Simplify Storage with VMware vSAN

Discover three key ways to overcome storage complexity

Get Started

The storage dilemma

To remain competitive, today's organization must embrace digital transformation—the process of updating legacy systems and adopting the latest technologies to enhance efficiency, scalability and security. For business leaders, this modernization process is a means to future-proof organizations and stay ahead in an increasingly digital world. However, managing the complexities of the infrastructure needed to support modernization efforts can be a significant barrier to innovation and growth. Finding solutions that can simplify operations, reduce costs, and provide flexibility to scale with your business is an absolute necessity.

In this modern infrastructure landscape, storage stands out as a key challenge. The growth in the volume of data, and the number of locations where your data resides—in the data center, the public cloud, and at the edge—as well as rising costs, all combine to make this challenge a daunting one. It isn't just about procuring and provisioning storage—it's about managing it with a level of simplicity and efficiency that allows your organization to focus on what truly matters: driving innovation and delivering value to your customers.

In this ebook, we'll examine the top three ways VMware vSAN™, the storage component of VMware Cloud Foundation, can help simplify storage for your organization:

1. Simplifying operations with storage policy-based management.
2. Simplifying storage lifecycle management.
3. Simplifying storage outside the data center.

But first, let's take a closer look at today's storage challenges.

Leading infrastructure challenges, as reported by IT leaders:[1]

- Data/capacity growth
- Managing data stored with third parties/cloud environments
- Storage migrations
- High cost of storage (CapEx)
- High cost of storage (OpEx)

1. 451 Research. "Voice of the Enterprise: Storage, Budgets and Optimization." 2024.

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Storage challenges for the modern enterprise

Traditional external storage has long been a cornerstone of IT infrastructure for a diverse array of projects. It is highly reliable and performant, capable of supporting traditional workloads in data centers at scale. However, today's changing IT landscape is exposing challenges with existing solutions.

Pace of operations

Traditional storage is typically managed by a dedicated administrator or team, while modern IT operations require rapid decision-making from a cross-functional team. With siloed personnel and ticket-based systems, storage can quickly become an operational bottleneck, limiting the overall pace of IT operations.

Diversity of environments and apps

Today, IT infrastructure is being consumed more outside the data center as companies adopt a hybrid cloud strategy. Traditional storage cannot provide consistent solutions at the edge or in public cloud, driving complexity as enterprises adopt multiple storage solutions. At the same time, the types of applications being used continues to diversify, with organizations struggling to meet the storage demands of these workloads, and to handle the sheer volume of data generated.

Consistency

While the hybrid cloud strategy offers flexibility and scalability, it also introduces new layers of complexity. Administrators now need to ensure consistent performance, security, and compliance across multiple platforms—in the data center, at the edge, and in the public cloud.

The goal for your enterprise is clear: Find a way to simplify IT infrastructure without sacrificing performance or scalability. The need for a streamlined approach to storage management has never been more critical. This is where VMware vSAN shines, offering a path forward that reduces complexity, improves efficiency, and enables your organization to stay competitive in an increasingly digital world.

The edge is quickly changing, are you ready?

"By 2027, more than 50% of enterprise-managed data will be created and processed outside the data center or cloud, which is a major increase from 20% in 2023"

Gartner. "Market Guide for Hybrid Cloud Storage." 6 March 2024.

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Simplify operations with storage policy-based management

Operational complexity is one of the biggest challenges your IT teams face. In a common data center setup, specialized teams work independently to manage their part of the infrastructure. Many shops assign tasks via ticket-based systems, and coordination can be challenging. Within each component of the infrastructure, experiences can vary between highly automated setups and more manual operations.

Traditional storage is no exception. Storage solutions tend to be less automated than other parts of the infrastructure, often requiring manual processes and repetitive tasks to set up, provision and manage. While some of these tasks are done independently, many also require extensive coordination. Over a year, storage management can add up to hundreds of hours of work for both the storage and compute teams.

Tame operational complexity with vSAN

With vSAN, you can **reduce the amount of time it takes to manage storage by 50 percent or more**, while empowering your IT teams to manage both storage and compute with a unified toolset. How does vSAN deliver such a dramatic reduction in storage management time? The key is a unique functionality called storage policy-based management (SPBM), which enables your administrators to set policies once and apply them consistently across all environments. Admins can also adjust policies for VMs or VMDKs in minutes and apply them to a single VM or many VMs that use the same policy. This batch processing of policy implementation and changes not only reduces manual effort, but also ensures consistency and compliance across your infrastructure.

Key features

Policy-based management
Define and apply storage policies at the VM level.

Automated lifecycle management
Streamline updates and maintenance, reducing the time and effort required to keep your systems up to date.

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Simplify storage lifecycle management

Managing the lifecycle of a storage system involves time-consuming tasks such as hardware upgrades, firmware updates, and software patching, all of which can disrupt operations and increase risk, with human error and configuration drift being common causes of concern among admins. In a traditional three-tier architecture, administrators commonly navigate dependency mappings between the storage array updates and other software and hardware vendors within the data center prior to implementation. Unfortunately, this can extend update and upgrade planning for days, weeks, or even months.

