

Exhibit A



US006832249B2

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

(10) **Patent No.:** **US 6,832,249 B2**
 (45) **Date of Patent:** **Dec. 14, 2004**

(54) **GLOBALLY ACCESSIBLE COMPUTER NETWORK-BASED BROADBAND COMMUNICATION SYSTEM WITH USER-CONTROLLABLE QUALITY OF INFORMATION DELIVERY AND FLOW PRIORITY**

(75) Inventors: **Larry Ciscon**, Houston, TX (US);
Steven Reynolds, Houston, TX (US); **F. Scott Yeager**, Sugarland, TX (US)

(73) Assignee: **Intellectual Ventures Patent Holdings III, LLC**, Bellevue, WA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 719 days.

(21) Appl. No.: **09/860,801**

(22) Filed: **May 18, 2001**

(65) **Prior Publication Data**

US 2002/0004827 A1 Jan. 10, 2002

Related U.S. Application Data

(60) Provisional application No. 60/205,529, filed on May 19, 2000.

(51) **Int. Cl.**⁷ **G06F 13/00**

(52) **U.S. Cl.** **709/223**

(58) **Field of Search** 709/200, 223;
 370/328, 338, 903

(56) **References Cited**

U.S. PATENT DOCUMENTS

6,747,968 B1 * 6/2004 Seppala et al. 370/338

* cited by examiner

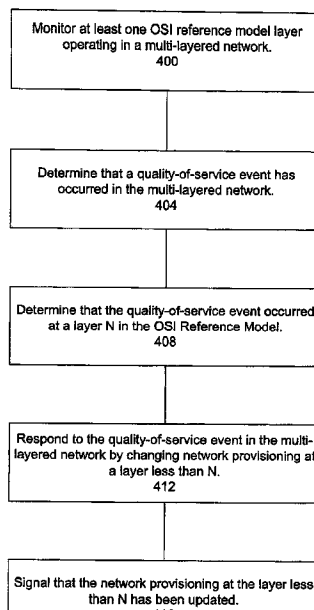
Primary Examiner—Robert B. Harrell

(74) *Attorney, Agent, or Firm*—Wong, Cabello, Lutsch, Rutherford & Brucculeri, LLP

(57) **ABSTRACT**

A method for providing broadband communications over a multi-layered network having a plurality of Open System Interconnection (OSI) Reference Model layers functioning therein includes monitoring at least one OSI reference model layer functioning in the multi-layered network. A quality of service event is determined whether to have occurred in the multi-layered network. The quality of service event is determined to have occurred at a layer N in the OSI reference model. Network provisioning is changed at a layer less than N in response to the quality of service event, and a signal is provided when the network provisioning at the layer less than N has been changed. A system for providing broadband communications includes a multi-layered network, a network monitor, and a network controller. The multi-layered network has a plurality of Open System Interconnection (OSI) reference model layers functioning therein. The network monitor is coupled to the multi-layered network, and the network monitor is adapted to monitor at least one OSI reference model layer functioning in the multi-layered network, determine that a quality of service event has occurred in the multi-layer network, and determine that the quality of service event occurred at a layer N in the OSI reference model. The network controller is coupled to the multi-layered network, and the network monitor is adapted to respond to the quality of service event in the multi-layered network by changing the network provisioning at a layer less than N.

