DELL Technologies

Block by Block:
Building for an App-Centric Future

Solving for Storage in an Adaptive, App-Centric World

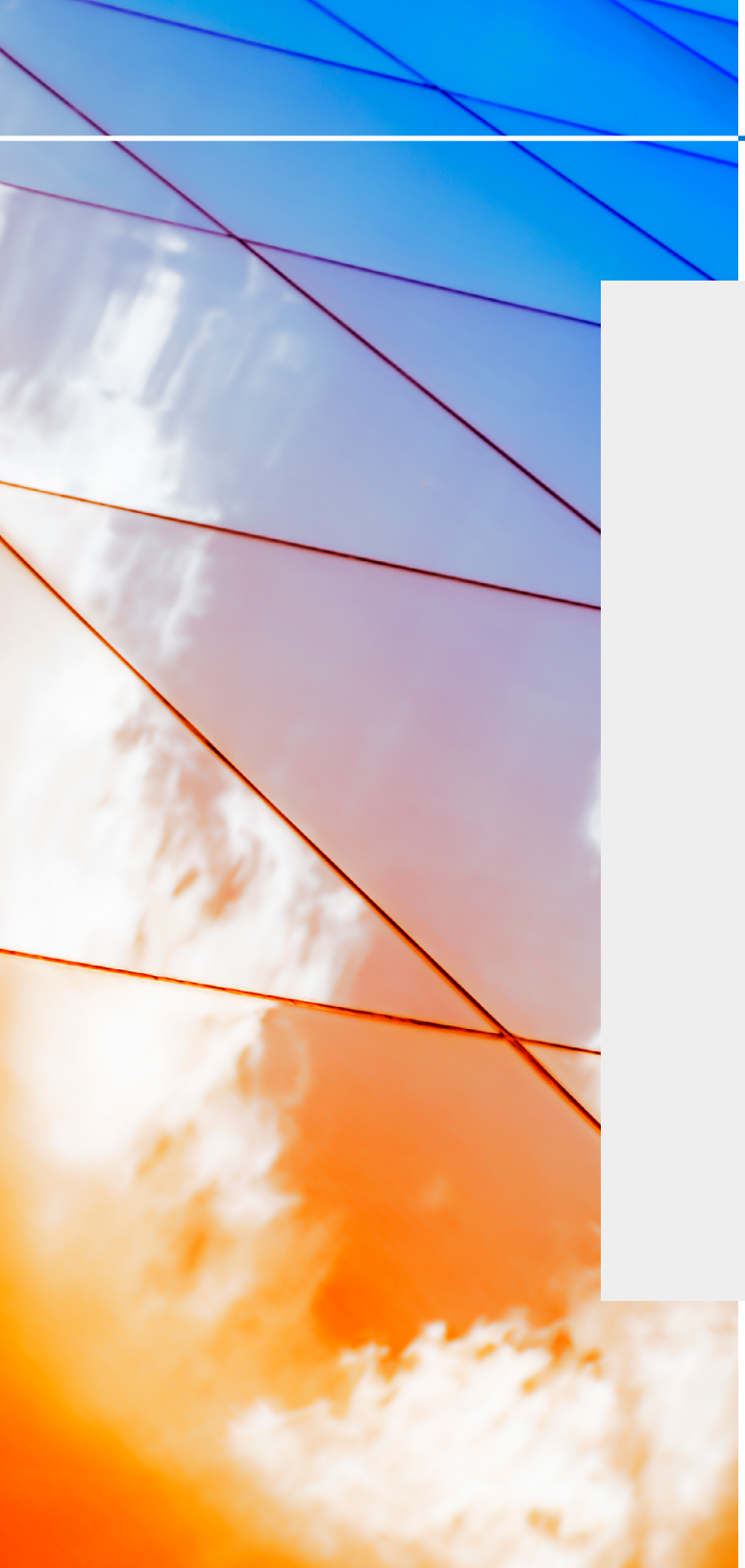

Table of Contents

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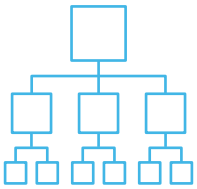


Defining Orchestration

Orchestration includes the automated arrangement, coordination, and management of computer systems, middleware, and services. Orchestration takes advantage of multiple tasks that are automated in order to automatically execute a larger workflow or process.

The Future is Being Written. But How is it Being Stored?

The future is being written inside applications. This is where consumer demands are met, internal efficiencies are created, and the path to business transformation is illuminated. The challenge for forward-looking businesses is how to advance into an application-first, cloud-native world with confidence.

