Datasheet

NetApp E5400 Storage System

Designed to address wide-ranging requirements, the E5400 is architected for performance, density and modular flexibility to create a storage system perfectly suited for data-intensive workloads.

KEY BENEFITS

Performance Density
The NetApp® E5400 brings together both massive bandwidth performance and high IOPS for many data-intensive solutions.

Modular Flexibility
Three distinct shelves and four drive types, including SSDs, allow custom configurations optimized to meet performance and capacity requirements.

Uptime All the Time
The E5400 is based on a field-proven architecture designed to provide high reliability and availability. And its new Dynamic Disk Pools technology minimizes the impact of a drive failure and can return the system to optimal condition up to eight times faster than traditional RAID.

The Challenge

The amount of data being generated and its inherent value continue to grow. Organizations of all sizes must be productive, responsive, and competitive in today's unrelenting environments. While keeping service-level agreements and increasing data demands in mind, organizations are looking for a better way to improve operational efficiency, reduce their data center footprint, and maintain high availability—all while keeping it simple and within their limited budget.

The Solution

The NetApp E5400 is a high-performance storage system that meets demanding performance and capacity requirements without sacrificing simplicity and efficiency. Designed to address wide-ranging requirements, the E5400 is equally adept at supporting high-performance file systems, bandwidth-intensive streaming applications, and demanding transactional applications. And its fully redundant I/O paths, advanced protection features, and extensive diagnostic capabilities deliver the highest levels of availability, integrity, and security.

Optimized Performance

The E5400 storage system continues NetApp's longstanding heritage of optimized performance designed to support any workload or requirement. High-performance file systems and data-intensive bandwidth applications looking for maximum raw performance benefit from the E5400's ability to sustain high read and write throughput. Transactional applications will appreciate the E5400's lightning-quick responsiveness and linear scalability.

SSD Cache accelerates data access without adding management complexity of physically moving data to another tier of storage. SSD Cache leverages the superior performance of SSD media to enhance data access responsiveness while enabling use of lower cost capacity HDDs for data storage.

Regardless of the environment or the requirement, the E5400 is designed to deliver optimized performance.

Modular Flexibility

The E5400 offers multiple form factors and drive technology options to best meet requirements. The ultradense 60-drive disk shelf supports up to 180TB in just 4U and is perfect for environments with vast amounts of data and limited floor space. Its 24-drive shelf combines low power consumption and exceptional performance density with its cost-effective 2.5" drives. And the 12-drive shelf is a great fit for cost-conscious organizations that need to deploy both performance and capacity

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drives. All three shelves support E5400 controllers or can be used for expansion, enabling optimized configurations that best meet performance, capacity, or cost requirements.

Maximum Storage Density

Today's storage must keep up with continuous growth and meet the most demanding capacity requirements. The E5400 is purpose-built for capacity-intensive environments requiring optimal space utilization and reduced power/cooling requirements. Its ultra-dense 60-drive 4U disk shelf provides industry-leading TB/U that reduces rack space by up to 60%. And its high-efficiency power supplies and intelligent design can lower power and cooling requirements by up to 10%.

Interface Options

The E5400's interface flexibility fits right in with today's varied application and infrastructure needs. Its SAS interfaces provide a high-speed, low-latency connection tailored to high-performance direct-attach solutions. iSCSI and FC interface options enable the E5400 to seamlessly integrate into existing data centers with established storage networks. IB connectivity is available for high performance environments.

High Reliability

The E5400 storage system enables not only high-speed data access, but continuous access to the data as well. With over 20 years of storage development behind it, the E5400 is based on a field-proven architecture designed to provide high reliability and availability.

Its redundant components, automated path failover, and online administration keep organizations productive 24/7/365. And its advanced protection features and extensive diagnostic capabilities deliver high levels of data integrity.

Dynamic Disk Pools: Next-Generation RAID Technology

As drive capacities continue to grow, it takes longer and longer to perform a rebuild when one fails. This is increasingly problematic for big data sites with hundreds or thousands of large-capacity drives, and every failure means a computational slowdown. The E5400's next-generation RAID architecture minimizes the performance impact of a drive failure and returns the system to optimal condition faster than traditional RAID. This unique combination enables a significant improvement in computational efficiency and enables the E5400 to maintain a high level of performance.

Intuitive Management

NetApp SANtricity® storage management software offers an appealing combination of robustness and ease of use. Storage administrators appreciate the extensive configuration flexibility, which allows optimal performance tuning and complete control over data placement. With its dynamic capabilities, SANtricity software supports on-the-fly expansion, reconfigurations, and maintenance without interrupting storage system I/O.

