US006954789B2

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

(10) **Patent No.: US 6,954,789 B2**
(45) **Date of Patent: Oct. 11, 2005**

(54) **METHOD AND APPARATUS FOR MONITORING TRAFFIC IN A NETWORK**

(75) Inventors: **Russell S. Dietz**, San Jose, CA (US); **Joseph R. Maixner**, Aptos, CA (US); **Andrew A. Koppenhaver**, Littleton, CO (US); **William H. Bares**, Germantown, TN (US); **Haig A. Sarkissian**, San Antonio, TX (US); **James F. Torgerson**, Andover, MN (US)

(73) Assignee: **Hi/fn, Inc.**, Los Gatos, 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.

(21) Appl. No.: **10/684,776**

(22) Filed: **Oct. 14, 2003**

(65) **Prior Publication Data**

US 2004/0083299 A1 Apr. 29, 2004

Related U.S. Application Data

(63) Continuation of application No. 09/608,237, filed on Jun. 30, 2000, now Pat. No. 6,651,099.
(60) Provisional application No. 60/141,903, filed on Jun. 30, 1999.

(51) **Int. Cl.**[7] **G06F 15/173**
(52) **U.S. Cl.** **709/224**; 370/392
(58) **Field of Search** 709/200, 201, 709/220, 223, 224, 231, 232, 236, 238–240, 246; 370/389, 392

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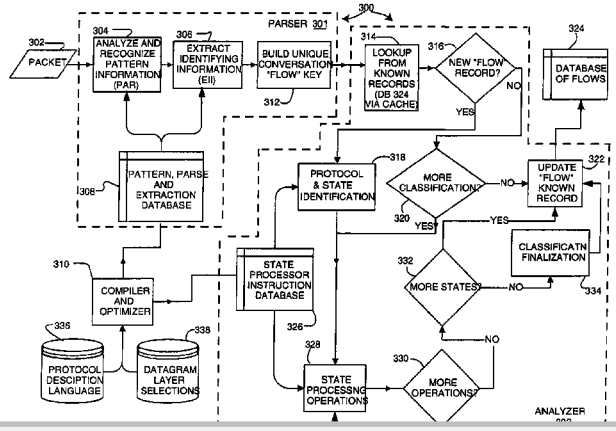
Primary Examiner—Moustafa M. Meky
(74) *Attorney, Agent, or Firm*—Dov Rosenfeld; Inventek

(57) **ABSTRACT**

A monitor for and a method of examining packets passing through a connection point on a computer network. Each packets conforms to one or more protocols. The method includes receiving a packet from a packet acquisition device and performing one or more parsing/extraction operations on the packet to create a parser record comprising a function of selected portions of the packet. The parsing/extraction operations depend on one or more of the protocols to which the packet conforms. The method further includes looking up a flow-entry database containing flow-entries for previously encountered conversational flows. The lookup uses the selected packet portions and determining if the packet is of an existing flow. If the packet is of an existing flow, the method classifies the packet as belonging to the found existing flow, and if the packet is of a new flow, the method stores a new flow-entry for the new flow in the flow-entry database, including identifying information for future packets to be identified with the new flow-entry. For the packet of an existing flow, the method updates the flow-entry of the existing flow. Such updating may include storing one or more statistical measures. Any stage of a flow, state is maintained, and the method performs any state processing for an identified state to further the process of identifying the flow. The method thus examines each and every packet passing through the connection point in real time until the application program associated with the conversational flow is determined.

