VECTOR DATA™

Vault E2700

PRODUCT OVERVIEW

The Vector Data Vault E2700 storage system is a NEBS Level 3 and ETSI certified high-performance solution designed to provide simple SAN storage that fits seamlessly into almost any application-driven storage environment, with a variety of host connectivity options, drive options, and multiple disk shelf options. This storage system provides optimal performance efficiency with high bandwidth and IOPS levels while minimizing complexity and maintenance, power, and space requirements. The intuitive interface of the E2700 simplifies installation and maintenance, and it provides enterprise-level storage capabilities to deliver consistent performance, data integrity, and security.

The Vault E2700 offers full support for OpenStack, VMware and other leading virtualization platforms, it is the perfect foundation for SDN and the network of the future.

The lightweight NetApp SANtricity® storage management software on the E2700 combines robustness and ease of use. Full-time storage administrators appreciate the extensive configuration flexibility, which allows optimal performance tuning and complete control over data placement. Part-time system administrators appreciate the intuitive interface and wizards. The E2700 interface and wizards simplify tasks for busy administrators, allowing them to focus on business priorities rather than use resources to manage data storage. Extensive diagnostic features provide predictive analysis and help identify issues before they become problems.

The modular design of the E2700 enables easy scalability to increase capacity to support business growth. The SANtricity software supports on-the-fly expansion, reconfiguration, and maintenance without interrupting storage system I/O. Dynamic Disk Pools (DDPs) enable dynamic rebalancing of drive count changes, whether drives are added or a drive fails. DDPs greatly simplify traditional storage management with no idle spares to manage or reconfigure when drives are added or fail; thus the E2700 can automatically configure, expand, and scale storage. With the E2700, maintenance can be scheduled less often or eliminated altogether.

Seamless Application Integration

The E2700 offers the flexibility of multiple host connectivity interfaces, drive technologies, and disk shelf options to fit seamlessly into almost any environment for any workload.

The system supports the latest 16GB/s FC, 10GB/s iSCSI, and 12GB/s SAS host connectivity options. The FC and iSCSI interface options enable the E2700 to integrate seamlessly into existing data centers with established storage networks. The 12GB/s SAS interface provides a high-speed connection for high-performance direct-attached storage solutions.

E-Series products have been deployed and used in today's most popular application environments, such as VMware® and Microsoft® Exchange, and databases such as Oracle® databases, Microsoft SQL Server®, and others. The system seamlessly integrates into any environment with its configurable options, and it meets the reliability and sustained performance demands of transactional applications, in which sustaining performance is critical.

Streamlined Performance for Efficiency

The E2700 delivers on price-to-per- formance efficiency with its ability to maximize disk I/O cost-effectively. The responsiveness and linear scalability from its architecture add benefits for database-driven transactional applications, which often demand sustained and continued performance. The architecture is built to sustain high read and write throughput even for intensive bandwidth applications.

Intelligent cache tiering, which uses the SSD Cache feature, enhances performance by leveraging the superior performance of solid-state drive (SSD) media for the most frequently accessed blocks of data. Customers have nothing to manage when they use the SSD Cache feature because the caching is data driven in real time. Users are not required to set up complicated policies to define the trigger for data movement between tiers. SSD Cache accelerates data access through the caching use of solid-state disks in the drive trays to enhance performance, and it is expandable to up to 5TB per storage system.

