US006854007B1

(12) **United States Patent**   (10) Patent No.: **US 6,854,007 B1**
Hammond   (45) **Date of Patent:** **Feb. 8, 2005**

(54) **METHOD AND SYSTEM FOR ENHANCING RELIABILITY OF COMMUNICATION WITH ELECTRONIC MESSAGES**

(75) Inventor: **Nancey J. Hammond**, Eagle, ID (US)

(73) Assignee: **Micron Technology, Inc.**, Boise, ID (US)

( * ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/153,994**

(22) Filed: **Sep. 17, 1998**

(51) **Int. Cl.**$^7$ ................................................ **G06F 15/16**

(52) **U.S. Cl.** ........................ **709/206**; 709/207; 719/313

(58) **Field of Search** .......................... 719/313; 709/206, 709/207, 200, 313, 310, 204

(56) **References Cited**

U.S. PATENT DOCUMENTS

| | | | | | | |
|---|---|---|---|---|---|---|
| 4,962,532 A | * | 10/1990 | Kasiraj et al. | .............. | 713/166 |
| 5,057,935 A | * | 10/1991 | Williams | .................... | 358/402 |
| 5,325,310 A | * | 6/1994 | Johnson et al. | ............. | 709/206 |
| 5,396,537 A | * | 3/1995 | Schwendeman | ........... | 340/7.23 |
| 5,487,100 A | * | 1/1996 | Kane | ......................... | 340/7.23 |

(List continued on next page.)

FOREIGN PATENT DOCUMENTS

| | | | | | |
|---|---|---|---|---|---|
| JP | 04282934 A | * | 10/1992 | ........... | H04L/12/54 |
| JP | 08130554 A | * | 5/1996 | ........... | H04L/12/54 |
| JP | 11252164 A | * | 9/1999 | ........... | H04L/12/54 |

OTHER PUBLICATIONS

Fulton, Jennifer et al. "Netscape Navigator 6 in 1". Que Corporation. 1996. p. 177–188.*
Cox, Nancy. "Messaging's next blockbuster hit". Computer Select, Apr. 15, 1997.*
Microsoft. "Messaging Client API". MAPI Version 1.0. Apr. 15, 1992.*

Drummond, Rik. "Save and secure electronic commerce." Computer Select. Dec. 1, 1996.*

Moore, K. "An Extensible Message Format for Delivery Status Notification." RFC 1894. Jan. 1996.*

Fleming, S.T. "Electronic mail: case study in task–oriented restructuring of application domain." IEEE, Mar. 1994.*

(List continued on next page.)

*Primary Examiner*—Lewis A. Bullock, Jr.
(74) *Attorney, Agent, or Firm*—Dorsey & Whitney LLP

(57) **ABSTRACT**

A system for enhancing the reliability of communicating with electronic messages. The system sends an electronic message to designated recipients, and then automatically helps ensure that each message has been successfully delivered within a specified period of time and that each message has been reviewed within a specified period of time. In addition, the system automatically performs specified activities after review of a message takes place. The sender of an electronic message initiates reliability-enhanced messaging by specifying message delivery information and message review information. The sender can specify that if delivery or review notifications are not received within specified periods of time, the message will be resent to the recipient or a reminder message will be sent to the recipient or to another user. The message information can include various frequency and duration options, such as resending a message only once or resending it every 2 hours for a week. Message information can also specify to resend the message with a higher transmission priority or review urgency so that its delivery and review is more likely, or could specify to use a different recipient system for the recipient (e.g., to a second email address if a first address fails, or to a pager if a cellular phone is not available). Each recipient of a message can have individualized message delivery information. The system tracks whether each message has been delivered to each recipient, and uses the message delivery information to resend the messages whose delivery and review was not confirmed.

