The Top 10 Reasons to Upgrade to VMware vSphere 7

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Discover All the Reasons to Upgrade to VMware vSphere 7

Customers today demand rapid delivery of innovative applications. To meet those demands, businesses must modernize the way they develop and manage applications and the infrastructure on which they run. Developer and IT teams need quick self-service access to infrastructure, simplified lifecycle management, built-in security, high performance, and tremendous scalability.

VMware vSphere® with VMware Tanzu™ delivers on all these requirements and includes native support for Kubernetes. That means you can manage your virtual machines and your Kubernetes containers from the same familiar vSphere platform.

Read on to discover why vSphere is the foundational platform for VMware and why vSphere 7 is one of the most important releases in over a decade.

BYU IDAHO

"*The releases of vSphere keep getting better and better, which simplifies administration so we can spend more time focusing on the needs of our development teams.*"

Stephen Parker
Systems Engineer
Brigham Young University Idaho

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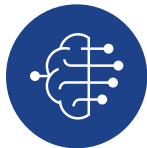# The Top 10 Reasons to Upgrade to VMware vSphere 7

1. **Take the fastest path** to modern apps

2. **Expedite security audits** with improved account management

3. **Tighten** physical infrastructure security

4. **Run** AI/ML workload demands in real time

5. **Simplify** software patching and hardware upgrades

6. **Reduce** complexity and increase scale

7. **Maximize** performance and efficiency

8. **Get proactive support** technology and services

9. **Realize** flexibility to run any app on any cloud

10. **Build** a solid HCI for modern applications

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1 Take the fastest path to modern apps

Run and manage modern applications on premises using vSphere with Tanzu.

VMware vSphere with Tanzu delivers developer-ready infrastructure, aligns DevOps and IT teams, and simplifies cloud operations. It provides a unified platform for managing both virtual machines and containers in a single infrastructure stack, so applications can be deployed using any combination of virtual machines and containers.

By building Kubernetes into vSphere natively, organizations can consolidate their modern and traditional application environments into a single stack and immediately leverage existing technology and processes. Developers and IT administrators can come together to build, run, and manage modern applications on a unified, enterprise-class platform.

神州数码
Digital China

"vSphere with Tanzu can help our IT team to achieve consistent operations of our existing system and rapid scale-up for new applications. And the new architecture offers flexibility between private cloud and multiple public clouds."

Yang Shen
Chief Information Officer
Digital China

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vSphere 7 – Announcing General Availability of the New Generation of vSphere

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1 Take the fastest path to modern apps (Cont'd.)

VMware has leveraged Kubernetes to rearchitect vSphere and extend its capabilities to all modern and traditional applications.
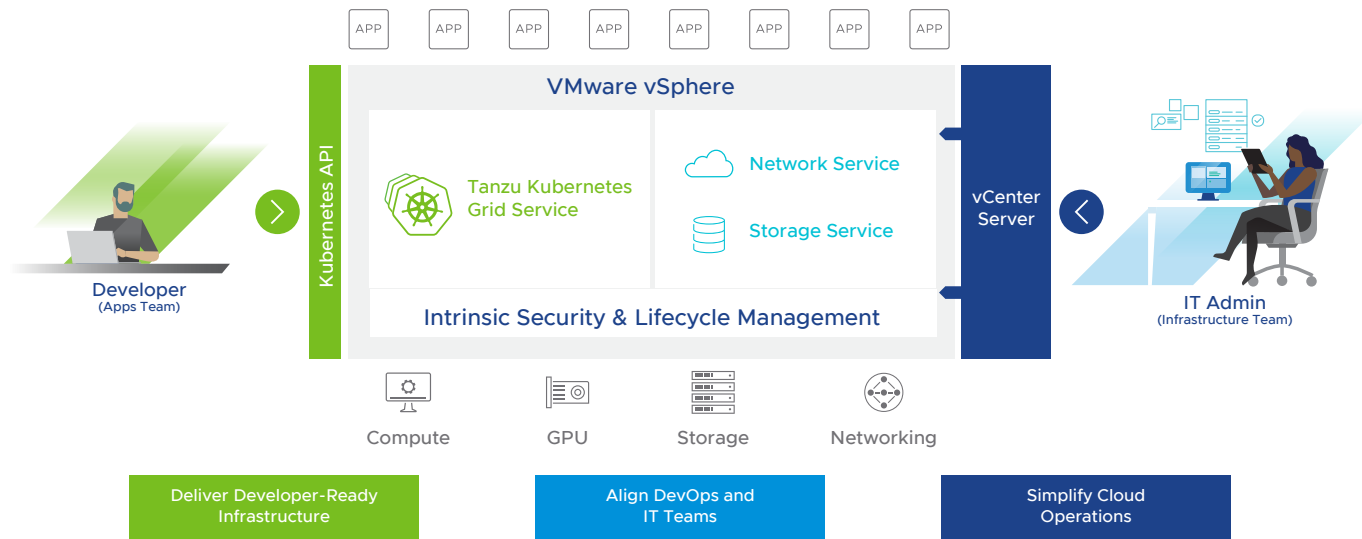
Administer and manage your virtual machines and Kubernetes containers using familiar vSphere tools.

