VirtualStor™ ConvergerOne

A Hyper-Converged Platform for Rapid Innovation

In order to carry out digital transformation smoothly, and stand out in business competitions through rapid innovation, IT infrastructure must be highly flexible to meet the requirement of the rapidly changing environment. The traditional three-tier IT infrastructure is divided into computing, network, and storage resources, which greatly increases the complexity of resource expansion and subsequent management and maintenance, and is difficult to avoid information discrete causing "information islands" and resulting in inefficiency. The VirtualStor™ ConvergerOne hyper-converged platform based on software-defined and virtualization technology is the answer to the problem. VirtualStor™ ConvergerOne integrates computing, storage, and network resources, and provides an IT architecture that can deliver services agilely and has low operation and maintenance costs.

Product Features

Software Defined Infrastructure

The VirtualStor™ ConvergerOne hyper-converged platform integrates computing, storage and networking, which can be configured and managed on a unified management platform. The use of resources is more flexible, which greatly reduces the total cost of ownership (TCO), and perfectly solves the various challenges in the IT architecture.

Flexible Expansion

VirtualStor™ ConvergerOne integrates all disks in the server cluster into a virtual storage pool. Adding new nodes can increase computing resources, storage capacity, and storage performance at the same time, and can expand solely for performance or space according to needs to meet the requirements of various application scenarios. Virtual-Stor™ ConvergerOne storage resources can be connected to JBOD for scaling-up, and to VirtualStor Scaler for storage node scaling-out.

High-availability Cluster

VirtualStor™ ConvergerOne provides embedded data multiple copy mechanism (up to 10 replicas) to ensure the high availability of the embedded storage pool, which is suitable as a deployment basis for application programs. In addition, VirtualStor™ ConvergerOne provides multiple high-availability migration mechanisms for virtual machines, which make the software services reach high availability of 99.999%.

Unified Management Interface

VirtualStor™ ConvergerOne provides a unified management platform that simplifies management of computing and storage resources. It also displays current resource usage and health status of the cluster in a single Web interface management platform.

GPU and PCI Hardware Direct Access

VirtualStor™ ConvergerOne supports direct use of physical hardware resources in the server, such as GPU or other PCI interface cards, in virtual machines through Passthrough settings to meet the needs of AI scenarios or VDI virtual desktops.

Resource Isolation Settings

VirtualStor™ ConvergerOne can allocate CPU and Memory resources to system virtualization and storage services through settings. Avoiding abnormal operations due to excessive use of resources by one service.

