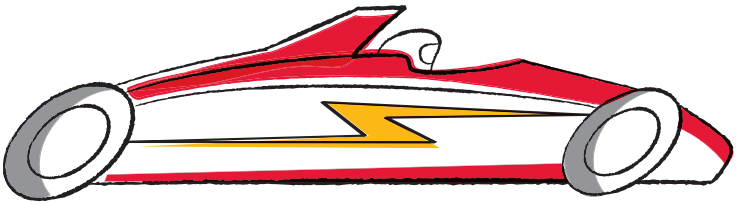

Datasheet

NetApp FC SAN Solutions

Industry-leading efficiency, performance, and management to optimize your SAN and lower total cost of ownership

KEY BENEFITS

Increased Storage Efficiency and Lowered Total Cost of Ownership[1]

- Lower capacity requirements by more than 50%.
- Improve utilization by 40%.
- Save 50% on data center power, space, and cooling costs.

Proven Performance and Availability

- Support higher I/O rates, greater capacity, and faster provisioning.
- Support the increased demands of server virtualization.
- Provide continuous availability at half the cost and complexity of competitors' solutions.

Simplified Management

- Reclaim underutilized resources.
- Manage heterogeneous storage environments with a unified view.
- Enable faster response and fewer errors.

Unified Storage Architecture

- Support all data types, access methods, protocols, and capacities.
- Maximize storage and training investments across all protocols.

FC SAN: Pain Points and Challenges

As a professional Fibre Channel (FC) storage area network (SAN) administrator, you face the two-pronged challenge of growing data and shrinking budgets, while still having to adhere to stringent performance and availability commitments. Growing data means a burgeoning storage footprint, which requires ever more capital and operating expenditures (power, space, and cooling) to maintain. Shrinking budgets, in contrast, mean that those necessary capital and operating expenditures are just not a reality. In short, you must do more with your existing resources. To further complicate matters, whether through organic growth or mergers and acquisitions, you manage a multivendor, heterogeneous SAN with an unwieldy matrix of management tools that are unique to each vendor and each piece of equipment. Do these challenges sound familiar? If so, then NetApp® FC SAN solutions can help.

The Solution

With NetApp FC SAN solutions, you can double storage utilization, cut storage spending in half, and boost productivity across your entire business, while enjoying high performance and availability. Speaking of performance and availability, when tested against our competitors, NetApp's award-winning FC SAN solutions show industry-leading performance. Our FC SAN solutions are also easy to manage: the NetApp OnCommand® suite of software allows you to maximize the value and efficiency of all of your existing storage investments, including third-party storage and networks, by giving you insight into the utilization of your existing resources across your entire SAN infrastructure. In this way, you can drive quick payback on all of your storage investments, not just the ones you made with NetApp.

Finally, even though this datasheet focuses on FC SAN, NetApp storage solutions are truly protocol agnostic. So the same storage you use for FC SAN can be used for iSCSI SAN and, when you're ready, for Fibre Channel over Ethernet (FCoE) and NAS. We enable you to decide which protocol is best for your company by building multiprotocol solutions that maximize your investments.

Optimizing Storage Efficiency

With NetApp FC SAN storage, you can maximize utilization, optimize storage space, and reduce duplicate data. Capabilities such as thin provisioning help you utilize all available disk space,

1. http://www.netapp.com/us/system/pdf-reader.aspx?pdfuri=tcm:10-123895-16&m=cs-6720.pdf , http://www.netapp.com/us/system/pdf-reader.aspx?pdfuri=tcm:10-124251-16&m=na-194-0414.pdf, http://www.netapp.com/us/system/pdf-reader.aspx?pdfuri=tcm:10-120767-16&m=cs-jackwolfskin.pdf

NETAPP FC SAN PRODUCTS	 FAS8000 SERIES	 FAS2500 SERIES
Maximum FC target ports*	64	8
Maximum Ethernet ports*	1GbE: 72, 10GbE: 64	1GbE: 4, 10GbE: 8
Maximum system raw capacity (TB)	5,760	576
Maximum system memory (GB)*	256	36
Maximum flash for caching (TB)*	36	4
Maximum nodes per cluster	24	8
Maximum clustered capacity (PB)	69	2.3

* Assumes active-active controller configuration or two nodes.