Unite vSphere and Kubernetes
With support for a Kubernetes control plane embedded into vSphere, control of compute, network, and storage resources is unified.

Deliver application-focused management
Namespaces in vSphere let IT administrators deliver role-based access and allocate quotas to developer teams. They also let them attach policies for an entire group of virtual machines, containers, and Kubernetes clusters. IT administrators can do this all from the familiar VMware vCenter® interface while providing the security and resource isolation that modern applications need.

Drive developer and IT operation collaboration
Kubernetes APIs provide the abstraction layer necessary to run modern applications. Developers use declarative statements rather than platform-specific commands to create applications, provide storage, and configure networking.

VMware vSphere administrators use familiar vSphere tools to deliver Kubernetes clusters to developers. They can also adopt the declarative method of deployment in their own environments to provide services to their customers.

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2 Expedite security audits with improved account management

Improve your organization's security posture with multi-factor authentication.

A strong password policy is one of the most effective ways to improve security, and one of the easiest ways to do so is by implementing multi-factor authentication (MFA). But complexity arises because there are so many ways to implement MFA, and extending VMware vCenter Server® can mean duplicating what organizations have in place via their corporate identity management systems.

With vSphere Identity Federation support, vCenter Server can integrate with an enterprise identity provider to avoid duplication. This saves vSphere administrators time and reduces the scope of compliance audits.

And because vSphere administrators already know how to plug into standards-based enterprise solutions like Active Directory Federation Services (ADFS), Identity Federation support also opens the door to many different MFA methods.

Modernized
Federated authentication via enterprise identity providers.

Simplified
Reduced audit scope and vSphere Admin workload.

Flexible
Options for multi-factor authentication methods.

Learn More
vSphere 7 — Identity Federation

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2 Expedite security audits with improved account management (Cont'd.)

Attaching vCenter Server to identity solutions like ADFS with Identity Federation enables seamless delivery of enterprise and multi-factor authentication. That's because vCenter Server participates in the same centralized corporate processes, such as onboarding and termination. It also means that users can use the same methods to log into vCenter Server as they do to their desktops and the cloud.

vCenter Server

Active Directory

Once authenticated, user is redirected back to vSphere Client

OAUTH2 and OIDC

Login redirected from vSphere Client to IdP

MFA

Active Directory Federation Services
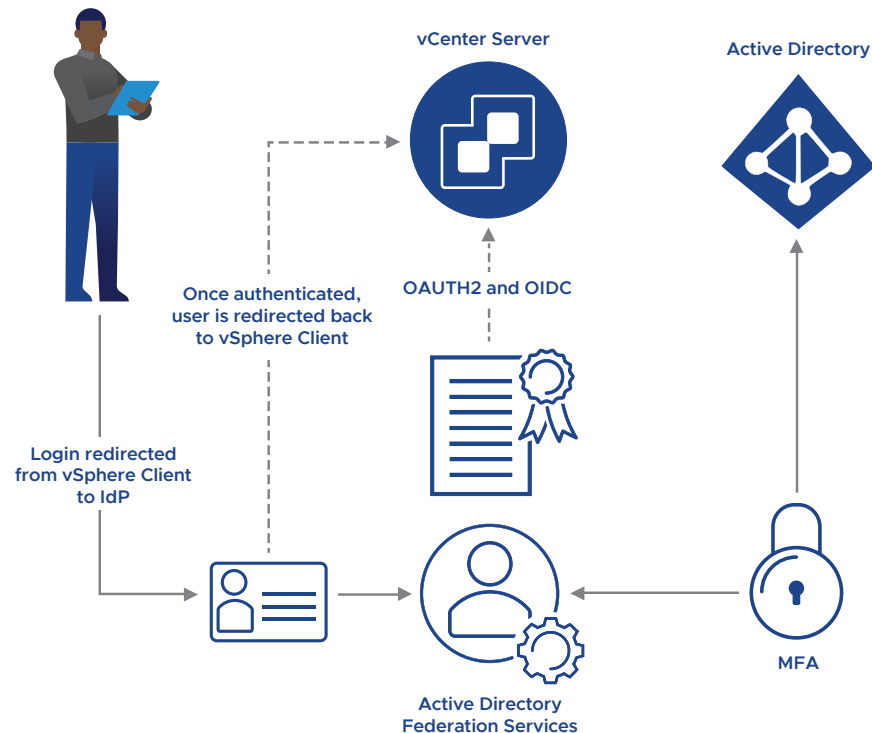
Apply strong, centralized multi-factor authentication with Identity Federation.

> *The introduction of Identity Federation in vSphere 7 will greatly simplify things for us, especially because we have 75 vCenter Servers globally, versus consolidated large vCenter Server instances. We would like to have a regional approach with a global view. Identity Federation will support that approach.*

Director of Virtualization Engineering
Global Pharmaceutical Company

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❸ Tighten physical infrastructure security

Leverage building blocks for attestable hardware-based trust and security with vSphere Trust Authority.

