

IBM N series Integration

**CaminoSoft Managed Server HSM
N series Edition**

White paper on supported configuration and integration

May, 2007

Abstract

This document provides an overview of Caminosoft Managed Server HSM integration with IBM N series Unified Storage Products.

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Overview

CaminoSoft Company Overview

CaminoSoft Corporation (OTC.BB: CMSF) is a developer and manufacturer of software solutions that address the storage, management, and safeguarding of vast quantities of data generated in a wide range of businesses and applications. The company's Information Lifecycle Management solutions for Microsoft Windows 2000/2003, Novell NetWare and NetApp/N series include comprehensive administrative policies that allow organizations to reclaim storage resources, dramatically reduce backup and recovery time, control file retention, and achieve regulatory compliance. CaminoSoft has established alliances with industry-leading technology partners, and the company markets its Storage Management and High Availability solutions worldwide through commercial distributors, value-added resellers, and systems integrators.

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CaminoSoft Managed Server HSM – N series Edition Overview

CaminoSoft's Managed Server HSM™ - N series Edition provides a simple, cost-effective solution for handling the complexities of data storage management. By applying consistent policies, administrators control the location of files as they move through their lifecycle, beginning with high-performance, costly storage (such as SAN arrays), then to less-expensive disk arrays and near-line devices, and eventually to off-line archives. Files migrated in such a way tend to become more "fixed" in nature as they move along the storage hierarchy. N series combined features of high-availability, scalability and lower overall cost of storage make it very attractive as an archive solution for controlling the otherwise explosive growth requirements of an organization's primary SAN infrastructure. The N series can in addition be utilized as a source volume where the data is migrated to other near-line less-expensive storage arrays or to tape via Tivoli Storage Manager (TSM).

Like our standard Managed Server HSM for Windows 2000/2003 solution, N series Edition enables an administrator to configure policies and usage of the "virtual" Central Storage Pool and migrate seldom-accessed files to the pool. The policy-driven engine provides for "lights-out" operation, reduces the time and storage space to make backups of the files that are routinely accessed and are changing day-to-day, while providing complete, transparent access by users to all of their data.

N series Integration Overview

Current Integration Revisions

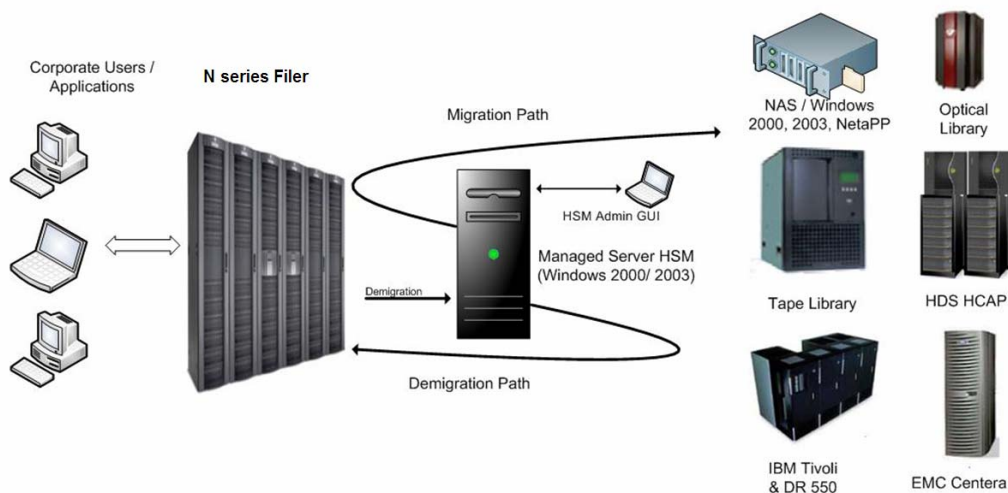
The current version of the CaminoSoft Managed Server HSM – N series Edition is v5.2. This version of the CaminoSoft product integrates with IBM N series Unified Storage Products and has been made generally available (GA) on May 1, 2007.

Integration Architecture Overview

CaminoSoft Managed Server HSM – N series Edition, running on a Windows 2000/2003 server, can manage files directly from its own resources to and from the N series. It can also act as a gateway to N series providing access from multiple Netware and Windows “managed” servers.

When a file is migrated to N series, the CaminoSoft Managed Server leaves behind a “stub” which is a fraction of the size of the original file. The “stub” file contains metadata about the original file. The N series can also be used as a source volume where the stubs are left on the N series and the data migrated to other near-line storage such as less-expensive disk arrays or to tape via Tivoli Storage Manager (TSM).

