

Top 5 Challenges of Application Modernization

And how to overcome them with
VMware Cloud Foundation

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Introduction: The need for application modernization

In today's increasingly competitive and fast-paced digital landscape, traditional development environments can saddle your organization with rigid infrastructure, time-consuming setup, scaling challenges, and other limitations. These limitations, in turn, can hinder your application team's ability to build, deploy and deliver applications quickly. Modern application teams require an environment that gives them faster access to on-demand resources, automated workflows, and scalable infrastructure so they can focus more on writing code and solving problems rather than managing infrastructure.

This is exactly what VMware Cloud Foundation™ (VCF) delivers. VCF abstracts away the complexity of underlying infrastructure, giving your platform teams self-service access to infrastructure resources for on-demand provisioning and management without IT intervention. With a unified platform for both traditional and modern workloads, VCF enables your development teams to supercharge productivity and support advanced workloads utilizing cloud-native and AI technologies.

Let's take a look at how VCF helps overcome the top five challenges of application modernization.



Lack of automation and orchestration

Not having advanced automation tools and orchestration capabilities can make it difficult for platform teams to automate the provisioning, deployment, and scaling of resources.

Without automation, developers may need to provision and manage infrastructure resources manually through an IT ticketing system, slowing down development cycles and increasing operational overhead.



The solution: VMware Cloud Foundation

VCF enables automation by abstracting away the complexity of underlying infrastructure to give platform teams self-service access to infrastructure resources for on-demand provisioning and management without IT intervention. VCF Automation, an integral component of VCF, creates a centralized consumption experience, allowing application teams to automate the provisioning process and consume IaaS effortlessly for faster development cycles and reduced operational overhead.

“VMware Cloud Foundation is our trusted solution for better data and infrastructure management. It’s a proven product that has automated our processes, improved our network’s performance, and heightened stability.”

