**Lakeview Technology**
MIMIX® replicate1™



**Testing Template**:

This document will be used to describe, from a technical perspective, the elements that were included as part of the IBM TotalStorage Proven testing. It is intended to give an overall picture of the technical elements of the configuration, with a brief description of the results of the testing including any specific highlights of the interoperability results.

High-level architecture/description, include a list of products that meet the compatibility requirements ("Approved Product(s)") as well as a list of the IBM storage products with which the Approved Products meet the compatibility requirements ("Qualified IBM Storage Products"):
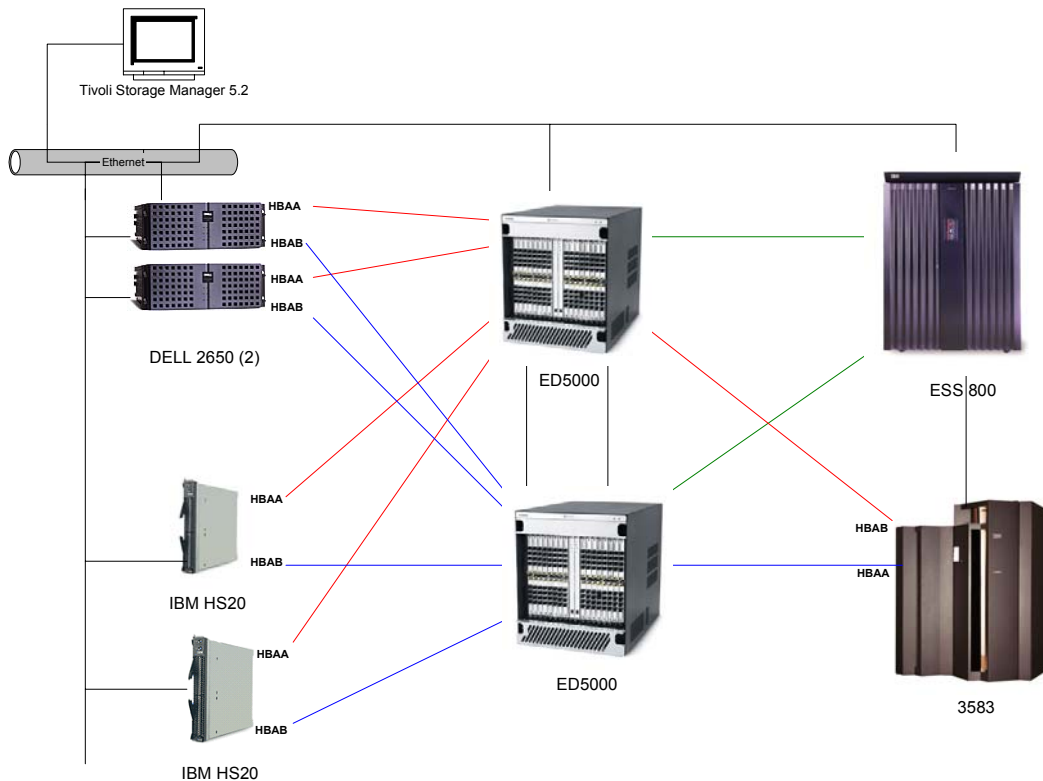
MIMIX® replicate1™ is the replication solution used to move data between different databases on different servers. Two Dell PowerEdge2650s and two IBM HS20 blade servers were attached to an Enterprise Storage Server (ESS) 800 storage device and an IBM 3583 Tape Library via two McData ED-5000 switches.

Bi-directional replication was established between the two Dell servers and the two IBM blade servers. In addition replication was established between the Dell and IBM servers. Independent libraries were created on the ESS800 for various replication sets.

Loss of the source server, communications links, switches or storage devices is detected by MIMIX® replicate1™. Transactions are queued until normal operations are re-established, then queued transaction are processed in sequence. During testing, power failures were initiated for the servers, switch and ESS800. MIMIX® replicate1™ successfully detected the failures, queued pending transactions, and resumed operations when the disabled equipment was restored.

