Dell Compellent FS8600 NAS Appliance

Enhance your enterprise storage capabilities with the Dell™ Compellent™ FS8600 scale-out NAS and enable an intelligent, agile future for your data center and your business.

Scale up and out as your storage requirements grow

The Dell Compellent FS8600 NAS appliance offers a flexible solution for capacity- and performance-intensive file workloads. Based on the Dell Fluid File System (FluidFS) version 3, its scale-out architecture supports a single namespace up to 2PB, plus linear performance expansion up to 494,000 SPECsfs file OPS and 9.2GB/sec throughput.

The FS8600 can help you keep pace with constantly growing file storage needs. As they grow and evolve, the FS8600 scales both storage capacity and performance non-disruptively and independent of one another within a single namespace, preventing an expensive platform rip-and-replace. Plus, as the FS8600 system scales, load-balancing continues to optimize performance.

Manage your data efficiently while controlling costs

As the industry's first primary storage solution with policy-driven, variable block data reduction, the FS8600 can decrease the capacity needed to store common enterprise data sets by 48%.[1] The linear performance of the FS8600 NAS appliance keeps CAPEX remarkably low, enabling it to cost-effectively address performance-intensive file workloads. The Dell Compellent FS8600 with FluidFS has better file OPS performance at approximately 1/3 the price of the current market leader[2], and delivers the best price-performance profile among major NAS vendors. To further enhance performance, the FS8600 leverages the strengths of the Compellent Storage Center platform such as:

- Automated tiering to keep frequently accessed data on high-performance drives, and move passive data to lower cost, capacity-optimized drives
- Thin provisioning to provide on-demand allocation of blocks
- Optimization for solid-state drives
- Unified block and file management through Enterprise Manager 2014

Keep your data protected with built-in reliability

The inherent resilience of the FS8600 gives you another layer of data protection without adding complexity.

- Active-active controller pairs provide instantaneous failover without introducing idle resources
- Features like cache mirroring, battery-based backup power supply, and failsafe journaling protect metadata to help maintain data integrity
- Redirect-on-write file-level snapshots require only one I/O per write, avoiding the performance degradation of the traditional copy-on-write approach
- Asynchronous replication complements the robust disaster recovery capabilities of Dell Compellent Storage Center™ at the file system level
- Award-winning Dell Compellent Copilot Support™ provides complete coverage for your end-to-end storage solution

