. Input from the user is then received adding or selecting a register 10540 to append to that container template. When input is received from the user adding a register, a list of registers that might be added to that class of container is made available to select **10550**. Input is received from the user selecting a register **10560** and editing it **10570**. The menu returns to "add or select" **10540**.

If the input of "locate" **10600** is received from the user, the system prompts the user to enter the identity of the container or class of containers **10605**. The system locates the container(s) **10610**. Input is received from the user selecting a container **10620**. The system prompts the user for a security code for permission to access the container for template use, or to alter its registers, or to alter its content **10630**. . Input is received from the user entering a name and password providing access to one of the security levels **10640.** Input is received from the user editing the container accordingly by transition to step **10500** and performing the steps for editing.

If the input of "edit" **10500** is received, a list of containers available to edit at that level is shown **10510**. Input is received from the user selecting a container **10520**. That container appears, available to edit **10530**. Input is received from the user selecting "add" or "select" registers **10540** by the user clicking on the graphically depicted register, or from a drop down menu. Input is received from the user selecting the register to edit **10560**. Input is received from the user selecting "modify" or "delete" for that register **10565**. If input is received from the user

to "delete," that register is severed from the container. If input is received from the user to "modify", the register editor **10570** screen appropriate to that register appears, i.e., an x-y type graph to define a curve of relevant active time, in which the user manipulates the x-y termini, scale and curve, or a global map in which Input is received from the user selecting the locale of active space, whether zip code, city, county, state, country, continent, plant or other. When input is received from the user saving the definition, the screen returns to the main container screen to make another selection available. . Input is received from the user defining as many registers as he chooses. One of the registers may be named "new register." Input is received from the user selecting the new register, and if chosen by the user, defining a wholly unique and new kind of register by the user entering input into the register editor **125.**

When the input is received from the user choosing to add a register, a list of registers that might be added to that class of container are made available to select **10550**. Input is received from the user selecting a register **10560** and editing it **10570**. The menu returns to "add or select" **10540**, and in turn to Input – Select Container.

Input may then be received from the user choosing to add, modify, or delete the container contents **10700**. Once the registers are defined, input is received from the user indicating completion and the interface reverts to the container editor. When input is received from the user choosing "select component" (to select the component to containerize) from the main menu bar **10700, a** window appears allowing the user to select any file, component, or other container. If for example, the user were creating a warehouse container, and wishes to incorporate several databases into that container, input would then be received from the user selecting "database." The program would prompt the user for the location (directory) of that database or container. If the requested selection is not containerized, input may then be received from the user choosing to containerize the element at that time, after which the program returns to "select component." Once input is received from the user defining the database location, the program logically encases the directory or directories in the defined container. The above procedure may be repeated as many times as desired to include multiple databases within a single container. While logical simplicity would dictate that all containers within a container be of the same subset, it would be possible for input to be received from the user choosing containers of any subset to include in the container. When input is received from the user choosing "finished," the container is created with a unique network identity, preferably through

some combination of exact time and digital device serial number, or centralized numbering system, or other means. The container **100** contains all digital code, including data and program software from the selected items or containers.

Input may then be received from the user to publish the container **11100** at a user-identified or system suggested location **11200** to be selected **11400**.

Input is received from the user to "publish", from the main menu bar **11100**. Input is received from the user choosing to leave the container where it was created, move or copy it to another drive, directory, computer, or network the user designates, or select the location from location options offered by the system **11200**, or submit, or duplicate and submit, the container to the analysis engine **400** for intelligent inclusion in other containers, thus allowing the system to publish the container as instructed or choose the residence of the container **11400**.

If input is received from the user to choosing to "move," or "copy" a browse function allows the user to name the new location or browse a list of possible locations. If input is received from the user choosing to "submit," a browser function allows the user to name the analysis search engine **310** or browse a list of possible analyses engines. When input is received from the user choosing the residence of the container **11300**, the program restores the search interface screen.

Referring now to FIG. **6**, a flow chart of the method for searching for containers **100**.

When input is received from the user selecting "search interface" from the main title bar, the search interface screen appears. The user is given the choice of containerizing selected content or requesting that container levels be displayed **30100**. From a drop down menu another menu appears allowing input to be received from the user selecting the container level **30200**. Input is received from the user selecting the container level (from the smallest component to the whole system) **30300.**

Input is received **30310** from the user selecting the phrases, containers or components, which then are re-submitted to the same process, until the input is received from the user selecting a specific site or container.

The search phrase, whether containerized or not, is submitted simultaneously to the search engine **30400** and the analysis engine **30500**.

The screen then reports in a selection menu, the number of applicable sites found by the search engine **30410**, the number of historically proven applicable sites found by the analysis

engine **30410**, the number of historically proven applicable containers at the selected container level or any container level found by the analysis engine **30410**, and the number of historically proven new search phrases or digital segments found by the analysis engine **30320**. . Input is received from the user selecting one of the named sets above **30330**. If input is received from the user choosing the search engine, the search interface lists the applicable site titles with a brief description **30410**. If input is received from the user choosing the site list of the analysis, the search interface lists the applicable site titles with a brief description **30410**. . If input is received from the user choosing the container list of the analysis engine, the search interface lists the applicable container titles with a brief description **30410**. . If input is received from the user selecting a container **30420**, the system offers the means to view titles and descriptions of sub-containers at any chosen class level. . If input is received from the user choosing the phrase list of the analysis engine, the search interface lists the applicable phrases or digital segments with a brief description **30320**. The search and search result cycle repeats until input is received from the user choosing to go to an individual container or site.

Input is received from the user entering text or any digital string describing his search objectives into a text or search box. When input is received from the user submitting the search string, the system provides the option of containerizing the search through the container editor **110.** Once the search container **101** is created, the system restores the search interface **300** screen the user.

Input is received from the user selecting "search", "supported search" or "both" from another drop-down menu and from submitting the search. When input is received from the user selecting "search" 30310, the search phrase is submitted to the search engine **30400**, which searches both content and the appropriate container registers, as pre-indexed in the search engine, and returns a list of appropriate locations, components or containers. When input is received from the selecting "supported search", the search phrase is submitted to the analysis engine search support, which returns a list, in a drop-down menu, of search phrases or individual containers, for any and all container levels, used by other users or created by the system and known to be historically successful for the described effort and the described searching user, as per the results of the analysis search engine. Input is received from the user selecting a new search phrase or specific container from the drop down menu **30330**. When input is received from the user choosing a new search phrase, that phrase is also submitted to the

analysis engine **30500** which returns a list of pre-compiled historically proven sites, components or containers associated with that search phrase **30320**. Input is received from the user choosing a selection **30420** and the system calls up that specific site, container or component. If input is received from the user selecting a specific site, container or component at any time during the search process, that element is called up by the system **30440**.

Input is received from the user choosing to containerize a search or select a container level in which to search **30100**. When input is received from the user choosing to containerize the search, the software moves to the container editor as described in Fig. **5**, and then returns the user to the search interface screen. Input is received from the user selecting to search a specific container level or the whole network. The system shows the available levels **30200**. Input is received from the user selecting a container level **30300**, and entering the text or digital component comprising the search string **30310**. The system searches the containers **30400** while simultaneously submitting the search string to the analysis engine **30500**. While the system is accessing containers, sites or templates **30700**, the analysis engine **30500** inquires of the appropriate database **30600** to access historically successful containers, sites or search templates corresponding to the search request **30700**, which is then shown on another portion or option of the search interface, either as available containers or sites **30410** or as search template options **30320.** On one portion or option of the search interface screen the corresponding containers or sites are listed and/or previewed for selection **30410**. Input is received from the user selecting the container to access **30420**. The system accesses that container **30430** and shows it on the screen **30440** for user review. Input is received from the user selecting an operation, i.e., preview, read, purchase, move, copy, lease, in any composed schedule with operations assigned specific values **30460**, and the system obtains the specified result **30470**. The selection of the operation including any interaction with any uniquely defined container **100** is recorded **30800** by the container gateway (Fig. 2 A, **200**), stored in the gateway storage **205** and made available to the analysis engine (Fig. **9**) by the data collection and reporting means (Fig. **8**). Reporting and collection occurs on a regular basis according to user determined times or rules. The analysis engine compiles and analyzes selections according to various rules-based systems applicable to the particular container area of residence in cyberspace.

. Input is received from the user selecting the container or site **30410**, proceeding as described above, or selecting a search template **30330**, and editing it to re-enter the search

30310. All operations on Fig. 6 utilize the communication device 26 whenever necessary or expeditious.

Referring now to FIG. 7, a flow chart of the search process is shown. Steps in FIG. 7 repeated from FIG. 6 are given the same reference number as in FIG. 6 for convenience and ease of understanding. Fig. 7 commences with "SEARCH TRANSITS GATEWAY 32100", continuing from Fig. 6, "SYSTEM SEARCHES CONTAINERS 30400". The submitted search 32100 transits the gateway 200. The gateway 200 interacts with the container registers 32200. The gateways 200 store the information downloaded from the registers 32300, and the container registers are altered 32500. The container registers 120 then interact with the registers 120 of the encapsulated search, which registers, and the values set within, have been constructed and appended to the search through the search interface 32600. Values are exchanged and compared and operations performed under the rules governing both interacting containers 100, and the rules governing the search container 100 and any gateway 200. The search engine 320, operating under the principles and means of search engines presently existing as described elsewhere, **then** provides to the search interface 32600 a list of containers 100 meeting the requirements of the search and its appended registers, as well as additional search options 32900. The gateway 200 reports and makes available for collection to the analysis engine 400 the information obtained from the interaction 32400. On a periodic basis defined by the user or a rules-based system, the analysis engine 400 (Fig. 9) stores in databases 900, analyzes and instructs the execution engine 500, and the execution engine 500 executes changes in the system components as defined below. (Fig. 10). All operations on Fig. 7 utilize the communication device 26 whenever necessary or expeditious.

On the remaining figures, shapes referring to other figures, to operations external to the scope of the present figures, or to the subject of the present drawing, are indicated with dashed lines, and are shown only to place the described operations in the context of continuous and continual operations external to the drawing.

Referring now to FIG. 8, a flow chart of the preferred process for collecting and reporting information on containers is shown. The data reporting 600 and data collection 700 means utilizes subroutines within the analysis engines 400 and gateways 200 to submit and collect register information and sub level analysis to other analysis engines 400 or other gateways 200 of a higher (larger) logical set in a set pattern and frequency defined by the administrator.

Input is received from the user selecting "data reporting" **70100** from the "edit gateway" drop-down menu. Container levels are displayed **70200**. Input is received from the user selecting container level **70300.** A menu of all possible gateways **70320** and analysis engines **70330** residing on gateways on the above defined container class appears, depicted graphically as a tree of analysis engines and gateways at that container level. Input is received from the user selecting "source" from "source or destination." Input is received from the user **70400** selecting a container, containers, or class of container by clicking on the graphically depicted container(s) or container level on a display device. Input is received from the user **70410** selecting "destination" from "source or destination" Input is received from the user **70500** selecting an analysis engine, analysis engines, or class of analysis engine by clicking on the graphically depicted analysis engine(s) or analysis engine level on a display device. A time scheduler is displayed. Input is received from the user **70510** selecting the reporting frequency for the selected gateways to report data to the selected engines. The data from the gateways is thenceforth continuously moved or copied to the analysis engines by the system **10** utilizing the execution engine **500** according to the defined schedule, rules and pattern **70420, 70520**.

Input is received from the user selecting "choose container level" **70300** from the gateway editor drop-down menu. A menu **70320** appears listing the classes of containers on the system within the defined subset and superset scheme of multiple hierarchically nested containers, i.e.; element, document, file, database, warehouse, domain, appears. Input is received from the user selecting the class of containers. A graphic representation of that container level throughout the system appears. Input **70300** is received from the user selecting individual containers or all the containers in that class.

From the gateway editor drop-down menu input **70100** is received from the user selecting "data collecting" A menu of all possible gateways and analysis engines residing on gateways on the above defined container class appears, depicted graphically as a tree of analysis engines, and gateways at that container level. Input **70510** is received from the user selecting "source" from "source or destination." Input is received from the user selecting a container, containers, or class of container by clicking on the graphically depicted container(s) or container level. Input **70510** is received from the user selecting "destination" from "source or destination." Input **70510** is received from the user selecting an analysis engine, analysis engines, or class of analysis engine by clicking on the graphically depicted analysis engine(s) or analysis engine

level. A time scheduler appears. Input **70510** is received from the user selecting the collecting frequency for the selected engines to collect data from the selected gateways. The data from the gateways is thenceforth continuously moved or copied to the analysis engines by the system **10** utilizing the execution engine **500** according to the defined schedule, rules and pattern.

The data collection **700** means, utilizing the communication device **26** and an execution engine **500,** comprises one or more subroutines or agents programmed to travel through the network collecting the accumulated data and analyses from selected analysis engines, gateways or selected subset level of analysis engines or gateways (as above) in a pattern and frequency defined by the gateway administrator at a given container level. Input **70510** is received from the user or administrator, defining the collection and reporting of data, thus controlling permission within his gateway, and being subject to permission levels defined by others beyond his gateway.

Input is received from the user or gateway administrator selecting collection or reporting **70100** and the system shows the container levels available **70200**. Input is received from the user selecting a container level **70300**. Input is received from the user selecting "gateway" **70400** or "engine" **70500**. The system shows gateways **70320** or engines **70330** associated with that level. Input is received from the user editing the reporting parameters associated with a gateway or a class of gateways **70410** or an engine or class of engines **70510**. Input is received from the user selecting the collecting frequency for the chosen engines. When input is received from the user choosing to user save the definition, the screen returns to the main container screen, step **70100** to make another selection available. Input is received from the user choosing to repeat the cycle, choosing "destination" to describe the destination analysis engines and the data collecting frequency from those destination analysis engines. The data collection means **700** collects the accumulated gateway information in a pattern and frequency defined by the gateway administrator or user at a given container level.

The system utilizing the execution engine (see Fig. **10**) distributes the new parameters to the gateways **70420** or engines **70520** by the communication device **26**. Using the new parameters the gateways report to the analysis engines **70430** after, in some cases, conducting sub-analysis **70440,** or using sub-analysis **70440** to submit directly to specified gateways under certain conditions and parameters, and the analysis engines collect from the gateways **70530**.

The analysis engine uploads, downloads and utilizes information to databases **900** to conducts its analysis.

The invention includes an analysis engine **400**. Through the data reporting **600** means and data collection **700** the analysis engine **400** receives data and sub-analysis from the search interface and the gateways. Data includes, for each gateway **200**, the frequency and grade of access, the description of the user accessing, the identity of the container **100** accessing, the register parameters, and the historically accumulated register data.

Referring now to FIG. **9**, a flow chart of the operation of the analysis engine **400** is shown. Analysis engines **400** may reside at any gateway or anywhere in the system 10. The analysis engine **400**, operating under its own programmed sequence, utilizing the communication device **26**, works, by means of programmed rules of logical, mathematical, statistical or other analysis upon gateway and register information, in continuous interaction with the search process **410** and the data collection and reporting process **420** to analyze, determine and compile instructions **40100** on container construction **40110** to containerize in an automated process **40115**, on container contents **40120** to move, copy or delete containers **40125**, on storage schemes **40130** to move or copy containers to new storage **40135**, on access routes **40140** to alter gateway pointers to sought information **40145**, on search templates **40150** to add, delete or change search phrases and the referenced objects indicated by those search phrases **40155** and on gateway instructions **40160** to alter gateway registers and pointers **40165**.

Thus, analyses might include, but are not limited to, the physical locus of the users accessing, the demographic classification of the users accessing, the access frequency for a given container, the range or curve of time relevance affecting a container, the range or region of space relevance affecting a container **100**, the number or number of a specific type of container **100** transiting a gateway **200**, the hierarchically graded usage of containers **100** or container contents **01** compared with the demographic of those users accessing the container, the hierarchically graded usage of containers **100** or container contents **01** compared with search phrases entered into the search interface **300**, the hierarchically graded usage of containers **100** or container contents **01** compared with search phrases entered into the search interface 300 compared with the demographic of the users accessing, the number of pertinent containers nested within a given container **100**. Once an analysis is accomplished, the result is compared to

pre-programmed rules triggering instruction sets (such as moving a container to nest within another container).

Instructions are then sent to the execution engine **40200**, which utilizes the communication device **26** to execute the instructions derived from the analyses. These containerized instructions transit the gateways **40300** and are utilized in the gateway process (Fig. **12**)

Referring now to FIG. **10**, a flow chart of the operation of the execution engine is shown. The execution engine **400**, operating under its own programmed sequence in response to the instructions from the analysis engine **50100**, utilizing the communication device **26**, works in continuous process as its containerized execution instructions transit the gateways **50200** to create containers **50210** in an automated containerization process **50215**, alter container contents **50230** by moving or copying containers to new containers **50235**, to alter storage **50240** by moving or copying containers to new storage **50245**, to alter access routes **50250** by altering gateway pointers **50255**, to alter search templates **50260** by adding, changing and deleting search phrases and the referenced objects indicated by those search phrases **50265**, to alter gateway instructions **50270** by altering gateway registers and pointers **50275**. The execution works in a continuous loop with the gateway process **50300**, the data collection and reporting process **50400** and the analysis engine process **50300**.

The invention includes gateways **200**. Gateways may be placed and reside anywhere on the network where containers transit. Gateways also reside on any or all containers. The gateway reads and stores the chosen register information from transient containers entering or exiting its logical boundaries. The resident analysis search engine, if any, performs the specified level of analysis. Data and analysis is both held for the collection means according to the pattern and timing specified in the data reporting **600** editor and submitted according to the pattern and timing specified in the data collection means editor **700.**

The gateways are network-wide, hierarchical, and nestable, and reside with a container encompassing any component, digital code, file, search string, set, database, network, event or process and maintaining a unique lifelong network wide identity and unique in all the universe historical identity, or may be strategically placed at such container transit points to gather and store register information attached to any such container, according to system-defined, system-generated, or user determined rules residing in its registers defining the behavior of those

containers and components as they exit and enter one another, or interact with one another or any system process or system component within the logical domain of that container, or after exiting and entering that container, or defining how they interact with that unique gateway.

Gateway's registers comprise both system-defined and user-defined registers, alterable by author, duration, location, network-wide history, individual container history and/or interaction with other containers, gateways, networks or media, and evolve according to that gateway's history on a computer network, or according to the network history of events and processes, or according to that information component's interaction with other information containers, components, system components, network events or processes.

Referring now to FIG. **11,** a flow chart of the gateway editor is shown. From the main title bar input is received from the user selecting "containerize" or "gateway level" **20100**. When input is received from the user selecting "containerize" the system enters the container editor process **110.** When input is received from the user selecting "gateway," the system shows the gateway levels available **20200**. A menu of all possible gateways within the subset and superset scheme of defined multiple hierarchically nested gateways appears. Input is received from the user selecting the gateway level **20300.** The system searches the gateways **20500** to locate the available gateway templates **20700** and the available gateways **20600**. Input is received from the user selecting the gateway **20610** or gateway level template **20720**. The system goes to the gateway **20620** or to the template **20720**. A graphic representation of the chosen gateway **20630** or template **20730** appears. Input is received from the user to edit **20640** or create a gateway **20740**. Once completed, input may be received from the user selecting "analysis level" from the gateway **200** drop-down menu, to select the level of analysis in a multi-level analysis sequence to be accomplished at the local level by a gateway-resident analysis engine. The user accesses the container editor to containerize (Fig. **5**). Input is received from the user selecting the registers by clicking on the graphically depicted register, or from a drop down menu.). Input is received from the user setting the registers as described elsewhere in ("container registers"). Input is received from the user selecting or defining the rules governing the interaction of that gateway with transient containers. Input is received from the user selecting or defining the rules governing the interaction of containers existing within the logical domain of the container 100 to which that gateway is attached. The user publishes the gateway (Fig. **5**). Input is received from the user selecting "residence" from the main menu bar.

). Input is received from the user choosing to leave the gateway where it was created, move it to container on another drive, directory, computer, or network. If the user chooses "move," a browse function allows the user to name the new location or browse a list of possible locations. Once input is received from the user choosing the residence of the gateway, the program restores the search interface screen.

