

# VMware vSAN for Cloud Providers

## The hyperconverged infrastructure solution of choice for cloud providers

### AT A GLANCE

VMware vSAN powered Hyperconverged Infrastructure (HCI) enables VMware Cloud Providers to simplify operations with a tightly-integrated software-defined datacenter (SDDC) stack and to expand to reliable business opportunities beyond traditional storage solutions, including data protection, file services, VDI, and high-performant storage services at the edge. A complete end-to-end stack helps improve business agility, optimizes costs, and streamlines operations.

VMware vSAN provides a common platform for compute and storage built to support both traditional VMs and modern applications. VMware vSAN is the critical storage component of VMware Cloud Foundation, the leading private cloud solution for VMware Cloud Providers. Deploying VMware vSAN is also a key step to becoming VMware Cloud Verified.

### Market Opportunity

Multi-cloud is complex for both cloud providers and enterprises. For cloud providers, delivering services across many clouds for a multitude of customers can be complicated and redundant. Enterprises attempting to deploy, manage, and operate multi-cloud architectures without the proper systems and advisors can become very difficult and result in failures. Pivotal to multi-cloud architectures is the design and operation of the data plane. Any robust data plane design starts with a purpose-built storage solution. To that end, customers are increasingly looking to find faster, more reliable and natively-integrated storage.

An efficient storage solution touches all parts of your customer's data strategy. This includes resiliency, replication, space efficiency, cost reduction, data protection, data management, analytics, and so on. Your customer's data strategy influences performance of workloads, be it VMs, containers, functions, or data-heavy applications such as, analytics, big data processing, video and audio, and more.

### Challenges of traditional storage in multi-cloud

#### Poor Cost Optimization and Efficiency

Cloud providers face challenges managing large, upfront capex costs without the benefits of multi-tenant infrastructure with traditional storage systems. In addition, providers suffer from significant financial burn due to constraints with maintenance, support, training, lifecycle management, personnel, and more.

#### Performance Risk and Management Complexity

By implementing a storage system that is hardware intensive, cloud providers are required to manually run maintenance tools and solve interoperability problems. With traditional storage, cloud providers are forced to manage fragmented data infrastructure from multiples vendors through different management consoles using various utilities and APIs. Poor architecture design will bring slow application performance, a high volume of support requests, and ultimately fails to deliver the true value of a cloud platform.

#### Inhibits Flexible and Future-Ready Infrastructure

Legacy, three-tier infrastructure with manual processes and high costs inhibits businesses' abilities to adapt to new market conditions. The need of today is cloud, container-ready storage to deploy next-gen applications.

**KEY BENEFITS**

- Lower cost of total ownership
- Easily scale capital on-demand
- Simplify storage resource provisioning
- Automate storage policies and profiles management
- Deploy enhanced stretched clusters
- Offer native data encryption
- Ease lifecycle management with a single software stack
- Accelerate deployment with tight integration to VMware Cloud stack
- Reduce resources on infrastructure and increase service delivery focus

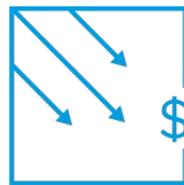
**LEAD THE MARKET WITH VMWARE vSAN**

Over 200 top VMware partners that have achieved Cloud Verified are all deploying vSAN.

**Why VMware vSAN?**

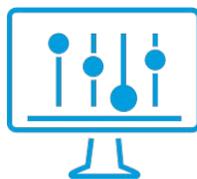
Hyperconverged Infrastructure (HCI) provides a path to a secure and modern infrastructure that simplifies management, consolidates resources and reduces costs by combining compute, storage, and networking into a single system. VMware vSAN, the industry-leading HCI solution, has cloud provider-specific capabilities such as native automation, multitenancy, built-in analytics, and easy integration with cloud platforms.

**Benefits of VMware vSAN for Cloud Providers**



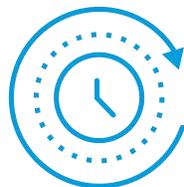
**Cost Effectiveness and Operational Efficiency**

VMware vSAN is a cost-effective solution that helps providers substantially reduce capex and opex as virtualization and storage teams converge to make business processes more streamlined. With a lower complexity of design and reduced footprint, it's easier to train IT and support teams to streamline deployment and utilization. Providers also benefit from low upfront investment and incremental costs associated with granular scaling that can be closely aligned with sales motions.



