xFusion FusionOne vSAN HCI Solution

Software-hardware integrated solution, providing excellent cloud infrastructure for enterprises



xFusion Digital Technologies Co., Ltd.

Introduction



With the deepening of digital transformation and the rapid development of Internet and mobile services, the traditional siloed IT architecture cannot meet the requirements of rapid service response and flexible expansion. The hyperconverged infrastructure (HCI) solution replaces the traditional IT architecture with an open and scalable architecture that converges compute, storage, and network, becoming the preferred choice for customers. However, during the design, construction, and O&M of the HCI solution, customers may face the following challenges:

Difficult deployment: The software and hardware come from multiple vendors. Planning, deployment, and tuning require experienced technicians. The delivery is complex and the business rollout is slow.

Difficult O&M: Products of different vendors require switching between multiple pages during maintenance, making problem identification difficult. After-sales support requires interaction with different vendors, slowing down the troubleshooting progress.Based on FusionServer series servers, VMware HCI software, and self-developed management software FusionOne Center, xFusion provides IT infrastructure with leading performance and simplified O&M to meet multiple scenario applications such as general-purpose computing, cloud virtualization, and desktop virtualization.

Highlights

Leading performance, meeting different workloads

- System-level tuning, maintaining top 1 performance in the VMware VMmark benchmark tests
- System-level, algorithm-level, and component-level technological innovation, enabling optimal server performance
- Multiple product portfolios with balanced configuration and flexible scalability

One-click deployment, accelerating service rollout

- One-click installation, improving delivery efficiency by 4 times compared with the traditional DIY mode
- vLCM lifecycle management with one-click automatic upgrade, zero service interruption
- Automatic capacity expansion, simplifying vSAN cluster management

Simplified O&M, improving enterprise IT efficiency

- Visualized O&M management
- 24/7 health monitoring, alarms automatically triggering virtual machine HA
- One-click log collection, doubling the efficiency

FusionOne vSAN Product Specifications

The FusionOne vSAN HCI solution provides vSAN appliance, vSAN ReadyNode and vSAN flexible configuration combinations to flexibly meet customers' requirements in different phases, such as data center construction, asset reconstruction, and infrastructure expansion brought by new services.



vSAN appliance

FusionServer-based HCI appliance that integrates vSAN, vSphere, vCenter, and FusionOne Center



vSAN ReadyNode

FusionServer servers on which VMware HCI has been pre-configured and related tests and certifications have been done



vSAN flexible configuration

Construct vSAN nodes based on flexible selection of VMware-certified components

vSAN Appliance Providing Efficient, Reliable, and Simplified HCI

Development test | DB | ERP | Desktop cloud | Branch office

FusionOne Center

- One-click deployment
- One-click upgrade
- Automatic capacity expansion
- Visualized O&M
- Health status monitoring
- Multi-cluster management
- One-click log collection

vCenter Server virtual infrastructure for centralized management

Centralized control and visibility | Proactive management | Extensible platform | vLCM

vSphere virtualization

vSphere Cluster Service (vCLS) | Distributed resource scheduling DRS | vSphere HA

vSAN distributed storage

Shared storage support | Clone and snapshot | Fast provisioning | Deduplication and compression

Fault domain configuration | Stretched cluster | Data-at-rest encryption | SDK support

Hardware infrastructure

FusionServer | GE/10GE/25GE/100GE switch | NVMe SSD

FusionOne vSAN Appliance Specifications

System Hardware Configuration

Application Scenarios	High-Performance Scenarios (DB)		Hybrid Load Scenarios (Desktop Cloud and Virtualization)
Server	2288H V7 2U 2-socket rack server	2288H V6 2U 2-socket rack server	2288H V7 2U 2-socket rack server
Processor	2 x Intel Xeon Sapphire Rapids-SP , 10 to 64 cores	2 x Intel Xeon Ice Lake-SP, 10 to 64 cores	2 x Intel Xeon Ice Lake-SP, 10 to 64 cores
Drive	24 x 2.5" NVMe drive models	24 x 2.5" NVMe drive models	24 x 2.5" SAS/SATA drive models
DIMM	Up to 4 TB	Up to 4 TB	Up to 4 TB
Storage type	All flash, all NVMe drives	All flash, all NVMe drives	NVMe+HDD, SSD+HDD
Cache drive	1.6 TB to 25.6 TB	1.6 TB to 25.6 TB	960 GB to 25.6 TB
Data drive	3.84 TB to 161.28 TB	3.84 TB to 161.28 TB	2.4 TB to 57.6 TB
System drive	2 x 480 GB SATA SSDs	2 x 600 GB SAS HDDs or 2 x 480 GB SATA SSDs	2 x 480 GB M.2 SSDs
Network	10GE/25GE	10GE/25GE	10GE/25GE

