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**Sarkissian et al.**

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(54) **ASSOCIATIVE CACHE STRUCTURE FOR LOOKUPS AND UPDATES OF FLOW RECORDS IN A NETWORK MONITOR**

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(51) **Int. Cl.**<sup>7</sup> ..... **G01R 31/08**

(52) **U.S. Cl.** ..... **370/392; 370/412; 370/252; 370/352; 709/223; 711/119**

(58) **Field of Search** ..... **370/241.1, 252, 370/253, 352, 353, 355, 389, 392, 401, 395.1; 709/223, 224**

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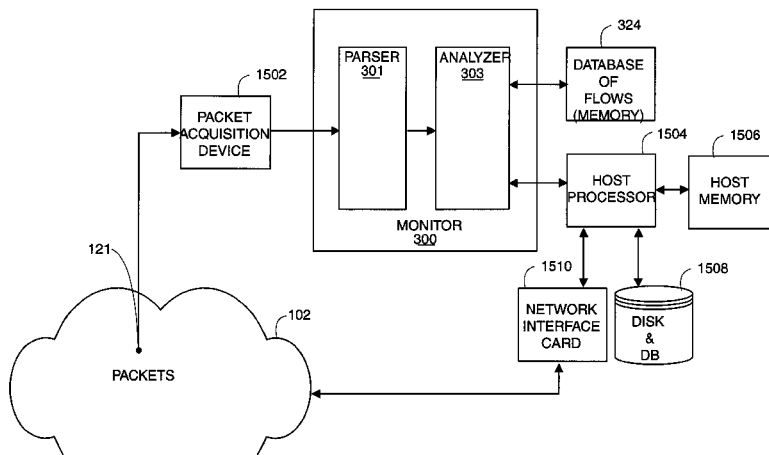
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(57) **ABSTRACT**

A cache system for looking up one or more elements of an external memory includes a set of cache memory elements coupled to the external memory, a set of content addressable memory cells (CAMs) containing an address and a pointer to one of the cache memory elements, and a matching circuit having an input such that the CAM asserts a match output when the input is the same as the address in the CAM cell. The cache memory element which a particular CAM points to changes over time. In the preferred implementation, the CAMs are connected in an order from top to bottom, and the bottom CAM points to the least recently used cache memory element.

**20 Claims, 21 Drawing Sheets**



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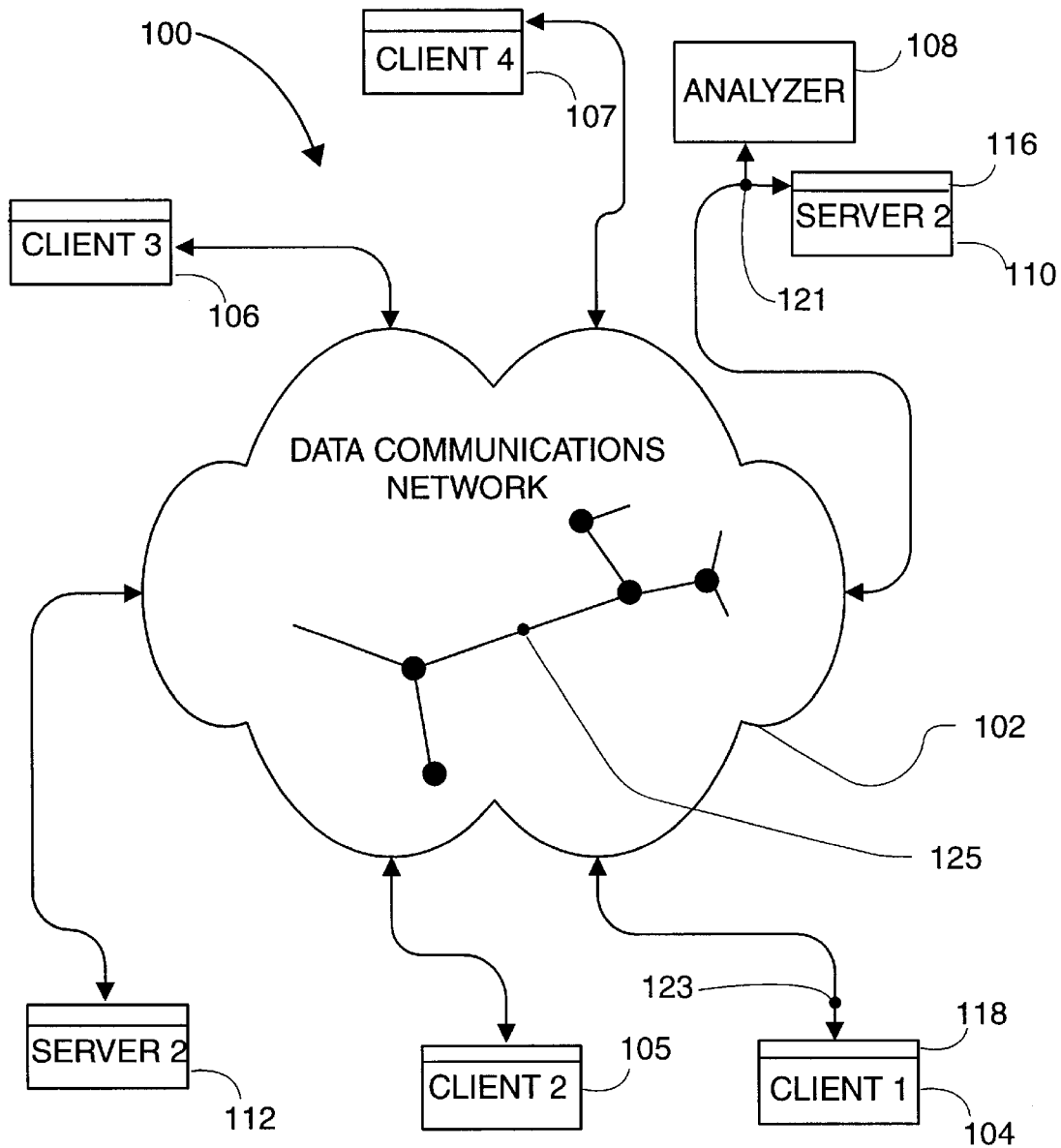