VMware vSphere Trust Authority protects against malicious attacks by extending the trustworthiness of a computing base to your organization's entire computing infrastructure. The hosts in that computing base take over the task of attestation and verify that other clusters meet the requirements for trust. VMware vSphere Trust Authority uses remote attestation and controlled access to advanced cryptographic capabilities.

Learn More
vSphere 7 — vSphere Trust Authority

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3 Tighten physical infrastructure security (Cont'd.)

The trusted computing base—the hardware root of trust—uses a small, separately managed cluster of VMware ESXi™ hosts. This enables you to build trust in your hardware and software configurations at deeper levels.

vCenter Server   **Key Manager**

Workload ESXi Hosts   **Trusted Hosts**
                                       (Running attestation service)
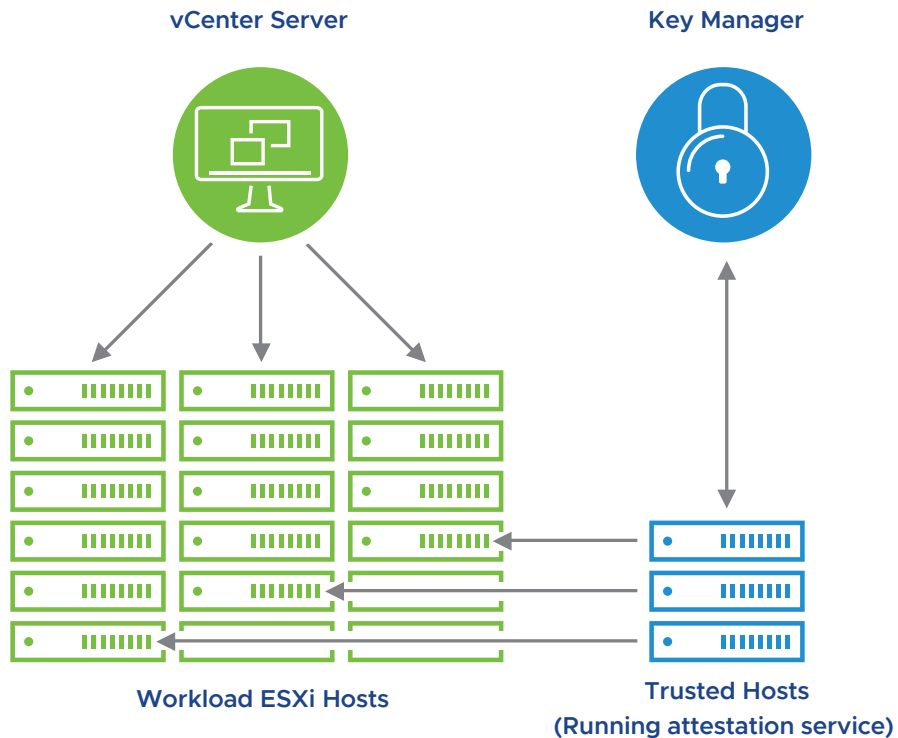
Protect your environment with vSphere Trust Authority.

Simplified
Trusted hosts take over distribution of encryption keys from Key Management Servers.

Scalable
Trusted clusters can help attest many other clusters of hosts.

Root of Trust
Trusted computing base handles attestation.

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④ Run Artificial Intelligence/Machine Learning (AI/ML) workload demands in real time

Create a shared pool of GPUs for higher device utilization, greater flexibility, and larger cost savings.

Increasingly, businesses are applying AI technologies to differentiate and advance their processes and offerings. VMware vSphere 7 is able to leverage powerful accelerators for AI/ML workloads in virtual machines or containers. You can easily identify isolated and expensive resources that are underutilized, and hardware accelerators can be shared remotely (fully or partially), regardless of location. VMware vSphere Bitfusion does this by decoupling physical GPU resources from servers within your environment and placing them in a pool of network-accessible resources that may be shared with your virtualized infrastructure.

itq

" What we're seeing among data science departments is that many of their artificial intelligence applications are already running in containers. There's a great opportunity for us to serve them better by combining vSphere Bitfusion and the native scaling abilities of vSphere with Tanzu to accelerate their research. "

Johan Van Amersfoort
Technologist EUC, AI, & IoT
ITQ

🎓 **Learn More**
Announcing vSphere Bitfusion — Elastic Infrastructure for AI/ML Workloads

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④ Run Artificial Intelligence/Machine Learning (AI/ML) workload demands in real time (Cont'd.)

VMware vSphere Bitfusion also works with both virtual machines and containers. As a transparent layer, it also can be run with many different Linux operating systems, networks, and AI/ML applications that leverage common software libraries like PyTorch or platforms like TensorFlow. This enables you to drive up utilization of new and existing resources through sharing and by managing everything in vSphere. Just like vSphere allows for the sharing of CPUs, vSphere Bitfusion allows for the sharing of GPUs.

