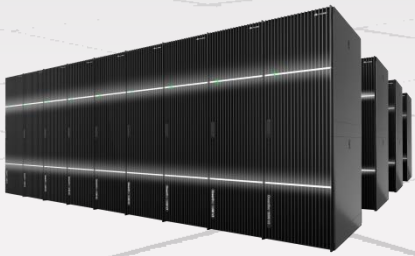

OceanStor 18500 and 18800 V5 Mission-Critical Storage Systems

OceanStor 18500 and 18800 V5 mission-critical storage systems (OceanStor 18500 and 18800 V5 for short) are Huawei's mission-critical storage, dedicated to providing the highest level of data services for enterprises' mission-critical services. With the industry-leading SmartMatrix 2.0 system architecture, HyperMetro gateway-free active-active feature, flash-oriented optimization technology, cutting-edge hardware platform, and a full range of efficiency improvement and data protection software, OceanStor 18500 and 18800 V5 deliver top-of-the-line reliability, performance, and solutions. It fully satisfies the data storage requirements of large-database OLTP/OLAP, cloud computing, and many other applications, making it a perfect choice for sectors such as government, finance, telecommunications, energy, transportation, and manufacturing.

Product Highlights

Solid Reliability

Cutting-edge SmartMatrix 2.0 system architecture

- **4-controller symmetric engine**: OceanStor 18500 and 18800 V5 innovatively integrate 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 18500 and 18800 V5 reduce the risk of data damage caused by disk failures by 95%.
- **DIX+PI end-to-end data protection**: Based on Protection Information (PI) and Data Integrity Extension (DIX), OceanStor 18500 and 18800 V5 provide 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 18500 and 18800 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

Flash storage hardware, delivering top-of-industry performance

- **Industry-leading performance and specifications**: OceanStor 18500 and 18800 V5 employ multi-core processors, cutting-edge PCIe 3.0 buses, 12 Gbit/s SAS 3.0 high-speed disk ports, and up to 384 front-end ports. Supporting up to 768 GB/s system bandwidth, OceanStor 18500 and 18800 V5 can support high-concurrency access to core databases at low latency.

- **Flexible scalability**: OceanStor 18500 and 18800 V5 support high-speed enterprise-class SSD drives. A single storage system can be equipped with a maximum of 16 controllers and 9,600 disk drives, providing 55 PB of capacity, and up to six million IOPS as well as other industry-leading specifications.

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

- **Flash-oriented storage architecture**: OceanStor 18500 and 18800 V5 employ 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 18500 and 18800 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 18500 and 18800 V5 provide 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 six million IOPS performance at 1 ms latency of the 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 18500 and 18800 V5 not only converge SAN and NAS to support multiple types of services, but also provide industry-leading SAN and NAS performance and functions.

- **Convergence of storage resource pools**: The built-in heterogeneous virtualization function enables OceanStor 18500 and 18800 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 18500 V5	OceanStor 18800 V5
Hardware Specifications		
Architecture	SmartMatrix 2.0 all-flash architecture	
Maximum number of controllers	16	
Processor	Multi-core processors	
System cache (expands with the number of controllers)	16 TB	16 TB
Supported storage protocols	Fibre Channel, iSCSI, NFS, CIFS, FTP, HTTP	
Types of front-end ports	8/16/32 Gbit/s Fibre Channel, 1/10/25/40/100 Gbit/s Ethernet	
Type of back-end ports	SAS 3.0 (single port 4 x 12 Gbit/s)	
Maximum number of front-end ports	384	
Maximum number of disks	6,400 (2.5-inch) or 3,072 (3.5-inch)	9,600 (2.5-inch) or 4,608 (3.5-inch)
Disk type	2.5-inch: SSD, SAS 3.5-inch: SSD, NL-SAS	
Standalone gateway	Support	

Name	OceanStor 18500 V5	OceanStor 18800 V5
Key Software Features		
Maximum number of hosts	65,536	
Maximum number of LUNs	65,536	
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), SmartMotion (intelligent data motion) SmartErase (intelligent data destruction), SmartTier (intelligent data tiering)	
Storage management software	UltraPath (host multipath), BCManager (DR management) DeviceManager (single-device management software), eSight (centralized O&M management software) eService (remote maintenance management)	
Physical Specifications		
Power supply	System bay: AC: 220 V/240 V/380 V, 32 A DC: 192 V to 288 V, or –48 V to –60 V	
Dimensions (H x W x D)	Maximum bay dimensions (including external pulleys and support feet): 2,000 mm x 600 mm x 1,232 mm	
Weight	Fully loaded weight: System bay: 680 kg Disk enclosure: 540 kg	

For More Information

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

Huawei Enterprise APP

Huawei IT

HUAWEI TECHNOLOGIES CO.,LTD.

Bantian Longgang District

Shenzhen 518129, P.R.China

Tel: +86-755-28780808

www.huawei.com