FIG. 1

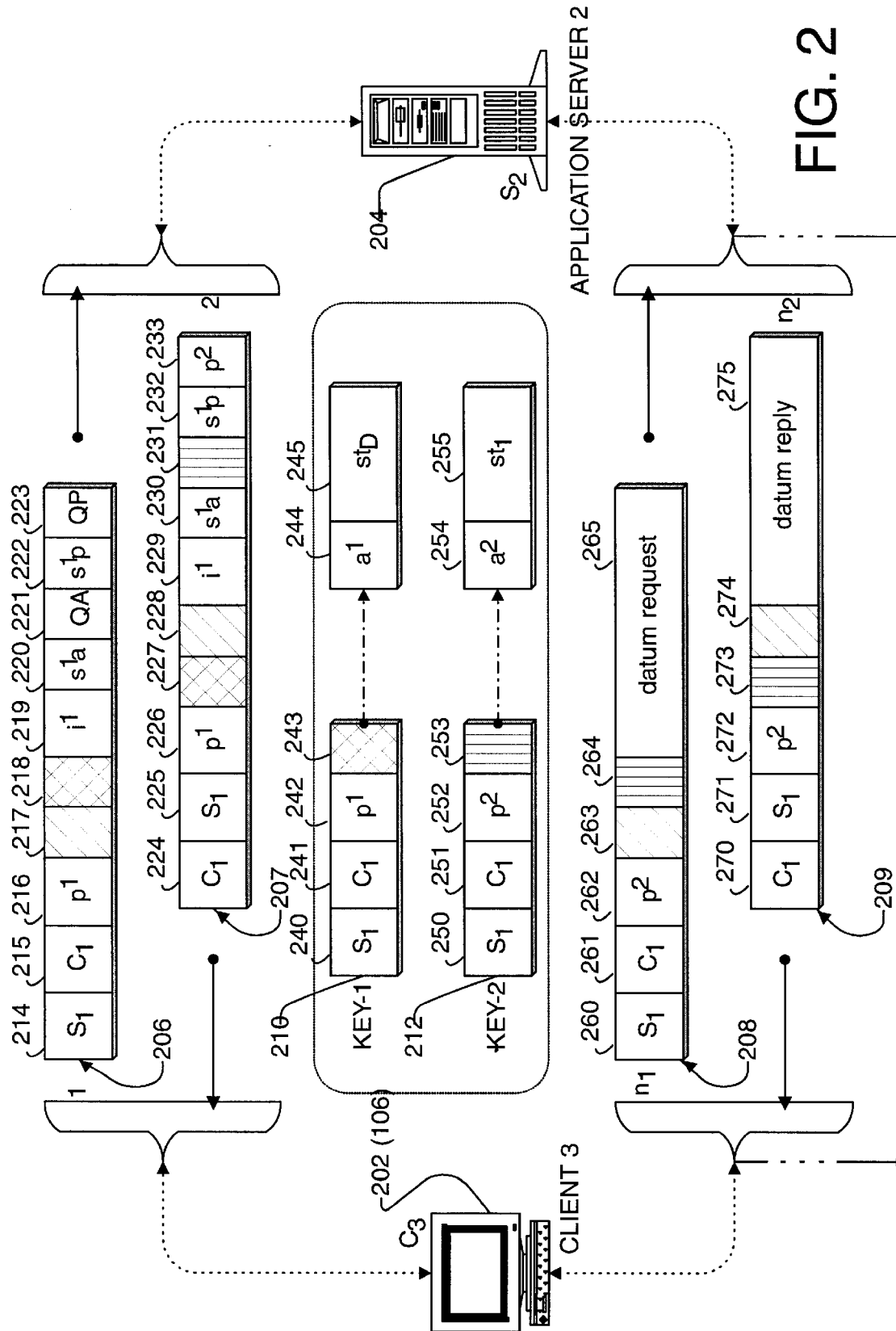


FIG. 2

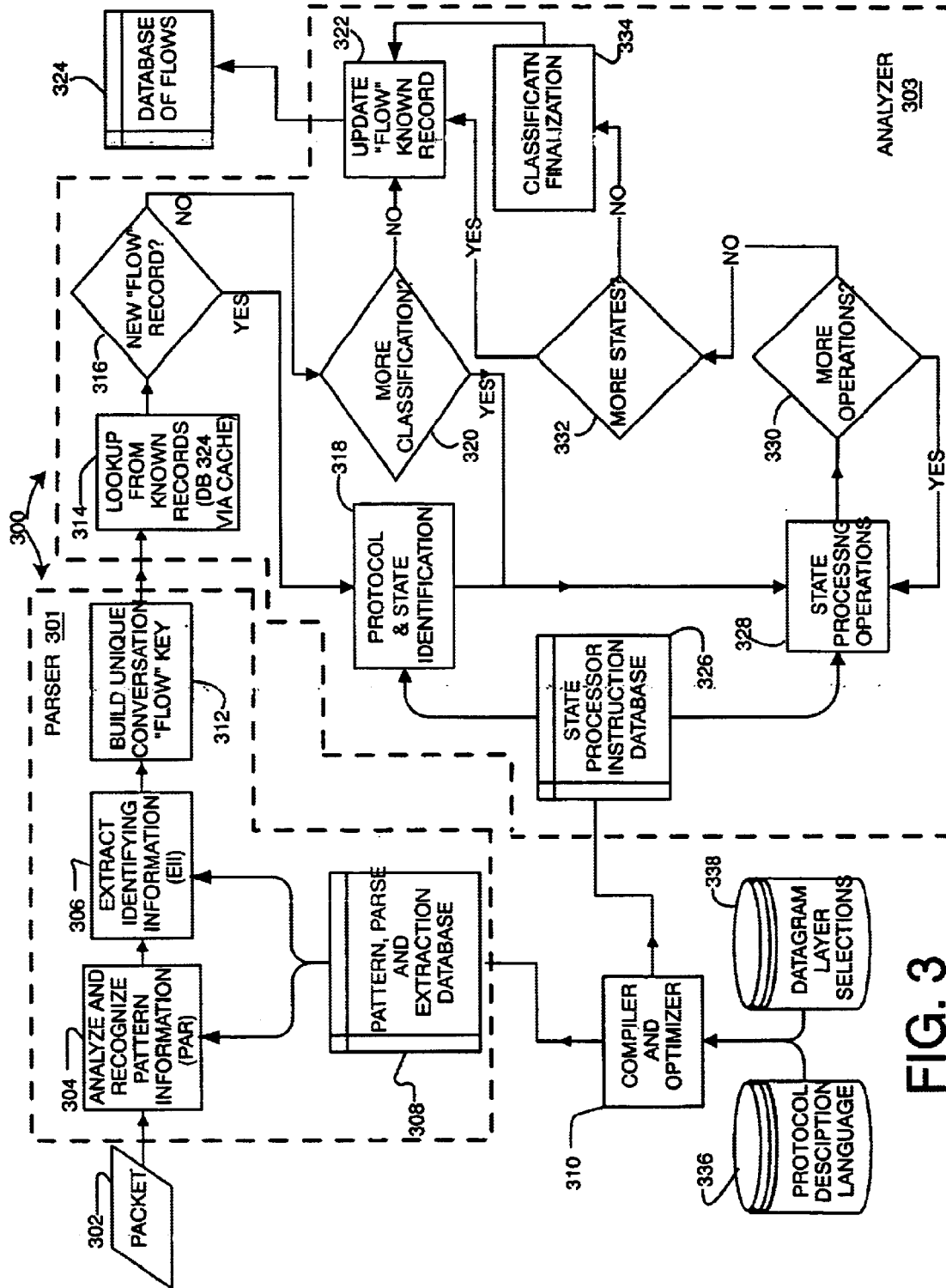


FIG. 3

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