**Improved Performance and Manageability**

By choosing VMware vSAN, you can benefit from the many performance and management optimizations of a modern storage solution in a complete end-to-end software stack—from storage to compute to networking. With simplified architecture and policy-based management, providers will see fewer support cases resulting in higher staff productivity and improved customer satisfaction. VMware vSAN also integrates with VMware Cloud Director to enable simplified self-service and optimized resource utilization that helps your customers achieve a faster time to deployment.



**Building a Future-Proof Cloud Infrastructure**

With a steady rise in the volume of enterprise data and a growing interest in cloud native storage, providers need an extensible storage solution with APIs and cmdlets to build a future-proof cloud infrastructure and ensure business continuity for customers. VMware Cloud Providers using VMware vSAN also benefit from a consolidated vendor model that alleviates interoperability complications with other technologies and drastically reduces the time to production.

These core benefits are delivered by the strong set of innovations and features in VMware vSAN. VMware vSAN is the #1 HCI solution that delivers a differentiated set of features that can specifically help you build a competitive cloud offering, whether multi-tenant or private cloud. With these benefits, you can deliver new storage-as-a-service capabilities.

“When we chose to build our new Cloud Director environment, we wanted to reduce our capital expenditure and the complexity of our storage platform. Our traditional platform has been reliable, but we're always looking towards continual improvement and faced some challenges with it. For example, finding labor to implement and manage it has been a challenge and it takes significantly longer for resources to be competent with the deployment and management of it at a service provider scale. vSAN is easy to implement, support, train, and, most importantly, costs nothing until it's used, making the ROI much faster than our traditional storage platforms.”

---

TIM GROSSHUESCH  
SYSTEMS ARCHITECT  
ATOMIC DATA

## Services You Can Offer with VMware vSAN

### Private Cloud

Offer VMware vSAN-backed tenant isolation for customers that need higher security and sovereignty. Private cloud remains one of the most critical cloud services as more enterprises transition to cloud. Providers can easily start delivering private cloud to customers in highly regulated industries, then expand to more value-added services such as disaster recovery, network security and monitoring as your customers' needs evolve.

[Flexential](#), a VMware Cloud Provider based in North Carolina and focused on datacenter solutions, ensures customer data is protected with reliable and modern VMware Cloud infrastructure in order to provide customers in legal services with private cloud solutions.

### Multi-tenant Public Cloud

VMware vSAN has seamless integration with VMware Cloud Director. With this joint solution, you can leverage multitenancy capabilities of VMware Cloud Director to offer shared and securely isolated pools of storage resources to multiple customers from the same infrastructure. This allows you to optimize your investments and easily scale your cloud offerings as your customer base increases.

### Virtual Desktop Infrastructure (VDI)

Simple virtualized storage powered by VMware vSAN for VMware Horizon enables you to offer a highly performant VDI service. With enterprises shifting towards distributed workforces, providers have the opportunity to enable resiliency and productivity with vSAN-backed VDI and VMware Horizon.

[Dizzion](#), based in Colorado and focused on end-user computing solutions, delivers secure, high-performant virtual workspace experiences to its customers, leveraging a combination of vSAN and Horizon running on a complete VMware Cloud infrastructure stack.

### Remote Office Branch Office (ROBO) / Edge

Extend and deploy hyperconverged cloud storage to edge environments and remote branches with VMware vSAN. This is another fast-growing use case as enterprises continue to embrace highly distributed and remote workforces.

### Disaster Recovery

With VMware vSAN, you can provide a secondary site with a high level of availability as part of a secure disaster recovery offering to your customers. This helps you manage both datacenters under the same UI, stretched clusters between them, and optimize your recovery time and recovery point objectives.

[T-Mobile](#), in the Czech Republic, uses VMware vSAN to power their automated disaster recovery solution, providing them with low downtime and enterprise resiliency when they need it most.

