NetApp®

Datasheet

NetApp FAS8080 EX

Reach new levels of performance, availability, and scalability for business-critical applications

The Challenge

Organizations depend on enterprise applications to keep their operations running. Any interruption in these business-critical workloads will lead to a certain loss of revenue, disruption in service, or missed opportunity. Companies are also facing challenges with shorter product lifecycles, stringent service-level objectives (SLOs), and continued demands for high availability. To increase competitive advantage in this fast-moving environment, organizations must process thousands of terabytes of data quickly, efficiently, and reliably to accomplish business objectives without incurring costly downtime.

IT leaders need a storage infrastructure that transparently scales in performance and capacity and an architecture that offers leading high availability from both the platform and data management software so business operations have continual access to the resources needed to make business-critical decisions in an extremely competitive market.

The Solution

Support for business-critical requirements in financial modeling, engineering analysis, and data warehousing thought impossible only five years ago is now realizable with the NetApp® FAS8080 EX. Designed to deliver superior levels of performance, availability, and scalability, the FAS8080 EX transforms storage into a strategic operational resource for generating revenue more quickly.

Powered by NetApp Data ONTAP®, the FAS8080 EX is optimized at every level for enterprise applications. Forty processor cores, 256GB of high-speed DRAM, capacity for 1,440 drives, and 144TB of hybrid flash acceleration are balanced together in a high-availability (HA) pair to reliably process the massive amounts of data in a modern enterprise. With 16 onboard I/O ports as well as 24 PCIe 3.0 expansion slots, serving data to applications has never been easier. Combine this with world-class data management from Data ONTAP, and you have a system that can reduce the time it takes to complete critical operations, increase your organization's competitive advantage, and keep your enterprise applications running at top speed 24/7/365.

Performance for Extraordinary Throughput

Our leading Intel® multiprocessor architecture with its high-bandwidth DDR3 memory system maximizes throughput for business-critical workloads such as SAP®, SQL Server®, and Oracle® databases as well as computational modeling and logistics management applications. Building on a decade of multicore optimizations, Data ONTAP takes advantage of the FAS8080 EX's 40 processor cores to keep pace with growth in storage I/O demands for your most intensive SAN and NAS applications. Integrated unified target adapter (UTA2) ports support 16Gb FC and 10GbE (FCoE, iSCSI, SMB, NFS) so you're
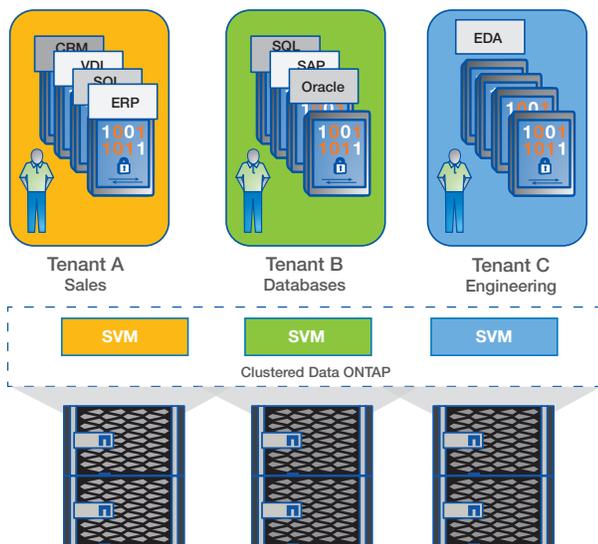
Figure 1) Multi-tenant virtual infrastructure.

ready for whatever the future holds. Twenty-four I/O-tuned PCIe gen3 slots support Flash Cache™ cards or up to 48 extra 10GbE or 16Gb FC ports for demanding data-processing installations.

Flash-Accelerated Productivity

For OLTP databases and other business-critical workloads that require a storage solution with rich data management features, the FAS8080 EX delivers increased performance and lower latency. The response times of OLTP and other business-critical workloads can be significantly improved with a FAS8080 EX hybrid storage array. Proven examples demonstrate that shifting an OLTP database workload from an all-SAS to a hybrid array with flash and SATA can lower cost per TB by more than 40%, lower cost per IOPS by almost 20%, and reduce power consumption by over 25%. Hybrid FAS8080 EX systems boost performance and lower latency for your IT operations, so they are more predictable to meet stringent service-level objectives. Flash functions as a self-managing virtual storage tier with up to 144TB of hybrid flash per HA pair and 1.7PB per cluster. The FAS8080 EX offers flexibility to configure a system for optimal productivity and predictability to keep operations running smoothly.

