

# VMware Tanzu® for Kubernetes Operations

Foundation for a modern, multi-cloud container infrastructure

## CUSTOMER PAINPOINTS

- Choosing amongst the scores of Kubernetes-related offerings can be daunting and fraught with risk
- Provisioning and managing a distributed container infrastructure at scale is complex and prone to inconsistencies and inefficiencies
- Security and traffic management for distributed applications that reside in multi-cloud environments require capabilities beyond that of traditional, perimeter-based approaches
- Monitoring a complex and abstracted stack like Kubernetes across clouds and distributions is difficult

## Overview

Digital transformation is fueling the adoption of cloud computing as well as cloud native technologies such as containers. As container adoption goes mainstream, Kubernetes beat the competition and became the de facto container orchestrator. It is being used across all industries today to help automate the deployment, management, and scaling of containerized applications.

Along with the fast Kubernetes adoption, enterprises are quickly moving to a multi-cloud reality due to a variety of reasons such as avoiding vendor lock in, minimizing risks, saving cost, customizing solutions, and meeting the exact needs of development teams asking for choices of cloud providers. We are seeing more and more enterprises today running Kubernetes across multiple clouds and/or across multiple vendors or distributions.

With this multi-cloud reality, building, operating, and managing a Kubernetes-based container infrastructure become even more challenging. How to choose from numerous Kubernetes-related open-source technologies and/or commercial offerings? How to simplify day 1 deployment and get the Kubernetes API to your developers in days, weeks, not months? How to increase the efficiency of day 2 operations by automating tasks such as upgrading, patching, and scaling? How to properly connect and monitor your entire Kubernetes footprint across clouds and across distributions? Last but not the least, how to make sure your Kubernetes infrastructure and applications are secure and compliant?

## VMware Tanzu for Kubernetes Operations

VMware Tanzu for Kubernetes Operations is the foundation for building a modern container infrastructure at scale across all your clouds. It simplifies container management with tools, automation, and data-driven insights that boost developer productivity, secure applications and data, and optimize infrastructure performance across all your clouds.



## TANZU ACTIVATION SERVICES

### *VMware Tanzu® Activation Services™*

are professional services designed to get you up and running quickly with VMware Tanzu™ for Kubernetes Operations. Our team of expert engineers will quickly deploy, integrate and configure Tanzu for Kubernetes Operations in your environment, and migrate one pre-agreed upon application onto your new platform. We work with you to build a platform that aligns with infrastructure and app needs while optimizing your platform operating costs.

Tanzu Activation Services are designed to accelerate the establishment of your platform capabilities.

- Quickly deploy, integrate and configure Tanzu for Kubernetes Operations in your environment.
- Enable developer self-service access to the right infrastructure abstractions and app building blocks
- Automate and monitor cloud platform operations
- Enforce networking, security, and compliance requirements
- Find, prioritize and migrate apps to the new platform for maximum benefit

## Key Capabilities of Tanzu for Kubernetes Operations

### **A consistent Kubernetes runtime across on-premises, public clouds and at the edge.**

Tanzu for Kubernetes Operations enables IT teams to deploy an enterprise-ready Kubernetes runtime, which packages together key open-source technologies and automation tooling to help them get up and running quickly with a scalable, multi-cluster Kubernetes environment. It is natively integrated with vSphere and can also be extended to run with consistency across your public clouds and edge environments.

**A centralized hub for simplified, multi-cloud, multi-cluster Kubernetes management.** With Tanzu for Kubernetes Operations, platform operators can leverage a centralized management hub to simplify Kubernetes management, reducing complexity and operational toil of managing multiple clusters across clouds and teams. For example, platform operators can centrally manage the lifecycle of the clusters, easily apply consistent policies such as security and network policies across clusters and clouds, and also do cluster backup and restore via the platform.

### **Full-stack observability for Kubernetes infrastructure and application across clouds.**

Tanzu for Kubernetes Operations enables enterprises to monitor, observe, and analyze application and infrastructure health and performance at massive scale, providing the first pane-of-glass analytics across multi-clouds and multi-stack. SREs and DevOps teams can quickly identify and troubleshoot performance issues, shortening mean time to repair. Operators can correlate and drill down across applications running on Kubernetes, and deep dive into any incident using distributed tracing across distributed environments. Sophisticated AI-driven performance analytics and trends predictions proactively alert anomalies across all environments.