Optimized
VMware vSphere for AI/ML workloads.

Efficient
Better utilization of high-cost servers and computational resources.

Scalable
Support virtual machines, containers, AI/ML infrastructure software, and GPUs.

AI/ML Workloads

Hardware Accelerators

GPUs   FPGAs   ASICs
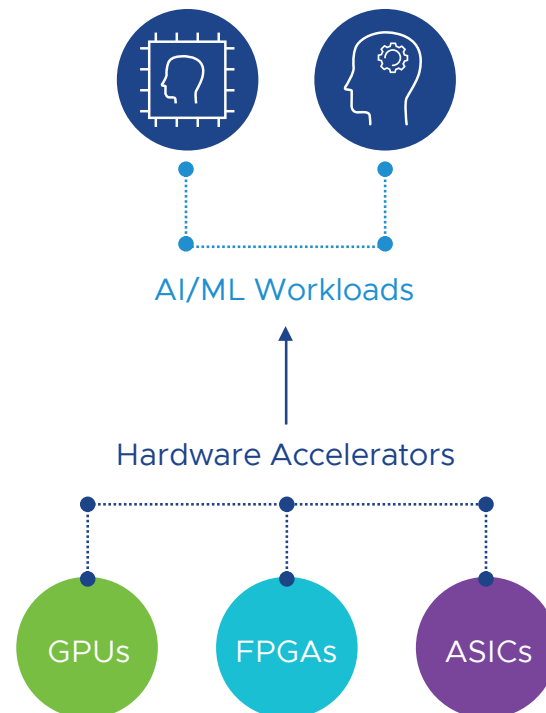
Meet processing demands for AI/ML workloads by optimizing the use of GPU-based hardware accelerator resources.

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5 Simplify software patching and hardware upgrades

Use vSphere Lifecycle Manager to discover, manage, and upgrade VMware software and firmware from the vSphere GUI or a REST API.

VMware vSphere Lifecycle Manager enforces consistency across your ESXi hosts in a cluster using an ESXi base image along with the desired state for firmware and driver versions. This supports more efficient upgrades, improved reliability and performance, and easier maintenance of your hosts.
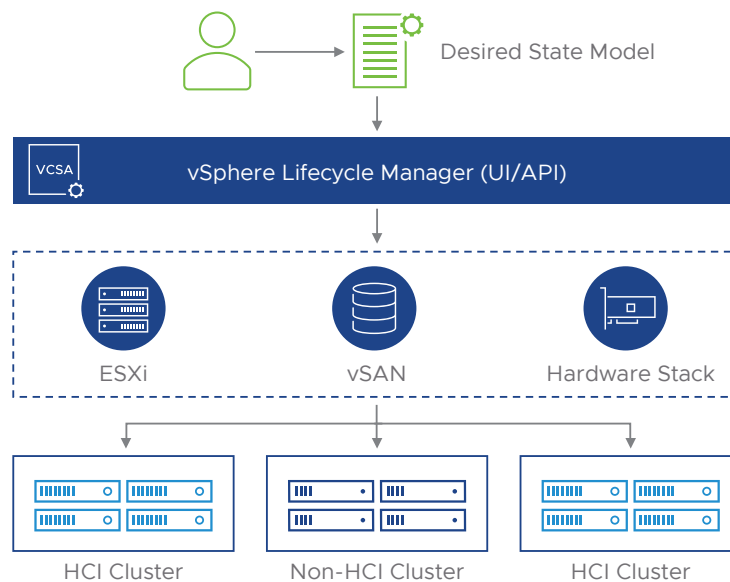
Enforce consistency across your ESXi servers with VMware Lifecycle Manager.

Learn More
Introducing vSphere 7: Features & Technology for the Hybrid Cloud

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5 Simplify software patching and hardware upgrades (Cont'd.)

Lifecycle Manager also simplifies and consolidates updates of the full hyperconverged infrastructure (HCI) stack. It removes inconsistencies between ESXi hosts by setting up the desired state and enabling Lifecycle Manager and cluster image management. If a host drifts from the desired state, Lifecycle Manager remediates it to bring it back into compliance.

VMware vSphere Lifecycle Manager delivers:

Consistency
Cluster management of firmware, drivers, and components.

Desired State
Define and apply desired cluster image (software and firmware).

Integration
Unified software and firmware lifecycle management.

"The Lifecycle Manager, Update Manager, and automation tools in vSphere make life easier for our architecture and engineering teams that need to focus more on development than administration. The streamlined process simplifies management of our 1,500 globally distributed hosts."

Director of Virtualization Engineering
Global Pharmaceutical Company

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6 Reduce complexity and increase scale

Increase consolidation, flexibility, and automation for easy configuration access and maintenance with new tools and REST APIs.

