White Paper

IMAXSOFT OPENTURBO
Bi-directional Database Synchronization
TurboIMAGE and ORACLE

IMAXSOFT Corporation, California USA
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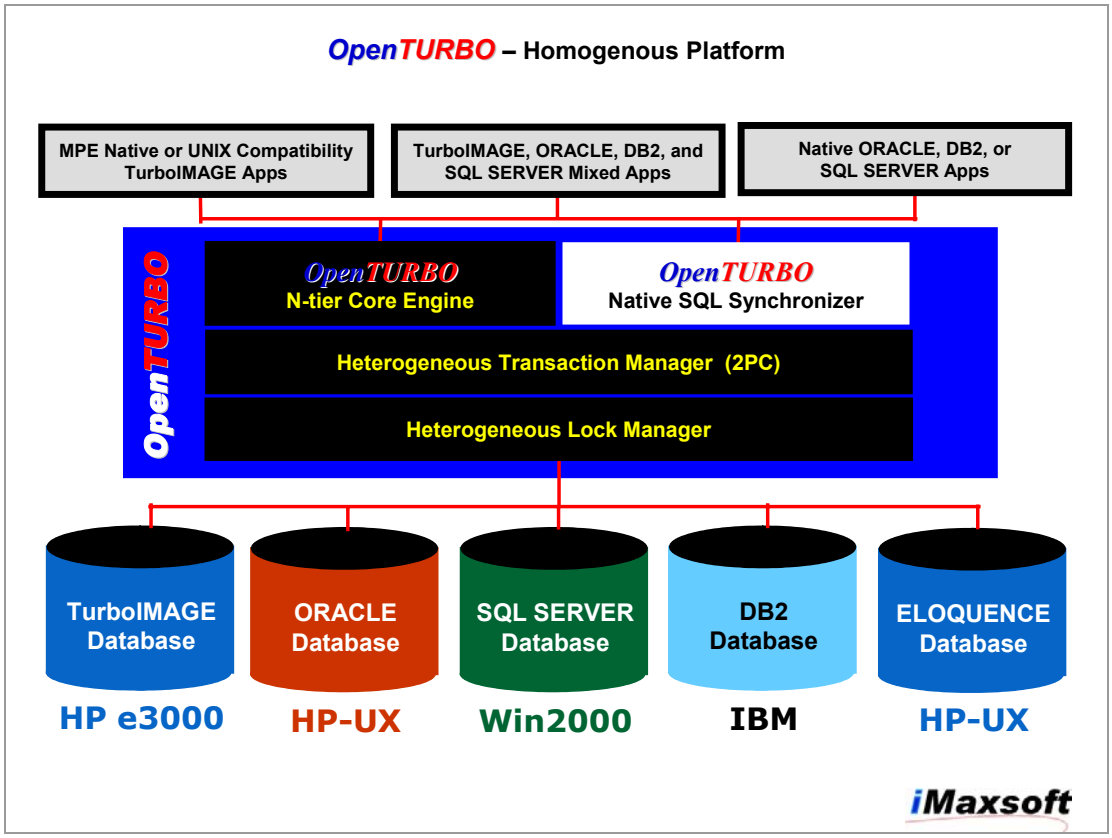
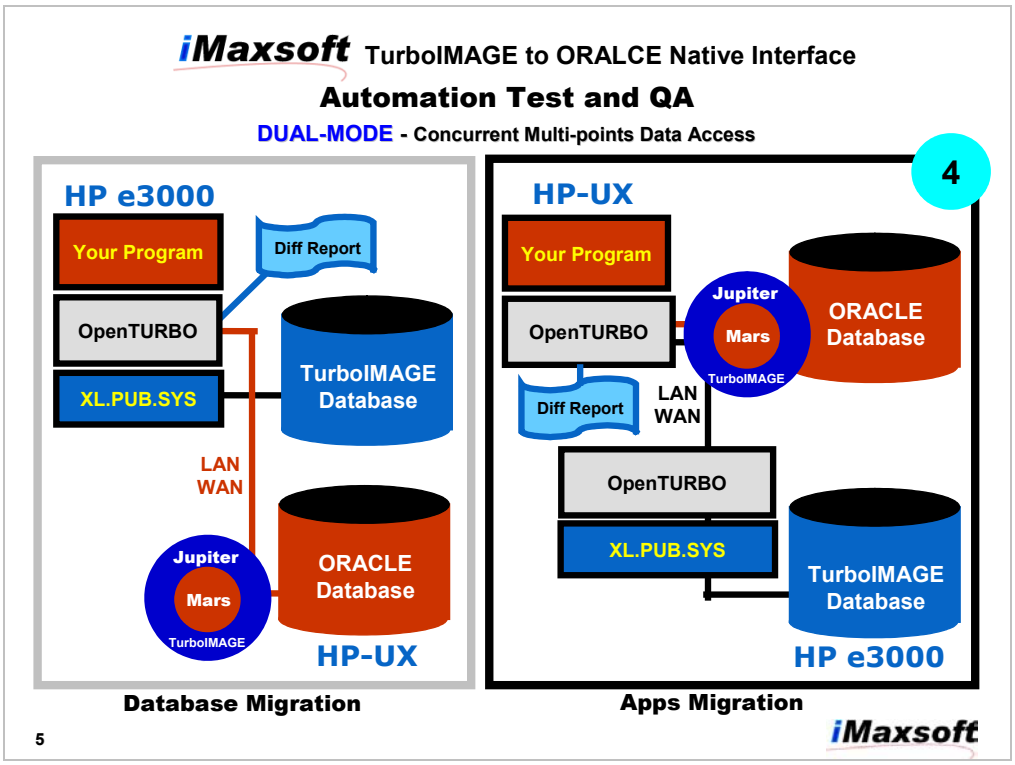
Bi-directional Data Replication and Synchronization:



