xFusion

Let Computing Serve You Better

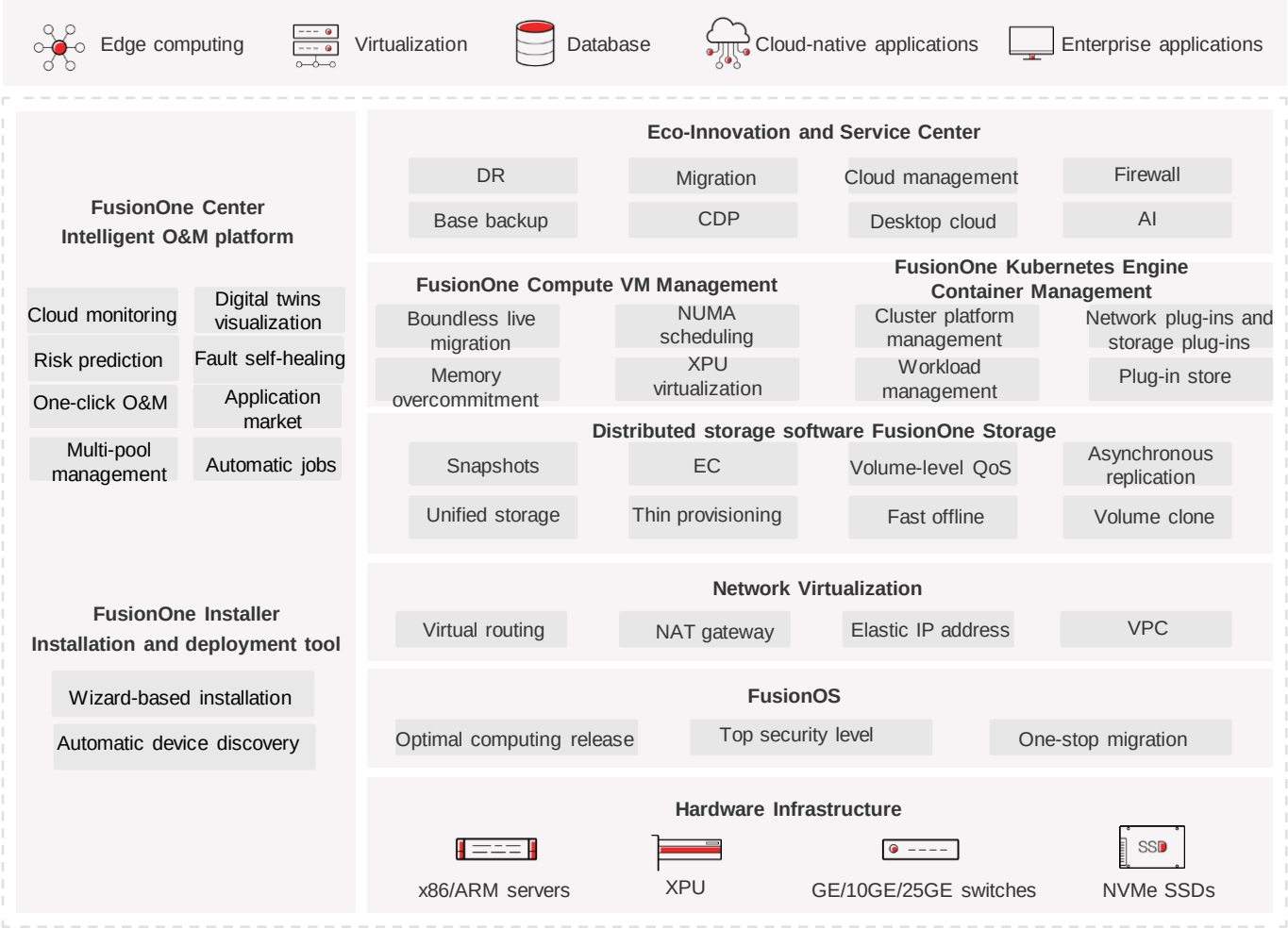
xFusion Hyperconverged Infrastructure Solution

FusionOne HCI

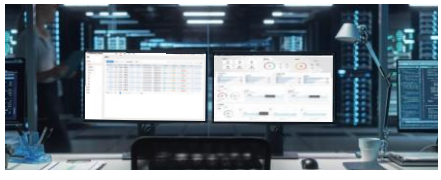
xFusion Digital Technologies Co., Ltd.