### **Advanced, end-to-end connectivity, security, and insights for modern applications —**

across application end-users, microservices, APIs, and data. Tanzu for Kubernetes Operations provides service mesh capabilities across single and multiple clusters, clouds, and data centers. Teams can build application resiliency and data security policies and bake security testing into their existing DevOps toolchain, ensuring application high availability, performance and secure transactions. In addition to rich application performance metrics and security visibility, it offers application and data-level security policies — for example, attribute-based access control (ABAC) policies, end-to-end encryption policies, and API segmentation, parameter validation and threat protection policies.

### **Enterprise-grade, integrated load balancing, ingress and container networking.**

With Tanzu for Kubernetes Operations, platform and IT operators can easily implement container ingress services, including L4-L7 local and global server load balancing (GSLB), web application firewall (WAF), DNS, and IPAM in a single platform across any cloud. In addition, it has built-in container networking leveraging [Antrea](#), making it easy for platform operators to apply and change network policies to run applications without the risk of disruptions and with guaranteed security enforcement into each cluster.

**Application modernization tooling** to aid in discovery, analysis, and transformation of legacy applications in VMs to containers. Tanzu for Kubernetes Operations comes with application modernization tools which can be used to scan and introspect the entire vSphere or VMware Cloud-based data center to discover application components and dependencies. It leverages vRealize Network Insight flows to automatically generate application topologies with an end-to-end view, and creates artifacts such as Docker files, OCI-compliant container images, and Kubernetes YAML files, simplifying application modernization efforts.

### WHAT DOES TANZU FOR KUBERNETES OPERATIONS INCLUDE?

- A consistent Kubernetes runtime across on-premises, public clouds, and edge environments
- A centralized multi-cloud, multi-cluster management hub
- Full stack, multi-cloud observability
- End to end connectivity with zero-trust security and data encryption
- Enterprise grade integrated load balancing, ingress and container networking
- Application modernization tooling to aid in containerizing legacy apps

### Benefits of Tanzu for Kubernetes Operations

Tanzu for Kubernetes Operations provides the foundation for a modern, multi-cloud container infrastructure anchored on three action pillars: simplify, secure, and optimize.

#### Simplify

*Simplify choice.* The busy Kubernetes open source ecosystem and the crowded Kubernetes marketplace make it daunting and risky for enterprises to choose the best solution amongst numerous Kubernetes-related offerings out there. Tanzu for Kubernetes Operations simplifies the process with an expertly curated offering of the core elements needed to stand up and operate a modern, enterprise-grade container infrastructure. Our complete solution is backed by unrivaled global support, thereby eliminating not only the confusion and finger pointing of multiple support touch points but also the risk of making the wrong core element choices.

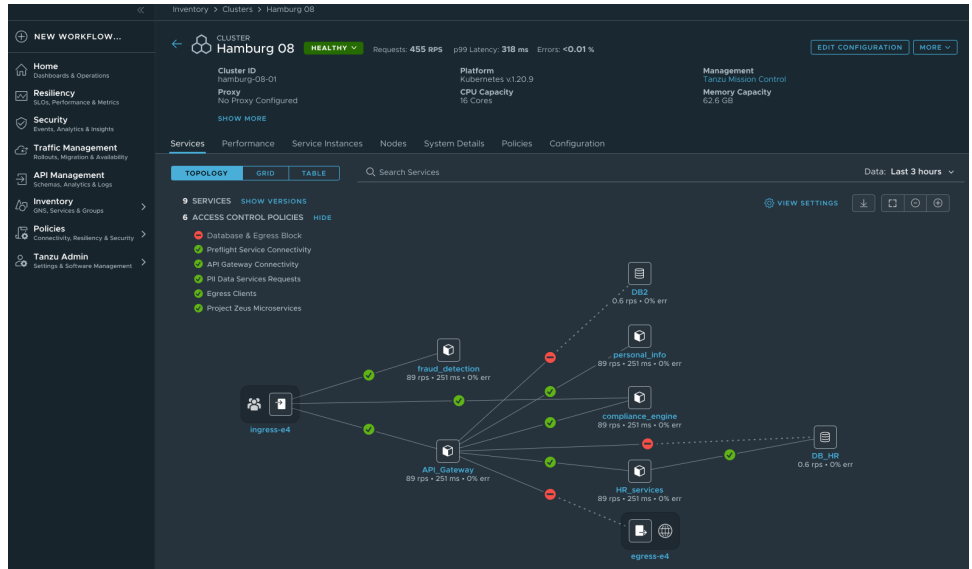
*Simplify operations.* Provisioning and managing a distributed container infrastructure can be complexity-laden, especially as the number of containers and clusters scale across multiple clouds. Tanzu for Kubernetes Operations radically simplifies this by providing a consistent Kubernetes runtime across on-premises, public cloud, and edge environments and managing it all through a central SaaS management hub that is always up-to-date and API-extensible to take advantage of the latest VMware and third-party technical innovations.

