ESG Economic Validation

Exploring the Economic Benefits of VMware Tanzu for Kubernetes Operations

By Nathan McAfee, Validation Analyst
May 2022

Executive Summary

A growing number of organizations are using Kubernetes and agile software development methods to reduce the time and complexity associated with developing and running modernized applications. While most IT professionals recognize the value of Kubernetes infrastructure and services, the technology is still maturing and can be complex to learn, deploy, and operationalize due in part to a global skills shortage of Kubernetes talent.

VMware Tanzu for Kubernetes Operations

Simplify platform operations across clouds

Secure all your apps and data end-to-end

Optimize operations with data-driven insights

This report explores the benefits that customers can realize when deploying VMware Tanzu for Kubernetes Operations. Customers that ESG spoke with highlighted that Tanzu for Kubernetes Operations helped their organizations simplify, secure, and optimize the deployment, management, and operation of a Kubernetes platform for modernized applications.

Introduction

This report explores the economic and business benefits of VMware Tanzu for Kubernetes Operations for IT operators and DevOps teams.
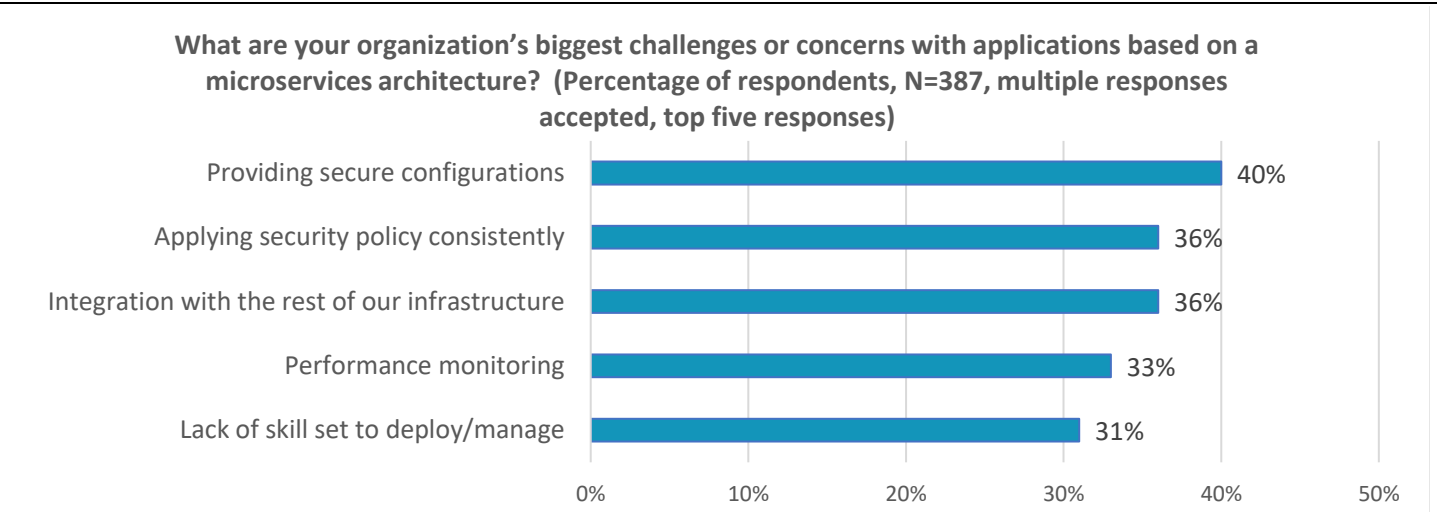
Background

ESG's research indicates that a majority of organizations are making significant progress on their application modernization journeys, with nearly three-quarters (73%) currently developing cloud-native applications based on microservices architectures.[1] While usage may be relatively limited at this point, almost two-thirds (65%) of organizations expect more than half of their production applications will be based on a microservices architecture within two years. Kubernetes has become the de facto standard run-time environment for microservices and containerized applications and a clear sign that it is mainstreaming is the rapid growth in the number of clusters being deployed. A VMware survey conducted in 2022 found that the number of respondents operating 50 or more clusters almost doubled, from 15% in 2020 to 29% in 2022. At the same time, the number of respondents operating fewer than 5 clusters dropped from 40% in 2020 to only 12% in 2022.[2]

