

IBM TotalStorage Proven™ program

Lakeview Technology

MIMIX® ha1™



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”):

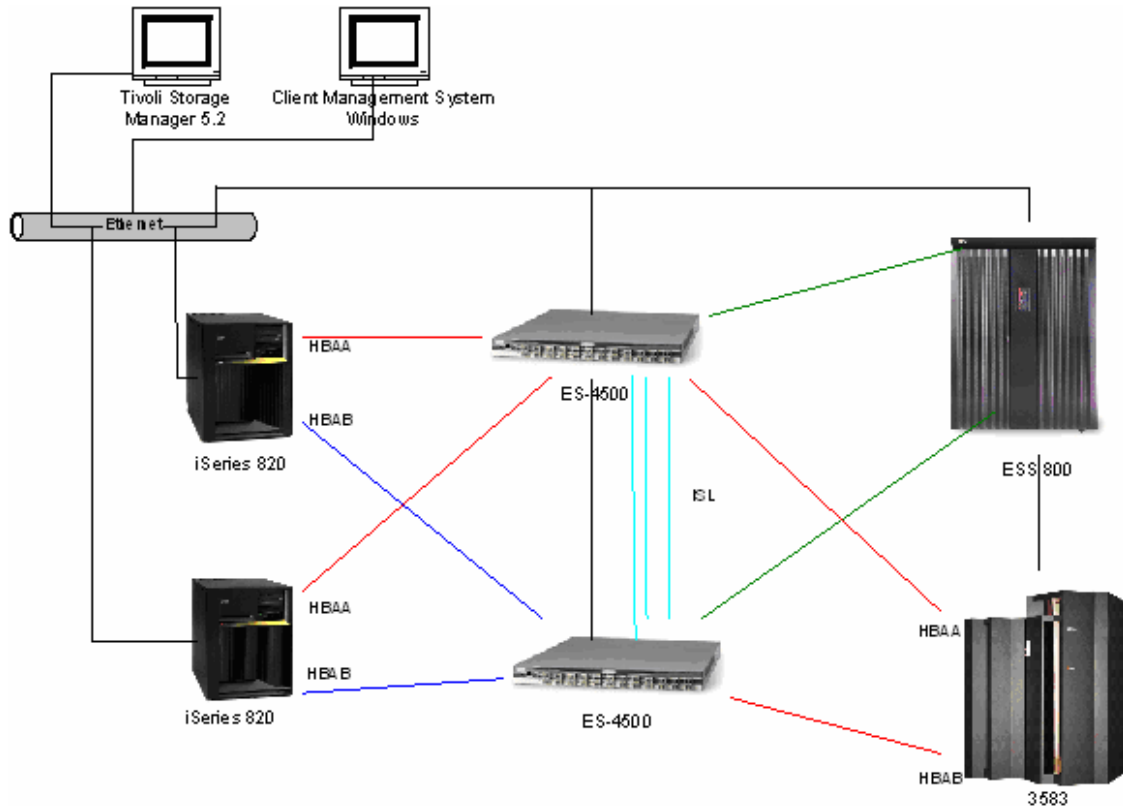
MIMIX® ha1™ is the replication solution used to move data from a “source” IBM® eServer iSeries 820 to a second, “target”, iSeries 820. Both iSeries were attached to an Enterprise Storage Server (ESS) 800 via a McData ES-4500 switch. Changes in source server files are detected and transported to the source system. Changes are applied to the target server in real time. Changed data is stored on the target system to ensure it is available in the event of source system or communications failure.

Replicated data is available on a “target” IBM eServer iSeries 820 in the case of a source system or communications failure and to a tape library (an IBM 3583) for backup. Data is stored to tape using Tivoli Storage Manager version 3.1.2 from the target system.

Loss of the source iSeries 820 or communications is detected by MIMIX® ha1™ and failover to the target system automatically initiated. During testing, power failures were initiated for the servers, switch ESS, and tape drive. MIMIX® ha1™ successfully detected the failures, properly failed over, and resumed operations with the active equipment.

