

# 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**

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(\* ) 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.**<sup>7</sup> ..... **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

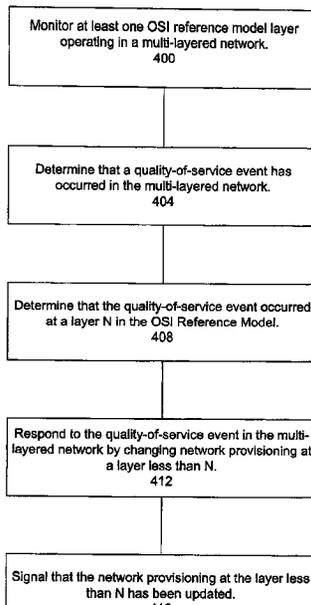
*Primary Examiner*—Robert B. Harrell

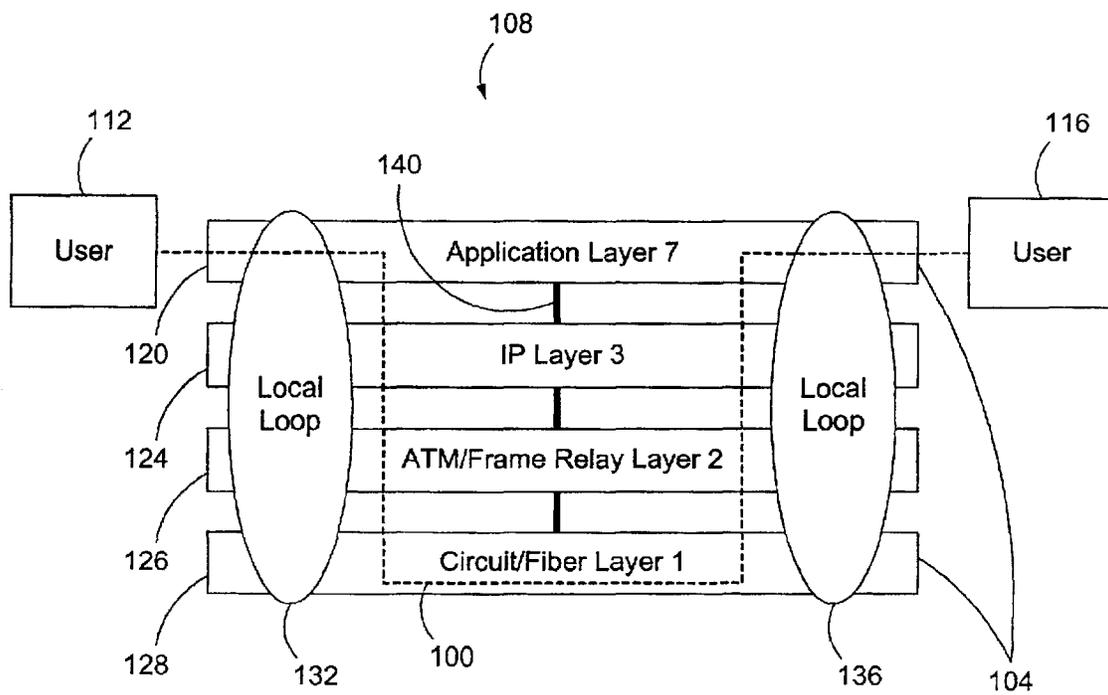
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(57) **ABSTRACT**

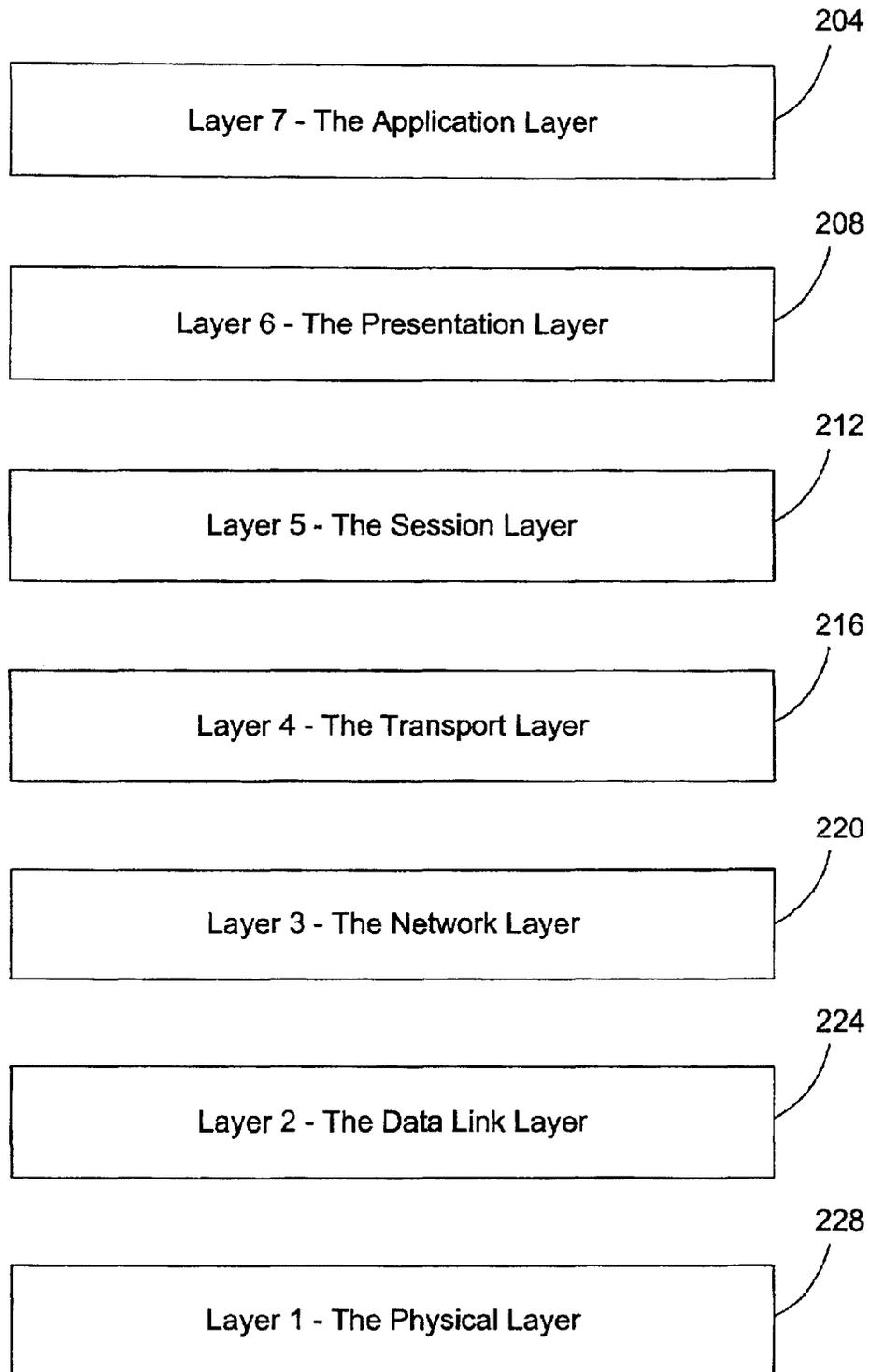
A method for providing broadband communications over a multi-layered network having a plurality of Open System Interconnection (OSI) Reference Model layers functioning therein includes monitoring at least one OSI reference model layer functioning in the multi-layered network. A quality of service event 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)**

