

VMware Tanzu Mission Control

Centralized Kubernetes Management

BENEFITS OF MULTI-CLOUD AND MULTICLUSTER KUBERNETES ARCHITECTURES

Avoid lock-in: By utilizing different clouds for different workloads, you can be more agile in the face of change and avoid being locked in to one cloud vendor or set of tools.

Better isolation: Using namespace as the tenancy model to separate workloads causes potential security and performance risks, since namespaces share common cluster-wide services. Thus, using clusters as the isolation boundary is the preferred way to provide multitenancy, using the underlying hypervisor to isolate workloads much more effectively.

Higher availability: A multicloud architecture reduces blast radius. Cluster issues, especially those that are related to shared services, won't subsequently bring down all the applications running on the cluster. You can gain higher availability for your applications overall.

Customized configurations: Different applications require different configurations. With clusters as the isolation boundary for applications, you can equip Kubernetes with the exact configuration that the apps need.

Overview

As the velocity of application modernization accelerates, an increasing number of enterprise development teams are starting to leverage cloud native methodologies, such as microservices and containers. For operators, running applications on Kubernetes can mean significant benefits:

- Shortened inner and outer loop deployment cycles
- Improved resource utilization and
- Simplified application upgrades.

This explains why, according to a recent survey, 65 percent of enterprises are running Kubernetes in production today.¹

As you expand your Kubernetes footprint, a manual cluster-by-cluster management approach will quickly become insufficient and prone to errors and vulnerabilities. Enterprises need a solution to help platform operators efficiently expand control and provide Kubernetes environments with guardrails so DevOps teams can have consistency and developers can operate autonomously.

VMware Tanzu® Mission Control™ is a centralized management hub with a **unified policy engine** that simplifies **multi-cloud** and **multicloud** Kubernetes management across stakeholder teams within the enterprise.

What is Tanzu Mission Control?

As an increasing number of applications become containerized, the need for Kubernetes management to adapt and extend are critical for the future. Platform operators need a robust and extendable Kubernetes management hub that can grow with their increasing footprint. Tanzu Mission Control reduces complexity and is an adaptable and extensible management hub.

- **Adaptable:** Tanzu Mission Control is a SaaS product from VMware, so there's no software to install or maintain. Users will receive new features and integrations as the most current technology becomes available.
- **Extensible:** Tanzu Mission Control integrates with the broader VMware Tanzu portfolio (Tanzu Service Mesh, Tanzu Kubernetes Grid, Tanzu Observability), as

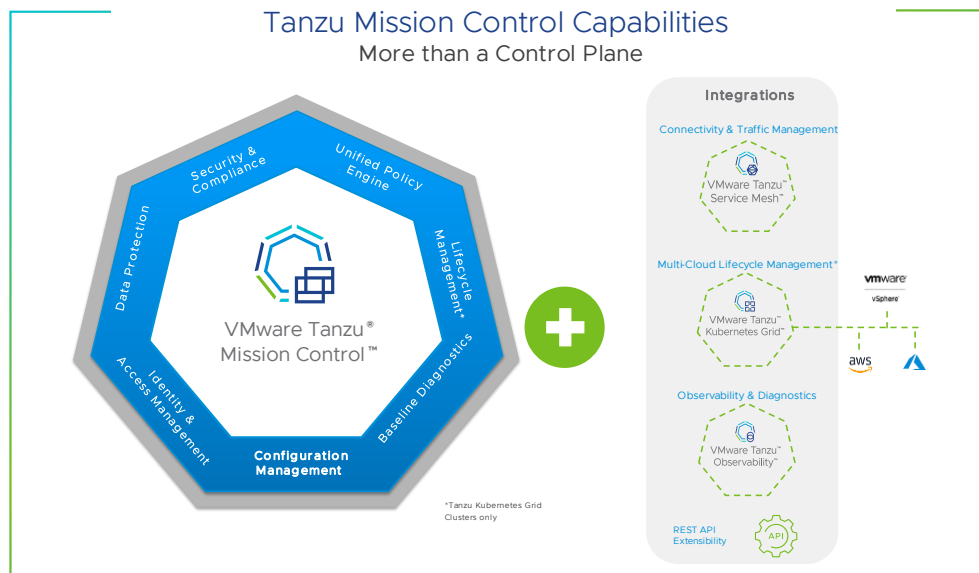
¹ "The State of Kubernetes 2021" survey

WHO USES VMWARE TANZU MISSION CONTROL?