Robust Protection

When data is entrusted to your storage, protecting it is essential. With advanced SANtricity protection technologies such as data-at-rest encryption, proactive monitoring, background repair, and extensive diagnostic features, data is fully protected when it reaches the storage system.

SSD Cache Set It and Forget It Performance

The NetApp SSD Cache feature provides intelligent read caching capability to identify and host the subset of the data that is hot on the SSDs. Because this caching approach works in real time and in a data-driven fashion, it remains always on. Users are not

E5400 TECHNICAL SPECIFICATIONS

All data in this table applies to dual-controller configurations.

	E5460	E5424	E5412
Maximum raw capacity	1,440TB**	345TB	768TB**
Maximum disk drives*	360	384	192
Form factor	4U/60 drives	2U/24 drives	2U/12 drives
Drive types supported	900GB 10K SAS 2TB/3TB/4TB** 7.2K SAS	800GB SSD 600/900GB 10K SAS	600GB 15K SAS 2TB/3TB/4TB** 7.2K SAS
System memory	12GB or 24GB		
Base ports for host I/O	Eight 8Gb FC		
Additional ports for host I/O	Eight 8Gb FC Four 10Gb iSCSI Four 40Gb InfiniBand Eight 6Gb SAS		
Expansion disk shelves supported: drive offerings	DE6600 (4U/60 drives)–900GB 10K SAS; 2TB/3TB/4TB** 7.2K SAS DE5600 (2U/24 drives)–600GB/900GB 10K SAS DE1600 (2U/12 drives)–600GB 15K SAS; 2TB/3TB/4TB** 7.2K SAS		
OS Version	SANtricity 10.84		
High-availability features	Dual-active controller with automated I/O path failover Supports Dynamic Disk Pools and RAID levels 0, 1, 3, 5, 6, and 10 Redundant, hot-swappable storage controllers, disk drives, power supplies, and cooling fans Automatic drive failover and detection and rebuild using global hot spare drives Mirrored data cache with battery backup and destage to flash SANtricity Proactive Drive Health monitoring identifies problem drives before they create issues SANtricity Persistent Monitor makes periodic copies of the storage system configuration		
Operating systems supported	Microsoft® Windows®, Red Hat Enterprise Linux®, Novell SUSE Linux Enterprise Server, Apple® Mac® OS, Solaris, HP-UX, VMWare		
Software features	**Standard** SANtricity Dynamic Disk Pools SANtricity SSD Cache SANtricity Thin Provisioning Dynamic Volume Expansion Dynamic Capacity Expansion Dynamic RAID-Level Migration Dynamic Segment Size Migration Persistent Monitor Proactive Drive Health Monitoring SANtricity Data Assurance Nondisruptive Firmware Upgrades Media Scan with autoparity check and correction	**Optional** **Extended-Value Software** SANtricity Drive Encryption SANtricity Snapshot™ SANtricity Volume Copy SANtricity Remote Mirroring	

* All models are capable of reaching 384 disk drives when configured with intermixed drive shelves.
** 4TB drive availability estimated 2Q CY 2013

E5400 TECHNICAL SPECIFICATIONS CONT'D

Dimensions and Weight	E5460 System Shelf DE6600 Disk Shelf	E5424 System Shelf DE5600 Disk Shelf	E5412 System Shelf DE1600 Disk Shelf
Height	7.0" (17.78 cm)	3.47" (8.81 cm)	3.4" (8.64 cm)
Width	19" (48.26 cm)	19" (48.26 cm)	19" (48.26 cm)
Depth	32.5" (82.55 cm)	19.6" (49.78 cm)	21.75" (55.25 cm)
Weight (max)	232 lb (105.2 kg)	57.32 lb (26 kg)	59.52 lb (27 kg)
Max Power and Cooling	**E5460 System Shelf**	**E5424 System Shelf**	**E5412 System Shelf**
KVA	1.268	0.331	0.400
Watts	1,222	330	399
BTU	4,180	1,127	1,366
Max Power and Cooling	**DE6600 Disk Shelf**	**DE5600 Disk Shelf**	**DE1600 Disk Shelf**
KVA	1.268	0.241	0.276
Watts	1,222	240	276
BTU	4,180	821	945

required to set up complicated policies to define the trigger for data movement between tiers—they can set it and forget it. SSD Cache accelerates data access through the caching use of solid state disks located in the drive trays and is expandable to 5TB per storage system.

Storage Efficiency

Thin provisioning eliminates overprovisioning of storage by automatically allocating storage internally only as it is actually used while reporting full allocations to hosts, significantly lowering storage use and future storage purchases.

About NetApp

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