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TECHNICAL SPECIFICATIONS

	E2712	E2724
Maximum Raw Capacity	48TB w/expansion 768TB	28.8TB w/expansion 700.8TB
Disk Drives*	192 with expansion shelves	192 with expansion shelves 120 SSDs
Form Factor	2U/12 drives	2U/24 drives
Drive Types Supported	3.5" 7.2K SAS 4TB/3TB/2TB	2.5" 10K SAS1.2TB/900GB/600GB 800GB SSDs
System Memory	4/8GB (standalone-simplex), 8/16GB (HA-duplex)	
Base ports for host I/O	Dual-port 12GB SAS (standalone-simplex), Quad-port 12GB SAS (HA-duplex)	
Additional ports for host I/O	Dual-port 10GB iSCSI (standalone-simplex), Quad-port 10GB iSCSI (HA-duplex) Dual/Quad-port 16GB FC (standalone-simplex), Quad/Octal-port 16GB FC (HA-duplex) Dual/quad-port 12 GB SAS (standalone-simplex), Quad/Octal-port 12GB SAS (HA-duplex)	
Expansion Disk Shelves	DE5600 (2U, 24 drives): 2.5" 10K SAS 1.2TB/900GB/600GB; SSDs DE1600 (2U, 12 drives): 3.5" 7.2K SAS 4TB/3TB/2TB	
Operating System	SANtricity	
High-Availability Features	Dual active controller with automated I/O path failover; supports Dynamic Disk Pools (DDPs) and tradi tional RAID levels 0, 1, 3, 5, 6, and 10 redundant, hot-swappable storage controllers, disk drives, power supplies, and cooling fans; automatic rebuild after a drive failure (DDP to spare capacity, traditional RAID to hot spare); mirrored data cache with battery backup and de-stage to flash SANtricity; Proactive Drive Health Monitoring to identify problem drives before they create issues	
Operating Systems Supported	Microsoft Windows®, Red Hat Enterprise Linux®, Novell SUSE Linux Enterprise Server, Apple® Mac OS®, IBM AIX, Solaris, HP-UX	
Software Features	Standard SANtricity Remote Mirroring SANtricity Volume Copy SANtricity Snapshot Dynamic Disk Pools Dynamic volume and capacity expansion Dynamic RAID-level migration Dynamic segment-size migration SANtricity SSD Cache SANtricity Thin Provisioning SANtricity Data Assurance (T10-P1) **Optional Extended-Value Software** SANtricity Encryption Services (Full Disk Encryption)	
Open Management	SANtricity OpenStack Cinder SANtricity Web Services Proxy (REST and SYMbol Web) SANtricity PowerShell Toolkit	

* Based on same form factor disk shelves. All models are capable of reaching 192 disk drives when configured with intermixed drive shelves.

Dimensions and Weight	E2712 System Shelf DE1600 Disk Shelf	E2724 System Shelf DE5600 Disk Shelf
Height	3.4" (8.64 cm)	3.47" (8.81 cm)
Width	19" (48.26 cm)	19" (48.26 cm)
Depth	21.75" (55.25 cm)	19.6" (49.78 cm)
Weight	59.52 lb (27 kg)	57.32 lb (26 kg)

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Dimensions and Weight	E2712 System Shelf		E2724 System Shelf	
	Operating	Rated (max)	Operating	Rated (max)
KVA	0.41	0.91	0.46	0.91
Watts	406	900	451	900
BTU	1329	3073	1539	3073

Dimensions and Weight	DE1600 Disk Shelf		DE5600 Disk Shelf	
	Operating	Rated (max)	Operating	Rated (max)
KVA	0.25	0.91	0.30	0.91
Watts	247	900	292	900
BTU	841	3073	996	3073

Proven Data Replication and Disaster Recovery

The E2700 offers enterprise-level reliability, availability, and serviceability features:

• With E-Series SANtricity remote mirroring, customers have a proven and efficient disaster recovery solution for maintaining access to business-critical data in the event of site outages or unplanned downtime. SANtricity supports both FC and IP-based remote replication for high availability across campuses, cities, or the world. The flexibility of FC or IP-based remote mirroring enables IT departments to meet service-level agreements for any virtual or traditional appapplication environment.
• Enhanced NetApp Snapshot™ capabilities enable the creation of nearinstantaneous, point-in-time copies or volume images for backup and file restoration. The system supports up to 512 point-in-time copies of data volumes and takes advantage of copy-on-write technology so that only changed blocks are transferred between the mirroring systems. This feature minimizes network traffic while providing multiple Snapshot copies to improve recovery point objectives.
• Dynamic Disk Pools (DDPs) make management easy by dynamically rebalancing drives, and they provide added data protection with faster rebuild times during a drive failure. For better reliability and availability, DDPs promote sustained performance in the event of drive failures.

Security and Data Integrity

Security is critical in storing data. Hard drives within a system can be taken out for maintenance or off-site repair, stolen, or disposed of. SANtricity software on the E2700 supports full disk encryption (FDE), which provides data security for the hard drive. FDE protects against the many different vulnerabilities involved in securing data on hard drives by providing content encryption at the drive level. FDE helps protect data in the event of drive loss, theft, or retirement. The FDE engine performs encryption without affecting performance. Users get high levels of data security while retaining optimal performance. The E2700 also offers Data Assurance, or support for the T10-PI protocol, to maintain data integrity during the transmission of data within the storage system.

Proven Reliability

The E2700 is based on a field-proven design to provide reliable SAN storage that is simple to install and use, seamless to fit into any application environment, and streamlined for performance efficiency. The installed base of more than 650,00 technology systems deployed is a testament to the reliability of the E-Series product line, and of the E2700 system, which is designed for optimal price-to-performance benefit for small, remote, and branch office, as well as workgroups within an enterprise.

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