The invention includes a data reporting means editor **610**, and a data collection means editor **710,** Fig. 2 A, as a menu option under the gateway editor **210**.

The present invention also includes a gateway process.

Referring now to FIG. **12**, a flow chart of the gateway process is shown. A system operation, search process or element container or process container is shown in transit **21100** passing through a gateway **21200**. The container, operation or process interacts with the gateway **21300**, uploading, downloading and exchanging information with the container, operation or process. The gateway stores container information **21400** and the container registers are altered **21500**. The container registers also interact with the search interface **21600**. The gateways report the register information or make it available for collection by the data reporting and collection means (Fig. **8**) operating on the communication device **26** to provide the information to the analysis engine **21800**, which stores **90100**, analyzes and instructs the execution engine **21900**, which processes and instructions are also stored **90100** by the execution engine upon receipt.

All operations in Fig. **12** utilize the communication device **26** whenever necessary or expeditious.

Referring now to FIG. **13 A,** a drawing of nested containers **100** prior to the container modification process on a network **201** is shown. (Note: The same container numbering scheme is used in Fig. 13 A, 13 B, 13 C, 13 D and in 2 B.) Information containers **505** and **909**, residing within container **908**, operating under the rules governing container interaction within that container **908** downloaded to container **505** and **909** from gateway **9081** upon their entrance to container **908,** which rules had been downloaded from execution engine **500** acting under the direction of analysis engine **400**, and under the rules programmed into their own registers **404120**, **909120**, compare the specified (by those rules) set of registers **404120**, **909120**, i.e., time and space, and determine a container **404** encapsulated within **505** would be more appropriately encapsulated within container **909**.

Referring now to FIG. **13 B** a drawing of nested containers during a container modification process on a network **201** is shown. Container **404** is moved to reside with container **909**. As the container **404** exits container **505**, the gateway of container **505**, being gateway **5051**, operating under the rules governing container interaction with a gateway 5051 upon egress or egress as programmed in the gateway editor **210** and modified by the execution engine **500** executing the instructions of the analysis engine **400**, or any greater logical analysis engine **408** providing execution instructions to an execution engine **508** operating in a larger encompassing container **108** entering through that container's gateway **208** or an independent gateway **707**, or sub-analysis engine operating at any gateway level, records the register information of container **404.** The gateway **5051** reports the transaction to the gateway **9081** of container **908**, being the next higher logical container. Gateway **9081** holds in gateway storage **205** the information until collected by one or more data collection processes **700**, or reported to one or more data reporting processes **600**, serving one or more analysis engines **400** residing independently on the system **10** or an analysis engine at higher logical container **303**. The analysis engine **400,** comparing reports of user hierarchically graded usage under the operations of the search engine **320** and the search interface **300**, on information container **808** after receiving reports from the data reporting means of container **404** being moved to container **909** determines, i.e., that the number of time and space relevant containers residing within container **909** is sufficient to warrant an action, and directs the execution engine **500** to copy container **909**, nested within container **908**, to a third information container **808**. As the copy instruction from execution engine **500** transits the gateway of container **908**, the gateway **9081** records the instruction. The copy instruction interacts with the registers **909120** of container **909** regarding the rules governing its copying to another location. Once approved by the governing rules of registers **909120** appended to container **909**, container **909** is duplicated. As the duplicate container **909** exits the container **908**, the gateway records the register information **909120** of container **909**, and the registers **909120** of container **909** are altered by special instructions from gateway **9081** under the rules residing in gateway **9081** regarding ingress and egress and the rules residing in the registers **909120** of container **909** regarding alteration by gateways upon ingress and egress. Passing through independent gateway **707**, the register information **909120** is recorded, and awaits data collection or reporting 700, **600.** As container **909** enters container **808**, the gateway records the register information **909120** of container **909**, the registers **909120**

of **909** are altered by special instructions from gateway **8081**, operating under the rules as described in the paragraph above, and container **909** takes up residence within container **808.**

Referring now to FIG. **13 C,** a drawing of nested containers after the container modification process on a network **201** process is shown. Container **909**, now also logically residing within container **808,** commences to interact with other containers **606** in **808** under the rules governing container interaction within container **808** as received from gateway **8081** upon transiting that gateway, and under the rules of registers **606120, 909120 of** the interacting containers **606, 909**, operating under the rules as described in the paragraph above. Through data collection and reporting **700, 600**, analysis engine is appraised of container's **909** new duplicate residence. I.e., operating under the registers of space relevance, a body of law pertaining to Boston Municipal tax law may be housed in a container holding Massachusetts tax law, but it would be more appropriately located in a container holding Boston tax law, with only a pointer to that location residing in the Massachusetts tax law container. In this example, such an analysis could be accomplished by comparison of zip code information in the space registers, or logical rules-based analysis, with "state" being a larger set than "city". Or, i.e., operating under the registers of time relevance, the curve of time relevance for a concert might follow an ascending curve for the months prior, hit a brief plateau, and then reach a precipitous decline, at which time certain pertinent information only might be moved to an archival container of city events or rock concerts of that year. In this example, once the curve is mapped into a register, that map would cause an increasing frequency of pointers to that container in other containers or gateways, or inclusion of that container in other containers, as the analysis engine compares that curve with increasing user inquiry.

Referring now to Fig. **13 D**, a flowchart of the reconstruction process is shown.

Information containers **505** and **909**, residing within container **908**, operating under the rules governing container interaction within that container **908** downloaded **888103** to container **505** and **909** from gateway **9081** upon their entrance to container **908,** which rules had been downloaded **888102** from execution engine **500** acting under the direction **888101** of analysis engine **400**, and under the rules programmed into their own registers **404120, 909120**, compare **888104** the specified (by those rules) set of registers **404120, 909120**, i.e., time and space, and determine **888105** a container **404** encapsulated within **505** would be more appropriately encapsulated within container **909**.

Container **404** is moved **888106** to reside with container **909**. As the container **404** exits container **505**, the gateway of container **505**, being gateway **5051**, operating under the rules governing container interaction with a gateway **5051** upon egress or egress as programmed in the gateway editor **210** and modified **888108** by the execution engine **500** executing the instructions of the analysis engine **400**, or any greater logical analysis engine **408** providing execution instructions **888107** to an execution engine **508** operating in a larger encompassing container **108** entering through that container's gateway **208** or an independent gateway **707**, or sub-analysis engine operating at any gateway level, records **888109** the register information of container **404**, and alters the register information of container **404**. The gateway **5051** reports **888110** the transaction to the gateway **9081** of container **908**, being the next higher logical container. Gateway **9081** holds **888111** in gateway storage **205** the information until collected by one or more data collection processes **700**, or reported to one or more data reporting processes **600**, serving **888112** one or more analysis engines **400** residing independently on the system **10** or an analysis engine at higher logical container **303**. The analysis engine **400**, comparing **888114** reports of user hierarchically graded usage on information container **808** under the operations of the search engine **320** and the search interface **300**, after receiving **888113** reports from the data reporting means of container **404** being moved to container **909**, determines **888115**, i.e., that the number of time and space relevant containers residing within container **909** is sufficient to warrant an action, and directs **888115** the execution engine **500** to copy container **909**, nested within container **908**, to a third information container **808**. As the copy instruction from execution engine **500** transits the gateway of container **908**, the gateway **9081** records **888116** the instruction. The copy instruction interacts **888117** with the registers **909120** of container **909** regarding the rules governing its copying to another location. Once approved **888118** by the governing rules of registers **909120** appended to container **909**, container **909** is duplicated **888118**. As the duplicate container **909** exits the container **908**, the gateway records **888119** the register information **909120** of container **909**, and the registers **909120** of container **909** are altered **888120** by special instructions from gateway **9081** under the rules residing in gateway **9081** regarding ingress and egress and the rules residing in the registers **909120** of container **909** regarding alteration by gateways upon ingress and egress. Passing through independent gateway **707**, the register information **909120** is recorded **888121**, and awaits **888122** data collection or reporting **700, 600.** As container **909** enters container **808**,

the gateway records **888123** the register information **909120** of container **909**, the registers **909120** of **909** are altered **888124** by special instructions from gateway **8081**, operating under the rules as described in the paragraph above, and container **909** takes up residence **888125** within container **808.**

Container **909**, now also logically residing (in addition to its original container residence) within container **808,** commences to interact **888126** with other containers **606** in **808** under the rules governing container interaction within container **808** as received from gateway **8081** upon transiting that gateway, and under the rules of registers **606120, 909120 of** the interacting containers **606, 909**, operating under the rules as described in the paragraph above. Through data collection and reporting **700**, **600**, analysis engine is appraised **888127** of container's **909** new duplicate residence.

Referring now to Fig. **14**, the screen interface of the container editor is shown. This interface is a process wherein input is received by the user using the main menu **78** or drop down menu **1419**, or using an input device to "drag and drop" or click, causing the system **10** to acquire **1409**, edit **1410** or create **1411** a file **1407**, container **1408** or digital content **01,** to search for **1412**, acquire **1413**, edit **1414** or create **1415**, print **1416**, or containerize **1417** a container **100**, to select **1402**, (or by clicking on register), search **1403**, acquire **1404**, edit **1405**, or create a register **1406** to append or detach registers **120** to those containers, to set register values in those registers **120**, to utilize the register editor **125** through **1405** to create new registers, or to **1418** add, detach, acquire a gateway **200** to append or detach to those containers, and utilize the gateway editor **210** through **1418**. (See detailed description referring to Fig. 5)

Referring now to Fig. **15**, the screen interface of the gateway editor is shown. This interface is a process wherein input is received by the user using the main menu **1501** or drop down menu **1513**, or using an input device to "drag and drop" or click, causing the system **10** to search for **1507**, acquire **1508**, edit **1509** create **1510**, print **1511** or containerize **1512** gateways, and causing the system **10** to establish rules by which an individual gateway governs the transiting **1502**, entering **1503**, exiting **1504** of containers and the interaction of containers within its domain **1505**, and external of its domain.**1506**. (See detailed description referring to Fig. **11**).

Referring now to Fig. **16**, the screen interface of the search interface. This interface is a process wherein input is received by the user using the main menu **1625** or drop down menu

1624, or using an input device to "drag and drop" or click, or by entering text, causing the system **10** to select **1615**, search for **1616**, acquire **1617**, edit **1618** create **1619**, print **1620**, containerize **1621** (by accessing the container editor **110)** or insert **1622** digital search strings into the search box **1623** in order to submit that string to the search engine **320**, or causing the system **10** to select **1602**, search for **1603**, acquire **1604**, edit **1605**, create **1612**, containerize **1613** (by accessing the container editor **110)**, or insert **1614** search keys (templates that comprise search scope in geographic range, container level, and specific key words or digital strings), or containerized searches (containers **110**), into the search box **1623** in order to submit that string to the search engine **320** , or causing the system **10** to set a search range by geographic range **1607**, container level **1608**, or acquire **1609**, edit **1610** or create **1611** a scope template. (templates that comprise search scope in geographic range and, container level.) (See detailed description referring to Fig. 6).

Referring now to Fig. **17**, a drawing showing, on an input device or computer screen **24**, in any generic (dashed lines) software application program, a drop-down menu link **1403** on a drop down menu **1402** dropping down from a main menu **1401**, and a free-floating button link **1404**, is shown. When input is received at **1402** or **1403**, the system **10** makes available to the user the containerization process or container editor **110.** When input is received at drop-down menu link **1405** or a button link **1406**, the system **10** makes available to the user the means to enter and interact with this system **10** or this network **201** in any of their aspects. The interfaces **1403, 1404** show a process wherein input is received causing the system **10** to encapsulate content or access the container editor **110**. The link also allows the user to encapsulate the page or file on which he is currently working, without selecting content, and if so desired, without accessing the container editor. The interfaces **1405, 1406** show a process wherein input is received causing the system **10** to access or interact with the system **10** or the network **201**.

The present invention also includes a search engine **320**. Once the key word(s), phrase or digital segment is entered into the search interface **300,** or an offered selection chosen on the menu, it is utilized by the search engine **320** to locate the desired site or data.

The search engine employed may be any industry standard search engine such as Verity "Topic", or Personal Library Software, as used in Dow Jones News Retrieval, or Internet search engines such as Webcrawler, Yahoo, Excite, Infoseek, Alexa or any Internet search engine, or

any new engines to be developed capable of searching for and locating digital segments, whether text, audio, video or graphic.

The present invention also includes an analysis engine **400.** Utilizing rules-based analysis, the analysis engine determines the class of storage medium upon which containers reside, the subsets and supersets by which and in which containers encompass and reside within one another, the routes of access to those containers, the historically successful search parameters by which those containers are accessed based upon the identity of the user accessing the containers, and the grade of access chosen by the user in accessing that container **100**.

Utilizing a pre-programmed sequence of compilation, and inductive, deductive and derivative analysis, the analysis engine manufactures instructions based upon the analysis of the information submitted by the gateways and the search interface, and submits those instructions to the appropriate execution engine **500** in order to create new information containers, content assemblages, storage schemes, access routes, search templates, and gateway instructions, and others, and to provide informed search options through the search interface to the inquiring user.

The present invention also includes an engine editor **510**, that provides a system administrator with a means of editing the operating principles of that search engine, and search template loading in the search interface **300**, a reporting and collection means editor **610**, **710**, governing data reporting **600** and data collection **700** at the gateways **200** as defined by the gateway editor **210** and the register editor **125**, a container editor **110** for creating and modifying containers and appending registers to containers, a register editor **125** for creating and modifying container registers and establishing and adjusting the values therein, container gateways **200** with their own storage **205**, information containers **100** for holding information and container registers for holding information about specific containers and their history on the network.

The present invention also includes an execution engine **300**. Based upon instructions received from the analysis engine **400** utilizing the communication device **26**, the execution engine **500** provides search phrases to the search interface **300** based upon initially received inquiries, relocates containers including their programs, data and registers to other directories, drives, computers, networks on other classes of storage mediums, i.e., tape drive, optical drive, CD-ROM, deletes, copies, moves containers to nest within or encompass other containers on other directories, drives, computers, networks to nest within other containers, alters the class of

storage medium upon which containers reside, the subsets and supersets by which and in which containers encompass and reside within one another, the routes of access to those containers, and the historically successful search parameters by which those containers are accessed based upon the identity of the user accessing the container and the grade of access chosen by the user in accessing that container.

The execution engine **400** fulfills the instructions of the analysis search engine **500**, to create new information containers, content sub and superset assemblages, storage schemes, access routes, search templates, gateway **200** instructions and other system functions. The execution engine includes an editor **510** that provides a system manager with a means of editing the operating principles of that search engine, governing data reporting, data collection **700**, search template loading, gateway instructions, and other functions.

The present invention also includes flat or relational databases **900**, used where, and as required.

The present invention also includes a communication device **26** supporting all operations on a network wide basis.

The present invention also includes a search engine **300** to locate the desired site or data. The present invention also includes databases **900**, flat or relational, to serve the other components of the system as needed and where needed.

The present invention also includes editors, by which the user may alter the governing aspects of the system. Editors include, but are not limited to, a container editor **110**, a register editor **125**, a gateway editor.**210**, an engine editor **510**, a reporting means editor **610**, a search interface **300**, and a collection means editor **710**.

The present invention also includes specific screen interfaces for the editors, as described in Fig. **14**, Fig. **15**. and Fig. **16**.

The present invention also includes a means for this system **10** and network **201 or container editor 110** to be accessed from a menu or button selection within any program, as described in Fig. **17**.

While the present invention has been described with reference to certain preferred embodiments, those skilled in the art will recognize that various modifications may be provided. For example, both analysis engine and execution engine may be duplicated or modified for distribution at various locations and hierarchical positions in the gateway and container system

throughout the network and designed to work in concert. Also, the physical computing infrastructure may be mainframe, mini, client server or other with various network and distributed computing designs, including digitally supported or based physical or public media, and the components of the system 10, as described in Fig. 1 may be physically distributed through space. Even the contents of a single container may be logically referenced but be physically distributed through the network and reside at multiple storage locations. The whole system may be hierarchically nested within other systems to the nth degree. Whole systems may also be encapsulated within containers. A single container may also encompass a single physical media, such as a CD-ROM disk, programmed with the container, gateway and register design. Gateways may be strategically placed on containers at ingress and/or egress points or may be placed strategically throughout the system for optimal collection and reporting output and gateway system control. Also, the loop of gateway data collection and reporting, analysis engine analysis, instruction, and gateway modification, and execution engine operations may be infinitely nested, from the smallest container of two sub-containers to whole networks holding millions of containers and thousands of levels, with analysis itself nested within the multiple levels. Gateways may be established at both logical and physical junctures such as a satellite uplink point. Also, the provision to establish a unique network identity might be designed to include as of yet unknown computer networks as they arise. The analysis and execution engines may operate on a rules-based, fuzzy logic, artificial intelligence, neural net, or other system not yet devised. Other variations upon and modifications to the preferred embodiments are provided for by the present invention, which is limited only by the following claims. Also, the classification scheme of nested containers, while designated by the container creators, may transform, be utilized otherwise, or be wholly discarded according to usage. Also, hardware configurations, such as the use of RAM or hard drives for storage or lasers for communication may assume myriad forms without altering the essential operation of this invention.

WHAT IS CLAIMED IS:

1. An apparatus for transmitting, receiving and manipulating information on a computer system, the apparatus including a plurality of containers, each container being a logically defined data enclosure and comprising:

an information element;

a plurality of registers, the plurality of register forming part of the container, a first register of the plurality of registers for storing a unique container identification value, a second register of the plurality of registers that stores information and evolves according to the relationship, use and interaction of the container with other containers, processes and systems; and

a gateway attached to and forming part of the container, the gateway controlling the interaction of the container with other containers, systems and process.

2. The apparatus of claim 1, wherein the information element is one from the group of text, graphic images, video, audio, a digital pattern, a process, a nested container, bit, natural number and a system.

3. The system of claim 1, wherein the plurality of registers include at least one container history register for storing information regarding past interaction of the container with other container, system or processes, the container history register being modified.

4. The system of claim 1, wherein the plurality of registers include at least one system history register for storing information regarding past interaction of the container with different operating system and network processes.

5. The system of claim 1, wherein the plurality of registers include at least one predefined register, the predefined register being a register associated with an editor for user selection, the predefined register appendable to any container.

6. The system of claim 1, wherein the plurality of registers include a user-created register, the user-created register generated by the user, one or more of which is appendable to any container.

7. The system of claim 1, wherein the plurality of registers include a system-defined register, the system-defined register set, controlled and used by the system, one or more of which is appendable to any container.

8. The system of claim 1, wherein the plurality of registers include at least one register for controlling the relationship of the container with other containers, systems and processes using time as a parameter.

9. The system of claim 8, wherein the plurality of registers include:

an active time register for identifying times at which the container will act upon other containers, processes, systems or gateways;

an passive time register for identifying times at which the container can be acted upon other containers, processes systems, or gateways; and

a neutral time register for identifying times at which the container may interact with other containers.

10. The system of claim 1, wherein the plurality of registers include at least one acquire register for controlling whether the container adds a register or a container from other containers when interacting with them.

11. The system of claim 1, wherein the plurality of registers include at least one register for controlling the relationship of the container with other containers using space as a parameter.

12. The system of claim 11, wherein space refers to the geographic location of a the container.

13. The system of claim 11, wherein space refers to the logical address space of a network in which a container resides.

14. The system of claim 11, wherein the plurality of registers include:

an active space register for identifying space in which the container will act upon other containers, processes, systems or gateways;

an passive space register for identifying from which the container can be acted upon other containers, processes systems, or gateways; and

a neutral time register for identifying space in which the container may interact with other containers.

15. The system of claim 1, wherein the gateway includes means for acting upon another container, the means for acting upon another container using the plurality of register to determine whether and how the container acts upon other containers.

16. The system of claim 1, wherein the gateway includes means for allowing interaction, the means for allowing interaction using the plurality of registers to determine whether and how another container can act upon the container.

17. The system of claim 1, wherein the gateway includes means for gathering information, the means for gathering information recording register information from other containers, systems and processes that interact with the container.

