DELL™
POWERVAULT™
MD3000

The high-performance, direct-attached storage array built for high data availability.

EFFORTLESS SCALABILITY

Built for high-performance two-node clusters or direct attachment to up to four PowerEdge™ servers, the PowerVault MD3000 is a modular disk storage array capable of housing up to 15 3.5-inch SAS or SATA disk drives in a single 3U rack enclosure. The PowerVault MD3000 is expandable by simply adding up to two additional PowerVault MD1000 expansion enclosures for a total of 45 drives and 45TB capacity. The entire array subsystem is managed from a single, user friendly software application — known as the Modular Disk Storage Manager — which streamlines the management and maintenance of storage as it scales. With the PowerVault MD3000, storage can be quickly and easily added as needed without disruption to operations.

DESIGNED FOR AVAILABILITY

When access to data is critical, the PowerVault MD3000 delivers. The architecture of the storage array is designed with redundant components and connections to help mitigate risks of downtime, whether due to hardware failures, broken cable connections, firmware upgrades, and more.

Fully qualified for two-node clustering applications, the array includes dual active/active RAID controllers with mirrored cache and multi-path I/O management to help ensure that storage processing continues without disruption. Other high-availability features include hot-pluggable, redundant power supplies, cooling modules and disk drives, active disk scrubbing, and non-disruptive firmware upgrades.

SIMPLIFIED MANAGEMENT

At any time, one or more storage arrays can be administered — thanks to the Modular Disk Storage Manager. This intuitive, task-based management console greatly simplifies the user experience by significantly reducing the complexity of installation, configuration, management, and diagnostic tasks.

Should a problem arise, the Recovery Guru tool is on hand for valuable troubleshooting assistance. The recovery tool diagnoses system problems and helps to determine an appropriate procedure for recovery. To enhance availability, optional data protection features are available, such as snapshot and virtual disk copy.

DUAL DRIVE FUNCTIONALITY

The PowerVault MD Family enables organizations to mix SAS and SATA drives in a single enclosure delivering additional flexibility to optimize drive speed and capacity while maximizing storage spend and footprint.

> **SAS for Performance** — SAS disk drives deliver the speed, performance and reliability to satisfy mainstream and demanding server applications such as e-mail or database applications that store active and frequently changing information.

> **SATA for Capacity** — SATA disk drives easily handle large volumes of data at an excellent cost-per-Gigabyte. SATA drives are ideal support for digital images, file archiving, audio/video storage, or back-up and restoration tasks.

POWEREDGE SERVER COMMONALITY

The PowerVault MD series uses a common 3.5-inch disk drive carrier which enables customers to keep a single type of spare drive ready for rapid replacement where needed. This can be used in select ninth-generation PowerEdge servers to help reduce spare parts inventory and simplify the ordering and stocking of drives. LEDs, displays, and other operational functions are also common to both PowerEdge and PowerVault products.

FEATURES	DESCRIPTION
Drives and Capacity	
Hard Disk Drives	Up to fifteen (15) 3.5-inch SAS or SATA hot-pluggable hard disk drives
Drive Performance and Capacities	15,000 RPM SAS drives available in 73GB, 146GB, 300GB or 450GB 10,000 RPM SAS drives available in 300GB or 400GB 7,200 RPM SATA II drives available in 250GB, 500GB, 750GB or 1TB
Minimum Capacity Per Enclosure	1.1TB using fifteen (15) 73GB 15K SAS disk drives
Maximum Capacity Per Enclosure	15TB using fifteen (15) 1TB 7.2K SATA disk drives
Maximum Capacity Per Array	45TB using forty-five (45) 1TB 7.2K SATA disk drive with 3 enclosures
Host Connectivity	
Single Port Per Controller	Supports up to 1 highly available host with redundant data paths OR up to 2 non-HA hosts with a single data path
Dual Port Per Controller	Supports up to 2 highly available hosts with redundant data paths OR up to 4 non-HA hosts with a single data path
Storage Controllers and RAID Levels	
Storage Controllers	Dual active/active controllers provide redundant enclosure management with failover capabilities. 512MB of battery-backed up cache per controller, provides up to 72 hours of data protection
RAID Levels	Support for RAID levels 0, 1, 5, 10 Up to 30 physical disks per group Up to 256 virtual disks
Array Management and Optional Premium Software	
Array Management	Modular Disk Storage Manager, Java-based task-oriented user interface Multi-path software provides failover management of redundant data paths between the host server and storage array
Optional Premium Software Features	**Virtual disk snapshots** (optional): up to four snapshots per virtual disk and 128 snapshots per system **Virtual disk copy** (optional): up to eight simultaneous virtual disk copies and a total of 255 per system

Back-Panel Connectors (per controller)		
	SINGLE PORT OPTION:	**DUAL PORT OPTION:**
Host Connectivity	One x4 3GB SAS (SFF 8470)	Two x4 3GB SAS (SFF 8470)
Expansion Connectivity	One x4 3GB SAS (SFF 8470)	One x4 3GB SAS (SFF 8470)
Remote Management	One RJ-45 10/100MB Ethernet	One RJ-45 10/100MB Ethernet
Service Management	One 6-pin UART mini-DIN connector	One 6-pin UART mini-DIN connector

LED Indicators	
Front Panel	1 Two-color LED indicator for system status, 1 single-color LED indicator for power, 1 LED unused in this system
Hard Drive Carrier	1 single-color activity LED, 1 two-color LED status indicator per drive
Storage Controller	1 two-color LED status indicator per SAS IN/OUT port (total 3 on dual-port option, 2 on single-port option), 1 one-color battery fault LED for battery-backed cache, 1 one-color cache activity LED, 2 one-color controller fault and controller power LEDs, 2 one-color LEDs for Ethernet link and speed
Power Supply/ Cooling Fan Module	3 LED status indicators for power supply status, power/supply/fan fault and AC status
Power Supplies (per supply)	
Wattage	478W (Maximum continuous); 550W (peak)
Maximum Heat Dissipation	1430 BTU/hour (maximum)
Input Voltage Range	100-240V rated (actual 90-26V)
Frequency Range	47-63Hz
Maximum Input Current at Rated Power	7.93A at 90V; 3.96A at 180V
Available Hard Drive Power (per slot)	
Supported Continuous Consumption	Up to 1.3A +12V; Up to 1.5A at +5V
Physical	
Height x Width x Depth	13.11 cm (5.16 inches) x 44.63 cm (17.57 inches) x 48.01cm (18.90 inches)
Weight	35.37 km (78 lbs) (maximum configuration)
Environmental	
Temperature	Operating: 10° to 35°C (50° to 95°F), Storage : -40° to 65°C (-40° to 149°F)
Relative Humidity	Operating: 20% to 80% (non-condensing), Storage: 5% to 95% (non-condensing)
Altitude	Operating: -15 to 3048 m (-50 to 10,000 ft), Storage: -15 to 10,668 m (-50 to 35,000 ft)

SIMPLIFY YOUR NETWORK AT DELL.COM/MD3000