Exhibit 1007

US006256747B1

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

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(45) **Date of Patent: Jul. 3, 2001**

(54) **METHOD OF MANAGING DISTRIBUTED SERVERS AND DISTRIBUTED INFORMATION PROCESSING SYSTEM USING THE METHOD**

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(73) Assignee: **Hitachi, Ltd.**, Tokyo (JP)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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(30) **Foreign Application Priority Data**

Sep. 25, 1997 (JP) 9-259591

(51) **Int. Cl.**[7] **G06F 11/00**
(52) **U.S. Cl.** **714/4**; 709/201
(58) **Field of Search** 714/4, 15, 16, 714/25, 27, 38, 39, 42, 43; 709/201, 203, 207, 205, 220, 221, 229, 249

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(57) **ABSTRACT**

In order to effectively make the grasp of operating conditions of a plurality of servers and a cache management in an information system without increasing a time/labor taken by an administrator, the plurality of servers forms a multi-cast hierarchy dynamically reconstructed by virtue of mutual support and the communication of server status, cache directory and validation is performed on the hierarchy. The administrator has not a need of management for cooperation between servers excepting the designation of some other servers for startup thereof. A cache between servers is shared through the exchange of a cache directory and a validation time is reduced, thereby shortening the response time for users.

34 Claims, 9 Drawing Sheets

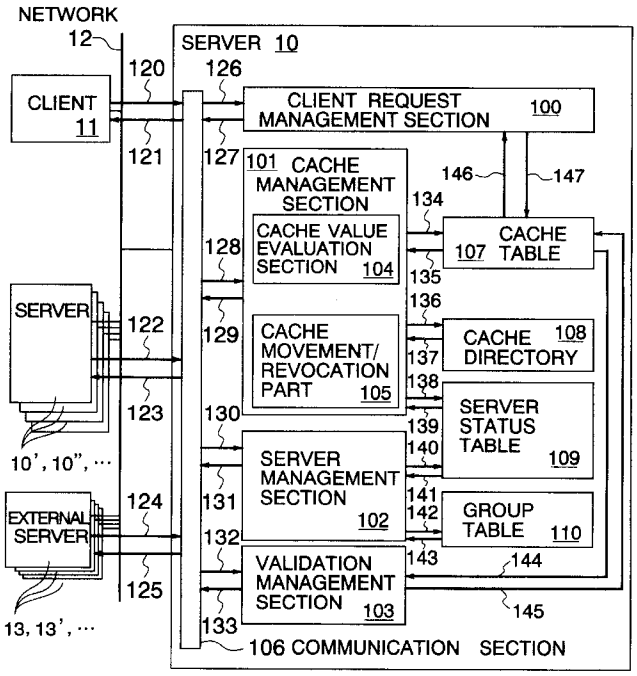


FIG. 1

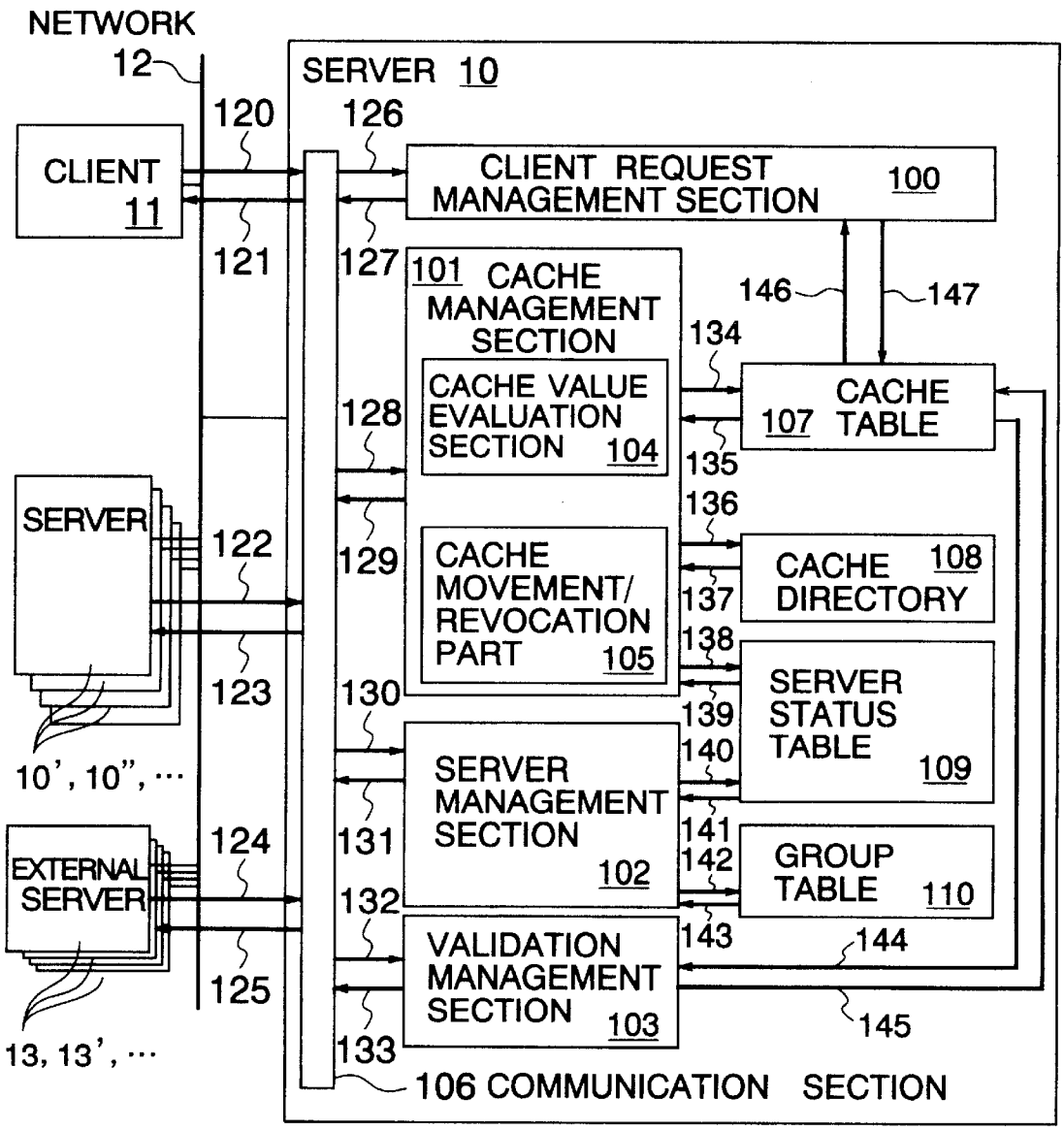


FIG. 2

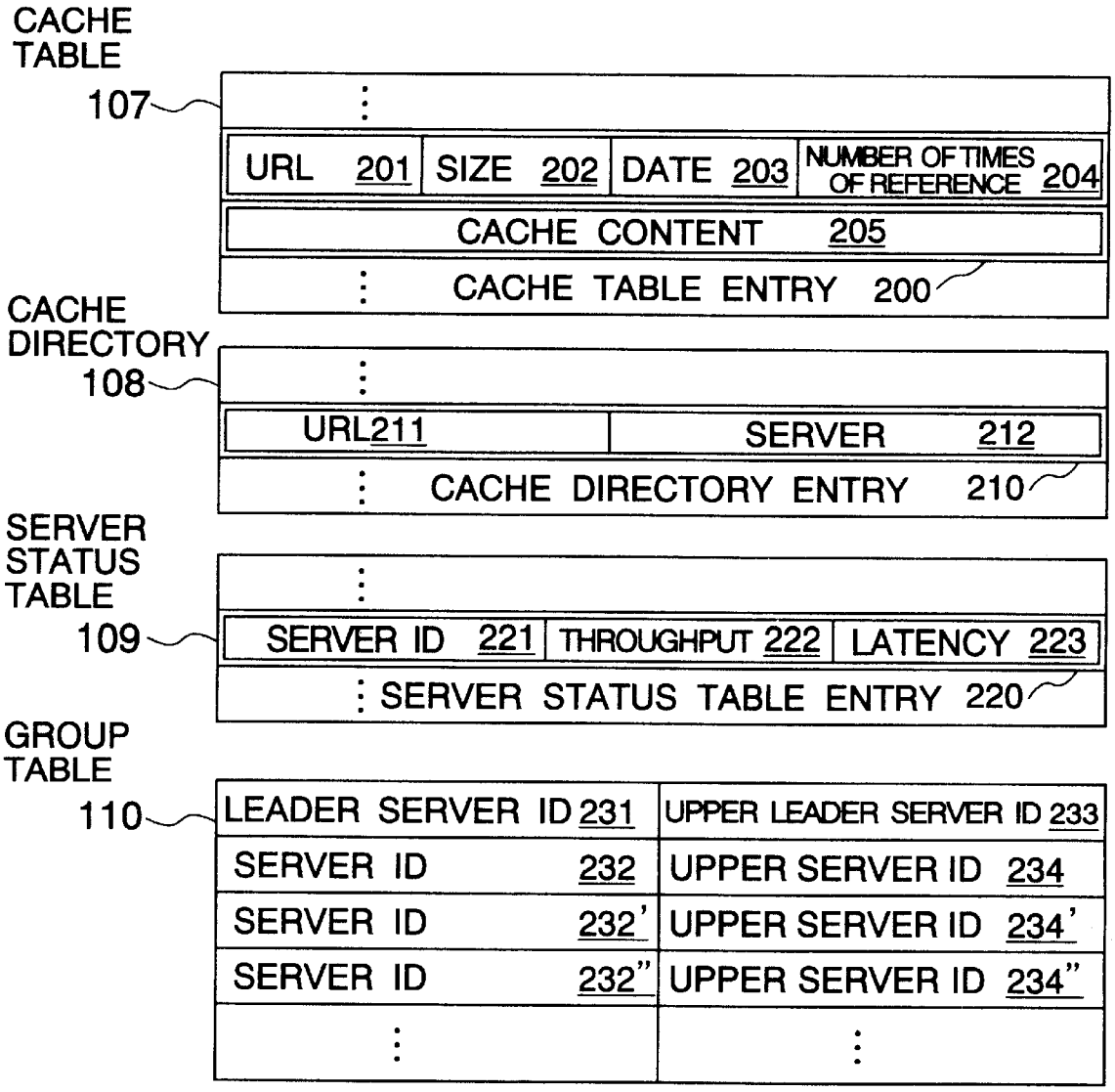
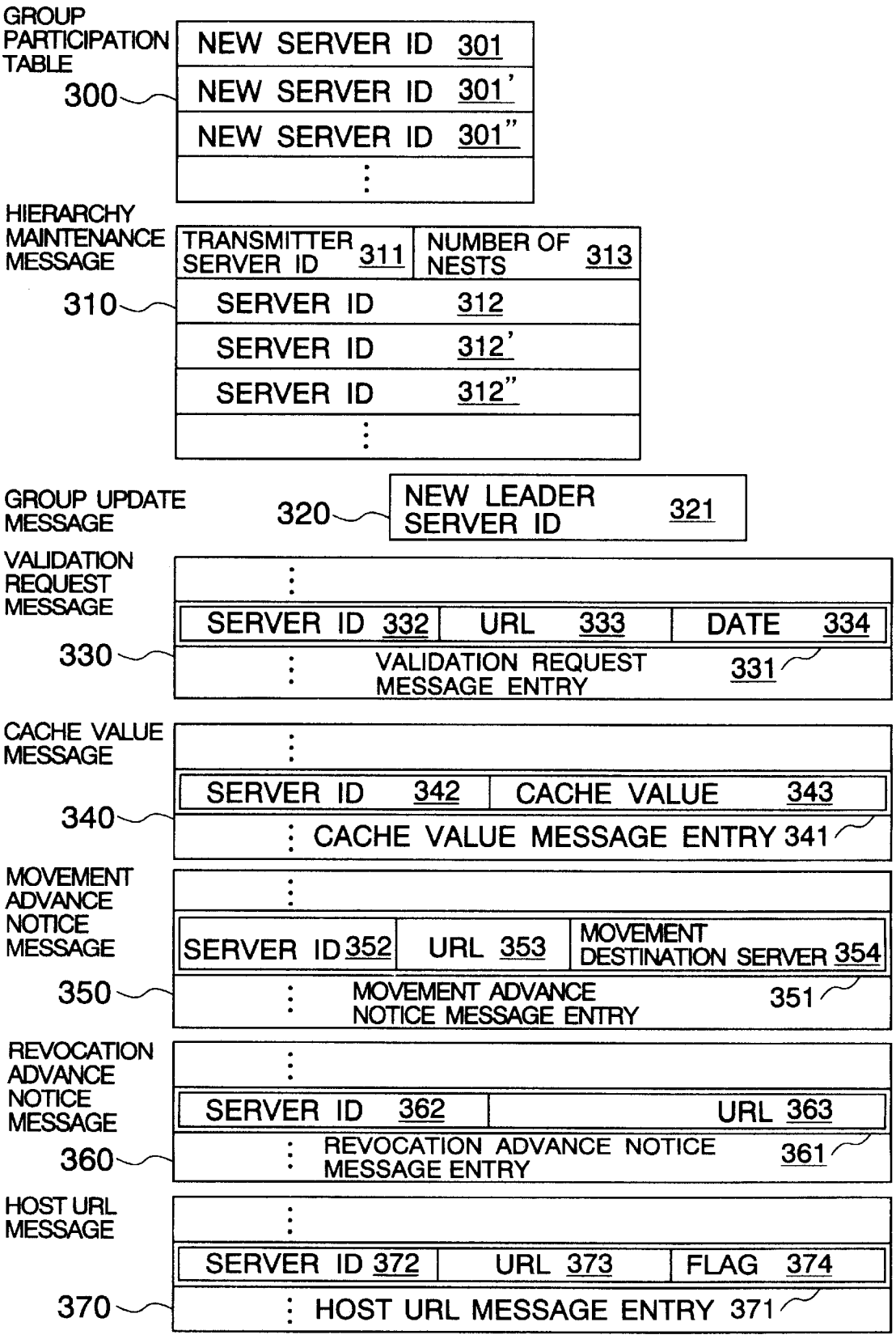


FIG. 3



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