



Enterprise power
with everyday
simplicity



Dell Storage PS Series



The Dell difference

Ease of use

- Integrated tools for centralized monitoring and management
- Scale-out capacity and performance with automated tiering and workload balancing
- Strategic integration with the VMware®, Microsoft® and Linux® products you use most

Investment protection

- Industry-leading ROI for midrange storage¹
- All-inclusive software model
- Continuous feature enhancements extend the life of your investment for no additional charge
- Cross-platform replication and common management capabilities with the SC Series²

Storage for virtual environments

- Virtualized storage for virtualized servers
- Simplified VDI deployments
- Tight integration with industry-leading hypervisor
- Integration and management of multiple storage groups from a central, single VMware vCenter® console

Performance and efficiency simplified for the real world

Simplified, unified, virtualized Dell Storage PS Series, the iSCSI market leader,³ is ideal for companies and organizations with growing data and performance needs. The PS Series features the advanced capabilities of the EqualLogic line with a frameless, IP-based peer storage architecture that enables live, non-disruptive firmware upgrades and maintenance, as well as linear scaling of capacity and performance with each array added to the group. Streamline operations, optimize resources, and protect data through advanced integration with leading operating system, hypervisor and application platforms.

A groundbreaking, all-inclusive software model allows access to the latest product features, and enables multiple generations of PS Series arrays and FluidFS NAS appliances to work seamlessly to provide file



and block data services from a single, virtualized pool. In addition, the new Dell Storage Manager (DSM) software offers common management and cross-platform replication capabilities between PS Series and SC Series arrays, allowing you to take advantage of new functionality while leveraging existing investments.²

¹ Dell Storage customers achieved up to a 513% ROI and earned back their investment in 6.2 months on average based on Dell Storage SC Series and PS Series customer interviews from the Dell-sponsored IDC Whitepaper: Driving Business Value with Flash-Optimized Dell Storage Solutions; January 2015 (<http://www.dell.com/learn/us/en/uscorp1/corporate-corp-comm-en/documents~2014-idc-dell-flash-storage-roi.pdf>)

² New Dell Storage Manager (DSM) enables day-to-day management of SC Series and PS Series arrays from a single interface. DSM is available now as a free upgrade for SC9000, SC8000, SC4020 and SCv2000 arrays in Q3 2016, with a current support contract. DSM supports PS6xxx, PS-M4110 and PS4xxx arrays running PS 8.0 firmware or above. Cross-platform replication is available on SC9000, SC8000, SC4020, PS6xxx, PS-M4110 and PS4xxx arrays running SCOS 7.0/PS 9.0 firmware or above as a free upgrade with a current support contract.

³ IT Brand Pulse Annual Brand Survey, February 2016. iSCSI market leader 6 years in a row.



Scale-out virtualized storage

Exceptional ease of management

Dell Storage PS Series is designed to provide rapid deployment, simple management and seamless expansion. All PS Series storage products include host integration tools to simplify host configuration and administrative tasks in Microsoft Windows®, Linux and VMware environments. A browser-based Group Manager interface helps streamline management, while application-layer integration helps simplify storage operations supporting industry-leading virtualization, operating system and application platforms. An in-depth reporting, performance and event monitoring system lets you automatically transmit diagnostic data to Dell Support.

Enterprise-class performance

A breakthrough, scale-out architecture gives the PS Series storage performance and scalability once reserved for top-tier data centers, enabling best-practice storage for every size organization. PS Series' hybrid-flash arrays provide automated storage tiering and migrate data automatically across storage tiers to optimize performance, while sophisticated load balancing optimizes performance across storage pools.

Unified, virtualized storage

With a unified, virtualized architecture, the PS Series and FS Series enable organizations to manage both block- and file-based storage in a group — through a single GUI instance — that can seamlessly grow to up to 509TB in file capacity and over 8PB in block or total capacity, providing flexibility and operational ease for any mix of structured application data and unstructured file data. The EqualLogic FS7610 NAS appliance supports Fluid File System v4, which includes data management enhancements such as automated home shares, directory quotas and enhanced protocol support for SMB 3.0, NFS v4.1 and NFS v4 ACLs.

“Our engineers spend less time dealing with maintenance and managing the network because the EqualLogic storage arrays deliver excellent I/O performance.”