18. The system of claim 1, wherein the gateway includes means for reporting information, the means for reporting information providing register information to other containers, systems and processes that interact with the container.

19. The system of claim 1, wherein the gateway includes an expert system including rules defining the interaction of the container with other containers, systems and processes.

20. A method for creating an interactive information container, the method including the steps of:

forming a container;

selecting an interactive register for the container;

identifying an item for inclusion in a container; and

creating a container element that includes the identified item.

21. The method of claim 20, wherein the step of forming a container further comprising the steps of:

displaying a plurality of container levels;

receiving input from a user selecting one of the displayed container level; and

displaying a container template corresponding to the container level input.

22. The method of claim 20, wherein the step of selecting an interactive register further comprising the steps of:

displaying a list of available registers;

receiving input selecting an available register from the list of available registers;

receiving input values for the selected available register; and

appending the register to the container.

23. The method of claim 20, wherein the step of creating a container element that includes the identified item further comprising the steps of:

providing a data structure as part of the container element;

storing the identified element in the data structure; and

associating the container element with the container.

24. The method of claim 20, wherein the step of forming a container includes the step of providing for the container a gateway that uses the interactive register to control the interaction of the container with other containers, processes, and systems.

25. The method of claim 24, wherein the step of providing a gateway further comprising the steps of:

determining a current gateway for a system upon which the container is being created;

replicating the current gateway to create a new gateway; and

associating the new gateway with the container.

26. The method of claim 24, wherein the step of providing a gateway further comprising the steps of:

determining a register for a system upon which the container is being created;

replicating the determined register to create a new register; and

associating the new register with the container.

27. The method of claim 20, wherein the step of selecting an interactive register further comprising the steps of:

retrieving a list of available registers;

selecting an available register from the list of available registers by the system;

receiving input values for the selected available register from the system; and

appending the register to the container.

28. The method of claim 20, wherein the step of creating a container element that includes the identified item is performed by a system interacting with the container, and further comprising the steps of:

providing a data structure as part of the container element;

storing the identified element in the data structure; and

associating the container element with the container.

29. A method for interacting between a first interactive information container and a second interactive information container, the method including the steps of:

determining identification information for the first container using a first gateway;

determining identification information for the second container using a second gateway;

determining whether the first container can act upon the second container using the first gateway and a register of the first container;

determining whether the second container can be acted upon by the first container using the second gateway and a register of the second container; and

performing the interaction between the first and second containers prescribed by the first gateway and the register of the first container if both the first container can act upon the second container and the second container can be acted upon by the first container.

30. The method for interacting of claim 29, wherein the steps of determining identification information are performed by reading respective identification registers of the first and second containers.

31. The method for interacting of claim 29, further comprising the step of altering a register of the first container and a register of the second container to reflect the interaction between the first container and the second container.

32. The method for interacting of claim 29, further comprising the step of adding registers to the first container based on the registers in the second container and the second gateway.

33. The method for interacting of claim 29, wherein the step of performing also uses the second gateway and the register of the second container to determine the prescribe action to be taken.

34. The method for interacting of claim 29, further comprising the steps of:

determining whether the first container should add an identified register of the second container as a new register of the first container using an acquire register and the first gateway of the first container; and

adding the new register to the first container if it is determined that the new register should be added to the first container.

35. The method for interacting of claim 29, further comprising the step of modifying the first gateway of the first container based on the interaction between the first container and the second container.

36. The method for interacting of claim 35, wherein the step of modifying includes modifying rules of an expert system that forms the first gateway of the first container.

PTO/SB/01 (6–95) (modified)
Approved for use through 10/31/96 OMB 0651-0032
Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

0010/PTO
Rev. 6/95

U.S. Department of Commerce
Patent and Trademark Office

DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION

[X] Declaration Submitted with Initial Filing OR [ ] Declaration Submitted after Initial Filing

Attorney Docket Number	**3726**
First Named Inventor	**Michael De Angelo**
COMPLETE IF KNOWN	
Application Number	**Unknown**
Filing Date	**Even Date Herewith**
Group Art Unit	**Unknown**
Examiner Name	**Unknown**

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

SYSTEM AND METHOD FOR CREATING AND MANIPULATING INFORMATION CONTAINERS WITH DYNAMIC REGISTERS

the specification of which (*Title of the Invention*)

[ ] is attached hereto

OR

[X] was filed on (MM/DD/YYYY) **[01/28/1999]** as United States Application Number or PCT International Application Number **[PCT/US99/01988]** and was amended on (MM/DD/YYYY) [_____] (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37 Code of Federal Regulations. § 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code § 119 (a)-(d) or § 385(b) of any foreign application(s) for patent or inventor's certificate, or § 365 (a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached? YES	NO
			[ ]	[ ]	[ ]
			[ ]	[ ]	[ ]
			[ ]	[ ]	[ ]
			[ ]	[ ]	[ ]
			[ ]	[ ]	[ ]

[ ] Additional foreign application numbers are listed on a supplemental priority sheet attached hereto:

I hereby claim the benefit under Title 35, United States Code § 119(e) of any United States provisional application(s) listed below.

Application Number(s)	Filing Date (MM/DD/YYYY)	[ ] Additional provisional application numbers are listed on a supplemental sheet attached hereto.
60/073,209	**01/30/1998**	

Rev. 04/01/99

I hereby claim the benefit under Title 35, United States Code § 120 of any United States application(s), or § 365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of Title 35, United States Code § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. Parent Application Number	PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number (*if applicable*)
	PCT/US99/01988	**01/28/1999**	

[ ] Additional U.S. or PCT international application numbers are listed on a supplemental priority sheet attached hereto.

As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

Name	Registration Number	Name	Registration Number
Greg T. Sueoka	**33,800**		
James K. Okamoto	**40,110**		

[ ] Additional attorney(s) and/or agent(s) named on a supplemental sheet attached hereto.

Please direct all correspondence to:

Greg T. Sueoka
Fenwick & West LLP
Two Palo Alto Square
Palo Alto, CA 94306
U.S.A.

Telephone **(650) 858-7194** Fax **(650) 494-1417**

I hereby declare that all statements made herein of my 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 that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Name of Sole or First Inventor: [ ] A petition has been filed for this unsigned inventor

Given Name	**Michael**	Middle Initial		Family Name	**De Angelo**	Suffix e.g. Jr.	

Inventor's Signature: Michael De Angelo Date: April 5, 1999

Residence: City	**Santa Barbara**	State	CA	Country	**USA**	Citizenship	

Mailing Address	**1324 J State Street, Suite 290**
Mailing Address	

City	**Santa Barbara**	State	**CA**	Zip	**93101**	Country	**USA**

[ ] Additional inventors are being named on supplemental sheet(s) attached hereto

Rev. 04/01/99

PTO/SB/ 10 (6-95) (modified)
Approved for use through 07/31/96. OMB 0651-0031
Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

VERIFIED STATEMENT CLAIMING SMALL ENTITY STATUS (37 CFR 1.9(f) & 1.27(c))--SMALL BUSINESS CONCERN	Docket Number (Optional): 3726

Applicant or Patentee: Michael De Angelo

Application or Patent No.:

Filing Date or Issue Date:

Title: System And Method For Creating And Manipulating Information Containers With Dynamic Registers

I hereby declare that I am

[ ] the owner of the small business concern identified below:

[X] an official of the small business concern empowered to act on behalf of the concern identified below:

NAME OF SMALL BUSINESS CONCERN Ematrix Corporation

ADDRESS OF SMALL BUSINESS CONCERN 104 West Anapamu, Suite C
Santa Barbara, California 93101

I hereby declare that the above identified small business concern qualifies as a small business concern as defined in 13 CFR 121.12, and reproduced in 37 CFR 1.9(d), for purposes of paying reduced fees to the United States Patent and Trademark Office, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby declare that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention described in:

[X] the specification filed herewith with title as listed above.

[ ] the application identified above.

[ ] the patent identified above.

If the rights held by the above identified small business concern are not exclusive, each individual, concern or organization having rights in the invention must file separate verified statements averring to their status as small entities, and no rights to the invention are held by any person, other than the inventor, who would not qualify as an independent inventor under 37CFR 1.9(c) if that person made the invention, or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d), or a nonprofit organization under 37 CFR 1.9(e).

Each such person, concern or organization having any rights in the invention is listed below:

[X] No such person, concern, or organization exists.

[ ] Each such person, concern or organization is listed below:

Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my 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 that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

NAME OF PERSON SIGNING Michael De Angelo

TITLE OF PERSON IF OTHER THAN OWNER Officer

ADDRESS OF PERSON SIGNING 104 West Anapamu, Suite C, Santa Barbara, California 93101

SIGNATURE Michael De Angelo DATE April 5, 1999

Bib Data Sheet

UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

SERIAL NUMBER	FILING DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
09/284,113	04/07/1999 RULE _	707	2771	3726-US

APPLICANTS
MICHAEL DE ANGELO, SANTA BARBARA, CA UNITED STATES;

** CONTINUING DATA ********** Yes LW
THIS APPLICATION IS A 371 OF PCT/US99/01988 01/28/1999
WHICH CLAIMS BENEFIT OF 60/073,209 01/30/1998

** FOREIGN APPLICATIONS ********** None

IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 04/12/2000

		STATE OR COUNTRY	SHEETS DRAWING	TOTAL CLAIMS	INDEPENDENT CLAIMS
Foreign Priority claimed	☐ yes ☑ no	CA	30	36	3
35 USC 119 (a-d) conditions met	☐ yes ☑ no ☐ Met after Allowance				
Verified and Acknowledged	Examiner's Signature Initials				

ADDRESS

GREG T SUEOKA
FENWICK & WEST
TWO PALO ALTO SQUARE
PALO ALTO ,CA 94306

TITLE
SYSTEM AND METHOD FOR CREATING AND MANIPULATING INFORMATION CONTAINERS WITH DYNAMIC REGISTERS

FILING FEE RECEIVED	FEES: Authority has been given in Paper	
524	No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

DO/EO BIBLIOGRAPHIC DATA ENTRY

SERIAL NUMBER: 09 / 284113
IA NUMBER: PCT/ US99 / 01988
FAMILY NAME: DE ANGELO
GIVEN NAME: MICHAEL
PRIORITY CLAIMED (Y/N): Y
NO BASIC FEE (Y/N): N
ATTORNEY DOCKET NUMBER: 3726 US

RECEIPT DATE: 04 / 07 / 99
IA FILING DATE: 01 / 28 / 99
DELAY WAIVED (Y/N): Y
DEMAND RECEIVED (Y/N): ∓N
PRIORITY DATE: 01 / 30 / 98
US DESIGNATED ONLY (Y/N): N
COUNTRY: USX

CORRESPONDENCE NAME/ADDRESS: CUSTOMER NUMBER: 000000 TELEPHONE 0000000000
FAX 0000000000

NAME: GREG T SUEOKA
FENWICK & WEST
STREET: TWO PALO ALTO SQUARE

CITY: PALO ALTO
STATE/COUNTRY: CA ZIP: 94306
EMAIL:
APPLICATION TITLES:
SYSTEM AND METHOD FOR CREATING AND MANIPULATING
INFORMATION CONTAINERS WITH DYNAMIC REGISTERS

TAB TO LAST POSITION, PUSH SEND

PATENT APPLICATION SERIAL NO. 09/284 113

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

04/12/1999 MCLAYBRO 00000037 09284113

01 FC:967 144.00 OP

03 FC 959 380.00 OP

PTO-1556
(5/87)

PATENT APPLICATION FEE DETERMINATION RECORD
Effective November 10, 1998

Application or Docket Number
09/284 113

CLAIMS AS FILED - PART I

	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA
FOR		
BASIC FEE		
TOTAL CLAIMS	36 minus 20=	* 16
INDEPENDENT CLAIMS	3 minus 3 =	*
MULTIPLE DEPENDENT CLAIM PRESENT		

* If the difference in column 1 is less than zero, enter "0" in column 2

SMALL ENTITY TYPE ☑		OR	OTHER THAN SMALL ENTITY	
RATE	FEE		RATE	FEE
[redacted]	380.00	OR	[redacted]	~~700.00~~
X$ 9=	$144	OR	X$18=	
X39=		OR	X78=	
+130=		OR	+260=	
TOTAL	$524	OR	TOTAL	

CLAIMS AS AMENDED - PART II

AMENDMENT A

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	* 16	Minus	** 36	= —
Independent	* 2	Minus	*** 3	= —
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X39=		OR	X78=	
+130=		OR	+260=	
TOTAL ADDIT. FEE	0	OR	TOTAL ADDIT. FEE	

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X39=		OR	X78=	
+130=		OR	+260=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT C

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X39=		OR	X78=	
+130=		OR	+260=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."
***If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

MULTIPLE DEPENDENT CLAIM FEE CALCULATION SHEET

(FOR USE WITH FORM PTO-875)

SERIAL NO. 09/284,113

FILING DATE

APPLICANT(S)

CLAIMS

	AS FILED		AFTER 1st AMENDMENT		AFTER 2nd AMENDMENT	
	IND.	DEP.	IND.	DEP.	IND.	DEP.
1	1					
2		1				
3		1				
4		1				
5		1				
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8		1				
9		1				
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TOTAL IND.	3					
TOTAL DEP.	33					
TOTAL CLAIMS	36					

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	IND.	DEP.	IND.	DEP.	IND.	DEP.
51						
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99						
100						
TOTAL IND.						
TOTAL DEP.						
TOTAL CLAIMS						

PTO-1360 (3-78)

°MAY BE USED FOR ADDITIONAL CLAIMS OR AMENDMENTS

U.S. DEPARTMENT of COMMERCE
Patent and Trademark Office

DO/EO WORKSHEET

U.S. Appl. No. 09/284113 International Appl. No. US99/01988

Application filed by : ☑ 20 months ☐ 30 months

WIPO PUBLICATION INFORMATION :

Publication No.: WO 99/39285 Publication Language : English

Publication Date : 8/5/99 Not Published : ☐ U.S. only designated ☐ EP request

Screening Done by : Barbara Campbell National Stage Processing (703) 305-3631

INTERNATIONAL APPLICATION PAPERS IN THE APPLICATION FILE :

- ☑ International Application *(RECORD COPY)*
- ☐ Article 19 Amendments
- ☐ PCT/IB/331
- ☐ PCT/IPEA/409 IPER (PCT/IPEA/416 on front)
- ☐ Annexes to 409
- ☐ Priority Document (s) No. ____
- ☐ International Appl. on Double Sided Paper *(COPIES MADE)*
- ☐ Request form PCT/RO/101
- ☑ PCT/ISA/210 - Search Report
- ☐ Search Report References
- ☐ Other : ____

RECEIPTS FROM THE APPLICANT *(other than checked above) :*

- ☑ Baisc National Fee *(paid or authorized to charge)*
  - ☑ Description
  - ☑ Claims
  - ☑ Words in the Drawing Figure(s)
  - ☐ Article 19 Amendments
  - ☐ Annexes to 409 ☐ entered ☐ not entered
- ☑ Oath/ Declaration (executed)
- ☐ DNA Diskette
- ☐ Preliminary Amendment(s) Filed on : ____ ____
- ☐ Information Disclosure Statement(s) Filed on : ____ ____
- ☑ Assignment Document
- ☑ Power of Attorney/ Change of Address
- ☐ Substitute Specification Filed on : ____ ____
- ☑ Verified Small Status Claim *(If submitted after Receipt Date - Is it timely? Y/N)*
- ☐ Other : ____

NOTES : Used IA

U.S.C. 371 - Receipt of Request (PTO-1390)	April 7, 1999
te Acceptable Oath/ Declaration Received	"
e Complete 35 U.S.C. 371	"
(e) Date	"
e of Completion of DO/ EO 906 - Notification of Missing 102(e) Requirements	
e of Completion of DO/ EO 907 - Notification of Acceptance for 102(e) Date	
e of Completion of DO/ EO 911 - Application Accepted Under 35 U.S.C. 111	
e of Completion of DO/ EO 905 - Notification of Missing Requirements	
e of Completion of DO/ EO 916 - Notification of Defective Response	
e of Completion of DO/ EO 903 - Notification of Acceptance	
e of Completion of DO/ EO 909 - Notification of Abandonment	Jan. 12, 2000

PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

Assistant Commissioner for Patents
United States Patent and Trademark Office
Box PCT
Washington, D.C.20231
ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 13 December 1999 (13.12.99)	
International application No. PCT/US99/01988	**Applicant's or agent's file reference** 3726PCT
International filing date (day/month/year) 28 January 1999 (28.01.99)	**Priority date** (day/month/year) 30 January 1998 (30.01.98)
Applicant DE ANGELO, Michael	

1. The designated Office is hereby notified of its election made:

[X] in the demand filed with the International Preliminary Examining Authority on:

23 July 1999 (23.07.99)

[ ] in a notice effecting later election filed with the International Bureau on:

2. The election [X] was

[ ] was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO **34, chemin des Colombettes** **1211 Geneva 20, Switzerland**	Authorized officer Antonia Muller
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

Form PCT/IB/331 (July 1992)

3008028

PATENT COOPERATION TREATY

PCT

From the INTERNATIONAL BUREAU

To:

SUEOKA, Greg, T.
Fenwick & West LLP
Two Palo Alto Square
Palo Alto, CA 94306
ÉTATS-UNIS D'AMÉRIQUE

INFORMATION CONCERNING ELECTED OFFICES NOTIFIED OF THEIR ELECTION

(PCT Rule 61.3)

Date of mailing (day/month/year) 13 December 1999 (13.12.99)	
Applicant's or agent's file reference 3726PCT	**IMPORTANT INFORMATION**
International application No. PCT/US99/01988	**International filing date** (day/month/year) 28 January 1999 (28.01.99)
Priority date (day/month/year) 30 January 1998 (30.01.98)	
Applicant EMATRIX CORPORATION et al	

1. The applicant is hereby informed that the International Bureau has, according to Article 31(7), notified each of the following Offices of its election:

   AP :GH,GM,KE,LS,MW,SD,SZ,UG,ZW
   EP :AT,BE,CH,CY,DE,DK,ES,FI,FR,GB,GR,IE,IT,LU,MC,NL,PT,SE
   National :AU,BG,BR,CA,CN,CZ,DE,IL,JP,KP,KR,MN,NO,NZ,PL,RO,RU,SE,SK,US

2. The following Offices have waived the requirement for the notification of their election; the notification will be sent to them by the International Bureau only upon their request:

   EA :AM,AZ,BY,KG,KZ,MD,RU,TJ,TM
   OA :BF,BJ,CF,CG,CI,CM,GA,GN,GW,ML,MR,NE,SN,TD,TG
   National :AL,AM,AT,AZ,BA,BB,BY,CH,CU,DK,EE,ES,FI,GB,GD,GE,GH,GM,HR,HU,ID,
   IN,IS,KE,KG,KZ,LC,LK,LR,LS,LT,LU,LV,MD,MG,MK,MW,MX,PT,SD,SG,SI,SL,TJ,TM,
   TR,TT,UA,UG,UZ,VN,YU,ZW

3. The applicant is reminded that he must enter the "national phase" **before the expiration of 30 months from the priority date** before each of the Offices listed above. This must be done by paying the national fee(s) and furnishing , if prescribed, a translation of the international application (Article 39(1)(a)), as well as, where applicable, by furnishing a translation of any annexes of the international preliminary examination report (Article 36(3)(b) and Rule 74.1).

   Some offices have fixed time limits expiring later than the above-mentioned time limit. For detailed information about the applicable time limits and the acts to be performed upon entry into the national phase before a particular Office, see Volume II of the PCT Applicant's Guide.

   The entry into the European regional phase is postponed **until 31 months from the priority date** for all States designated for the purposes of obtaining a European patent.

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No. (41-22) 740.14.35

Authorized officer:
Antonia Muller

Telephone No. (41-22) 338.83.38

M·H 5040 09/284113

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 3726 PCT	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/US99/01988	International filing date *(day/month/year)* 28 JANUARY 1999	Priority date *(day/month/year)* 30 JANUARY 1998
International Patent Classification (IPC) or national classification and IPC Please See Supplemental Sheet.		
Applicant EMATRIX CORPORATION		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 4 sheets.

   ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority. (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 0 sheets.

3. This report contains indications relating to the following items:

   I ☒ Basis of the report

   II ☐ Priority

   III ☐ Non-establishment of report with regard to novelty, inventive step or industrial applicability

   IV ☐ Lack of unity of invention

   V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

   VI ☐ Certain documents cited

   VII ☐ Certain defects in the international application

   VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
23 JULY 1999	26 NOVEMBER 1999
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer RUAY LIAN HO for Telephone No. (703) 305-3834

Form PCT/IPEA/409 (cover sheet) (January 1994) ☆

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/US99/01988

I. Basis of the report

1. This report has been drawn on the basis of *(Substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments)*:

[X] the international application as originally filed.

[X] the description, pages (See Attached) , as originally filed.
pages _____ , filed with the demand.
pages _____ , filed with the letter of _____.
pages _____ , filed with the letter of _____.

[X] the claims, Nos. (See Attached) , as originally filed.
Nos. _____ , as amended under Article 19.
Nos. _____ , filed with the demand.
Nos. _____ , filed with the letter of _____.
Nos. _____ , filed with the letter of _____.

[X] the drawings, sheets/~~fig~~ (See Attached) , as originally filed.
sheets/~~fig~~ _____ , filed with the demand.
sheets/~~fig~~ _____ , filed with the letter of _____.
sheets/~~fig~~ _____ , filed with the letter of _____.

2. The amendments have resulted in the cancellation of:

[X] the description, pages NONE.

[X] the claims, Nos. NONE.

[X] the drawings, sheets/~~fig~~ NONE.

[ ] This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the ~~Supplemental Box~~ Additional observations below (Rule 70.2(c)).

Additional observations, if necessary:
ONE

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. STATEMENT

Novelty (N)	Claims	1-36	YES
	Claims	NONE	NO
Inventive Step (IS)	Claims	1-36	YES
	Claims	NONE	NO
Industrial Applicability (IA)	Claims	1-36	YES
	Claims	NONE	NO

2. CITATIONS AND EXPLANATIONS

Claims 1-36 meet the criteria set out in PCT Article 33(2)-(4), because the prior art does not teach or fairly suggest by any prior art.

The claimed features, such as a plurality of registers with containers and a gateway attached to and forming part of the container, are not disclosed, taught or suggested by any prior art.

---------- NEW CITATIONS ----------

NONE

Supplemental Box
(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

CLASSIFICATION:

The International Patent Classification (IPC) and/or the National classification are as listed below:
IPC(6): G06F 17/30, 3/14 and US Cl.: 707/1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 100, 101, 102, 103, 104, 200, 201, 202, 203, 204, 205, 206; 709/202, 203, 218, 228; 713/200, 201

I. BASIS OF REPORT:

This report has been drawn on the basis of the description,
pages, 1-42, as originally filed.
pages, NONE, filed with the demand.
and additional amendments:
NONE

This report has been drawn on the basis of the claims,
numbers, 1-36, as originally filed.
numbers, NONE, as amended under Article 19.
numbers, NONE, filed with the demand.
and additional amendments:
NONE

This report has been drawn on the basis of the drawings,
sheets, 1-30, as originally filed.
sheets, NONE, filed with the demand.
and additional amendments:
NONE

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PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 :
G06F 17/30, 3/14

A1

(11) International Publication Number: WO 99/39285

(43) International Publication Date: 5 August 1999 (05.08.99)

(21) International Application Number: PCT/US99/01988

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(30) Priority Data:
60/073,209 30 January 1998 (30.01.98) US

(71) Applicant *(for all designated States except US)*: EMATRIX CORPORATION [US/US]; 104 West Anapamu, Santa Barbara, CA 93101 (US).

(72) Inventor; and
(75) Inventor/Applicant *(for US only)*: DE ANGELO, Michael [US/US]; Suite 290, 1324 J State Street, Santa Barbara, CA 93101 (US).

(74) Agents: SUEOKA, Greg, T. et al.; Fenwick & West LLP, Two Palo Alto Square, Palo Alto, CA 94306 (US).

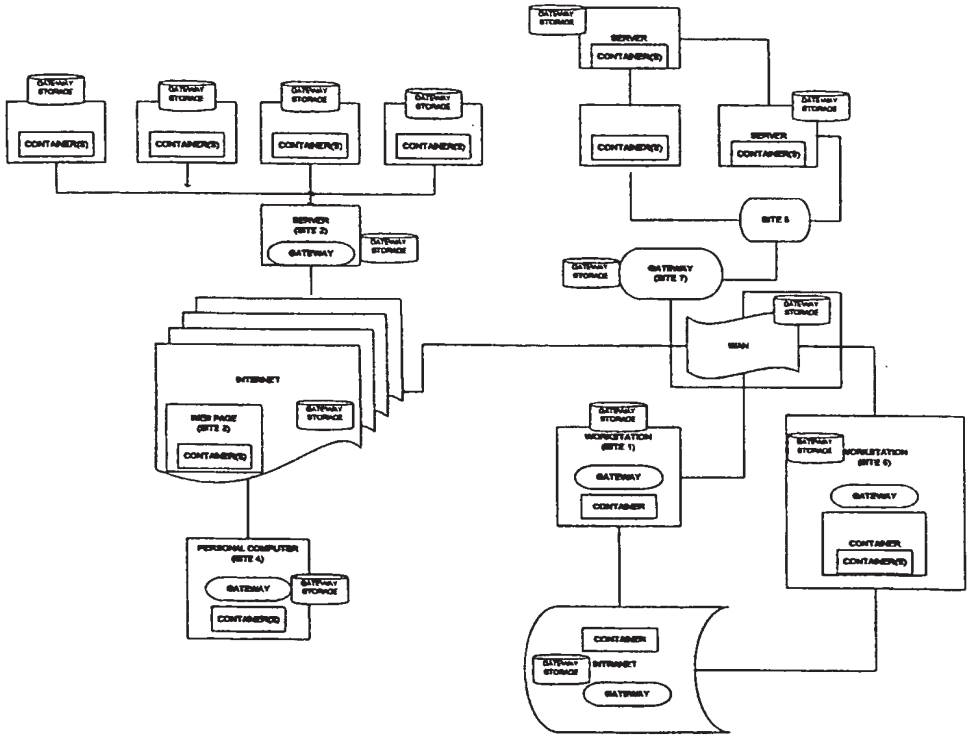
(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, 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).

Published
With international search report.
Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

(54) Title: SYSTEM AND METHOD FOR CREATING AND MANIPULATING INFORMATION CONTAINERS WITH DYNAMIC REGISTERS

(57) Abstract

A system for creating and manipulating information containers with dynamic registers on a multi–user computer system, or computer network comprises an interactive information container, a container editor, a search interface, a user profile, system–wide hierarchical container gateways (site 7), interactive and evolving container registers, a data collection means, a data reporting means, an analysis engine with editor, an executing engine with editor, and a means of communicating with other computers, computer networks, or digital–based public or published media. The container editor provides an authoring user with the capacity to encapsulate any information component such as a file, set, database, network, event or process, and a set of parameters of multiple container registers to govern the interaction of that container with other containers or processes. The container registers include system–defined, system–alterable, user–defined and user–alterable registers.



INTERNATIONAL SEARCH REPORT

International application No. PCT/US99/01988

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) :G06F 17/30, 3/14

US CL :Please See Extra Sheet.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : Please See Extra Sheet.

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

MICROSOFT COMPUTER DICTIONARY

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

APS, PRO-QUEST

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,768,510 A (GISH et al) 16 June 1998, column 5.	1-36
A	US 5,848,246 A (GISH et al) 08 December 1998, column 5.	1-36

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
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Date of the actual completion of the international search

03 JUNE 1999

Date of mailing of the international search report

15 JUN 1999

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INTERNATIONAL SEARCH REPORT

International application No. PCT/US99/01988

A. CLASSIFICATION OF SUBJECT MATTER:
US CL :

707/1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 100, 101, 102, 103, 104, 200, 201, 202, 203, 204, 205, 206; 709/202, 203, 218, 228; 713/200, 201

B. FIELDS SEARCHED
Minimum documentation searched
Classification System: U.S.

707/1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 100, 101, 102, 103, 104, 200, 201, 202, 203, 204, 205, 206; 709/202, 203, 218, 228; 713/200, 201

CORRECTED VERSION*

09/284113

2771

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International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : G06F 17/30, 3/14

A1

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(74) Agents: SUEOKA, Greg, T. et al.; Fenwick & West LLP, Two Palo Alto Square, Palo Alto, CA 94306 (US).

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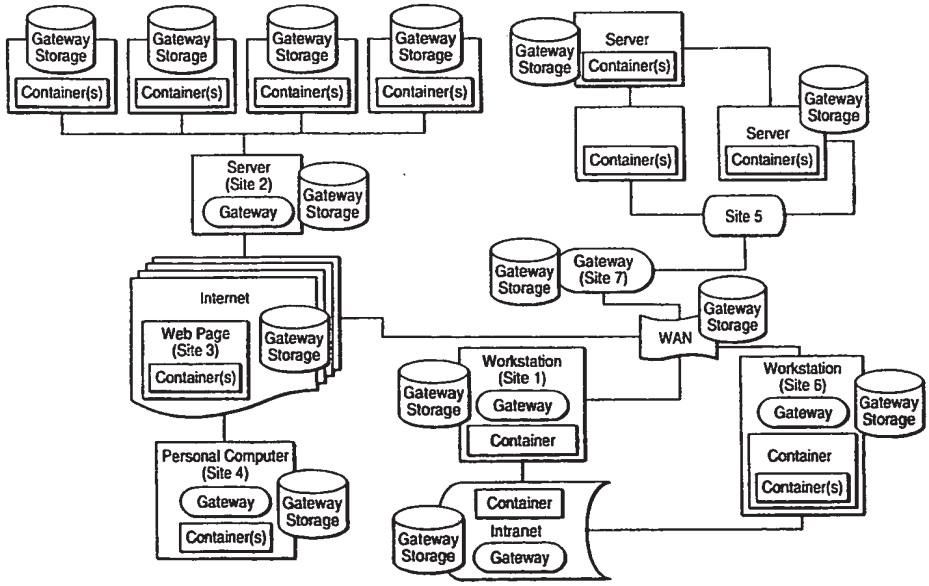
(57) Abstract

A system for creating and manipulating information containers with dynamic registers on a multi–user computer system, or computer network comprises an interactive information container, a container editor, a search interface, a user profile, system–wide hierarchical container gateways (site 7), interactive and evolving container registers, a data collection means, a data reporting means, an analysis engine with editor, an executing engine with editor, and a means of communicating with other computers, computer networks, or digital–based public or published media. The container editor provides an authoring user with the capacity to encapsulate any information component such as a file, set, database, network, event or process, and a set of parameters of multiple container registers to govern the interaction of that container with other containers or processes. The container registers include system–defined, system–alterable, user–defined and user–alterable registers.



*(Referred to in PCT Gazette No. 51/1999, Section II)

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SYSTEM AND METHOD FOR CREATING AND MANIPULATING INFORMATION CONTAINERS WITH DYNAMIC REGISTERS

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates generally to computer systems in a multi-user mainframe or mini computer system, a client server network, or in local, wide area or public networks, and in particular, to computer networks for creating and manipulating information containers with dynamic interactive registers in a computer, media or publishing network, in order to manufacture information on, upgrade the utility of, and develop intelligence in, a computer network by offering the means to create and manipulate information containers with dynamic registers.

2. Description of the Related Art

In the present day, querying and usage of information resources on a computer network is accomplished by individuals directing a search effort by submitting key words or phrases to be compared to those key words or phrases contained in the content or description of that information resource, with indices and contents residing in a fixed location unchanging except by human input. Similarly, the class of storage medium upon which information resides, it class and subclass organizational structures, and its routes of access all remain fundamentally unaltered by ongoing user queries and usage. Only the direct and intended intervention of the owner of the information content or computer hosting site changes these parameters, normally accomplished manually by programmers or systems operators at their own discretion or the discretion of the site owner.

There exists currently in the art a limited means of interfacing a computer user with the information available on computer networks such as the world wide web. Primarily, these means are search engines. Search engines query thousands or tens of thousands of index pages per second to suggest the location of information while the user waits. While factual information can be accessed, the more complex, particular or subtle the inquiry, the more branches and sub-branches need to be explored in a time consuming fashion in order to have any chance of success. Further, there are no such automatic devices that reconstruct the information into more useful groupings or makes it more accessible according to factors attached to the content by the content creator such as the space or time relevancy of its content,

or factors attached to the content by the system's compilation and analysis of the accumulated biography of that specific content's readership.

The utility of wide area and public computer networks is thus greatly limited by the static information model and infrastructure upon which those networks operate.

One problem is that on a wide area or public network, specific content such as a document remains inert, except by the direct intervention of users, and is modified neither by patterns or history of usage on the network, or the existence of other content on the network.

Another problem is that content does not reside in an information infrastructure conducive to reconstruction by expert rule-based, fuzzy logic, or artificial intelligence based systems. Neither the intelligence of other information users nor the expert intelligence of an observant network computer system can be utilized in constructing, or re-constructing information resources. Where content resides in a fixed location and structure, "information" becomes something defined by the mind of the information provider rather than the mind of the information user, where the actual construction and utility of information exists. Information remains, like raw ore, in an unrefined state.

Another problem is that the class of storage medium upon which data resides cannot be system or user managed and altered according to the actual recorded and analyzed hierarchically graded usage of any given information resource residing on that storage medium except by statistical analysis of universal, undefined "hits" or visits to that page or site.

Another problem is that information resource groupings remain fixed on the given storage medium location according to the original installation by the resource author, not altered according to the actual recorded and analyzed hierarchically graded usage of that given information resource. Content itself remains inert, with no possibility of evolution.

A further problem with the prior art is that neither the search templates generated by those more knowledgeable in a given field of inquiry, nor the search strategies historically determined to be successful, or system-constructed according to analyses of search strategies historically determined to be successful, are available to inquiring users. A search template is here defined as one or more text phrases, graphics, video or audio bits, alone or in any defined outline or relational format designed to accomplish an inquiry. Internet or wide area network search may return dozens of briefs to a keyword or key phrase inquiry sometimes requiring the

time-consuming examination of multiple information resources or locations, with no historical relation to the success of any given search strategy.

A further problem is that there is limited means to add to, subtract from, or alter the information content of documents, databases, or sites without communicating with the owners or operators of those information resources, e.g., contacting, obtaining permission, negotiating and manually altering, adding or subtracting content. Additionally, once so altered, there is not a means to derive a proportionate value, and thereby a proportionate royalty as the information is used.

A final problem is that the physical residence of a body of data or its cyberspace location may not serve its largest body of users in the most expedient manner of access. Neither the expert intelligence of other information users nor the expert intelligence of an observant computer system is presently utilized by inherent network intelligence to analyze, re-design and construct access routes to information medium except by statistical analysis of universal, undefined "hits" or visits to that page or site.

Therefore, there is a need for a system and methods for creating and manipulating information containers with dynamic interactive registers defining more comprehensive information about contained content in a computer, media or publishing network, in order to manufacture information on, upgrade the utility of, and develop intelligence in, a computer network by providing a searching user the means to utilize the searches of other users or the historically determined and compiled searches of the system, a means to containerize information with multiple registers governing the interaction of that container, a means to re-classify the storage medium and location of information resources resident on the network, a means to allow the reconstruction of content into more useful formations, and a means to reconstruct the access routes to that information.

SUMMARY OF THE INVENTION

The present invention is a system and methods for manufacturing information on, upgrading the utility of, and developing intelligence in, a computer or digital network, local, wide area, public, corporate, or digital-based, supported, or enhanced physical media form or public or published media, or other by offering the means to create and manipulate information containers with dynamic registers.

The system of the present invention comprises an input device, an output device, a processor, a memory unit, a data storage device, and a means of communicating with other computers, network of computers, or digital-based, supported or enhanced physical media forms or public or published media. These components are preferably coupled by a bus and configured for multi-media presentation, but may also be distributed throughout a network according to the requirements of highest and best use.

The memory unit advantageously includes an information container made interactive with dynamic registers, a container editor, a search interface, a search engine, a search engine editor, system-wide hierarchical container gateways interacting with dynamic container registers, a gateway editor, a register editor, a data collection means with editor, a data reporting means with editor, an analysis engine with editor, an executing engine with editor, databases, and a means of communicating with other computers as above. These components may reside in a distributed fashion in any configuration on multiple computer systems or networks.

The present invention advantageously provides a container editor for creating containers, containerizing storing information in containers and defining and altering container registers. A container is an interactive nestable logical domain configurable as both subset and superset, including a minimum set of attributes coded into dynamic interactive evolving registers, containing any information component, digital code, file, search string, set, database, network, event or process, and maintaining a unique network-wide lifelong identity.

The container editor allows the authoring user to create containers and encapsulate any information component in a container with registers, establishing a unique network lifelong identity, characteristics, and parameters and rules of interaction. The authoring user defines and sets the register with a starting counter and/or mathematical description by utilizing menus and simple graphing tools or other tools appropriate to that particular register. The registers determine the interaction of that container with other containers, system components, system gateways, events and processes on the computer network.

Containers and registers, upon creation, may be universal or class-specific. The editor provides the means to create system-defined registers as well as the means to create other registers. The editor enables the register values to be set by the user or by the system, in which case the register value may be fixed or alterable by the user upon creation. Register values are

evolving or non-evolving for the duration of the life of the container on the system. Evolving registers may change through time, space, interaction, system history and other means.

System-defined registers comprise: (1) an historical container register, logging the history of the interaction of that container with other containers, events and processes on the network, (2) an historical system register, logging the history of pertinent critical and processes on the network, (3) a point register accumulating points based upon a hierarchically rated history of usage, (4) an identity register maintaining a unique network wide identification and access location for a given container, (5) a brokerage register maintaining a record of ownership percentage and economic values, and others.

The present invention also includes user-defined registers. User defined registers may be created wholly by the user and assigned a starting value, or simply assigned value by the user when that register is pre-existent in the system or acquired from another user, and then appended to any information container, or detached from any container.

Exemplary user-defined registers comprise (1) a report register, setting trigger levels for report sequences, content determination and delivery target, (2) a triple time register, consisting of a range, map, graph, list, curve or other representation designating time relevance, actively, assigning the time characteristics by which that container will act upon another container or process, passively, assigning the time characteristics by which that container be acted upon by another container or process, and neutrally, assigning the time characteristics by which that container will interact with another container or process, (3) a triple space register, consisting of a range, map, graph, list, curve or other representation designating the domain and determinants of space relevance, actively, assigning the space characteristics by which that content will act upon another container or process, passively, assigning the space, characteristics by which that content will be acted upon by another container or process, and neutrally, assigning the space characteristics by which that container will interact with another container or process, (4) a domain of influence register, determining the set, class and range of containers upon which that container will act, (5) a domain of receptivity register, determining the set, class and range of containers allowed to act upon that container, (6) a domain of neutrality register, determining the set, class and range of containers with which that container will interact, (7) a domain of containment register, determining the set, class and range of containers which that container may logically encompass, (8) a domain

of inclusion register, determining the set, class and range of containers by which that container might be encompassed, (9) an ownership register, recording the original ownership of that containers, (10) a proportionate ownership register, determining the proportionate ownership of that containers, (11) a creator profile register, describing the creator or creators of that container, (12) an ownership address register, maintaining the address of the creator or creators of that container, (13) a value register, assigning a monetary or credit value to that container, and (14) other registers created by users or the system.

Containers are nestable and configurable as both subset and superset and may be designated hierarchically according to inclusive range, such as image component, image, image file, image collection, image database, or if text, text fragment, sentence, paragraph, page, document, document collection, document, database, document library, or any arrangement wherein containers are defined as increasingly inclusive sets of sets of digital components.

