Datasheet

NetApp FAS8000 Series

Respond more quickly to changing IT needs with unified scale-out storage and industry-leading data management

The Challenge
Enabling the data-driven business
As the role of technology has expanded to cover key business operations as well as back-office functions, IT leaders have had to rethink the way they architect storage. Traditional requirements such as storage uptime, scalability, and cost efficiency are still critical, but so are factors such as cloud integration, unified support for SAN and NAS, and simplified data mining for competitive advantage.

Many enterprises struggle, held back by structural limitations in legacy storage and data architectures. Traditional storage arrays might deliver on basic needs, but are incapable of meeting advanced service requirements and new IT models such as cloud.

The Solution
Accelerate business operations with unified scale-out storage
The demands of a data-driven business require a fundamentally new approach to storage with an integrated combination of high-performance hardware and adaptive, scalable storage software that not only supports existing workloads, but also adapts and scales quickly to address new applications and evolving IT models.

FAS8000 enterprise storage systems are engineered specifically to address these needs. Powered by NetApp® Data ONTAP® and optimized for scale-out, the FAS8000 series unifies your SAN and NAS storage infrastructure. With proven data management capabilities, the FAS8000 has the flexibility to keep up with changing business needs while delivering on core IT requirements.

The FAS8000 features a multiprocessor Intel® chip set and leverages high-performance memory modules, NVRAM to accelerate and optimize writes, and an I/O-tuned PCIe gen3 architecture that maximizes application throughput. Building on a decade of multicore optimization, Data ONTAP drives the latest cores and increased core counts to keep up with continuous growth in storage demands. The result is a flexible, efficient I/O design capable of supporting large numbers of high-speed network connections and massive capacity scaling.

FAS8000 scale-out storage systems offer exceptional flexibility and expandability. Integrated unified target adapter (UTA2) ports support 16Gb Fibre Channel, 10GbE, or FCoE, so your storage is ready on day one for whatever choices the future holds. For performance-intensive environments where maximum scale and I/O throughput are necessary to drive business-critical applications, NetApp offers the FAS8080 EX. You can find out more in the FAS8080 EX datasheet.

Figure 1) NetApp FAS8000 controllers.

Get more from existing storage investments

Simplify your IT operations and deliver more value from existing storage with the only unified storage virtualization solution. FlexArray virtualization software extends the capabilities of the FAS8000 to include EMC, Hitachi, and NetApp E-Series arrays, consolidating management of your existing storage to simplify operations, while increasing efficiency and providing superior functionality.

This creates a single storage management architecture that supports both SAN and NAS while simplifying management and cloud integration.

Scale and adapt to meet changing needs

Your business is constantly changing. Your storage infrastructure should adapt and scale right along with it. With FAS8000 unified scale-out storage, you can optimize and accelerate your storage environment as needed. All FAS8000 storage is designed to scale as performance and capacity requirements change. You can scale up—by adding capacity, adding flash acceleration, and upgrading controllers—and scale out. A single cluster can grow up to 24 nodes and nearly 70PB of capacity with ease.

Because you can nondisruptively add or replace storage systems and components—as well as mix and match different FAS models—scaling occurs without maintenance windows or the challenge of coordinating downtime across teams.

Unlock the full power of flash

Flash-accelerated FAS8000 storage systems deliver twice the performance of our previous generation storage—boosting throughput, lowering latency, and meeting stringent service levels with predictable high performance. Data ONTAP on the FAS8000 simplifies flash management, resulting in more powerful hybrid storage.

In hybrid FAS8000 configurations, flash functions as a self-managing virtual storage tier with up to 36TB of flash per HA pair and 432TB per cluster. Hot data is automatically promoted to flash in real time, so you get the full benefit of flash performance.

For those applications that require the ultimate in high performance and low latency, the FAS8000 is also available in prepackaged all-flash configurations. See the All-Flash FAS datasheet for details.

Enable innovation and empower users

In a data-driven business, performance and capacity alone are not enough. You need the ability to leverage data

for competitive advantage and to assign resources dynamically for more effective operations.

FAS8000 role-based access control and workflow automation tools simplify provisioning and data protection so you can assign resources faster. Space-efficient cloning capabilities allow almost instantaneous creation of data copies that can be mined for business intelligence or used to accelerate the development of new product offerings.

Achieve unparalleled availability and nondisruptive operations

FAS8000 enterprise storage is engineered to meet the most demanding availability requirements. All models are designed to deliver 99.999% availability or greater through a comprehensive approach to system resiliency that includes alternate control path (ACP), persistent NVRAM write logs, and integrated service processors. All I/O devices—including embedded ports—can be independently reset, allowing the FAS8000 to detect, contain, and recover from faults.

Software and firmware updates, hardware repair and replacement, load balancing, and tech refresh happen without planned downtime. NetApp Integrated Data Protection technologies protect your data, accelerate recovery, and integrate with leading backup applications for easier management.

Figure 2) FAS8080 EX controllers.

Advanced service analytics software prevents issues from becoming outages. Risk signatures are constantly monitored, and your administrators and/or NetApp service staff are alerted to proactively address issues that might affect operations.

Build the right long-term platform

When it comes to long-term storage infrastructure investments, total cost of ownership and the ability to accommodate new IT initiatives are critical. FAS8000 enterprise storage systems unlock the power of your data and your people.

In addition to a significant price/performance benefit—up to two times that of the previous generation—the FAS8000 platform delivers industry-leading storage efficiency technologies such as deduplication, compression, thin provisioning, and space-efficient Snapshot™ copies. This reduces your cost per effective gigabyte of storage.

