FalconStor®

Network Storage Server (NSS)

Enterprise solution for storage virtualization, provisioning, and management

The FalconStor® Network Storage Server (NSS) solution delivers TOTALLY Open™ SAN storage virtualization, provisioning, and heterogeneous storage management that works across disk vendor and storage protocol boundaries to optimize storage utilization, reduce costs, and increase IT productivity in enterprise organizations.

Highlights

> Open architecture connects storage across vendor barriers, protocols (iSCSI, FC, or InfiniBand), and virtual server environments

> Manage virtual storage and physical storage from a single console

> Automated DR for physical and virtual environments

> Thin Provisioning maximizes disk utilization while reducing storage costs and power consumption

> Application-aware snapshot agents, including Microsoft Windows certified agents, ensure 100% transactional integrity

> Synchronous mirroring between disk arrays enables data migration with no downtime

> Certified for use with VMware and VIrtual Iron virtual servers; supports VMware Site Recovery Manager

> Integrated Microsoft Exchange and Lotus Notes message recovery

> Integrated with Oracle RMAN, ASM

> Supports individual LUNs up to 16TB

> WAN-optimized replication with compression and encryption for fast, efficient, secure remote DR

vmware®
READY

FalconStor NSS includes TimeMark® snapshots from FalconStor that work with snapshot agents for databases and messaging applications, providing 100% transactional integrity for instant recovery to known points in time—helping IT meet recovery point objectives (RPO) and recovery time objectives (RTO). Data managed by FalconStor NSS may be efficiently replicated via IP using WAN-optimized replication for remote data protection and recovery. Thin Provisioning helps automate storage resource allocation and capacity management while virtualization provides centralized management for large, heterogeneous storage environments.

Open, flexible storage virtualization

FalconStor NSS was designed as a massively scalable solution that presents no barriers to enterprise storage network design and planning. Working with any vendor disk array, FalconStor NSS eliminates data boundaries and vendor lock-in, providing fast and easy data copying, mirroring, migration, snapshots, and replication in an any-to-any fashion. With integrated support for Fibre Channel (FC), iSCSI, and InfiniBand, protocols are easily bridged. The open design of Falconstor NSS makes it an ideal platform to integrate Tier 1 and Tier 2 storage management, freeing storage administrators to use whatever equipment best suits a specific need or budget.

FalconStor NSS storage virtualization greatly eases disk provisioning and allocation through the use of a single interface and common toolset. Storage pooling – combining groups of disk resources for a common purpose – further speeds provisioning and reduces operational errors by ensuring resources are correctly allocated.

For existing, non-virtualized data, the FalconStor Storage Service Enabler feature quickly brings current data into the FalconStor NSS management scheme without the need to reformat disk volumes or migrate data.

Automated Disaster Recovery (DR)

FalconStor® RecoverTrac™ technology represents a significant advancement in data protection, providing automated DR of critical business application servers and associated data volumes. This flexible and comprehensive recovery tool supports physical and virtual servers, including mixed environments. Single or multiple recovery locations are supported, as well as local and remote recovery. Supported recovery types include physical-to-physical (P2P for identical servers), physical-to-virtual (P2V), and virtual-to-virtual (V2V) recovery.

Thin Provisioning for effective disk utilization

FalconStor Software continually strives to make disk utilization as efficient as possible, reducing the number of drives needed and providing savings on equipment and power consumption. Often, requests are made to provision volumes far larger than the application will ever use to avoid re-provisioning storage when space runs short. FalconStor NSS provides Thin Provisioning of virtual volumes, which allocates physical storage space on an as-needed

basis, using less physical storage than what is represented by the virtual disks. In this way, requests for large volumes can be accommodated without allocating a corresponding amount of physical disk resources. The result is maximized disk utilization efficiency and reduced storage costs.