**96 Claims, 7 Drawing Sheets**
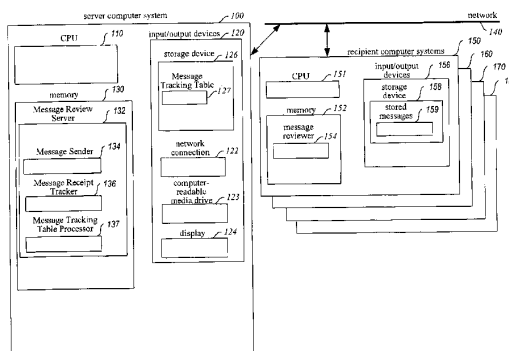
### U.S. PATENT DOCUMENTS

| | | | | | |
|---|---|---|---|---|---|
| 5,740,231 | A | * | 4/1998 | Cohn et al. ................. | 370/401 |
| 5,742,668 | A | * | 4/1998 | Pepe et al. .................. | 455/415 |
| 5,764,899 | A | * | 6/1998 | Eggleston et al. .......... | 709/203 |
| 5,790,639 | A | * | 8/1998 | Ranalli et al. .............. | 358/407 |
| 5,793,973 | A | * | 8/1998 | Birdwell et al. ............ | 709/223 |
| 5,819,110 | A | * | 10/1998 | Motoyama ................... | 710/15 |
| 5,842,195 | A | * | 11/1998 | Peters et al. ................... | 707/1 |
| 5,893,099 | A | * | 4/1999 | Schreiber et al. ............. | 707/10 |
| 5,923,848 | A | * | 7/1999 | Goodhand et al. .......... | 709/219 |
| 5,930,471 | A | * | 7/1999 | Milewski et al. ........... | 709/204 |
| 5,940,823 | A | * | 8/1999 | Schreiber et al. ........... | 707/200 |
| 5,978,836 | A | * | 11/1999 | Ouchi ........................ | 709/203 |
| 6,002,852 | A | * | 12/1999 | Birdwell et al. ............ | 709/203 |
| 6,038,601 | A | * | 3/2000 | Lambert et al. ............ | 709/226 |
| 6,108,688 | A | * | 8/2000 | Nielsen ...................... | 709/206 |
| 6,108,709 | A | * | 8/2000 | Shinomura et al. ......... | 709/228 |
| 6,157,945 | A | * | 12/2000 | Balma et al. ............... | 709/206 |
| 6,175,859 | B1 | * | 1/2001 | Mohler ....................... | 709/206 |
| 6,185,603 | B1 | * | 2/2001 | Henderson et al. ......... | 709/206 |
| 6,208,996 | B1 | * | 3/2001 | Ben-Shachar et al. ...... | 345/963 |
| 6,272,532 | B1 | * | 8/2001 | Feinleib ...................... | 709/206 |
| 6,314,454 | B1 | * | 11/2001 | Wang et al. ................ | 709/206 |
| 6,327,046 | B1 | * | 12/2001 | Miyamoto et al. ......... | 358/1.15 |
| 6,370,567 | B1 | * | 4/2002 | Ouchi ........................ | 709/206 |
| 6,427,164 | B1 | * | 7/2002 | Reilly ........................ | 709/206 |
| 6,453,341 | B1 | * | 9/2002 | Miloslavsky ................ | 709/206 |
| 6,603,389 | B1 | * | 8/2003 | Murray ....................... | 340/7.2 |
| 6,618,747 | B1 | * | 9/2003 | Flynn et al. ................ | 709/206 |
| 2002/0055898 | A1 | * | 5/2002 | Burakoff et al. .............. | 705/35 |
| 2002/0144154 | A1 | * | 10/2002 | Tomkow ..................... | 713/201 |

### OTHER PUBLICATIONS

"Conferencing Tools," http://www.cio.com/WebMaster/wm_conferencing.html, p. 1 [Accessed Jan. 22, 1998].

"What is HyperNews?,"http://www.cer.ch/WebOfficialDoc/HyperNews/WhatIsHN.html, pp. 1–4 [Accessed Jan. 22, 1998].

"The Right Work Environment for Network–Centric Computing," http://esuite.lotus.com/eSuite/eSuite_Site.nsf/b9160abf61cf14e38525653b006a4e99/2d227cfb1f91d8dc85256541002254, p. 1 [Accessed Jan. 22, 1998].