The infrastructure and platform teams use Tanzu Mission Control to centralize their Kubernetes management tasks and enable the DevOps teams and developers with self-service access to consistent Kubernetes clusters.

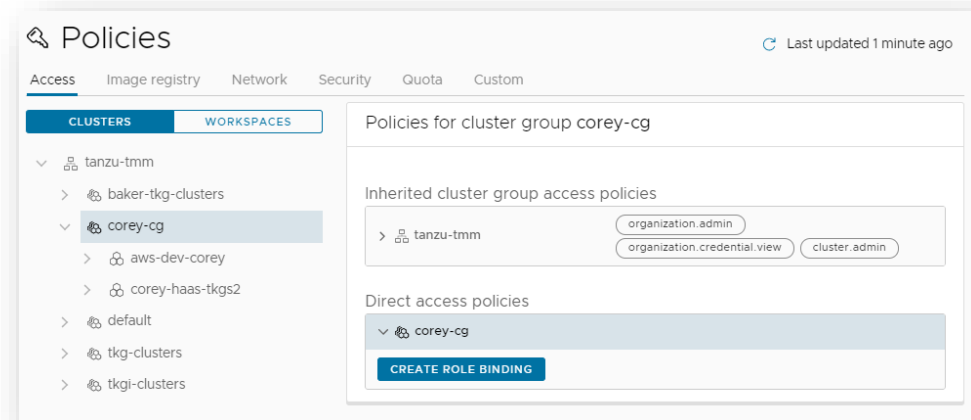
The application teams use Tanzu Mission Control to better manage and maintain applications by easily deploying and redeploying services and workloads across clusters. It also helps DevOps teams better understand the health of applications and quickly troubleshoot issues so they can operate at speed.

well as third-party tools through [REST APIs](#) so you can take advantage of future technology innovations.



Key features of Tanzu Mission Control

Unified policy engine: When you provision or attach your entire Kubernetes footprint under Tanzu Mission Control, you can utilize the powerful policy engine to apply consistent policies, such as access, network, quota, and container registry policies to all clusters with a few clicks. Apply policies to a group of clusters across different clouds, or to a group of namespaces within multiple clusters across multiple environments.



Security and compliance: Tanzu Mission Control offers built-in security policies and cluster inspection capabilities so you can apply additional controls on your multi-cloud Kubernetes deployments. Tanzu Mission Control offers out-of-the-box strict and baseline

security policies and integrates with [Open Policy Agent](#) policies so you can adapt your security posture over time.

Data protection: Leveraging the built-in, open source [Velero project](#), Tanzu Mission Control enables you to easily back up and restore your clusters, namespaces, and even groups of resources using Kubernetes label selectors via Tanzu Mission Control's UI, CLI, or API.

Attaching clusters: Any Cloud Native Computing Foundation (CNCF)-conformant cluster can be attached for policy management if the cluster can reach Tanzu Mission Control's public endpoints. When attached to Tanzu Mission Control, you can manage policies for all Kubernetes distributions such as Tanzu Kubernetes Grid, Amazon Elastic Kubernetes Service, Azure Kubernetes Service, Google Kubernetes Engine, OpenShift, or BYO Kubernetes clusters.

Centralized cluster lifecycle management: Tanzu Mission Control enables provisioning and lifecycle management of Tanzu Kubernetes Grid clusters across public clouds² and vSphere clusters.

Identity and access management: Tanzu Mission Control allows centralized authentication and authorization and federated identity from multiple sources, such as AD, LDAP, and SAML. You can use the access policy of Tanzu Mission Control to more granularly manage access to your clusters and namespaces to make sure the right people access the right resources.

Baseline cluster health and diagnostics: Gain global health insights on your clusters that are residing in disparate environments, as well as the workloads running on them. Tanzu Mission Control also visualizes the health status of your Kubernetes clusters and workloads so you can easily identify and troubleshoot issues. For expanded insights, [Tanzu Observability](#) can be deployed through Tanzu Mission Control for more robust monitoring.

Cluster inspection: Tanzu Mission Control enables you to run inspections on your clusters for potential configuration and security risks against the industry standards. For example, you can run cluster conformance inspection in Tanzu Mission Control leveraging the built-in, open source [Sonobuoy project](#) to make sure your clusters are configured in conformance with the CNCF standards, and run [Center for Internet Security](#) (CIS) Benchmark Inspection for any potential security risks.