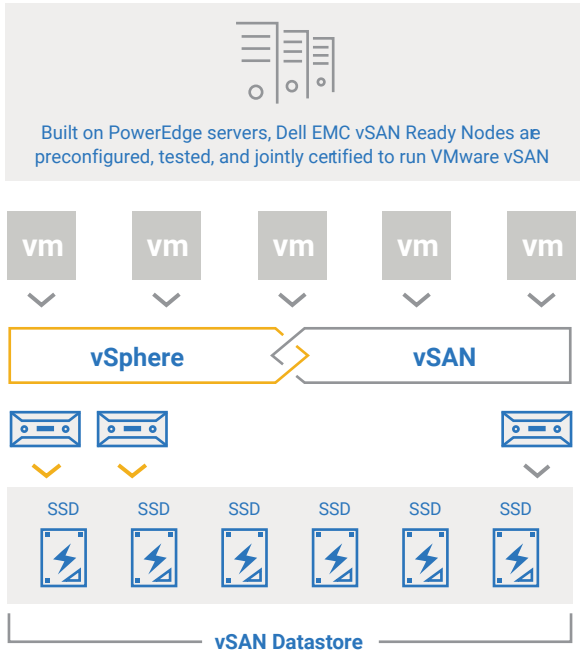
Central to this challenge is how applications get written. The move towards microservices, containerization, and orchestration is helping enterprise achieve nearly seamless and continuous software development and delivery.

But even in a cloud-native, software-abstracted world, hardware matters more than ever—especially storage. Applications are hungry for data which enterprises continue to accumulate at a breakneck pace.

But with this emerging opportunity come unprecedented challenges:

- How can enterprise meet elastic storage demands, especially with application use patterns that are uneven and unexpected?
- How can they integrate this need for dynamic capacity with existing infrastructure investments in hardware and management tools?
- How do they achieve storage agility without driving up cost and complexity?

Storage has always been a critical challenge to the cloud-native world. Where network and compute resources are easily decomposed and orchestrated, the need for persistent storage stands apart, especially for stateful application and database solutions. Traditionally, storage has always been the most passive layer of the infrastructure stack. But today's storage needs demand solutions that are more intelligent and adaptive than ever.



Moving Forward with Confidence: the vSAN difference

Since the early days of virtualization, VMware solutions have continued to push the possibilities of software-defined forward. 100% percent of today's Fortune 500 rely on VMware for at least one piece of their software-defined stack.[1]

Working alongside VMware vSphere® server virtualization and ESX/NSX security, vSAN solutions enable IT teams to meet diverse, dynamic storage needs with easily managed and scaled hardware components. These simplified building blocks enable capacity to be easily and instantly right-sized to demand.

This hyper-converged infrastructure approach means enterprises can add or extend capacity without worrying about integration or interoperability.

- As needs evolve, vSAN enables storage to be quickly and easily added, moved, or deleted inside the vSphere stack.
- IT can use a universal set of tools for monitoring, management, and security.
- The business gets maximum modernization at a reduced price due to modular vSAN nodes that can be quickly added, moved, or deleted individually.
- Risk is reduced for both sides of the organization—IT gets technology they can trust, and the business can make investments that will resonate for the long term.

In an app-centric world, storage is more than just another resource. By enabling the data-rich, decision-focused applications organizations need to stay competitive, smarter storage strategies can define the difference between merely keeping up and truly moving ahead.

Scale with simplicity

Traditional application infrastructure planning always leans towards excess capacity. Where demand is unpredictable, “more than enough” resources must be at hand to meet it. In the public cloud, elasticity is made simpler. But for organizations looking for a consistent, hybrid-cloud approach to infrastructure, a universal software-defined HCI solution lets them serve diverse, dynamic needs with consistency and confidence. And vSAN ensures that same freedom extends to storage.

Bring fluidity to both traditional and cloud-native applications

Whether you’re supporting legacy applications or modern, cloud-native Kubernetes apps, vSAN brings the same high-performance, flash-optimized storage capability to the workload. And, for organizations looking to embrace the tenets of cloud-native infrastructure and environments, the cluster-focused vSAN architecture enables new ways of designing and deploying solutions that weren’t possible with traditional external storage.

Offload through automation

As part of a software-defined data center (SDDC) strategy, vSAN enables automated monitoring, management, and deployment through VMware vCenter®. This is absolutely essential to building an adaptive, agile, DevOps-driven organization where time and talent can be focused on strategic opportunities and not the day-to-day details required to build and run modern IT.

vSAN can help lower total cost of ownership (TCO) by up to 50% compared to traditional storage.[2]

Reduce the Cost of Progress

One of the original promises of the cloud was to reduce costs by relying on distributed, not dedicated, resources. But as some of those economic benefits became harder to achieve, and other constraints emerged, the one-way march to the cloud became a two-way path. This gave organizations more choice, but also created additional pressure on IT to construct consistency out of the chaos. How do you write and design applications and services once and deliver them across multiple environments?

