Modernize Your IT Infrastructure with the Latest from VMware vSphere

The enterprise workload engine for traditional and next gen apps

Get Started

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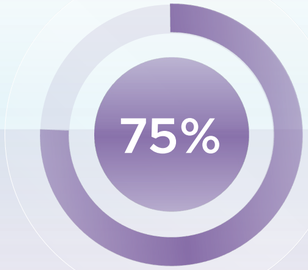
Today’s Reality

As organizations embrace Kubernetes and containerized workloads, virtual machines remain critical for legacy systems—creating a need for platforms that unify both environments. While 95% of enterprises are expected to run containers in production by 2029, complexity, skills gaps, and security concerns still hamper progress. Traditional 3-tier infrastructure is costly, rigid, and slow to scale, while public cloud introduces new challenges like integration issues, unpredictable costs, and governance risks. In response, many businesses are shifting to private cloud platforms that deliver the agility of cloud with the control, resilience, and cost-efficiency of on-premises infrastructure. A modern private cloud offers a consistent, secure, and scalable foundation—supporting both modern and legacy workloads through a unified, software-defined approach.

Global organizations will be running containerized applications by 2029[1]



Organizations committed to adopting Kubernetes for future infrastructure needs[2]

Enterprises that are using both server virtualization and cloud native technologies, that have IT workloads deployed on VMs today.[3]

1. Gartner, A CTO’s guide to containers and Kubernetes, Jan 2024
2. Spectro Cloud, State of Production Kubernetes Report, June 2024
3. 451 Research, Voice of the Enterprise: Cloud Native, Server Virtualization/Hypervisor Strategy, 2024

Introduction: Challenges facing today's organizations

Navigating Legacy And Modern IT Challenges

Building private cloud infrastructure is increasingly difficult as organizations struggle to manage the complexity of legacy systems alongside modern, containerized applications. Fragmented architectures, specialized skill requirements, and inconsistent management tools lead to inefficiencies, higher costs, and operational bottlenecks. With limited budgets and growing infrastructure demands, IT teams must find ways to simplify operations, optimize resource utilization, and prepare for future scalability—all while maintaining availability and performance across diverse environments.

The Workload Struggle Is Real

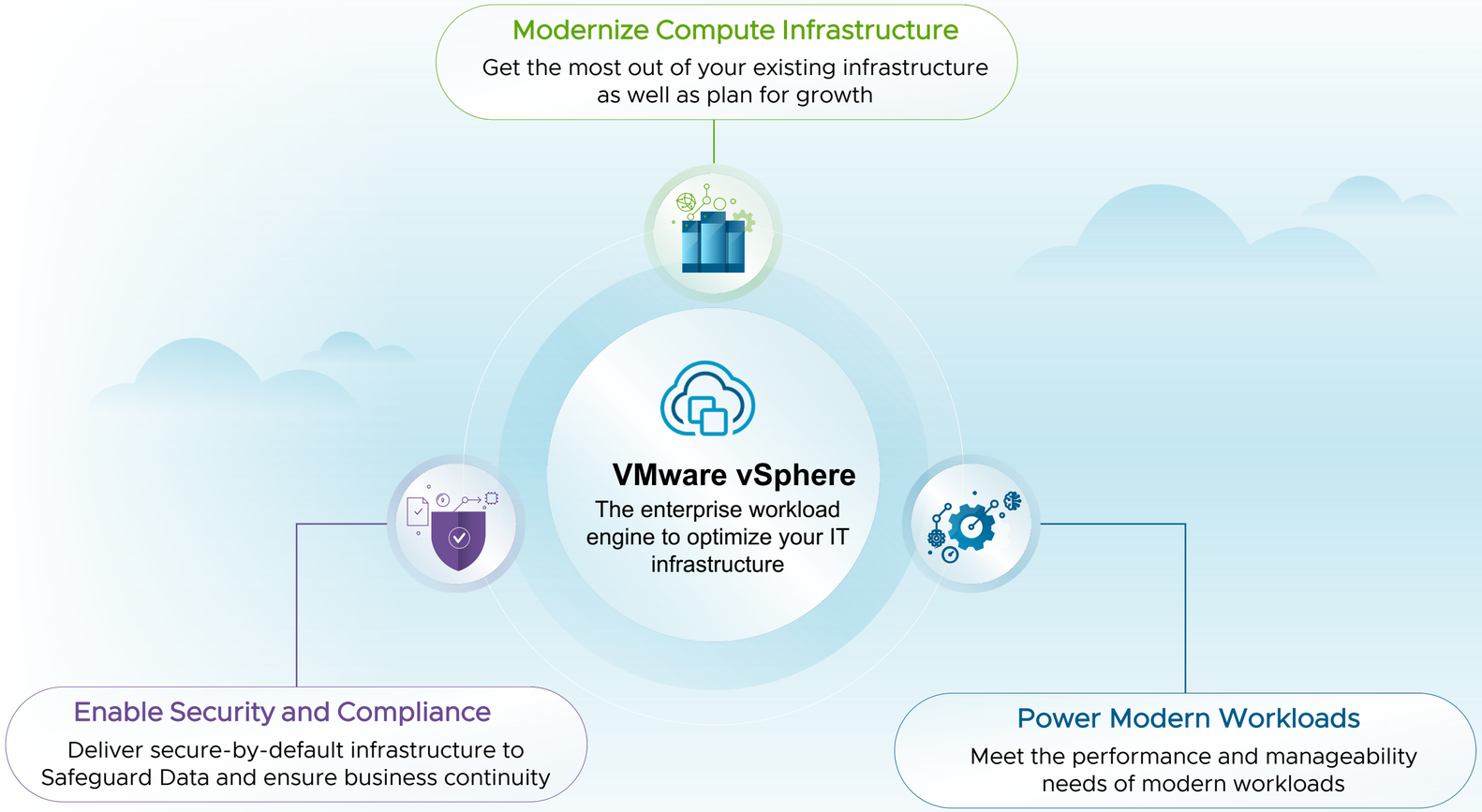
Meeting modern workload performance demands is a growing challenge as organizations balance the need for speed, scalability, and consistency across both VMs and Kubernetes environments. Simply upgrading hardware isn't enough—without the right architecture, tools, and processes, businesses risk underutilizing new resources and creating performance bottlenecks. IT teams must navigate the complexity of integrating accelerators like GPUs and DPUs, manage autoscaling across dynamic environments, and provide seamless self-service capabilities to ensure both high performance and faster time-to-market.