01 Efficient and Simplified IT Architecture for Rapid Digital Transformation
FusionOne HCI

FusionOne HCI is a hyperconverged infrastructure solution designed by xFusion based on its over 15 years of experience in virtualization and intelligent management. It efficiently integrates computing of diverse ecosystems and self-developed operating systems, delivering virtualization across multiple scenarios, including computing, storage, networking, intelligence, and security. With comprehensive support for critical databases, massive storage, desktop cloud, AI, cloud-native applications, data protection, and branch applications, our solution enables customers to swiftly build a simplified and efficient IT infrastructure.



The FusionOne HCI solution delivers integrated hardware and software and allows customers to manage software and hardware in a centralized manner on the unified management platform FusionOne Center.



Computing Virtualization

Computing resource virtualization, elastic hybrid scheduling of VMs and containers, pooling of XPU heterogeneous computing resources, and full lifecycle management

Distributed Storage

Fully distributed architecture, on-demand storage expansion, and unified storage of blocks, objects, and files, improving resource utilization

Unified Management Platform

Unified management of multiple resource pools including branches, edges, and VMware, realizing global information visualization and providing Computing-as-a-Service

02 Extraordinary Value in Simplicity, Experiencing the Benefits of HCI
FusionOne HCI

Fast Construction of Distributed Resource Pools in Multiple Scenarios

The FusionOne HCI solution has been extensively deployed across a wide range of industries and application scenarios. It empowers you to build hyperconverged infrastructures of various architectures tailored to your business needs, enabling the rapid creation of distributed resource pools in key areas such as core production, agile operations, and development/testing environments.

Server virtualization

- xFusion-developed virtualization platform, satisfying various requirements such as cost-effectiveness and heterogeneous resource pools

Private cloud

- Lightweight and open private cloud infrastructure that provides elastic expansion and production readiness similar to public clouds

DR (disaster recovery)

- Flexible DR solution, ensuring high service reliability for the local, same-city active-active, and remote active/standby DR

Artificial intelligence

- From single structured data to massive unstructured data, and from general computing to heterogeneous computing combinations, with unified support for AI applications and data

Desktop virtualization

- Innovative virtualization platform with stable and efficient distributed storage, making virtual desktops smoother, easier to manage, and more cost-effective and scalable

Branch offices and edge

- Simple and efficient infrastructure with multi-cluster management software, simplifying the O&M of multiple branch factories and stores

Four Core Values of a New Hyperconverged Experience

New ecosystem: from single computing to diversified computing

- Multi-ecosystem computing: compatible with x86, ARM, GPU, and NPU with comprehensive virtualization
- Dual virtualization engines: self-developed and VMware virtualization, unified management, and fast migration

New capability: from single virtualization to integration of compute, storage, network, intelligence, and security

- Multi-scenario virtualization: VM & containers, block & object & file, and SDN network
- Training and inference integration: xGPU engine pooling, 1% resource slicing and reusing, and out-of-the-box

New management: from single cluster to unified management of multi-computing clusters

- Integrated management: software-hardware synergy, network editing and visualization, intelligent prediction, and automatic O&M
- Computing-as-a-Service: unified management of multi-computing clusters and E2E service experience

Always online: triple reliability assurance & dual security hardening

- Triple reliability assurance: carrier-class components | VM HA & data replicas | emergency DR
- Dual security hardening: host & data & application & network security | antivirus snapshot

03 Integrated Hardware and Software Delivery for Ready-to-Use Data Centers
FusionOne HCI

With an optimized deployment mode, the FusionOne HCI solution supports cluster deployments from 2 to 256 nodes. The solution uses xFusion-developed server OS and conducts kernel-level hardware tuning to deliver superior performance. Based on your business requirements, you can configure advanced functions such as containers, AI, DR, cloud management, backup, and network security to quickly build a robust computing foundation for your enterprise.

** For a two-node deployment, an additional mini PC is required to conduct scheduling.*

Mandatory software

- FusionOne Storage
- FusionOne Compute

Tools

- FusionOne Center
- FusionOne Installer

Optional Software

- Antivirus · Firewall · DR · Cloud Management
- Backup · CDP · Security · Container · AI

Services

- Solution implementation
- Super-care warranty
- Media retention

Healthcare:

- Hospital information system (HIS)
- Picture archiving and communication system (PACS)
- Hospital management system

Transportation:

- Track monitoring system
- Scheduling system

Manufacturing:

- Supply and marketing systems
- MESs
- Development and test systems

Education:

- School management platform
- Online learning platform

04 System Hardware Specifications
FusionOne HCI

The FusionOne HCI solution provides large-capacity, balance, high-performance, and compute nodes, and allows enterprise customers to rapidly build an optimal infrastructure based on their storage capacity, computing resource density, I/O devices, and scalability requirements.