Delivers best-in-class performance with industry-low total cost of ownership

Feature	Compellent FS8600 with FluidFS v3
Cluster scalability	Up to 4 FS8600 appliances (8 controllers) in a single NAS cluster
File system capacity	Up to 2PB usable file capacity per NAS cluster, regardless of controller cluster size (requires two Storage Centers to reach max capacity)
8Gb Fibre Channel configuration options	Front-end and interconnect traffic (two options): 1GbE: (2) Intel 1GbE quad-port NICs per controller, copper only, RJ-45 10GbE: (2) Intel 10GbE dual-port NICs per controller, copper/optical, SFP+ standards Back-end: (1) QLogic dual-port FC HBA per controller, SFP+ standards Fibre Channel switch is required; direct connect to the SAN is not supported
10Gb iSCSI configuration options	Front-end: (1) Intel 10GbE dual-port NIC per controller, copper/optical, SFP+ standards Back-end and interconnect: (1) Intel 10GbE dual-port NIC per controller, copper/optical, SFP+ standards Ethernet switch is required; direct connect to the SAN is not supported; upgrades from FC to iSCSI or vice versa is not supported
Storage arrays supported	Series 40 or SC8000 controllers (SCOS 6.3.1 and later)
Management	Enterprise Manager 2014 R1 and FluidFS v3 CLI
NFS v3 file protocol support	NFS over UDP and TCP, Kerberos v5 security options, UTF8 and ASCII support, NLM
NFS v4 file protocol support	Kerberos v5 security options, UTF8 and ASCII support, pseudo file system, locking and share modes
SMB file protocol support	SMB 1.0, 2.0 and 2.1; durable file handles, SMB signing (MD5 and HMAC-SHA-256), large MTU, client uplink leasing
NAS volumes	Max NAS volumes per NAS cluster: 1,024; max NAS volume size: as large as the file system/namespace
Shares/exports	Max number of SMB shares per cluster: 1,024; max number of NFS mounts/exports per cluster: 1,024
Concurrent active SMB connections	Max for single appliance: 10,000; max for a 4-appliance cluster: 40,000 ("active" defined as clients engaging in I/O in the last 15 minutes)
User authentication	For SMB clients: Kerberos v5 and NTLM v2 on Microsoft Active Directory Server; for NFS v4 clients: Kerberos 5 on AD
Directory services	Windows SMB and NFS clients: Microsoft® Active Directory® 2003, 2003R2, 2008, 2008R2, 2012; Linux/UNIX clients: NIS and LDAP
Quotas	User and group quota rules per volume: 1,000; max user quotas per cluster: 100,000
Local users	Max number of local users per cluster: 100; max number of local groups per cluster: 100
Directories	Max number of directories per appliance: 32 billion; max number of directories per 4-appliance cluster: 128 billion; max number of files in a directory: 1 million; max directory depth: 255
Files	Max file size: 10TB; max number of files per appliance: 64 billion; max number of files per 4-appliance cluster: 256 billion; max file name length: 512 bytes
Snapshots	Redirect-on-write snapshots and thin volume cloning; max number of snapshots per NAS volume: 512; max number of snapshots per FS8600 system: 10,000; max number of snapshot policies per system: 512
Replication	Asynchronous to peer FS8600 appliance(s), like-to-like cluster sizes only (client network speeds and array configurations can vary); max number of replication partners (or destinations): 16; max number of replication policies per FS8600 cluster: 100; max number of simultaneous volume replications: 10 outgoing, 20 incoming
NDMP backup	Remote or three-way NDMP over Ethernet ports (backup over backend Fibre Channel not supported) Certified with Quest NetVault® Backup 9.x, CommVault® Simpana® 9.x, IBM® Tivoli® Storage Manager 6.3, Symantec™ NetBackup™ 7.x and Backup Exec™ 2010R3 and 2012
ICAP antivirus	Certified with Symantec ScanEngine 5.2 and Protection Engine 7.0, McAfee® Virus Scan® Enterprise 8.8 and Enterprise for Storage 1.0.2, Sophos Endpoint Security and Control 10.0, TrendMicro™ InterScan Web Security Suite 3.1
Thin provisioning	File-level and block-level NAS volume- or file system-level thin provisioning to oversubscribe the file system capacity visible to users
Data reduction	Post-process policy-based variable block (128KB +/- 64KB) data deduplication and LZPS compression per NAS volume
CPU per controller	Dual Intel™ Xeon™ E5620 4-core, 12MB L3, 80W, 2.4GHz
Memory	24GB DDR3 1066MT/s per controller (48GB per appliance)
Power supply	Primary: 2 power suppliles per appliance; backup: 1 battery per controller, 2 batteries per appliance
Input voltage	90-264 VAC
Output wattage	717W
Heat dissipation	2446 BTU/hr
Line frequency	47-63 Hz
Current	10.5Amp at 90 VAC steady state, 5.2Amp at 180 VAC steady state
Dimensions	Form factor: 2U; W: 44.63 cm (17.6 in) (does not include rack flange); D: 81.30 cm (32.0 in) (includes bezel and controllers installed); H: 8.64 cm (3.4 in); weight: 69.5 lb

[1]Based on May 2013 internal Dell analysis of the FS8600 NAS appliance with Fluid Data Reduction, using real-world home share environment comprised of Office files (21%), .GZ (19%) and .flate (19%) files, among others.
[2]Performance results based on SPECsfs2008_nfs.v3 testing comparing Dell Compellent FS8600 using 8-node, 24 SLC and 120 MLC SSDs configurations. Actual performance will vary based on configuration, usage and manufacturing variability. Pricing results based on May 2013 internal Dell comparison.

Learn more at Dell.com/Compellent.

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