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Dietz et al.

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(54) **PROCESSING PROTOCOL SPECIFIC INFORMATION IN PACKETS SPECIFIED BY A PROTOCOL DESCRIPTION LANGUAGE**

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(52) **U.S. Cl.** **709/230**; 709/246; 709/228; 370/389
(58) **Field of Search** 709/203, 206, 709/216, 217, 222, 246, 225, 228, 230, 232; 703/26; 370/489, 13, 17

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(57) **ABSTRACT**

A method of performing protocol specific operations on a packet passing through a connection point on a computer network. The packet contents conform to protocols of a layered model wherein the protocol at a at a particular layer level may include one or a set of child protocols defined for that level. The method includes receiving the packet and receiving a set of protocol descriptions for protocols may be used in the packet. A protocol description for a particular protocol at a particular layer level includes any child protocols of the particular protocol, and for any child protocol, where in the packet information related to the particular child protocol may be found. A protocol description also includes any protocol specific operations to be performed on the packet for the particular protocol at the particular layer level. The method includes performing the protocol specific operations on the packet specified by the set of protocol descriptions based on the base protocol of the packet and the children of the protocols used in the packet. A particular embodiment includes providing the protocol descriptions in a high-level protocol description language, and compiling to the descriptions into a data structure. The compiling may further include compressing the data structure into a compressed data structure. The protocol specific operations may include parsing and extraction operations to extract identifying information. The protocol specific operations may also include state processing operations defined for a particular state of a conversational flow of the packet.