Table 1) NetApp SAN solutions range from entry level to high end.

while space-efficient Snapshot™ and FlexClone® technologies help you avoid up to 80% of data duplication in the first place. With NetApp's ability to deduplicate and compress data on primary and secondary storage, you can eliminate up to 90% of redundant data, depending on your environment. And our industry-revolutionizing RAID-DP® technology protects against double disk failure, allowing you to buy fewer redundant disks upfront.

NetApp's innovations in storage efficiency boost productivity across your business. With NetApp, you can automate and accelerate backup, recovery, provisioning, and disaster recovery. Through rapid provisioning, you can provision storage in minutes versus days, accelerating new project deployment. With virtual cloning, you can propel testing and development and capture a better time to market for your products. All of these innovations help liberate your staff from routine tasks so they can spend time on more strategic projects and ultimately help lower your storage total cost of ownership.

By maximizing storage efficiency, you can also reduce operating costs such as power, cooling, and space by 50%. With increasing pressure from local and federal governments to deliver efficient data center operations, NetApp's FC SAN solutions are ahead of the curve and can help you directly address these concerns of environmental stewardship and accountability without sacrificing performance or availability.

Proven Performance and Availability

Your FC SAN performance is even more important in the context of server virtualization. In server virtualization, multiple applications and OS instances are aggregated onto a single physical server, with each application and OS instance generating significant I/O traffic. The demand to support higher I/O rates, greater capacity, and faster nondisruptive provisioning is particularly high on storage systems, so you need to choose storage vendors wisely. To this end, NetApp storage supports up to 16Gb Fibre Channel, with backward compatibility to 8Gb, and 4Gb infrastructures, so you can protect your existing storage investments. NetApp FC SANs provide high reliability through redundant storage components and multiple redundant data paths. In fact, our field-measured reliability is greater than five nines. As for availability, NetApp FC SAN solutions deliver the highest possible support and uptime for your mission-critical business applications.[2] NetApp MetroCluster™ takes high availability even further, enabling you to offer continuous data availability (synchronous replication), protecting your business-critical data whether you have a single data center or a campus/metropolitan environment. MetroCluster enables you to protect all new and existing data so you can automatically recover from a failure with no data loss, at half the cost and complexity of our competitors' solutions.

Simplified Management

Because most failures in a SAN environment are not hardware or even software related, but are founded in human error, having management tools that are simple and easy to use is crucial. High-quality storage management is the basis for unified operations that reduce capital costs, operating expenses, and outage risk, and companies like yours are bringing these capabilities into your main data center operations environment.

The NetApp OnCommand manageability suite includes easy-to-use element management and enterprisewide management software. For heterogeneous environments, NetApp OnCommand Insight provides an agentless, read-only storage resource management platform that helps even the world's largest IT organizations increase efficiencies and contain storage costs in their data centers. Insight improves the quality and

2. http://www.netapp.com/us/system/pdf-reader.aspx?pdfuri=tcm:10-111029-16&m=idc-es-foundation.pdf

With NetApp FC SAN solutions, you can do more with less: double storage utilization, cut storage spending in half, and boost productivity across your entire business, while enjoying high performance and availability.

efficiency of storage management with its real-time, multivendor, multiprotocol service-level views of your storage environment. That means you can manage storage as an end-to-end service and integrate it into the entire IT service delivery chain.

With Insight, you can:

- Reduce capital expenditures by identifying and reclaiming unused storage resources.
- Improve service quality by proactively discovering the storage services delivered to applications.
- Manage and audit changes over time to enable technical review, compliance, and IT governance.
- Accelerate migrations and consolidations.

Unified Storage Architecture

NetApp is protocol agnostic. Unlike other vendors, which have different solutions depending on the scale or function or protocol required, NetApp provides a single unified storage architecture. The same NetApp FC SAN storage also supports other block protocols (iSCSI and FCoE) and NAS protocols (CIFS/SMB and NFS). And if/when you're ready to move to Fibre Channel over Ethernet, NetApp's multiprotocol support enables an easy transition.

