



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

(10) **Patent No.:** **US 7,191,242 B1**
(45) **Date of Patent:** **Mar. 13, 2007**

(54) **METHODS AND APPARATUSES FOR TRANSFERRING DATA**

6,711,131 B1 * 3/2004 Shiobara 370/235
6,771,644 B1 * 8/2004 Brassil et al. 370/390

(75) Inventors: **Denis Serenyi**, Menlo Park, CA (US);
Chris LeCroy, Boulder Creek, CA (US)

FOREIGN PATENT DOCUMENTS
WO WO 97/22201 A2 6/1997
WO WO 00/27087 A1 5/2000

(73) Assignee: **Apple, Inc.**, Cupertino, CA (US)

OTHER PUBLICATIONS

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 716 days.

Schulzrinne et al., "RTP: A Transport Protocol for Real-Time Applications", Jan. 1996, RFC 1889.*
Hoffman, D. et al., "RTP Payload Format for MPEG1/MPEG2 Video", Jan. 1998, RFC 2250.*

(Continued)

(21) Appl. No.: **09/603,108**

Primary Examiner—Jason Cardone

(22) Filed: **Jun. 22, 2000**

Assistant Examiner—Thomas Duong

(51) **Int. Cl.**
G06F 15/16 (2006.01)

(74) Attorney, Agent, or Firm—Blakely, Sokoloff, Taylor & Zafman LLP

(52) **U.S. Cl.** **709/231; 709/217**

(57) **ABSTRACT**

(58) **Field of Classification Search** **709/223, 709/231, 224, 225**

See application file for complete search history.

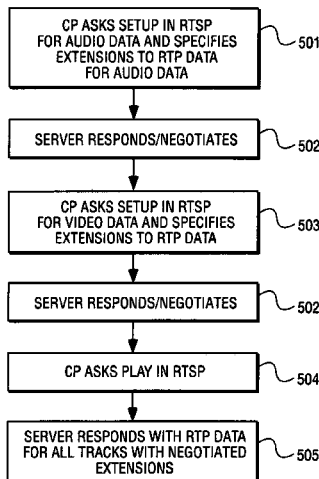
The present invention provides several methods and apparatuses for transmitting multimedia data using streaming media protocols such as real-time transfer protocols (RTP) and real-time streaming protocols (RTSP) in a computer network environment. In one exemplary embodiment, a request for RTP data and its associated extension is sent from the caching proxy server to the server. The request may be for one specific type of data or multiple unrelated types of data. The server responds to the request indicating its support for the requested RTP extension data. The caching proxy server determines whether to proceed or terminate the data transmission process based on the response provided by the server. If it is determined to proceed with the data transmission process, the caching proxy informs the server to send the requested and supported RTP data. The server sends the requested data in a variable and extendible header format.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,918,020 A * 6/1999 Blackard et al. 709/228
6,252,889 B1 * 6/2001 Patki et al. 370/474
6,263,371 B1 * 7/2001 Geagan et al. 709/231
6,275,471 B1 * 8/2001 Bushmitch et al. 370/248
6,300,887 B1 * 10/2001 Le 341/60
6,359,656 B1 * 3/2002 Huckins 348/512
6,415,327 B1 * 7/2002 Beckerman et al. 709/231
6,505,169 B1 1/2003 Bhagavath et al.
6,546,421 B1 * 4/2003 Wynblatt et al. 709/225
6,625,258 B1 * 9/2003 Ram et al. 379/88.13
6,629,138 B1 * 9/2003 Lambert et al. 709/224
6,639,896 B1 * 10/2003 Goode et al. 370/224
6,674,477 B1 * 1/2004 Yamaguchi et al. 348/387.1
6,708,213 B1 * 3/2004 Bommaiah et al. 709/226

42 Claims, 13 Drawing Sheets



OTHER PUBLICATIONS

Schulzrinne, H. et al, "RTP: A Transport Protocol for Real-Time Applications", Jan. 1996, RFC 1889.*

Carsten Griwodz, Alex Jonas, Michael Zink, Affordable Infrastructure for Stream Playback in the Internet, Darmstadt University of Industrial Process and System Communications (KOM), Dec. 12, 1999, Technical Report TR-KOM-1999-07, Darmstadt, Germany.