Name	Health	Status	Version	Cluster group	Type	Management cluster	Requested/Allocatable mem
aks-dev-01	Healthy	Ready	v1.18.19			Microsoft Azure	67% (6.11 GB/9.14 GB)
aks-prod-01	Healthy	Ready	v1.18.19			Microsoft Azure	50% (6.84 GB/13.68 GB)
gke-dev-01	Healthy	Ready	v1.19.15-gke-1801			Google Cloud	43% (3.63 GB/8.45 GB)
gke-prod-01	Healthy	Ready	v1.19.15-gke-1801			Google Cloud	61% (5.14 GB/8.45 GB)
gke-staging-01	Warning	Ready	v1.20.12-gke-1500			Google Cloud	42% (4.74 GB/11.27 GB)
opershift-dev-01	Healthy	Ready	v1.17.1+6a93663			OpenShift	43% (28.19 GB/65.27 GB)
tap-eks-01	Healthy	Ready	v1.21.5-eks-bc487b			AWS	14% (10.29 GB/73.11 GB)
tkg-azure-dev-02	Healthy	Ready	v1.19.8+vmware.3-...			Microsoft Azure	21% (3.29 GB/15.72 GB)
tkg-vsphere-prod-01	Healthy	Ready	v1.20.2+vmware.1-...			vSphere	21% (15.18 GB/71.40 GB)
tkg-vsphere-tap-04	Healthy	Ready	v1.20.9+vmware.1-...			vSphere	1% (3.39 GB/256.94 GB)
vmug	Healthy	Ready	v1.20.9+vmware.1-...			vSphere	4% (4.71 GB/128.47 GB)

#### Secure

As applications and data are increasingly distributed across multiple clouds, traditional perimeter-based security is not able to deliver the fine-grain security and control needed to protect microservices, APIs, and data.

Tanzu for Kubernetes Operations meets the need with line-of-sight application visibility, API threat detection and protection, end-to-end encryption, and control of how applications share data with one another across multiple clouds, all backed by a full audit history to provide continuous proof of compliance.



### Optimize

The portability, flexibility, and multi-cloud capabilities of containers and Kubernetes have fueled their brisk enterprise adoption, but with it have come new challenges; namely, how to ensure that applications and infrastructure are operating at peak performance.

Tanzu for Kubernetes Operations provides a real-time, unified view into the infrastructure, operating systems, and applications of single and multi-cloud environments with advanced tools and automation that identify bottlenecks, accelerate root-cause analysis, and render the data-driven, actionable insights vital for continuous application and infrastructure optimization.



### Summary

Tanzu for Kubernetes Operations provides enterprises with the foundation for building, operating, and managing a modern, Kubernetes-based container infrastructure across

LEARN MORE

- **Website**

<https://tanzu.vmware.com/kubernetes-operations>

- **Test Drive**

[https://pathfinder.vmware.com/v3/path/tko\\_path](https://pathfinder.vmware.com/v3/path/tko_path)

multi-cloud. It simplifies provisioning and management of Kubernetes with tools, automation, and data-driven insights to boost developer productivity, secure applications and data, and optimize infrastructure performance across your entire multi-cloud IT estate.

With Tanzu for Kubernetes Operations, all your clouds become launchpads for innovation to deliver vital business applications to the right place, at the right time, and at the right scale to accelerate your transformation journey from where you are to where you want to be.