Ryohei Nago
Cloud Services Engineer
Cloud Service Division
TOSYS Corporation

Exceptional lifecycle economics

PS Series solutions represent an evolution in storage economics — from purchase to operation and upgrades. A cornerstone of Dell Storage solutions, the PS Series gives you the power to do more by helping you get the most from your data across its entire lifecycle. The innovative implementation of a virtualized, scale-out storage architecture enables both extensive virtualization and excellent return on investment. PS Series storage scales easily, on-demand and online, enabling storage growth without costly application disruptions, lengthy service engagements, or forklift upgrades. The all-inclusive PS Series software package lets organizations of all sizes reap the benefits of enterprise functionality, and enables multiple generations of hardware to run the latest firmware in a single storage pool. As a result, PS Series storage provides exceptional flexibility at a low total cost of ownership.



PS Series arrays

	PS arrays	Description	Drive types	Drive capacities	Array capacity	
Mainstream arrays	1GbE/10GbE ¹	PS6210S	High performance and low latency for critical applications	24 x 2.5" SSD	400GB, 800GB, 1.6TB SSD	Up to 38.4TB
		PS6210XS	Speed of flash with automated tiering for demanding applications	7 x 2.5" SSD + 17 x 2.5" 10K SAS	400GB, 800GB SSD; 600GB, 1.2TB SAS	Up to 26TB
		PS6210XV	Highest-performance HDD system in the PS6210 Series	24 x 2.5" 15K SAS	300GB, 600GB ² SAS	Up to 14.4TB
		PS6210X	Great balance of cost, performance and capacity	24 x 2.5" 10K SAS	600GB, 900GB, 1.2TB, ² 1.8TB SAS	Up to 43.2TB
		PS6210E	High-capacity configuration for data-intensive applications	24 x 3.5" 7.2K NL-SAS	2TB, 3TB, 4TB, ² 6TB NL-SAS	Up to 144TB
Dense arrays	1GbE/10GbE ¹	PS6610ES	Hybrid-flash with high performance and high capacity in one array	14 x 2.5" SSD + 70 x 3.5" 7.2K NL-SAS	400GB, 800GB SSD; 2TB, 4TB NL-SAS	Up to 291.2TB
		PS6610X	Balances performance and high capacity for consolidating mixed workloads	84 x 600GB, or 42 or 84 x 900GB, 1.2TB or 1.8TB 2.5" 10K SAS	600GB, 900GB, 1.2TB, ² 1.8TB SAS	Up to 151.2TB
		PS6610E	Cost-efficient dense array with the highest capacity in the PS Series	42 x 2TB, 4TB or 6TB or 84 x 4TB or 6TB 3.5" 7.2K NL-SAS	2TB, 4TB, ² 6TB NL-SAS	Up to 504TB
Entry-midrange arrays	1GbE/10GbE ¹	PS4210XS	SSD speed and HDD capacity within one array	7 x 2.5" SSD + 17 x 2.5" 10K SAS	400GB SSD; 600GB SAS	Up to 13TB
		PS4210XV	Highest performance HDD within the PS4210 Series	24 x 2.5" 15K SAS	300GB, 600GB SAS	Up to 14.4TB
		PS4210X	Great balance of cost, performance and capacity	24 x 2.5" 10K SAS	600GB, 900GB, 1.2TB, 1.8TB SAS	Up to 43.2TB
		PS4210E	Entry-level configurations for affordable capacity	12 x 3.5" 7.2K NL-SAS	2TB, 3TB, 4TB, 6TB NL-SAS	Up to 72TB
Blade arrays	10GbE	PS-M4110XS	Hybrid configuration with SSD speed and HDD capacity	9 x 2.5" 10K SAS + 5 x 2.5" SSDs	400GB, 800GB SSD; 600GB, 1.2TB SAS	Up to 14.8TB
		PS-M4110XV	High-performance for business-critical applications in a blade chassis	14 x 2.5" 15K SAS	300GB, 600GB ² SAS	Up to 8.4TB
		PS-M4110X	Best balance of capacity and performance for storage blade array	14 x 2.5" 10K SAS	600GB, 900GB, 1.2TB, ² 1.8TB SAS	Up to 25.2TB
		PS-M4110E	SAN capacity in a blade chassis at an affordable price	14 x 2.5" 7.2K NL-SAS	1TB NL-SAS ²	Up to 14TB

¹ These arrays have 10GBASE-T RJ45 auto-sensing (10Gb/1Gb/100Mb) ports including auto-negotiation from 1Gb to 10Gb.

² Also available in SED. For the PS6610E and PS6610X models, SEDs are only available in the 84-drive configuration.