Built-In Security: Tackling the Toughest Hybrid IT Challenges

Security can no longer be an add-on; it must be built deep into the infrastructure to protect data and workloads by default as they shift dynamically across complex environments. IT teams wrestle with enforcing strict access controls and consistent security policies that must follow workloads through constant scaling, load balancing, and fault tolerance—without causing disruption. Balancing robust protection, seamless workload mobility, and uninterrupted availability remains one of the toughest challenges in securing modern, hybrid infrastructures against ever-evolving cyber threats.

Harness the power of the enterprise workload engine

The latest innovations from vSphere provide a modern compute engine that helps you overcome these traditional and next-gen app challenges and drive your organization forward. Here's how vSphere can help.



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#1 in Virtualization Software and Leader in Container Orchestration

"VMware vSphere Virtualization technology helps us in decreasing the cost of the physical infrastructure."

— Praveen K.
System Engineer, Government Agency

"vSphere impresses with its comprehensive feature set, providing a scalable and reliable platform for creating, managing, and securing virtualized infrastructures."

— Divyesh G.
Technical Team Lead

"The business problem it solves is server consolidation where we're able to consolidate multiple physical servers into a single host."

— Shanawaz A.
Senior DBA, Telecom Industry

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Modernize Compute Infrastructure

With vSphere you can simplify infrastructure management, deliver a future-ready and scalable infrastructure, reduce TCO while maximizing utilization. Overall, the advanced capabilities of vSphere help you reduce operational burdens, improve efficiencies, and get the most out of your infrastructure.

Achieve faster, easier lifecycle management by pre-staging ESX image downloads prior to maintenance and performing simultaneous upgrades on hosts.

Save admin time by allowing VMware ESX components, and patches to be applied without reboot or VM evacuation via Live Patching for VMware ESX.

Optimize IT maintenance widows by updating vCenter faster with minimal downtime, and faster return to operations after maintenance.

Deliver a faster path to private cloud with VPCs by providing a networking-as-a-service model with an easy to configure and intuitive networking experience.

Reduce TCO with features such as NVMe Memory Tiering and **Improve ROI** of precious GPU resources by enable efficient sharing of GPUs with heterogeneous vGPU profiles.

Provide a future-proof infrastructure by enabling IT environments to seamlessly integrate with next-gen processors and hardware accelerators such as DPUs and GPUs, while maintaining support for legacy hardware and applications.

Power Modern Workloads

As the leading virtualization platform, vSphere enables running modern, AI and traditional apps better. The latest updates to vSphere ensure that not only do traditional apps continue to run efficiently on existing hardware but also modern workloads while adding significant value for Platform Engineers. By enabling them to easily access a rich set of private cloud and infrastructure services, they can quickly build and deploy modern apps to give your organization a competitive advantage.

Provide a single platform for running VMs and Containers via the same familiar vCenter UI, new workflows to manage the inventory as well as observability of VMs and Kubernetes clusters.

Simplify cluster management with unified policy enforcements and a single cluster for Cluster management.

Empower platform engineering teams by streamlining access to a rich set of private cloud services.

Accelerate Kubernetes delivery to consumers through the vSphere Kubernetes Service (VKS). Supervisor can be upgraded independently of vSphere, allowing for more flexible and frequent updates.

Deliver an upstream conformant certified Kubernetes distribution with out of the box services for the latest innovation and the latest three Kubernetes (N-2) releases for flexible deployment.

Provide elevated security for Kubernetes clusters with built-in HA and reliability, failover mechanisms, Istio Service Mesh integration and VKS Data protection.

Enable Security and Compliance

vSphere delivers a secure-by-default platform that ensures up-to-date security best practices and helps you maintain the data integrity of VMs, containers, and workloads throughout their lifespan. With vSphere, your organization can stay ahead of bad actors and security breaches, and ensure that infrastructure remains available through applications' lifecycle, without disruption and in a secure fashion.

Deliver protection at every layer of the infrastructure stack via VM encryption, vSAN encryption and support for networking.

Provide security for dynamic workloads with data-in-transit encryption during vMotion live migration.

Enhance identity and access management with comprehensive support for enterprise identity federation and providers such as Okta, ADFS, Entra Id and Ping Federate.

Strength security with built-in platform features such as secure boot, hardware and virtual TPM, VM sandbox and CPU scheduler.

Quickly configure best practices for modern ciphers with support for TLS1.3 and FIPS 140-2 out-of-the-box.

Provide availability and ensure infrastructure is available for workloads with minimal disruption with HA configurations that provide redundancy in the event of failures or loss of uplinks, and FT for triggering failovers to eliminate downtime and prevent data loss.

Get started with vSphere

Modernize compute infrastructure.
Accelerate innovation and power
modern workloads.

Enable security and compliance.
Power your organization forward
with VMware vSphere.

To learn more visit:

WEBSITE

HANDS-ON-LABS

vSPHERE VERSION COMPARISON

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