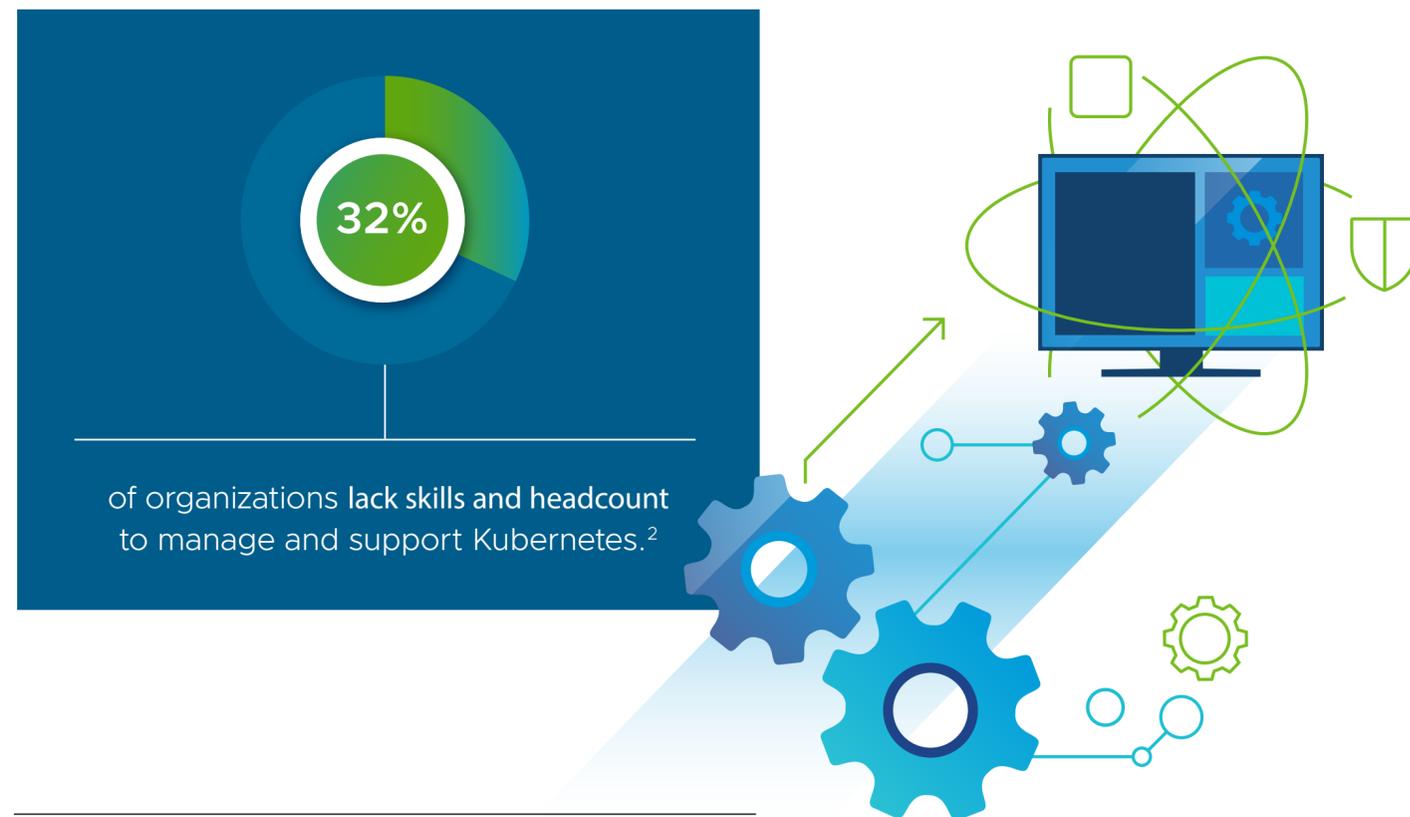
Rodney Barnhardt

Server Administrator, Charlotte Pipe and Foundry

1. Enterprise Strategy Group. “Distributed Cloud Series: The State of Infrastructure Modernization Across the Distributed Cloud.” November 2023.

Inadequate support and skills for development of modern apps

Many legacy infrastructures don't fully support modern app development technologies such as Kubernetes, containers, data services, microservices, or AI/ML services. Because of this, platform teams are often forced to work with older technologies. In addition, organizations face a skill gap and a steep learning curve when it comes to developing modern apps.



2. Kubernetes Adoption, Security, and Market Trends Report 2024.

The solution: VMware Cloud Foundation

With the inclusion of vSphere Kubernetes Service (VKS), VCF delivers integrated Kubernetes runtime to deploy and run containerized workloads. VCF Automation Services (previously known as Supervisor Services) deliver IaaS components and tightly-integrated Independent Software Vendor services to developers, which speeds up development cycles.

“We are transitioning all our software to modern, containerized apps. With VMware, we have progressed quickly on that journey, and transforming our software has helped us become a more agile business moving in the direction consumers want.”

Vishwas Chitale
CEO & CTO, Chitale Dairy

Limited infrastructure visibility and monitoring

Platform engineers often lack real-time monitoring and visibility into resource utilization and application performance. Without proper insights into infrastructure performance and health, troubleshooting issues and optimizing workloads can become time-consuming, leading to inefficiencies in application development.



The solution: VMware Cloud Foundation

VCF Operations Management Pack for Kubernetes enables customers to visualize, monitor and troubleshoot Kubernetes clusters and their components, providing end-to-end visibility. VCF Operations helps customers monitor GPU metrics like compute, memory, temperature and power consumption at a cluster and host level for ESXi hosts having GPUs. With GPU dashboards and alerts, customers can assess the performance impact on GPU hardware and on the system as a whole. In addition, VCF monitors mission-critical applications for performance, availability and end-user experience.