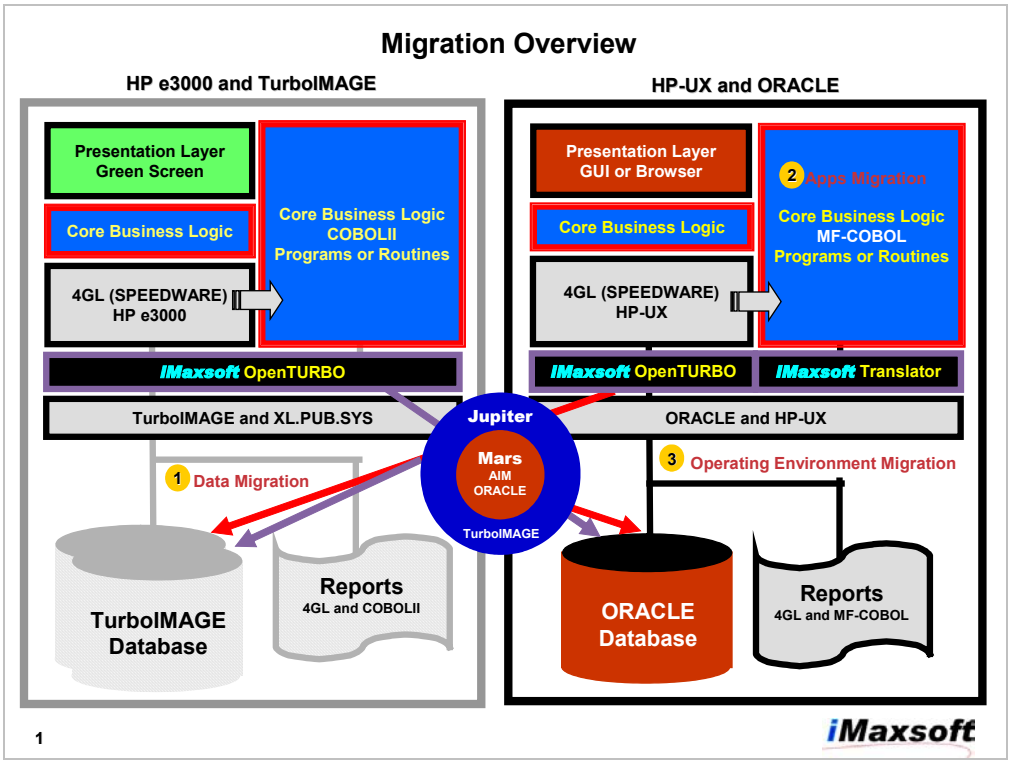
Transaction Level Real-time Data Replication (2PC):

OPENTRUBO Bi-directional Data Replicator is an application partition centric design; you can configure your application to run in single or multi database(s) mode, in multi databases mode you can configure transaction replication 2PC to target data sources only or mix of target data sources and log-files. 2PC to target data source only is so called real-time data synchronization or mirroring, whereas 2PC to mix of target data source and log-file is for fall-back recovery purpose.

