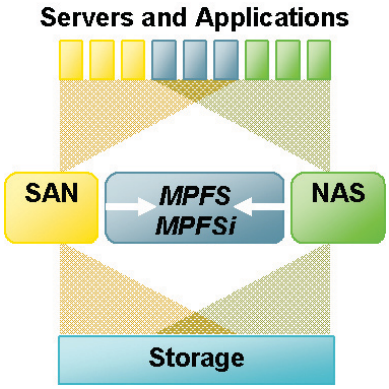
EMC² where information lives



EMC Celerra MPFS over iSCSI—MPFSi

Meeting the needs of the most demanding applications with the world's best NAS performance

Information where you need it, when you need it

EMC® Celerra® Multi-Path File System (MPFS) over iSCSI—MPFSi—enables enterprise applications to share files across thousands of clients while delivering the world's leading aggregate performance. MPFSi is designed to work in a standard NAS file-sharing environment without any changes to applications and leverages the existing LAN infrastructure to reduce cost and management.

The Big Picture

- Offers up to four times aggregate NFS performance to shared files in an NAS environment
- Facilitate shared file storage to large grid environments with hundreds to thousands of nodes
- All applications work seamlessly with MPFSi without changes
- Leverage your IP network: lower your cost of ownership and increase performance with iSCSI SANs
- Enterprise NAS and SAN storage with high availability, reliability, and scalability

Multi-Path File System: NAS file sharing with iSCSI SAN delivery

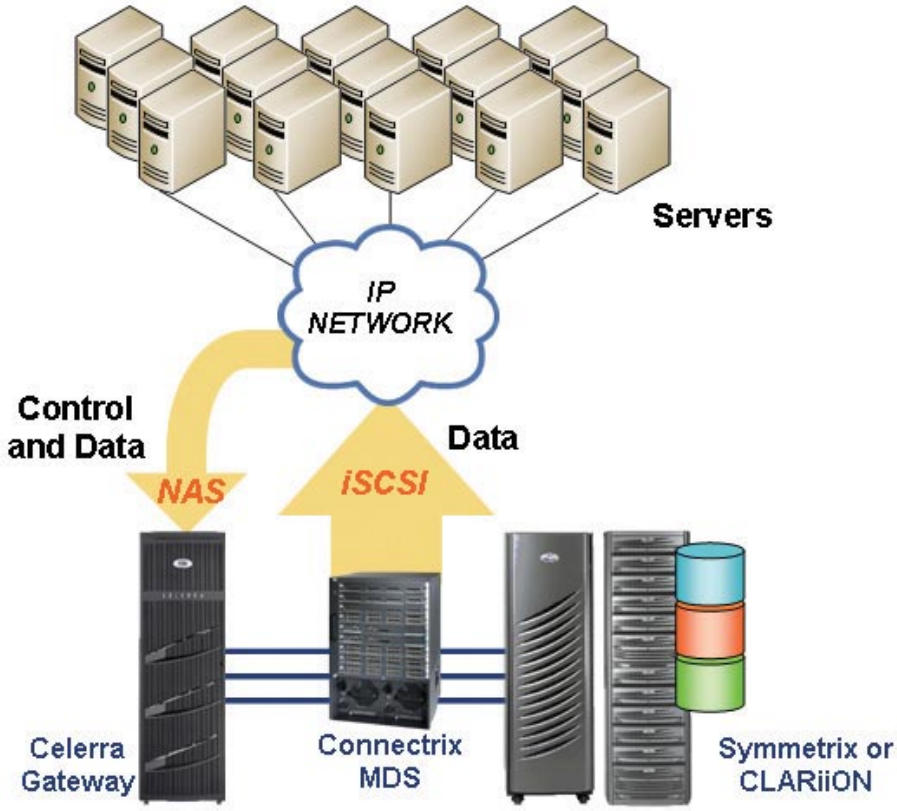
EMC Celerra MPFSi is the answer to the question: Should I choose NAS for file sharing or SAN for the best application performance? With MPFSi and EMC's industry-leading family of file servers, applications can now enjoy the benefits of both NAS file sharing and the performance of block access through iSCSI SAN. By leveraging your existing IP network infrastructure and its easy management, MPFSi offers a cost-effective solution that reduces the complexity of managing multiple storage assets. Now fewer people can manage all your enterprise data.

Whether your applications are designed for grid computing or a single server, MPFSi meets the challenge. Its advanced software can accelerate NAS application bandwidth up to four times that of native NAS without application changes. Bandwidth can scale seamlessly as back-end storage arrays and disks are added. And non-MPFSi-enabled applications can share the same files as MPFSi-enabled applications. This allows administrators to manage a single enterprise storage infrastructure, with the availability, reliability, and scalability that Celerra customers have come to expect from EMC.

Flexible architecture for powerful configurations

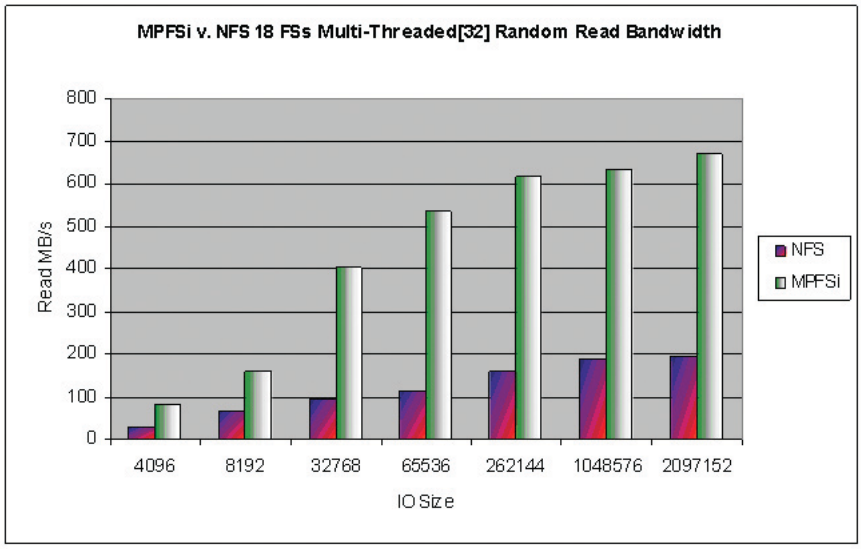
MPFSi is a topology made up of the following hardware and client/server software components.

