



VMware Virtual SAN 6.2 - Simple Storage for Hyper-converged Infrastructure

VMware® Virtual SAN™ is VMware's software defined storage solution for Hyper-Converged Infrastructure. Seamlessly embedded in the hypervisor, vSAN delivers enterprise-ready, high-performance shared storage for VMware.

Seamless integration with vSphere and the entire VMware stack makes it the simplest storage platform for virtual machines—whether running critical applications, virtual desktops or remote server room apps.

What is Virtual SAN?

VMware Virtual SAN is radically simple, enterprise-class native storage for VMware Hyper-Converged Software solutions. Uniquely embedded in the hypervisor, Virtual SAN delivers high performance, flash-optimised hyper-converged storage for any virtualised application at a fraction of the cost of traditional, purpose-built storage and other less-efficient hyper-converged infrastructure solutions.

Virtual SAN clusters server-attached flash devices and/or hard disks to provide a flash-optimised, highly resilient shared datastore suitable for a variety of workloads including business-critical applications, virtual desktops, remote IT, DR, and DevOps infrastructure.

Architecture and Performance: Uniquely embedded within the hypervisor, Virtual SAN sits directly in the I/O data path, in the best position to make rapid data placement decisions. As a result, Virtual SAN is able to deliver the highest levels of performance without taxing CPU or memory resources, as compared to other storage virtual appliances and HCI software stacks that run separately on top of the hypervisor. Virtual SAN can be configured as all-flash or hybrid storage, delivering over 6M IOPS with an all-flash architecture.

Key Benefits

- **Radically Simple** – Deploy with 2-clicks through the standard vSphere Web Client and automate management using storage policies.
- **High Performance** – Flash accelerated for high IO throughput and low latency. Deliver up to 7M IOPS with predictable sub-millisecond response time from a single, all-flash cluster.
- **Elastic Scalability** – Elastically grow storage performance and capacity by adding new nodes or drives without disruption. Linearly scale capacity and performance from 2 to 64 hosts per cluster.
- **Lower TCO** – Lower storage TCO by up to 50% by deploying standard x86 hardware components for low upfront investment and by shrinking data center footprint and operational overheads.
- **Enterprise High Availability** – Enable maximum levels of data protection and availability with asynchronous long distance replication and stretched clusters.
- **Advanced Management** – Single pane of glass management for storage, compute and networking with advanced performance monitoring, capacity.

Storage Efficiency: vSAN delivers advanced storage features, including deduplication, compression and erasure coding, capable of delivering up to 10x greater storage utilisation with dramatically lower storage capacity and costs. The efficiency features work seamlessly together on any workload with minimal additional resource overhead, a significant advantage compared to other hyperconverged solutions.

Scalability: vSAN has a distributed architecture that allows for grow-as-you-go, non-disruptive scaling from 2 to 64 hosts per cluster. Both capacity and performance can be scaled at the same time by adding a new host to the cluster (scale-out); or capacity and performance can be scaled independently by merely adding new drives to existing hosts (scale-up).

Management and Integration: vSAN does not require any additional software to be installed. It can be enabled in a few, simple clicks. It is managed from the vSphere Web Client and integrates with the VMware stack including key features like vMotion®, High Availability, and Fault Tolerance as well as other VMware products such as VMware Site Recovery Manager™, VMware vRealize® Automation™ and vRealize Operations™.

Automation: VM storage provisioning and storage service levels are automated and controlled through VM-centric policies that can be set or modified on-the-fly. Virtual SAN dynamically self-tunes, adjusting to ongoing changes in workload conditions to load balance storage resources, ensuring each VM adheres to the storage policies defined for it.

System Requirements

Cluster Size: Min. 2 hosts – Max. 64 hosts

Hardware Host

- 1GB NIC; 10GB NIC recommended
- SATA/SAS HBA or RAID controller
- At least one flash caching device and one persistent storage disk (flash or HDD) for each capacity-contributing node

Software

- One of the following: VMware vSphere 6.0 U2, VMware vSphere with Operations Management™ 6.1, or VMware vCloud Suite® 6.0 (any edition updated with vSphere 6.0 U2)
- VMware vCenter Server 6.0 U1

If you would like to find out more information about VMware vSAN software-defined storage solutions, organise an assessment or a free trial then please contact a Krome Business Manager on **01932 232345** or email sales@krome.co.uk

Key Features & Capabilities

Kernel embedded: vSAN is built into the vSphere kernel, optimising the data I/O path to provide the highest levels of performance with minimal impact on CPU and memory.

Flash-Optimised: vSAN minimises storage latency by accelerating read/write disk I/O traffic with built-in caching on server-side flash devices. Virtual SAN all-flash can be deployed for as low as \$1 per GB of usable capacity – over 50% less than the cost of competing hybrid hyper-converged solutions.

NEW: Deduplication and Compression: Software-based deduplication and compression optimises all-flash storage capacity, providing as much as 7x data reduction with minimal CPU and memory overhead.

NEW: Erasure Coding: Erasure Coding increases usable storage capacity by up to 100% while keeping data resiliency unchanged. It is capable of tolerating one or two failures with single parity or double parity protection.

NEW: Quality of Service (QoS): QoS controls, limits and monitors the IOPS consumed by specific virtual machines, eliminating noisy neighbor issues.

Virtual SAN Health Service: The updated Health Service provides integrated hardware compatibility checks, performance monitoring, storage capacity reporting and diagnostics directly from VMware vCenter Server™.

Single pane of glass management with vSphere: Virtual SAN removes the need for training and operating specialized storage interfaces. Provisioning is now as easy as two clicks.

VM-centric policy-based management: Virtual SAN uses storage policies, applied on a per-VM basis, to automate provisioning and balancing of storage resources to ensure that each virtual machine gets the specified storage resources and services.

Built-in failure tolerance and advanced availability: Virtual SAN leverages distributed RAID and cache mirroring to ensure that data is never lost if a disk, host, network or rack fails. It seamlessly supports vSphere availability features like vSphere Fault Tolerance, vSphere High Availability, etc. vSphere Replication™ for Virtual SAN provides asynchronous VM replication with RPOs of up to 5 minutes.

Virtual SAN Stretched Cluster: Creates a stretched cluster between two geographically separate sites, synchronously replicating data between sites. It enables enterprise-level availability where an entire site failure can be tolerated, with no data loss and near zero downtime.