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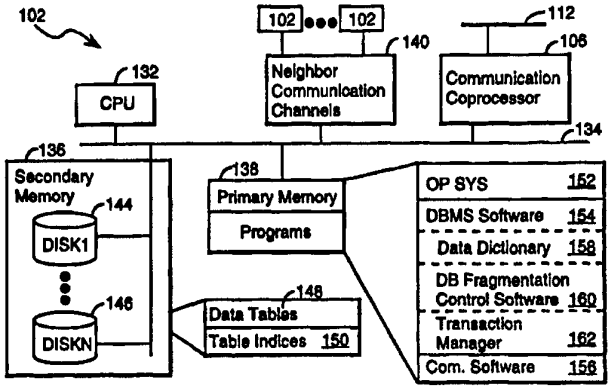

(57) Abstract

A database server with a "shared nothing" system architecture has multiple nodes, each having its own central processing unit, primary and secondary memory for storing database tables and other data structures, and communication channels for communication with other ones of the nodes. The nodes are divided into at least two groups that share no resources, including power supply and cooling system. Each database table in the system is divided into fragments distributed for storage purposes over all the nodes in the system. To ensure continued data availability after a node failure, a "primary replica" and a "standby replica" of each fragment are each stored on nodes in different ones of the groups. Database transactions are performed using the primary fragment replicas, and the standby replicas are updated using transaction log records. Every node of the system includes a data dictionary that stores information indicating where each primary and standby fragment replica is stored among the system's nodes. The records of each dtabase table are allocated as evenly as possible among the table fragments, for example, by hashing a primary key value for each record with a predefined hash function and using the resulting value to select one of the database table fragments. A transaction manager on each node responds to database queries by determining which fragment of a database is being accessed by the query and then forwarding the database query to the node processor on which the primary replica of that fragment is stored. Upon failure of any one of the data processors in the system, each node updates the information in its data dictionary accordingly. In addition, the fragment replicas made unavailable by the node failure are regenerated and stored on the remaining available nodes in the same node group as the failed node.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO,A,94 14125 (TELEFONAKTIEBOLAGET L M ERICSSON) 23 June 1994 see claim 1	1-7
A	US,A,5 307 481 (SHIMAZAKI ET AL.) 26 April 1994 see abstract	1-7
A	US,A,5 379 418 (SHIMAZAKI ET AL .) 3 January 1995 see column 2, line 9 - line 23; figure 10 see column 3, line 14 - line 26	1-7

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Information on patent family members

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