EqualLogic FS7600 and FS7610 NAS Appliances

EqualLogic portfolio expanded with scale-out unified storage

Now, you can improve productivity and streamline your IT infrastructure by storing block and file data on a single scale-out storage platform. EqualLogic™ PS Series arrays and the EqualLogic™ FS7600 and FS7610 NAS appliances provide a highly scalable, Unified Storage platform that enables storage administrators to easily configure and manage iSCSI, CIFS, and NFS access to a single flexible storage pool using EqualLogic Group Manager. This unique scale-out architecture lets you expand storage capacity and/or system performance non-disruptively as your needs evolve over time.

Scale-out unified storage, optimized for midrange deployments

Unstructured file data is a massive portion of IT storage environments—and it's growing faster and faster. Whether it's for documents, images or file-based workflows, the amount of capacity required for file data continues to increase with no end in sight. But just adding disks to support that mountain of file data won't help.

The EqualLogic FS7600 and FS7610 (FS7600 Series) are key components of the Dell Fluid Data™ architecture, which puts the right information in the right place at the right time—for the right cost. Unlike many unified storage solutions that only scale in capacity, the EqualLogic FS7600 and FS7610 with EqualLogic PS Series arrays can scale capacity and performance. As your needs grow and change, you can dynamically modify your block and file storage capacity without disrupting existing applications and storage systems. What's more, these systems support both 1Gb Ethernet (FS7600) and 10Gb Ethernet (FS7610) connectivity to the SAN and client network.

As you scale your unified EqualLogic storage, you can easily increase the capacity or performance of your storage environment. To expand capacity, simply add more PS Series arrays–the EqualLogic FS7600 Series supports all new and existing EqualLogic arrays. To improve front-end file performance, two FS7600 or FS7610 NAS appliances can be joined in the same EqualLogic storage pool, while still providing a single namespace.

Next generation architecture provides an alternative to traditional file shares

The EqualLogic FS7600 Series appliances incorporate the latest generation of Dell Fluid File System (FluidFS), a scale-out distributed file system, which is implemented across Dell Storage product lines. FluidFS is designed to optimize file access performance and hardware utilization, while eliminating capacity constraints, all within a single namespace for easy administration. A core technology of the Fluid Data architecture, FluidFS is a high-performance scale-out file system that does not have strict limits on file system and share size inherent in other NAS solutions.

With the FS7600 series, an EqualLogic Group can serve up to 509TB of usable capacity for file storage, all within a single namespace. To help improve storage flexibility and utilization, the EqualLogic FS7600 Series features a virtualization layer that lets you expand NAS storage dynamically without any downtime.

These products are implemented with Dell's new and purpose-built NAS hardware platform, providing a highly available dual controller architecture in a single, 2U NAS appliance. This platform simplifies installation with less required cabling, enhances performance with a PCIe backplane for inter-controller communications and improves dependability with fully redundant hot-swappable primary components.

All FS7600 Series appliances in a FluidFS cluster support active I/O, providing high intrinsic performance without exotic protocols or the need to manually distribute application load across multiple filers. Load balancing automatically distributes client requests across all NAS controllers to optimize resource usage.

Advanced features, EqualLogic family values

In addition to block storage management, NAS deployment and management functionality are fully integrated into EqualLogic Group Manager, including administration, monitoring and maintenance operations. Group Manager automates the initial setup and configuration of your FS7600 Series appliance, simplifying the process of creating volumes and shares. An FS7600 Series NAS appliance can be configured and added to an EqualLogic Group quickly and efficiently.

In addition to a range of data protection features for block storage, the EqualLogic FS7600 Series NAS appliances include advanced file data protection features such as snapshots, replication, NDMP backup and CIFS antivirus integration. End users can restore previous versions of files from a snapshot directory without IT assistance, freeing up administrators for more productive work. To keep the data on CIFS shares virus free, the appliances can be integrated with qualified anti-virus solutions.

As with all EqualLogic products, the FS7600 Series NAS appliance's full feature set, software licensing and future firmware enhancements are included in the base price. This provides licensing simplicity, access to a comprehensive set of product features and ongoing value after initial purchase.