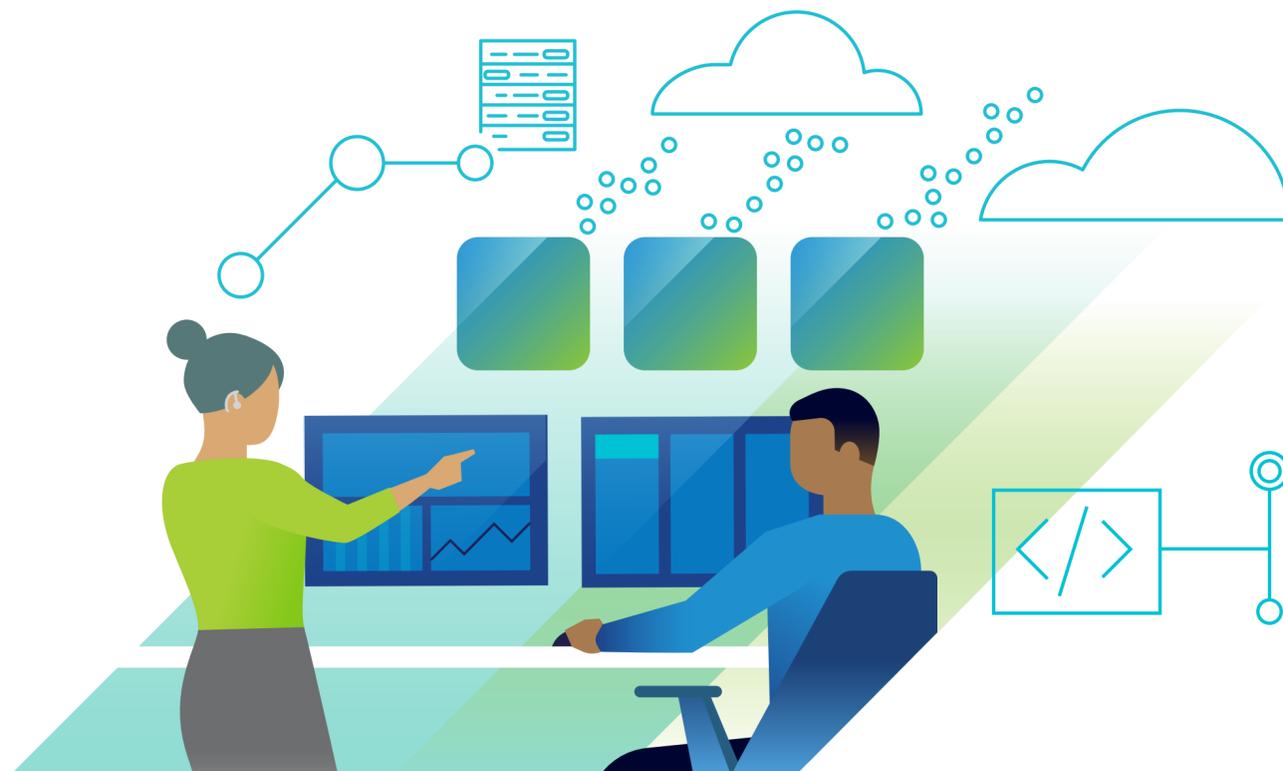
“VMware Cloud Foundation Operations for networks is helping us build a map of the network. We’re now able to chart traffic flows and identify trends. If something is not trending as expected, if packet flows are not ideal, we’re taking action.”

Michael Miller

Technical Architect, Mary Washington Healthcare

Infrastructure silos and interoperability issues

Disparate infrastructure components lead to management discrepancies and operational inefficiencies. Platform teams often face interoperability challenges when connecting modern cloud-native applications with older systems, which can result in compatibility issues, delays, and technical debt.



The solution: VMware Cloud Foundation

With consistent infrastructure and operations across your traditional three-tier based infrastructure, VCF and public cloud, you don't need to refactor or re-architect your applications. Instead, you can seamlessly integrate modern cloud-native applications with legacy systems.

