In limbo transactions

Transactions in limbo

Firebird/InterBase®'s transaction mechanism, like most databases, can only handle transactions within a single database. However within an embedded SQL application, Firebird/InterBase® can perform operations on more than one database at a time.

With a logical transaction that spans databases, Firebird/InterBase® handles the operations within each database as separate transactions, and sequences them using a two-phase commit model, to ensure that both transactions complete or that neither completes. When Firebird/InterBase® is ready to commit or rollback such a multidatabase transaction, it first changes the transaction status from active to limbo. It then performs the commit or rollback operation. Finally the transaction status is changed from limbo to committed.

Transactions in limbo are transactions that have been started by the PREPARE command within the framework of a two-phase commit. The transaction may or may not still be running. This transaction may become relevant at any point in time and all changes made so far may be committed or rolled back. Such alterations made by such transactions can neither be examined or ignored; they can neither be defined as executed or aborted. They can therefore not simply be removed from the database.

However for a database backup to be fully performed without aborting, such transactions in limbo need to be ignored in the backup. Only those most recent, committed transactions are backed up. It allows a database to be backed up, before recovering corrupted transactions. Generally in limbo transactions should be recovered before a backup is performed.

Note: BDE clients use only single-database transactions, even if the client application accesses two or more databases. Embedded SQL and Firebird/InterBase® API provide methods for programming distributed transactions.

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