The present invention also includes, structurally integrated into each container, or strategically placed within a network at container transit points, unique gateways, nestable in a hierarchical or set and class network scheme. Gateways gather and store container register information according to system-defined, system-generated, or user determined rules as containers exit and enter one another, governing how containers system processes or system components interact within the domain of that container, or after exiting and entering that container, and governing how containers, system components and system processes interact with that unique gateway, including how data collection and reporting is managed at that gateway. The gateways record the register information of internally nested sub and superset containers, transient containers and search templates, including the grade of access requested, and, acting as an agent of an analysis engine and execution engine, govern the traffic and interaction of those containers and searches with the information resource of which they are the gateway and other gateways. The gateways' record of internally nested and transient container registers, and its own interaction with those containers, is made available, according to a rules-based determination, to the process of the analysis engine by the data collection and/or data reporting means.

The present invention also includes a means of data storage at any given gateway.

The present invention also includes a data collection means, residing anywhere on the network, or located at one or more hierarchical levels of nestable container gateways for gathering information from other gateways and analysis engines according to system, system-generated or user determined rules. The data collection means manages the gathering of data regarding network-wide user choices, usage and information about information, by collecting it from container and gateway registers as those containers and gateways pass through one another. Such statistics as frequency, pattern, and range of time, space and logical class is collected as directed by the analysis engine, and made that data available to the analysis engine by advancing it directly to the analysis engine, or incrementally, to the next greater hierarchically inclusive collection level. The rules of data collection may be manually set or altered by the system manager, or set by the system and altered by the system in its evolutionary capacity.

The present invention also includes a data reporting means, located at one or more hierarchical levels of nestable container gateways for submitting information to other gateways and analysis engines according to system, system-generated or user determined rules. The data reporting means manages the sending of data from the registers, gateways and search templates in a frequency, pattern, and range of time, space and logical class as directed by the analysis engine, and makes that data available to the analysis engine by advancing it directly to the analysis engine, or incrementally to the next greater hierarchically inclusive reporting level. The rules of data collection may be manually set or altered by the system manager, or set by the system and altered by the system in its evolutionary capacity. The data reporting means may be established to work in concert, in redundancy, or in contiguous or interwoven threads of hierarchically nested containers.

The present invention also includes an analysis engine that receives, reports and collects information regarding the interaction of user searches with gateways and container registers, as well as container registers with other container registers, and container registers with gateways. The analysis engine analyzes the information submitted by the gateways and instructs the execution engine to create new information containers, content assemblages, storage schemes, access routes, search templates, and gateway instructions. The analysis engine includes an editor that provides a system manager with a means of editing the operating

principles of that engine, governing data reporting, data collection, search template loading, gateway instructions, and other.

The present invention also includes an execution engine, fulfilling the instructions of the analysis engine, to create new information containers, content sun and superset assemblages, storage schemes, access routes, search templates, and gateway instructions. The execution engine includes an editor that provides a system manager with a means of editing the operating principles of that engine, governing data reporting, data collection, search template loading, gateway instructions, and other.

The present invention also includes a search interface or browser. The search interface provides a means for a searching user to submit, record and access search streams or phrases generated historically by himself, other users, or the system. Search streams or phrases of other users are those that have been historically determined by the system to have the highest probability of utility to the searching user. Search streams or phrases generated by the system are those that have been constructed by the system through the analysis engine based upon the same criteria.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a block diagram of a first and preferred embodiment of a system constructed according to the present invention.

FIG. **2 A** is block diagram of a preferred embodiment of the memory unit.

FIG. **2 B** is an exemplary embodiment of a computer network showing computer servers, personal computers, workstations, Internet, Wide Area Networks, Intranets in relationship with containers and gateways.

FIG. **2B1** is an exemplary embodiment of a computer network showing computer servers, personal computers, workstations, Internet, Wide Area Networks, Intranets in relationship with containers and gateways and exemplary locations of gateway storage in proximity to one or more of the various sites.

FIGS. **2C** through **2H** are exemplary embodiments in block diagram form of computer network components showing a possible placement of nested containers, computer servers, gateways, and the software components named in Fig. 2 A on a network.

FIG. **3A** is a graphical representation for one embodiment of a container having a plurality of containers nested within that container.

FIG. **3C** is a drawing showing elements that might be logically encapsulated by a container. FIG. **4** is a drawing of an information container showing a gateway and registers logically

encapsulating containerized elements.

FIG. **5** is a flowchart showing a preferred method for the containerization process and container editor operating on the communication device.

FIG. **6** is a flowchart showing a preferred method for searching for containers within a node.

FIG. **7** is a flowchart further showing a preferred method for searching for containers over one or more gateways.

FIG. **8** is a flowchart showing a method for performing the data collection and reporting on containers.

FIG. **9** is a flowchart showing the operation of the analysis engine.

FIG. **10** is a flowchart showing the operation of the execution engine.

FIG. **11** is a flowchart showing the operation of the gateway editor.

FIG. **12** is a flowchart showing the operation of the gateway process.

FIG. **13A** is a drawing showing an example of nested containers, gateways, registers, analysis engines and an execution engine prior to container reconstruction as depicted in 13 B, 13 C and 13 D.

FIG. **13B** is a drawing showing the reconstructed nested containers of Figure 13A.

FIG. **13C** is a drawing showing further reconstruction of nested containers, with a container relocated to reside within another container.

FIG. **13D** is a drawing showing a flowchart of the reconstruction process

FIG. **14** is a drawing showing the screen interface of the container editor.

FIG. **15** is a drawing showing the screen interface of the gateway editor.

FIG. **16** is a drawing showing the screen interface of the search interface.

FIG. **17** is a drawing of a generic application program showing a drop-down menu link, and a button link to the containerization process or container editor.

DESCRIPTION OF THE PREFERRED EMBODIMENT

THE SYSTEM

Referring now to FIG. 1, a preferred embodiment of a system **10** for creating and manipulating information containers with dynamic interactive registers in a computer, media, or publishing network **201** in order to manufacture information on, upgrade the utility of, and develop intelligence in that network **201**, is shown. The system **10** preferably comprises an input device **24**, an output device **16**, a processor **18**, a memory unit **22**, a data storage device **20**, and a communication device **26** operating on a network **201**. The input device **24**, an output device **16**, a processor **18**, a memory unit **22**, a data storage device **20**, are preferably coupled together by a bus **12** in a von Neumann architecture. Those skilled in the art will realize that these components **24**, **16**, **18**, **22**, **20**, and **26** may be coupled together according to various other computer architectures including any physical distribution of components linked together by the communication device **26** without departing from the spirit or scope of the present invention, and may be infinitely nested or chained, both as computer systems within a network **202**, and as networks within networks **201**.

The output device **16** preferably comprises a computer monitor for displaying high-resolution graphics and speakers for outputting high fidelity audio signals. The output device **16** is used to display various user interfaces **110**, **125**, **210**, **300**, **510**, **610**, **710**, as will be described below, for searching for and containerizing information, and editing the container gateways, containers, container registers, the data reporting means and the data collection means, and the search, analysis and execution engines. The author uses the input device **24** to manipulate icons, text, charts or graphs, or to select objects or text, in the process of packaging, searching or editing in a conventional manner such as in the Macintosh of Windows operating systems.

The processor **18** preferably executes programmed instruction steps, generates commands, stores data and analyzes data configurations according to programmed instruction steps that are stored in the memory unit **22** and in the data storage device **20**. The processor **22** is preferably a microprocessor such as the Motorola 680(x)0, the Intel 80(x)86 or Pentium, Pentium II, and successors, or processors made by AMD, or Cyrix CPU of the any class.

The memory unit **22** is preferably a predetermined amount of dynamic random access memory, a read-only memory, or both. The memory unit **22** stores data, operating systems,

and programmed instructions steps, and manages the operations of all hardware and software components in the system **10** and on the network **201**, utilizing the communication device **26** whenever necessary or expeditious to link multiple computer systems **202** within the network **201.**

The data storage device **20** is preferably a disk storage device for storing data and programmed instruction steps. In the exemplary embodiment, the data storage device **20** is a hard disk drive. Historical recordings of network usage are stored on distributed and centralized data storage devices **20**.

The preferred embodiment of the input device **24** comprises a keyboard, microphone, and mouse type controller. Data and commands to the system **10** are input through the input device **24**.

The present invention also includes a communication device **26**. The communication device **26** underlies and sustains the operations of, referring now also to Fig **2** the analysis **400** and execution **500** engines, the data reporting **600** and collection **700** means, the container editor **110,** the search interface **300,** and the search engine **320,** providing the means to search, access, move, copy, utilize or otherwise perform operations with and on data. The communication device **26** utilizes one or more of the following technologies: modem, infrared, microwave, laser, photons, electrons, wave phenomena, cellular carrier, satellite, laser, router hub, direct cabling, physical transport, radio, broadcast or cable TV or other to communicate with other computers, digital-supported television, computer networks, or digital-based or supported public or published media, or physical media forms, on any a local, wide area, public, or any computer-based computer supported, or computer interfaced network, including but not limited to the Internet. It also allows for the functioning and distribution of any container **100** or container component herein described to reside anywhere on any computer system in any configuration on that local, wide area, public, or corporate computer-based or computer related network, or digital-based or supported media form.

Referring now to Figure **2 A**, a preferred embodiment of the memory unit **22** is shown. The memory unit includes: an interactive information container **100**, a container editor **110**, container registers **120**, a container register editor **125**, system-wide hierarchical container gateways **200**, gateway storage **205**, gateway editors **210**, engine editors **510**, a search interface **300**, search engine **320**, analysis engine **400**, execution engine **500**, a data reporting

module, **600**, a data reporting editor **610**, a data collection module **700**, a data collection editor **710**, screen interfaces (GUI's) **936**, menu or access buttons from generic computer programs **937**, and databases **900**, all residing in memory optimized between a data storage means **20** such as magnetic, optical, laser, or other fixed storage, and a memory means **22** such as RAM. The memory unit **22** functions by operating on communications network **12** with a communication device **26** on multiple computer systems **202** within the network **201**. These components will be described first briefly in the following paragraphs, then in more detail with reference to Figures 3 A through 17.

Those skilled in the art will realize that these components might also be stored in contiguous blocks of memory, and that software components or portions thereof may reside in the memory unit **22** or the data storage means **20.**

The present invention includes information containers **100** as noted above. The information container **100** is a logically defined data enclosure which encapsulates any element or digital segment (text, graphic, photograph, audio, video, or other), or set of digital segments, or referring now to FIG. **3 C,** any system component or process, or other containers or sets of containers. A container **100** at minimum includes in its construction a logically encapsulated portion of cyberspace, a register and a gateway. A container **100** at minimum encapsulates a single digital bit, a single natural number or the logical description of another container, and at maximum all defined cyberspace, existing, growing and to be discovered, including but not limited to all containers, defined and to be defined in cyberspace. A container **100** contains the code to enable it to interact with the components enumerated in 2 A, and to reconstruct itself internally and manage itself on the network **201.**

The container **100** also includes container registers **120.** Container registers **120** are interactive dynamic values appended to the logical enclosure of an information container **100,** and serve to govern the interaction of that container **100** with other containers **100,** container gateways **200** and the system **10,** and to record the historical interaction of that container **100** on the system **10.** Container registers **120** may be values alone or contain code to establish certain parameters in interaction with other containers **100** or gateways **200.**

The present invention also includes container gateways **200.** Container gateways **200** are logically defined gateways residing both on containers **100** and independently in the

system **10**. Gateways **200** govern the interactions of containers **100** within their domain, and alter the registers **120** of transiting containers **100** upon ingress and egress.

The present invention also includes container gateway storage **205** to hold the data collected from registers **120** of transient containers **100** in order to make it available to the data collection means **700** and the data reporting means **600**, and to store the rules governing the operations of its particular gateway **200**, governing transiting containers upon ingress and egress, and governing the interactive behavior of containers **100** within the container **100** to which that gateway **200** is attached. Gateway storage **205** may be located on gateways **200** themselves, containers **100** or anywhere on the network **202**, **201**, including but not limited to Internet, Intranet, LAN, WAN, according to best analysis and use.

The memory unit **22** also includes an execution engine **500** to perform the functions on the system **10** as directed by the analysis engine after its analysis of data from the data reporting means **600**, the data collection means **700**, and the search interface **300**.

The memory unit **22** also includes a search interface **300**, by which the user enters, selects or edits search phrases or digital strings to be used by the search engine **320** to locate containers **100**.

The memory unit **22** also includes an analysis engine **400** which performs rules based or other analysis upon the data collected from the search interface **300** and the data collection **700** and data reporting **600** means.

The memory unit **22** also includes a data reporting means **600**, by which means the information collected by gateways **200** from transient containers **100** is sent to the analysis engine **400**.

The memory unit **22** also includes a data collection means **700**, by which means the analysis engine **400** gathers the information collected by gateways **200** from transient containers **100**.

The memory unit **22** also includes a container editor **110** for creating, selecting, acquiring, modifying and appending registers **120** and gateways **200** to containers **100**, for creating, selecting, acquiring, and modifying containers, and for selecting content **01** to encapsulate.

The memory unit **22** also includes a register editor **125**, for creating, selecting, acquiring and modifying container registers **120** and establishing and adjusting the values therein.

The memory unit **22** also includes a gateway editor **210**, by which means the user determines the rules governing the interaction of a given gateway **210** with the registers **120** of transient containers **100,** governing transiting containers upon ingress and egress, and governing the interactive behavior of containers within the container to which that gateway is attached.

The memory unit **22** also includes databases **900,** by which means the analysis engine **400,** the execution engine **500**, the gateways **100**, the editors **110, 125, 210, 510, 610, 710,** and the search interface **300**, store information for later use.

The memory unit **22** present invention also includes a search engine **320** by which means the user is able to locate containers **100** and, referring now to Fig. **4**, containerized elements **01**.

The memory unit **22** present invention also includes an engine editor **510,** by which means the user establishes the rules and operating procedures for the analysis engine **400** and the execution engine **500.**

The memory unit **22** present invention also includes a reporting means editor **610,** by which means the user establishes the rules and schedule under which the information collected by gateways **200** from transient containers **100** will be sent to the analysis engine **400.**

The memory unit **22** present invention also includes a collection means editor **710,** by which means the user establishes the rules and schedule under which the analysis engine **400** will gathers the information collected by gateways **200** from transient containers **100.**

The memory unit **22** present invention also includes screen interfaces (GUI's) **936,** specifically designed to simplify and enhance the operations of the container editor **110,** the gateway editor **210,** and the search interface **300.**

The present invention also includes a menu or button access **937,** by which a user utilizing any generic computer program may access the system **10** or the container editor **110** from a menu selection(s) or button(s) within that program.

The present invention also includes a computer, media or publishing network **201,** comprising computers, digital devices and digital media **202** and a communication device **26,** within which the components enumerated in Fig. **2 A** interact, compiling, analyzing, and altering containers **100** and the network **201**according to information gathered from container registers **120.**

The memory unit **22** also includes one or more computers **202**, by which means the components of Fig **1** sustain the operations described in Fig. **2 A.**

The memory unit **22** also includes flat or relational databases **900**, used where, and as required. Databases are used to store search phrases, search templates, system history for the analysis engine and execution engine, container levels and container, sites and digital elements, or any and all storage required to operate the system.

Referring now to FIG. **2 B,** a drawing of a computer network **201** as a system **10,** showing a possible placement of nested containers **100**, computer servers, gateways **200**, on the sites described below. (Note: Fig. 2 B utilizes in parts the same numbering scheme as Fig. 13 A, 13 B, 13 C, 13 D and as Fig. 2 A.) In FIG. **2 B** various exemplary sites are shown, any or all of which might interact dynamically within the system. Site 1 shows a single workstation with a container and gateway connected to an Intranet. .(Individual containers may be a floppy or CD-Rom to be downloaded or inserted.) Site 2 shows a server with a gateway in relationship to various containers.. Site 3 shows an Internet web page with a container residing on it. Site 4 shows a personal computer with containers and a gateway connected to the Internet. Site 5 shows a configuration of multiple servers and containers on a Wide Area Network.. Site 6 shows a workstations with a gateway and containers within a container connected to a Wide Area Network. Site 7 shows an independent gateway, capable of acting as a data collection and data reporting site as it gathers data from the registers of transiting containers, and as an agent of the execution engine as it alters the registers of transient containers. A container **100** contains the code to enable it to interact with the components enumerated in **2A,** and to reconstruct itself internally and manage itself on the network **201.** The code resides in and with the container in its registers and gateway definitions and controls. Additional system code resides in all sites to manage the individual and collective operation and oversight of the components enumerated in **2A**, with the specific components distributed amongst the sites according to the requirements of optimization.

Referring now to Fig. **2 B 1** various exemplary sites are shown as described above in Fig. **2 B**, with the addition of possible location of one or more gateway storage **205** locations.

Referring now to Figures **2 C** through **2 H**, various exemplary sites with one or more of the logical components of the system 10 in relationship are shown. Site 1 comprises an interactive information container **100**, a container editor **110**, container registers **120**, a

container register editor **125**, system-wide hierarchical container gateways **200**, gateway storage **205**, gateway editors **210**, engine editors **510**, a search interface **300**, search engine **320**, analysis engine **400**, execution engine **500**, a data reporting means **600**, a data reporting means editor **610**, a data collection means **700**, a data collection means editor **710**, and databases **900**, all residing on data storage means **20**, utilizing the memory unit to function **22**, operating on communications network **12** with a communication device **26.**

Site 2 comprises an interactive information container **100**, a container editor **110**, container registers **120**, a container register editor **125**, system-wide hierarchical container gateways **200**, gateway storage **205**, gateway editors **210**, engine editors **510**, search engine **320**, analysis engine **400**, execution engine **500**, a data reporting means **600**, a data reporting means editor **610**, a data collection means **700**, a data collection means editor **710**, and databases **900**, all residing on data storage means **20**, utilizing the memory unit to function **22**, operating on communications network **12** with a communication device **26.**

Site 3 comprises an interactive information container 100, a container editor **110**, container registers **120**, a container register editor **125**, hierarchical container gateways 200, gateway storage 205, gateway editors **210**, and databases **900**, all residing on data storage means **20**, utilizing the memory unit to function **22**, operating on communications network **12** with a communication device **26.**

Site 4 comprises an interactive information container **100**, a container editor **110**, container registers **120**, a container register editor **125**, hierarchical container gateways **200**, gateway storage **205**, gateway editors **210**, a search interface **300**, and databases **900**, all residing on data storage means **20**, utilizing the memory unit to function **22**, operating on communications network **12** with a communication device **26.**

Site 5 comprises an interactive information container **100**, container registers **120**, a container register editor **125**, hierarchical container gateways **200**, gateway storage **205**, and databases **900**, all residing on data storage means **20**, accessed and utilized by non-resident memory unit **22**, operating on communications network **12** with a communication device **26.**

Site 6 includes an independent analysis engine **400**, execution engine **500**, data collection means **700**, and data reporting means **600** gateway editors **210**, engine editors **510**, a data reporting means editor **610**, a data collection means **700**, a data collection means editor

710, and databases 900, all residing on data storage means 20, utilizing the memory unit to function 22, operating on communications network 12 with a communication device 26.

Referring now to FIG. 3 A and FIG. 3 B, a block diagram of several nested information containers is shown, including examples of elements, e.g., code 1100, text 1200, audio 1300, video 1400, photograph 1500, graphic images 1600, and examples of possible container level classifications in increasing size, e.g., element 10900000, document 10800000, database 10700000, warehouse 10600000, domain 10500000,and continuing increasingly larger on Fig 3 (B), subject 10400000, field 10300000, master field 10200000, species 10100000. Containers may be infinitely nested and assigned any class, super class or sub class scheme and description by the creator of the container to govern nesting within that container. In addition to digital elements, containers may also include system process and components, including containerization itself.

Referring now to FIG. 3 C, a block diagram of an information container system is shown, listing, without any relationship indicated, some of the possible system components and processes, or sets thereof, that may be encapsulated as elements 01 in an information container 100. An information container 100 may include one or more of the following: any unique, container 100, gateway 200, output device 16, input device 24, output device process 160, input device process 240, data storage device 20, data storage device process 2000, processor 18, bus 12, content 01, search process 02, interface 04, memory unit 22, communication device 26, search interface 300, search process 98, network 201, class of device, process or content 999, class of process at any unique class of device 990, process at any unique device 99, editor 110, 125, 210, 510, 610, 710, engine 320, 400, 500, containerization process 1098, or process 08.