VMware vCenter Server Profiles is a brand new feature in vSphere 7 that enables exporting existing vCenter Server configurations from one node and importing them into another vCenter Server node. Additional benefits include:

Simplified set up and change management

Easy detection of noncompliant configurations

Automated remediation

Configuration data provided in user readable format

Learn More
What's New in vCenter Server 7

BYU IDAHO

"The new vCenter Server Profiles features introduced in vSphere with Tanzu save me hours of work when deploying new hardware by automatically applying a set of predefined attributes such as passwords, drivers, WWNs, and vMotion settings. This allows us to add a server in 5–10 minutes versus the 4 hours this could take when we had to do the setup manually."

Stephen Parker
Systems Engineer
Brigham Young University Idaho

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⑥ Reduce complexity and increase scale (Cont'd.)

VMware vCenter Server Profiles consist of four REST APIs: List, Export, Validate, and Import. You can modify and validate configurations exported from one vCenter Server before importing and applying them to another vCenter Server node. They can be consumed with any automation tool like Puppet, Chef, and Ansible.

REST APIs

| List | Export | Validate | Import |

Management	Export Configuration Profiles	Validate Configuration	Import Profile to vCenter Server
Network			
Auth			
Etc.			
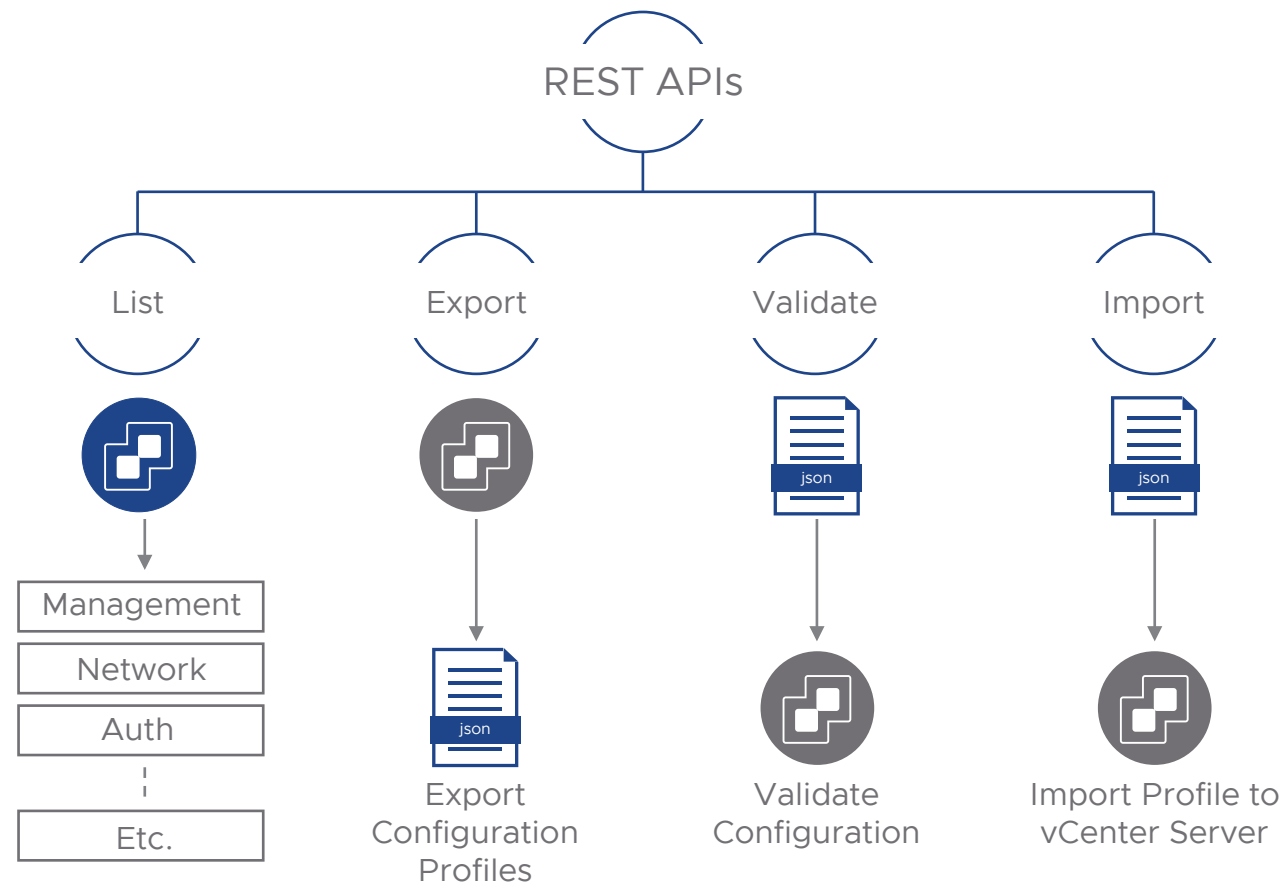
Export vCenter Server configurations for import to another vCenter Server node with REST APIs.

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7 Maximize performance and efficiency

Achieve better consolidation, workload placement, and balancing with improved vSphere Distributed Resource Scheduler logic.