What are the advantages of a unified storage architecture? A unified architecture means that you can pool storage and enjoy the ability to share infrastructure, capacity, and space-saving technologies across all data. With an easy-to-use platform, NetApp users can adapt to the full range of data types, access methods, and capabilities required across a full spectrum of enterprise applications. In fact, NetApp FlexArray software even allows you to easily manage our competitors' storage and still take advantage of the same storage efficiency technologies that native NetApp storage has to offer.

With the advent of technologies such as server virtualization, backup and disaster recovery are even more challenging than they were before. Therefore it's vital to have data protection fully integrated at the storage level, with backup and recovery processes designed into the underlying data structure and consistent across multiple classes of data. Our unified storage architecture is what gets you there, enabling you to do more with less.

Take Your SAN to the Next Level

By combining high-performance storage with innovative data management software, NetApp delivers FC SAN solutions that enable you to do more with less. Ultimately, your organization

NETAPP ONCOMMAND INSIGHT HETEROGENEOUS SAN SUPPORT

Support

Vendor	Device
NetApp	FAS/V-Series, E-Series
EMC	VMAX, Symmetrix/DMX, CLARiiON, Celerra, ATMOS, Vplex
HP	XP, EVA, 3PAR
HDS	USP, AMS, USPv, VSP
IBM	N-series, DS 6000/8000 Series, SVC, XIV
Fujitsu	Eternus

Switch

Vendor	Device
Cisco®	MDS/Cisco Nexus®
Brocade	McData, MPR
QLogic	SANsurfer

Access Gateway/NPV

Vendor	Device
Brocade	Access gateway
Cisco	NPV

Hosts

Vendor	Device
All	Agentless
VMware®	ESX® Virtual Center VMware vSphere®
IBM	PowerVM
Microsoft®	Hyper-V®

Table 2) NetApp OnCommand Insight supports heterogeneous SAN environments.

benefits from total cost of ownership savings, higher application uptime, simplified management, and maximized investments with our unified storage architecture. Contact your local sales representative today to learn what NetApp FC SAN solutions can do for you.

About NetApp

NetApp creates innovative storage and data management solutions that deliver outstanding cost efficiency and accelerate business breakthroughs. Discover our passion for helping companies around the world go further, faster at *www.netapp.com*.

Go further, faster®

NETAPP FC SAN HOST SUPPORT

OS VENDOR	HBA	MULTIPATH	HOST CLUSTER
Microsoft® Windows® Hyper-V™	Brocade Emulex QLogic	MSDSM Data ONTAP® DSM Veritas™ DSM	Windows Failover Cluster, Veritas Cluster Server (VCS)
VMware®	Brocade Emulex QLogic	VMware NMP Veritas DMP for VMware	Windows Failover Cluster
Oracle® Linux®	Emulex QLogic	DM-MP	Oracle Clusterware Red Hat Cluster Suite
Oracle Solaris	Emulex QLogic	MPxIO Veritas DMP	Oracle Sun Cluster Veritas VCS
Red Hat Linux	Brocade Emulex QLogic	DM-MP Veritas DMP	Oracle 10g RH Cluster Suite Symantec™ (SFHA, SFCFS, SF Oracle RAC)
SUSE Linux	Emulex QLogic	DM-MP Veritas DMP	Oracle 10g Symantec (SFHA, SFCFS, SFCFS Oracle RAC)
IBM AIX	Emulex QLogic	Native MPIO Veritas DMP	PowerHA Symantec (SFHA, SFCFS, SFCFS Oracle RAC)
HP HP-UX	Emulex QLogic	HP PVLinks Veritas DMP	MC ServiceGuard Symantec (SFHA, SFCFS, SFCFS Oracle RAC)
Novell NetWare	QLogic	QLogic	Novell Clusters
OpenVMS	Emulex	OpenVMS	OpenVMS

Table 3) Robust options for high-availability configurations using multipathing and clustering.

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