17 Claims, 20 Drawing Sheets
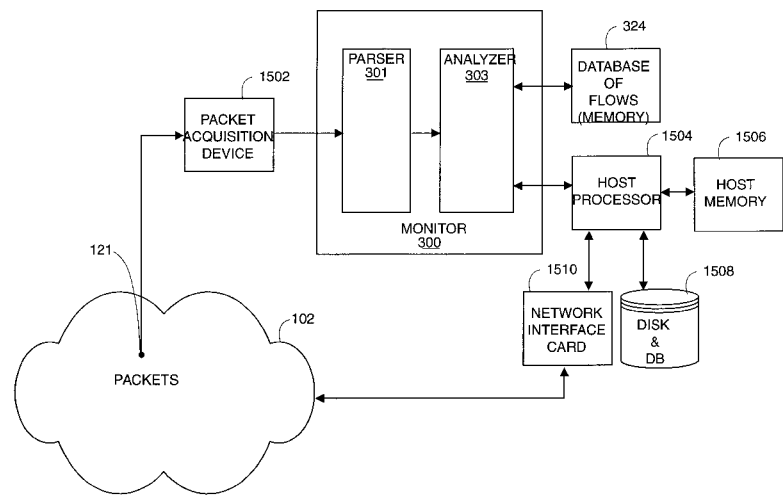
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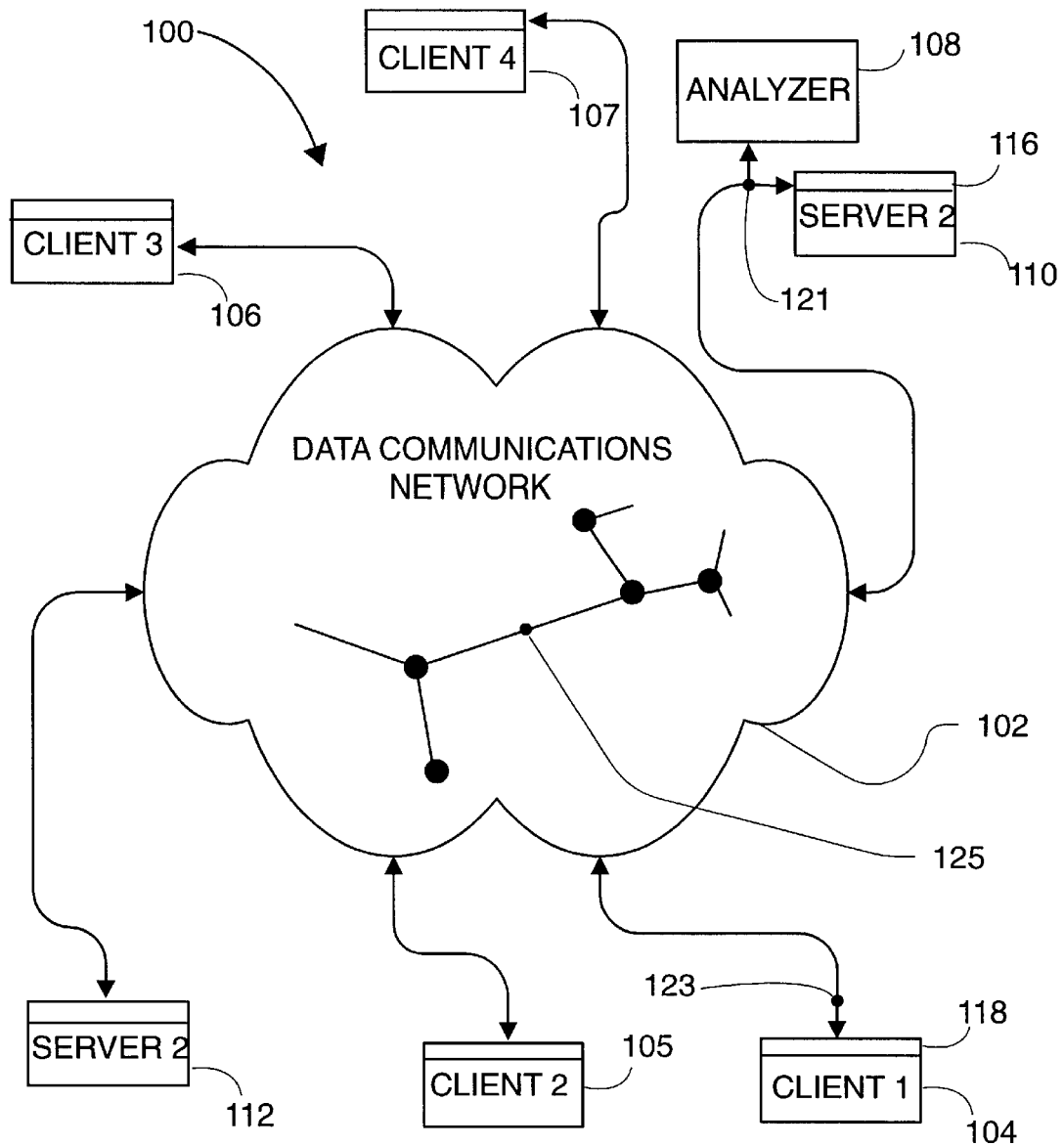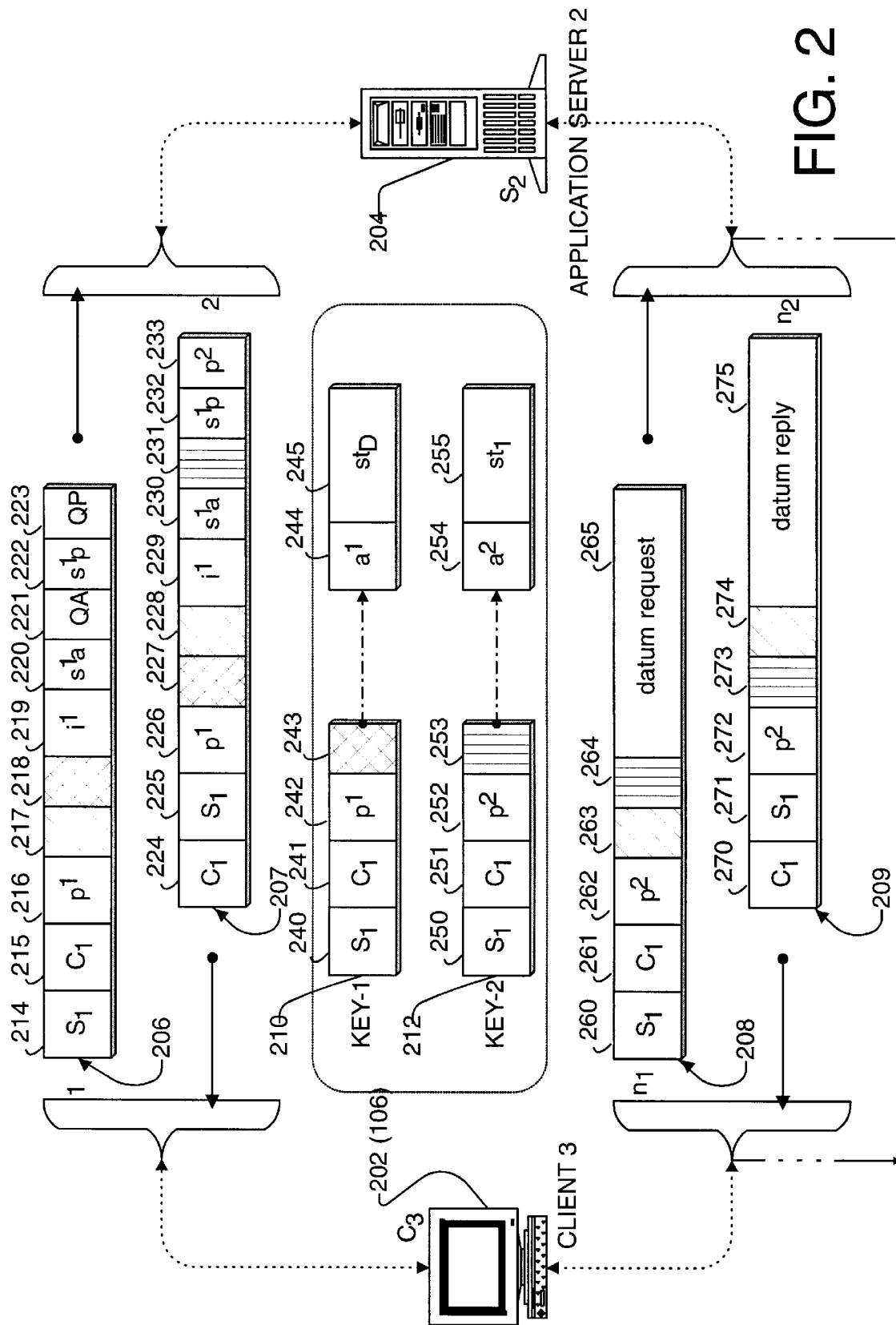