VMware Virtual SAN 6.2
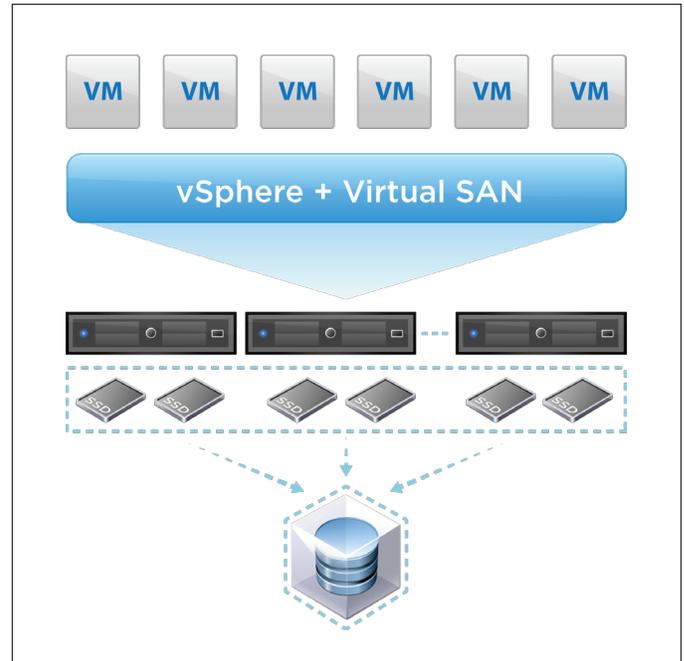Radically Simple Storage for Hyper-Converged Infrastructure

VMware Virtual SAN™ is radically simple, enterprise-class storage for VMware Hyper-Converged Software solutions. Uniquely embedded in the hypervisor, Virtual SAN delivers flash-optimized, high-performance storage for hyper-converged infrastructure. It leverages commodity x86 components that easily scale to drastically lower TCO by up to 50% and deliver all-flash solutions for as low as half the price of competitive hybrid HCI systems. Seamless integration with VMware vSphere® and the entire VMware stack makes it the simplest storage platform for virtual machines—whether running business-critical applications, virtual desktops or remote IT applications.

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 over 6M 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 Availability – Enable maximum levels of data protection and availability with built-in failure tolerance, asynchronous long distance replication and stretched clusters.

• Advanced Management – Single pane of glass management for storage, compute and networking with advanced performance monitoring, capacity.

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-optimized hyper-converged storage for any virtualized 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-optimized, 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.

vmware®

Storage Efficiency: Virtual SAN delivers advanced storage features, including deduplication, compression and erasure coding (RAID 5/6), capable of delivering up to 10x greater storage utilization with dramatically lower storage capacity and costs. The efficiency features work seamlessly together on any workload with minimal (typically <5%) additional resource overhead, a significant advantage compared to other hyper-converged solutions.

Scalability: Virtual SAN 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: Virtual SAN 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 (HA), and Fault Tolerance (FT) 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 (e.g. capacity, performance, availability) 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.

Key Features and Capabilities

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

Flash-Optimized: Virtual SAN minimizes 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.

Granular non-disruptive scale-up or scale-out: Non-disruptively expand capacity and performance by adding hosts to a cluster (scale-out) or just grow capacity by adding disks to a host (scale-up).

NEW: 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.

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.

Deployment Options

Virtual SAN is available via a broad set of consumption models—from the jointly-engineered appliances providing the most streamlined deployment of VMware Hyper-Converged Software, to over a hundred pre-certified Virtual SAN Ready Nodes available from all major server vendors. Learn more here.

System Requirements

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

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

Virtual SAN Ready Nodes and Hardware Compatibility List
Available here

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

• VMware vCenter Server 6.0 U1

Learn More

Learn how others are using Virtual SAN: Customer Stories

Try online for free: Virtual SAN Hands on Lab

Request a free VSAN Assessment for your data center.

For more information or to purchase VMware products, call 877- 4 -VMWARE (outside North America, +1-650 -427-5000), visit http://www.vmware.com/products, or search online for an authorized reseller. For detailed product specifications and system requirements, refer to the vSphere documentation.