High Performance and Availability Through Data Distribution

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Abstract

DBMS customers are increasingly striving to derive the performance and availability benefits of data distribution. ALLBASE/Replicate provides primitives to solve the following types of problems.

1. Ability to have a remote copy of a table or a horizontal partition of a table (both read only) that is kept synchronized with the master table in real time.
2. Ability to have a table (read only) at the local site that contains information in multiple identical tables at different sites, that is kept synchronized with the master tables in real time.
3. Ability to incrementally backup a large database to a remote site in real time, for protection from disasters.
4. Ability to get audit information from the database in real time.
5. Provide the database foundation for switchover from a primary database to a standby database in the event of a disaster.

ALLBASE/Replicate achieves it's objectives by logging high level primitives in the log independent of information needed for redo/undo. Primitives are provided to extract this information, filter it, and apply it to the target database. A scheme is provided to enable the synchronization tool to determine where the target database is with respect to the source, and to transmit only transactions beyond that point. The logical synchronization scheme can run into disk full and log full conditions at the target site, and it is up to the DBA to alleviate these problems and resume synchronization. Also the remote copies are loosely synchronized with the master and may be a little behind.