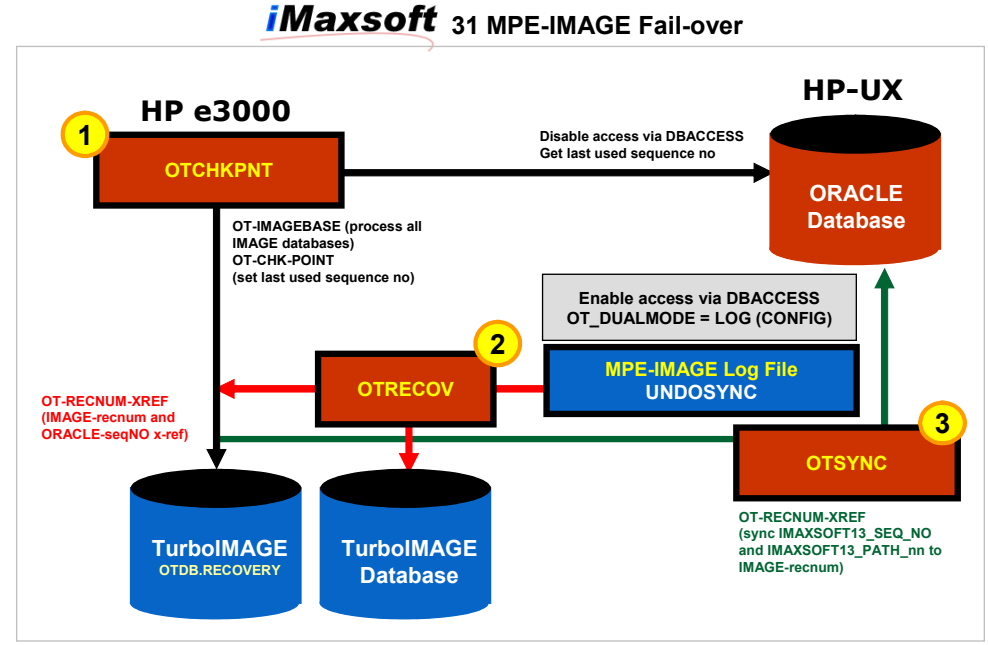


OPENTURBO Real-time Data Replicator translates TurboIMAGE calls into ORACLE SQL statements and applies updates to both ORACLE and TurboIMAGE simultaneously in 2PC (2 Phase Commit) mode or in off-line log-recovery mode.

DUAL-MODE is our internal code name for Bi-directional Real-time Data Replication, it is a layer in our core libraries and is completely transparent to MPE-TurboIMAGE development tools like Speedware, COGNOS, SUPRTOOL, TRANSACT, and COBOL. Therefore, you can run your MPE-TurboIMAGE applications from either HP e3000 or HP-UX and access TurboIMAGE and ORACLE concurrently for real-time data synchronization.

