US006738799B2

(12) **United States Patent**　(10) **Patent No.: US 6,738,799 B2**
Dickenson　(45) **Date of Patent: *May 18, 2004**

(54) **METHODS AND APPARATUSES FOR FILE SYNCHRONIZATION AND UPDATING USING A SIGNATURE LIST**

(75) Inventor: **Peter Dickenson**, Williamsburg, VA (US)

(73) Assignee: **Symantec Corporation**, Cupertino, CA (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.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **10/452,156**

(22) Filed: **Jun. 2, 2003**

(65) **Prior Publication Data**

US 2003/0200207 A1 Oct. 23, 2003

**Related U.S. Application Data**

(63) Continuation of application No. 09/303,958, filed on May 3, 1999, now Pat. No. 6,574,657.

(51) **Int. Cl.**[7] .............................................. **G06F 15/16**
(52) **U.S. Cl.** ........................ **709/203**; 709/217; 709/219; 709/229; 707/1; 707/203
(58) **Field of Search** ................................. 709/200–203, 709/216–219, 229, 231–232, 235–237; 717/10–12; 714/6–7; 707/1, 8–10, 200–204

(56) **References Cited**

U.S. PATENT DOCUMENTS

| | | | |
|---|---|---|---|
| 5,008,853 A | 4/1991 | Bly et al. | 345/751 |
| 5,694,596 A | 12/1997 | Campbell | 709/215 |
| 5,729,735 A | 3/1998 | Meyering | 707/10 |
| 5,752,039 A | 5/1998 | Tanimura | 717/11 |
| 5,787,247 A | 7/1998 | Norin et al. | 709/220 |
| 5,794,258 A | 8/1998 | Ishikawa et al. | 345/751 |
| 5,819,274 A | 10/1998 | Jackson, Jr. | 707/10 |

(List continued on next page.)

FOREIGN PATENT DOCUMENTS

| | | |
|---|---|---|
| WO | 94/23377 A1 | 10/1994 |
| WO | 94/25923 A1 | 11/1994 |

OTHER PUBLICATIONS

Schneier, B., "One–Way Hash Functions," Dr. Dobb's Journal, vol. 16, No. 9, pp. 148–151 (Sept. 1991).

(List continued on next page.)

*Primary Examiner*—Bharat Barot
(74) *Attorney, Agent, or Firm*—Fliesler Meyer LLP

(57) **ABSTRACT**

A server generates an update file for transmission to a client that permits the client to generate a copy of a current version of a subscription file from a copy of an earlier version of the subscription file. For each segment of the current version of the subscription file, the server searches an earlier version of a signature list for an old segment signature which matches a new segment signature corresponding to the segment. When a match is detected, the server writes a command in the update file for the client to copy an old segment of the client's copy of the earlier version of the subscription file into the client's copy of the current version of the subscription file, where the old segment corresponds to the segment for which a match was detected. When no match is detected, the server writes a command into the update file for the client to insert a new segment of the current version of the subscription file into the client's copy of the current version of the subscription file, where the new segment of the current version of the subscription file is written into the update file. The update file is only generated when the server determines the subscription file has changed. The server periodically monitors the subscription file to determine if it has been altered before generating an update file.

**46 Claims, 12 Drawing Sheets**
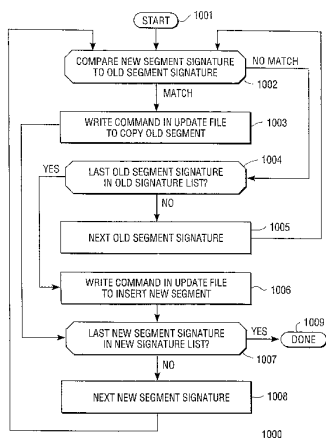
## U.S. PATENT DOCUMENTS

| | | | | | |
|---|---|---|---|---|---|
| 5,835,911 | A | | 11/1998 | Nakagawa et al. | 707/203 |
| 5,864,837 | A | | 1/1999 | Maimone | 707/1 |
| 5,890,164 | A | | 3/1999 | Nielsen | 707/201 |
| 5,913,032 | A | | 6/1999 | Schwartz et al. | 709/213 |
| 6,012,087 | A | | 1/2000 | Freivald et al. | 709/218 |
| 6,014,135 | A | | 1/2000 | Fernandes | 709/203 |
| 6,058,428 | A | | 5/2000 | Wang et al. | 709/232 |
| 6,073,007 | A | | 6/2000 | Doyle | 709/203 |
| 6,101,507 | A | | 8/2000 | Cane et al. | 707/204 |
| 6,151,708 | A | | 11/2000 | Pedrizetti et al. | 717/11 |
| 6,161,125 | A | | 12/2000 | Traversat et al. | 709/203 |
| 6,327,617 | B1 | * | 12/2001 | Fawcett | 709/219 |
| 6,574,657 | B1 | * | 6/2003 | Dickinson | 709/203 |

