



# HPE PARALLEL FILE SYSTEM STORAGE

## Parallel File Storage



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### WHAT'S NEW

- Server configuration for NFS/CIFS/S3 access to PFSS file systems on Protocol Servers.
- Selectable performance levels for Protocol Servers ranging from less than 2000 up to 15000 concurrent users.
- Lower cost network NICs for attaching to 10 and 40 Gb ethernet networks.

### OVERVIEW

Are you frustrated with the architectural and economical limitations of your current high-performance file storage?

HPE Parallel File System Storage is cost-effective, parallel storage for your high-performance simulation, AI, and data analytics environments running on HPE Apollo systems.

HPE Parallel File System Storage provides multiples of performance and namespace scalability, as compared to standard scale-out NAS storage, to increase the utilization of your compute nodes by removing I/O bottlenecks while enabling cost savings through storage island consolidation in a

unified, high-performance namespace.

## FEATURES

### **The Storage Performance Your HPE Apollo Systems Need**

HPE Parallel File System Storage is built on industry-standard server technology utilizing the AMD EPYC 7000 series processor family and HPE SmartMemory up to 3200 MT/s DDR4 memory.

Fast PCIe 4.0/NVMe SSDs are the standard medium to deliver performance with the ability to add HDD storage pools in the same namespace to provide cost-effective storage capacity.

High speed, low latency networks like InfiniBand EDR/HDR or 100/200 Gigabit Ethernet deliver the data to the CPU or GPU compute nodes.

NVIDIA® Magnum IO support (GPUDirect Storage) for accelerated input/output (IO) for NVIDIA GPUs, which provides a path for data to bypass CPUs.

Highly available write caching (HAWC) leverages non-volatile storage in the compute nodes for accelerated IO for write-intensive applications.

### **The Scalability Your HPE Apollo Systems Need**

HPE Parallel File System Storage supports up to 128 storage servers in a single file system/name space far beyond the limitations of NAS storage.

Start with as little as four rack units and grow to petabytes (PBs) of capacity.

Very granular scale-out in increments of one rack unit.

Scale-out linearly within a namespace due to the parallel file system architecture.

Scale-out PCIe 4.0/NVMe flash performance independently from cost effective HDD capacity in the same file system.

### **The Enterprise Storage Features You Need**

HPE Parallel File System Storage offers a comprehensive set of system availability features that provide enterprise-grade "five-nines" availability levels with multi-parity RAID 4+2, 4+3, 8+2, 8+3, 3, and 4 way replication, automatic fail-over and intelligent fail-back for mission-critical use cases.

Comprehensive set of data protection features like snapshots, synchronous and asynchronous replication, file-level encryption, and asynchronous error diagnosis while affected input/output (I/O) operations continue.

Its file system supports interfaces for file (POSIX, NFS, CIFS), object (S3, SWIFT), and Hadoop Distributed File System (HDFS) for broad data accessibility across the organization.

Provides data integrity checking on data at rest and in flight, delivering higher reliability and operational robustness.

Support for auditing capability to monitor file access to a defined set of data. The resulting audit logs are stored in an immutable file set to support the compliance requirements of your industry.

### **The Cost-Effectiveness Your HPC and AI Budget Needs**

HPE Parallel File System Storage enables "storage islands" consolidation for your HPC, AI, and HPDA environments, delivering high performance for all file sizes/IO patterns, superior scalability, and broad protocol support.



Its software-defined architecture combines a leading enterprise parallel file system, IBM Spectrum Scale, with one of the leading rack-optimized industry standard servers, HPE ProLiant DL rack servers, as storage nodes.

Focus on exploiting the different strengths of storage media (SSD and HDD) in a cost-effective way within the same file system/name space without incurring their weaknesses, delivering the performance and capacity you need in a cost-effective way.

Quality of Service (QoS) management allows to specify limits on throughput to limit the resources consumed by any fileset in order to control resource consumption in the shared storage pool. QOS management allows limits on input/output operations per second (IOPS), maximum MBs, or both.