One of the key reasons why Kubernetes is so powerful is that it can run on-premises, in public clouds, and at the edge. Nearly nine in ten respondents to a recently completed ESG research survey indicated that their organization currently deploys production applications and server workloads on public cloud infrastructure.[3] Yet most of those organizations are leveraging more than one public cloud service provider (CSP). Indeed, 39% report using at least four CSPs, which is not surprising given the importance of a distributed or multi-cloud approach to cloud-native strategies. This optionality is important because many organizations are adopting a hybrid approach to IT infrastructure.

Challenges

As shown in Figure 1, a recent ESG survey indicates that the top five challenges associated with using a microservices architecture (e.g., Kubernetes) for application modernization include security concerns (providing secure configurations and applying security configurations consistently), integration with the rest of the architecture (e.g., virtualized applications that are currently being managed with vSphere), performance monitoring, and a lack of skills to deploy and manage.[4]

Figure 1. Top Five Challenges Associated with Modernizing Applications with Microservices Architectures

What are your organization's biggest challenges or concerns with applications based on a microservices architecture? (Percentage of respondents, N=387, multiple responses accepted, top five responses)

Challenge	Percentage
Providing secure configurations	40%
Applying security policy consistently	36%
Integration with the rest of our infrastructure	36%
Performance monitoring	33%
Lack of skill set to deploy/manage	31%

Source: ESG, a division of TechTarget, Inc.

---

[1] Source: ESG Research Report, *Distributed Cloud Series: Cloud-native Applications*, to be published.
[2] Source: VMware Research Report, *The State of Kubernetes*, April 2022.
[3] Source: ESG Research Report, *Distributed Cloud Series: Cloud-native Applications*, to be published.
[4] Ibid.

VMware Tanzu for Kubernetes Operations

VMware Tanzu for Kubernetes Operations is a Kubernetes platform that includes an open source-aligned runtime environment with a centralized management console and a collection of tools and services that provides a simplified, consistent approach to container deployment, scaling, and management with automated data-driven insight.

Tanzu for Kubernetes Operations is a curated platform of software focused on infrastructure transformation initiatives with a goal of simplifying and accelerating Kubernetes adoption. As shown in Figure 2, with Tanzu for Kubernetes Operations, the IT operations (IT Ops) and Development Operations (DevOps) teams can centrally manage infrastructure and security for all of their Kubernetes clusters (in an on-premises data center, in one or more public clouds, and at the edge) as they provide the self-service delivery of microservices application development sandboxes and production environments for developers.

Figure 2. Tanzu or Kubernetes Operations

Source: ESG, a division of TechTarget, Inc.

The balance of this report explores the economic and business benefits of Tanzu for Kubernetes Operations, including:

- Simplifying platform operations across clouds.

- Securing apps and data end-to-end.

- Optimizing operations with data-driven insights.

ESG Economic Validation

ESG's Economic Validation process is a proven method for understanding, validating, and quantifying the economic value of emerging information technology solutions. The process leverages ESG's core competencies in market and industry analysis, forward-looking research, and economic analysis. For this report, ESG reviewed the results of existing case studies and end-user surveys. In addition, ESG conducted in-depth interviews with end-users with a goal of understanding how VMware Tanzu for Kubernetes Operations impacted their organizations, particularly in comparison with how they used to operate prior to deploying Tanzu. ESG began exploring the benefits of Tanzu for Kubernetes Operations by examining the value of each of the key services and products that are included.

Kubernetes Runtime (Powered by VMware Tanzu Kubernetes Grid)

The Kubernetes Runtime included in Tanzu for Kubernetes Operations is powered by VMware Tanzu Kubernetes Grid, which provisions, operates, and manages Kubernetes clusters. It provides advanced networking, a private container registry, and lifecycle management so that users can run and manage containers at scale on private and public clouds.

For the infrastructure operators responsible for deploying and managing a modernized application infrastructure, VMware Tanzu Kubernetes Grid:

- Simplifies the installation of scalable Kubernetes environments.

- Automates multi-cluster and multi-cloud operations.