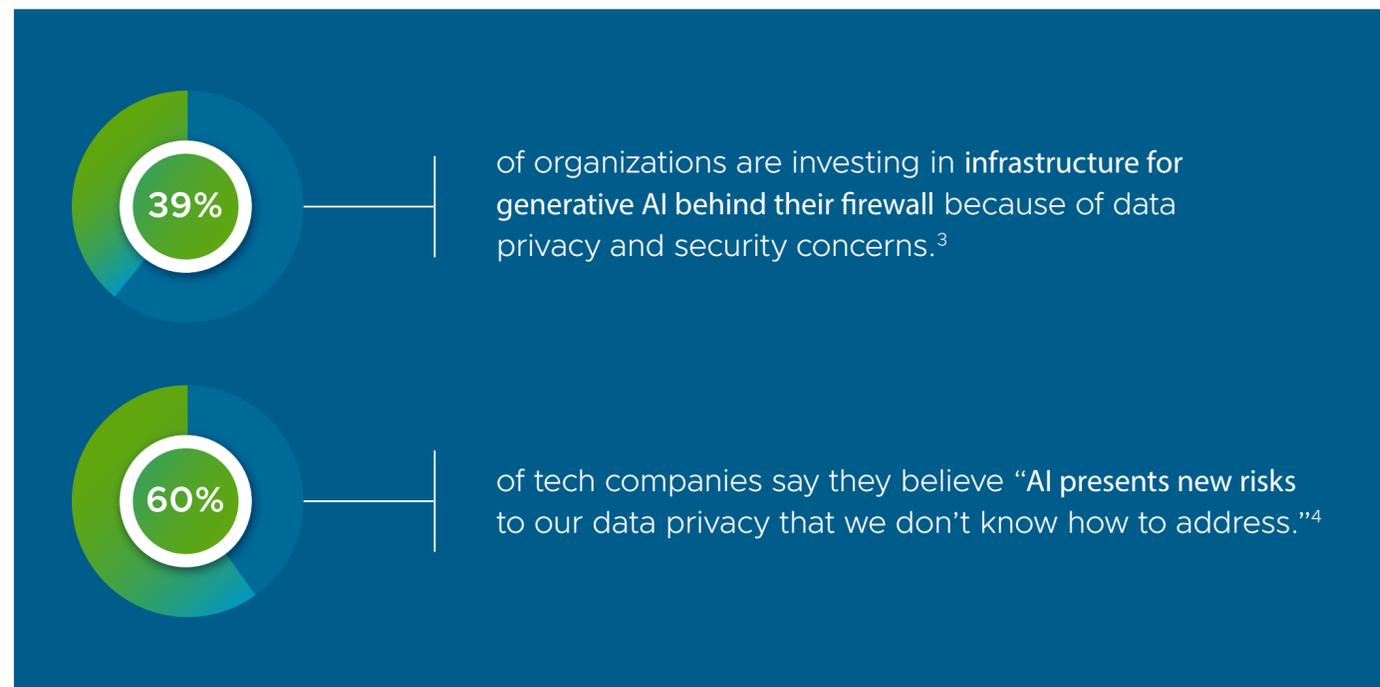
“Initially, we partnered with Primark on a large Oracle project, and over the subsequent years, we have transformed its VMware footprint and SaaS estate from legacy environments to a fully-fledged VMware software-defined stack. Primark now has an IT infrastructure that matches the speed of the business.”

Donal Byrne

CTO, Triangle Technology Services

Security and privacy issues due to outdated infrastructure

Providing modern infrastructure for DevOps to build cutting-edge applications using AI/ML services brings unique security and privacy challenges, especially in protecting sensitive data and ensuring regulatory compliance.



The solution: VMware Cloud Foundation

VCF protects your data and helps ensure compliance with robust security features such as microsegmentation, data-at-rest and data-in-transit encryption, identity and access management (RBAC), data governance, auditing and monitoring capabilities, and advanced threat detection capabilities. For AI applications, VMware Private AI Foundation with NVIDIA enables you to maintain control over sensitive data and meet stringent security, compliance and privacy requirements.

“With VMware Cloud Foundation, we’ve built a secure, private cloud environment that allows us to quickly and efficiently implement AI technologies—whether it’s for knowledge-based chatbots assisting staff or delivering financial answers directly to our members across multiple devices. AI in banking helps us automate everyday transactions, streamline loan processing, and proactively identify member needs, ensuring that our services are both intuitive and secure.”

Mark Fournier

CIO, U.S. Senate Federal Credit Union

3. IDC Spotlight. “For Generative AI, Private Data Is the Differentiator But Poses Security Concerns. Doc # US51604323

4. VMware FY24 Q2 Executive Pulse, N=450 Enterprise Technology Executives.

Accelerate application modernization journey for your organization

Empower your development teams to build, deploy and deliver applications faster than ever before with VMware Cloud Foundation.

Check out these resources to learn more:

[VCF Website](#) [Datasheet](#) [Blogs](#)

[VCF Total Cost of Ownership](#)

[White paper](#) [Infographic](#)

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