Managing Database Replication Using Binary Vote Assignment on Grid Quorum with Association Rule

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Nowadays, many organizations deploy the database application systems in order to manage their business operation. Administrations is required to deliver up to date data to users who live distantly, thus replicated databases can be one solution to increase the business operations performance in the distributed environment. Even though data availability is increased, common existing replication strategies neglect the correlation among the different data files in a Distributed Database Systems. In this paper, Binary Vote Assignment on Grid Quorum with Association Rules (BVAGQ-AR) has been proposed to manage the database replication. This technique combines data replication and data mining approaches in order to decrease the job processing time. The result shows that BVAGQ-AR has the lowest job processing time compared to other techniques. BVAGQ-AR performs 66.548 ms to complete a transaction compared to BRS with 137.157 ms, HRS with 257.928 ms, and ROWA with 262.243 ms. From the results, it is proved that managing replication and transaction through the proposed BVAGQ-AR able to preserve data consistency with low job processing time.

Keywords: Replication, Distributed Database, BVAGQ-AR, Data Mining, Data Grid, Computational Intelligences