FS7610 NAS appliance features

File protocol support
<ul style="list-style-type: none">• NFSv4.x, NFSv4 ACLs, SMB 3.0 (for implementation detail, please refer to the FluidFS support matrix)
Storage arrays supported
<ul style="list-style-type: none">• Any PS Series group running version 8.1 or later firmware
Cluster capability
<ul style="list-style-type: none">• Up to two FS7610 appliances (four controllers) in a single NAS cluster
Management
<ul style="list-style-type: none">• PS Series Group Manager
10GbE configuration options
<ul style="list-style-type: none">• Two Intel 10GbE dual-port NICs per controller, copper or optical, SFP+ or 10GBASE-T standards• Client connectivity over Ethernet, SAN connectivity over iSCSI Ethernet switch is required; direct connect to the SAN is not supported
Key features
<ul style="list-style-type: none">• Redirect-on-write snapshots; max number of snapshots per container/cluster: 1,024/10,000• Policy based deduplication and compression• Asynchronous file replication• NAS container thin provisioning• NAS container shrinking• NAS container cloning• Access based enumeration• Encryption of NFS traffic• Automatic SMB Home Shares• Directory Quotas

Array software features

Management
<ul style="list-style-type: none">• Browser-based client, or CLI Group Manager user interface• Roles-based management• LDAP and Microsoft Active Directory integration• Powerful, flexible PowerShell scripting (also Perl, Python, CLI)• Smart Tags that allow users to "tag" volumes with descriptive metadata labels• Dell Storage Manager for day-to-day tasks and replication across SC Series and PS Series arrays from a single management interface²
Data protection
<ul style="list-style-type: none">• Space-efficient snapshots• Point-in-time replication• Synchronous Replication• Clones and template-based thin clones• Consistency groups• Default daily snapshot• Space borrowing with replication• Multiple delegated spaces for a single replication partner
Storage virtualization
<ul style="list-style-type: none">• Online SAN expansion and array retirement• Expand and shrink storage resources online• Thin provisioning• Auto-load balancing and tiering• Storage UNMAP• SAN Data Copy Offload and Offloaded Data Transfers (ODX)• Port virtualization• Storage pools• Compression of snapshots and replicas
Maintenance
<ul style="list-style-type: none">• Email home/email alerting• Detailed audit logging• Enclosure monitoring system• Integration with Dell SupportAssist via PS Series SAN HQ or OpenManage Essentials
Software upgrades
<ul style="list-style-type: none">• Dell Storage Update Manager simplifies the process of updating the firmware for PS Series, FS Series and disk drives with guided update management

Host software features

Microsoft integration
<ul style="list-style-type: none">• Application-consistent data protection and quick recovery with Auto-Snapshot Manager for Microsoft (Hyper-V®, Exchange, SQL Server®, SharePoint®, and NTFS, ReFS and CSV File Systems)• Multipathing I/O (MPIO) Device Specific Module• Easy setup of multiple storage arrays with Remote Setup Wizard• Windows Server storage management<ul style="list-style-type: none">- PowerShell Tools- Storage Management Provider- Storage management with System Center Virtual Machine Manager- Storage integration with VSS, VDS, HPC and SMP providers
VMware integration
<ul style="list-style-type: none">• Virtual Storage Manager (VSM) for VMware• ESX MPIO Multipathing Extension Module (MEM) for VMware vSphere®• Storage Replication Adapter for VMware vCenter Site Recovery Manager (SRA)• PS Series Adapter for vRealize Operations Manager™• Advanced integration with vSphere Virtual Volumes creates a VM-aware solution for faster VM deployments and snapshot restore• Global search of snapshots and replicas• Scheduling templates that can be used for both snapshots and replication
Linux integration
<ul style="list-style-type: none">• Auto-Snapshot Manager/Linux Edition• Host Performance and Configuration Tuning Suite• Enhanced MPIO• Remote Setup Wizard Command Line Interface• On-Demand Volume Re-thinning Facility• Log Gathering Facility
SAN Headquarters
<ul style="list-style-type: none">• Utilization and performance monitoring• Multi-site, multi-group monitoring• Events and alerts• Formatted reports, graphs and archives• SupportAssist proactive, automated services integration for automated case creation, diagnostic data collection and case viewing• Model RAID policy choice and RAID protection reliability• Estimate maximum I/O• Offline analysis capability

End-to-end technology solutions

Reduce IT complexity, lower costs and eliminate inefficiencies by making IT and business solutions work harder for you. You can count on Dell for end-to-end solutions to maximize your performance and uptime. A proven leader in Servers, Storage and Networking, Dell Enterprise Solutions and Services deliver innovation at any scale. And if you're looking to preserve cash or increase operational efficiency, Dell Financial Services™ has a wide range of options to make technology acquisition easy and affordable. Contact your Dell Sales Representative for more information.

Simplify Your Storage at Dell.com/PS

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