Easy data migration without downtime

One of the biggest recurring storage challenges is moving data to new disk arrays as old models become obsolete or reach the end of their lease cycle. Often, costly professional services are required to migrate between devices, particularly if they are devices from different vendors. FalconStor NSS simplifies this process through the use of synchronous data mirroring between disk arrays. If your current arrays are managed by FalconStor NSS, you can attach the new arrays to the SAN and mirror volumes between arrays—a simple point-and-click procedure. Once the mirrors are synchronized, the connection to the old storage can be broken and those arrays can be removed from the SAN. There is no application downtime during this process.

Protect physical and virtual servers simultaneously

Virtualization technology from providers such as VMware, Virtual Iron, Microsoft, and Citrix is gaining popularity among businesses for its ability to consolidate servers, minimize space utilization, and streamline management. However, virtual servers require the same level of data protection as physical ones do in order to minimize data loss and service downtime in the event of hardware or software failure. FalconStor NSS provides the same capabilities to physical and virtual servers, and even allows physical server snapshots to be mounted on virtual servers for purposes of recovery or testing.

Eliminate backup windows and accelerate tape backup

FalconStor NSS offers the HyperTrac™ Backup Accelerator option to automatically mount snapshots from FalconStor NSS to a backup server in order to back up data to a virtual tape library such as FalconStor Virtual Tape Library (VTL) or to physical tape. Applications are not impacted because backup occurs directly from the FalconStor NSS storage to the tape. This is a centralized, LAN-free, serverless backup methodology that eliminates all backup software clients and accelerates tape drive speeds.

WAN-optimized replication reduces bandwidth and costs

Network bandwidth between a local and remote site can contribute significantly to the overall remote backup/DR overhead. FalconStor NSS offers a WAN-optimized replication, which includes encryption for security and compression for reduced bandwidth consumption. Patented MicroScan™

technology detects changes at the sub-block level, reducing bandwidth requirements by as much as 70 to 90% compared with other similar solutions. This leads to significant cost savings, making offsite data copying financially and technically feasible for organizations of all sizes.

Moreover, the open architecture of FalconStor NSS lets you use any storage device and protocol to further minimize overhead. For example, rather than re-create a full FC SAN at a DR site, you can use lower-cost SATA disks with standby servers attached via iSCSI. In addition, smaller remote sites can take advantage of centralized storage using iSCSI while replicating to a FC SAN in the data center.

100% transactional integrity

TimeMark snapshot database and messaging agents integrate with FalconStor NSS to protect database and email systems with 100% data integrity, ensuring transactional consistency during recovery. This speeds the recovery process by eliminating the need for lengthy database consistency checks. TimeMark technology also supports consistency groups, so all the volumes for an application can be snapped at precisely the same moment in time.

Application-aware snapshot agents are available for major enterprise applications, including Microsoft Exchange and Microsoft SQL Server, Oracle, VMware, and others. TimeMark snapshots can be mounted as a virtual volume called a TimeView® image, for instant recovery at the individual file level or at the volume level for bare metal recovery. Data protection and instant recovery helps drive top-line growth, improves customer service and satisfaction, and increases business productivity.

Simplified testing and DR planning

One of the most critical yet least performed operations is the rehearsal of a DR scenario. In a tape backup model, recovery rehearsal is a difficult, lengthy process that is often skipped due to time, costs, and personnel constraints. FalconStor NSS greatly simplifies this by providing readily mountable TimeView images, either in the data center or at a DR site. These images can be created and used for booting standby servers, without disrupting data protection operations.

In the same manner, snapshot images can be used for testing and development efforts. Before deploying a patch or upgrade into production, a TimeView image can be used to boot a production-identical instance of a server. Updates can be applied to the writeable TimeView image and the results can be verified before deploying on the production system. When testing is complete, the TimeView image can be deleted, returning the disk resources to the storage pool.

Flexible deployment options

FalconStor NSS is available in multiple form factors. Appliances with internal storage are available in various sizes for easy deployment to remote sites or offices. Two FalconStor NSS devices can be interconnected for mirroring and active/active failover, ensuring HA operations. FalconStor NSS gateway appliances can be connected to any external storage arrays, allowing you to leverage the storage systems you have in place. FalconStor NSS can also be purchased as software (software appliance kits [SAKs]) to install on servers, and as virtual appliances for VMware environments.