- Provides a familiar look and feel for vSphere operators through native integration with vSphere.

ESG customer interviews with infrastructure operators indicate that Tanzu customers are very satisfied with the product and felt that they had greatly streamlined their operations, were operating more efficiently, and were doing a better overall job at running and managing multiple Kubernetes clusters. ESG found that Tanzu Kubernetes runtime provides significant operational savings during Day 0/1 Kubernetes platform deployment and the Day 2 management and operation of containerized applications.

3-5x Faster
Time to Value

One customer that ESG spoke with estimated it would take six months to deploy a new Kubernetes platform with previous-generation technology, but that timeline was cut to less than two months with Tanzu Kubernetes Grid. Familiar tools and the ability to centrally manage policies across multiple Kubernetes clusters accelerates the time to deploy an organization's first containerized application by three to five times. Multiple customers that ESG spoke with had similar feedback. Tanzu reduces the administrative costs associated with Kubernetes infrastructure planning, configuration, and deployment by 70 to 80 percent.[5]

Multi-cloud Control Plane (Powered by VMware Tanzu Mission Control)

VMware Tanzu Mission Control, one of the key components of the Tanzu for Kubernetes Operations solution, is a multi-cloud, multi-cluster control plane for operators to consistently operate and secure Kubernetes infrastructure and modern applications across multiple teams and clouds.

This single point of control greatly simplifies Kubernetes management and applications across the entire base of clouds and clusters. Tanzu Mission Control users can deploy and upgrade clusters, set policies and configurations, and get a full understanding of the health of clusters while facilitating the quick identification and cause of issues.

For the infrastructure operators responsible for managing, optimizing, and troubleshooting a modernized application infrastructure, VMware Tanzu Mission Control:

- Improves the control of Kubernetes infrastructure.

- Improves resource utilization.

- Simplify multi-cloud and multi-cluster Kubernetes management, e.g., cluster upgrade.

---

[5] Source: ESG Economic Validation, *Analyzing the Economic Benefits of Operationalizing Kubernetes with VMware Tanzu Standard,* January 2021.

All the customers that ESG interviewed highlighted the benefits that they have achieved using Tanzu Mission Control for centralized policy-based Kubernetes management across multiple clusters. Platform operators reported that Tanzu reduced complexity and is an adaptable and extensible management hub. One of the Tanzu customers that ESG spoke with quantified those benefits for his organization when he said, "Tanzu is really helpful with Kubernetes cluster operations because it handles 90-99% of our operations."[6]

"Tanzu is really helpful with Kubernetes cluster operations because it handles 90-99% of our operations."

Full Stack Observability (Powered by VMware Tanzu Observability)

VMware Tanzu Observability provides full-stack observability, smart alerting, and data-driven insights, which help Kubernetes infrastructure operators deliver:

- Hybrid application monitoring across VMs, enterprise software, and cloud-native solutions.

- Centralized observability across any type of cloud.

- Instant insight into platform health and increased application uptime.

"Observability is great for IT departments but even more impactful in the ability to assure our business leaders that an organization is operating within compliance guidelines."

Tanzu Observability effectively integrates with other VMware products like vSphere, and it can observe across any cloud type (AWS, Azure, GCP, or on-premises). It is designed to easily interact with most major cloud products to ensure a full view of an organization's resources. One customer that ESG spoke with said that the observability that Tanzu provided not only helped them streamline IT operations, but it also lowered overall costs through better resource utilization and a reduction of duplicated and unused resources. They said, "The cost of change was very low, especially when compared with the benefits of observability."

One customer interviewed shared that the benefits of Tanzu Observability extended far beyond what it brings to Kubernetes. It helped them find and measure other traffic to ensure the entire operation was viewable and operating at maximum efficiency.

End-to-end Connectivity and Security (Powered by VMware Tanzu Service Mesh)

VMware Tanzu Service Mesh provides advanced, end-to-end connectivity, security, and insights for modern applications—across application end-users, microservices, APIs, and data—enabling compliance with service level objectives (SLOs) and data protection and privacy regulations. Tanzu Service Mesh is a multi-cluster, multi-cloud application connectivity solution with global namespaces that enable application resiliency and security regardless of where the applications are deployed.

