



Huawei OceanStor 9000 V5 scale-out NAS storage system features a fully symmetric distributed architecture that delivers superior performance, extensive scale-out capabilities, and a super-large single file system providing shared storage for unstructured data. OceanStor 9000 V5 is ideal for diverse applications and storage resource sharing fields, such as film and TV, satellite mapping, gene sequencing, energy exploration, scientific research, education, video surveillance, as well as backup and archiving.

Open Convergent Storage System Designed for Diverse Applications

•Support for multiple types of interfaces:

NFS, CIFS, NDMP, FTP, HDFS, Amazon S3/OpenStack Swift, and other interfaces allow the system to support diverse applications and implement data management throughout the entire lifecycle.

•Support for varied node types:

To suit different applications, various types of nodes are supported.

•Integrated management:

One set of software centrally manages IT devices, provides analysis reports, simplifies management, and improves operational efficiency.

Fully Symmetric Distributed Architecture: Featuring Impressive Parallel Read/Write Capabilities and Superb Performance

High-performance read/write access:

Achieves up to 2.8 GB/s of bandwidth per node and industry-leading performance on a single disk.

Network acceleration:

Supports 10GE, 25GE, 40GE, InfiniBand, and a variety of other networking models; supports Remote Direct Memory Access (RDMA) and TCP Offload Engine (TOE) to improve transmission performance.

Linear scalability:

Linear increase in system performance as nodes are added, with up to 700 GB/s of bandwidth.

Linear Scaling of Capacity and Performance in a Super-Large Single File System

Single file system:

A single file system of more than 140 PB simplifies management and maintenance while eliminating data silos caused by multiple namespaces.

Impressive expansion capabilities:

Seamless expansion from 3 to 288 nodes enables linear expansion of capacity and performance.

Even data distribution:

The shared-nothing symmetric distributed architecture evenly distributes data and metadata to all nodes, eliminating system bottlenecks.

Ultra-high utilization:

Up to 95% disk utilization is ensured without compromising inter-node data reliability.

Visual and Unified Resource Management

Flexible configuration:

Directory-based redundancy ratio policies provide multiple data protection levels.

Automatic statistics collection and analysis:

Automatic performance statistics collection and analysis help customers use resources efficiently.

Automatic deployment:

The software platform is automatically deployed and configured, and the one-click capacity expansion feature enables customers to add a single node within 60 seconds.

Rights management:

Access control over IP addresses, users, and user groups ensure that storage pools are secure and mutually isolated.

Info Series Software for Intelligent Storage Management

InfoEqualizer, Huawei's load-balancing software, manages connections between clients and OceanStor 9000 V5.

Client connection loads are balanced across nodes and automatic balancing between capacity and performance is implemented to optimize cluster resources.

Intelligent unified management is implemented with support for node failovers and failbacks.

Load balancing is implemented based on domain names, and a variety of load-balancing policies are supported.

InfoTier, Huawei's Dynamic Storage Tiering (DST) software

InfoTier dynamically stores data on different nodes based on data access frequency and implements intelligent migration of frequently accessed data (hot data). The software fully leverages the advantages of different types of storage media and reduces the Total Cost of Ownership (TCO).

A variety of data migration policies and migration priorities are supported to accommodate ever-changing service needs.

InfoAllocator, Huawei's quota management software

Space quota management is implemented based on users, user groups, and directories, to meet different customer requirements.

The software allows flexible and easy access to storage space, with quota nesting management.

InfoProtector, Huawei's industry-leading data reliability and availability mechanism

Erasure Coding (EC) technology implements N+M data protection and protects data from a concurrent failure of four nodes.

Automatic reconstruction is available, allowing multiple nodes to concurrently reconstruct data at a speed of up to 2 TB/hour.

InfoStamper, Huawei's snapshot software

Directory-level snapshots offer quick data recovery.

The software supports manual and scheduled snapshots (daily/weekly/monthly).

InfoLocker, Huawei's WORM functionality software

InfoLocker offers protection against data loss, malicious modification, and deletion.

The software allows users to set a WORM clock and protection period.

InfoReplicator, Huawei's asynchronous remote replication software

InfoReplicator shortens the system recovery time and is applicable to disaster recovery, data backup, and long-distance data migration scenarios.

The software supports 1:N and N:1 replication for different types of directories.

InforRevive, Huawei's surveillance video and image restoration software

Restoration capabilities ensure that the failure of multiple disks does not affect video streaming. Only data on the failed or damaged disks is lost.