All-flash configurations of the FAS8080 EX that scale to 4.6PB are available for customers requiring the high performance and low latency of flash with the enterprise reliability and extensive data management capabilities of Data

ONTAP. The FAS8080 EX is offered in prepackaged all-flash configurations to support critical workloads that must continually run at high speed. See the All-Flash FAS datasheet for details.

Capacity to Harness the Data Explosion

Storage scale-out to more than 17,000 drives and 4M IOPS of performance combined with the industry-leading management capabilities of Data ONTAP enables the FAS8080 EX to process petabytes of data for complex resource exploration, faster semiconductor chip design, or optimally managing logistics for billion-dollar-plus product operations. 103PB of data in a 24-node cluster can be managed from a single console to reduce the cost of operations and simplify ware-housing years of business-critical data.

Identify Problems Before They Happen to Achieve Unparalleled Availability and Stringent SLOs

As with other business-critical arrays, the FAS8080 EX is designed to deliver 99.999% or greater availability through a comprehensive approach that com-bines highly reliable hardware, innova-tive software, and sophisticated service analytics. Advanced hardware features, including alternate control path (ACP), persistent NVRAM write logs, and an integrated service processor, provide the utmost reliability to protect your investment. All I/O devices, including embedded ports, can be independently reset, allowing the FAS8080 EX to detect, contain, and recover from faults.

NetApp builds upon the resilient hard-ware platform with advanced software capabilities that further improve uptime. Meet the most demanding SLOs with Data ONTAP nondisruptive operations (NDO), quality of service (QoS), and integrated data protection capabilities. NDO enables software and firmware updates, hardware repair and replacement, load balancing, and tech refresh to happen without planned downtime. QoS makes sure that applications have access to the resources they need. NetApp Integrated Data Protection technologies protect your data, accelerate recovery, and integrate with leading backup applications for easier management.

At NetApp, we use advanced service analytics to identify patterns in billions of rows of log data gathered from thousands of deployed NetApp systems. Risk signatures are constantly moni-tored, 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 avail-ability 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

Figure 2) FAS8080 EX controllers.

matter what happens, your data can be protected from loss and is continuously available to meet the most business-critical needs.

Get More from Existing Storage Investments

Extend the capabilities of the FAS8080 EX to include EMC, Hitachi, HP, and NetApp E-Series arrays with FlexArray virtualization software. Consolidate management of your existing storage to simplify operations, while increasing efficiency and providing superior functionality with FlexArray, the only unified storage virtualization solution.

With FlexArray, create a single storage management architecture that supports both SAN and NAS while simplifying management and cloud integration.

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 FAS8080 EX is optimized for private and hybrid cloud with secure multi-tenancy, QoS, nondisruptive operations, and easily defined tiers of service.

A FAS8080 EX 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 FAS8080 EX 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 FAS8080 EX. 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 FAS8080 EX and AWS environments with NetApp SnapMirror® data replication software.

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*.

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

FAS8080 EX Technical Specifications

Scale-Out

	FAS8080 EX
NAS scale-out	1–24 nodes (12 HA pairs)
Maximum drives	17,280
Maximum raw capacity: hybrid[1]	103PB 1728TB flash
Maximum raw capacity: all-flash FAS	4.6PB
Maximum memory	3072GB
SAN scale-out	1–8 nodes (4 HA pairs)
Maximum drives	5,760
Maximum raw capacity: hybrid[1]	34PB 576TB flash
Maximum raw capacity: all-flash FAS	1.5TB
Maximum memory	1024GB
Cluster interconnect	2, 4, or 6 10GbE

Per HA Pair Specifications (Active-Active Dual Controller)

	FAS8080 EX
Maximum drives	1,440
Maximum raw capacity: hybrid[1]	8640TB 144TB flash
Maximum raw capacity: all-flash FAS	384TB
Maximum Flash Cache™	24TB
Maximum Flash Pool™	144TB
Controller form factor	12U (2 enclosures)
ECC memory	256GB
NVRAM	32GB
PCIe expansion slots	24
Onboard I/O: UTA 2 (16Gb FC/FCoE/10GbE)	8
Onboard I/O: GbE	8
Onboard I/O: 10GbE	8
Onboard I/O: 6Gb SAS	8
OS version	Data ONTAP 8.2.2 and later
Shelves and media	See the Shelves and Media page[2] 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®

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*

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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