## OTHER PUBLICATIONS

Diem, D., "Wireless Data and Minimum Airtime Software," Dr. Dobb's Journal, pp. 1–14 (Dec. 1993).

Coppieters, K., "A Cross–Platform Binary Diff," Dr. Dobb's Journal, pp. 1–7 (May 1995).

"Keeping Road Warriors on Track," Mind Your Own Business, Market Place Publishing, UK, vol. 21, No. 6, p. 49 (Jun. 1998).

Freed, Les "Symantec Mobile Update," First Looks section of PC Magazine Online, http://www.zdnet.com/pcmag/first-looks/9806/f980610a.htm (Jun. 10, 1998).

* cited by examiner

DATA

ADDRESS

CONTROL

102   RAM

103   ROM

104   MICRO PROCESSOR

105   HARD DISK

101

106   DISPLAY MONITOR

107   KEYBOARD

108   MODEM

109   NETWORK INTERFACE

100

FIG. 1

FIG. 2

FIG. 3

# DOCKET ALARM
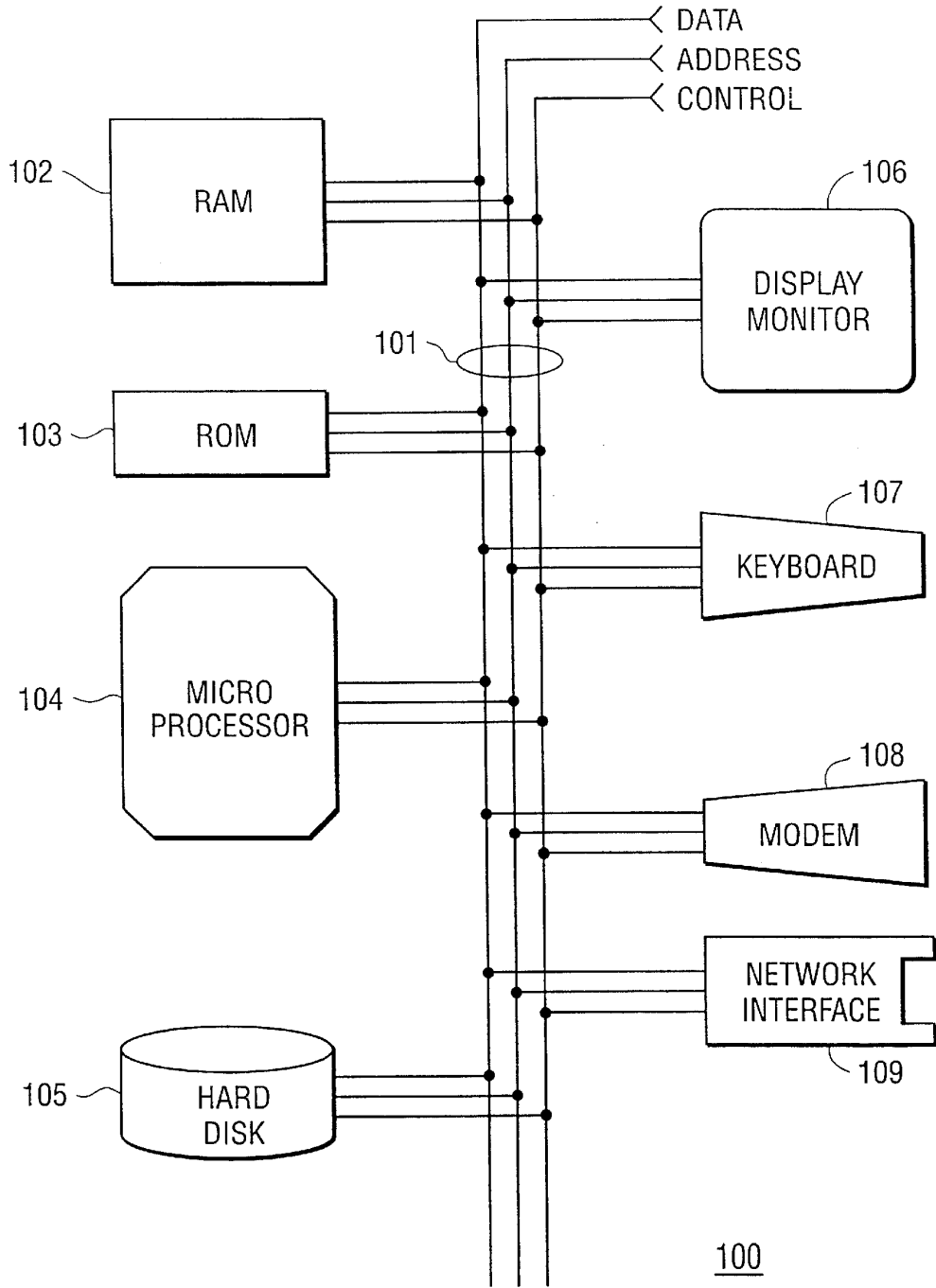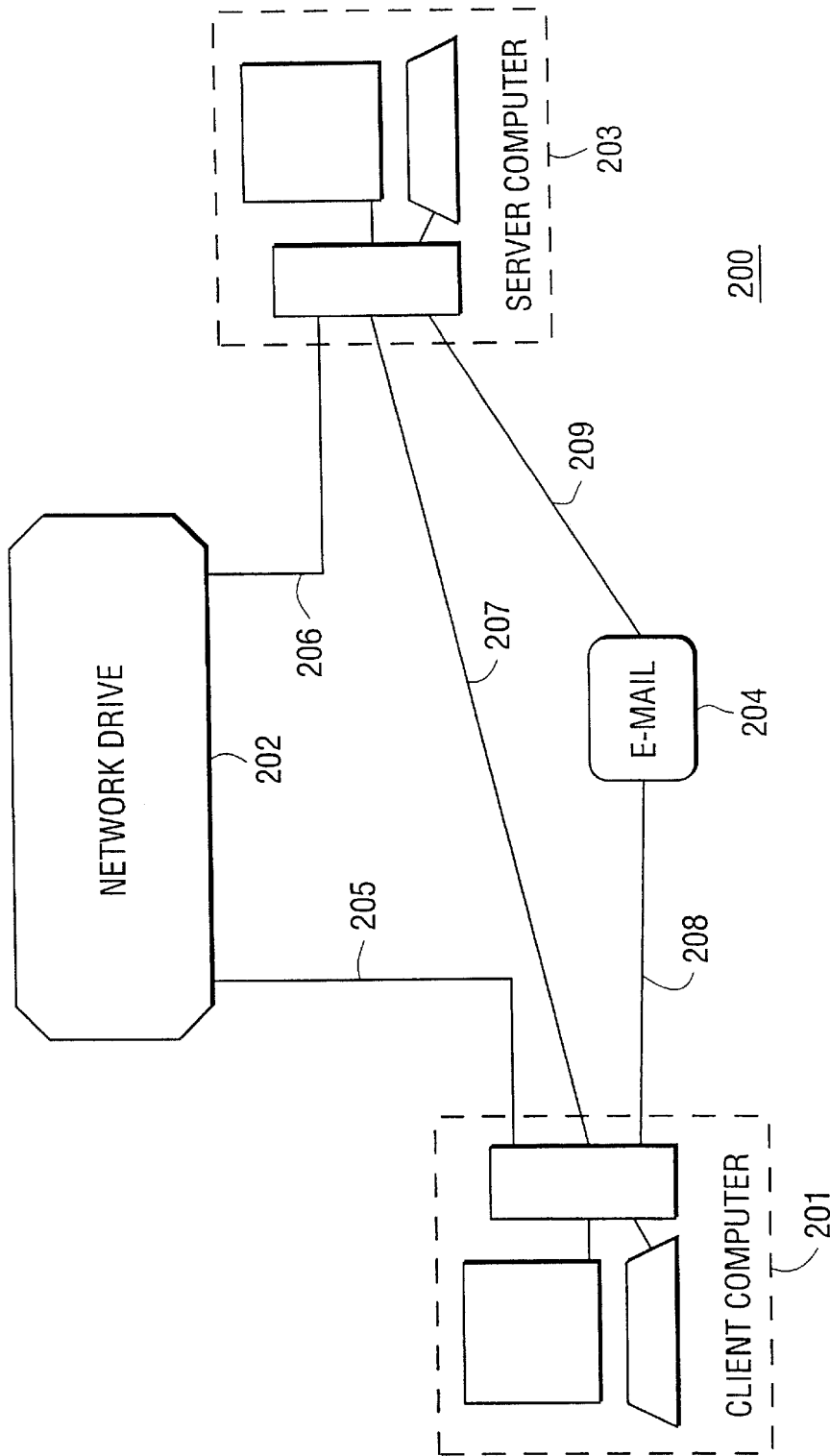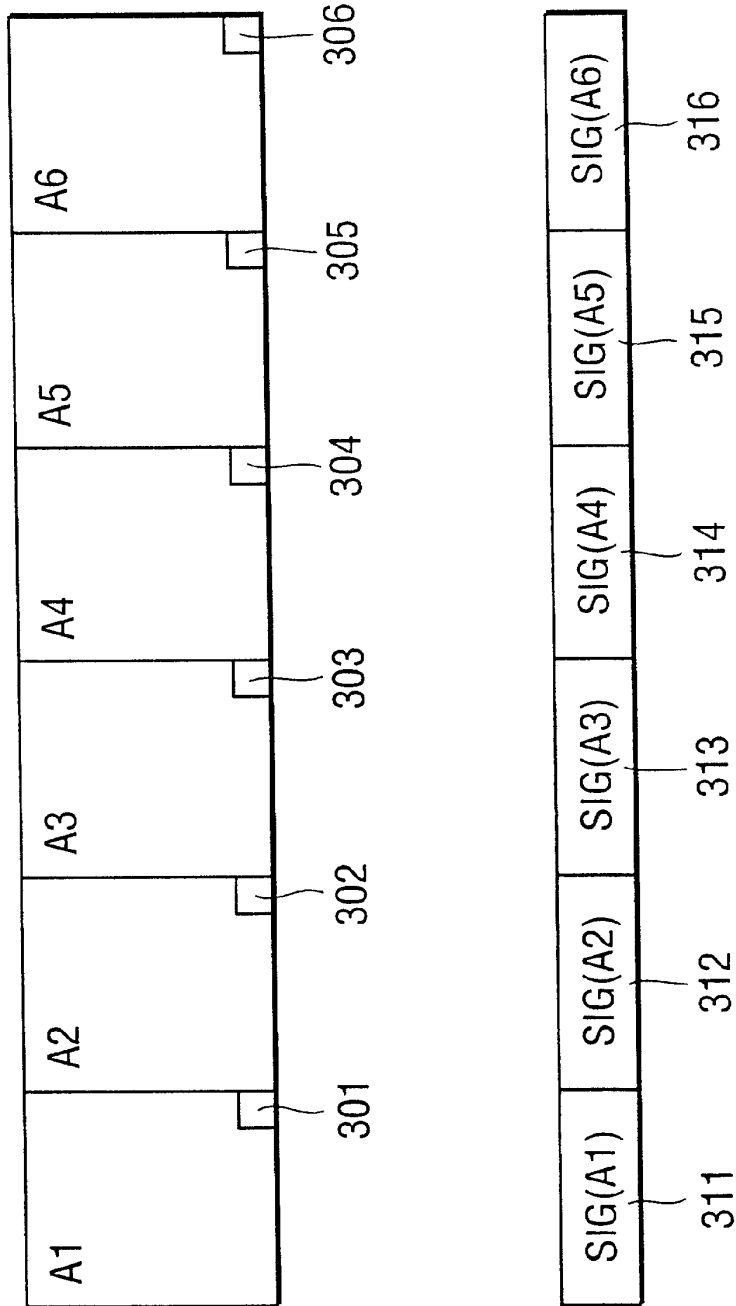
# Explore Litigation Insights

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.

**WHAT WILL YOU BUILD?** | sales@docketalarm.com | 1-866-77-FASTCASE

fastcase®
Smarter legal research.