"Project Cyrus: Overview of Technologies Chosen," http://andrew2.andrew.cmu.edu/cyrus/cyrustechoverview.fm.html, pp. 1–2 [Accessed Jan. 22, 1998].

"Multiple–reply 'SPAR' Service," DataBack Systems, http://www2.databack.com/mailback/multispar.htm, pp. 1–2 [Accessed Jan. 28, 1998].

"Conferencing Systems," Collaborative Conferencing, http://www.hypernews.org/HyperNews/get/www.collab/conferencing.html, pp. 1–4 [Accessed Jan. 22, 1998].

"AutoResponder/AutoMailer/Autobot Comparisons," http://www.makura.com/auto/autocomp.html, pp. 1–18 [Accessed Jan. 28, 1998].

"Lotus cc:Mail Release 8.1," http://www.ccmail.com/overview/r81specsheet.htm, pp. 1–3 [Accessed Jan. 22, 1998].

"Lotus cc:Mail Technical Overview," http://www.ccmail.com/overview/overview.htm, pp. 1–43 [Accessed Jan. 22, 1998].

"GroupWise 5: Detailed Information," Novell GroupWise 5 Product Details, http://www.sisnema.com.br/novell/ngw5/ngw5.1/informativo/infoing.htm, pp. 1–9 [Accessed Jan. 28, 1998].