## Technical specifications

## HPE Parallel File System Storage

<b>Capacity</b>	5.4 to 188 TiB
<b>Host interface</b>	Uses standard ethernet uses IB HDR/EN 100Gb uses IB HDR/EN 200Gb
<b>Protocol supported</b>	POSIXs file access via native client, NFS/SMB/Object via separate protocol server, InfiniBand, Ethernet, RDMA, TCP/IP
<b>Replication support</b>	RAID 4+2P, 4+3P, 8+2P, 8+3P, 3-way mirror, 4-way mirror; file system 2- and 3-way mirroring; file system asynchronous multi-site replication with, read-only, writable, By file, file set, policy; disaster recovery replication with live-site takeover
<b>Storage expansion options</b>	HDD/SSD can be added to existing file system servers as space permits. Additional file system servers can be added up to the limit of 128 in a single HPE PFSS cluster.
<b>Compatible operating systems</b>	Server: Centos 8.3 Client: RHEL/Centos 7.7 or later, SLES 15 with latest service pack, Ubuntu Server 20.04 LTS, Windows Server 2016, Windows Server 2019, Windows 10 Enterprise Edition
<b>Management features</b>	Command line interface, web-based GUI and a REST API, SNMP management, ssh, ethernet, iLO, LEDs, HTML, and find-fix-inform. HPE iLO Standard with Intelligent Provisioning (embedded), HPE OneView Standard (requires download), HPE iLO Advanced, HPE iLO Advanced Premium Security Edition, and HPE OneView Advanced (require licenses)
<b>Drive description</b>	3 to 8 HPE PFS 4TB SAS 12G Midline 7.2K LFF (3.5in) LP 3 to 8 HPE PFS 8TB SAS 12G Midline 7.2K LFF (3.5in) LP 3 to 8 HPE PFS 12TB SAS 12G Midline 7.2K LFF (3.5in) LP 3 to 8 HPE PFS 16TB SAS 12G Business Critical 7.2K LFF
<b>Clustering support</b>	Can be added to or interoperated with IBM Spectrum Scale clusters
<b>HD type</b>	Hot plug
<b>Snapshot support</b>	Global file system snapshot (read only) snapshots on independent file sets (read only) file clone ( writeable file snapshot)
<b>Smart clone support</b>	File clone (writable snapshot), can create a clone from a snapshot file
<b>Form factor (fully configured)</b>	1U
<b>Product Dimensions (metric)</b>	4.28 x 43.46 x 82.62 cm
<b>Weight</b>	22.4 kg
<b>Warranty</b>	3/3/3 - Server Warranty includes three years of parts, three years of labor, three years of on-site support coverage. Additional information regarding worldwide limited warranty and technical support is available at: <a href="http://h20564.www2.hp.com/hpsc/wc/public/home">http://h20564.www2.hp.com/hpsc/wc/public/home</a> . Additional HPE support and service coverage for your product can be purchased locally. For information on availability of service upgrades and the cost for these service upgrades, refer to the HPE website at <a href="http://www.hp.com/support">http://www.hp.com/support</a> .



For additional technical information, available models and options, please reference the [QuickSpecs](#)

## HPE POINTNEXT SERVICES

HPE Pointnext Services brings together technology and expertise to help you drive your business forward and prepare for whatever is next.

### Operational Services from HPE Pointnext Services

HPE Pointnext Tech Care provides fast access to product-specific experts, an AI-driven digital experience, and general technical guidance to help enable constant innovation. We have reimagined IT support from the ground up to deliver faster answers and greater value. By continuously searching for better ways to do things—as opposed to just fixing things that break—HPE Pointnext Tech Care helps you focus on achieving your business goals.

HPE Pointnext Complete Care is a modular, edge-to-cloud IT environment service that provides a holistic approach to optimizing your entire IT environment, and achieving agreed upon IT outcomes and business goals through a personalized and customer-centric experience. All delivered by an assigned team of HPE Pointnext Services experts.

**HPE Integration and Performance Services** help you customize your experience at any stage of your product lifecycle with a menu of services based on individual needs, workloads, and technologies.

- Advise, design, and transform
- Deploy
- Integrate and migrate
- Operate and improve
- Financial Services
- Greenlake Management Services
- Retire and sanitize
- IT Training and personal development

### Other related services

HPE Education Services delivers a comprehensive range of services to support your people as they expand their skills required for a digital transformation. Consult your HPE Sales Representative or Authorized Channel Partner of choice for any additional questions and support options.

**Defective Media Retention** is optional and allows you to retain Disk or eligible SSD/Flash Drives replaced by HPE due to malfunction.

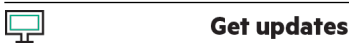
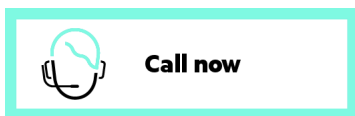
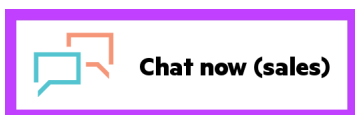
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