All-Flash Storage HF5000G5

HF5000G5 is a mid-end all-flash storage system for enterprise core applications and provides both SAN and NAS.. With the new NVMe architecture, optimized all-flash algorithm and Inview (an intelligent management tool), HF5000G5 promises lower latency, higher performance, enhanced scalability and simplified man-agement. HF5000G5 leads similar products in terms of performance, functionality, reliability and usability. It satisfies large/medium-sized OLTP/OLAP databases, virtualization, file sharing and other applications with excellent features such as data storage, disaster recovery, active-active, and backup. HF5000G5 is widely used in government, finance, communications, energy, media, healthcare, education, SMB and other sectors.

Features

Unlimited storage and extreme smoothness

As Internet, IoT, AI and other emerging technologies continue to penetrate in various sectors, enterprises have increasing demand for real-time data operations. In this case, flash arrays with the superior performance and stability become the first choice for enterprise storage acceleration. HF5000G5 mid-end all-flash storage owns a leading NVMe architecture, intelligent all-flash algorithms, and powerful scalability, which can provide enterprises with ultra-high-performance storage services.

All-flash NVMe: NVMe is an extended host controller interface, mainly created to accelerate the transfer of data between enterprise and client systems and solid-state drives (SSDs) over the PCIe bus. It can maximize the potential of the flash array. In addition, NVMe is directly connected to the host through the PCIe bus, reducing IO scheduling and shortening the IO path, providing a guarantee for low latency. HF5000G5 with the new NVMe architecture can minimize the latency to 0.1ms. Thus, it can provide customers with extremely fast and smooth storage services.

Optimized all-flash algorithms: When data is written, it sequentially performs data compression, stripe aggregation, and overall data brushing operations to effectively reduce SSD write amplification. Meanwhile, the system uses wear leveling (WL) and preemptive wear leveling (PWL) to ensure SSD average lifespan. Also, the system supports global garbage collection and TRIM to reduce the removal of invalid data in the disk and extend the SSD lifespan, thereby improving system performance.

Support Optane (first in China): Intel® Optane™ uses NVMe and SCM to eliminate the constraints of NAND flash sequential write and erase before write. Thus, it reduces access delay to 0.02ms, and greatly improves the access speed and lifespan of the hard drive. Optane helps to achieve a performance that is 70% higher than that of SAS all-flash, thereby providing customers with best storage services.

Intelligent data reduction chip: HF5000G5 realizes the data deduplication and compression through the built-in chip. Each controller is equipped with two data reduction engines and does not occupy CPU resources. Compared with the previous hard compression, the performance is improved by 30%. Meanwhile, the data reduction ratio reaches 5: 1, which can greatly increase the storage density and reduce the storage cost.

Reliable sharing and 24/7 online

HF5000G5 adopts Active-Active architecture and fully redundant design of key components. Together with high-reliability data protection solutions such as remote replication, active-active, three data centers with two variants, HF5000G5 can achieve 99.9999% reliability (six nines) and 24/7 business continuity.

Active-Active: HF5000G5 adopts the industry-leading Active-Active storage architecture, and the volume has no attribution concept. IO is handled by multiple controllers, which helps achieve load balancing between controllers, eliminate controller' s performance bottleneck, and improve system availability. When any controller fails, other controllers can take over the business to ensure business continuity.

Highly-reliable hardware redundancy: The fully modular redundant architecture ensures no single point of failure (SPOF) for key components. Passive backplane is used to improve system reliability. It also supports online hardware expansion, online firmware upgrade, online system maintenance, and power loss data protection. Combined with a variety of data protection mechanisms, HF5000G5 guarantees RPO = 0, RTO = 0, 99.9999% reliability (six nines).