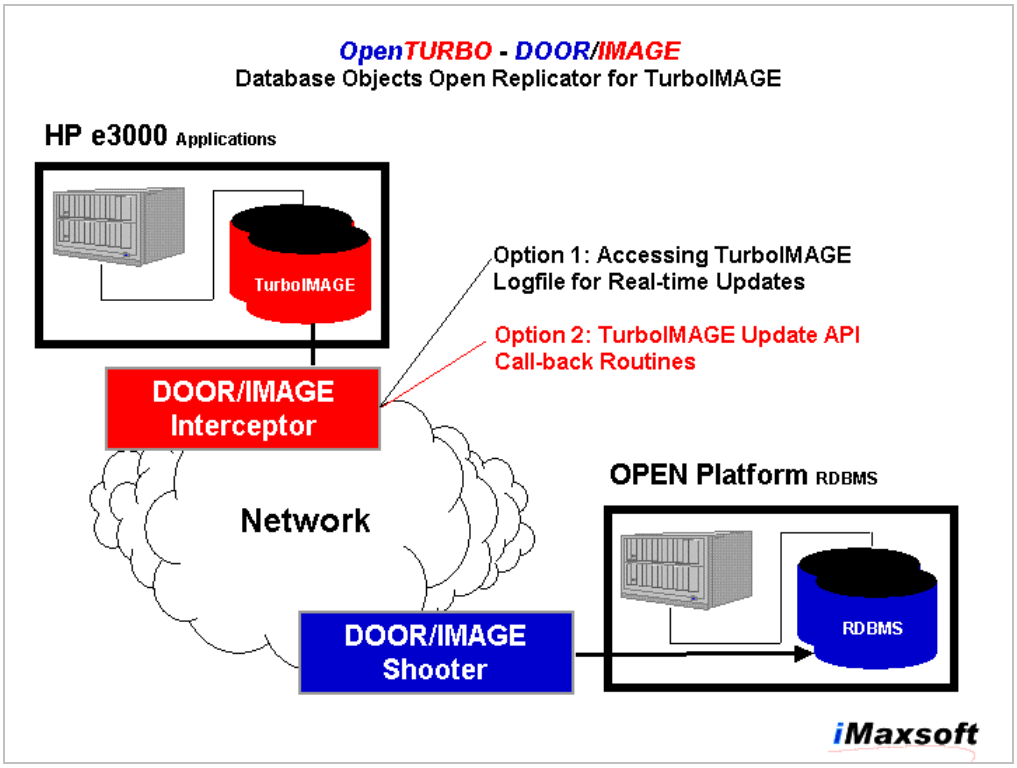


The above chart illustrates how data synching is done cross-platforms and cross-DBMS in real-time at application level. The application level data synching is required for bi-directional data synchronization in order to preventing infinite loop and racing problem.



FAIL-OVER processor is mainly for off-line data replication and fall-back recovery, since it is off-line, the impact to the source servers are very minimum and major performance boost when transfer real-time sync to off-line sync.

DOOR – Database to Database Data Replication:



If you need to maintain both TurboIMAGE and ORACLE databases in-sync at all time, you want to maintain an exact mirror of TurboIMAGE in ORACLE on HP-UX, and you want 100% transparency to your applications, DOOR is solution; it is a database to database replication tool, it supports both real-time and office-line replication capabilities and it can replicate to multiple RDBMS on multiple server concurrently.

The difference between DUAL-MODE and DOOR, DUAL-MODE is implemented at transaction level, is application centric, and is TRUE real-time; in DUAL-MODE, all replications are done at transaction level autonomously, and you can configure DUAL-MODE at system, application or program levels; whereas, DOOR is independent to your applications, it replicates TurboIMAGE database updates to target RDBMS, you may provide mapping rules, but its main purpose is for database to database replication.

DOOR intercepts all TurboIMAGE updates, whether is from TurboIMAGE logging files or from TurboIMAGE API calls, transports and replicates changes to ORACLE on HP-UX in real-time or offline modes.

In DOOR, the OPENTURBO unique sequence number is mapped to TurboIMAGE internal record number, so, for serial scan DBGET mode 2 and 3, the data access orders are always in-sync.

DOOR is designed to support Zero-Down time database migration and is also used for replicating data from TurboIMAGE databases to multiple relational databases either on-line or off-line.

Zero-down time database migration methodology and DOOR:

1) Do an on-line backup of your TurboIMAGE database and then immediately turn on TurboIMAGE Logging Facility or start DOOR Real-time Mode Interceptor.
2) Migrate the stored TurboIMAGE to ORACLE or others.
3) Run DOOR Shooter to replicate data to ORACLE from either TurboIMAGE Log-files or DOOR Intercepted Log-files until reach the most up-to-date Log-file.
4) Shut down TurboIMAGE, apply the most up-to-date Log-file to ORACLE – NOW YOU HAVE AN IDENTICAL MIRROR TurboIMAGE in ORACLE.

DOOR uses both TurboIMAGE Logging Facility and TurboIMAGE API Call-Interface Interception for data capture and can simultaneously replicate data to multiple RBDMS (ORACLE and SQL SERVER) on multiple servers. DOOR is a widely used for data warehousing.

DOOR Utilities:

DOORMAPPER - DOOR Windows GUI Mapper
DOORMAP - DOOR Replication Map File Generation
INTERCOT - DOOR Interceptor, it intercepts TurboIMAGE updates either from TurboIMAGE logging files or directly from TurboIMAGE API calls, puts data into a queue for DOOR Shooter process.
SHOOTOT - DOOR Shooter – it gets data from DOOR queue and transports them to one or many target relational databases on the Network.