Large-capacity nodes

2288H V6/V7 and 2258 V7 servers

- 2U 2-socket rack
- 12 x 3.5" drive slots
- Up to 192 TB of storage
- Up to 6 x PCIe slots
- Optional GPUs

* AMD is not supported.

Balance nodes

2288H V6/V7 servers

- 2U 2-socket rack
- 25 x 2.5" drive slots
- Up to 60 TB of storage
- Up to 6 x PCIe slots
- Optional GPUs

High-performance nodes

2288H V6/V7 and 2488H V6 servers

- 2U 2-socket or 4-socket rack
- 16 x 2.5" drive slots
- Up to 122 TB of storage
- Up to 6 x PCIe slots

Compute nodes

2288H V6/V7, 2488H V6, and 2258 V7 servers

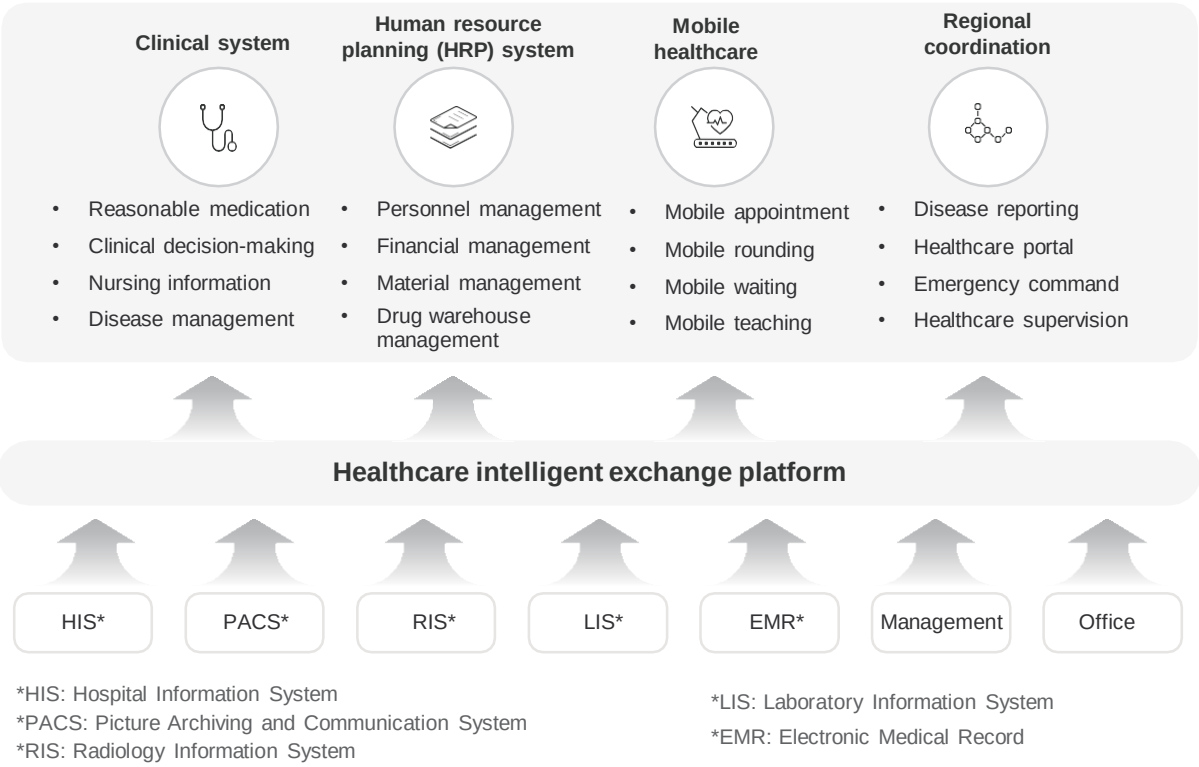
- 2U 2-socket or 4-socket rack
- 8 x 2.5" drive slots
- Up to 9 x PCIe slots
- Optional GPUs

* AMD is not supported.