Optimize hybrid cloud deployment

The FAS8000 is optimized for cloud with modular, hybrid storage building blocks, native multi-tenancy, QoS, nondisruptive operations, and easily defined tiers of service. Storage can be quickly provisioned to meet specific service levels, and data is portable between FAS and FAS-managed storage from EMC and HDS so that applications are not locked to a specific device.

Data ONTAP enables dynamic data portability with seamless connectivity between clouds so you can connect on-premises storage with cloud service providers and hyperscale providers such as Amazon Web Services to create a hybrid cloud. With NetApp ranked number one in storage systems capacity shipped for public cloud infrastructure*, Data ONTAP serves as a universal data platform, so you can pursue the long-term cloud strategy that makes the most sense for your business while storing and managing your data with technologies you understand and trust.

Realize Greater Business Value from Your Investment

Whether you are planning your next-generation storage system, need specialized know-how for a major storage deployment, or want to optimize the operational efficiency of your existing infrastructure, NetApp Services and our certified partners have the expertise to assist.

NetApp collaborates with you to complement and enhance your IT capabilities with a complete portfolio of services to help you realize greater business value from your NetApp product and solution investments. Our services portfolio supports your IT lifecycle with:

- **Strategy services.** Align IT with your business goals
- **Design services.** Architect the optimal storage environment
- **Deploy and transition services.** Implement validated architectures and prepare your storage environment
- **Operations services.** Attain continuous operations while driving operational excellence and efficiency

In addition, NetApp Services provides in-depth knowledge transfer and educational services that give you unprecedented access to our global technical resources and intellectual property. Learn more at *www.netapp.com/services*.

* IDC Storage Users Demand Study 2013 – Spring Edition, IDC #244209, November 2013.

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®

FAS8000 TECHNICAL SPECIFICATIONS: HYBRID AND DISK-ONLY CONFIGURATIONS

See the All-Flash FAS datasheet for information about all-flash configurations

Scale-Out

	FAS8080 EX	FAS8060	FAS8040	FAS8020
NAS scale-out	1–24 nodes (12 HA pairs)			
Maximum drives	17,280	14,400	8,640	5,760
Maximum raw capacity	69PB	57PB	34.5PB	23PB
Maximum flash	432TB	216TB	144TB	72TB
Maximum memory	3072GB	1536GB	768GB	576GB
SAN scale-out	1–8 nodes (4 HA pairs)			
Maximum drives	5,760	4,800	2,880	1,920
Maximum raw capacity	23PB	19PB	11.5PB	7.7PB
Maximum flash	144TB	72TB	48TB	24TB
Maximum memory	1024GB	512GB	256GB	192GB
Cluster interconnect	2, 4, or 6 10GbE	2 or 4 10GbE	2 or 4 10GbE	2 10GbE

Per HA Pair

	FAS8080 EX	FAS8060	FAS8040	FAS8020
Maximum raw capacity	5760TB	4800TB	2880TB	1920TB
Maximum drives	1,440	1,200	720	480
Controller form factor	12U (2 enclosures)	6U	6U	3U
ECC memory	256GB	128GB	64GB	48GB
Flash for Hybrid Storage Configurations				
Maximum Flash Cache™	24TB	8TB	4TB	3TB
Maximum Flash Pool™	36TB	18TB	12TB	6TB
Combined flash total	36TB	18TB	12TB	6TB
NVRAM	32GB	16GB	16GB	8GB
PCIe expansion slots	24	8	8	4
Onboard I/O: UTA 2 (16Gb FC/FCoE/10GbE)	8	8	8	4
Onboard I/O: GbE	8	8	8	4
Onboard I/O: 10GbE	8	8	8	4
Onboard I/O: 6Gb SAS	8	8	8	4
OS version	Data ONTAP 8.2.2 and later	Data ONTAP 8.2.1 and later		
Shelves and media	See the Shelves and Media page* on NetApp.com for the most current information			
Storage protocols supported	FC, FCoE, iSCSI, NFS, pNFS, CIFS/SMB, HTTP, FTP			
Host/client operating systems supported	Windows® 2000, Windows Server® 2003, Windows Server 2008, Windows Server 2012, Windows XP, Linux®, Sun Solaris, AIX, HP-UX, Mac® OS, VMware®, ESX®			

*http://www.netapp.com/us/products/storage-systems/disk-shelves-and-storage-media/index.aspx

NETAPP FAS8000 SERIES SOFTWARE

Features and software included with Data ONTAP	**Efficiency:** FlexVol®, deduplication, compression, and thin provisioning **Availability:** MetroCluster*, multipath I/O, and MultiStore®* **Data protection:** RAID-DP®, Snapshot, and Open Systems SnapVault® **Performance:** FlexCache®, storage QoS, and FlexShare®* **Management:** Workflow Automation, System Manager, and Unified Manager *Supported in 7-Mode only.
Extended value software (optional)	• FlexArray storage virtualization software • OnCommand® Balance • Storage protocols (purchase each storage protocol you require) A Premium Bundle is available for purchase with FAS8000 systems that includes: • SnapRestore®: Restore entire Snapshot copies in seconds • SnapMirror®: Simple, flexible disaster recovery • FlexClone®: Instant virtual copies of files, LUNs, and volumes • SnapManager® Software: Backup/recovery for enterprise applications • SnapVault: Disk-based backup See *NetApp.com* for information on additional software available from NetApp.

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