

How to Achieve Cloud Success with Hybrid Cloud Management

Consistent operations reduce complexity and risk of application modernization

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DEMAND FOR HYBRID CLOUD MANAGEMENT

63% of IT leaders want to extend their management and operations tools and processes from the data center tools to the public cloud, rather than bring cloud operations tools to the data center.¹

Executive summary

Enterprises are modernizing applications. And, are also modernizing the infrastructure they run on to improve the speed of new feature delivery. Modern applications require scalability and performance. As a result, hybrid cloud is the preferred infrastructure strategy to enable successful application modernization. But, while adding additional cloud environments can deliver cost and agility benefits, expanding beyond the data center adds complexity and risk.

One of the most pressing enterprise challenges is simplifying the management of a diverse portfolio of applications deployed across distinct environments, from private cloud to the public cloud to edge.

Discover how VMware Future Ready™ Hybrid Cloud Solutions deliver consistent operations across environments to reduce complexity and risk related to application modernization.

What's driving enterprise hybrid cloud adoption?

If you're working in IT or overseeing digital transformation or application modernization, chances are you have already moved at least one of your production workloads to the cloud.

Hybrid cloud provides a range of benefits for both traditional and modernized IT needs.

Hybrid cloud benefits for traditional IT

- Achieve higher levels of resource utilization and move applications off aging infrastructure.
- Reduce costs and eliminate data center and cloud silos.
- Scale on demand for disaster recovery, capacity expansion and to address seasonal spikes in resource needs.
- Find the best-fit environments for apps based on performance, cost, data sovereignty, and cloud service offerings.

Hybrid cloud benefits for modernized IT

- Shift from infrastructure focus, to application and IT consumer focus.
- Migrate and modernize applications to the best-fit environment and best-fit technology.
- Adopt new hybrid IT service delivery models that better support business needs.
- Support cloud-native and DevOps initiatives, with more automation for both traditional and containerized application architectures.

The value of consistent hybrid cloud management

Not all hybrid cloud solutions are created equal. Many of the benefits of a hybrid strategy are realized by having consistent infrastructure and consistent operations across application deployment environments.

What are consistent infrastructure and consistent operations?

Consistent infrastructure is when all layers of infrastructure (compute, network and storage) across two or more environments are software-defined and programmed for automated service delivery.

Consistent operations builds on the foundation of consistent infrastructure and allows IT, DevOps and site reliability engineers (SREs) to use the same set of tools, workflows, configurations, and policies to operate infrastructure and applications across the data center, cloud and edge.

KEY PUBLIC CLOUD PAIN POINTS²

- #1 Staff skills
- #2 Unified management tools

How do inconsistencies put enterprises at risk?

Managing infrastructure and operations in hybrid IT environments can pose a number of risks for organizations:

- Different APIs and native services can add complexity, cause confusion and increase errors.
- Skills gap that comes from having to hire or train staff on each environment's unique tool stack.
- Lack of a unified management framework across cloud platforms can result in unnecessary cost of duplicate management tools and processes.
- Disparate workflows and processes for each additional environment can create inconsistent implementation of policies creating security and compliance gaps at both the infrastructure and application layers.
- Unpredictable service delivery can result in varying service request times and repair times across environments.

Those who have already moved workloads to the cloud are feeling the pain of the environment-specific silos, new tools, and new skills requirements. Recent Enterprise Management Associates' (EMA) research found the most critical pain point experienced by those who have already adopted public cloud is the inability to leverage existing tools and operations staff for new cloud environments.²

VMware Hybrid Cloud delivers simplicity with consistency

The VMware hybrid cloud is unique. By deploying VMware Cloud Foundation™ everywhere – including in private cloud, public cloud, and edge environments – you get consistent infrastructure and consistent operations upon a foundation of intrinsic security.

VMware Cloud Foundation provides a virtualized and automated infrastructure based on leading compute, network and storage solutions, VMware vSphere®, VMware NSX® and VMware vSAN™. It includes operations and automation tools that deliver consistent operations across all environments with VMware vRealize® Cloud Management™. VMware Cloud Foundation™ with VMware Tanzu™ also provides a single platform for both VMs and containers, allowing operators to provision Kubernetes clusters from vCenter.