Hardware Specifications	Intel 2288H V6/V7	AMD 2258 V7
Model	2U 2-socket rack	2U 2-socket rack
FusionOS (optional)	Commercial release & free license edition	
Processor	2 x 3rd Gen Intel® Xeon® Scalable processors 2 x 4th Gen Intel® Xeon® Scalable processors	2 x AMD EPYC 9004 Series (Genoa) processors
Memory	32 x DDR4 DIMM slots, up to 4 TB 32 x DDR5 DIMM slots, up to 8 TB	24 x DDR5 DIMM slots, up to 6 TB
Drive	Large-capacity node: Up to 12 x SAS/SATA HDDs, Up to 192 TB of storage Balance node: Up to 25 x SAS/SATA HDDs, Up to 60 TB of storage High-performance node: Up to 16 x NVMe SSDs, Up to 92.16 TB of storage Compute node: Up to 8 x SAS/SATA HDDs/SSDs	Large-capacity node: Up to 12 x SAS/SATA HDDs, Up to 192 TB of storage Compute node: Up to 8 x SAS/SATA HDDs/SSDs
GPU	Large-capacity node, Balance node: Up to 5 x single-width GPUs or 2 x dual-width GPUs Compute node: Up to 8 x single-width GPUs or 4 x dual-width GPUs	
PCIe slot	Large-capacity node, Balance node: Up to 6 x PCIe slots High-performance node: Up to 2 x PCIe slots Compute node: Up to 8 x PCIe slots	Large-capacity node: Up to 6 x PCIe slots Compute node: Up to 10 x PCIe slots
NIC	GE/10GE/25GE	
Boot drive	2 x 600 GB SAS HDDs or 2 x 480 GB SATA SSDs	

05 Data Center Virtualization Applications
FusionOne HCI

Healthcare Data Center Virtualization



*HIS: Hospital Information System
*PACS: Picture Archiving and Communication System
*RIS: Radiology Information System
*LIS: Laboratory Information System
*EMR: Electronic Medical Record

Pain points

Complex business

- Applications and business needs are diverse and vary significantly. For example, HIS, EMR, and outpatient systems require high performance and low latency, while medical imaging services such as PACS require large capacity.

High performance requirements

- Core service systems, such as PACS and HIS, require extreme I/O performance.

High business continuity requirements

- The requirements for 24/7 highly reliable services must be fulfilled. Any interruption in core system operations disrupts medical services, directly affecting patient consultations and treatments.

Limited O&M capabilities

- Small and medium-sized hospitals, often lacking sufficient O&M personnel, rely on external channels for O&M, which cannot guarantee consistent O&M capabilities.

FusionOne HCI solution

Multi-resource pooling

- Storage resource pools are shared and managed in a unified manner in a cluster without interrupting computing services. This setup provides varying performance levels of storage services as well as fault isolation for VMs.

Storage pass-through

- The PACS uses the raw device pass-through technology to shorten I/O paths of storage devices and support the transparent transmission of SCSI commands. The HIS uses the SSD pass-through technology to provide high I/O performance based on the PCIe bus.

High availability (HA)