- EMC Celerra/NSX Gateway running DART NAS code
- Multiple EMC Symmetrix® or CLARiiON® back-end storage arrays
- Clients, application servers, or Grid servers sharing files over the LAN to the Celerra
- MPFSi agent and iSCSI initiator loaded on each client/grid node that wants accelerated performance (MPFSi does not have to be loaded on clients that want standard NFS file access.)
- EMC Connectrix® MDS switch with Fibre Channel-to-iSCSI bridging

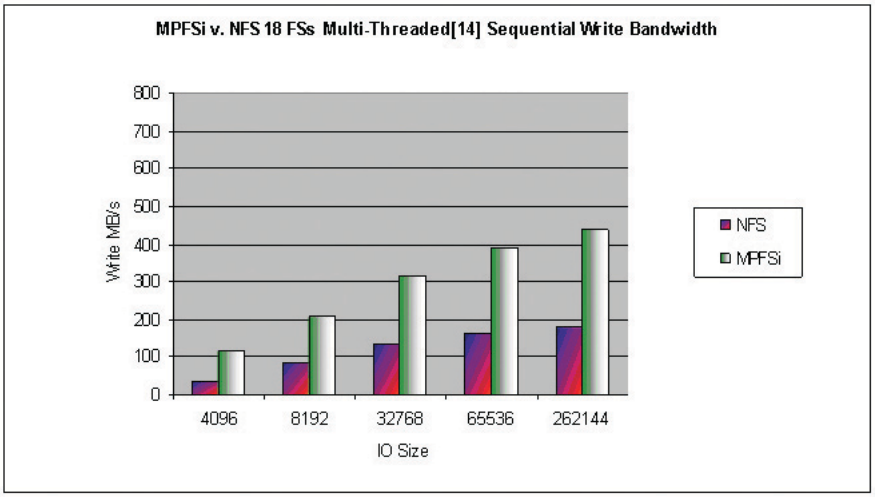


Celerra and MPFSi clients communicate over the IP network to share metadata and control information using the NAS protocol. When the MPFSi agent receives a data request from the application, it uses Celerra-provided metadata to access the storage array directly using low latency and high-performance iSCSI. This architecture has many benefits.

- Celerra can support 10 times more clients for demanding applications. This is because Celerra does not have to process data transfers.
- Because Celerra is not in the data path, scalable bandwidth to applications can be achieved by simply adding Symmetrix or CLARiiON storage arrays to the MPFSi environment.
- MPFSi leverages existing prefetch and caching algorithms in the storage array and introduces enhanced caching in the clients. Multiple levels of parallelism can be achieved throughout the data path for maximum performance.
- Single files can be read/written by clients simultaneously because of a sophisticated MPFSi range lock manager.
- Applications can scale with your IP network infrastructures. As standards evolve and bandwidth grows as cost declines, immediate gains are realized. Also, customers can leverage current network administration staff, further reducing cost.
- A single client can use MPFSi to access multiple Celerra systems, file systems, and back-end arrays.
- All NAS standards are met and data integrity is maintained.



MPFSi Random Read Performance for Linux Clients

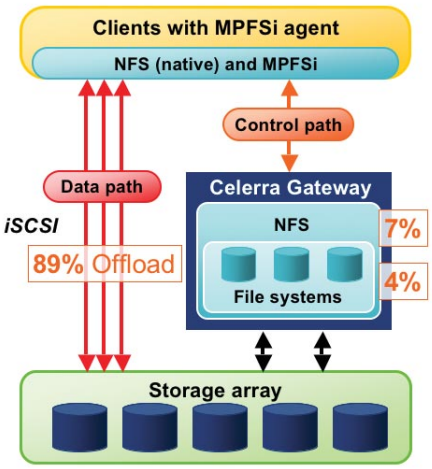


MPFSi Sequential Write Performance for Linux clients

Boost application performance

MPFSi is especially appropriate for applications that employ hundreds of servers to access large files, and applications that have moderate sequential read or write access patterns. This includes media video production and streaming, CAD/CAM, data mining, backup, CFD, oil and gas, medical imaging, application development, circuit design, and many more. These applications can take advantage of the storage arrays prefetching and caching algorithms as well as the clients' caching. MPFSi is especially effective in grid file-sharing environments where multiple nodes share the same files. Content cached in the arrays can be served to multiple nodes via iSCSI without accessing disks, ultimately improving performance to the entire grid. Array configurations can have further performance optimizations like striping and large block sizes that leverage the iSCSI protocol and bandwidth.

MPFSi enables scaling by data-path offload.



Take the Next Step

Discover the most advanced high-performance file-sharing NAS environment in the industry with Celerra MPFS over iSCSI and how it enables a single, efficient, IT infrastructure. For more information on Celerra MPFS over iSCSI, contact your EMC sales representative or authorized EMC value-added systems integrator. Or visit our website at www.EMC.com.

EMC²
where information lives®

EMC Corporation
Hopkinton
Massachusetts
01748-9103
1-508-435-1000
In North America 1-866-464-7381

Data Sheet
H2006