Consistent operations allows organizations to extend and operate both their on-premises and public cloud platforms using the same set of tools and processes, enabling a single operating model with consistent management for end-to-end visibility and the ability to leverage the same provisioning processes across all platforms.

VMware offers a rapidly evolving mix of options to deploy VMware Cloud Foundation. VMware managed service is available in Amazon Cloud as VMware Cloud on AWS™, and in your data center and with hosted providers as VMware Cloud® on Dell EMC™. VMware powers your multi-cloud strategy with leading public cloud providers offering hybrid-compatible services based on the same VMware Cloud stack, including Google Cloud VMware Engine, IBM Cloud for VMware Solutions, Microsoft Azure VMware Solution, and Oracle Cloud VMware Solution. More than 200 VMware Cloud Provider Program Partners offer VMware Cloud Verified hybrid cloud services on the same VMware Cloud stack.

vRealize Cloud Management components are also available as SaaS solutions and offer a flexible licensing model with vRealize® Cloud Universal™, which combines on-premises and SaaS offerings. With some vRealize Cloud Management components, you can take advantage of VMware Skyline™ proactive intelligence for issue avoidance and a unified support and management experience.

“It’s intimidating to think about putting high-value workloads in the cloud, especially in financial services, but adopting cloud is both necessary and practical to achieve IT and business goals. It used to take me around a year and a half just to place an application in production. With VMware vRealize Cloud Management, I now do it within months. It’s a game changer.”

NÉSTOR RODRÍGUEZ
DIRECTOR OF TECHNOLOGY AND CHANGE
PROVIDENT MEXICO

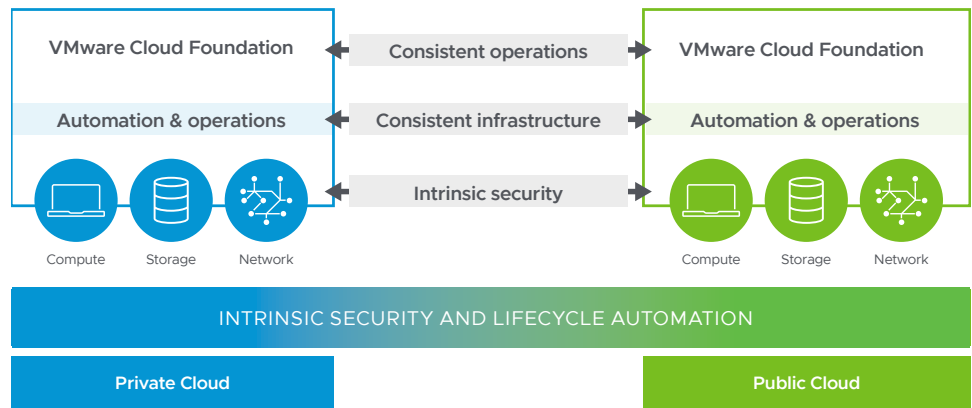


Figure 1. VMware hybrid cloud consistent operations and consistent infrastructure with intrinsic security

Manage, automate, optimize and deliver SaaS cloud management with VMware Cloud Foundation

As IT organizations move operational responsibility beyond the data center, they need to expand their capabilities to hybrid cloud management. With VMware Cloud Foundation, teams can simplify operations in three ways:

1. **Manage VMs and containers with a single platform**, and auto-discover new Kubernetes management constructs: supervisor cluster, namespaces, pods and guest pods. This empowers you with full visibility between the container world and vSphere infrastructure, enabling you to:
 - Give developers a compliant and conformant Kubernetes API, while IT gets familiar tools and processes to manage clusters
 - Use customizable dashboards, reports, views and alerts to help operationalize vSphere 7.0 with Kubernetes
 - Monitor the full-stack performance, capacity, utilization, and configurations of Kubernetes constructs
 - Manage and forecast capacity to show capacity bottlenecks in container environments.
2. **Automate and optimize workloads and infrastructure** and eliminate risky, error-prone IT tasks and siloed operations. This allows rapid and consistent IT service delivery in any environment. You can leverage AI and predictive analytics with full-stack visibility, enabling you to:
 - Manage your full portfolio of infrastructure resources
 - Automate workload deployment via self-service and DevOps integration
 - Access full visibility for cost management and capacity resource visibility
 - Troubleshoot and monitor infrastructure and application health
3. **Deliver cloud management as SaaS** with a flexible licensing model and ensure feature parity with the on-premises version. This allows you to adopt cloud at your own pace and leverage consistent tools and processes across data center and cloud environments, enabling you to:
 - Access unique federated catalog and analytics
 - Enable predictable budget planning
 - Manage CapEx and OpEx spending

Manage VMs and containers with a single platform

As more organizations adopt microservices, moving from VMs to containers has become the next step for today's modern application development. You need a highly available, reliable, and a scalable platform to run all your business applications, regardless of whether they rely on VMs or containers.

VMware Cloud Foundation™ with VMware Tanzu™ includes vRealize® Cloud Management™ as part of a full-stack solution to give you the best of both worlds, allowing existing VM-based and new cloud-native applications with containers to be supported by a single infrastructure platform.

vRealize Cloud Management also provides visualization with a single, unified dashboard. With full end-to-end monitoring and visibility built-in, you can deploy and manage Kubernetes-based workloads on familiar VMware vSphere tool stack to drive agility and productivity, minimizing staff retraining and reducing complexity.

vRealize Cloud Management delivers consistent operations for consistent Kubernetes management across on-premises, cloud and edge environments with a unified, AI-powered platform, enabling:

- Automated discovery of new management constructs: Supervisor clusters, Namespaces, Pods, and Kubernetes clusters to on-board them in vCenter.
- New OOTB and customizable dashboards, alerts, reports, and views to provide information on the Workload Management environment for complete visibility and control over both traditional VMs and containers.
- Self-optimized performance, capacity, and utilization monitoring of the Kubernetes infrastructure alongside traditional infrastructure.
- Easy view of the relationships between the VMs and containers, making it simple to remediate, troubleshoot, and investigate usage from a single dashboard.
- Configuration drift management to reduce risk related to outdated or incompatible versions and configurations.

Automate and optimize workloads and infrastructure

With the increasing complexity and growing application portfolios across hybrid environments, it is critical that organizations enhance management and operational capabilities. IT teams need a solution that builds on existing capabilities and automates and simplifies routine management tasks consistently across every environment. They also need to streamline operations, enhance performance, and optimize capacity and cost management.

The right hybrid cloud management solution can deliver a consistent operational experience to IT teams and their end users. While VMware has been deploying market leading infrastructure in thousands of data centers around the world, what's even more important is its ability to extend consistent operations as IT organizations migrate to the cloud. Consistent operations allow you to take the tools, policies, processes, and people you have already adopted in the data center and bring them into the cloud, eliminating complexity and the need for retraining and reskilling your IT teams.

VMware hybrid cloud management offers a simpler, seamless way to automate and optimize applications, infrastructure, and platform services across hybrid cloud.

Consistent automated operations

Automation helps manage that complexity. It makes it possible to execute tasks consistently and predictably in a way that is often not feasible using manual processes. By using automation to reduce day-to-day administration, support, and maintenance, IT organizations save time and money, and improve IT productivity anywhere applications are deployed.

Deploy and manage infrastructure and apps simply, efficiently, and predictably

vRealize Cloud Management automation capabilities deliver management simplicity to enable:

- Service delivery automation to accelerate provisioning of compute, network, storage and security resources with consistent programmatic infrastructure across the hybrid cloud.
- Management of deployed infrastructure resources throughout their entire lifecycle, including resizing, reclamation and retirement.
- Automated workload provisioning and deployment across on-premises and on public clouds with unified governance and management.
- Unified networking and security to implement consistent policies across private and public clouds, on VM, container, or bare metal.