For both the technology and the toolset

The cost of storage is more than the hardware itself. It's also the specialized expertise required to support the component inside your organization. Moving to vSAN not only lets you unify around a single solution, reducing the need to maintain vendor-specific skill sets, it also enables you to lean on the expertise and tool sets your team is already using within your VMware-driven SDDC.

AMD EPYC is the new standard for the modern datacenter. Delivering leadership architecture, performance, and security features, 2nd Gen AMD EPYC processor No-Compromise Single-Socket and High-Performance Dual-Socket solutions are ideal for virtualized IT environments.

Integrate with confidence

Using a universal set of tools and talents is a big win for your team. But vSAN can also ensure that strategic decision-makers are free to make the most appropriate choices when designing near- or long-term technology roadmaps. Whether moving from traditional infrastructure stacks to HCI, or designing a dynamic long-term hybrid and multicloud strategy, vSAN reduces risk while strengthening control.

Any cloud, any platform

Organizations must retain the ability to extend their IT environment across multiple clouds at any given time. This means finding a solution that effortlessly integrates with leading public cloud providers while at the same time supporting on-premises applications as well. Moving to vSAN enables technology and business decision-makers to design and deploy cloud solutions that are environment-agnostic and infinitely adaptable, with support for over 18 OEM server vendors and native cloud services integration with AWS, Azure, Google Cloud, Oracle Cloud, IBM Cloud, and Alibaba Cloud.

Less risk, more redundancy

Obviously, a central concern of information storage and sharing is security. That's why vSAN is designed for state-of-the-art data security. vSAN encryption provides data-at-rest security at the cluster level and supports all standard vSAN data hygiene features such as deduplication and compression. The infrastructure also gets built-in fault tolerance and high availability commonly associated with traditional array storage —and all this data safety and security is completely automated.

"If I were describing vSAN Ready Nodes to my mom, I would tell her it's like making a cake where a number of the ingredients are prepackaged and prebundled for you. You're not starting from scratch every time, so you get that cake onto the table faster."

Peter FitzGibbon,

general manager and vice president of the VMware practice at Rackspace.

The Best vSAN yet: Dell EMC vSAN Ready Nodes

Organizations looking to adopt or extend a vSAN environment must choose a hardware partner that can provide the dynamic dependability that makes the SDDC strategy so critical to becoming an ultraflexible cloud-native business. Dell® EMC® vSAN Ready Nodes with 2nd Generation AMD EPYC processors are powerful, purpose-built hardware components that deliver the ultimate in cloud-ready storage capacity, all built on market-leading Dell PowerEdge™ servers.

- Configurations offer two paths: customized mix of CPU, memory, network I/O controllers, HDDs and SSDs, or validated solutions designs
- All-flash and hybrid options
- Storage capacities from 4 to 200TB
- Integrated security, redundancy, monitoring, and management
- Backed by over 1,800 Dell EMC vSAN specialists

Better by the numbers

Dell EMC vSAN Ready Nodes with AMD EPYC processors are expertly engineered and optimized for superior performance.

Today's organizations must find a clear and consistent cloud strategy that works no matter what changes come with new technology offers or business challenges. A dependable HCI foundation is exactly this path, enabling traditional IT organizations to move forward towards total modernization. And there's no better HCI partner than Dell EMC and VMware.

47.4%

better performance on commonly virtualized applications[3]

25%

25% absolute performance improvement over competitor for HPC workloads[5]

9.6%

9.6 percent better performance per dollar than the dual-socket competitor[4]

20%

Up to 20% better TCO per four-node cluster for vSAN deployments at the edge[5]

AMD EPYC High-Frequency Processors Set World Record Dual-Socket, Four-Node Benchmark Result on VMark® 3.1 with VMware vSAN

Your Solution Path

AMD all-flash and hybrid configurations for vSAN Ready Nodes are designed to move your organization forward faster and with greater confidence. Powered by the latest AMD EPYC Processors, each vSAN Ready Node includes the right amount of CPU, memory, network I/O controllers, HDDs, and SSDs that are best suited for VMware vSAN. These nodes are the perfect next step for transitioning to HCI or scaling out existing virtualized storage investments.