Cluster Specifications

Max. nodes in a cluster	64	64	64
Min. nodes in a cluster	3	3	3
Max. nodes added each time in a cluster	6	6	6

Critical Features*

Installation, deployment, and O&M	One-click deployment, pre-authentication, pre-integration, and the installation and deployment wizard enables automatic deployment, configuration, and verification of vSAN clusters.
	vLCM lifecycle management and one-click automatic upgrade reduce downtime and minimize the impact on services.
	Automatic capacity expansion supports nodes be automatically discovered and added to clusters, improving capacity expansion efficiency by 200%.
	Visualized O&M provides physical views, device information and status monitoring, and component information and status monitoring.
	7x24 health monitoring, automatically triggering VM HA and enhancing system availability.
	One-click log collection improves routine O&M efficiency. The log collection time can be configured as required to improve fault locating efficiency.

* (1) For feature details about VMware software (vSAN, vSphere, and vCenter), see the corresponding software datasheet. The website is as follows: https://www.vmware.com/worldwide.html
(2) The vSAN appliance also features vSAN ReadyNode and vSAN flexible configuration.

Typical Appliance Configuration 1: High-Performance Mission-Critical Workloads Such As Memory-Intensive DB Applications

System Software						
FusionOne Center						
VMware vCenter Server 8 Standard						
vSAN 8 Standard, Advanced，Enterprise, or Enterprise Plus						
vSphere 8 Standard/Enterprise Plus						
System Hardware		**Low Capacity**		**Medium Capacity**		**High Capacity**	
Server		2288H V6 2U rack server	2288H V7 2U rack server	2288H V6 2U rack server	2288H V7 2U rack server	2288H V6 2U rack server	2288H V7 2U rack server
Processor		2*Intel Silver 4314 16C 2.4GHz Ice Lake	2*Intel Gold 4416+ 20C 2.0GHz Sapphire -Rapids	2*Intel Gold 5318Y 24C 2.1GHz Ice Lake	2*Intel Gold 5 420+ 28C 2.0GHz Sapphire -Rapids	2*Intel Gold 6330 28C 2.0GHz Ice Lake	2*Intel Gold 6430 32C 2.1GHz Sapphire -Rapids
DIMM		256GB DDR4	256GB DDR5	512GB DDR4	512GB DDR5	768GB DDR4	768GB DDR5
All flash storage	**Raw capacity of a single node**	11.52TB	11.52TB	46.08TB	46.08TB	147.6TB	147.6TB
	Cache (NVMe)	2*1.6TB	2*1.6TB	2*3.2TB	2*3.2TB	4*3.2TB	4*3.2TB
	Capacity (HDD)	6*1.92TB	6*1.92TB	12*3.84TB	12*3.84TB	20*7.68TB	20*7.68TB
Switch		10GE or 25GE switches					
Description		- Standard vSAN clusters are deployed in hyper-converged mode and centrally managed by vCenter. - At least three to four physical servers form a vSAN cluster, which can be expanded in parallel. - You can use the vSAN ReadyNode Sizer to design the configuration. The vSAN ReadyNode Sizer is an integrated online design tool that uses service models and VM configurations as input and ReadyNode configurations as output, which supports AllFlash and Hybrid configurations, and supports VDI, DB, and general virtualization scenarios. - Website: https://vsansizer.vmware.com					

Typical Appliance Configuration 2: Test, Development Environment and Other Applications

