VMware Virtual SAN 6.1
Radically Simple Storage for Hyper-converged Infrastructure

VMware® Virtual SAN™ is VMware's software-defined storage solution for Hyper-Converged Infrastructure (HCI). Seamlessly embedded in the hypervisor, Virtual SAN delivers enterprise-ready, high-performance shared storage for VMware vSphere® Virtual Machines. It leverages commodity x86 components that easily scale to drastically lower TCO by up to 50%. Seamless integration with vSphere and the entire VMware stack makes it the simplest storage platform for virtual machines—whether running business-critical applications, virtual desktops or remote server room apps.

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 reducing operational overhead.

- 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 from vSphere with advanced storage performance monitoring, troubleshooting and capacity planning capabilities.

What is Virtual SAN?

VMware Virtual SAN is VMware's software-defined storage solution for hyperconverged infrastructure, a software-driven architecture that delivers tightly integrated compute, networking and shared storage from a single, virtualized x86 server. Virtual SAN delivers high performance, highly resilient shared storage by clustering server-attached flash devices and/or hard disks (HDDs).

Virtual SAN delivers enterprise-class storage services for virtualized production environments along with predictable scalability and all-flash performance—all at a fraction of the price of traditional, purpose-built storage arrays. Just like vSphere, Virtual SAN provides users the flexibility and control to choose from a wide range of hardware options and easily deploy and manage it for a variety of IT workloads and use cases. Virtual SAN can be configured as all-flash or hybrid storage.

Architecture and Performance: Uniquely embedded within the hypervisor kernel, Virtual SAN sits directly in the I/O data path. As a result, Virtual SAN is able to deliver the highest levels of performance without taxing the CPU with overhead or consuming high amounts of memory resources, as compared to other storage virtual appliances that run separately on top of the hypervisor. Virtual SAN can deliver up to 7M IOPS with an all-flash storage architecture or 2.5M IOPS with a hybrid storage architecture.

Scalability: Virtual SAN has a distributed architecture that allows for elastic, 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). This "Grow-as-you-Go" model provides linear and granular scaling with affordable investments spread out over time.

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 features like vMotion®, HA, Distributed Resource Scheduler™ (DRS) 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 and load balancing storage resources, ensuring each VM adheres to the storage policies defined for it. This policy-driven approach automates manual storage tasks and makes storage management for virtual machines simpler.

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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 resources.

All-Flash or hybrid architecture – Virtual SAN can be used in all-flash architecture for extremely high and consistent levels of performance or in a hybrid configuration to balance performance and cost.

NEW: Expanded enterprise-readiness – Now in its third generation, Virtual SAN 6.1 adds key enterprise-class features, including support for vSphere Fault Tolerance, asynchronously replicating VMs across sites based on configurable schedules of up to 5 minutes, continuous availability with stretched clusters and major clustering technologies including Oracle RAC and Microsoft MSCS.

Granular non-disruptive scale-up or scale-out – Non-disruptively expand the capacity of the Virtual SAN datastore by adding hosts to a cluster (scale-out) to expand capacity and performance or disks to a host (scale-up) to add capacity or performance.

Single pane of glass management with vSphere – Virtual SAN removes the need for training on specialized storage interfaces or the overhead of operating them. 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.

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

NEW: Advanced management – Virtual SAN Management Pack for vRealize Operations delivers a comprehensive set of features to help manage Virtual SAN, including global visibility across multiple clusters, health monitoring with proactive notifications, performance monitoring and capacity monitoring and planning. The Health Check Plug-in complements the management pack for additional monitoring including HCL compatibility check and real-time diagnostics.

Server-side read/write caching – Virtual SAN minimizes storage latency by accelerating read/write disk I/O traffic with built-in caching on server-side flash devices.

Built-in failure tolerance – Virtual SAN leverages distributed RAID and cache mirroring to ensure that data is never lost if a disk, host, network or rack fails.

Deployment Options

Certified Hardware: Control your hardware infrastructure by choosing from certified components on the hardware compatibility list, which contains different performance profiles, form factors and vendors. Refer to: http://vmware.com/go/virtualsan-hcl

Virtual SAN Ready Nodes: Select a pre-configured hardware solution that is certified to run Virtual SAN; available from all major OEM vendors. For details and options refer to: partnerweb.vmware.com/programs/vsan/Virtual%20SAN%20Hardware%20Quick%20Start%20Guide.pdf

VMware EVO:RAIL™: Deploy VMware compute, networking and storage resources rapidly through a Hyper-Converged Infrastructure appliance. It offers a simple, easy to manage all-in-one solution combining hardware, software and support, offered by EVO:RAIL partners.

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
• Minimum cluster size: two hosts

Hardware Compatibility List
http://vmware.com/go/virtualsan-hcl

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

Learn More

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.

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