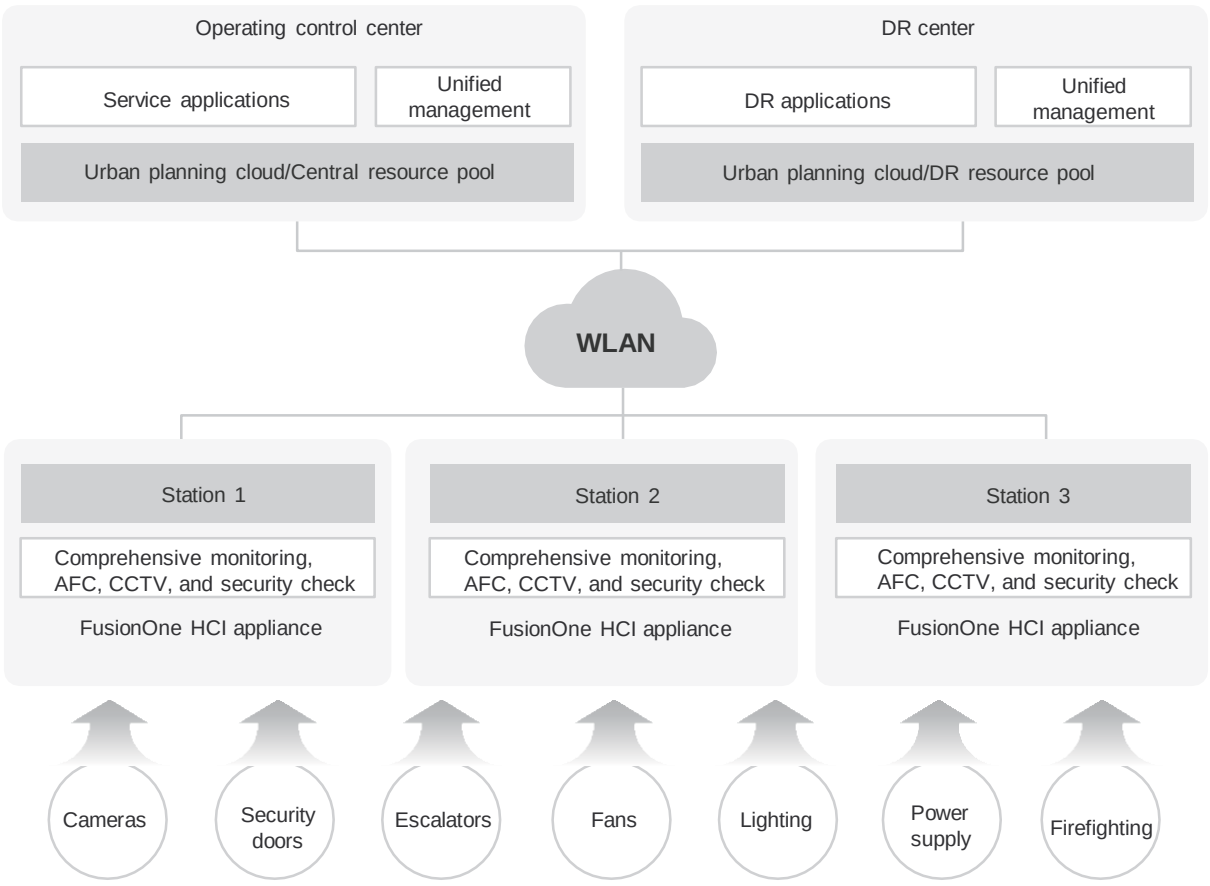
- The system automatically detects node faults and blue screens of VMs, allowing for quick recovery of VMs in case of faults. Active/Standby cluster DR ensures service continuity.

Simple O&M management

- FusionOne Center implements centralized resource allocation and simplified device management. Sub-health detection predicts system health status and system risks.

05 Enterprise Branch Applications
FusionOne HCI

Transportation Scenario



Pain points

Long deployment period

- Existing IT architectures urgently require intelligent reconstruction. New applications and algorithm models involve numerous dimensions such as crowd density, wrong-way driving, tracking, and cutting tool detection, resulting in a long deployment/upgrade period.

Difficult O&M

- Over 30 service subsystems are built in a siloed architecture that involves a large number of hardware devices, leading to low system stability and heavy O&M pressure across multi-site branches.

Resource waste and high costs

- As subsystems are built independently, resources cannot be shared and must be constructed, maintained, and used separately. This lack of data exchange leads to redundant construction.

FusionOne HCI solution

All-in-one delivery

- Compute, storage, and networking are delivered all in one, and applications are pre-integrated, pre-commissioned, and pre-optimized. With xFusion's solution implementation services, new services are deployed and rolled out within two hours.

Centralized O&M management

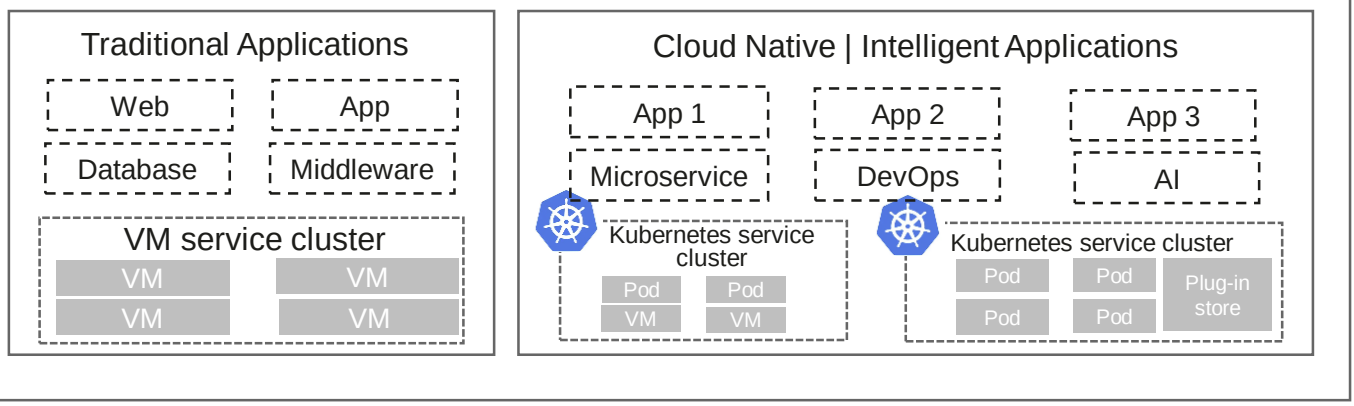
- Virtual resources, such as compute, storage, and networking are centrally monitored and maintained. Multi-cluster management software is used to manage VMs at multiple sites throughout the lifecycle and provide remote services, greatly simplifying O&M.