---

[6] Ibid.

For Kubernetes operators, Tanzu Service Mesh:

- Facilitates the development and management of distributed applications across multiple clusters and clouds.

- Enables zero trust application security with automated DevSecOps workflows.

- Enhances visibility across app end-users, microservices, APIs, and data.

"Tanzu Service Mesh allows us to streamline configurations. The result is much faster application performance and a higher level of consumer satisfaction (internal and external consumers)."

One VMware customer, an American television and satellite provider, uses Tanzu Service Mesh to help optimize their configurations based on its telemetry data. The result was a dramatically reduced application roundtrip response time from 500ms down to 211ms. ESG interviewed a global computer retailer and found that implementing NSX Advanced Load Balancer and Tanzu Service Mesh helped to reduce the complexity of managing the networking fabrics, helped them achieve micro-segmentation at scale, and enable transport layer security for all apps consistently.

Integrated Load Balancing and Ingress (Powered by VMware NSX Advanced Load Balancer)

VMware NSX Advanced Load Balancer transparently distributes networking traffic requests among multiple clusters across multiple sites for load balancing and high availability. For Kubernetes operators, NSX Advanced Load Balancer provides:

- Cloud-native automation and elastic scaling.

- Operational simplicity.

- Rich observability.

NSX Advanced Load Balancer offers customers the shortest path to production-ready Kubernetes clusters by consolidating L4-7 container networking services, including local and global load balancing web applications, firewall, and container ingress onto a single scalable platform. Telegraph Media Group, a customer in the media industry, seamlessly switched to NSX Advanced Load Balancer and saved time and resources when network health checks could be done in minutes. They can extend all the platform benefits to ingress services if they decide to deploy workloads in containers and Kubernetes. With their load balancing deployment, they realized an improved ability to troubleshoot and resolve problems, and they discovered that VMware's software-based load balancing enabled a fast, scalable, and secure experience for the company's photo handling application. The engineer reported, "NSX Advanced Load Balancer is a software-defined load balancer that is click-and-go. It is brilliant for setting things up. NSX Advanced Load Balancer is also great for creating

"NSX Advanced Load Balancer is a software-defined solution that is click-and-go. It is brilliant for setting things up. It is also great for creating specific configurations and it is easy and straightforward. I was struck by how easy it is to alter that configuration without having to reinvent the wheel."

specific configurations and it is easy and straightforward. I was struck by how easy it is to alter that configuration without having to reinvent the wheel."[7]

---

[7] Source: VMware Case Study: *Telegraph Optimizes Media Delivery for On-time Printing with Scalable Load Balancing*.

NSX Advanced Load Balancer solves the challenge of enabling growth without the necessity of adding hardware. One customer described the impact as, "We are a cloud-first company trying to get rid of as much tin as possible. We have a large virtual machine infrastructure. We didn't want to buy more tin and NSX Advanced Load Balancer was a perfect fit."

Planning, Training, and Consulting Services (Powered by VMware Tanzu Labs)

VMware Tanzu Labs provides consulting services, partnering with organizations to develop cloud-native applications, build platforms that meet the needs of both developers and operators, and provide secure and frictionless developer experiences. Tanzu Labs consultants work collaboratively with customers in order to transfer agile development skills and modern platform engineering practices while delivering software. Tanzu Labs helps customers maximize the productivity gains possible with cloud-native technologies while enabling organizations to adopt the practices and culture necessary for long-term transformation. Working side by side with IT operations and DevOps teams, the Tanzu Labs team of experts can help organizations:

- Establish a dedicated platform team and accelerate productivity for Kubernetes platform operators.

- Reduce operating costs and risk implementing tooling, automation, DevSecOps, and SRE practices.

- Simplify platform operations across clouds.

Tanzu Activation Services are designed to kickstart Kubernetes operations. This professional services engagement will facilitate the quick deployment, integration, and configuration for Tanzu in organizations' environments.

