

Deriving global and local integrity rules for a distributed database

ABSTRACT

An important aim of a database system is to guarantee database consistency, which means that the data contained in a database is both accurate and valid. Integrity constraints represent knowledge about data with which a database must be consistent. The process of checking constraints to ensure that update operations or transactions which alter the database will preserve its consistency has proved to be extremely difficult to implement, particularly in a distributed database. In this paper, we describe an enforcement algorithm based on the rule mechanisms for a distributed database which aims at minimising the amount of data that has to be accessed or transferred across the underlying network by maintaining the consistency of the database at a single site, i.e. at the site where the update is to be performed. Our technique referred to as the integrity test generation, derives global and local integrity rules has effectively reduced the cost of constraint checking in a distributed environment.

Keyword: Distributed database; Integrity constraints; Integrity constraint enforcement