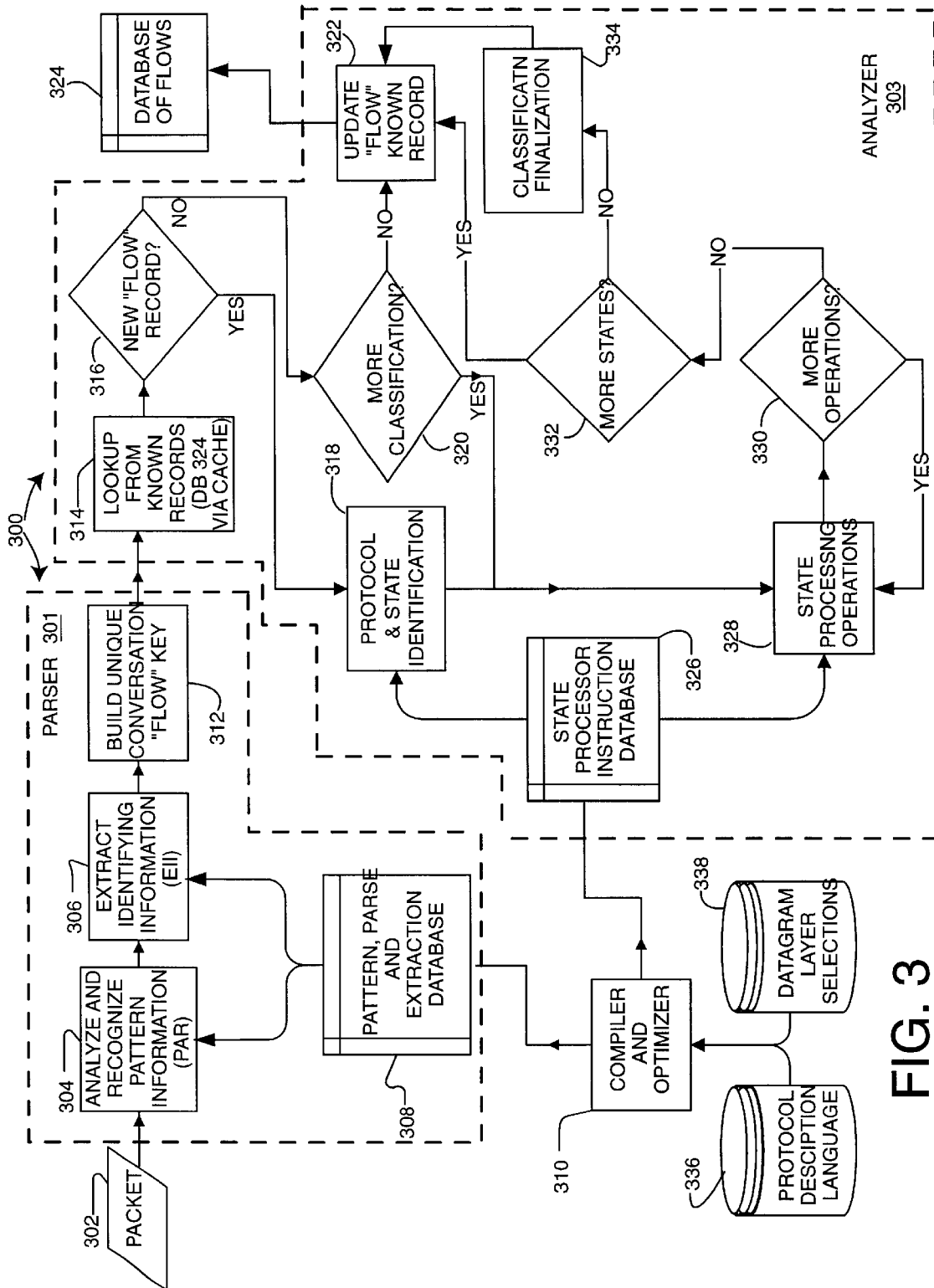|				
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FIG. 1

FIG. 2

FIG. 3

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