Elastic scaling and dynamic resource adjustment

- Infrastructure resources are pooled to support rapid and on-demand allocation, dynamic adjustment, unified management, and elastic capacity and performance expansion.

05 Cloud Native Applications FusionOne HCI

Cloud Native Scenarios



Unified Management of Multiple Clusters

VM cluster management

Container cluster management

Compute | Storage | Networking | Security

Efficient Resource Utilization and Agile Deployment

- Reuse of VM storage and network resources optimizes resource utilization.
- Wizard-based 3-step configuration and visualized configuration of container images enable agile deployment.

Open Evolution

- An open plug-in store is provided, where users can autonomously adapt and upload AI, CI/CD, IoT, and other ecosystem plug-ins, enabling continuous business evolution.

Native Deployment

- Hybrid deployment of VMs and containers, as well as native deployment of containers on bare metal, meets various base requirements.

Secure Environment

- The underlying VM environment, with more secure isolation, integrates VM HA and cross-node deployment, improving cluster reliability.

05 Key Software Features
FusionOne HCI

Computing Virtualization	- Dynamic Resource Scheduler (DRS), supporting load balancing under flexible policies - Intelligent memory overcommitment, improving VM density by 50% - Dual-engine containers, driving unified and efficient management - SDN-based network virtualization and E2E network resource management, realizing centralized management and rapid network deployment - vGPU/video memory slice of any size, decoupling service load from GPUs and CPUs - Secure data deletion, preventing information disclosure - VM HA and drive snapshots, providing high reliability in data centers - Connection with third-party SAN storage, enabling volumes connected to external storage to be used as VIMS storage for creating VMs
Distributed Storage	- Symmetrical distributed architecture, supporting concurrent I/O operations of multiple nodes - Unified storage with a set of nodes supporting block, file, and object storage - Innovative dynamic algorithms for rapid data reconstruction (1 TB in 10 minutes) - Quality of service (QoS) capability depending on bandwidth and input/output operations per second (IOPS) - Automatic thin provisioning of storage resources, providing more virtual storage resources than physical storage resources for applications - Virtual snapshots of user volume data for subsequent data restoration - Two-level cache accelerating AI training by 70%
O&M Management	- Hybrid deployment and unified management of x86 and ARM servers - Unified management of heterogeneous resource pools, simplifying O&M management and improving resource utilization - P2V/V2V/P2P/V2P migration in multiple scenarios, reducing service interruption - AI memory fault self-healing technology, minimizing server downtime - AI drive fault prediction, providing more secure data - **vGPU VM HA, enabling automatic service recovery in case of hardware or software failure** - **Boundless live migration, supporting VM live migration under SR-IOV and USB mounting scenarios** - 24/7 automatic cloud inspection, comprehensively safeguarding customer services - Physical server monitoring and turning on indicators of faulty drives - Wizard-based installation, GUI-based configuration, and one-click system initialization realizing one-click deployment - Automatic device discovery during system installation, initialization, and capacity expansion - Unified management including resource management, performance monitoring, alarm management, operation log management, permission management, hardware management, health checks, and log collection - One-click O&M including one-click capacity expansion, log collection, and health checks - Built-in OS image repository supporting one upload, available for all clusters
System Reliability	- Device-level reliability: high-reliability design for components and 30% lower failure rate than the industry average - DC-level reliability: 1 TB drive data reconstruction in 10 minutes, leading the industry - Cross-DC reliability: cross-site DR and backup with RPO close to 0 - Redundant PSUs, fan modules, networks, and nodes, ensuring system availability

More Information

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