VMware vSphere 7 includes the new VMware vSphere® Distributed Resource Scheduler™ (DRS) with improved logic that is more workload-centric than cluster-centric. It has been completely rewritten to have a more fine-grained level of resource scheduling with a focus on workloads.

Benefits of vSphere DRS include:

Efficiency
The VM DRS Score quickly informs administrators of virtual machine "happiness."

Prioritization
Scalable Shares enables dynamic relative resource entitlement when using Resource Pools.

Workload-centric
Resource scheduling, focusing on workloads and applications.

Learn More
vSphere 7 — Improved DRS

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7 Maximize performance and efficiency (Cont'd.)

The new Assignable Hardware framework introduces capabilities for vSphere DRS and vSphere High Availability (HA). The framework enables vSphere DRS to perform initial placement of virtual machines equipped with a passthrough PCIe device or an NVIDIA vGPU and it enables those same virtual machines to benefit from vSphere HA automated restarts. You can also expose PCIe devices directly to a virtual machine using the Dynamic DirectPath I/O, a new way of configuring passthrough that exposes it to the virtual machine as a PCIe device capability.
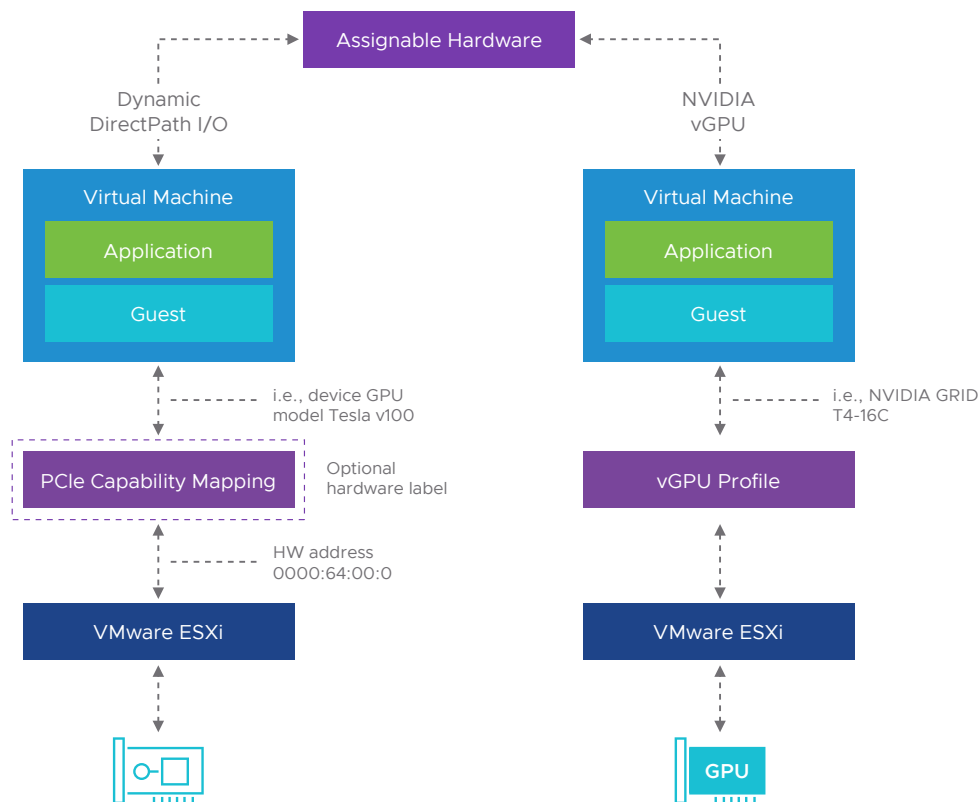
With the new Assignable Hardware framework, you can extend support for vSphere features if you are using hardware accelerators.

8 **Get proactive support technology and services**

Resolve potential issues before they impact operations with comprehensive analytics and support from Skyline Health for vSphere.

VMware Skyline is an innovative, proactive support service aligned with VMware Global Support Services. It automatically and securely collects, aggregates, and analyzes product usage data that helps VMware technical support engineers improve time-to-resolution and proactively resolve potential problems.

These capabilities transform support operations from a reactive, break/fix mode to a proactive, predictive, and prescriptive experience that produces even greater returns on your VMware support investment.

Learn More
Take the Pressure Off IT

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8 Get proactive support technology and services (Cont'd.)

With just a few clicks, you can increase team productivity and the overall reliability of your VMware environments. A self-service portal lets you access your VMware inventory, proactive findings, recommendations, and risks if no action is taken.

