

Managing data using neighbor replication on a triangular-grid structure.

ABSTRACT

Data is one of the domains in grid research that deals with the storage, replication, and management of large data sets in a distributed environment. The all-data-to-all sites replication scheme such as read-one write-all and tree grid structure (TGS) are the popular techniques being used for replication and management of data in this domain. However, these techniques have its weaknesses in terms of data storage capacity and also data access times due to some number of sites must 'agree' in common to execute certain transactions. In this paper, we propose the all-data-to-some-sites scheme called the neighbor replication on triangular grid (NRTG) technique by considering only neighbors have the replicated data, and thus, minimizes the storage capacity as well as high update availability. Also, the technique tolerates failures such as server failures, site failure or even network partitioning using remote procedure call (RPC).

Keyword: Grid databases; Data replication; Triangular-grid; Storage capacity; Neighborhood replication.