System Software				
FusionOne Center				
VMware vCenter Server 8 Standard				
vSAN 8 Standard, Advanced， Enterprise, or Enterprise Plus				
vSphere 8 Standard/Enterprise Plus				
System Hardware		**Low Capacity**	**Medium Capacity**	**High Capacity**
Server		2288H V6 2U rack server	2288H V6 2U rack server	2288H V6 2U rack server
Processor		2*Intel Silver 4314 16C 2.4GHz Ice Lake CPU	2*Intel Gold 5318Y 24C 2.1GHz Ice Lake CPU	2*Intel Gold 6330 28C 2.0GHz Ice Lake CPU
DIMM		256GB DDR4	512GB DDR4	768GB DDR4
All flash storage	**Raw capacity of a single node**	7.2TB	21.6TB	48TB
	Cache (NVMe)	2*960GB	2*1.92TB	4*3.84TB
	Capacity (HDD)	6* 1.2TB	12* 1.8TB	20* 2.4TB
Switch		10GE or 25GE switches		
Description		- Standard vSAN clusters are deployed in hyper-converged mode and centrally managed by vCenter. - At least three to four physical servers form a vSAN cluster, which can be expanded in parallel. - You can use the vSAN ReadyNode Sizer to design the configuration. The vSAN ReadyNode Sizer is an integrated online design tool that uses service models and VM configurations as input and ReadyNode configurations as output, which supports AllFlash and Hybrid configurations, and supports VDI, DB, and general virtualization scenarios. - Website: https://vsansizer.vmware.com		

Technical Specifications

Server	2288H V7 2U 2-socket rack server	2288H V6 2U 2-socket rack server	1288H V6 1U 2-socket rack server	2288H V5 2U 2-socket rack server	1288H V5 1U 2-socket rack server
Processor	2*Intel Xeon Sapphire-Rapids-SP	2*Intel Xeon Ice Lake	2*Intel Xeon Ice Lake	2*Intel Xeon Cascade Lake	2*Intel Xeon Cascade Lake
DIMM	- 32 x DDR5 DIMMs, with up to 4800 MT/s speed - 16 x DDR5 or DDR4 DIMMs supported by the CXL technology, totaling up to 48 x DIMMs*	- 16/32 DDR4 DIMMs, with up to 3200 MT/s speed - Up to 16 Intel® OptaneTM Persistent Memory 200 Series, up to 3200 MT/s	- 32 x DDR4 DIMMs, with up to 3200 MT/s speed - Up to 16 Intel® OptaneTM Persistent Memory 200 Series, up to 3200 MT/s	- 24 x DDR4 DIMMs, with up to 2933 MT/s speed - Up to 12 Intel® OptaneTM Persistent Memory 100 Series, up to 2666 MT/s	- 24 x DDR4 DIMMs, with up to 2933 MT/s speed - Up to 12 Intel® - OptaneTM Persistent Memory 100 Series, up to - 2666 MT/s
Storage	Hot-swappable drive configura-tions: - 8 to 35 x 2.5" SAS/SATA drives/SSDs - 12 to 20 x 3.5" SAS/SATA drives - 4/8/16/24 NVMe SSDs - 36 x E1.S drives - 48 x E3.S drives* - Up to 45 x 2.5" drives or 34 NVMe SSDs - 2 x M.2 SSDs	Hot-swappable and flexible drive configurations: - 8 to 31 x 2.5" SAS/SATA drives/SSDs - 12 to 20 x 3.5" SAS/SATA drives - 4/8/16/24 NVMe SSDs - Up to 45 x 2.5" drives or 34 NVMe SSDs - 2 x M.2 SSDs	Hot-swappable and flexible drive configurations: - 10 x 2.5" drives (6 to 10 NVMe SSDs and 0 to 4 SAS/SATA drives) - 10 x 2.5" drives (2 to 4 NVMe SSDs and 6 to 8 SAS/SATA drives) - 8/10 x 2.5" SAS/SATA drives/SSDs	Hot-swappable and flexible drive configurations: - 8 to 31 x 2.5" SAS/SATA drives/SSDs - 12 to 20 x 3.5" SAS/SATA drives - 4/8/16/24 NVMe SSDs - 2 x M.2 SSDs	Hot-swappable and flexible drive configurations: - 10 x 2.5" drives (6 to 10 NVMe SSDs and 0 to 4 SAS/SATA drives) - 10 x 2.5" drives (2 to 4 NVMe SSDs and 6 to 8 SAS/SATA drives) - 8/10 x 2.5" SAS/SATA drives/SSDs

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