Dell Compellent FS8600 NAS Appliance

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

Scale out or scale up to meet your workload needs

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 5, its scale-out architecture supports up to 4PB in a single file system and over 20PB in a global namespace, plus linear performance expansion up to 494,000 file opens with SPEC SFS 2008 and 11.9 GB/sec max throughput.[1]

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 file system 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%.[2] The linear performance of the FS8600 NAS appliance keeps CAPEX remarkably low, enabling it to address performance-intensive file workloads cost-effectively. The FS8600 with FluidFS has better file OPS performance, and delivers the best price-performance profile among major NAS vendors. To further enhance performance, the FS8600 leverages the strengths of the Dell 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 2015

Keep your data protected with built-in reliability and security features

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

- Active-active controller pairs provide immediate failover without introducing idle resources
- Redirect-on-write file-level snapshots require only one I/O per write, avoiding the performance degradation of the traditional copy-on-write approach
- Integration with file system auditing software such as Change Auditor that allows monitoring of files for access providing added security and compliance
- Features such as VMware consistent snapshots, replication throttling, virtual appliance cloning and two-way NDMP backup help enable deploying a secure file sharing solution
- 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

Features	Compellent FS8600 with FluidFS v5
Cluster scalability	Up to 4 FS8600 appliances (8 controllers) and up to 8 Storage Center systems in a single NAS cluster
File system capacity	Up to 4PB usable file capacity per NAS cluster (requires 2 or more Storage Centers to reach max capacity) 20PB capacity using FluidFS Global namespace with discrete FS8600 systems.
8Gb Fibre Channel configuration options	Front-end and interconnect traffic (2 options): 1GbE: 2 Intel 1GbE quad-port NICs per controller, CAT6 only, RJ-45; 10GbE: 2 Intel 10GbE dual-port NICs per controller, Twinax or fiber-optic, 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, Twinax or fiber-optic, SFP+ standards Back-end and interconnect: 1 Intel 10GbE dual-port NIC per controller, Twinax or fiber-optic, 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	SC9000, SC8000, SC4020, SCv2080, Series 40 controllers; SCOS 6.5.3 or newer;
Management	Enterprise Manager 2015 R3, FluidFS CLI, PowerShell and REST APIs
NFS v3 file protocol support	NFS over UDP and TCP, Kerberos 5 security options, UTF8 and ASCII support, NLM
NFS v4, v4.1 file protocol support	v4: core features Kerberos 5 security options, UTF8 and ASCII support, pseudo file system, locking, share modes and access control lists (ACLs) v4.1: core features Kerberos 5 security options (pNFS not supported)
SMB file protocol support	SMB 1.0, 2.0, 2.1, 3.0, SMB BranchCache, SMB sparse files, persistent file handles, continuous availability, SMB signing and encryption (MD5, HMAC-SHA-256, SMB 3 AES), large MTU, file leases and oplocks
IPv6 and IPv4 protocol support for client networks	Full support for client IPv6 and IPv4 connections, including load balancing mechanism
NAS volumes	Max NAS volumes per NAS cluster: 1,024; max NAS volume size: as large as the file system
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: 30,000; max for a 4-appliance cluster: 120,000 ("active" defined as clients engaging in I/O in the last 15 minutes)
User authentication	For SMB clients: Kerberos 5 and NTLM v2 on Microsoft Active Directory Server; for NFS v4, 4.1 clients: Kerberos 5
Directory services	Windows SMB and NFS clients: Microsoft® Active Directory® 2003, 2003R2, 2008, 2008R2, 2012, 2012R2; Linux/UNIX clients: NIS and LDAP
Quotas	Quotas at User, Group and Directory level. Max user/group quota rules per volume or cluster: 1024. Max directories with a quota limit: 1024
Local users	Max number of local users per cluster: 100; Max number of local groups per cluster: 100
Files and directories	Max file size: 16TB; Max number of files per appliance: unlimited; Max number of files per 4-appliance cluster: unlimited; max file name length: 512 bytes; Max number of files in a directory: 1 million; Max directory depth: 255; Max number of directories per appliance: 32 billion; Max number of directories per 4-appliance cluster: 128 billion
Snapshots and clones	Redirect-on-write snapshots and thin NAS volume read/write clones; Max number of snapshots per NAS volume: 10,000; Max number of snapshots per cluster: 100,000; Max number of snapshot policies per system: 1,024
Replication	Asynchronous to peer FS8600 clusters; Max number of replication partners (destinations): 100; Max number of replication policies per FS8600 cluster: 1,024; Max number of simultaneous volume replications: 10 outgoing, 100 incoming; Max volumes enabled for replication: 1,024
NDMP backup	Remote or three-way NDMP over Ethernet ports Direct or two-way NDMP over Fibre Channel ports Refer to FluidFS v5 support matrix for a list of supported backup vendors
Antivirus	Supported for SMB shares via ICAP protocol. Refer to FluidFS v5 support matrix for a list of supported Anti-virus vendors
Auditing	Auditing using SACLs and third party auditing softwares. Refer to FluidFS v5 support matrics for details.
Thin provisioning	Thin provisioning at file, file system or NAS volume level to oversubscribe the file system capacity visible to users
Data reduction	Post-process policy-based variable block (128KB +/- 64KB) data deduplication and LZPS compression-preconfigured NAS volume
CPU per controller	Dual Intel® Xeon® E5620 4-core, 12MB L3, 80W, 2.4GHz
Memory	48GB DDR3 1066MT/s per 10Gb controller (96GB per appliance) 24GB DDR3 1066MT/s per 1Gb controller (48GB per appliance)
Power supply	Primary: 2 power supplies 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] SPECsfs2008_nfs.v3 and Dell testing with Compellent SC8000 and FS8600 4-appliance cluster
[2] 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.

Learn more at Dell.com/FS8600