SIMPLIFY AND AUTOMATE
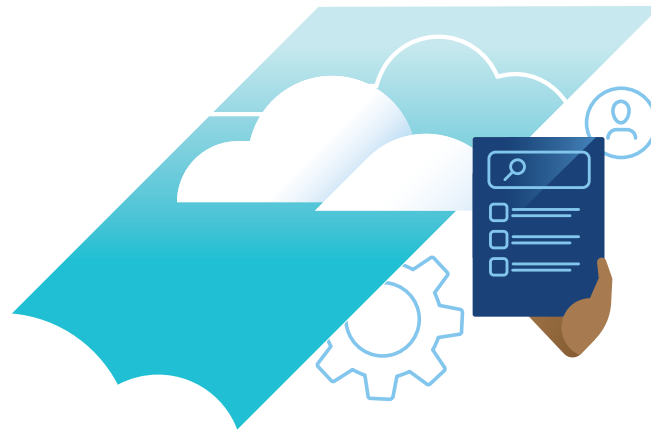
Proactively identify and prevent problems

Solve problems, not just symptoms

Increase security, reliability, and productivity

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⑨ Realize flexibility to run any app on any cloud

From the data center to the cloud to the edge, track workload migration and federate corporate identities in a single view.

VMware Cloud Foundation 4.0 provides hybrid cloud infrastructure with consistent management for both virtual machine-based and container-based applications.

With VMware Cloud Foundation, you have a more agile, service-oriented infrastructure that integrates with public clouds to modernize your data center.

VMware Cloud Foundation delivers:

Resiliency
Efficient and secure for virtual machine and container workloads.

Hybridity
Cloud operating model across private and public cloud.

Unification
Containers, Kubernetes, and virtual machines in unison.

Learn More
VMware Cloud Foundation

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⑨ Realize flexibility to run any app on any cloud (Cont'd.)

With VMware Cloud Foundation, you get a complete software-defined infrastructure, ubiquitous and flexible hybrid cloud services, consistent and efficient hybrid cloud operations, and an optimal environment for modern apps.

VMware Cloud Foundation

Automation & Operations

Compute   Storage   Network

Intrinsic Secutiy & Lifecycle Automation

Data Center | Edge | Service Provider | Public Cloud
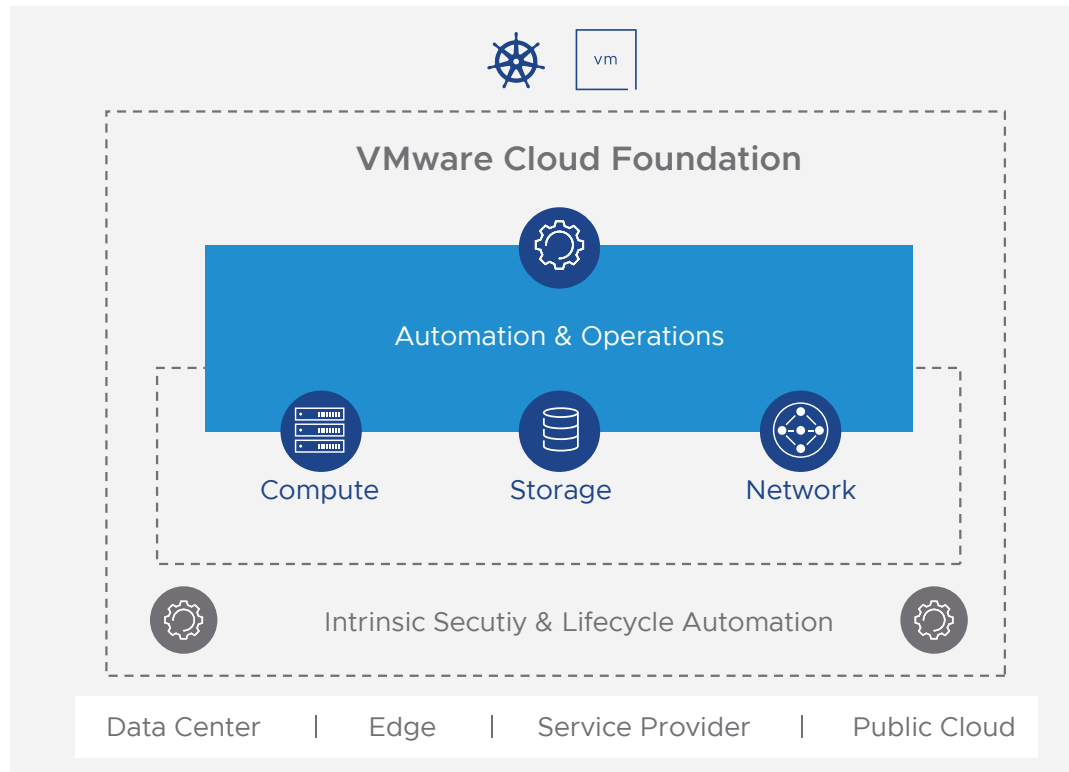
VMware Cloud Foundation gives you the flexibility to run your apps on any cloud.

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10 Build a solid HCI for modern applications

Future-proof infrastructure and reduce costs with high-performance and cost-efficient VMware vSAN 7 storage.