* cited by examiner

server computer system

CPU ⌐ 110    input/output devices ⌐ 120    ⌐ 100

storage device ⌐ 126

Message
Tracking Table ⌐ 127

memory ⌐ 130

Message Review
Server ⌐ 132

Message Sender ⌐ 134

Message Receipt
Tracker ⌐ 136

Message Tracking
Table Processor ⌐ 137

network
connection ⌐ 122

computer-
readable
media drive ⌐ 123

display ⌐ 124

network

recipient computer systems ⌐ 150

CPU ⌐ 151    input/output
devices ⌐ 156

storage
device ⌐ 158

stored
messages ⌐ 159

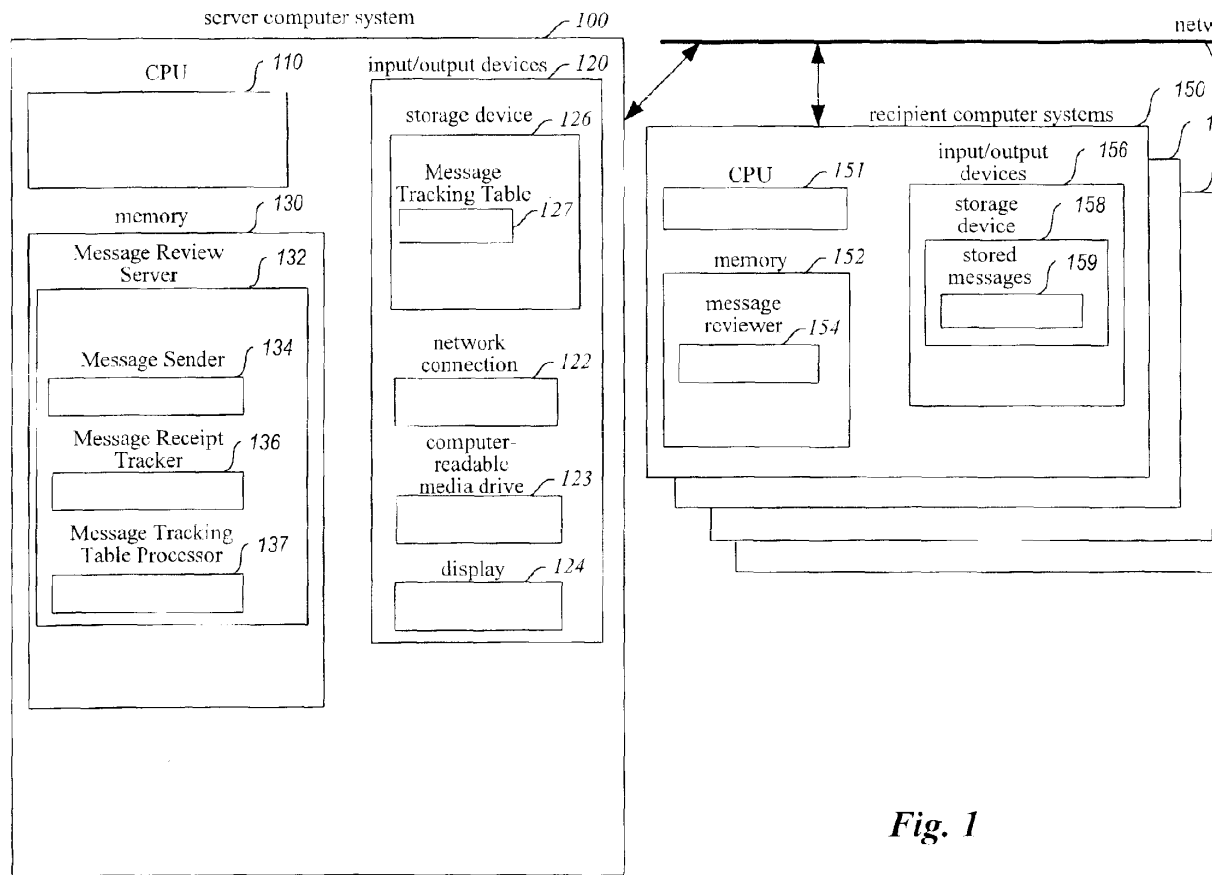memory ⌐ 152

message
reviewer ⌐ 154

*Fig. 1*

Message Tracking Table

127

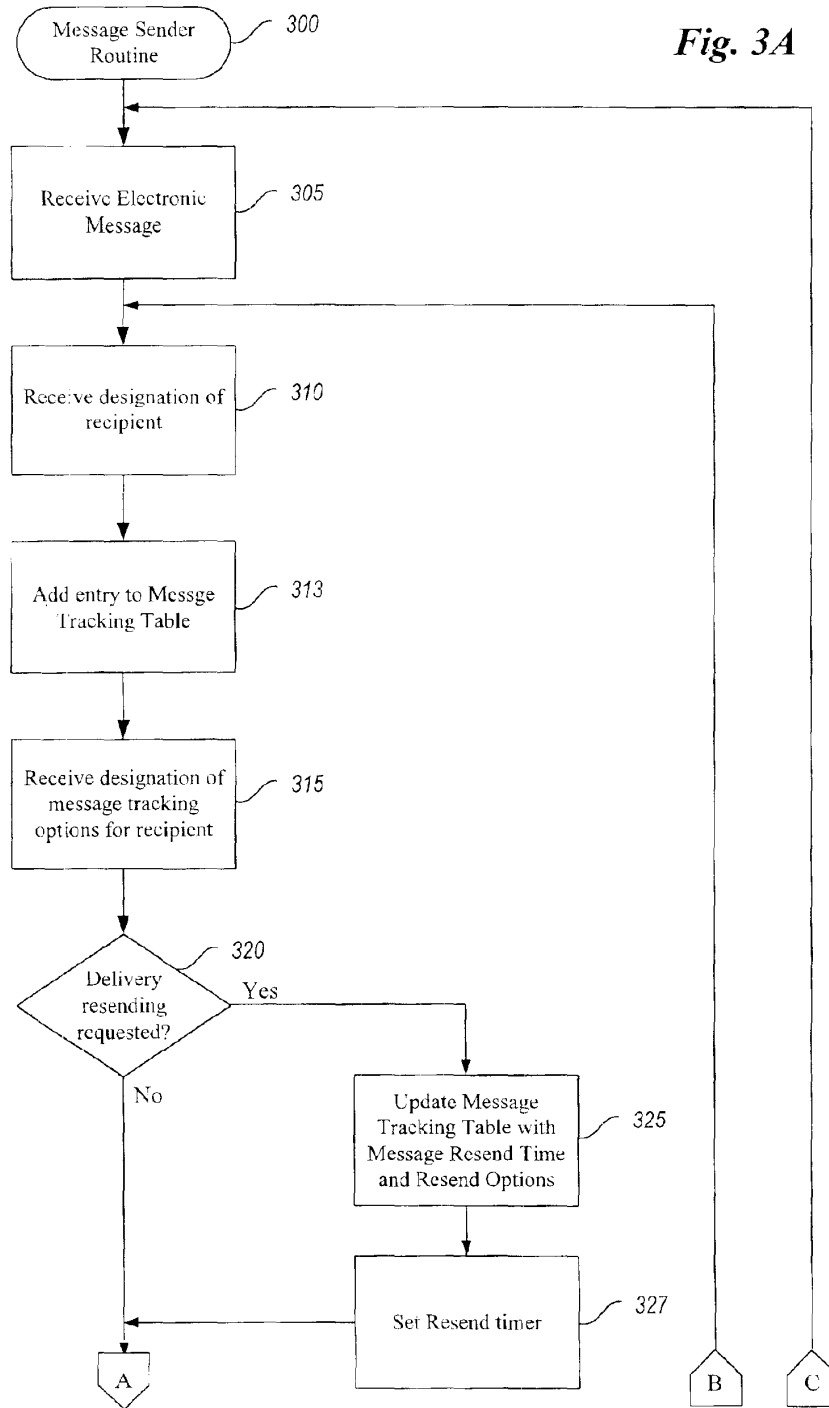| Row/Column | 1<br>Message ID | 2<br>Recipient ID | 3<br>Send Time | 4<br>Delivery Time | 5<br>Review Time | 6<br>Resend Time Period | 7<br>Review Reminder Time Period | 8<br>Post-Review Time Period |
|---|---|---|---|---|---|---|---|---|
| 1 | 1 | ABC | 07/26/XX 18:26:33 | 07/26/XX 18:28:15 | 07/28/XX 10:12:33 | 1 hour | 1 day | 1 hour |
| 2 | 1 | BCD | 07/26/XX 18:26:33 | 07/27/XX 00:15:12 | 07/27/XX 11:33:37 | 2 hours | 18 hours | |
| 3 | 2 | CDE | 07/28/XX 10:05:10 | | 07/30/XX 09:08:13 | | 2 days | 1 day |
| 4 | 3 | ABC | 08/10/XX 09:10:13 | 08/10/XX 09:10:17 | | 1 minute | | |
| ⋮ | | | | | | | | |

Message Tracking Table (continued)

127