Extendable through APIs: Tanzu Mission Control offers a robust set of capabilities but is also adaptable to keep pace with growing management complexity. To ensure you're future-proofed, Tanzu Mission control offers integrations and package deployments for:

- [Tanzu Observability](#)
- [Tanzu Service Mesh](#)
- [Tanzu Kubernetes Grid](#)
- [Tanzu Standard Packages/BYO-Repo](#)
- [REST API Endpoint](#)

² Tanzu Mission Control currently supports provisioning, scaling, upgrading, and deleting clusters in Amazon EC2, with support to other environments coming later.

For more information about available APIs, visit [Tanzu Mission Control API Explorer](#).

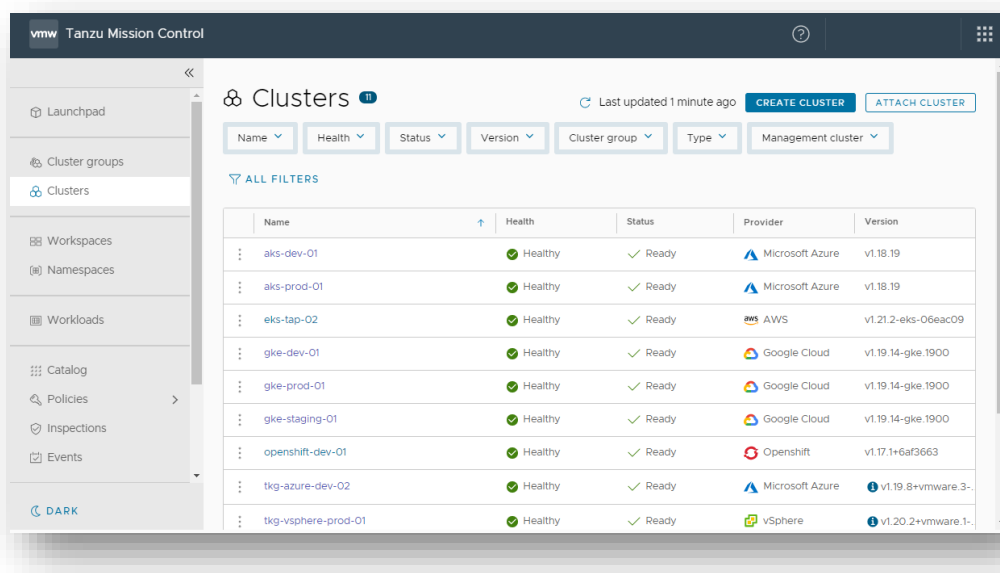
Benefits of Tanzu Mission Control

While **infrastructure** and **platform teams** will experience the day-to-day benefits of streamlined Kubernetes management, Tanzu Mission Control also helps infrastructure and platform teams service two key stakeholders: **DevOps teams** and **developers**.

Control for operators: By centralizing Kubernetes management, Tanzu Mission Control helps operators properly and expediently provision and configure clusters. Whether you're just starting out or are very experienced with Kubernetes, Tanzu Mission Control can help you **better control your Kubernetes infrastructure**.

Consistency for DevOps: Centralizing Kubernetes management tasks with Tanzu Mission Control brings consistency to clusters. Consistent configuration means a reliable path to deployment so that **DevOps teams can operate at speed**.

Flexibility for developers: Tanzu Mission Control offers developers autonomy and flexibility with easy access to **Kubernetes with guardrails** so they can focus on building great apps instead of wrestling with infrastructure.



Why choose Tanzu Mission Control?

Multi-cloud control: Tanzu Mission Control offers robust policy management for fleets of Kubernetes clusters. On premises, at the edge, or in a public cloud.

Reduced DevOps friction: Tanzu Mission Control helps increase consistency and delivers a better Day-X experience by allowing operations teams to provide preconfigured infrastructure to development and technical teams.

Open source innovation: Tanzu Mission Control utilizes the most innovative open source technologies. VMware is a key contributor and driver in the Kubernetes ecosystem, so you can have the best Kubernetes experience, with enterprise readiness.

Summary

With Kubernetes adoption accelerating, the number of clusters that an enterprise needs to manage is increasing quickly, and very possibly across many different environments—in multiple data centers on premises and/or in different public clouds. The old, manual, cluster-by-cluster approach of management becomes insufficient and is error prone.

VMware Tanzu Mission Control can help you expediently and consistently operate Kubernetes environments across clouds and teams with security and an improved stakeholder experience.