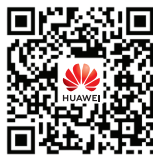
Technical Specifications

Model	P25 X	P36 X	P12 X	C36 X
Hardware Specifications				
System Architecture	Fully symmetric distributed architecture			
Number of Nodes	3 to 288			
CPUs per Node	2 x Intel® Xeon® Silver series		1 x Intel® Xeon® Silver series	
NVDIMM	16GB NVDIMM			
Cache per Node	Standard configuration: 48 GB, scalable to 352 GB	Standard configuration: 48 GB, scalable to 352 GB	Standard configuration: 32 GB, scalable to 160 GB	
Data Disk Types	2.5-inch SSDs and SAS disks	3.5-inch SSDs, SATA disks, and NL-SAS disks		
Number of Disks per Node	Standard configuration: 1 x 2.5-inch 960 GB SSD + 24 x 2.5-inch 1.2 TB/1.8 TB SAS disks (SSD/HDD configuration ratio adjustable based on actual performance requirements)	Standard configuration: 1 x 3.5-inch 960 GB SSD + 35 x 3.5-inch 2 TB/4 TB/6 TB/8 TB/10 TB/14 TB SATA or NL-SAS disks (SSD/HDD configuration ratio adjustable based on actual performance requirements)	Standard configuration: 12 x 3.5-inch 2 TB/4 TB/6 TB/8 TB/10 TB/14 TB SATA or 2 TB/4 TB/6 TB NL-SAS disks (SSD/HDD configuration ratio adjustable based on actual performance requirements)	Standard configuration: 36 x 3.5-inch 2 TB/4 TB/6 TB/8 TB/10 TB/14 TB SATA or 2 TB/4 TB/6 TB NL-SAS disks
Front-End Network Types	10GE, 25GE, 40GE, InfiniBand, and 1GE			
Internal Network Types	10GE, 25GE, and InfiniBand			
Application Scenarios	OPS-intensive	Large-capacity and high-bandwidth	Small-capacity	Video surveillance and archiving
Software Features				
Data Protection Levels	N+1, N+2, N+3, and N+4 (data still available even if four nodes fail)			

Model		P25 X	P36 X	P12 X	C36 X
File System		OceanStor DFS, which supports global namespace and can be dynamically expanded			
Value-Added Features		Dynamic storage tiering (InfoTier) Automatic load balancing of client connections (InfoEqualizer) Space quota management (InfoAllocator) Snapshot (InfoStamper) WORM (InfoLocker) Remote replication (InfoReplicator) Performance acceleration (InfoTurbo) Surveillance video and image restoration (InfoRevive) Data migration (InfoMigrator) Anti-virus (InfoScanner) File aggregation			
Value-Added Object Storage Feature		Object-level de-duplication Multi-tenant HTTPs encrypted transmission Disaster recovery (InfoMetro)			
Thin Provisioning		Support for thin provisioning that does not require manual configuration			
Data Self-Healing		Automatic, concurrent, and quick data reconstruction, at a maximum reconstruction speed of 2 TB/hour			
System Expansion		One-click online expansion, with less than 60 seconds needed for expansion of a single node			
Global Cache		Up to 100 TB of global cache			
Supported Operating Systems		Windows, Linux, UNIX, and Mac OS			
Supported Protocols		NFS, CIFS, FTP, HDFS, Amazon S3/OpenStack Swift, NDMP, NIS, Microsoft Active Directory, and LDAP			
System Management		Support for users with different management rights, and domain- and rights-based user management Alarm notification by email, SMS, and SNMP			
Bad Disk Detection		Automatic bad disk detection and alarm notification with support for batch replacement of bad disks, eliminating the need for immediate disk replacement and reducing manual maintenance workloads			
Physical Specifications					
Power Supply (1+1 Redundancy)		100 V to 127 V AC, 200 V to 240 V AC, and 240 V DC			
Dimensions (H x W x D)	Node	2 U: 86.1 mm x 447 mm x 748 mm	4 U: 175 mm x 447 mm x 748 mm	2 U: 86.1 mm x 447 mm x 748 mm	4 U: 175 mm x 447 mm x 748 mm
	Cabinet	Maximum size: 2,000 mm x 600 mm x 1,200 mm			
Weight		Fully loaded with 2.5-inch disks: ≤ 30 kg	Fully loaded with 3.5-inch disks: ≤ 57 kg	Fully loaded with 3.5-inch disks: ≤ 30 kg	Fully loaded with 3.5-inch disks: ≤ 57 kg
Typical Power		420 W	580 W	310 W	490 W
Operating Temperature		5°C to 35°C when the altitude ranges from -60 m to +1,800 m When the altitude is higher than 1,800 m but lower than, or equal to, 3,000 m, the ambient temperature drops by 0.6°C for every 100 m increment in altitude.			
Operating Humidity		20% RH to 80% RH			

More information

For more information about Huawei storage, please contact your local representative office or visit Huawei's official website <http://e.huawei.com>.





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