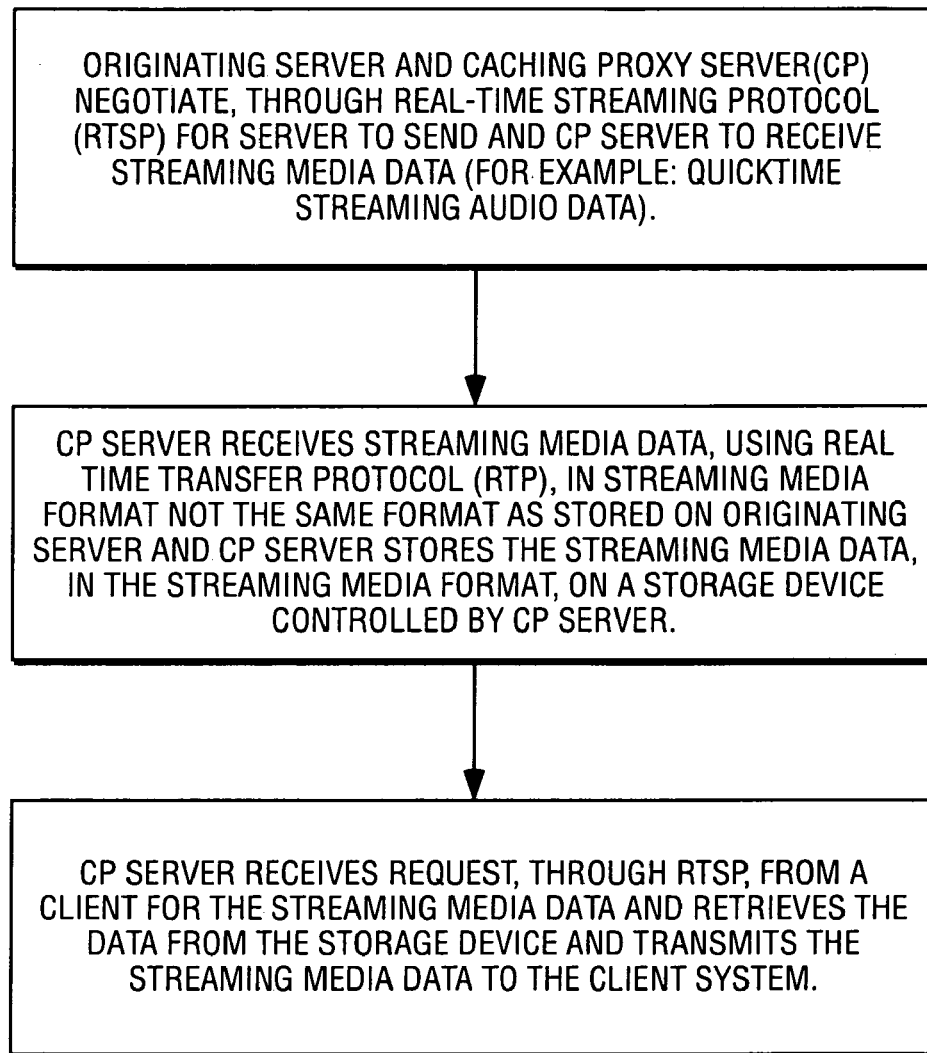
Schulzrinne, Henning and Rosenberg, Jonathan. "Internet Telephony: architecture and protocols—an IETF perspective," *Com-*

puter Networks, Elsevier Science Publishers: Amsterdam, NL, vol. 31 No. 3, Feb. 11, 1999 (pp. 237-255).

Schulzrinne, Henning et al. "RTP: A transport protocol for real-time applications," *Network Working Group RFC 1889 RTP*, Jan. 1996 (pp. 1-75).

PCT International Search Report for PCT Int'l Appln No. US01/20044, mailed May 22, 2002 (8 pages).