PowerEdge R7515 2U Rackmount

- AMD EPYC Processor with up to 64 cores
- Up to 1TB RDIMM, 2TB LRDIMM
- Up to 3200 MT/S bandwidth
- VMware ESXi™ pre-installed

Explore vSAN Ready Nodes

EXPLORE AMD EPYC SOLUTIONS AND VSAN READY NODE

READ THE PERFORMANCE BRIEF: USING VMWARE VSAN

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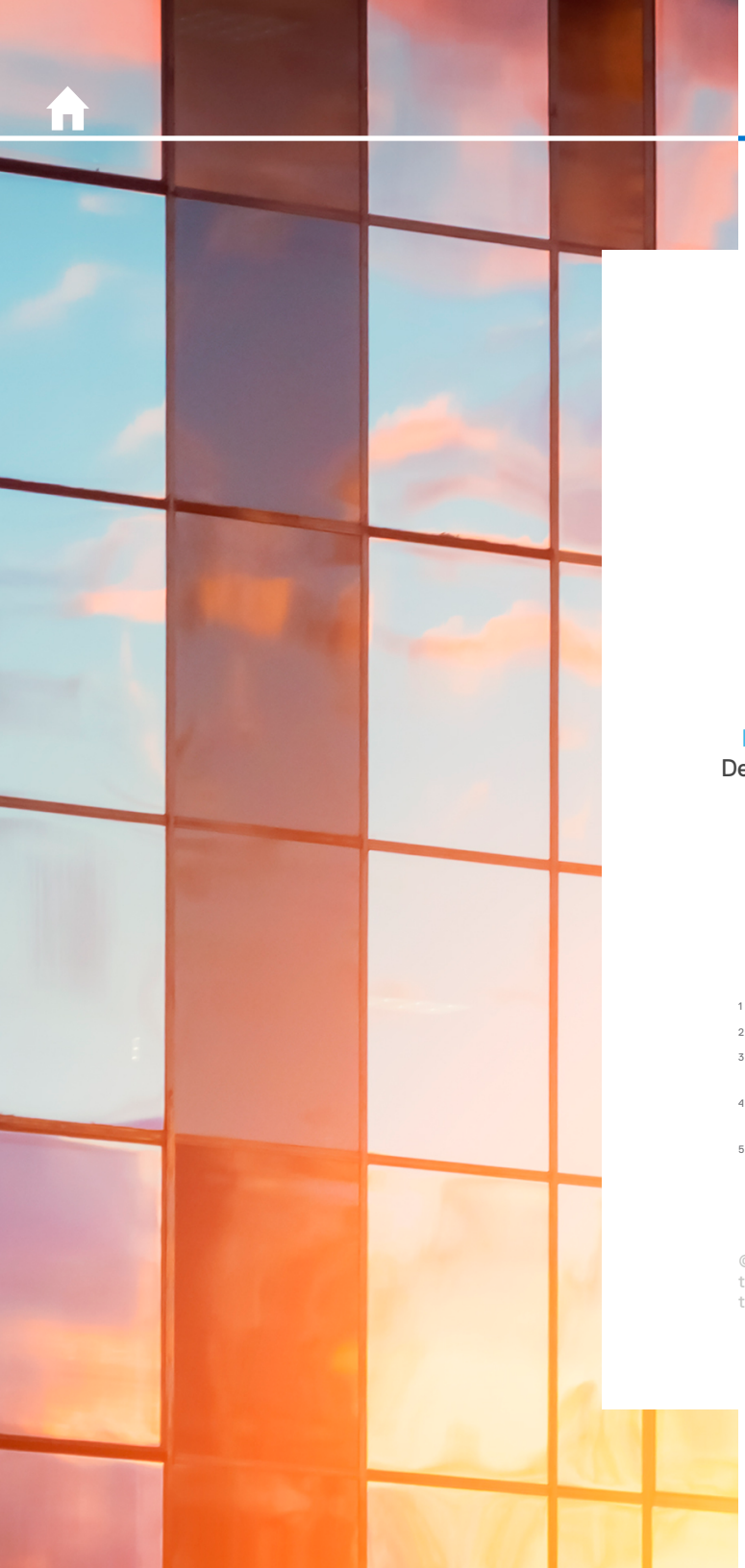

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[1] https://www.vmware.com/company/why-choose-vmware.html

[2] Based on Dell EMC internal competitive testing of PowerEdge and OMIVV versus Cisco UCS manual OS deployment.

[3] AMD Performance Brief, April 2020 AMD EPYC™ 7Fx2 Processors Set New World Record: VMmark® 3.1 Using VMware vSan™ https://www.amd.com/system/files/documents/amd-epyc-7Fx2-dell-vmmarkvsan-dualsocket-perfbrief.pdf

[4] Principle Technologies: Dell EMC R7515 EPYC 7502P vSAN performance summary https://www.principledtechnologies.com/Dell/R7515-EPYC-7502P-vSAN-summary-0220.pdf

[5] Dell EMC press release, "Dell EMC Expands Server Capabilities for Software-defined, Edge and High-Performance Computing." https://corporate.delltechnologies.com/en-us/newsroom/announcements/2018/02/20180206-01.htm

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