VMware vSphere

The leader in virtualized infrastructure and your first step to application modernization

VMware vSphere® is the industry leading compute virtualization platform.

vSphere 7 has been rearchitected with native Kubernetes for application modernization. Developers can't afford infrastructure that slows them down – businesses rely on developers to rapidly develop and deploy applications to accelerate digital transformation. On the other hand, IT teams are challenged to deliver modern infrastructure that supports modern container-based application development, including the services and tools to build new applications.

Using vSphere 7, customers and partners can now deliver a developer-ready infrastructure, scale without compromise and simplify operations.

VMware delivers a simple Kubernetes implementation so that customers can run existing enterprise applications alongside containerized applications in a unified manner, while maintaining application portability.

vSphere with Tanzu helps customers modernize the 70M+ workloads running on vSphere and is the fastest way to get started with Kubernetes workloads on developer-ready infrastructure.

Why VMware vSphere®?

vSphere 7 is the biggest release of vSphere in over a decade. With the latest release, VMware vSphere® with VMware Tanzu™ enables millions of IT administrators across the globe to get started with Kubernetes workloads within an hour[1].
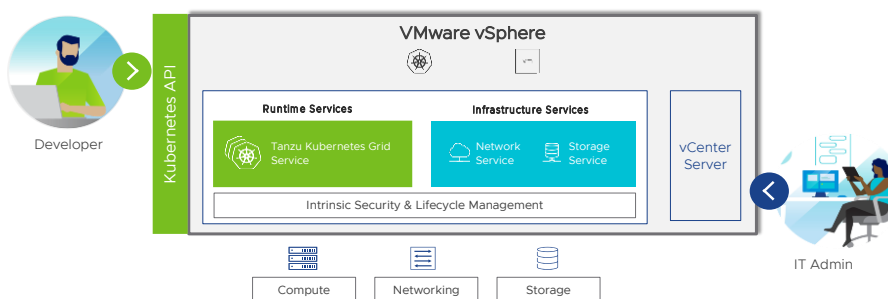

FIGURE 1: VMware vSphere with Tanzu[2]

vSphere 7 has been rearchitected with native Kubernetes to enable IT Admins to use vCenter Server® to operate Kubernetes clusters through namespaces. VMware vSphere with Tanzu allows IT Admins to operate with their existing skillset and deliver a self-service access to infrastructure for the Dev Ops teams; while providing observability and troubleshooting for Kubernetes workloads.

vSphere 7 provides an enterprise platform for both traditional applications as well as modern applications – so customers and partners can deliver a developer-ready infrastructure, scale without compromise and simplify operations.

Deliver Developer-ready Infrastructure: IT teams can use existing vSphere environments to set up an Enterprise-grade Kubernetes infrastructure at a rapid pace (within one hour), while enabling enterprise-class governance, reliability, and security. After this one-time setup, vSphere with Tanzu enables a simple, fast and self-service provisioning of Tanzu Kubernetes clusters within a few minutes[1]. Aligning DevOps teams and IT teams is critical to the success of modern application development; to bring efficiency, scale and security to Kubernetes deployments and operations. vSphere with Tanzu brings agile cloud operations to the IT admin to enable this transition into the role of Cloud Admin or SRE by delivering agility in day to day IT operations related to Kubernetes infrastructure.

Scale Without Compromise: vSphere can scale your infrastructure to meet the demands of high-performance applications and memory intensive databases including SAP HANA® and Epic® Caché Operational Database to name a few. With vSphere 7, a vSphere cluster can now support 50% more hosts compared to previous releases.

Simplify Operations: Simplified operations are delivered through key capabilities of vSphere 7 including elastic AI/ML infrastructure for sharing resources, simplified lifecycle management and intrinsic security across your hybrid cloud infrastructure.

vmware®

KEY BENEFITS

- **Deliver Developer-Ready Infrastructure**
  - ◦ Drop-in Enterprise grade Kubernetes to existing vSphere infrastructure within an hour[1]
  - o TKG service enables self-service provisioning of Kubernetes clusters within a few minutes and simplified operations of cloud native workloads
  - o Application focused management allows IT admins to implement policy for namespaces, and manage access and quota allocation for developers

- **Scale Without Compromise**
  - o Industry leading Monster VMs scale up to 24TB and 768 vCPUs
  - o Increased cluster scale to support up to 96 hosts per cluster

