



Highlights

- » Massive scalability supports up to 144PB of storage
- » Aggregate multiple Galaxy Aurora systems to increase both storage capacity and performance with the HyperDrive file system
- » Unify SAN, NAS and Archive under a single global namespace
- » Efficiently allocate block or file level storage with the proper performance to all users including graphics, editing, rendering, DI, color correction and archive
- » Application Tested: Assimilate, Autodesk, DaVinci, Digital Vision, Iridas as well as NLE Systems
- » High performance, low latency
- » Dedicated metadata server (MDS)
- » Built-in NAS feature
- » Open architecture for hardware independence
- » Supports Microsoft Windows, Linux, and Mac OSX client
- » Flexible deployment options
- » Comprehensive data protection
- » Thin Provisioning maximizes disk utilization, reducing storage costs and power consumption

HyperFS

The HyperFS™ solution from FalconStor Software is an innovative file system that simplifies the management and access of multiple types of large files. HyperFS meets the challenges of today's demanding applications by offering remarkable performance and scalability. Providing concurrent high-speed file access to heterogeneous clients across a global name space, HyperFS also empowers organizations with hardware-independent data protection, storage virtualization, and Thin Provisioning.

Massive Scalability

The HyperFS solution supports up to 144PB of storage and tens of billions of files in a single file system together with hundreds of clients in a single global name space. Storage capacity can be added rapidly and dynamically.

High Performance

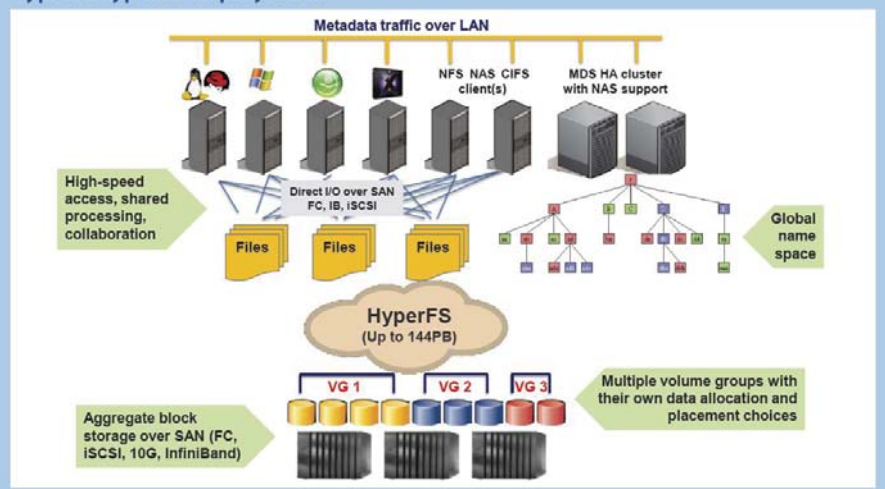
The HyperFS solution leverages standard high-speed SAN technology for data movement directly between the requesting client and the data store, while POSIX-compliant file system protocol traffic is carried over the LAN.

The HyperFS solution is not a network file system like NFS. HyperFS takes file management beyond a single system by providing scalable access from multiple systems. It interacts with applications in the same manner as a local file system, but is designed to deliver much higher performance, scalability, and fault tolerance by allowing access to the data from multiple, heterogeneous systems directly and simultaneously. HyperFS overcomes the data transmission bottlenecks of traditional distributed file systems. Data is transmitted over InfiniBand, Fibre Channel (FC), or iSCSI connectivity for maximum performance. This makes HyperFS an ideal solution for the media and entertainment (M&E) industry and for other organizations that utilize high-bandwidth video streaming applications.

Global Name Space

All HyperFS clients share a single global name space. Administrators can expand, move, rebalance and reconfigure storage without affecting how users view and access it, and without downtime. Data changes are automatically updated in the name space, and require no client reconfiguration or downtime.

Typical HyperFS deployment



Dedicated MDS

Metadata is processed by separate metadata servers (MDS) connected to both the SAN and the LAN. The MDS is responsible for processing file system metadata, organizing the directory tree, journaling, maintaining file properties, recording logs of file operations, byterange locking, authorizing file access, and directing snapshot copies. By providing dedicated metadata processing and splitting its path from the primary data path, HyperFS ensures high performance and low latency for demanding workflow applications.

A high-availability (HA) clustered architecture allows organizations to maximize data availability and operational efficiency. Two MDS can operate in an active/passive mode, providing quick failover if the active MDS fails.

Clients can share data easily and seamlessly over a LAN using standard NFS and CIFS protocols using a built-in NAS feature. The support operates in the MDS, requiring no additional gateway. Built-in NAS also integrates with existing LDAP/Active Directory environments.

Specifications

Maximum Capacity	144PB per file system
Maximum Number of File Systems	16 per MDS
Maximum File Size	32TB
Maximum Number of Files	Tens of billions depending on file size
Maximum Number of LUNs	4096
Maximum LUN Size	Variable - limited only by maximum drive logical block addressing
HA Features	Active/Standby metadata servers Metadata journaling Active/Standby NAS (NFS and CIFS)
Maximum Tested Throughput on a Single Unit	>1.2 GB/s (on a 24 drive SuperMicro system)
Maximum Number of Clients	Largest installed >800
POSIX Compliance	Compliant with POSIX for file semantics and locking
NFS Support	NFS version 3.x, 2.x
MDS OS Support	Red Hat Enterprise Linux 5.3/5.2 (64-bit) CentOS Linux 5.3/5.2 (64-bit) Oracle Enterprise Linux 5.3/5.3 (64-bit)
SAN technology support	FC, iSCSI, InfiniBand
Client OS support	Microsoft Windows – 32- & 64-bit (XP/2003/2008/Vista/7) Red Hat Enterprise Linux 4.x/5.x (32- & 64-bit) CentOS Linux 4.x/5.x (32- & 64-bit) Oracle Enterprise Linux 4.x/5.x (32- & 64-bit) SuSE (32- & 64-bit) Mac OS X 10.5.x – 32-bit (Leopard) Mac OS X 10.6.x – 64-bit, 32-bit (Snow Leopard)
MDS hardware	Memory: 2GB RAM minimum (8GB recommended) CPU: Dual-core AMD Opteron and Intel Xeon EM64T are supported System disk: 80GB minimum disk space, SCSI, IDE, or SATA Network Interface Card: Gigabit Ethernet network cards that are supported by Linux FC HBAs: QLogic 23xx, 24xx, 256x (For a complete list of supported HBAs, see the FalconStor Certification Matrix)
FalconStor NSS version	6.1

Flexible Deployment Options

The HyperFS solution can be integrated with leading third-party hardware with supported versions of Linux installed. SAN storage is supplied by the enduser or the reseller. This solution takes full advantage of an enterprise's existing storage resources and provides low-cost, high-performance, cross-platform technology that is easily scalable and highly available.

HyperFS can also be implemented with FalconStor® Network Storage Server (NSS) gateway software. This configuration works with any FalconStor NSS certified gateway server hardware and storage array, and enables comprehensive data protection, storage virtualization, and Thin Provisioning. When deployed in this manner, the HyperFS solution leverages all of the SAN and data protection benefits and features of FalconStor NSS, including built-in snapshots, WAN-optimized replication, and data migration for maximum data availability. Individual data sets or entire systems can be recovered locally or remotely within minutes.