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The actual testing scenario:



Testing level achieved: **Standard**

The standard test consists of install, configuration, load, exercise I/O, and backup/restore testing.

Testing Overview:

MIMIX® ha1™ was installed on two iSeries 820 servers. It was configured to replicate data to a target iSeries with an attached Enterprise Storage Server 800. MIMIX® ha1™ was configured to replicate from the “source” to “target” servers and from the “target” back to the “source” using different libraries.

The source-to-target flow represents typical day-to-day operations. This configuration is used to replicate data for recovery purposes and to obtain synchronized backups. MIMIX® ha1™ ensures data integrity without interrupting source server operations.

The target-to-source flow is used following an interruption, where the target server assumed the role of the source. This flow is used to update files on the source (or its replacement) to resume original operations with current data.

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Testing included the replication of data from source-to-target and target-to-source. Detection of server and communication failures was validated. The ability to switch to the active server and storage upon failure detection was verified.

Backups were performed under the above scenarios using Tivoli Storage Manager and IBM 3583 Tape Library.

Storage related benefits of this MIMIX® ha1™ solution include:

- Replication of critical data to an alternate server in real time with minimal risk of data loss from unplanned outages.
- Accumulation of pending transactions to be applied on the target system ensures information is available in the event of an unplanned outage.
- Uses asynchronous or synchronous remote journaling, or local journaling to replicate changes to the target system.
- Performs audit and repair of the data within files, even while files are active. Only necessary data is changed, avoiding the overhead of sending entire files across communication channels.
- Replicates files and objects using flexible configuration and filtering options.
- Creation of reliable backups of source server files from the target, without impacting source-side availability or performance.
- Elimination of large downtime windows for hardware, software and storage upgrades. Only a brief interruption is required to switch between the source and target servers.

Test Configuration:

Hardware Details:

Server type(s) and quantity: (2) IBM iSeries 820-2436 (V5R2)
Host Bus Adapter (HBA) vendor model(s): IBM 2787-0626 PCI-X FC DC
Firmware level: CPTF: C32520
Driver level: MF30968
Network Interface Card (NIC) vendor: IBM
Model(s): 2838-001 100/10 Mbps Ethernet 10A
Firmware levels: CPTF: C32520
Driver level: MF30968

Storage Product(s) Used:

Vendor: IBM
Model Name and Number: (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 drives connected via fibre channel to fabric

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Vendor: IBM
Model Name and Number: 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: 2.0.0.705
Comments: ESS 800 connected to fabric with dual connections for redundant zoning from fibre channel fabric.

Switches:

Vendor: McData
Model Name and Number: ES-4500/2031-224 (2GB) x (2)
Microcode Level: V.6.00.0

Software Details:

Software Vendor: IBM
Software Name: Tivoli Storage Manager TSM 5697
Release level(s): 3.1.2
Description: Tivoli Storage Manager for backup and archive.
OS Version: iSeries API Server

Middleware Used:

Vendor Name: Lakeview Technology
Middleware Name: MIMIX® ha1™

Testing Results:

Standard MIMIX® ha1™ installation procedures were initiated from a Windows-based client. Two installations of MIMIX® ha1™ were installed on each iSeries server under different libraries. 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.

Various hardware components were disabled by simulating power failures. MIMIX® ha1™ detected the failures and switched to the remaining active equipment. User access was verified and backups were performed from the target system with no exceptions. The disabled equipment was reactivated and the process repeated in the reverse direction to simulate a return to the original operating configuration. All data replicated with out exception.

MIMIX journal transactions, internal user space (logs) and TSM were used to verify data integrity with all replications, copies and backups. No exceptions were noted.

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MIMIX® ha1™ status screens correctly documented the various status conditions in the testing scenarios. Performance was monitored using the Data Group Status Screen that displayed errors, replication time stamps, and status. Performance times were good and no error and/or unannounced change in status developed in the testing

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