Streamlining the update process

With VMware Cloud Foundation™ (VCF), updates for all components are tested for interoperability and then bundled with the necessary logic for proper installation order, and the whole process is completely automated. Updates can be applied on a per-cluster basis, a per-workload domain basis, or even at a per-host level when using the API. VMware vSphere® components, including vSAN, can be updated sequentially in a specific order, or in parallel at the same time to minimize disruption and maximize your maintenance windows.

What's more, when you create a hyperconverged infrastructure (HCI) solution with VMware vSphere® Foundation (VVF), vSAN integrates seamlessly with VMware vSphere Lifecycle Manager (vLCM), giving your admins a unified tool to perform updates across the entire HCI environment, including compute, storage networking, and storage, with minimal downtime. This comprehensive lifecycle management capability not only ensures that your environment stays current and secure, it also dramatically reduces the time and effort needed to maintain your infrastructure.

By automating these routine tasks, vSAN helps your organization reduce operational overhead and focus on more strategic initiatives that drive business value.

Simplify storage outside the data center

For years, organizations have enthusiastically been adopting public cloud, and with good reason. Public cloud offers exceptional scalability and innovation, which countless organizations have come to rely on to rapidly build and deploy applications. At the same time, new data-intensive use cases that require low latency are fueling growth of infrastructure close to where data is generated, commonly called "the edge." However, the growth in both public cloud and edge deployments often create multiple operational challenges.

Public cloud challenges

Most organizations adopting public cloud face two significant challenges with adoption. The first challenge is management. Despite public cloud managing the hardware, many organizations still need to invest time and money in training and hiring personnel to manage their cloud deployments. The end result is much less efficient than expected.

The second challenge is migrating on-premises applications to the public cloud. Without a consistent infrastructure stack between these environments, application architecture must be refactored or replatformed in order to provide consistent operations, which can take months or even years to accomplish.

Edge management challenges

The challenges with managing edge infrastructure revolve around the rapid proliferation of infrastructure and the diversity of the apps running in these locations. A common challenge with managing edge infrastructure is both the number of edge sites and dispersion of them, since IT personnel can't be on site to manage their edge sites. IT needs centralized management.

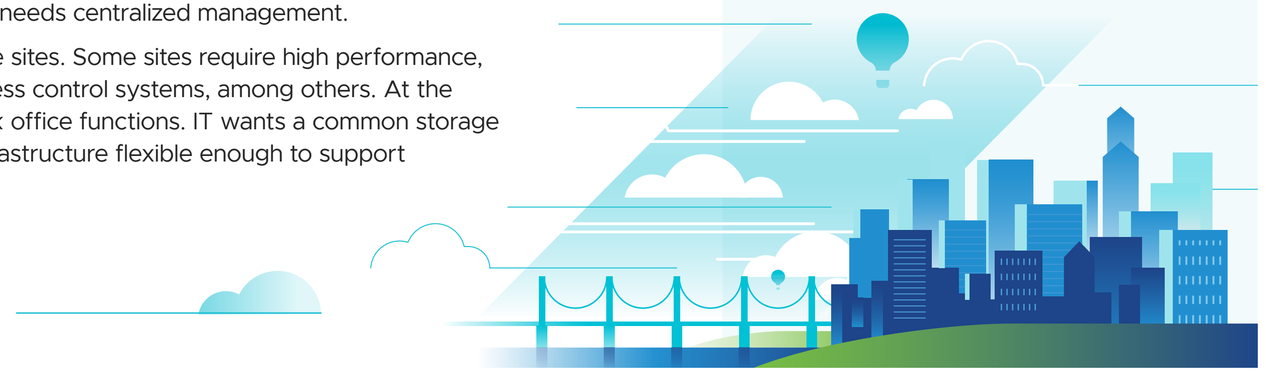
The other factor driving edge complexity is the diversity of apps running across edge sites. Some sites require high performance, resilient infrastructure for apps such as AI/ML, point of sale (POS) systems and process control systems, among others. At the other end, a remote office may primarily need infrastructure for relatively simple back office functions. IT wants a common storage platform that can run across all these locations for management simplicity and an infrastructure flexible enough to support traditional and next-generation workloads.

What's fueling growth at the edge?

Cost challenges
The data generated at the edge can be expensive to send to cloud, and sometimes only a small portion is actionable.

Latency and availability challenges
In cases where quick analysis is needed, every second counts.

Regulatory challenges
Data may be subject to additional regulation once it's transmitted.



The solution: A cloud operational model

The VMware cloud operational model, which includes VCF and vSAN, provides your organization with consistent infrastructure and operations across on-premises data centers, the edge and the public cloud. VMware's public cloud offerings support all global hyperscalers, as well as hundreds of regional providers such as Lumen, OVH and T-Systems, to accelerate cloud adoption and migration. In addition, vSAN delivers a consistent model to the edge, running on servers from over 15 OEMs, including servers purpose-built for the edge, such as the Lenovo SE-350 and Dell VxRail VD-4000.