- **Boost Infrastructure and Data Security**
  - o Easier to enable encryption and advanced security with vSphere Native Key Provider
  - o Confidential Containers for vSphere Pods on AMD systems protect modern applications in use
  - o vSphere Product Audit Guides & FIPS validation ease compliance audits

- **Simplify Operations**
  - o vSphere Ideas® to capture customer feedback and feature requests
  - o vCenter connect® to manage on-premises and off-premises (cloud providers) servers using a single interface
  - o Easier and less disruptive maintenance with Suspend-to-Memory and Desired Image Seeding

Key features and capabilities

- **TKG Service**[2]**:** Run the Tanzu Kubernetes Grid service directly on vSphere to simplify operation of Kubernetes on-premises by putting cloud native constructs at the IT Admin's fingertips. TKG allows IT admins to manage conformant Kubernetes, while providing developers self-service access to infrastructure. vSphere with Tanzu enables a simple, fast and self-service provisioning of Tanzu Kubernetes clusters within a few minutes[1].

- **Drop-in to existing infrastructure**[2]**:** Quickly deploy Kubernetes workloads on existing infrastructure with enterprise-grade governance, reliability, and security. Leverage existing networking infrastructure (or BYO networking) using vSphere Distributed Switch's (VDS) centralized interface to configure, monitor and administer switching access for VMs and Kubernetes workloads. Deploy existing block and file storage infrastructure (BYO storage) for containerized workloads. Choose your own L4 load balancing solution using HAProxy (commercial support offered directly by HAProxy) for Tanzu Kubernetes clusters.

- **Application focused management**[2]**:** Kubernetes makes vSphere better by providing DevOps teams (Platform Operators and SREs) with self-service access to infrastructure through Kubernetes APIs. vSphere makes Kubernetes better by empowering IT admins to use vCenter Server skills/tools to operate modern applications, alongside VMs, using namespaces as a unit of management. Using application focused management, IT admins can use vCenter Server to observe and troubleshoot Tanzu Kubernetes clusters alongside VMs, implement role-based access and allocate capacity to developer teams.

- **VM-ready AI**: For artificial intelligence (AI) projects, customers can incorporate the latest generation of NVIDIA GPUs, including the NVIDIA® Ampere A100, into their virtual environment. Multi-Instance GPU (MIG) allows a physical GPU to be partitioned into up to 7 instances shared across multiple users. These instances can be moved with vMotion to other hosts supporting the same GPU technology.

- **Monster VMs:** Improve scale for Monster VMs to support massive environments. Scale up to 24TB memory and support up to 768 vCPUs through Monster VMs, leaving other hypervisor vendors far behind in the category. Speed-up the ESXi scheduler and co-scheduling logic for large VMs using selective latency sensitivity setting for workloads, removal of bottlenecks in vCPU sleep/wakeup paths, and a reduced memory overhead.

- **Persistent Memory (PMEM) workload resilience:** Workloads using Persistent Memory (PMEM), such as SAP HANA, can take advantage of vSphere HA (High Availability) to minimize downtime and improve resilience. PMEM workloads can failover to other PMEM hosts within the cluster.

- **Lifecycle Manager (vLCM) enhancements:** Simplify software upgrades, patching, and firmware updates for vSphere, vSAN and NSX-T with a single tool. vLCM will also monitor for desired image compliance continuously and enable simple remediation in the event of any compliance drift. Desired image seeding simplifies configuration of desired state by replicating the configuration information based on a reference host so users do not need to manually configure the desired state, saving time and avoiding data entry errors.

- **vSphere Ideas**®**:** Submit feature requests right from the vSphere Client UI, track the status of the feature requests and look at all the other feature requests submitted by other users to vote for them, through the Ideas portal.

- **vCenter connect**®**:** Manage on-premises and off-premises (cloud providers) vCenter Servers in a single interface using the any to any vCenter connect capability.

1. Based on internal VMware testing and expectations for a production environment, where appropriate networking settings are preconfigured for consumption.

2. Available only through the Tanzu Basic edition. Pre-requirements for 'vSphere with Tanzu' capabilities are that customers already have the vSphere Enterprise plus edition, and that they have upgraded to vSphere 7 Update 1.

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