## Key Features of VMware vSAN for Cloud Providers

- **Full SDDC stack integration with VMware Cloud Director** – vSAN completes the full software-defined datacenter stack and tightly integrates with Cloud Director to converge compute, storage, and network into one shared system for multiple customers. Provider partners using NSX base and Cloud Director in the Flex Core Bundle can benefit from the end-to-end stack with vSAN. This helps optimize the data I/O path to provide the highest levels of performance with minimal impact on CPU and memory in a multi-tenant capacity.
- **Cloud native storage** –vSAN cloud native storage supports all key storage API objects within Kubernetes. With minimal effort, developers can choose a policy-driven storage class for their pods and automatically mount the volume. vSAN supports block and the most common file protocols.
- **VM-centric policy-based management** – vSAN is part of the larger VMware Cloud Foundation stack that uniquely delivers consistent, VM-centric operations through policy-based management. Using simple policies, common tasks are automated and storage resources are balanced to reduce management time and optimize HCI efficiency
- **Unified management** – vSAN natively integrates with VMware Cloud Foundation, removing the need for training and operating specialized storage interfaces. vSAN uses a modern HTML5-based web client. VMware vRealize Operations within vCenter enables rapid visibility into a vSAN deployment with broad monitoring and deep analytics, all from vCenter.
- **VMware HCI Mesh™** – VMware HCI Mesh is a unique, software-based approach for disaggregation of compute and storage resources to enable native capacity utilization across clusters. VMware HCI Mesh supports up to 64 hosts across clusters in a mesh and a client cluster can mount up to five remote datastores.
- **Deduplication and compression** – Software-based deduplication and compression optimizes all-flash storage capacity, providing as much as 7x data reduction with minimal CPU and memory overhead. Compression-only is now available for environments with balanced space efficiency and performance requirements. The compression-only option reduces the failure domain from the disk group to an individual disk.
- **vSAN Encryption** – vSAN Encryption is built for compliance requirements, FIPS 140-2 validated, and offers simple key management with support for all KMIP compliant key managers. Native vSAN Encryption provides data-at-rest and data-in-transit security at the cluster level and supports all vSAN features.
- **Stretched clusters with local protection** – Robust stretched clusters with site and local protection replicating data between two separate sites enable enterprise-level availability with no data loss and near zero downtime. Users can set granular protection on a per-VM basis and nondisruptive change policies resulting in 50%lower costs than the leading traditional solution.
- **Integrated file services** – Easily provision a file share with a single workflow and use vSAN as a unified storage control plane for both block and file storage. vSAN file services integrate Active Directory, and support Kerberos network authentication, common protocols – NFS v3, NFS v4.1, SMB v2.1, SMB v3 – and cloud native applications orchestrated by Kubernetes.
- **Full-featured PowerCLI** – vSAN provides the ease and scalability of enterprise-class automation with a set of full-featured PowerCLI cmdlets. New SDK and API updates enable more enterprise-class automation by supporting REST APIs.

#### LEARN MORE

To get started with VMware vSAN or learn more about the solution, refer to the following resources:

- [VMware vSAN product page](#)
- [VMware vSAN on YouTube](#)
- [VMware vSAN Blog](#)
- [VMware vSAN technical resources on StorageHub](#)
- [VMware vSAN Sizer Tool](#)

#### Key Features of VMware vSAN for Cloud Providers (cont.)

- **Built-in failure tolerance and advanced availability** – vSAN leverages distributed RAID and cache mirroring to ensure data is never lost in a failure. vSphere Replication for vSAN provides asynchronous VM replication with recovery point objectives (RPOs) of up to five minutes. New always-on features deliver a highly available management stack and intelligent rebuilds accelerate recovery.
- **vSAN Data Persistence platform** – VMware vSAN Direct Configuration™ provides an alternative option for modern stateful services to interface directly with the underlying direct-attached storage for optimized I/O and storage efficiency. Platform and application development teams can leverage Kubernetes APIs and developer tools for self-service provisioning and scaling, while IT operators can easily deploy and manage these modern stateful services in vCenter.

For a full list of features, refer to the [VMware vSAN Datasheet](#).