With complete visibility and management of your hybrid cloud deployments via VCF tools, such as VCF Operations and VMware vCenter®, your existing teams can manage every infrastructure deployment, regardless of physical location. vSAN deployments require absolutely zero on-site administration. After initial setup, they can be managed remotely from a central location, such as the core data center.

VMware offers a resilient storage solution for mission-critical deployments in the cloud and at the edge. vSAN supports stretched clusters across availability zones in the cloud, and for the edge, even 2-node vSAN deployments can withstand multiple failures and still keep data available.

It supports both traditional VMs and containers, as well as numerous Kubernetes distributions. vSAN has its own Container Support Interface (CSI) driver, which allows Kubernetes to easily take advantage of VMware-based infrastructure with tools your developers already use.

Finally, VMware vSAN has the performance and data services required to support both traditional VMs and containers, and it supports numerous Kubernetes distributions.

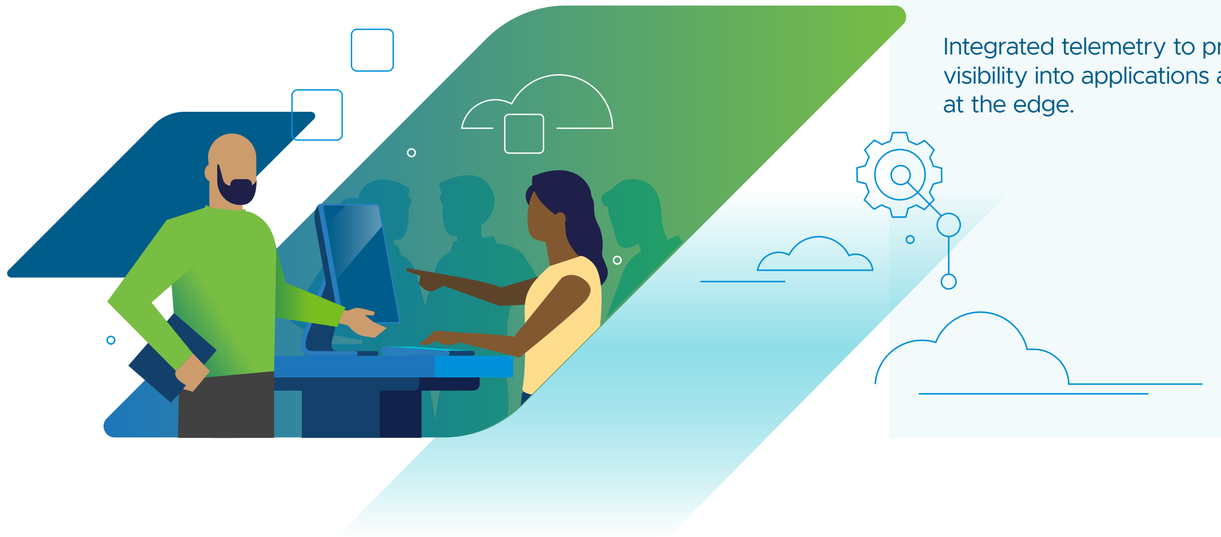
To thrive in this new landscape, your organization needs the following:

Consistent infrastructure and operations across locations—data center, edge and cloud.

A developer-ready platform that can run real-time and non-real-time apps on the same platform.

An infrastructure that can scale across thousands of sites.

Integrated telemetry to provide visibility into applications and traffic at the edge.



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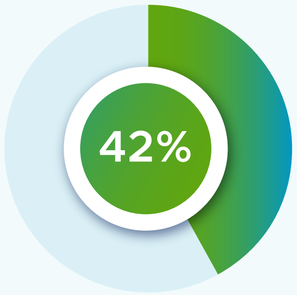
Simplify, simplify, simplify

VMware vSAN, as the storage component of VCF, can greatly reduce storage operational costs and complexity. Through storage policy-based management, it can **make infrastructure teams forty-two percent more efficient,** freeing up administrators' time to focus on higher-level tasks. It provides a consistent infrastructure between the core data center and the edge and public cloud, making it simple to manage and migrate applications. Plus, vSAN's robust data services and resiliency make it a great choice for edge deployments, where infrastructure is required to run a variety of applications, including high-performance apps, in a small physical footprint that may not provide access to traditional data center support.

Want to adopt hyperconverged storage with vSAN? You can either access it through VCF or purchase it as an add-on to VVF. VMware vSAN is also available with all global hyperscalers. And if you're looking for an appliance form factor, you can choose from several on the market. Alternatively, you can choose jointly certified servers, or ReadyNodes, from every major server OEM to build a more customizable solution.



VMware vSAN can make infrastructure teams forty-two percent more efficient.[1]

1. IDC Business Value White Paper, sponsored by VMware by Broadcom. "The Business Value of VMware vSAN Storage for Hyperconverged Infrastructure." November 2024. IDC#US52705024.

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