Any container may include (n) other containers, to infinity. The use of value evolving container registers 120 in conjunction with gateways 200, data reporting modules 600, data collection modules 700, the analysis engine 400, and the execution engine 500 provides the information container 100 with extensive knowledge of the use, operation of its internal contents, prior to, during and after those contents' residence within that container 100, and extensive knowledge of the use, operation and contents of the system 10 external to itself, and allows the container 100 to establish and evolve its own identity and course of interaction on the system 10. Further, containers 100, as logical enclosures, can exist and operate

independent of their digital contents, whether encapsulating audio, video, text, graphic, or other.

Referring now to FIG. 4, a block diagram of an information container **100** is shown. The information container **100** is a logically defined data enclosure which encapsulates any element, digital segment (text, graphic, photograph, audio, video, or other), set of digital segments as described above with reference to FIG. **3 (C)**, any system component or process, or other containers or sets of containers. The container **100** comprises the containerized elements **01**, registers **120** and a gateway **200**.

Registers **120** appended to an information container **110** are unique in that they operate independently of the encapsulated contents, providing rules of interaction, history of interaction, identity and interactive life to that container **100** through the duration of its existence on a network **201**, without requiring reference to, or interaction with, its specific contents. They enable a container **100** to establish an identity independent of its contents. Additionally, registers **120** are unique in that their internal values evolve through interaction with other containers **100**, gateways **200**, the analysis engine **400**, the execution engine **500**, and the choices made by the users in the search interface **300**, the container editor **110**, the register editor **125**, the gateway editor **210**, the engine editor **510**. Registers **120** are also unique in that they can interact with any register of a similar definition on any container **100** residing on the network **201**, independent of that container's contents. Registers **120**, once constructed, may be copied and appended to other containers **100** with their internal values reset, to form new containers. Register values, when collected at gateways **200** and made available to the analysis engine **400** through the data collection means **700** and the data reporting means **600**, provide an entirely new layer of network observation and analysis and operational control through the execution engine **500**. Registers **120** accomplish not only a real time information about information system, but also a real time information about information usage on a network. Further, because the user base of a network determines usage, the system **10**, in gathering information about information usage, is observing the choices of the human mind. When these choices are submitted to the analysis of a rules-based or other analysis engine **400**, the system **10** becomes capable of becoming progressively more responsive to the need of the user base, in effect, learning to become more useful by utilizing the execution engine **500** to create system-wide changes by altering the rules of gateway **200**

interaction and thereby altering the registers **120** of transient containers **100** and establishing a complete evolutionary cycle of enhanced utility.

Further, in establishing the pre-defined registers as described in the following four paragraphs, the following unique aspects of information about information are utilized for the first time: 1) the dynamic governance of information according to its utility through time, in active, passive and neutral aspects, as explained below; 2) the dynamic governance of information according to its utility through space in active, passive and neutral aspects, as explained below; 3) the dynamic governance of information according to its ownership, as explained below; 4) the dynamic governance of information according to its unique history of interaction as an identity on a network, as explained below; 5) the dynamic governance of information according to the history of the system on which it exists, as explained below; 6) the dynamic governance of information according to established rules of interaction, in active, passive and neutral aspects, as explained below; 7) the dynamic governance of information according to the profile of its creator, as explained below; 8) the dynamic governance of information according to the value established by its ongoing usage, as explained below; 9) the dynamic governance of information according to it distributed ownership, as explained below; 10) the dynamic governance of information according to what class of information it might be incorporated into, and according to what class of information container it might incorporate, as explained below; 11) the dynamic governance of information according to self-reporting, as explained below.

Referring now to Fig **4**, registers **120** may be (1) pre-defined, (2) created by the user or acquired by the user, or (3) system-defined or system-created. Pre-defined registers **120** are those immediately available for selection by the user within a given container editor as part of that container editor, in order that the user may append any of those registers **120** to a container **100** and define values for those registers **120** where required. Registers **120** created by the user are those conceived and created by a specific user or user group and made immediately available for selection by the user or user group in conjunction with any of a wide number of container editors, in order that the user may append any of those registers **120** to a container **100** and define values for those registers **120** where required. Registers **120** acquired by the user are those registers existing network-wide **201**, created by the user base, that might be located and acquired by the user in order that the user may append any of those registers

120 to a container 100 and define values for those registers 120 where required. System-defined registers are those registers whose values are set and/or controlled by the system 10. System-created registers are those registers created by the system 10.

Registers 120 are user or user-base created or system-created values or ranges made available by the system 10 to attach to a unique container, and hold system-set, user-set, or system-evolved values. Values may be numeric, may describe domains of time or space, or may provide information about the container 100, the user, or the system 10. Registers 120 may be active, passive or interactive and may evolve with system use. Pre-defined registers include, but are not limited to, system history 110000, container history 101000, active time 102000, passive time 103000, neutral time 104000, active space 111000, passive space 112000, neutral space 113000, containment 105000, inclusion 106000, identity 114000, value 115000, ownership 107000, ownership addresses 116000, proportionate ownership 117000, creator profile 108000, receptivity 118000, influence 119000, points 109000, others 120000, reporting 121000, neutrality 122000, acquire 123000, create 124000, content title 125000, content key phrase(s) 126000, and content description 127000, security 12800, and parent rules 129000.

Pre-defined registers comprise an historical container register 101000, logging the history of the interaction of that container 100 with other containers, events and processes on the network 201, an historical system register 110000, logging the history of pertinent critical and processes on the network, a point register 109000 accumulating points based upon a hierarchically rated history of usage, an identity register 114000 maintaining a unique network wide identification and access location for a given container specifying a unique time and place of origin and original residence, a proportionate ownership register 117000 maintaining a record of ownership percentage and economic values, and others 120000.

User-defined registers include a report register 121000 setting trigger levels for report sequences, content determination and delivery target, three time registers, consisting of a range, map, graph, list, curve or other designating time relevance, 102000 assigning the time characteristics by which that container will act upon another container or process, 103000 assigning the time characteristics by which that container be acted upon by another container or process, and 104000 assigning the time characteristics by which that container will interact with another container or process, three space registers, consisting of a range, map, graph, list,

curve or other designating the domain and determinants of space relevance, **111000** assigning the space characteristics by which that content will act upon another container or process, **112000** assigning the space, characteristics by which that content will be acted upon by another container or process, and **113000** assigning the space characteristics by which that container will interact with another container or process, a domain of influence register **119000**, determining the set, class and range of containers upon which that container will act, a domain of receptivity register **118000**, determining the set, class and range of containers allowed to act upon that container, a domain of neutrality register **122000**, determining the set, class and range of containers with which that container will interact, a domain of containment register **105000**, determining the set, class and range of containers which that container may logically encompass, a domain of inclusion **106000** register, determining the set, class and range of containers by which that container might be encapsulated, an ownership register **107000**, recording the original ownership of that containers, a creator profile register **108000**, describing the creator or creators of that container, an ownership address register **116000**, maintaining the address of the creator or creators of that container, a value register **115000**, assigning a monetary or credit value to that container, other registers **120000** created by users or the system, a reporting register **121000**, determining the content, scheduling and recipients of information about that container, a neutrality register **122000**, an acquire register **123000**, enabling the user to search and utilize other registers residing on the network, a create register **124000**, enabling the user to construct a new register, a content title register **125000**, naming the contents of the container, a content key register, **126000**, identifying the container contents with a key phrase generated by the user and/or the system based upon successful usage of that phrase in conjunction with the utilization of the information within that container **100**, a content description register **127000**, identifying the container contents with additional description, a security register **128000**, controlling container security, and a parent container register **129000**, storing the rules governing container interaction as dictated by the parent (encapsulating) container.

The container also includes a gateway **200** and gateway storage **205.**

Gateways **200** are logically defined passageways residing both on containers **100** and independently in the system **10**. Gateways **200** govern the interactions of containers **100**

encapsulated within their domain by reading and storing register **120** information of containers entering and exiting that container **100**.

The present invention also includes container gateway storage **205.** Gateway storage **205** stores information regarding the residence, absence, transience, and alteration of encapsulated and encapsulating containers **100**, and their attached registers **120, holding** the data collected from registers **120** of transient containers **100** in order to make it available to the data collection means **700** and the data reporting means **600**, and storing the rules governing the operations of its particular gateway **200**.

Referring now to FIG. **5**, a flow chart of the preferred method for creating a container **100**.is shown.

Input is received from the user selecting a container level through use of a drop-down menu **10100**. A menu of all possible container classes within the subset and superset scheme of multiple hierarchically nested containers, i.e.; element, document, file, database, warehouse, domain, and more, is displayed on the output device **10200.** Input is received from the user selecting a class **10300.**

A graphic representation of a container in that class, with registers common to all containers as well as registers unique to its class is displayed **10301.**

Input is received from the user choosing to "create" **10400**, "edit" **10500**, or "locate" **10600**.

When the input of "create" **10400** is received from the user, a container template in that class appears **10410**. Input from the user is then received adding or selecting a register 10540 to append to that container template. When input is received from the user adding a register, a list of registers that might be added to that class of container is made available to select **10550**. Input is received from the user selecting a register **10560** and editing it **10570**. The menu returns to "add or select" **10540**.

If the input of "locate" **10600** is received from the user, the system prompts the user to enter the identity of the container or class of containers **10605**. The system locates the container(s) **10610**. Input is received from the user selecting a container **10620**. The system prompts the user for a security code for permission to access the container for template use, or to alter its registers, or to alter its content **10630**. . Input is received from the user entering a name and password providing access to one of the security levels **10640.** Input is received

from the user editing the container accordingly by transition to step **10500** and performing the steps for editing.

If the input of "edit" **10500** is received, a list of containers available to edit at that level is shown **10510**. Input is received from the user selecting a container **10520**. That container appears, available to edit **10530**. Input is received from the user selecting "add" or "select" registers **10540** by the user clicking on the graphically depicted register, or from a drop down menu. Input is received from the user selecting the register to edit **10560**. Input is received from the user selecting "modify" or "delete" for that register **10565**. If input is received from the user to "delete," that register is severed from the container. If input is received from the user to "modify", the register editor **10570** screen appropriate to that register appears, i.e., an x-y type graph to define a curve of relevant active time, in which the user manipulates the x-y termini, scale and curve, or a global map in which Input is received from the user selecting the locale of active space, whether zip code, city, county, state, country, continent, plant or other. When input is received from the user saving the definition, the screen returns to the main container screen to make another selection available. . Input is received from the user defining as many registers as he chooses. One of the registers may be named "new register." Input is received from the user selecting the new register, and if chosen by the user, defining a wholly unique and new kind of register by the user entering input into the register editor **125.**

When the input is received from the user choosing to add a register, a list of registers that might be added to that class of container are made available to select **10550**. Input is received from the user selecting a register **10560** and editing it **10570**. The menu returns to "add or select" **10540**, and in turn to Input – Select Container.

Input may then be received from the user choosing to add, modify, or delete the container contents **10700**. Once the registers are defined, input is received from the user indicating completion and the interface reverts to the container editor. When input is received from the user choosing "select component" (to select the component to containerize) from the main menu bar **10700, a** window appears allowing the user to select any file, component, or other container. If for example, the user were creating a warehouse container, and wishes to incorporate several databases into that container, input would then be received from the user selecting "database." The program would prompt the user for the location (directory) of that database or container. If the requested selection is not containerized, input may then be

received from the user choosing to containerize the element at that time, after which the program returns to "select component." Once input is received from the user defining the database location, the program logically encases the directory or directories in the defined container. The above procedure may be repeated as many times as desired to include multiple databases within a single container. While logical simplicity would dictate that all containers within a container be of the same subset, it would be possible for input to be received from the user choosing containers of any subset to include in the container. When input is received from the user choosing "finished," the container is created with a unique network identity, preferably through some combination of exact time and digital device serial number, or centralized numbering system, or other means. The container **100** contains all digital code, including data and program software from the selected items or containers.

Input may then be received from the user to publish the container **11100** at a user-identified or system suggested location **11200** to be selected **11400**.

Input is received from the user to "publish", from the main menu bar **11100**. Input is received from the user choosing to leave the container where it was created, move or copy it to another drive, directory, computer, or network the user designates, or select the location from location options offered by the system **11200**, or submit, or duplicate and submit, the container to the analysis engine **400** for intelligent inclusion in other containers, thus allowing the system to publish the container as instructed or choose the residence of the container **11400**.

If input is received from the user to choosing to "move," or "copy" a browse function allows the user to name the new location or browse a list of possible locations. If input is received from the user choosing to "submit," a browser function allows the user to name the analysis search engine **310** or browse a list of possible analyses engines. When input is received from the user choosing the residence of the container **11300**, the program restores the search interface screen.

Referring now to FIG. **6**, a flow chart of the method for searching for containers **100**.

When input is received from the user selecting "search interface" from the main title bar, the search interface screen appears. The user is given the choice of containerizing selected content or requesting that container levels be displayed **30100**. From a drop down menu another menu appears allowing input to be received from the user selecting the container level

30200. Input is received from the user selecting the container level (from the smallest component to the whole system) **30300.**

Input is received **30310** from the user selecting the phrases, containers or components, which then are re-submitted to the same process, until the input is received from the user selecting a specific site or container.

The search phrase, whether containerized or not, is submitted simultaneously to the search engine **30400** and the analysis engine **30500**.

The screen then reports in a selection menu, the number of applicable sites found by the search engine **30410**, the number of historically proven applicable sites found by the analysis engine **30410**, the number of historically proven applicable containers at the selected container level or any container level found by the analysis engine **30410**, and the number of historically proven new search phrases or digital segments found by the analysis engine **30320**. . Input is received from the user selecting one of the named sets above **30330**. If input is received from the user choosing the search engine, the search interface lists the applicable site titles with a brief description **30410**. If input is received from the user choosing the site list of the analysis, the search interface lists the applicable site titles with a brief description **30410**. . If input is received from the user choosing the container list of the analysis engine, the search interface lists the applicable container titles with a brief description **30410**. . If input is received from the user selecting a container **30420**, the system offers the means to view titles and descriptions of sub-containers at any chosen class level. . If input is received from the user choosing the phrase list of the analysis engine, the search interface lists the applicable phrases or digital segments with a brief description **30320**. The search and search result cycle repeats until input is received from the user choosing to go to an individual container or site.

Input is received from the user entering text or any digital string describing his search objectives into a text or search box. When input is received from the user submitting the search string, the system provides the option of containerizing the search through the container editor **110.** Once the search container **101** is created, the system restores the search interface **300** screen the user.

Input is received from the user selecting "search", "supported search" or "both" from another drop-down menu and from submitting the search. When input is received from the user selecting "search" 30310, the search phrase is submitted to the search engine **30400**,

which searches both content and the appropriate container registers, as pre-indexed in the search engine, and returns a list of appropriate locations, components or containers. When input is received from the selecting "supported search", the search phrase is submitted to the analysis engine search support, which returns a list, in a drop-down menu, of search phrases or individual containers, for any and all container levels, used by other users or created by the system and known to be historically successful for the described effort and the described searching user, as per the results of the analysis search engine. Input is received from the user selecting a new search phrase or specific container from the drop down menu **30330**. When input is received from the user choosing a new search phrase, that phrase is also submitted to the analysis engine **30500** which returns a list of pre-compiled historically proven sites, components or containers associated with that search phrase **30320**. Input is received from the user choosing a selection **30420** and the system calls up that specific site, container or component. If input is received from the user selecting a specific site, container or component at any time during the search process, that element is called up by the system **30440**.

Input is received from the user choosing to containerize a search or select a container level in which to search **30100**. When input is received from the user choosing to containerize the search, the software moves to the container editor as described in Fig. **5**, and then returns the user to the search interface screen. Input is received from the user selecting to search a specific container level or the whole network. The system shows the available levels **30200**. Input is received from the user selecting a container level **30300**, and entering the text or digital component comprising the search string **30310**. The system searches the containers **30400** while simultaneously submitting the search string to the analysis engine **30500**. While the system is accessing containers, sites or templates **30700**, the analysis engine **30500** inquires of the appropriate database **30600** to access historically successful containers, sites or search templates corresponding to the search request **30700**, which is then shown on another portion or option of the search interface, either as available containers or sites **30410** or as search template options **30320.** On one portion or option of the search interface screen the corresponding containers or sites are listed and/or previewed for selection **30410**. Input is received from the user selecting the container to access **30420**. The system accesses that container **30430** and shows it on the screen **30440** for user review. Input is received from the user selecting an operation, i.e., preview, read, purchase, move, copy, lease, in any composed

schedule with operations assigned specific values **30460**, and the system obtains the specified result **30470**. The selection of the operation including any interaction with any uniquely defined container **100** is recorded **30800** by the container gateway (Fig. 2 A, **200**), stored in the gateway storage **205** and made available to the analysis engine (Fig. **9**) by the data collection and reporting means (Fig. **8**). Reporting and collection occurs on a regular basis according to user determined times or rules. The analysis engine compiles and analyzes selections according to various rules-based systems applicable to the particular container area of residence in cyberspace.

. Input is received from the user selecting the container or site **30410**, proceeding as described above, or selecting a search template **30330**, and editing it to re-enter the search **30310**. All operations on Fig. **6** utilize the communication device **26** whenever necessary or expeditious.

Referring now to FIG. **7**, a flow chart of the search process is shown. Steps in FIG. **7** repeated from FIG. **6** are given the same reference number as in FIG. **6** for convenience and ease of understanding. Fig. **7** commences with "SEARCH TRANSITS GATEWAY **32100**", continuing from Fig. **6**, "SYSTEM SEARCHES CONTAINERS **30400**". The submitted search **32100** transits the gateway **200**. The gateway **200** interacts with the container registers **32200**. The gateways **200** store the information downloaded from the registers **32300**, and the container registers are altered **32500**. The container registers **120** then interact with the registers **120** of the encapsulated search, which registers, and the values set within, have been constructed and appended to the search through the search interface **32600.** Values are exchanged and compared and operations performed under the rules governing both interacting containers **100**, and the rules governing the search container **100** and any gateway **200.** The search engine **320,** operating under the principles and means of search engines presently existing as described elsewhere, **then** provides to the search interface **32600** a list of containers **100** meeting the requirements of the search and its appended registers, as well as additional search options **32900**. The gateway **200** reports and makes available for collection to the analysis engine **400** the information obtained from the interaction **32400**. On a periodic basis defined by the user or a rules-based system, the analysis engine **400** (Fig. **9**) stores in databases **900**, analyzes and instructs the execution engine **500**, and the execution engine **500** executes

changes in the system components as defined below. (Fig. **10**). All operations on Fig. **7** utilize the communication device **26** whenever necessary or expeditious.

On the remaining figures, shapes referring to other figures, to operations external to the scope of the present figures, or to the subject of the present drawing, are indicated with dashed lines, and are shown only to place the described operations in the context of continuous and continual operations external to the drawing.

Referring now to FIG. **8**, a flow chart of the preferred process for collecting and reporting information on containers is shown. The data reporting **600** and data collection **700** means utilizes subroutines within the analysis engines **400** and gateways **200** to submit and collect register information and sub level analysis to other analysis engines **400** or other gateways **200** of a higher (larger) logical set in a set pattern and frequency defined by the administrator.

Input is received from the user selecting "data reporting" **70100** from the "edit gateway" drop-down menu. Container levels are displayed **70200**. Input is received from the user selecting container level **70300.** A menu of all possible gateways **70320** and analysis engines **70330** residing on gateways on the above defined container class appears, depicted graphically as a tree of analysis engines and gateways at that container level. Input is received from the user selecting "source" from "source or destination." Input is received from the user **70400** selecting a container, containers, or class of container by clicking on the graphically depicted container(s) or container level on a display device. Input is received from the user **70410** selecting "destination" from "source or destination" Input is received from the user **70500** selecting an analysis engine, analysis engines, or class of analysis engine by clicking on the graphically depicted analysis engine(s) or analysis engine level on a display device. A time scheduler is displayed. Input is received from the user **70510** selecting the reporting frequency for the selected gateways to report data to the selected engines. The data from the gateways is thenceforth continuously moved or copied to the analysis engines by the system **10** utilizing the execution engine **500** according to the defined schedule, rules and pattern **70420, 70520**.