The actual testing scenario:



Tivoli Storage Manager 5.2

Ethernet

HBAA
HBAB

HBAA
HBAB

DELL 2650 (2)

ED5000

ESS 800

HBAA

HBAB

IBM HS20

HBAB
HBAA

HBAA

ED5000

3583

HBAB

IBM HS20

Testing level achieved: **Standard**
> The standard test consists of install, configuration, load, exercise I/O, and backup/restore testing.

Testing:

> MIMIX® replicate1™ was installed on two Dell PowerEdge2650s and two IBM HS20 blade servers were attached to an Enterprise Storage Server (ESS) 800 storage device and an IBM 3583 Tape Library via two McData ED-5000 switches.

> Replication was validated in a one-to-one and one-to-many topology across all servers and storage devices. One-to-one replication was tested in one-way and bi-directional flows. Detection of server and communication failures was validated.

> Backups and restores were performed using Tivoli Storage Manager 5.2 and an IBM 3583 Tape Library. Backups and restores were validated against original data with no exceptions.

> Storage related benefits of this MIMIX® replicate1™ solution include:
> - Replication and transformation of data across different databases and servers.
> - Real time or scheduled replication/transformation.

- Changed data is stored in a MIMIX® replicate1™ queue to prevent data loss due to equipment or communications failures.
- Data integrity of ensured by not replicating data until the update is completely committed on the source database.
- Ability to replicate a large variety of data formats including Unicode, FORBIT, BLOBs, CLOBS and Oracle's Long Raw data format.
- Provides full support for one-way or bi-directional replication using any combination of one-to-one, one -to-many, or many-to-one topologies. One-to-many broadcast can be accomplished directly or through cascading topology.
- Offers full protection for data collisions, and update loops.

Test Configuration:

**Hardware Details:**
Server type(s) and quantity:  (2) IBM Blade Server HS20
Host Bus Adapter (HBA) vendor model(s): 48P7062
      Firmware level: 1.35
      Driver level: v6.05.0
Network Interface Card (NIC) vendor:  IBM
      Model(s) 48P7054
      Firmware levels: v7.0.00 Bios: V1.35
Server type(s) and quantity: (2) Dell PowerEdge 2650
Host Bus Adapter (HBA) vendor model(s): Qlogic: QLA2342/L
      Firmware level: 1.35
      Driver level: V6.05beta9
Network Interface Card (NIC) vendor:  Broadcom
      Model(s) NetXtreme A01
      Firmware levels: v.7.0.0 Bios: 1.3

**Storage Product(s) Used:**
IBM (2) 3583 Tape Library
Version: L36-36
Number of Drives: 6
Drive Type: Ultrium 2 08L9870 LTO
Capacity: 200/400GB
Microcode Level: v5.14_01
Comments: Tape drive will be connected via fibre channel to fabric

IBM ESS 800
Version: 2105
Number of Drives: 16
Drive Type: 36.4 GB
Capacity: Raid Group 1: 245 GB (7+P) RAID 5; Raid Group 2: 245 GB (7+P) RAID 5
Microcode Level:

Comments: ESS 800 will be connected to fabric with dual connections for redundant zoning from fibre channel fabric.

**Switches:**
McData ED-5000 (2)
Version: V.3.2

**Software Details:**
IBM Tivoli Storage Manager
Release level(s): 5.2
Description:  Tivoli Storage Manager for backup and archive.
OS Version: Windows 2003

**Middleware Used:**
Vendor Name: Lakeview Technology
Middleware Name: MIMIX® replicate1™
Release level(s): V4.0

Test Results:

Standard MIMIX® replicate1™ installation procedures were initiated from a Windows-based client. One installation of MIMIX® replicate1™ was installed on each server. Two MIMIX replicate1™ libraries were created on the ES800 – one for the Dell servers and one for the IBM blade servers. Data replication was initiated from the source to target servers, storing replicated data on the attached ESS 800. Backups of replicated data were made using Tivoli Storage Manager and IBM 3583 Tape Library.

Target servers were disabled by simulating power failures. MIMIX® replicate1™ detected the failures and queued update transactions until target servers were restored. Queued transactions where then processed in sequence. All data replicated with out exception. File compares between source and target servers verified data was accurately replicated.

MIMIX® replicate1™ status screens correctly documented the various status conditions in the testing scenarios.

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