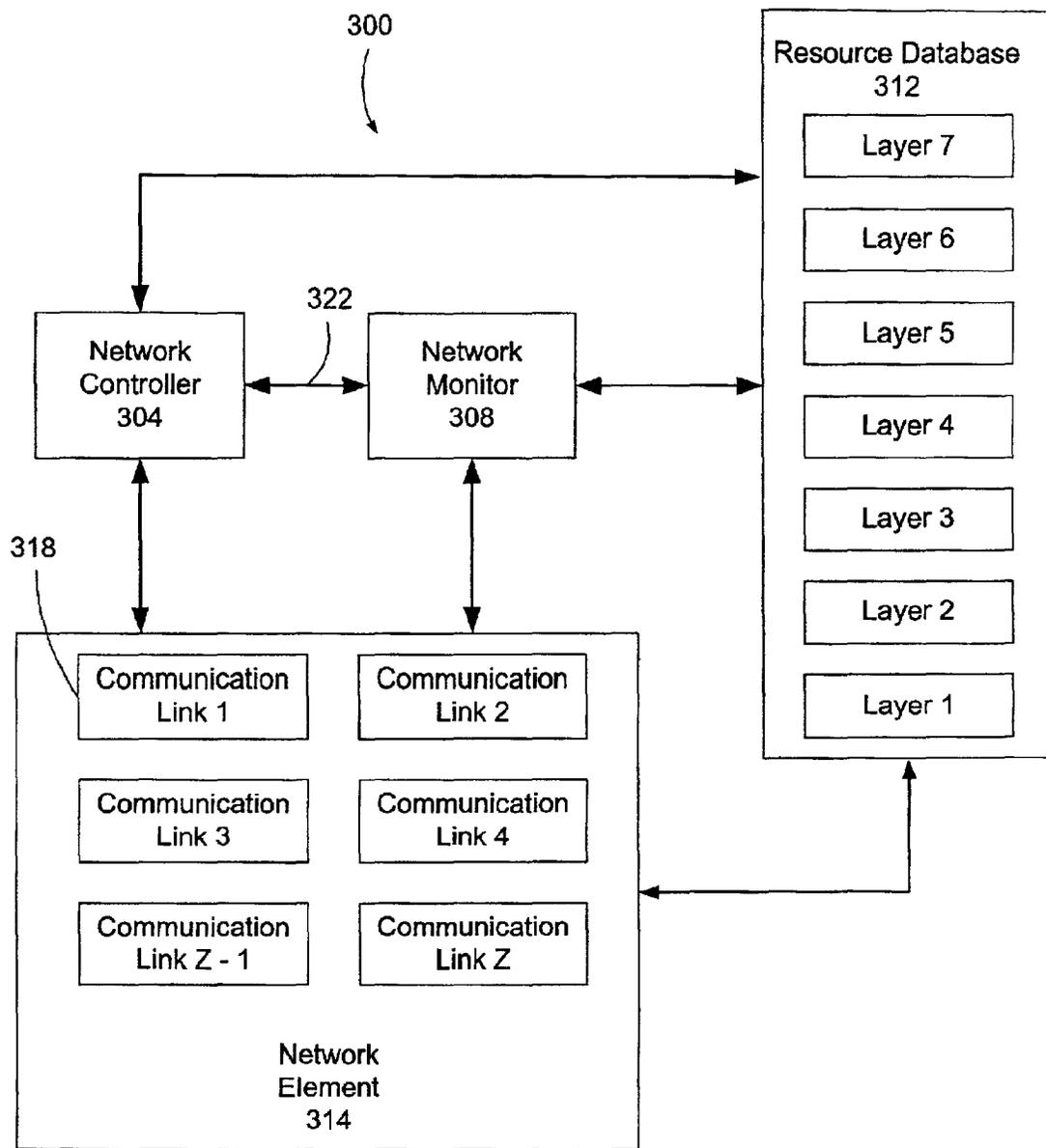


Figure 3

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