* cited by examiner

**FIG. 1A**

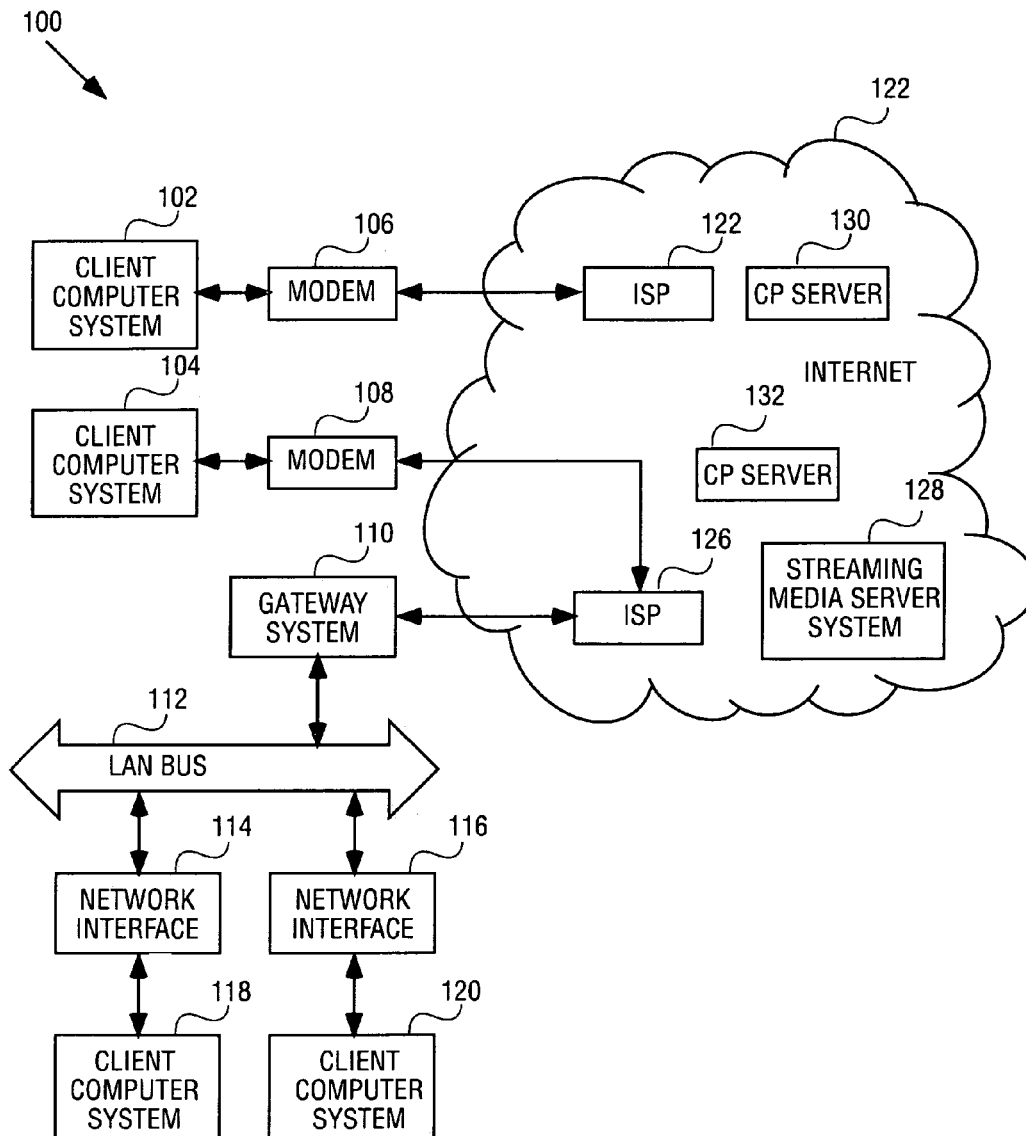


FIG. 1B

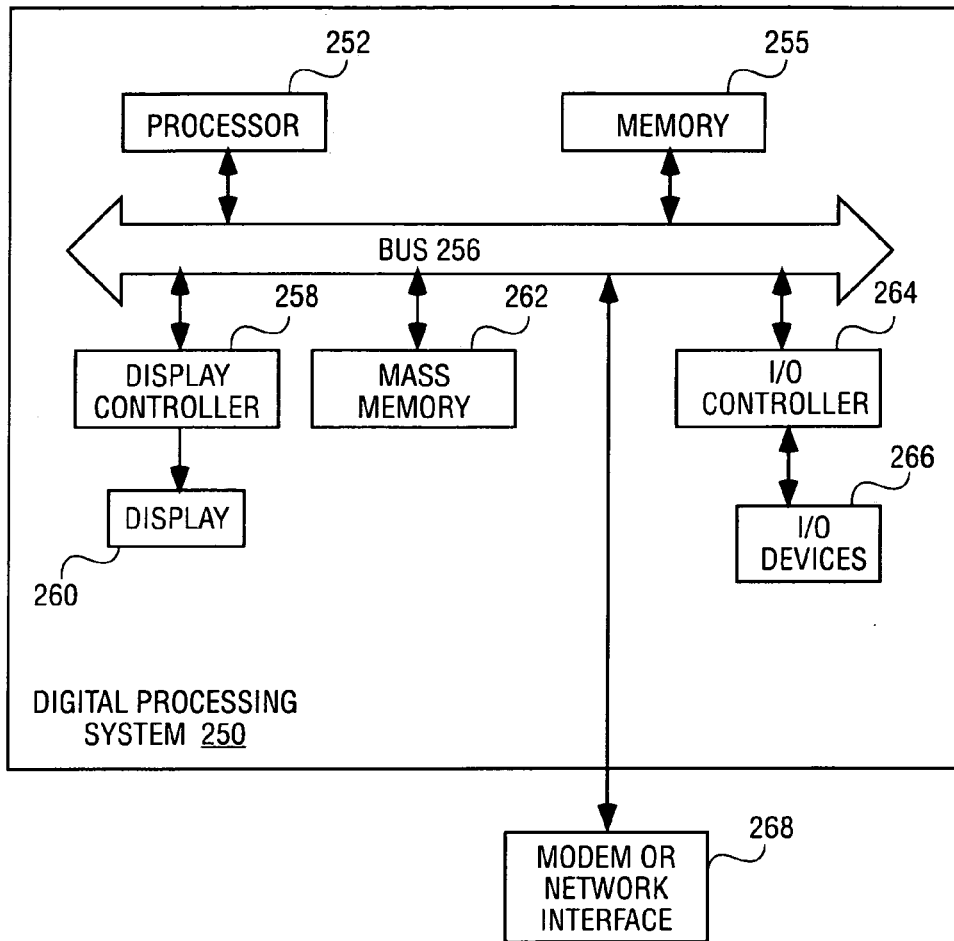


FIG. 2

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.