

OceanStor 6800 V5 Mission-Critical Storage System

OceanStor 6800 V5 mission-critical storage system (OceanStor 6800 V5 for short) is Huawei's next-generation enterprise-class hybrid flash storage, designed for mission-critical enterprise applications. With a cloud-ready operating system, industry-leading hardware platform, and intelligent management software, OceanStor 6800 V5 delivers top-of-the-line functionality, performance, efficiency, reliability, and ease of use. It fully satisfies the data storage requirements of large-database OLTP/OLAP, file sharing, cloud computing, and many other applications, thereby is applicable to sectors such as government, finance, telecommunications, energy, and media. OceanStor 6800 V5 also provides a wide range of efficient and flexible backup and disaster recovery (DR) solutions to ensure business continuity and data security, delivering excellent storage services.

Product Highlights

Solid Reliability

Cutting-edge SmartMatrix 2.0 system architecture

4-controller symmetric engine

With the SmartMatrix architecture, OceanStor 6800 V5 integrates four controllers into the 6 U space of an engine. The controllers are interconnected through a passive backplane. In addition, continuous cache mirroring and back-end disk controller interconnection techniques are incorporated, offering industry-leading 4-controller redundancy. The four controllers act as a hot backup for each other. Even if three controllers fail to work at the same time, service stability is protected to maximize the continuity of mission-critical applications, preventing a single-point running status that can be seen in scenarios where traditional high-end storage systems are upgraded or a controller is faulty.

Load balancing

Load balancing is implemented among controllers, thereby accelerating application access and eliminating performance bottlenecks.

A full range of reliability technologies, helping customers achieve service continuity

Full hardware redundancy

All components and channels are redundant to prevent single points of failure. Fault detection, recovery, and isolation can be independently implemented for each component and channel, ensuring stable system running.

Unique rapid data restoration technology

Innovative block-level virtualization is employed to reduce the time needed to reconstruct 1 TB of data from 10 hours to 30 minutes. Compared with traditional storage systems, OceanStor 6800 V5 reduces the risk of data damage caused by disk failures by 95%.

DIX+PI end-to-end data protection

Based on PI and DIX, OceanStor 6800 V5 provides solutions to protect data integrity all the way from application systems to HBAs, storage systems, and disks. Such protection prevents damages to data, further protecting services.

A wide range of data protection software

The Hyper series of data protection software includes snapshot, clone, all-in-one backup, remote replication, and other data protection technologies. They protect user data locally, remotely, inside systems, and across different regions, and achieve 99.9999% availability, maximizing business continuity and data availability.

Leading converged SAN and NAS active-active solution

One OceanStor 6800 V5 storage array can support active-active deployment of both SAN and NAS, ensuring high availability for databases and file services. The gateway-free HyperMetro solution enables load balancing of active-active mirrors and non-disruptive cross-site takeover, ensuring zero loss of core application data and zero service interruption. Gateway-free design reduces customers' procurement spending and simplifies deployment. In addition, HyperMetro can be effortlessly upgraded to the geo-redundant layout with three data centers.

Excellent Performance

Next-generation flash storage hardware, delivering top-of-industry performance

Industry-leading performance and specifications

OceanStor 6800 V5 employs next-generation Intel multi-core processors, cutting-edge PCIe 3.0 buses, 12 Gbit/s SAS 3.0 high-speed disk ports, and a variety of host ports such as 32 Gbit/s Fibre Channel, 100 Gbit/s Ethernet, and 56 Gbit/s InfiniBand host ports. It fully meets requirements for bandwidth-sensitive application scenarios, such as those involving videos and large files, providing up to million-level IOPS as well as other industry-leading specifications.

Smooth scale-out

SmartMatrix 2.0 allows for the smooth and linear expansion of system resources to a maximum of 8 controllers, 8 TB of cache, and 3,200 disk drives, addressing the ever-increasing data storage needs in the future and helping customers maximize their return on investment.

Flash-oriented system architecture, ensuring rapid response to core services

Flash-oriented storage architecture

OceanStor 6800 V5 employs a flash-oriented system architecture based on the flash convergence technology, CPU scheduling, cache, RAID, and interworking between the OceanStor OS and disk drives that are specially designed to suit flash memory. OceanStor 6800 V5 can intelligently sense HDDs and SSDs, automatically distinguish between media types, and dynamically select the optimal algorithms to provide a stable I/O response time that is shorter than 1 ms in the event of massive service access requests, thereby ensuring the optimal performance of critical applications. (In the high-end storage industry, the average I/O response time is about 5 to 10 ms).

Multi-level Convergence

Powered by the latest OceanStor OS, OceanStor 6800 V5 provides converged and unified resource pools with the agility of resource scheduling, enabling free data mobility and helping enterprise IT architectures evolve to cloud-based architectures.

Convergence of all types of flash storage

Huawei has the most complete flash product portfolio and supports interconnection between different types, levels, and generations of flash storage. Convergence of data, management and O&M empowers high-performance and low-latency flash storage arrays, while ensuring the long-term reliability of SSDs.

Convergence of SAN and NAS

SAN and NAS are converged to provide elastic storage, improve storage resource utilization, and reduce the total cost of ownership (TCO). The new OceanStor 6800 V5 not only converges SAN and NAS to support multiple types of services, but also provides industry-leading SAN and NAS performance and functions.