| Row/Column | 9<br>Resend Record | 10<br>Review Reminder Record | 11<br>Post-Review Record | 12<br>Resend Options | 13<br>Review Reminder Options | 14<br>Post-Review Options |
|---|---|---|---|---|---|---|
| 1 | | 07/27/XX 18:30:10 | 07/28/XX 11:13:00 | High Priority | High Urgency | Message Y |
| 2 | 07/26/XX 20:26:45<br>07/26/XX 22:28:13 | | | Max 3 times | Template X | |
| 3 | | | 07/31/XX 09:10:00<br>08/01/XX 09:10:10 | | Supervisor | Template R<br>Template S |
| 4 | | | | | | |
| ⋮ | | | | | | |

*Fig. 2*

*Fig. 3A*

Message Sender Routine — 300

Receive Electronic Message — 305

Receive designation of recipient — 310

Add entry to Messge Tracking Table — 313

Receive designation of message tracking options for recipient — 315

Delivery resending requested? — 320

Yes

No

Update Message Tracking Table with Message Resend Time and Resend Options — 325

Set Resend timer — 327

A

B    C

# DOCKET ALARM

# Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

## Real-Time Litigation Alerts

Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## Advanced Docket Research

With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

## Analytics At Your Fingertips

Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

## API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

### LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

### FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

### E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.