Enterprise-class SAN appliances

The Falconstor NSS HC series features FalconStor NSS software and all of its associated capabilities in the form of enterprise-class SAN appliances. The series consists of four models with three different host protocols — iSCSI, iSCSI/FC, and 10GbE iSCSI. Each of these models is scalable to more than 200TB of SAS/SATA capacity. FalconStor NSS HC series appliances provide a hardware foundation with built-in high availability (HA) optimized for storage provisioning and comprehensive data protection. The unique combination of SAN provisioning and storage virtualization offers an ideal opportunity for IT administrators to deploy the latest storage technology while leveraging legacy storage investments.

Gateway Appliance Specifications

	NSS GA700	NSS GA720
Physical Characteristics		
Base form factor	2U	
# of controllers	Single	
RAM included	16GB	
RAID level	3rd party	
CPU cores	8	
Power supply	Two hot-plug 870W PSUs (1+1)	
Host Connections		
iSCSI support	Included	
FC support	Included	
1Gb Ethernet ports	4	4
10Gb Ethernet ports	—	2
8Gb FC ports	4	2
Environmental Requirements		
BTU	1500	
Temperature	Operating: 50° to 95°F (10° to 35°C) Storage: -40° to 149°F (-40° to 65°C)	
Relative humidity	Operating: 20% to 80% (non-condensing) Storage: 5% to 95% (non-condensing)	
Altitude	Operating: -50 to 10,000 ft (-16 to 3048 m) Storage: -50 to 35,000 ft (-16 to 10,600 m)	

FalconStor NSS for the enterprise
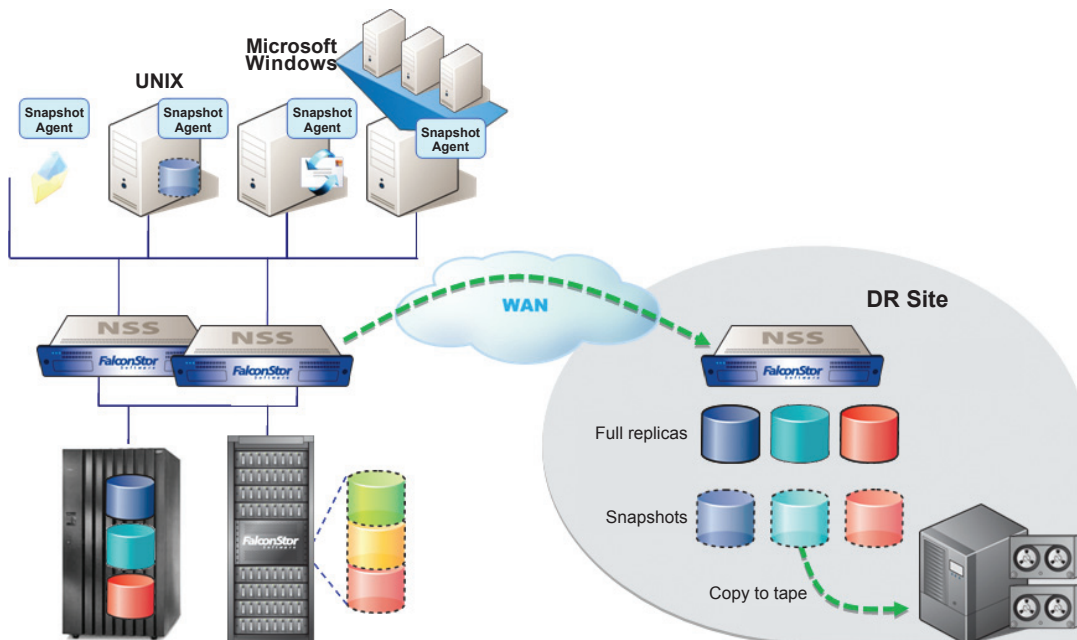
Key features

Storage services

RecoverTrac. Provides automated DR for physical and virtual environments, enabling P2P, P2V, and V2V recovery.