CaminoSoft Managed Server HSM – N series Edition Implementation



N series Integration Detail

Hardware and Operating System Platform Support

The CaminoSoft Managed Server HSM – N series Edition runs on Windows 2000/2003 servers and IBM N series network attached storage (NAS) boxes running ONTAP 7.0 and above, supporting Central Storage Pool comprised of one or more off-the-shelf hardware configurations of NAS target devices, general purpose file servers, EMC Centera or any combination of these. Managed Server HSM - N series Edition can manage files directly from the Windows servers and/or NAS systems on which it is installed, or act as a gateway to N series providing access from multiple Netware and Windows “managed servers.”

N series Features as part of IBM SSP (System Storage Proven)

Multistore

“MultiStore enables secure, multiprotocol storage consolidation across an enterprise. It provides secure partitioning of network and storage resources and enables multidomain and multiserver consolidation on a single storage system. In addition, it reduces management cost by introducing a tiered management model, enabling cost-effective administration” (Multistore, 2007). Caminosoft Managed Server HSM – N series Edition is capable of running on a multistore (virtual filer) configuration delivering the same benefits as of a physical filer.

Clustering

Caminosoft Managed Server HSM – N series Edition is capable of running on clustered nodes of N series thereby providing failover capabilities.

TSM integration

Caminosoft Managed Server HSM including the N series edition is designed to work with the IBM Tivoli Storage Manager. The solution extends Managed Server HSM functionality by providing the capability to migrate files to the IBM Tivoli storage pool storage, System Storage DR550, and supporting peripheral subsystems and devices.

Solution Configuration and Setup

Application Configuration Details

Managed Server HSM – N series Edition is configured through the CaminoSoft application Graphical User Interface. The N series can be configured as a source device or target device. The user must specify the connection parameters, such as the IP address or the name of the server, user ID, and password.

Deployment Scenarios

Managed Server HSM and N series integration supports clustered servers. One target may be configured per Migration Profile. N series replication may be used in Disaster Recovery configuration. When the N series is used as a target, CaminoSoft also provides a recovery utility that can query the target and rebuild the “stub” files that may have been lost in the event of a disaster.

Content Migration

NAS to Disk

The N series can be used as source volume and any inexpensive disk array can be used as a target. The target could also be obtained out of portioning DS4x00 series or a DS8x00 series storage.

NAS to TSM

The N series can be used as source volume and TSM pools can be used as targets. The TSM interface enables data migration from NAS to a tape pool.

Disk to Disk

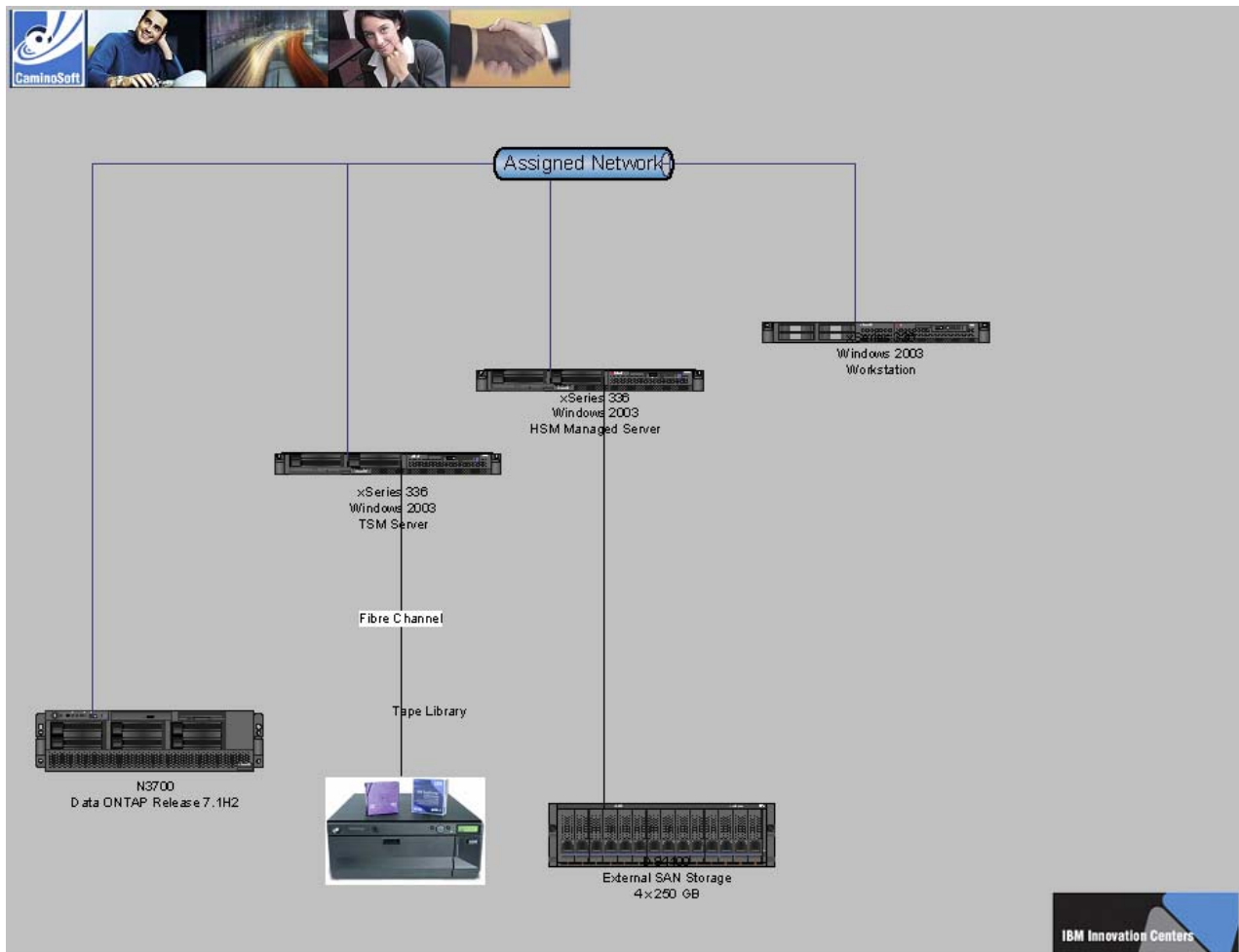
Managed Server HSM software can be used for a simple disk-to-disk migration as well. The source disk could be an expensive SAN device and the target could be an inexpensive disk array.

