

## Solution Snapshot

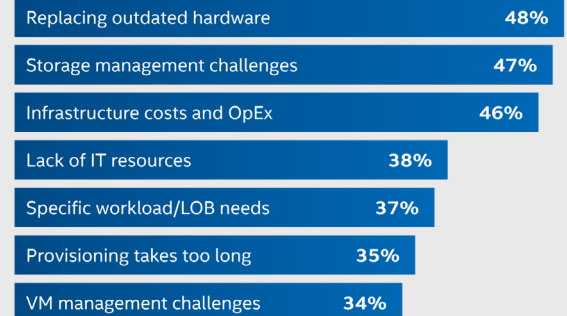
# VMware vSAN



## The Challenge

**Top IT Challenges Prompting the Purchase of Hyperconverged Infrastructure.<sup>1</sup>**

Enterprises can deploy vSAN to enable an easier transition toward a hybrid and multi-cloud environment.



### Use Cases:



**Business Critical Applications**



**Virtual Desktop Infrastructure (VDI)**



**Remote and Branch Offices**



**Disaster Recovery**

## VMware vSAN Overview + Benefits

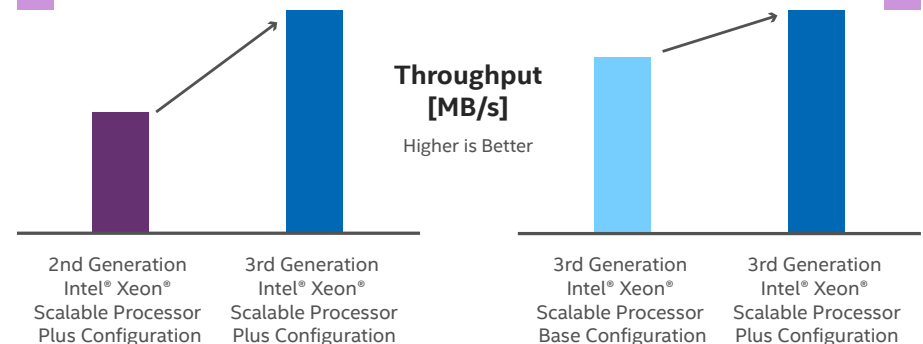
VMware vSAN is enterprise-class, storage virtualization software that, when combined with vSphere, helps to manage compute and storage with a single platform. With vSAN, companies can reduce the cost and complexity of traditional storage, leveraging it for a hyperconverged infrastructure for a hybrid cloud solution. Benefits of using VMware vSAN:

- **Simplicity** - The provisioning and management of VMware vSAN is simple and embedded in the vSphere hypervisor.
- **Agility** - VMware vSAN is a storage solution that doesn't follow the one-size-fits-all strategy, instead allowing administrators to invest incrementally and scale as you need to meet your enterprise demands
- **Manageability** - VMware vSAN is easy to set up, manage, and provision.
- **Lower Total Cost of Ownership (TCO)** - VMware vSAN can run on a highly scalable infrastructure. With vSAN, storage can be easily deployed and managed with the VMs - no specialized skillset required.

**Intel Optimizations for vSAN result in better performance and reduced latency<sup>2</sup>**

**+57%** Improved Throughput  
COMBINED WITH  
**16%** Reduced Latency  
(gen-over-gen)

**+22%** Improved Throughput  
COMBINED WITH  
**6%** Reduced Latency  
(Base versus Plus configuration)



# Why Intel for VMware vSAN?



## Optimized Performance

Capitalize on the capabilities of 3rd gen Intel® Xeon® Scalable processors including Intel® Volume Management Device (VMD) for NVMe device serviceability and PCIe Gen 4 device support to **see up to double the throughput.**

VMware and Intel collaborated to support and optimize products like **vSphere** and **Intel® Optane™ Persistent Memory.**



## Outstanding Cost-Effectiveness

**Support** for Intel® Optane™ Persistent Memory 200 Series can cost-effectively expand the capacity of memory available to enable more or larger VMs, leading to an **81% Price Performance support improvement gen-over-gen.<sup>2</sup>**



## Simplicity and Flexibility

VMware vSAN performs best when the cache tier is on fast SSDs with low latency and high endurance.

**Intel® Optane™ P5800X SSDs** offer high input/output (I/O) operations per second (IOPS) per dollar with low latency resulting in breakthrough performance.