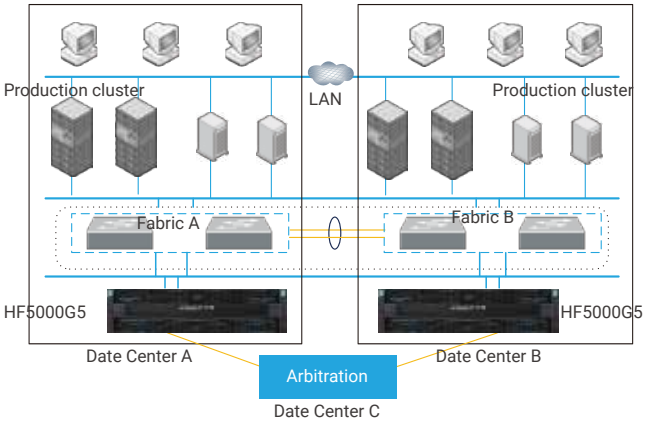
Safe and reliable gateway-free active-active solution: Nowadays, mission-critical reliability indicates not only high performance but also business continuity. Free from the virtual gateway, HF5000G5 adopts an advanced active-active technology for business continuity, application high-availability, RPO = 0 and RTO = 0. When any storage device has a disaster, other controllers can take over the business and maintain service access through a comprehensive arbitration mechanism and auto switchover mechanism. On the basis of active-active, it can easily extend to the configuration of three data centers with two variants; which means high availability between different data centers and extra data protection.

Application Solution

In-Metro Solution

Solution Description: The current critical business not only requires higher and higher performance requirements, but also poses challenges to business continuity. HF5000G5 uses mature active-active technology to ensure business continuity and high availability of applications. When any one of the storages has a disaster, it will use the perfect arbitration mechanism and switching mechanism to make the other storage continue to provide continuous business access capabilities.

Solution Value: HF5000G5 In-Metro solution has the following characteristics: reliable and safe, mature technology, simple and efficient, automatic switching, without the help of a virtual gateway. At the same time, it can be matched with different host systems to achieve high availability between different data centers and provide continuous access to services (RPO=0, RTO=0).



Specifications

Product	HF5000G5		
Sub-type	MN25	HS25	MS25
Controller	2-16		
Controller Cabinet	2U25		
Processor	Multi-core		
Expansion Enclosure	2U25		
System IO Port	6-48		
Frontend Port Type	16/32Gb FC, 1/10/40Gb iSCSI		
Supported Storage Protocols	FC, iSCSI, NFS, CIFS, HTTP, FTP		
System Cache	256GB~8TB	256GB~8TB	128GB-2TB
Type of Hard Drive	Optane NVMe SSD SAS SSD	SAS SSD	SAS SSD
Number of Hard Drive	1500-12000	1400-11200	1300-10200
Type of System Backend Port	PCIe3.0、SAS3.0	SAS3.0	SAS3.0
RAID Level	0，1，5，6，10，50，60，Inraid		
Boost Resource Efficiency	Intelligent Thin Provisioning (InThin) Intelligent virtualization RAID (InRAID) Intelligent data migration (InMigration) Intelligent online compression (InCompression) Intelligent tiering (InTier)	Intelligent volume conversion (Intune) Intelligent heterogeneous virtualization (InVirtualization) Intelligent file service (InFileService) Intelligent multi-tenant (InMulti-tenant)	
Data Protection Software	Intelligent snapshot (InSnapShot) Intelligent cloning (InClone) Intelligent backup (InBackup) Intelligent disk mirroring (InVdiskMirror) Intelligent remote replication (InRemoteCopy)	Intelligent active-active (InMetro) Intelligent cloud tiering (InCloudTier) Intelligent encryption (InEncryption) Intelligent data destruction (InErase)	
Mission-Critical Guarantee	Intelligent quality of service (InQoS) Intelligent automatic cache partition (InAutoPartition)		
Virtualization Features	Heterogeneous virtualization: supports 95%+ of the models for uniform management. RAID virtualization: block-level virtualization, system balancing, no hot spots. Virtualization system supports mainstream virtualization technologies, such as IntelliSense plugins (i.e.VAAI, VVOL, VASA, vCenter integration).		