Input is received from the user selecting "choose container level" **70300** from the gateway editor drop-down menu. A menu **70320** appears listing the classes of containers on the system within the defined subset and superset scheme of multiple hierarchically nested containers, i.e.; element, document, file, database, warehouse, domain, appears. Input is

received from the user selecting the class of containers. A graphic representation of that container level throughout the system appears. Input **70300** is received from the user selecting individual containers or all the containers in that class.

From the gateway editor drop-down menu input **70100** is received from the user selecting "data collecting" A menu of all possible gateways and analysis engines residing on gateways on the above defined container class appears, depicted graphically as a tree of analysis engines, and gateways at that container level. Input **70510** is received from the user selecting "source" from "source or destination." Input is received from the user selecting a container, containers, or class of container by clicking on the graphically depicted container(s) or container level. Input **70510** is received from the user selecting "destination" from "source or destination." Input **70510** is received from the user selecting an analysis engine, analysis engines, or class of analysis engine by clicking on the graphically depicted analysis engine(s) or analysis engine level. A time scheduler appears. Input **70510** is received from the user selecting the collecting frequency for the selected engines to collect data from the selected gateways. The data from the gateways is thenceforth continuously moved or copied to the analysis engines by the system **10** utilizing the execution engine **500** according to the defined schedule, rules and pattern.

The data collection **700** means, utilizing the communication device **26** and an execution engine **500,** comprises one or more subroutines or agents programmed to travel through the network collecting the accumulated data and analyses from selected analysis engines, gateways or selected subset level of analysis engines or gateways (as above) in a pattern and frequency defined by the gateway administrator at a given container level. Input **70510** is received from the user or administrator, defining the collection and reporting of data, thus controlling permission within his gateway, and being subject to permission levels defined by others beyond his gateway.

Input is received from the user or gateway administrator selecting collection or reporting **70100** and the system shows the container levels available **70200**. Input is received from the user selecting a container level **70300**. Input is received from the user selecting "gateway" **70400** or "engine" **70500**. The system shows gateways **70320** or engines **70330** associated with that level. Input is received from the user editing the reporting parameters associated with a gateway or a class of gateways **70410** or an engine or class of engines **70510**.

Input is received from the user selecting the collecting frequency for the chosen engines. When input is received from the user choosing to user save the definition, the screen returns to the main container screen, step **70100** to make another selection available. Input is received from the user choosing to repeat the cycle, choosing "destination" to describe the destination analysis engines and the data collecting frequency from those destination analysis engines. The data collection means **700** collects the accumulated gateway information in a pattern and frequency defined by the gateway administrator or user at a given container level.

The system utilizing the execution engine (see Fig. **10**) distributes the new parameters to the gateways **70420** or engines **70520** by the communication device **26**. Using the new parameters the gateways report to the analysis engines **70430** after, in some cases, conducting sub-analysis **70440,** or using sub-analysis **70440** to submit directly to specified gateways under certain conditions and parameters, and the analysis engines collect from the gateways **70530**. The analysis engine uploads, downloads and utilizes information to databases **900** to conducts its analysis.

The invention includes an analysis engine **400**. Through the data reporting **600** means and data collection **700** the analysis engine **400** receives data and sub-analysis from the search interface and the gateways. Data includes, for each gateway **200**, the frequency and grade of access, the description of the user accessing, the identity of the container **100** accessing, the register parameters, and the historically accumulated register data.

Referring now to FIG. **9**, a flow chart of the operation of the analysis engine **400** is shown. Analysis engines **400** may reside at any gateway or anywhere in the system 10. The analysis engine **400**, operating under its own programmed sequence, utilizing the communication device **26**, works, by means of programmed rules of logical, mathematical, statistical or other analysis upon gateway and register information, in continuous interaction with the search process **410** and the data collection and reporting process **420** to analyze, determine and compile instructions **40100** on container construction **40110** to containerize in an automated process **40115**, on container contents **40120** to move, copy or delete containers **40125**, on storage schemes **40130** to move or copy containers to new storage **40135**, on access routes **40140** to alter gateway pointers to sought information **40145**, on search templates **40150** to add, delete or change search phrases and the referenced objects indicated by those

search phrases **40155** and on gateway instructions **40160** to alter gateway registers and pointers **40165**.

Thus, analyses might include, but are not limited to, the physical locus of the users accessing, the demographic classification of the users accessing, the access frequency for a given container, the range or curve of time relevance affecting a container, the range or region of space relevance affecting a container **100**, the number or number of a specific type of container **100** transiting a gateway **200**, the hierarchically graded usage of containers **100** or container contents **01** compared with the demographic of those users accessing the container, the hierarchically graded usage of containers **100** or container contents **01** compared with search phrases entered into the search interface **300**, the hierarchically graded usage of containers **100** or container contents **01** compared with search phrases entered into the search interface 300 compared with the demographic of the users accessing, the number of pertinent containers nested within a given container **100**. Once an analysis is accomplished, the result is compared to pre-programmed rules triggering instruction sets (such as moving a container to nest within another container).

Instructions are then sent to the execution engine **40200**, which utilizes the communication device **26** to execute the instructions derived from the analyses. These containerized instructions transit the gateways **40300** and are utilized in the gateway process (Fig. **12**)

Referring now to FIG. **10**, a flow chart of the operation of the execution engine is shown. The execution engine **400**, operating under its own programmed sequence in response to the instructions from the analysis engine **50100**, utilizing the communication device **26**, works in continuous process as its containerized execution instructions transit the gateways **50200** to create containers **50210** in an automated containerization process **50215**, alter container contents **50230** by moving or copying containers to new containers **50235**, to alter storage **50240** by moving or copying containers to new storage **50245**, to alter access routes **50250** by altering gateway pointers **50255**, to alter search templates **50260** by adding, changing and deleting search phrases and the referenced objects indicated by those search phrases **50265**, to alter gateway instructions **50270** by altering gateway registers and pointers **50275**. The execution works in a continuous loop with the gateway process **50300**, the data collection and reporting process **50400** and the analysis engine process **50300**.

The invention includes gateways **200**. Gateways may be placed and reside anywhere on the network where containers transit. Gateways also reside on any or all containers. The gateway reads and stores the chosen register information from transient containers entering or exiting its logical boundaries. The resident analysis search engine, if any, performs the specified level of analysis. Data and analysis is both held for the collection means according to the pattern and timing specified in the data reporting **600** editor and submitted according to the pattern and timing specified in the data collection means editor **700.**

The gateways are network-wide, hierarchical, and nestable, and reside with a container encompassing any component, digital code, file, search string, set, database, network, event or process and maintaining a unique lifelong network wide identity and unique in all the universe historical identity, or may be strategically placed at such container transit points to gather and store register information attached to any such container, according to system-defined, system-generated, or user determined rules residing in its registers defining the behavior of those containers and components as they exit and enter one another, or interact with one another or any system process or system component within the logical domain of that container, or after exiting and entering that container, or defining how they interact with that unique gateway.

Gateway's registers comprise both system-defined and user-defined registers, alterable by author, duration, location, network-wide history, individual container history and/or interaction with other containers, gateways, networks or media, and evolve according to that gateway's history on a computer network, or according to the network history of events and processes, or according to that information component's interaction with other information containers, components, system components, network events or processes.

Referring now to FIG. **11,** a flow chart of the gateway editor is shown. From the main title bar input is received from the user selecting "containerize" or "gateway level" **20100**. When input is received from the user selecting "containerize" the system enters the container editor process **110.** When input is received from the user selecting "gateway," the system shows the gateway levels available **20200**. A menu of all possible gateways within the subset and superset scheme of defined multiple hierarchically nested gateways appears. Input is received from the user selecting the gateway level **20300.** The system searches the gateways **20500** to locate the available gateway templates **20700** and the available gateways **20600**. Input is received from the user selecting the gateway **20610** or gateway level template **20720**.

The system goes to the gateway **20620** or to the template **20720**. A graphic representation of the chosen gateway **20630** or template **20730** appears. Input is received from the user to edit **20640** or create a gateway **20740**. Once completed, input may be received from the user selecting "analysis level" from the gateway **200** drop-down menu, to select the level of analysis in a multi-level analysis sequence to be accomplished at the local level by a gateway-resident analysis engine. The user accesses the container editor to containerize (Fig. **5**). Input is received from the user selecting the registers by clicking on the graphically depicted register, or from a drop down menu.). Input is received from the user setting the registers as described elsewhere in ("container registers"). Input is received from the user selecting or defining the rules governing the interaction of that gateway with transient containers. Input is received from the user selecting or defining the rules governing the interaction of containers existing within the logical domain of the container 100 to which that gateway is attached. The user publishes the gateway (Fig. **5**). Input is received from the user selecting "residence" from the main menu bar.). Input is received from the user choosing to leave the gateway where it was created, move it to container on another drive, directory, computer, or network. If the user chooses "move," a browse function allows the user to name the new location or browse a list of possible locations. Once input is received from the user choosing the residence of the gateway, the program restores the search interface screen.

The invention includes a data reporting means editor **610**, and a data collection means editor **710,** Fig. 2 A, as a menu option under the gateway editor **210**.

The present invention also includes a gateway process.

Referring now to FIG. **12**, a flow chart of the gateway process is shown. A system operation, search process or element container or process container is shown in transit **21100** passing through a gateway **21200**. The container, operation or process interacts with the gateway **21300**, uploading, downloading and exchanging information with the container, operation or process. The gateway stores container information **21400** and the container registers are altered **21500**. The container registers also interact with the search interface **21600**. The gateways report the register information or make it available for collection by the data reporting and collection means (Fig. **8**) operating on the communication device **26** to provide the information to the analysis engine **21800**, which stores **90100**, analyzes and

instructs the execution engine **21900**, which processes and instructions are also stored **90100** by the execution engine upon receipt.

All operations in Fig. **12** utilize the communication device **26** whenever necessary or expeditious.

Referring now to FIG. **13 A,** a drawing of nested containers **100** prior to the container modification process on a network **201** is shown. (Note: The same container numbering scheme is used in Fig. 13 A, 13 B, 13 C, 13 D and in 2 B.) Information containers **505** and **909**, residing within container **908**, operating under the rules governing container interaction within that container **908** downloaded to container **505** and **909** from gateway **9081** upon their entrance to container **908,** which rules had been downloaded from execution engine **500** acting under the direction of analysis engine **400**, and under the rules programmed into their own registers **404120, 909120**, compare the specified (by those rules) set of registers **404120, 909120**, i.e., time and space, and determine a container **404** encapsulated within **505** would be more appropriately encapsulated within container **909**.

Referring now to FIG. **13 B** a drawing of nested containers during a container modification process on a network **201** is shown. Container **404** is moved to reside with container **909**. As the container **404** exits container **505**, the gateway of container **505**, being gateway **5051**, operating under the rules governing container interaction with a gateway 5051 upon egress or egress as programmed in the gateway editor **210** and modified by the execution engine **500** executing the instructions of the analysis engine **400**, or any greater logical analysis engine **408** providing execution instructions to an execution engine **508** operating in a larger encompassing container **108** entering through that container's gateway **208** or an independent gateway **707**, or sub-analysis engine operating at any gateway level, records the register information of container **404.** The gateway **5051** reports the transaction to the gateway **9081** of container **908**, being the next higher logical container. Gateway **9081** holds in gateway storage **205** the information until collected by one or more data collection processes **700**, or reported to one or more data reporting processes **600**, serving one or more analysis engines **400** residing independently on the system **10** or an analysis engine at higher logical container **303**. The analysis engine **400,** comparing reports of user hierarchically graded usage under the operations of the search engine **320** and the search interface **300**, on information container **808** after receiving reports from the data reporting means of container **404** being

moved to container **909** determines, i.e., that the number of time and space relevant containers residing within container **909** is sufficient to warrant an action, and directs the execution engine **500** to copy container **909**, nested within container **908**, to a third information container **808**. As the copy instruction from execution engine **500** transits the gateway of container **908**, the gateway **9081** records the instruction. The copy instruction interacts with the registers **909120** of container **909** regarding the rules governing its copying to another location. Once approved by the governing rules of registers **909120** appended to container **909**, container **909** is duplicated. As the duplicate container **909** exits the container **908**, the gateway records the register information **909120** of container **909**, and the registers **909120** of container **909** are altered by special instructions from gateway **9081** under the rules residing in gateway **9081** regarding ingress and egress and the rules residing in the registers **909120** of container **909** regarding alteration by gateways upon ingress and egress. Passing through independent gateway **707**, the register information **909120** is recorded, and awaits data collection or reporting 700, **600.** As container **909** enters container **808**, the gateway records the register information **909120** of container **909**, the registers **909120** of **909** are altered by special instructions from gateway **8081**, operating under the rules as described in the paragraph above, and container **909** takes up residence within container **808.**

Referring now to FIG. **13 C**, a drawing of nested containers after the container modification process on a network **201** process is shown. Container **909**, now also logically residing within container **808**, commences to interact with other containers **606** in **808** under the rules governing container interaction within container **808** as received from gateway **8081** upon transiting that gateway, and under the rules of registers **606120, 909120 of** the interacting containers **606, 909**, operating under the rules as described in the paragraph above. Through data collection and reporting **700, 600**, analysis engine is appraised of container's **909** new duplicate residence. I.e., operating under the registers of space relevance, a body of law pertaining to Boston Municipal tax law may be housed in a container holding Massachusetts tax law, but it would be more appropriately located in a container holding Boston tax law, with only a pointer to that location residing in the Massachusetts tax law container. In this example, such an analysis could be accomplished by comparison of zip code information in the space registers, or logical rules-based analysis, with "state" being a larger set than "city". Or, i.e., operating under the registers of time relevance, the curve of time relevance for a

concert might follow an ascending curve for the months prior, hit a brief plateau, and then reach a precipitous decline, at which time certain pertinent information only might be moved to an archival container of city events or rock concerts of that year. In this example, once the curve is mapped into a register, that map would cause an increasing frequency of pointers to that container in other containers or gateways, or inclusion of that container in other containers, as the analysis engine compares that curve with increasing user inquiry.

Referring now to Fig. **13 D**, a flowchart of the reconstruction process is shown.

Information containers **505** and **909**, residing within container **908**, operating under the rules governing container interaction within that container **908** downloaded **888103** to container **505** and **909** from gateway **9081** upon their entrance to container **908**, which rules had been downloaded **888102** from execution engine **500** acting under the direction **888101** of analysis engine **400**, and under the rules programmed into their own registers **404120**, **909120**, compare **888104** the specified (by those rules) set of registers **404120**, **909120**, i.e., time and space, and determine **888105** a container **404** encapsulated within **505** would be more appropriately encapsulated within container **909**.

Container **404** is moved **888106** to reside with container **909**. As the container **404** exits container **505**, the gateway of container **505**, being gateway **5051**, operating under the rules governing container interaction with a gateway **5051** upon egress or egress as programmed in the gateway editor **210** and modified **888108** by the execution engine **500** executing the instructions of the analysis engine **400**, or any greater logical analysis engine **408** providing execution instructions **888107** to an execution engine **508** operating in a larger encompassing container **108** entering through that container's gateway **208** or an independent gateway **707**, or sub-analysis engine operating at any gateway level, records **888109** the register information of container **404**, and alters the register information of container **404**. The gateway **5051** reports **888110** the transaction to the gateway **9081** of container **908**, being the next higher logical container. Gateway **9081** holds **888111** in gateway storage **205** the information until collected by one or more data collection processes **700**, or reported to one or more data reporting processes **600**, serving **888112** one or more analysis engines **400** residing independently on the system **10** or an analysis engine at higher logical container **303**. The analysis engine **400**, comparing **888114** reports of user hierarchically graded usage on information container **808** under the operations of the search engine **320** and the search

interface **300**, after receiving **888113** reports from the data reporting means of container **404** being moved to container **909**, determines **888115**, i.e., that the number of time and space relevant containers residing within container **909** is sufficient to warrant an action, and directs **888115** the execution engine **500** to copy container **909**, nested within container **908**, to a third information container **808**. As the copy instruction from execution engine **500** transits the gateway of container **908**, the gateway **9081** records **888116** the instruction. The copy instruction interacts **888117** with the registers **909120** of container **909** regarding the rules governing its copying to another location. Once approved **888118** by the governing rules of registers **909120** appended to container **909**, container **909** is duplicated **888118**. As the duplicate container **909** exits the container **908**, the gateway records **888119** the register information **909120** of container **909**, and the registers **909120** of container 909 are altered **888120** by special instructions from gateway **9081** under the rules residing in gateway **9081** regarding ingress and egress and the rules residing in the registers **909120** of container **909** regarding alteration by gateways upon ingress and egress. Passing through independent gateway **707**, the register information **909120** is recorded **888121**, and awaits **888122** data collection or reporting **700, 600.** As container **909** enters container **808**, the gateway records **888123** the register information **909120** of container **909**, the registers **909120** of **909** are altered **888124** by special instructions from gateway **8081**, operating under the rules as described in the paragraph above, and container **909** takes up residence **888125** within container **808.**

Container **909**, now also logically residing (in addition to its original container residence) within container **808,** commences to interact **888126** with other containers **606** in **808** under the rules governing container interaction within container **808** as received from gateway **8081** upon transiting that gateway, and under the rules of registers **606120, 909120 of** the interacting containers **606, 909**, operating under the rules as described in the paragraph above. Through data collection and reporting **700, 600**, analysis engine is appraised **888127** of container's **909** new duplicate residence.

Referring now to Fig. **14**, the screen interface of the container editor is shown. This interface is a process wherein input is received by the user using the main menu **78** or drop down menu **1419**, or using an input device to "drag and drop" or click, causing the system **10** to acquire **1409**, edit **1410** or create **1411** a file **1407**, container **1408** or digital content **01,** to

search for **1412**, acquire **1413**, edit **1414** or create **1415**, print **1416**, or containerize **1417** a container **100**, to select **1402**, (or by clicking on register), search **1403**, acquire **1404**, edit **1405**, or create a register **1406** to append or detach registers **120** to those containers, to set register values in those registers **120**, to utilize the register editor **125** through **1405** to create new registers, or to **1418** add, detach, acquire a gateway **200** to append or detach to those containers, and utilize the gateway editor **210** through **1418**. (See detailed description referring to Fig. 5)

Referring now to Fig. **15**, the screen interface of the gateway editor is shown. This interface is a process wherein input is received by the user using the main menu **1501** or drop down menu **1513**, or using an input device to "drag and drop" or click, causing the system **10** to search for **1507**, acquire **1508**, edit **1509** create **1510**, print **1511** or containerize **1512** gateways, and causing the system **10** to establish rules by which an individual gateway governs the transiting **1502**, entering **1503**, exiting **1504** of containers and the interaction of containers within its domain **1505**, and external of its domain.**1506**. (See detailed description referring to Fig. **11**).

Referring now to Fig. **16**, the screen interface of the search interface. This interface is a process wherein input is received by the user using the main menu **1625** or drop down menu **1624**, or using an input device to "drag and drop" or click, or by entering text, causing the system **10** to select **1615**, search for **1616**, acquire **1617**, edit **1618** create **1619**, print **1620**, containerize **1621** (by accessing the container editor **110)** or insert **1622** digital search strings into the search box **1623** in order to submit that string to the search engine **320**, or causing the system **10** to select **1602**, search for **1603**, acquire **1604**, edit **1605**, create **1612**, containerize **1613** (by accessing the container editor **110)**, or insert **1614** search keys (templates that comprise search scope in geographic range, container level, and specific key words or digital strings), or containerized searches (containers **110**), into the search box **1623** in order to submit that string to the search engine **320** , or causing the system **10** to set a search range by geographic range **1607**, container level **1608**, or acquire **1609**, edit **1610** or create **1611** a scope template. (templates that comprise search scope in geographic range and, container level.) (See detailed description referring to Fig. 6).

