

HYPERFS FILE SYSTEM

Powerful and affordable media-optimized software for SAN and Scale-Out NAS



SOLUTIONS FOR EVOLVING MEDIA WORKFLOWS





Scale-Out NAS and SAN optimized for evolving media platforms

HyperFS is a scalable, high-availability, global file system supporting both block and file based protocols simultaneously to deliver both high-bandwidth SAN and dynamic, on-the-fly Scale-Out NAS functionality. HyperFS leverages nearly 20 years of software development and is optimized for converging, content-centric workflows such as Broadcast, Film & Video Post, VOD, OTT, and IPTV. Thousands of users world-wide rely on

<u>Features</u>

- Windows/Linux/Mac cross-platform file sharing
- File change notification for supporting growing files
- Easy-to-use WebGUI/CLI
- FLFI: File level fault isolation and file system uptime during single LUN failures
- File Locking
- Storage strategy support
- Intelligent fault detection
- SMTP email Alerts
- System expansion on-the-fly supporting online HW migration
- Capacity quota (Directory & User or Group)
- ACL support, AD/LDAP user integration
- Log for performance analysis with Windows clients
- Active anti-fragmentation
- Support for data migration interface
- Data & Metadata LUN Mirror
- Auto load balance and fault isolation for Scale-Out NAS
- Native multipath support
- ICAP for anti-virus
- SNMP monitoring
- Single IP address and FQDN

HyperFS's modular design and unique capabilities to not only Scale-up storage capacity, but to also Scale-Out user performance independently, or in concert with one another.

Based on TCO, ease-of-use, optimized performance settings, and policy-based storage tiering, HyperFS is quickly becoming one of the leading file systems for the global Media and Entertainment industry. ISV's and OEM's around the world, such as Hitachi Data Systems, use HyperFS as their trusted, high-performance file system because of it's reliability, enhanced data protection, and open systems design approach to leverage today's demanding client operating systems.

HyperFS improved features include:

SAN clients and LAN clients simultaneously access the same data either by file level (via Scale-Out NAS) or block level (via SAN) using 8Gb/16Gb Fibre Channel, 1Gb / 10Gb Ethernet, or ISCSI. This provides Windows, Mac, or Linux SAN-based editing clients with a way to share files with Windows, Mac, or Linux LAN clients using standard SMB, CIFS, or NFS protocols leveraging SLI's integrated application server platform as a gateway to deliver Scale-Out NAS performance, and enabling file-based workflows for LAN clients.

Dynamic Scale-Out, reconfiguration, and migration of storage means that your storage can scale as your usage grows. Thanks to the strong scalability, it supports a ZB-level storage capacity, files larger than 2 PBs, and more than one billion directories and files. By increasing storage devices, the system can expand its storage capacity and performance while online.

The software is designed with client and MDC default diagnostic and performance counting functions. Therefore, it enables users to analyze causes of failures and to optimize the system's performance by analyzing IO characteristics. The embedded anti-fragment distribution allocation algorithm and online de-fragment tool can help users reduce and clear fragments caused during continuous operating of the system.





The complete solution controlled by HyperFS







HyperFS SAN File System: Redundancy / High-availability / Mirrored Paths and Data

This latest version of HyperFS is a clustered global file system for your FC SAN/IP SAN. Designed to transform several FC or iSCSI disk arrays into a storage cluster that supports multi-client editing and play out concurrent processing, it can provide high-performance, scalable single name space file sharing services.

The system has an optional MDC with a redundancy structure and full-redundancy SAN structure with metadata mirroring, and supports multi-path configuration under the FC and iSCSI environments. Therefore, the system can prevent the single point of failure (SPOF) and ensure high stability of the system.

Optional High-availability

Using two MDCs, HyperFS has HA fail-over function. When one MDC fails, the other will take over the work and ensure the continuous operating of the whole file system. A full-redundancy SAN environment can be designed to leverage the complete Genesis Platform as well as other Tier 1&2 storage platforms.

Optional Mirrored Paths and Data

Coupled with the fully redundant SAN hardware, our optional mirroring path and data redundancy packages are available. When the mirror function is enabled, all the data in the client write-in system will be written into the primary and secondary arrays as mirror images. When either array fails, application programs will immediately switch to the other array. Therefore, the file system will continue operating when one disk array fails and operating services will remain unaffected. This realizes the full redundancy configuration of the storage system and completely eliminates a single point of failure, thus ensuring the reliability and availability of data in the storage system.

Scale-Out NAS

The HyperFS Scale-Out NAS application module seamlessly integrates with the HyperFS SAN application, and features simple to use GUI-based configuration and management tools. Like HyperFS, Scale-Out NAS is based on open architecture leveraging common protocols such as NFS, SMB/CIFS, HTTP(s), and FTP(s), thus it presents block-level SAN storage as file-based storage workflows to the LAN (Mac, Win & Linux) clients.

Within one global namespace, Scale-Out NAS supports the bottom-layer virtualization and creates resources that can be adjusted dynamically according to business needs; it also supports independent adjustment and instant expansion of the bandwidth and capacity while supporting dynamic fail-over (HA) between up to 64 Scale-Out NAS nodes.

Cost-effective TCO

Unlike other SAN file systems, our LAN clients are based on open protocols therefore our workflow tuning capabilities are GUI-based, rather than requiring expensive command line based proservices engagements and the aggregate related downtime. Finally, our licensing model for LAN clients is by the total amount of bandwidth required; not by the total number of LAN clients; so we can support many more LAN clients from a budgetary perspective, and troubleshooting tactics are well known by most IT staff.