The largest office furniture manufacturer in the world, Steelcase, engaged with Tanzu Labs with a goal of learning how to use modern software development methodologies, tools, and technologies, such as VMware Tanzu and Spring, to accelerate the shift to a cloud-native architecture. The business director involved in the Tanzu Labs

"Working with VMware Tanzu, we created a methodology and approach that helped us engage our team and execute in a way that they were effectively being enabled and skilled. We're still using this today. The key part of this was for us to not be afraid to try out true agile methods."

engagement summarized the benefits of working collaboratively, pairing Tanzu Labs consultants with Steelcase team members to deliver software: *"Engaging with [VMware Tanzu Labs] has given us a new foundation to work with—not only from a tools perspective, but from a process perspective, as well. Pairing with folks who had been through this before, who had the experience, who could teach us all of these different tools and processes and technologies—that was absolutely huge."*[8]

The Synergy of the Products and Services in the VMware Tanzu for Kubernetes Operations Solution

VMware Tanzu for Kubernetes Operations extends the value of Tanzu infrastructure operators, bringing some of the most requested functionality additions into one deliverable. The synergy associated with the combination of all the features and services in VMWare Tanzu for Kubernetes Operations helps IT, platform operators, and DevOps teams:

---

[8] Source: VMware Customer Success Story, *How Steelcase Adopted Cloud-native Practices and Technology to Reconceive a Core Business Application*.

- Simplify platform operations across clouds.

- Secure all apps and data end-to-end.

- Optimize operations with data-driven insight.

"VMware Tanzu for Kubernetes Operations solution is ideally suited for Kubernetes infrastructure operators that are struggling with the complexity associated with integrating a bespoke mix of open source software with existing DevOps and security practices," said Rob Strechay, ESG Senior Analyst. "The combined synergy of this full suite of products and services helps simplify, secure, and optimize the operation of cloud-native application infrastructure in multi-cloud environments."

"The combined synergy of the full suite of Tanzu for Kubernetes Operations products and services helps simplify, secure, and optimize the operation of cloud-native application infrastructure in multi-cloud environments."

The Bigger Truth

Unlike other recent emerging technologies, established IT vendors have been quick to embrace Kubernetes for application modernization. As such, it is not surprising that many IT managers are looking to technology stalwarts like VMware to help them implement and support the technology in a multi-cloud context. IT operations teams are looking for ways to simplify and accelerate the adoption of Kubernetes while leveraging their existing investment in VMware software and management tools. Developers are looking for ways to get out of the business of managing infrastructure so they can spend more time developing applications that meet the needs of the business.

VMware Tanzu for Kubernetes Operations is a curated platform of VMware products and services that provide secure, consistent, and simplified container management and operations across clouds. Most of what users can do with Tanzu for Kubernetes Operations can be done with a bring-your-own (BYO) collection of open source software, ISV software, hardware, and professional services—but ESG believes that the Kubernetes experience is better with the functionality of Tanzu for Kubernetes Operations. It's open source-aligned, which simplifies updates and reduces the risk of a security vulnerability. It includes enterprise-class support and services (e.g., Tanzu Labs), which accelerates time to value and reduces risk.

As we've explored in this report and summarized in Table 1, Tanzu for Kubernetes Operations reduces the cost and complexity of deploying, securing, and optimizing infrastructure for Kubernetes platform operators.

Table 1. Bring-your-own Software versus VMware Tanzu for Kubernetes Operations

Task	Bring Your Own Software	Tanzu for Kubernetes Operations
Initial Kubernetes runtime platform installation	Months	Weeks
Scaling existing Kubernetes clusters	Hours	Minutes
Healing after a cluster hardware failure	Manual	Automated
Monitoring and troubleshooting	Complex	Simple
Load balancing and ingress controller	Add-on software or hardware	Included
Network and data security between clouds	Add-on encryption	Included

Source: Enterprise Strategy Group

If your organization is looking to simplify, secure, and optimize the deployment, management, and operations of your Kubernetes platform for application modernization, then ESG recommends that you consider the operational savings and business benefits that can be achieved with VMware Tanzu for Kubernetes Operations.

ESG
a division of TechTarget

Enterprise Strategy Group is an integrated technology analysis, research, and strategy firm that provides market intelligence, actionable insight, and go-to-market content services to the global IT community.

© 2022 TechTarget, Inc. All Rights Reserved.