49 Claims, 18 Drawing Sheets



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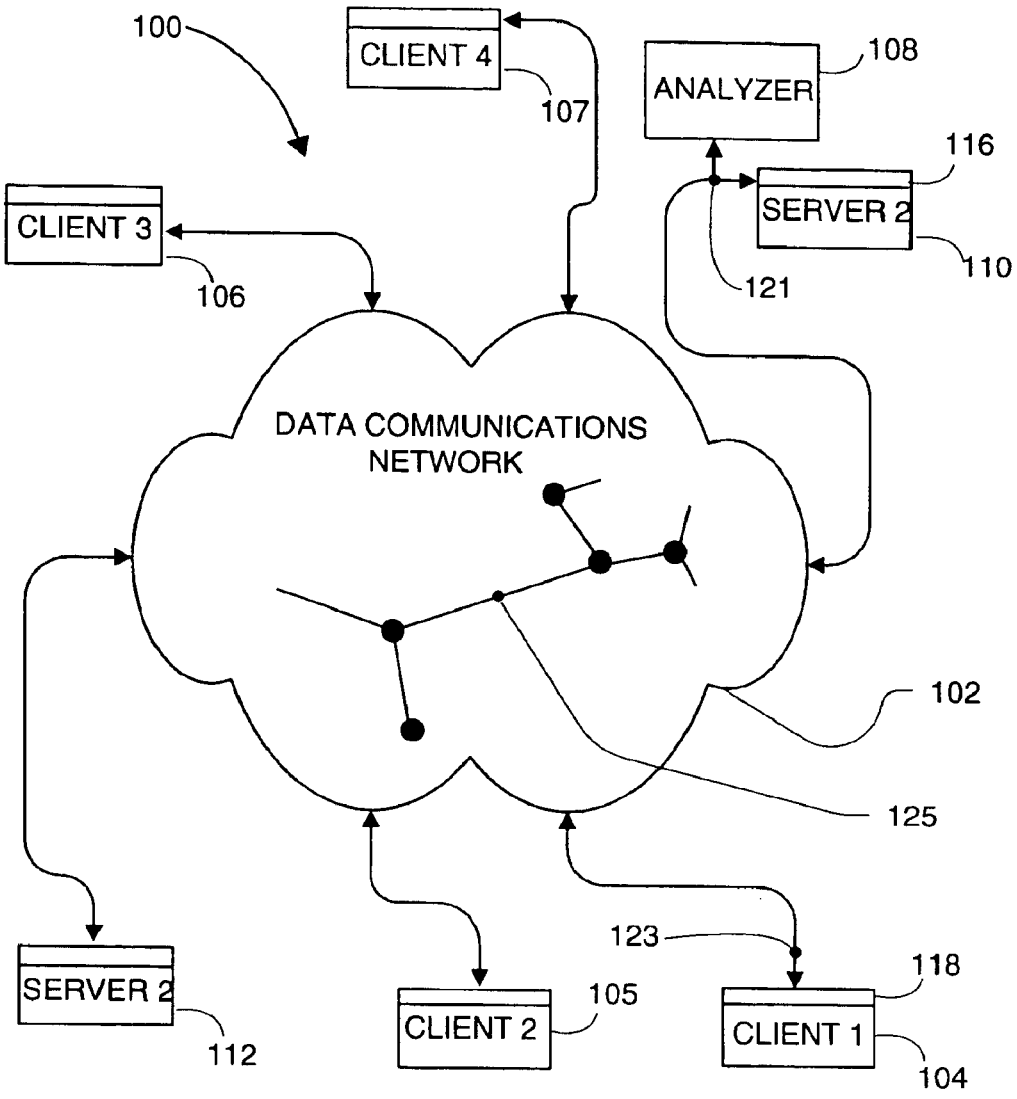