VMware vSAN™ 7 is a software-defined storage solution that abstracts and aggregates locally attached disks in a vSphere cluster to create a storage solution that can be provisioned and managed from vCenter Server and the vSphere Client. It integrates with the entire VMware stack, including features like vSphere vMotion®, HA, DRS, and more.

VMware vSAN 7 modernizes HCI by providing administrators a unified storage control plane for both block and file protocols. Significant enhancements of vSAN 7 make it an ideal storage solution for traditional virtual machines as well cloud native applications.

Integrated
Enterprise storage combined with hypervisor.

Policy Driven
Manage storage SLAs via virtual machine-level policies.

Scalable
Easily scale up and out to accommodate growth.

Learn More
Announcing vSAN 7

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10 Build a solid HCI for modern applications (Cont'd.)

Use vSAN 7 to simplify infrastructure management by reducing the number of tools you need to manage the server lifecycle. Unify block and file storage with vSAN, reducing reliance on third-party solutions and accelerating file share provisioning. Benefit from new capabilities that enhance cloud native applications and enable support for file-services.
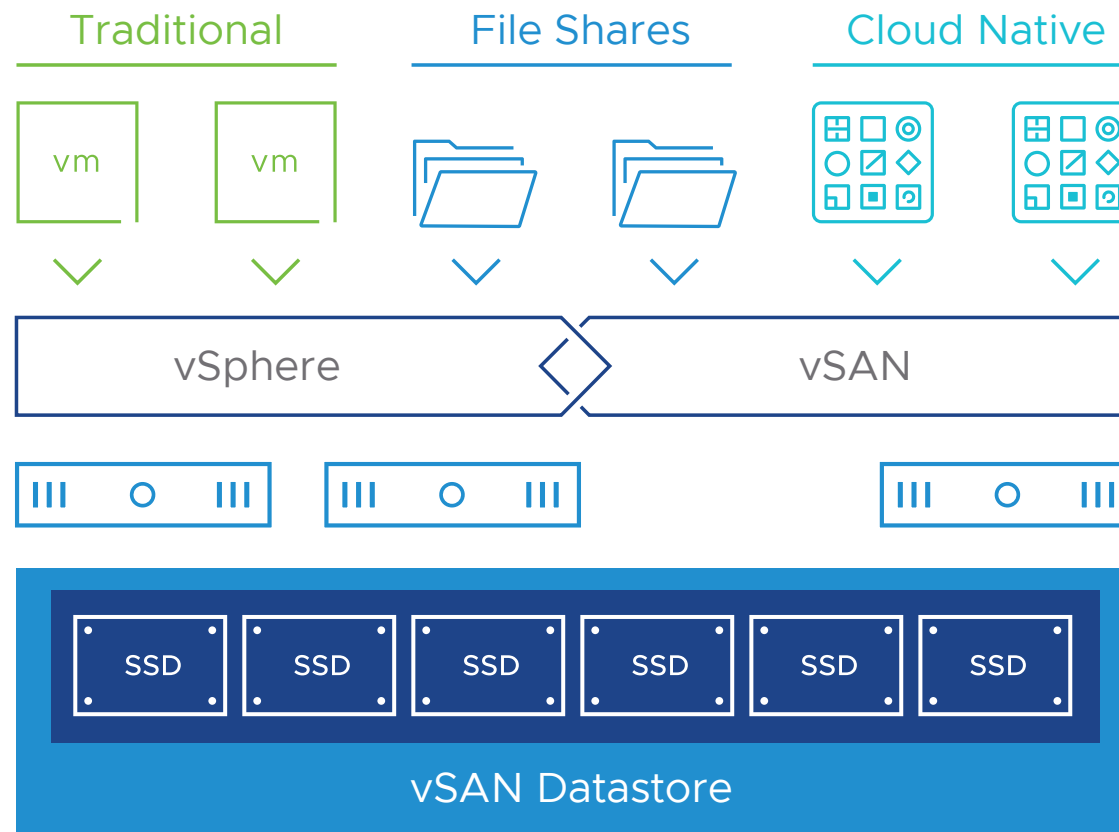
Get enterprise-class features, scale, and performance for virtual machine and cloud native workloads.

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Next steps on the path to upgrade

Jumpstart your upgrade with the *vSphere Assessment Tool*. Just download the desktop client, scan your vSphere environment, then review your results in the easy-to-access portal.

Download Our Client	Scan Your Environment	Review Your Risk

1. DOWNLOAD

Download the vSphere Assessment Tool desktop component for your selected operating system.

2. COLLECT

Add the credentials of the vCenters you would like to run a collection against.

3. CHECK

Upload the collected results to the vSphere Assessment Tool Portal, review and export your data in a interactive dashboard.

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Related resources

Learn more about VMware vSphere with Tanzu by reviewing the following resources:

General Resources

vSphere Academy

vSphere Blog

vSphere Product Page

vSphere YouTube Playlist

vSphere Upgrade Center

vSphere Assessment Tool

Other

What's New in vCenter Server 7

Take the Pressure Off IT

VMware Cloud Foundation

Hardware Acceleration with vSphere Bitfusion