



NetApp®



## Datasheet

# NetApp FAS8000 Series

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

### KEY BENEFITS

#### Support More Workloads

Run SAN and NAS workloads simultaneously with the industry's only unified scale-out storage.

#### Consolidate Infrastructure

Expanded scaling up to 103PB and include existing storage with FlexArray.

#### Accelerate I/O-Intensive Apps

Reduce latency and speed operations with even more flash: 1.7PB hybrid flash or go all-flash and scale to 4.6PB of flash.

#### Maximize Uptime

Experience >99.999% availability plus nondisruptive operations that eliminate planned downtime.

#### Realize Superior Value

Deliver up to 2x the price/performance of the previous generation.

#### Optimized for the Hybrid Cloud

Easily implement a service-oriented IT architecture that spans on-premises and off-site resources.

### 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, HP, 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 103PB 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 144TB of flash per HA pair and 1.7PB 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.

The NetApp OnCommand® storage management software portfolio is composed of a range of products for use with the NetApp FAS8000, including device-level management, automation, integration, and enterprise storage resource management. NetApp

OnCommand software-defined storage products provide flexibility, scalability, simplified provisioning, and data protection to meet business needs today and the changing needs of the future.

### **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 that combines highly reliable hardware, innovative software, and sophisticated service analytics.

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.

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.

NetApp MetroCluster™ expands data protection to eliminate risk of data loss by synchronously mirroring data between locations for continuous availability of information. A MetroCluster storage array can exist in a single data center or in two different data centers

that are located across a campus, across a metropolitan area, or in different cities altogether. MetroCluster provides data protection combined with continuous data availability. This means that no matter what happens, your data can be protected from loss and is continuously available to meet the most business-critical needs.

### 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

Organizations today are focusing on service-oriented IT architectures where cloud IT models are leveraged to enhance return on investment and assets. The FAS8000 is optimized for private and hybrid cloud with secure multi-tenancy, QoS, nondisruptive operations, and easily defined tiers of service.

A FAS8000 tightly integrated with the industry standard OpenStack cloud infrastructure enables an organization to build a private cloud that delivers a leading service-oriented IT architecture and meets the demanding needs of enterprise applications.

For organizations that need an enterprise-class hybrid cloud with predictable performance and availability, the FAS8000 can be used in a NetApp Private Storage (NPS) for Cloud solution. With NPS for Cloud you can directly connect to multiple clouds using a private, high-bandwidth, low-latency connection. Connect to industry-leading clouds such as Amazon Web Services (AWS), Microsoft® Azure, or SoftLayer and switch between them at any time, all while maintaining complete control of your data on your dedicated, private FAS8000. You will get the elasticity of the public cloud and protect your data with NetApp technologies that you understand and trust.

For maximum flexibility, Cloud ONTAP provides superior data portability at the best ROI. Cloud ONTAP is a software-defined storage version of Data ONTAP that runs in AWS and provides the storage efficiency, availability, and scalability of Data ONTAP. It allows quick and easy movement of data between your on-premises FAS8000 and AWS environments with NetApp SnapMirror® data replication software.



Figure 2) FAS8080 EX controllers.

### Get More Business Value with Services

Whether you are planning your next-generation environment, need specialized know-how for a major deployment, or want to get the most from your current storage, NetApp and our certified partners can help.

We collaborate with you to enhance your IT capabilities through a full portfolio of services that covers your IT lifecycle with:

- **Strategy services**—to align IT with your business goals
- **Design services**—to architect your best storage environment
- **Deploy and transition services**—to implement validated architectures and prepare your storage environment
- **Operations services**—to deliver continuous operations while driving operational excellence and efficiency

In addition, NetApp provides in-depth knowledge transfer and education services that give you access to our global technical resources and intellectual property.

Learn more at [netapp.com/services](http://netapp.com/services).

### About NetApp

Leading organizations worldwide count on NetApp for software, systems and services to manage and store their data. Customers value our teamwork, expertise and passion for helping them succeed now and into the future.

[www.netapp.com](http://www.netapp.com)

## FAS8000 Technical Specifications

### Scale-Out

	FAS8080 EX	FAS8060	FAS8040	FAS8020
<b>NAS scale-out</b>	1–24 nodes (12 HA pairs)			
Maximum drives	17,280	14,400	8,640	5,760
Maximum raw capacity: hybrid <sup>1</sup>	103PB 1728TB flash	86PB 864TB flash	51PB 576TB flash	34PB 288TB flash
Maximum raw capacity: all-flash FAS	4.6PB	4.6PB	4.6PB	4.6PB
Maximum memory	3072GB	1536GB	768GB	576GB
<b>SAN scale-out</b>	1–8 nodes (4 HA pairs)			
Maximum drives	5,760	4,800	2,880	1,920
Maximum raw capacity: hybrid <sup>1</sup>	34PB 576TB flash	28PB 288TB flash	17PB 192TB flash	11.5PB 96TB flash
Maximum raw capacity: all-flash FAS	1.5PB	1.5PB	1.5PB	1.5PB
Maximum memory	1024GB	512GB	256GB	192GB
<b>Cluster interconnect</b>	2, 4, or 6 10GbE	2 or 4 10GbE	2 or 4 10GbE	2 10GbE

### Per HA Pair Specifications (Active-Active Dual Controller)

	FAS8080 EX	FAS8060	FAS8040	FAS8020
Maximum drives	1,440	1,200	720	480
Maximum raw capacity: hybrid <sup>1</sup>	8640TB 144TB flash	7200TB 72TB flash	4320TB 48TB flash	2880TB 24TB flash
Maximum raw capacity: all-flash FAS	384TB	384TB	384TB	384TB
Maximum Flash Cache™	24TB	8TB	4TB	3TB
Maximum Flash Pool™	144TB	72TB	48TB	24TB
Controller form factor	12U (2 enclosures)	6U	6U	3U
ECC memory	256GB	128GB	64GB	48GB
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 <a href="#">Shelves and Media page<sup>2</sup></a> on <i>NetApp.com</i> 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®			

1. Hybrid configurations combine HDDs with flash using Flash Cache and/or Flash Pool. You can also create storage configurations that include separate HDD and SDD aggregates. The size limit of the SSD aggregates is the same as the all-flash maximum.

2. [netapp.com/us/products/storage-systems/disk-shelves-and-storage-media/index.aspx](http://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 and multipath I/O

**Data protection:** RAID-DP® and Snapshot

**Performance:** Storage QoS

**Management:** OnCommand® Workflow Automation, System Manager, and Unified Manager

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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