Feature	EqualLogic™ FS7600/FS7610
Protocol support	File protocols: CIFS/SMB v1.0, NFS v3 Block Storage Protocols: iSCSI (via PS Series) Backup: NDMP version 4 Network and Management Protocols: Address Resolution Protocol (ARP), Link Aggregation (IEEE 802.3ad), Adaptive Load Balancing (ALB), Network Time Protocol (NTP), Simple Network Time Protocol (SNTP), Simple Network Management Protocol (SNMP)
Storage arrays supported	New or existing EqualLogic PS arrays with version 6.0 or later firmware
Expansion capability	Up to 509TB usable file capacity per EqualLogic group. All file capacity can be in a single name space.Up to two FS7600 or FS7610 appliances in a single NAS cluster. All appliances in a NAS cluster in an EqualLogic Group must have either 1Gb or 10Gb connectivity.
NAS appliance	Each NAS appliance has dual active-active NAS controllers with cache mirroring and integrated backup power supply. Each controller contains 24GB auto-adaptive R/W RAM based cache and two quad core Intel Xeon E5620 processors.
Management	EqualLogic Group Manager graphic user interface (GUI), command line interface (CLI)
Data protection features	Redirect-on-write snapshots, point-in-time file replication, NDMP backup , CIFS antivirus
Total client connectivity ports per appliance	8 x 1Gb Ethernet using FS7600; 4 x 10Gb SFP+ Ethernet using FS7610
Total SAN connectivity ports per appliance	8 x 1Gb Ethernet using FS7600; 4 x 10Gb SFP+ Ethernet using FS7610
Max NAS container or file system size	509TB
Max file size	4TB
File name length	255 bytes
Max files in a cluster	~64 billion
Number of directories in a cluster	~34 billion
Max NAS containers	256 for a single NAS appliance cluster, 512 for two appliance cluster
Max snapshots per NAS container	512
Max snapshots per NAS container/cluster	512/10,000
Max NFS exports per NAS cluster	1024
Max CIFS shares per NAS cluster	1024
Max concurrent active CIFS connections	1500 for single NAS appliance cluster, 3000 for two appliance cluster
Max quota rules per NAS container (user quotas)	512
Max quota rules per NAS cluster (user quotas)	100,000
Max schedules per NAS cluster	1024
Max directory depth	512
Max local users/groups in a NAS cluster	300
Max containers enabled for replication in a NAS cluster	100
Max number of container replications in progress	10
Max replication partners per NAS cluster	16
Number of NAS appliances in each replication partner	Each NAS cluster in replication partnership must contain same number of NAS appliances
Certified backup software	Symantec BackupExec 2010 R3, Symantec BackupExec 2012, Symantec NetBackup 7.0 or later, CommVault Simpana 9.0 or later
Qualified antivirus software	Symantec ScanEngine 5.2 , Symantec Protection Engine 7.0
Directory services	Microsoft Active Directory 2003 and 2008 for CIFS users. LDAP and NIS for NFS users
Windows features	LDAP Signing, SMB Signing, Roaming Profiles, Hidden Shares, Access Based Share Enumeration
Qualified SAN switches	Refer to EqualLogic Compatibility Matrix
Power	
Wattage	Output 717W
Voltage	90V AC to 264V AC, auto-ranging, 47 Hz/63 Hz. Note: This system is also designed to be connected to IT power systems with a phase-to-phase voltage not exceeding 230V
Heat dissipation	2446 BTU/hr. Note: Heat dissipation is calculated using the power supply wattage rating. Its values are for the entire system which includes chassis and two controllers
Maximum Current	10.5Amp at 90VAC steady state 5.3Amp at 180VAC steady state
Physical (per dual controller appliance)	
Height	8.64 cm (3.4 in)
Width	44.63 cm (17.6 in) (does not include rack flange)
Depth	81.30 cm (32.0 in) (includes bezel and controllers installed)
Maximum weight	69.5 lbs

For more information visit Dell.com/FS7600