CITICORP'S NEW HIGH-PERFORMANCE TRANSACTION PROCESSING
SYSTEM
HPTS WORKSHOP, SECTION 16

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Citicorp's New High-Performance Transaction Processing System; Abstract

Citicorp's Transaction Processing System (TPS) will eventually process all online financial transactions of the Northeast Division of Citicorp's Consumer Bank. It has been under development since the beginning of 1985. Since March 1987 all processing of checking accounts initiated by tellers and from automatic teller machines is being done on TPS. Development of TPS will continue well into the 1990's.

TPS runs on two IBM 3083 processors, one in New Jersey, the other in New York. Disks, software and databases are duplicated, and transactions that update a database are processed at both sites.

TPS runs on IBM's Transaction Processing Facility (TPF 2.3). To access messages and shared data, application (banking) programs do not communicate directly with the TPF Control Program, but via an application program interface (API). The database manager (DBM) supporting this interface provides application programs with a network-oriented logical record view of data.

The DBM provides standard concurrency control and recovery (each transaction executes atomically). The DBM is highly specialized for each database, blocks logical records of different types, employs few I/Os, does aborts without I/O and performs rapid and bounded recovery from system failures. For each transaction the DBM writes a bounded amount of data to the recovery log, even if the amount of recoverable data being written by the transaction is unbounded. The DBM is being developed by a small group of highly technical people.

At each site, TPS initially replaced one of the 17 processors of an existing distributed system. When centralization is complete, it will have replaced all 17 processors and the links between them.

The paper describes some aspects of TPS, in particular the DBM, and some aspects of TPS performance, availability, integrity and reliability.