Disk to NAS

The NAS can be used as a file migration target (either N series standard or SnapLock) from SAN sources.

Configuration(s) Tested:

The test was performed at IBM Innovation Center for Business Partners in San Mateo, California. User data files on source volumes emulating different aging, different sizes, and different types were created using custom scripts. Additionally three web spiders running 24 by 7 during the test period were used to pull content onto source volumes. These files were then migrated as per the set HSM policy rules. Migrations across multiple tiers, such as first stage Tier 1 migration from NAS to Disk and second stage Tier 2 migration from Disk to Tape, were also tested. The following diagram represents the general topology of the test configuration.



Server Spreadsheet

Name	IP Address	OS	Specifications	Application	Storage
x336001	172.26.41.141	Windows 2003 SP2	Dual 3.6 Ghz Xeon 3.25GB Ram	TSM Client	ds4300
x336002	172.26.41.142	Windows 2003 SP2	Dual 3.6 Ghz Xeon 3.25GB Ram	HSM Managed Server	
x336003	172.26.41.143	Windows 2003 SP2	Dual 3.6 Ghz Xeon 3.25GB Ram	TSM Client	
x336004	172.26.41.144	Windows 2003 SP2	Dual 3.6 Ghz Xeon 3.25GB Ram	TSM Client	
x36604	172.26.41.146	Windows 2003 SP2	Quad 3.6 Ghz Xeon 3.25GB Ram	TSM Server	Tape Library
x36605	172.26.41.147	Windows 2003 SP2	Quad 3.6 Ghz Xeon 3.25GB Ram	HSM Managed Server	DS8100
n3700a	172.26.41.150	Data ONTAP 7.2.1.1			
n3700b	172.26.41.151	Data ONTAP 7.2.1.1			
csvfiler1	172.26.41.160				
csvfiler2	172.26.41.170				
network	172.26.41.128				
mask	255.255.255.128				
gateway	172.26.41.129				
nameser					
ver	172.26.1.1				

Driver Spreadsheet

Name	IP Address	HBA	Driver	Firmware	Storage	Multipath
x336001	172.26.41.141	qla2462	STOR Miniport 9.1.4.15	4.00.26	ds4300	RDAC 5.2.3790.0
x36604	172.26.41.146	qla2340	STOR Miniport 9.1.4.15	3.03.21	Tape Library	NA
x36605	172.26.41.147	qla2340	STOR Miniport 9.1.4.15	3.03.21	ds8100	sdd

Storage Spreadsheet

Name	Firmware	Arrays	Drives	Type	Capacity	Comments
ds4300	6.19.24	1	8	Raid 5	475 GB	
ds4300	6.19.24	2	8	Raid 5	475 GB	
ds8100		1				
3584-D52	5770	NA	3581(47Q0)	LTO1	100GB	40 Tapes
n3700	ONTAP 7.2.1.1					

References

MultiStore. *Provisioning and Volume Management*. Referenced on April, 22, 2007 at <http://www.netapp.com/products/enterprise-software/storage-system-software/provisioning-volume-management/multistore.html>.