

Consistency Control and Recovery with Common Object Programmer Library Access (COPLA) Architecture

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Abstract

Most of the companies distribute their information per branch, ensuring that the data are mainly updated locally, by the branch where they were created. Examples of such companies could be hypermarkets and banks. So, it seems advisable to replicate all data objects, independent of the company branch where they have been created. If data are replicated, “remote” accesses can be accomplished locally, improving access times as well as availability, in case of node failures in the network. However, each time a data object is modified, updates have to be multicast to a given number of database replicas. Data replication among different sites is viewed as a way to increase application performance and its data availability.

This system proposes a concurrency control and recovery in a middleware architecture called COPLA (Common Object Programmer Library Access). This architecture provides persistent object state replication. This system is based on time-stamp, it is an adaptation of the Optimistic protocol to this architecture. The recovery process of this system allows applications to continue (or start) executing transactions at all nodes, even in the node being recovered.