## Adding Scalability and Efficiency

VMware vSAN now supports **RDMA.**

Paired with 3rd gen Intel® Xeon® Scalable processors, Intel® Ethernet 800 Series Network Adapters enables users to **scale further, increase efficiency, and lower latency.**

# Want More Information?

## What are Intel® Select Solutions?

Workload-optimized configurations designed to minimize the challenges of infrastructure evaluation and deployment. These solutions are benchmark-tested and verified by Intel for performance and reliability.

## Resources

[VMware and Intel Global Alliance Partnership](#)

[Intel and VMware Partnership](#)

[Intel® Select Solutions](#)

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<sup>1</sup> VMware, App Modernization in a Multi-Cloud World Market Study of 1,205 organizations

BASELINE: Intel® Xeon® Gold 8268 Processor – 1536 GB DCPMM (CLX Config): 4 Node, 2x Intel® Xeon® Platinum 8268 Processor, 1x Server Board S2600WF0R, Total Memory 1536 GB (2LM) – 384 GB DRAM (12 slots/ 32GB/ 2666 MHz) + 1536 GB DCPMM 100 (12 slots/128GB DCPMM/2666MHz), Hyper-Threading: Enable, Turbo: Enabled, Intel® VMD: Disabled, BIOS: SE5C6200.86B.02.01.0011.032620200659 (ucode:0x05002f00, Storage (boot): 1x 480 GB Intel® SSD S4510 Series SATA, Storage (cache): 2x 375 GB Intel® Optane™ DC SSD P4800X Series, Storage (capacity): 6x 2 TB Intel® SSD DC P4510 Series PCIe NVMe, Network devices: 1x Intel® Ethernet CNA XXV710-DA2 at 25 GbE, Network speed: 25 GbE, OS/Software: VMware 7.0.1, 17325551, Test by Intel as of 4/6/2021 using HCI Bench 2.5.3 8k profile (I/O size 8k, Read percentage 70%, Random percentage 100%, #VMs per cluster 16, vCPU 4, vRAM 8, # data disks per VM 16, size of disk 50GB), Baseline: Throughput 2655 MB/s, latency 1.69ms. Estimated system cost is \$54,648.

<sup>2</sup> Intel® 3rd Generation Intel® Xeon® Processor Base: Intel® Xeon® Gold 6330 Processor – 512GB DRAM. 4-node, 2x Intel® Xeon® Gold 6330 Processor, 1x Server Board M50CYP2UR, Total Memory 512 GB (16 slots/ 32GB/ 3200 MHz), Hyper-Threading: Enable, Turbo: Enabled, Intel® VMD: Disabled, BIOS: SE5C6200.86B.0022.D08.2103221623 (ucode:0x0d000270), 1x 512 GB Intel® SSD P4101 Series, Storage (cache): 2x 400 GB Intel® Optane™ DC SSD P5800X Series, Storage (capacity): 6x 4 TB Intel® SSD DC P5510 Series PCIe NVMe, Network devices: 1x Intel® Ethernet E810-XXVAM2 at 25 GbE, Network speed: 25 GbE, RDMA RoCE: disabled, OS/Software: VMware 7.0.2, 17630552, Test by Intel as of 4/5/2021 using HCI Bench 2.5.3 8K profile 70/30 R/W, Baseline: Throughput 3398 MB/s, latency 1.52ms. Estimated system cost is \$40,917

Intel® 3rd Generation Intel® Xeon® Processor Plus: Intel® Xeon® Gold 6348 Processor – 1024GB DCPMM. 4-node, 2x Intel® Xeon® Gold 6348 Processor, 1x Server Board M50CYP2UR, Total Memory 1024 GB (2LM) – 256 GB (8 slots/ 32GB/ 3200 MHz) + 1024 GB DCPMM 200 Series (8 slots/ 128GB DCPMM/ 3200 MHz), Hyper-Threading: Enable, Turbo: Enabled, Intel® VMD: Disabled, BIOS: SE5C6200.86B.0022.D08.2103221623 (ucode:0x0d000270), 1x 512 GB Intel® SSD P4101 Series, Storage (cache): 2x 400 GB Intel® Optane™ DC SSD P5800X Series, Storage (capacity): 6x 4 TB Intel® SSD DC P5510 Series PCIe NVMe, Network devices: 1x Intel® Ethernet E810-XXVAM2 at 25 GbE, Network speed: 25 GbE, RDMA RoCE: enabled, VMware 7.0.2, 17630552, Test by Intel as of 4/3/2021 using HCI Bench 2.5.3 8K profile 70/30 R/W, Baseline: Throughput 4155 MB/s, latency 1.43ms. Estimated system cost is \$47,209.