FIG. 1

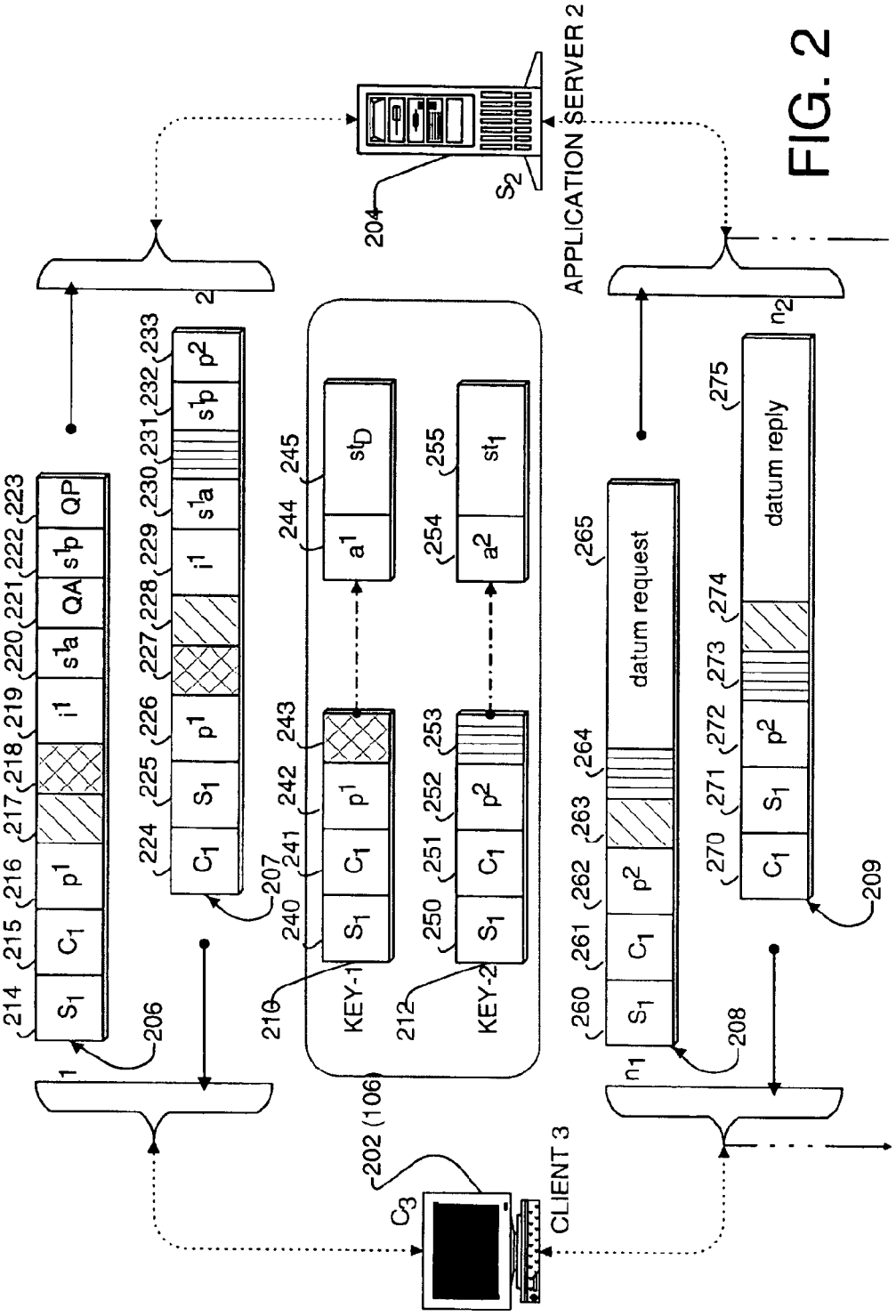

FIG. 2

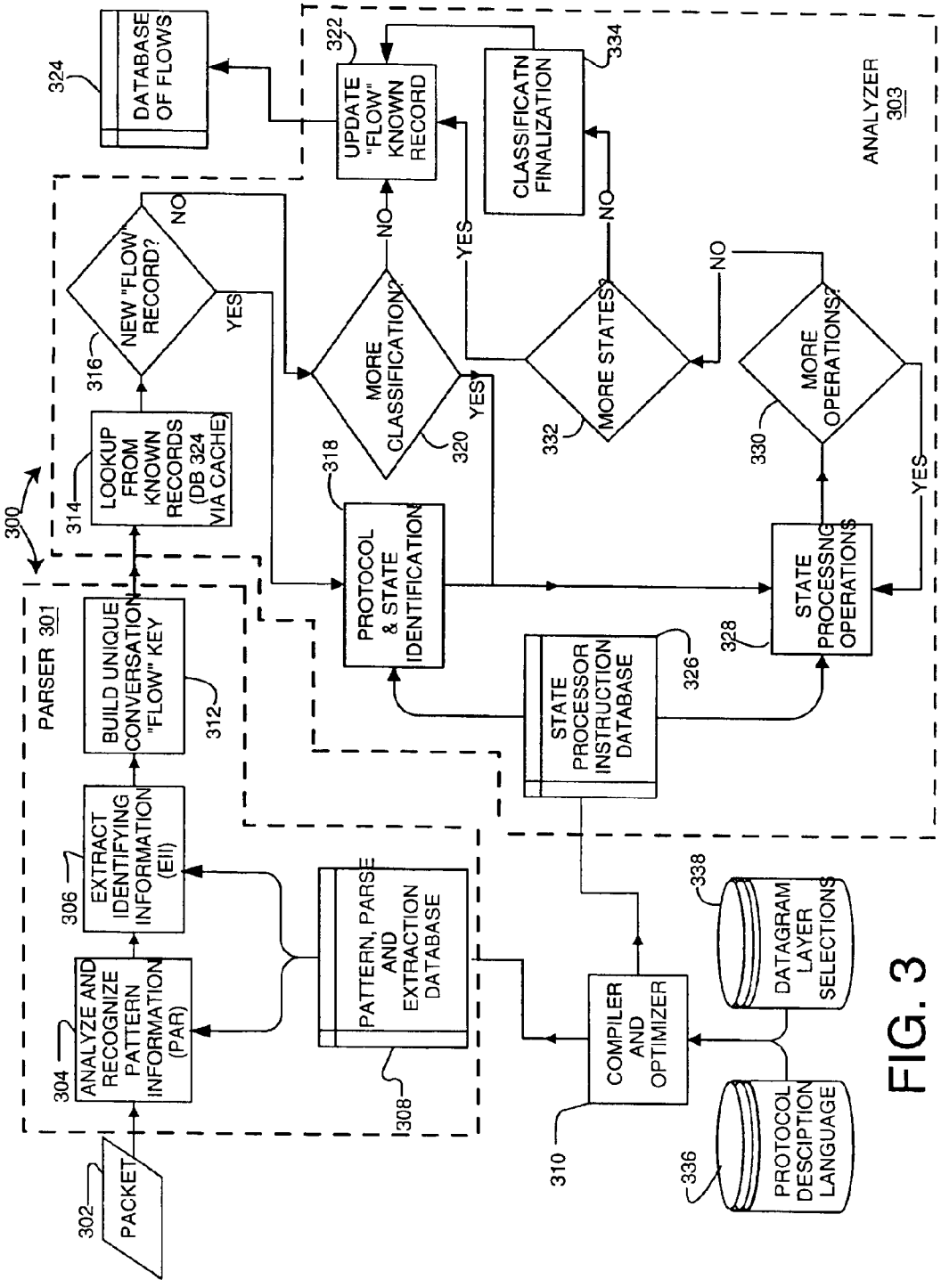

FIG. 3

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