Referring now to Fig. **17**, a drawing showing, on an input device or computer screen **24**, in any generic (dashed lines) software application program, a drop-down menu link **1403**

on a drop down menu **1402** dropping down from a main menu **1401**, and a free-floating button link **1404**, is shown. When input is received at **1402** or **1403**, the system **10** makes available to the user the containerization process or container editor **110.** When input is received at drop-down menu link **1405** or a button link **1406**, the system **10** makes available to the user the means to enter and interact with this system **10** or this network **201** in any of their aspects. The interfaces **1403, 1404** show a process wherein input is received causing the system **10** to encapsulate content or access the container editor **110**. The link also allows the user to encapsulate the page or file on which he is currently working, without selecting content, and if so desired, without accessing the container editor. The interfaces **1405, 1406** show a process wherein input is received causing the system **10** to access or interact with the system **10** or the network **201**.

The present invention also includes a search engine **320**. Once the key word(s), phrase or digital segment is entered into the search interface **300,** or an offered selection chosen on the menu, it is utilized by the search engine **320** to locate the desired site or data.

The search engine employed may be any industry standard search engine such as Verity "Topic", or Personal Library Software, as used in Dow Jones News Retrieval, or Internet search engines such as Webcrawler, Yahoo, Excite, Infoseek, Alexa or any Internet search engine, or any new engines to be developed capable of searching for and locating digital segments, whether text, audio, video or graphic.

The present invention also includes an analysis engine **400.** Utilizing rules-based analysis, the analysis engine determines the class of storage medium upon which containers reside, the subsets and supersets by which and in which containers encompass and reside within one another, the routes of access to those containers, the historically successful search parameters by which those containers are accessed based upon the identity of the user accessing the containers, and the grade of access chosen by the user in accessing that container **100**.

Utilizing a pre-programmed sequence of compilation, and inductive, deductive and derivative analysis, the analysis engine manufactures instructions based upon the analysis of the information submitted by the gateways and the search interface, and submits those instructions to the appropriate execution engine **500** in order to create new information containers, content assemblages, storage schemes, access routes, search templates, and

gateway instructions, and others, and to provide informed search options through the search interface to the inquiring user.

The present invention also includes an engine editor **510**, that provides a system administrator with a means of editing the operating principles of that search engine, and search template loading in the search interface **300**, a reporting and collection means editor **610**, **710**, governing data reporting **600** and data collection **700** at the gateways **200** as defined by the gateway editor **210** and the register editor **125**, a container editor **110** for creating and modifying containers and appending registers to containers, a register editor **125** for creating and modifying container registers and establishing and adjusting the values therein, container gateways **200** with their own storage **205**, information containers **100** for holding information and container registers for holding information about specific containers and their history on the network.

The present invention also includes an execution engine **300**. Based upon instructions received from the analysis engine **400** utilizing the communication device **26**, the execution engine **500** provides search phrases to the search interface **300** based upon initially received inquiries, relocates containers including their programs, data and registers to other directories, drives, computers, networks on other classes of storage mediums, i.e., tape drive, optical drive, CD-ROM, deletes, copies, moves containers to nest within or encompass other containers on other directories, drives, computers, networks to nest within other containers, alters the class of storage medium upon which containers reside, the subsets and supersets by which and in which containers encompass and reside within one another, the routes of access to those containers, and the historically successful search parameters by which those containers are accessed based upon the identity of the user accessing the container and the grade of access chosen by the user in accessing that container.

The execution engine **400** fulfills the instructions of the analysis search engine **500**, to create new information containers, content sub and superset assemblages, storage schemes, access routes, search templates, gateway **200** instructions and other system functions. The execution engine includes an editor **510** that provides a system manager with a means of editing the operating principles of that search engine, governing data reporting, data collection **700**, search template loading, gateway instructions, and other functions.

The present invention also includes flat or relational databases **900**, used where, and as required.

The present invention also includes a communication device **26** supporting all operations on a network wide basis.

The present invention also includes a search engine **300** to locate the desired site or data. The present invention also includes databases **900**, flat or relational, to serve the other components of the system as needed and where needed.

The present invention also includes editors, by which the user may alter the governing aspects of the system. Editors include, but are not limited to, a container editor **110**, a register editor **125**, a gateway editor **210**, an engine editor **510**, a reporting means editor **610**, a search interface **300**, and a collection means editor **710**.

The present invention also includes specific screen interfaces for the editors, as described in Fig. **14**, Fig. **15**. and Fig. **16**.

The present invention also includes a means for this system **10** and network **201 or container editor 110** to be accessed from a menu or button selection within any program, as described in Fig. **17**.

While the present invention has been described with reference to certain preferred embodiments, those skilled in the art will recognize that various modifications may be provided. For example, both analysis engine and execution engine may be duplicated or modified for distribution at various locations and hierarchical positions in the gateway and container system throughout the network and designed to work in concert. Also, the physical computing infrastructure may be mainframe, mini, client server or other with various network and distributed computing designs, including digitally supported or based physical or public media, and the components of the system 10, as described in Fig. 1 may be physically distributed through space. Even the contents of a single container may be logically referenced but be physically distributed through the network and reside at multiple storage locations. The whole system may be hierarchically nested within other systems to the nth degree. Whole systems may also be encapsulated within containers. A single container may also encompass a single physical media, such as a CD-ROM disk, programmed with the container, gateway and register design. Gateways may be strategically placed on containers at ingress and/or egress points or may be placed strategically throughout the system for optimal collection and

reporting output and gateway system control. Also, the loop of gateway data collection and reporting, analysis engine analysis, instruction, and gateway modification, and execution engine operations may be infinitely nested, from the smallest container of two sub-containers to whole networks holding millions of containers and thousands of levels, with analysis itself nested within the multiple levels. Gateways may be established at both logical and physical junctures such as a satellite uplink point. Also, the provision to establish a unique network identity might be designed to include as of yet unknown computer networks as they arise. The analysis and execution engines may operate on a rules-based, fuzzy logic, artificial intelligence, neural net, or other system not yet devised. Other variations upon and modifications to the preferred embodiments are provided for by the present invention, which is limited only by the following claims. Also, the classification scheme of nested containers, while designated by the container creators, may transform, be utilized otherwise, or be wholly discarded according to usage. Also, hardware configurations, such as the use of RAM or hard drives for storage or lasers for communication may assume myriad forms without altering the essential operation of this invention.

WHAT IS CLAIMED IS:

1. An apparatus for transmitting, receiving and manipulating information on a computer system, the apparatus including a plurality of containers, each container being a logically defined data enclosure and comprising:

an information element;

a plurality of registers, the plurality of register forming part of the container, a first register of the plurality of registers for storing a unique container identification value, a second register of the plurality of registers that stores information and evolves according to the relationship, use and interaction of the container with other containers, processes and systems; and

a gateway attached to and forming part of the container, the gateway controlling the interaction of the container with other containers, systems and process.

2. The apparatus of claim 1, wherein the information element is one from the group of text, graphic images, video, audio, a digital pattern, a process, a nested container, bit, natural number and a system.

3. The system of claim 1, wherein the plurality of registers include at least one container history register for storing information regarding past interaction of the container with other container, system or processes, the container history register being modified.

4. The system of claim 1, wherein the plurality of registers include at least one system history register for storing information regarding past interaction of the container with different operating system and network processes.

5. The system of claim 1, wherein the plurality of registers include at least one predefined register, the predefined register being a register associated with an editor for user selection, the predefined register appendable to any container.

6. The system of claim 1, wherein the plurality of registers include a user-created register, the user-created register generated by the user, one or more of which is appendable to any container.

7. The system of claim 1, wherein the plurality of registers include a system-defined register, the system-defined register set, controlled and used by the system, one or more of which is appendable to any container.

8. The system of claim 1, wherein the plurality of registers include at least one register for controlling the relationship of the container with other containers, systems and processes using time as a parameter.

9. The system of claim 8, wherein the plurality of registers include:

an active time register for identifying times at which the container will act upon other containers, processes, systems or gateways;

an passive time register for identifying times at which the container can be acted upon other containers, processes systems, or gateways; and

a neutral time register for identifying times at which the container may interact with other containers.

10. The system of claim 1, wherein the plurality of registers include at least one acquire register for controlling whether the container adds a register or a container from other containers when interacting with them.

11. The system of claim 1, wherein the plurality of registers include at least one register for controlling the relationship of the container with other containers using space as a parameter.

12. The system of claim 11, wherein space refers to the geographic location of a the container.

13. The system of claim 11, wherein space refers to the logical address space of a network in which a container resides.

14. The system of claim 11, wherein the plurality of registers include:

an active space register for identifying space in which the container will act upon other containers, processes, systems or gateways;

an passive space register for identifying from which the container can be acted upon other containers, processes systems, or gateways; and

a neutral time register for identifying space in which the container may interact with other containers.

15. The system of claim 1, wherein the gateway includes means for acting upon another container, the means for acting upon another container using the plurality of register to determine whether and how the container acts upon other containers.

16. The system of claim 1, wherein the gateway includes means for allowing interaction, the means for allowing interaction using the plurality of registers to determine whether and how another container can act upon the container.

17. The system of claim 1, wherein the gateway includes means for gathering information, the means for gathering information recording register information from other containers, systems and processes that interact with the container.

18. The system of claim 1, wherein the gateway includes means for reporting information, the means for reporting information providing register information to other containers, systems and processes that interact with the container.

19. The system of claim 1, wherein the gateway includes an expert system including rules defining the interaction of the container with other containers, systems and processes.

20. A method for creating an interactive information container, the method including the steps of:

forming a container;

selecting an interactive register for the container;

identifying an item for inclusion in a container; and

creating a container element that includes the identified item.

21. The method of claim 20, wherein the step of forming a container further comprising the steps of:

displaying a plurality of container levels;

receiving input from a user selecting one of the displayed container level; and

displaying a container template corresponding to the container level input.

22. The method of claim 20, wherein the step of selecting an interactive register further comprising the steps of:

displaying a list of available registers;

receiving input selecting an available register from the list of available registers;

receiving input values for the selected available register; and

appending the register to the container.

23. The method of claim 20, wherein the step of creating a container element that includes the identified item further comprising the steps of:

providing a data structure as part of the container element;

storing the identified element in the data structure; and

associating the container element with the container.

24. The method of claim 20, wherein the step of forming a container includes the step of providing for the container a gateway that uses the interactive register to control the interaction of the container with other containers, processes, and systems.

25. The method of claim 24, wherein the step of providing a gateway further comprising the steps of:

determining a current gateway for a system upon which the container is being created;

replicating the current gateway to create a new gateway; and

associating the new gateway with the container.

26. The method of claim 24, wherein the step of providing a gateway further comprising the steps of:

determining a register for a system upon which the container is being created;

replicating the determined register to create a new register; and

associating the new register with the container.

27. The method of claim 20, wherein the step of selecting an interactive register further comprising the steps of:

retrieving a list of available registers;

selecting an available register from the list of available registers by the system;

receiving input values for the selected available register from the system; and

appending the register to the container.

28. The method of claim 20, wherein the step of creating a container element that includes the identified item is performed by a system interacting with the container, and further comprising the steps of:

providing a data structure as part of the container element;

storing the identified element in the data structure; and

associating the container element with the container.

29. A method for interacting between a first interactive information container and a second interactive information container, the method including the steps of:

determining identification information for the first container using a first gateway;

determining identification information for the second container using a second gateway;

determining whether the first container can act upon the second container using the first gateway and a register of the first container;

determining whether the second container can be acted upon by the first container using the second gateway and a register of the second container; and

performing the interaction between the first and second containers prescribed by the first gateway and the register of the first container if both the first container can act upon the second container and the second container can be acted upon by the first container.

30. The method for interacting of claim 29, wherein the steps of determining identification information are performed by reading respective identification registers of the first and second containers.

31. The method for interacting of claim 29, further comprising the step of altering a register of the first container and a register of the second container to reflect the interaction between the first container and the second container.

32. The method for interacting of claim 29, further comprising the step of adding registers to the first container based on the registers in the second container and the second gateway.

33. The method for interacting of claim 29, wherein the step of performing also uses the second gateway and the register of the second container to determine the prescribe action to be taken.

34. The method for interacting of claim 29, further comprising the steps of:

determining whether the first container should add an identified register of the second container as a new register of the first container using an acquire register and the first gateway of the first container; and

adding the new register to the first container if it is determined that the new register should be added to the first container.

35. The method for interacting of claim 29, further comprising the step of modifying the first gateway of the first container based on the interaction between the first container and the second container.

36. The method for interacting of claim 35, wherein the step of modifying includes modifying rules of an expert system that forms the first gateway of the first container.

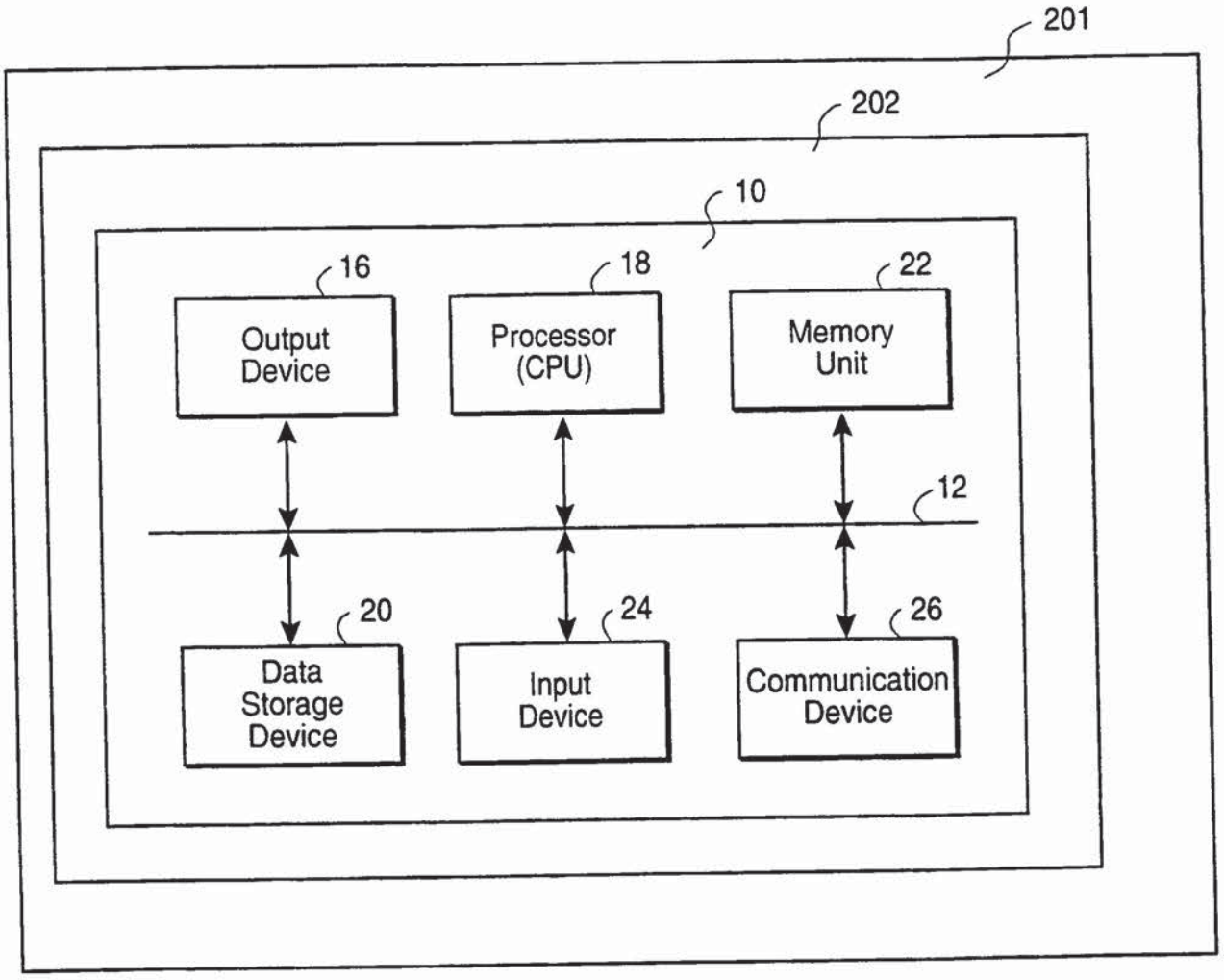

FIG. 1

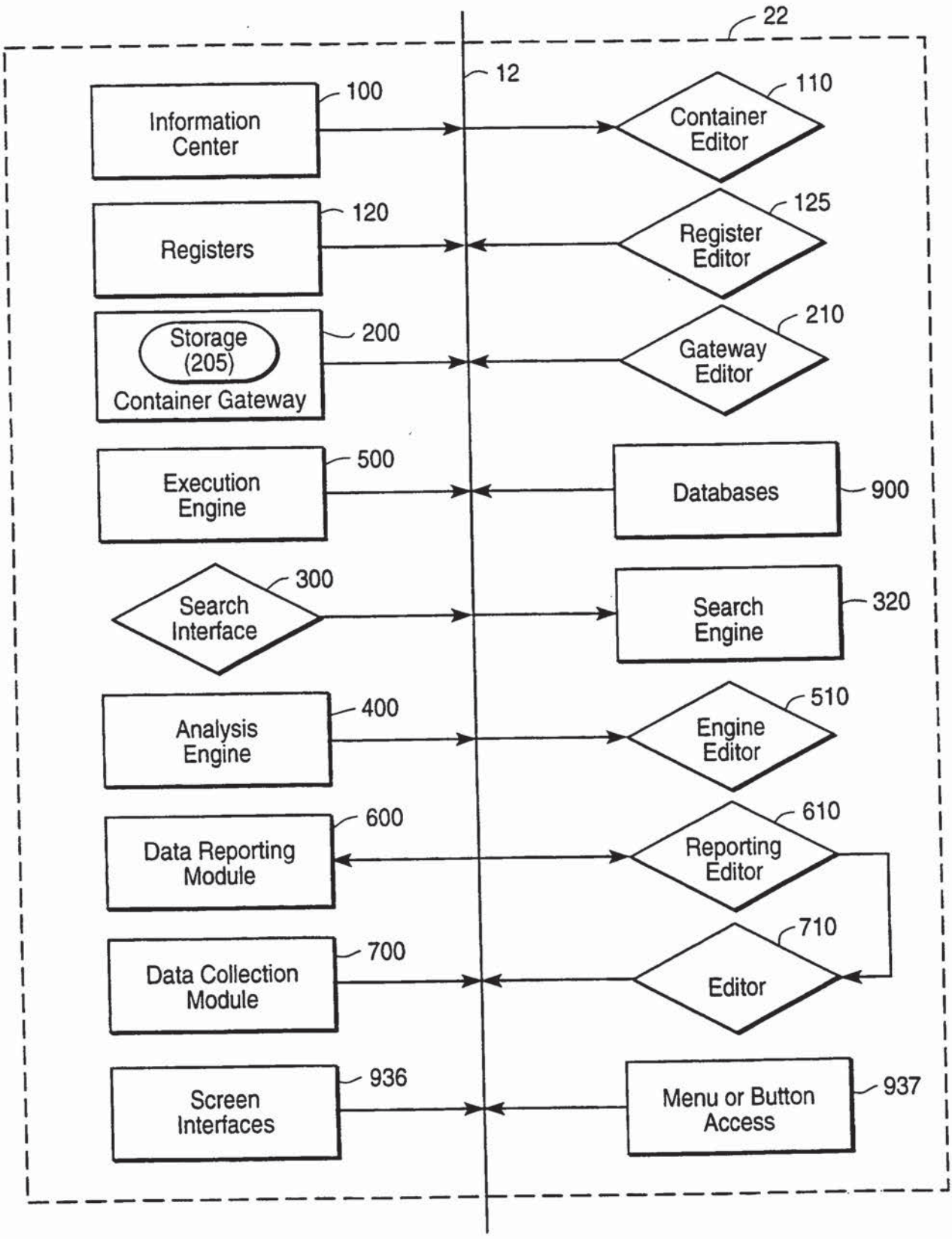

FIG. 2A