VMware vSAN

The premiere modern storage software for VMware Cloud Foundation

VMware Cloud Foundation™

- VMware Cloud Foundation provides a flexible and simplified private cloud platform with public cloud extensibility that integrates leading components including vSphere (compute), vSAN (storage), NSX (networking), and management into a single solution.

- VCF is a platform that enables you to modernize infrastructure, accelerate developer productivity and provide greater resilience and security.

- VCF provides access to high-value advanced add-on services for Application and Network Security, App Platforms, Ransomware Recovery and Private AI.

As companies of all sizes embrace digital transformation, digitize new areas of the business, and adopt AI initiatives, they face a surge in demand for IT resources. They need their infrastructure to provide agility to grow with their business, and high levels of performance to accelerate their business outcomes.

Organizations across industries rely on cloud solutions to drive this innovation, agility, and efficiency. VMware, a pioneer in virtualization and cloud computing, offers a comprehensive suite of solutions designed to help organizations modernize their infrastructure and embrace the cloud with confidence. Powering these digital transformations are VMware Cloud Foundation™ (VCF), VMware vSphere Foundation (VVF) and VMware vSAN.

Modernize your infrastructure with vSAN

VMware Cloud Foundation is a full-stack, private cloud solution that supports digital transformation initiatives by enabling organizations to accelerate developer productivity—embracing cloud native and AI technologies to deliver apps and services to market faster.

vSAN is VMware's market-leading modern storage software for VMware Cloud Foundation, enabling management of compute and storage with a single, integrated platform. vSAN can also be added to VMware vSphere Foundation (VVF) to build a hyperconverged solution. vSAN delivers the agility, scalability, and performance essential for today's dynamic applications and workloads. With direct integration into VCF and VVF, vSAN ensures unmatched storage efficiency, performance, and operational simplicity.

As a core component of VMware Cloud Foundation, vSAN plays a vital role in enabling adoption of a cloud operational model in the data center. vSAN empowers organizations to build, manage, and optimize private clouds using standardized storage building blocks, with the added flexibility to integrate seamlessly with public and hybrid cloud environments.

Key vSAN capabilities

Consistent, high performance across workloads

vSAN delivers high throughput and low latency storage for your most mission-critical applications. With the added power of vSAN Express Storage Architecture, you can expect to meet or exceed workload SLAs while maintaining the highest levels of data protection and space efficiency.

vSAN at a Glance

By combining vSphere Foundation with vSAN, you can create a hyperconverged solution, combining compute, storage, and storage networking resources on industry-standard x86 servers, and using software to abstract and pool cluster resources with unified management software. Go further by virtualizing every component of the infrastructure – compute, storage, and networking, with advanced management – to build a private cloud with VMware Cloud Foundation.

Regardless of whether you choose VVF or VCF, with vSAN, you can increase business agility with automation, reducing the need for manual intervention for common tasks, while eliminating silos and accelerating decision-making. You can also increase the performance of business-critical applications because vSAN supports the latest storage technologies.

vSAN provides a common operational model for managing compute and storage by abstracting the underlying infrastructure. It is the ideal storage solution for managing traditional virtual machines (VMs) and next-generation application deployments on vSphere Foundation and VCF.

Leveraging industry-standard x86 servers for compute and storage, vSAN reduces costs by avoiding expensive, purpose-built storage and storage networking investments. As vSAN scales linearly, your organization can avoid large, upfront purchases and scale incrementally as additional resources are needed.

For more information or to purchase VMware products

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Agile scaling for deployments of all sizes

vSAN offers flexible scaling ranging from clusters as small as two nodes (plus witness) to clusters with up to 64 nodes. Whether scaling out by adding nodes to a cluster, scaling up by adding nodes to drives, or scaling compute and storage resources independently with disaggregation, vSAN enables you to customize performance and capacity to optimize storage resources and drive down costs.

Unified operations and lifecycle management

vSAN provides operational consistency from edge to cloud, with complete visibility and lifecycle management of compute and storage from a single UI. You can also expect vSAN deployment times to be up to 73% faster than traditional storage[1].

Cost-efficient capital and operating expenses

vSAN lowers operating expenses by up to 73% compared to traditional storage and drives down capital expenditure by up to 60% with high-capacity, high-performance nodes[1]. Additionally, vSAN eliminates the need for costly, proprietary technologies like fiber channel networking, further reducing costs.

Elevated storage capacity and efficiency

vSAN helps get the most out of your storage investment with innovative efficiency technologies built in. Boost storage efficiency with optimized compression methods that deliver up to 4x better compression ratios and up to 70% more usable capacity. A single-tier architecture option eliminates the need for a cache tier, further enhancing storage efficiency. vSAN enables you to store data using RAID5/6 for efficiency with performance at the speed of RAID1, eliminating a trade-off.

Integrated file services

vSAN enables easy provisioning of file shares with a single workflow and provides a unified storage control plane for both block and file storage. vSAN file services integrate Active Directory and support Kerberos network authentication and the most common protocols. vSAN file services can be used in two-node deployments and stretched cluster deployments.

VM-centric policy-based management

As part of the larger VMware Cloud Foundation stack, vSAN uniquely delivers consistent, VM-centric operations through policy-based management. Within the vSAN Express Storage Architecture™, per-VM policies increase flexibility of management, enabling compression policies, or customize data services on a per-VM basis.

Learn More

Visit Tech Zone to take a technical deep dive into vSAN.

Try vSAN online for free with VMware Hands-on Labs.

Request a free vSAN Assessment for your data center.

Visit the vSAN and VCF product pages.

Source: 1- Fellows, R., "Accelerating hybrid cloud: Comparing VMware vSAN and Fibre Channel SAN," Evaluator Group, September 2021.