Rapid Deployment of Application Programs

VirtualStor™ ConvergerOne adopts SDS software-defined storage technology, programming a "Virtual Storage" in the cluster, which can provide standard NAS and SAN services, access directly according to the needs of application programs, without the need of connecting to traditional NAS or SAN storage equipment. The data is actually distributed on the nodes of the host disks in the cluster. It simplifies application program deployment, and reduces the labor cost of maintaining a large number of equipment.
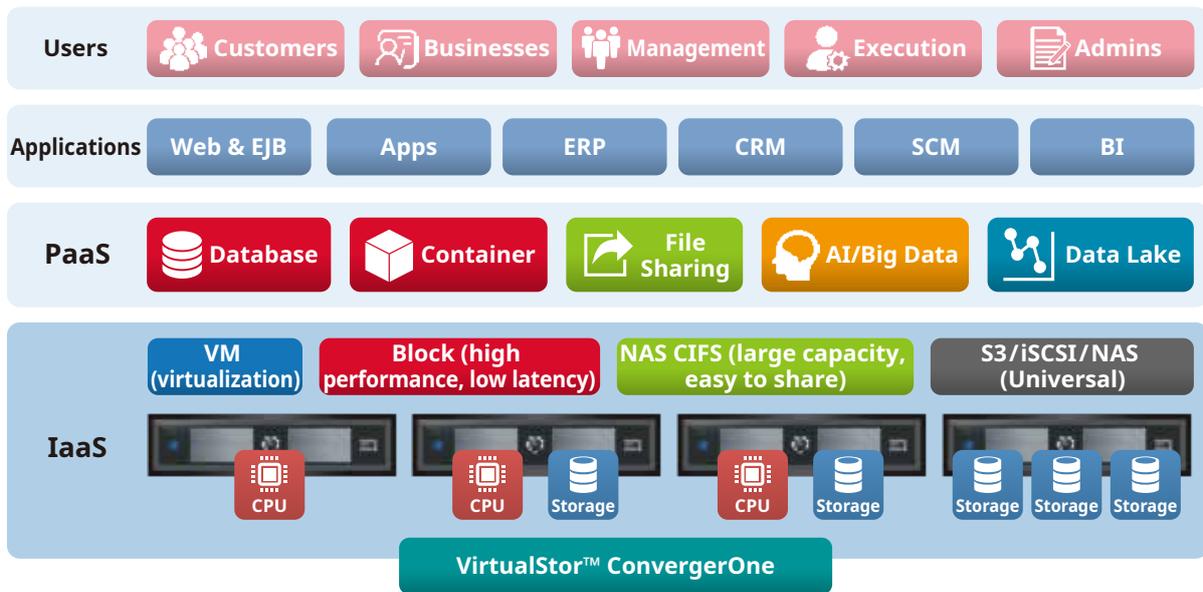
Low Total Cost of Ownership

VirtualStor™ ConvergerOne simplifies the three-tier infrastructure of traditional data centers, and integrates network, computing and storage services, thus saves the management cost of separately managing various resources. The embedded data protection mechanism also ensures high storage availability and data security.

Use and Deployment Scenarios

VirtualStor™ ConvergerOne integrates virtualization and decentralized storage for customers, providing a ready-to-use infrastructure. It is suitable as an environment for small and medium enterprises, branch offices or educational institutions to deploy various application software services or R&D testing systems. It can scale-out nodes according to the need for expanding the computing or storage capability. It can also become a more complete application program operating platform by matching with the appropriate PaaS, such as database, container (Kubernetes or Docker), big data or AI platform. The conceptual architecture is as the below figure:

Usage Scenarios

Unified management of application programs and data eliminates the need for data relocation, and saves time and cost. Establishing a sandbox for innovation through virtualization, a rapid experimentation and innovation. SaaS and PaaS software platform providers can be aligned to create a complete and ready-to-use solution.

Users	Customers	Businesses	Management	Execution	Admins
Applications	Web & EJB	Apps	ERP	CRM	SCM / BI
PaaS	Database	Container	File Sharing	AI/Big Data	Data Lake

IaaS

VM (virtualization)	Block (high performance, low latency)	NAS CIFS (large capacity, easy to share)	S3/iSCSI/NAS (Universal)
CPU	CPU Storage	CPU Storage	Storage Storage Storage

VirtualStor™ ConvergerOne

Typical Configuration

VirtualStor™ ConvergerOne can configure the hardware according to the requirements of the deployed application software. Followings are a few different configurations. For small-scale R&D testing or experimental use in educational institutions, thin configuration can be used, which configures with fewer CPU cores and memories. If the core business of the enterprise or applications such as AI require large amount of computing resources, the standard configuration can be used. For large-capacity data storage or disaster-tolerant backup, large-capacity configuration can be used.

Thin Configuration	Standard Configuration	Large-capacity Configuration
2U4N Small and Medium Private Cloud	**2U4N Small and Medium core applications**	**2U1N Large Scale Storage**
CPU 8 cores	CPU 16 cores or more	CPU 20 cores or more
Memory 64GB	Memory 192GB	Memory 256GB
SSD+HDD Hard RAID and On-demand Configuration	SSD+HDD Hard RAID and On-demand Configuration	SSD+HDD On demand Configuration of large-capacity SSD and HDD

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