FC support option. Supports FC protocols over 2Gb, 4Gb, and 8Gb ports. Supports FC booting using certified HBA. Integrates with Disk Manager to securely allocate storage.

iSCSI support. Supports iSCSI protocol over built-in Gigabit Ethernet ports. Load balancing and path failover are supported via standard Microsoft iSCSI Initiator driver. Supports iSCSI booting using certified iSCSI HBA. Integrates with Disk Manager to securely allocate storage without the usual complexity associated with iSCSI authentication.

Mirroring. Synchronous Mirroring provides block-level data mirroring across any disk system regardless of vendor/brand, disk type, or data interface (SCSI, FC, iSCSI, InfiniBand). Data can be synchronized to a second storage device independent of the servers involved. There is no need for operating system-specific host based tools. Once the mirror is online, all future data is written simultaneously to both the primary volume and the mirror.

Thin Replication. Enables block-level, delta replication to a DR site. Built-in UDP or TCP protocol used without the need for additional FC/IP routers. MicroScan technology analyzes each replication block on-the-fly during replication and transmits only the changed sectors.

Thin Provisioning. Allows provisioning of virtual storage that represents a higher capacity than is physically available. Physical storage is automatically allocated only when needed. This enables more efficient storage utilization. Thin Provisioning may be applied to primary storage, replica storage (at the DR site), and mirrored storage.

TimeMark snapshots. FalconStor NSS provides 256 TimeMark snapshots per LUN. These space-efficient snapshots can be enabled for all iSCSI and FC disks. Database agents are available for popular databases to ensure 100% transactional integrity.

TimeView images. TimeMark technology includes the TimeView feature, which creates an accessible, mountable delta snapshot image that enables administrators to freely create multiple and instantaneous virtual copies of an active data set. The data set and/or replica copies can then be assigned to multiple application servers with read/write access for concurrent, independent processing, all while the original data set is actively being accessed/updated by the primary application server.

Client agents

FalconStor Message Recovery for Microsoft Exchange option. FalconStor NSS appliances integrate with Microsoft Exchange 2003/2007 Recovery Storage Group technology. The snapshot disk responds directly to Microsoft Exchange databases and rapidly recovers information in single inboxes. A wizard lets you load information into databases without having to restore and recover databases or consume server disk space.

HyperTrac Backup Accelerator option. Supports serverless file backup, enabling the backup server to connect to a FalconStor NSS appliance and assisting with backup by automatically connecting to the snapshot disk, completely backing up server files to tapes.

Snapshot agent suite. Snapshot agents are available for the following environments: Microsoft Exchange Server, Microsoft SQL Server, Microsoft VSS, IBM DB2, IBM Informix, Lotus Notes/Domino, Oracle, Sybase, MySQL, Ingres, SAP, Novell GroupWise, Pervasive.SQL, SAP MaxDB, and VSS, as well as file systems (Linux, HP-UX, Solaris, AIX, Microsoft Windows, Novell NetWare). Complete data and transactional integrity is maintained for point-in-time copy purposes and DR.

About FalconStor

FalconStor Software, Inc. (NASDAQ: FALC), the provider of TOTALLY Open™ Data Protection solutions, delivers the most comprehensive suite of products for data protection and storage virtualization. Based on the award-winning IPStor® platform, products include the industry-leading Virtual Tape Library (VTL) with deduplication, Continuous Data Protector (CDP), File-interface Deduplication System (FDS), and Network Storage Server (NSS), each enabled with WAN-optimized replication for disaster recovery and remote office protection, and the HyperFS™ file system. Our solutions are available from major OEMs and solution providers and are deployed by thousands of customers worldwide, from small businesses to Fortune 1000 enterprises.

For more information, visit www.falconstor.com/NSS or contact your local FalconStor representative.

FalconStor®
Defining Data Protection, Again.™