Convergence of storage resource pools

The built-in heterogeneous virtualization function enables OceanStor 6800 V5 to take over the storage arrays of different levels, types, and models from other mainstream vendors, and integrate them into a unified resource pool. This eliminates data silos, achieves unified resource management, and enables automated service orchestration. In addition, data can be automatically migrated from third-party storage to Huawei storage without interrupting services. Huawei's automatic migration tool reduces the migration time by 60% on average.

Convergence of multiple data centers

The converged SAN and NAS active-active solution provides cross-data center service continuity assurance and makes the networking simpler. Active-active data center deployment can be smoothly upgraded to the geo-redundant 3DC layout to achieve the highest level of service continuity protection. Customers can also deploy hierarchical data centers for the purpose of centralized disaster recovery. Currently, Huawei storage supports the backup of data from 64 subordinate data centers to a central data center.

Intelligent Services

Accelerating the cloud transformation of enterprises

Intelligent O&M

eService enables cloud-based monitoring, around-the-clock proactive monitoring, minute-level fault sensing, automatic fault reporting, and automatic ticket creation. eService can also automatically inspect every aspect of a device's status, provide cloud-ready evaluation services, automatically analyze workload characteristics, generate an analysis report with one click, recommend storage design schemes, offer intelligent trend prediction, and plan expansion in advance.

Hybrid cloud solution

Huawei offers a hybrid-cloud-based storage solution for enterprises, which implements on-and off-premises resource collaboration and data mobility. Public cloud is regarded as a storage tier. Customers can perform cross-cloud data backup and migration, achieving smooth cloud transformation of storage services.

Product Specifications

Name	OceanStor 6800 V5
Controller Enclosure Specifications	
Processor	Multi-core processors
System cache (expands with the number of controllers)	512 GB to 8 TB
Maximum number of controllers	8
Supported storage protocols	Fibre Channel, FCoE, iSCSI, InfiniBand, NFS, CIFS, FTP, HTTP
Types of front-end ports	8/16/32 Gbit/s Fibre Channel, 10 Gbit/s FCoE, 1/10/25/40/100 Gbit/s Ethernet, 56 Gbit/s InfiniBand
Type of back-end ports	SAS 3.0 (single port 4 x 12 Gbit/s)
Maximum number of hot-pluggable I/O modules per controller	6
Maximum number of front-end host ports per controller	20
Maximum number of disks per dual-controller	3,200
Disk type	SSD, SAS, NL SAS
Standalone gateway	Support
RAID	RAID 0, 1, 3, 5, 6, 10, 50
Maximum number of snapshots	32,768
Maximum number of LUNs	65,536
Maximum number of snapshots per file system	2,048
Maximum capacity per file	256 TB
Key Software Features	
Data protection software	HyperSnap (snapshot), HyperClone (clone) HyperCopy (copy), HyperMirror (volume mirroring) HyperMetro (active-active arrays), HyperReplication (remote replication) HyperLock (WORM), HyperVault (all-in-one backup)
Mission-critical business protection	SmartQoS (intelligent service quality control) SmartPartition (intelligent partitioning) SmartCache (intelligent SSD caching)
Resource efficiency improvement software	SmartMigration (intelligent LUN migration), SmartVirtualization (intelligent heterogeneous virtualization) SmartMulti-tenant (intelligent multi-tenant), SmartQuota (quota management) SmartDedupe (intelligent deduplication), SmartCompression (intelligent compression) SmartThin (intelligent thin provisioning), SmartTier (intelligent data tiering) SmartMotion (intelligent data motion), SmartErase (intelligent data destruction)
Storage management software	UltraPath (host multipath), BCManager (DR management) DeviceManager (single-device management software), eSight (centralized O&M management software) eService (remote maintenance management)

Virtualization Features	
Smart virtualization	Consolidates storage resources of mainstream products to manage and allocate storage resources in a flexible and unified manner.
Block-level virtualization	Enables balanced data distribution and quick fault recovery.
Computing virtualization	Virtualization platforms: FusionSphere, VMware, XenServer, Hyper-V Value-added features: VMware VAAI/VASA/SRM, Hyper-V vSphere, vCenter
Physical Specifications	
Power supply	AC: 200 V to 240 V DC: 192 V to 288 V or -48 V to -60 V
Dimensions (H x W x D)	6 U controller enclosure: 263.9 mm x 447 mm x 750 mm 2 U disk enclosure: 86.1 mm x 447 mm x 490 mm 4 U disk enclosure: 175 mm x 447 mm x 490 mm 4 U HD disk enclosure: 176.5 mm x 446 mm x 790 mm
Weight	6 U controller enclosure ≤ 95 kg 2 U disk enclosure ≤ 20 kg 4 U disk enclosure ≤ 40 kg 4 U HD disk enclosure ≤ 91 kg
Ambient temperature	5°C to 40°C (altitude: < 1,800 m); 5°C to 35°C (altitude: 1,800 m to 3,000 m)
Ambient humidity	5% RH to 90% RH

For More Information

To learn more about Huawei storage, please contact the local office or visit Huawei Enterprise website <http://e.huawei.com>.



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