49 Claims, 8 Drawing Sheets



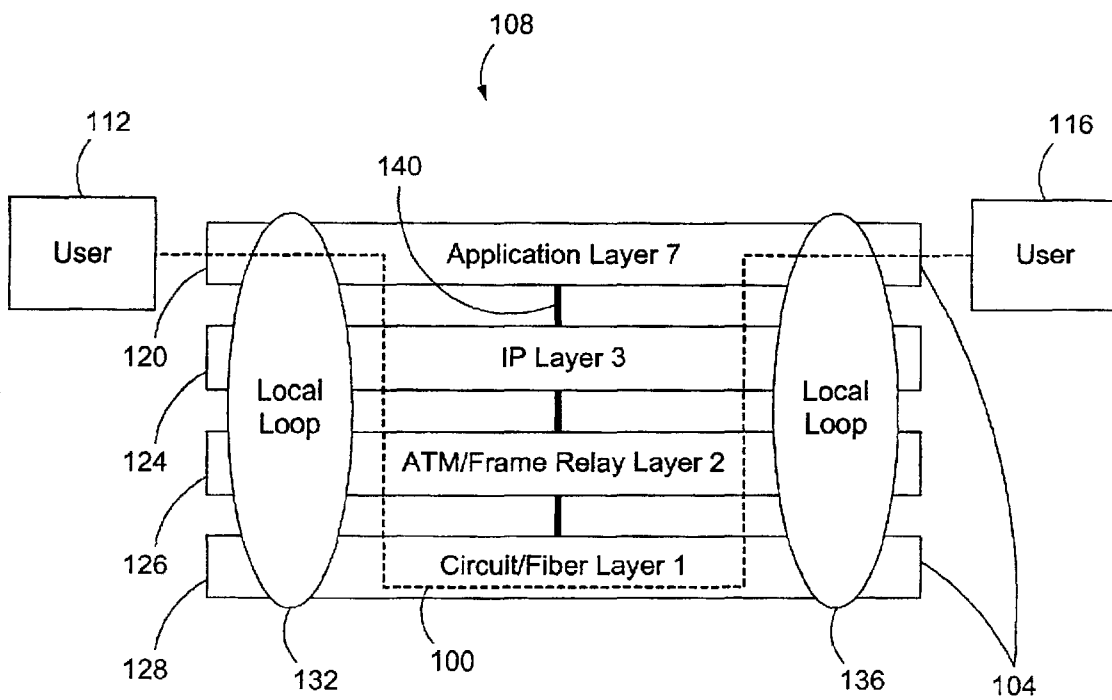


Figure 1
(Prior Art)

