

# VMware Virtual SAN with Horizon

## AT A GLANCE

VMware Virtual SAN™ with Horizon® delivers radically simple storage for virtual desktops and apps. With just a few clicks, IT administrators can provision this VMware vSphere®-embedded, enterprise-ready storage solution and begin managing it with familiar VMware vCenter™ tools. Virtual SAN supercharges industry-standard x86 servers, HDDs, and SSDs to create a high-performance, low-cost datastore for desktops and apps. It gives Horizon deployments granular, elastic storage capacity that grows without forklift upgrades. Virtual SAN is included in VMware Horizon Enterprise and Horizon Advanced Editions.

## KEY BENEFITS

- Superior desktop and app performance at scale to improve user experience
- All-flash and hybrid configurations to meet performance and cost goals
- Storage you set up in just a few clicks and manage with familiar vCenter tools
- Pay-as-you-grow affordability with granular scaling, letting you add storage performance and capacity in small, manageable increments
- Automated self-tuning that rebalances storage resources to align with desktop and application demand
- Workload resiliency and business continuity with stretch-cluster support for Horizon

## Addressing the Storage Challenge for Desktop Transformation

Organizations are looking to desktop and app virtualization to achieve greater business agility and worker mobility. The transition from physical to virtual can seem overwhelming, however, when IT administrators consider the impact on their storage architecture. VMware Virtual SAN solves the problems of storage cost and complexity by giving you a high-performance, flash-accelerated datastore you can enable with just a few clicks and grow affordably without large capital investments.

### Designing Storage for Virtual Desktops and Apps

In physical desktops, storage is co-resident with the CPU, and every user has a local, dedicated disk. In virtual desktops and apps, however, hundreds or even thousands of users share storage that is separated from end-user devices and compute resources by distance and network. Given these conditions, IT must ensure that datacenter storage provides sufficiently high IOPS and sufficiently low latency to ensure a “just-like-physical” user experience.

Traditionally, IT departments purchase expensive, standalone storage systems to provide the performance and scale required for virtual desktops and apps. This approach requires large upfront capital investments, as well as many hours of IT time designing storage infrastructure and managing proprietary storage interfaces after installation. These architectures incur high ongoing operational costs, are difficult and expensive to scale, and may fall short of expectations when faced with the demands of virtual desktops and apps.

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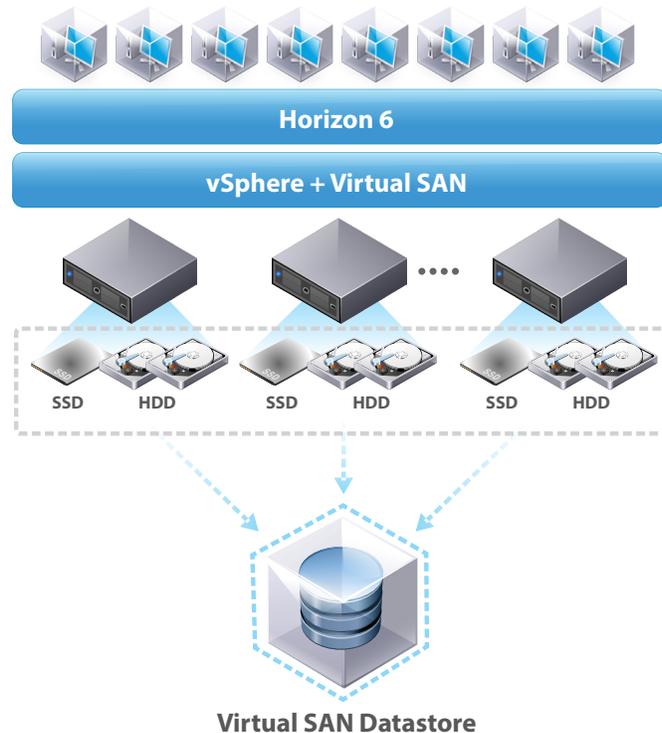
VMware Virtual SAN with Horizon delivers radically simple storage, superior performance that scales, and pay-as-you-grow affordability for desktop and app virtualization.

With Virtual SAN, storage is simple but powerful. Your IT team uses the same vCenter tools they already know to provision storage and manage automatic storage policies, making storage part of the normal VM-creation-and-management workflow.

Virtual SAN also helps you shrink costs, providing desktop-worthy levels of IOPS and sub-millisecond latency from industry-standard x86 servers, SSDs, and HDDs. When you need more desktop or app capacity, Virtual SAN lets you add just the SSDs and HDDs needed, avoiding the expense of adding a complete storage system and the common (but expensive) practice of over-provisioning for IOPS. If your storage needs grow quickly, you can easily add Virtual SAN nodes running on standard x86 servers, SSDs, and HDDs.

### How It Works

Virtual SAN is embedded directly into the vSphere kernel, giving it a unique position in the hypervisor I/O path and making it more efficient than solutions that rely on virtual appliances. It pools server-attached SSDs and HDDs to create a distributed, shared datastore, providing a software-defined storage tier for virtual desktops and apps. The storage tier delivers exceptional performance and minimizes storage latencies by caching and buffering I/O traffic using server-side flash.



**Figure 1:** Virtual SAN with Horizon Architecture

### Reduced Cost and Complexity

Virtual SAN with Horizon reduces the cost and complexity associated with storage for virtual desktops and apps.

### Radically Simple Storage for Desktops and Apps

Virtual SAN simplifies managing and automating storage for desktops and apps by eliminating traditional, purpose-built storage systems and by letting IT use familiar vCenter tools rather than proprietary storage-management interfaces. Virtual SAN integrates storage policies into the VM-creation workflow, ensuring each virtual desktop automatically has the type of storage it needs. There are no additional VMs or virtual appliances to install; you can enable Virtual SAN with just a few clicks. Virtual SAN lets you set automated storage policies at the VM level, allowing storage to self-tune and balance according to desktop and app demand.

### Superior Performance at Scale for a Just-Like-Physical Experience

Virtual SAN delivers the storage performance critical to ensuring virtual desktops and apps meet the expectations of users accustomed to physical devices. It is embedded directly into the vSphere hypervisor in the I/O data path, giving you the highest level of performance without taxing the CPU with additional overhead like virtual storage appliances, which run separately on the hypervisor. In all-flash deployments, Virtual SAN delivers up to 90K IOPS per host with consistent sub-millisecond response times. In hybrid deployments with flash and magnetic disks, Virtual SAN delivers top-end performance out of industry-standard hardware by using SSDs for read caching/write buffering and HDDs for data persistence, balancing performance and cost requirements.

### Pay-As-You-Grow Affordability with Reduced CapEx

Virtual SAN provides a distributed architecture that allows for elastic, non-disruptive scaling. 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 adding new drives to existing hosts (scale-up, adding SSD for performance or HDD for capacity). This “grow-as-you-go” model provides predictable, linear scaling with affordable investments spread out over time. Virtual SAN is included with Horizon Advanced and Horizon Enterprise Editions, giving you an easy path to greater desktop virtualization ROI and reduced TCO.

### Learn More

For more information on Horizon and Virtual SAN, visit the VMware Web site and follow us on Twitter.

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[VMware Horizon 6 product page](#)

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