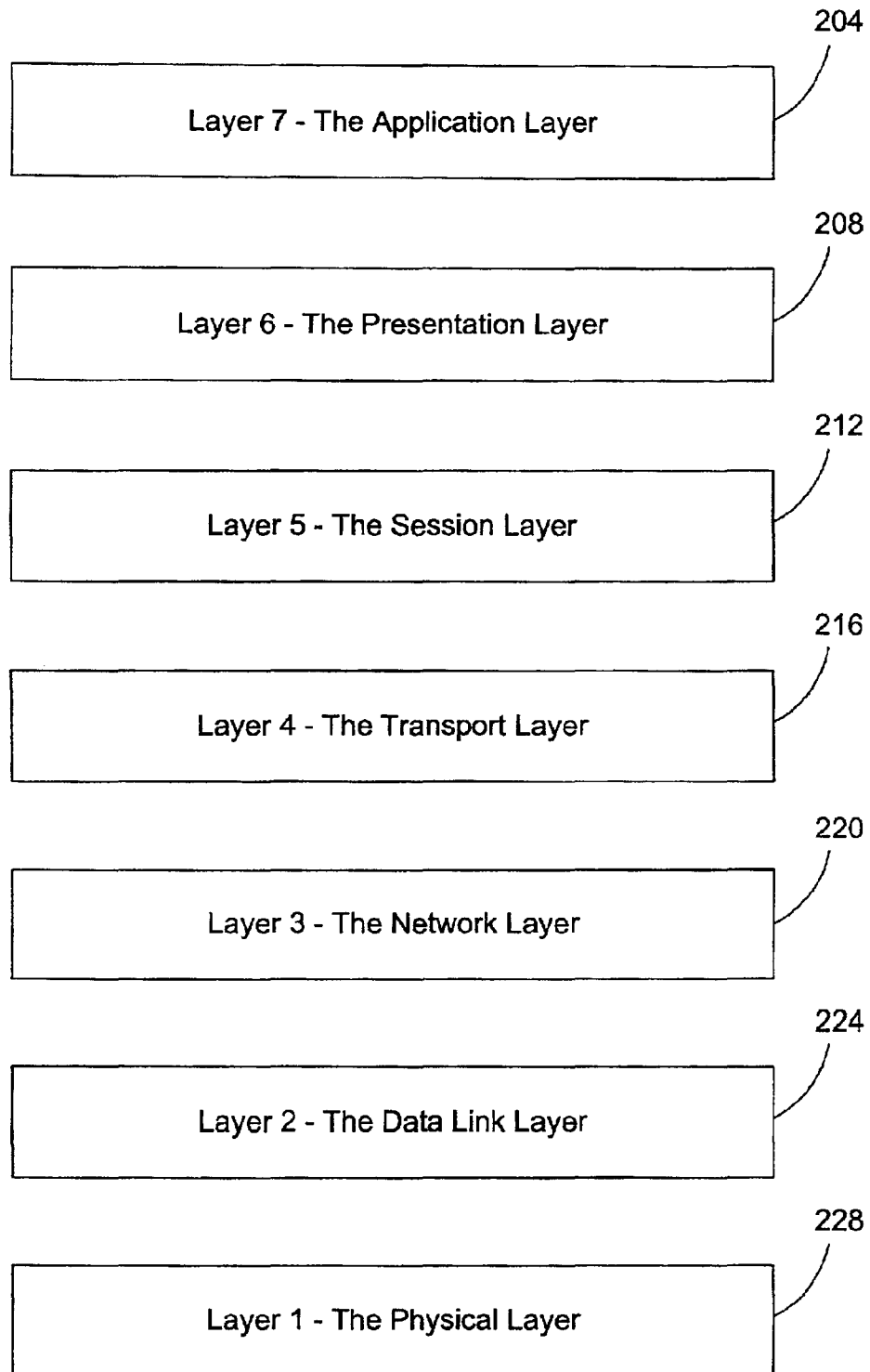
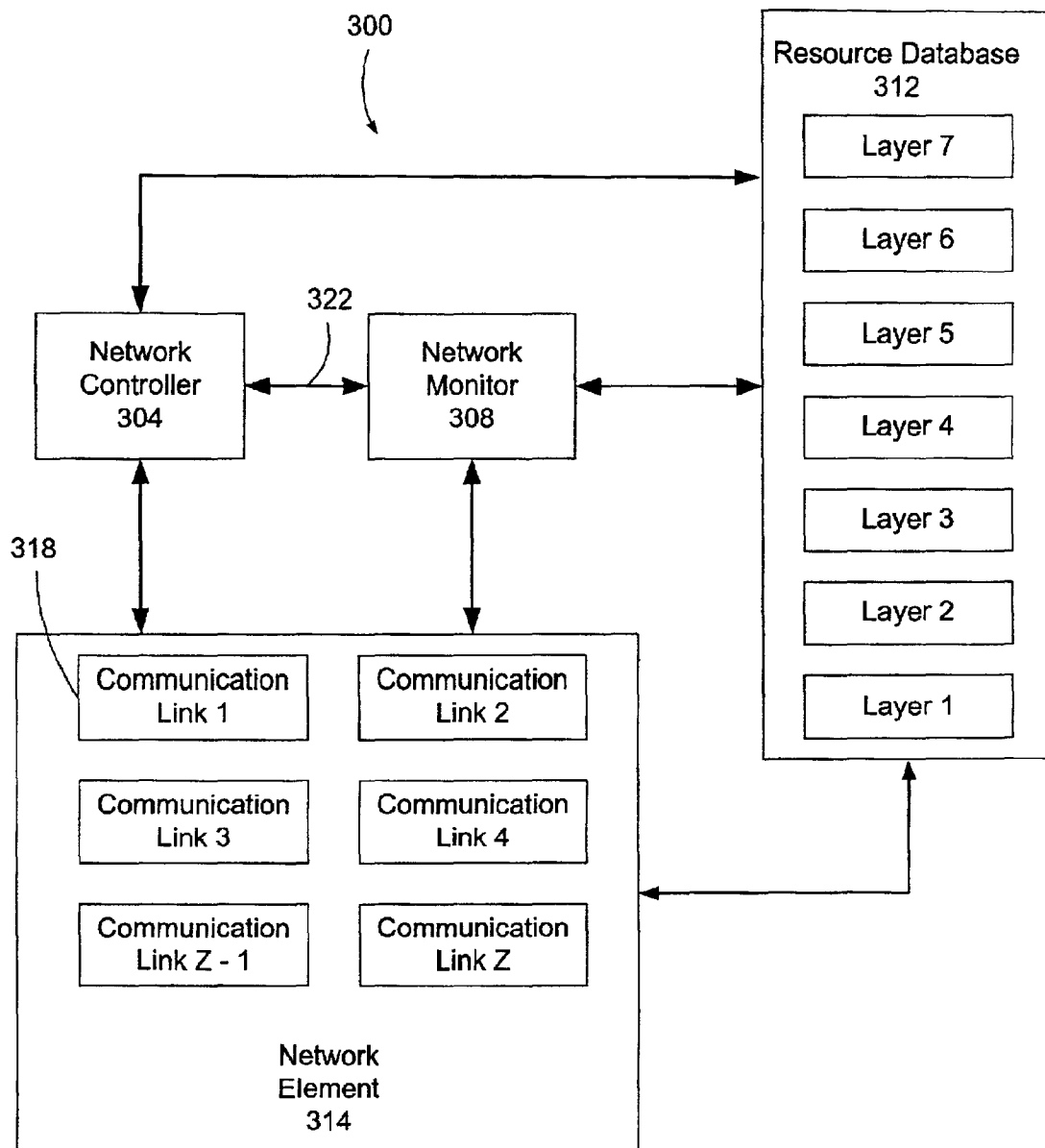


Figure 2
(Prior Art)

**Figure 3**

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