Consistent optimized self-driving operations

While IT operators may have previously overseen traditional applications on a single type of infrastructure, today they're tasked with managing a diverse set of architectures. With increasing complexity and growing application portfolios across hybrid environments, it is critical that IT organizations enhance management and operational capabilities.

Optimize performance, capacity, remediation and compliance

vRealize Cloud Management operations capabilities leverage AI and predictive analytics to deliver self-driving operations and optimize secure network infrastructure across hybrid cloud. This enables:

- Continuous performance optimization to assure application performance at minimal cost by automatically balancing workloads guided by operational and business intent
- Efficient capacity and cost management to correlate capacity and cost for optimal utilization, cost savings, and consolidation along with proactive planning and procurement.
- Intelligent remediation to predict, prevent, and troubleshoot faster with actionable insights that correlate metrics and logs with unified observability from applications to infrastructure.
- Integrated compliance and automated drift remediation to reduce risk and enforce IT and regulatory standards in any environment.
- Pervasive and consistent application visibility and analytics within and between clouds.
- Optimal network performance and scaling of VMware NSX deployments.

These capabilities help IT operators automate and optimize hybrid cloud management. This results in decreased time to deliver IT infrastructure, accelerated delivery of applications and projects critical to revenue growth to support innovation, and reduced costs by improving operational efficiency. The continual optimization of operational environments eliminates silos, reduces risk, and lets your teams focus on more important tasks in an agile and collaborative way.

Deliver cloud management as SaaS with flexible licensing model

Modern IT organizations are under pressure to transition to cloud in order to lower IT costs and become more agile. However, organizations can struggle with an inconsistent operating model during this transitional stage as it may introduce new risks and raise concerns about how to manage infrastructure. Most organizations cannot move workloads to cloud overnight and it can take months, if not years, to make the transition due to inflexible, siloed management tools, which can hinder the journey to cloud.

Hybrid cloud operators have an opportunity to move cloud management to a SaaS-based solution with feature parity to on-premises. This eliminates the need to rip and replace existing management tools, which can cause disruption, increased risks, and expensive retraining efforts.

“We chose AWS with VMware because it was the cheapest and the quickest way to get us to a hybrid cloud environment... From start to finish, we migrated to VMware hybrid cloud in about a month.”

LOGISTICS COMPANY IN IDC STUDY

SURVEYED ORGANIZATIONS EXPERIENCED³

- 78%** Less unplanned downtime
- 47%** More efficient IT teams
- 26%** Lower infrastructure costs

VMware Cloud Foundation with vRealize Cloud Management SaaS offerings accelerate service delivery for faster time to market, improves operational efficiency and agility, and reduces risk with flexible deployment options. In addition, vRealize Cloud Universal provides a flexible licensing model that combines on-premises and SaaS into one license, enabling budget predictability and flexibility to move from CapEx to OpEx.

vRealize Cloud Management with vRealize Cloud Universal allows you to transition to SaaS at your own pace while protecting existing investments and minimizing staff retraining, enabling you to:

- Get full feature/capability parity as the on-premises version for a consistent management experience, minimizing retraining.
- Access to federated catalog and analytics across hybrid to accelerate the transition to cloud.
- Leverage a new licensing model that provides choice to move between SaaS and on-premises cloud management at the business’s own pace without having to repurchase.

Measuring the value of VMware hybrid cloud

To investigate the value of VMware hybrid cloud solutions, analyst firm IDC surveyed eight IT organizations that have run workloads across on-premises, hosted and public clouds—all based on VMware Cloud Foundation. Their findings were published in a recent IDC White Paper, sponsored by VMware, *The Business Value of Hybrid Cloud With VMware*.

The surveyed organizations represent a mix of industries, company sizes, and levels of operational maturity. In all cases, IDC found that the relative ease and security of migrating existing applications and deploying new applications with the solution delivered tangible financial and operational benefits for respondents.

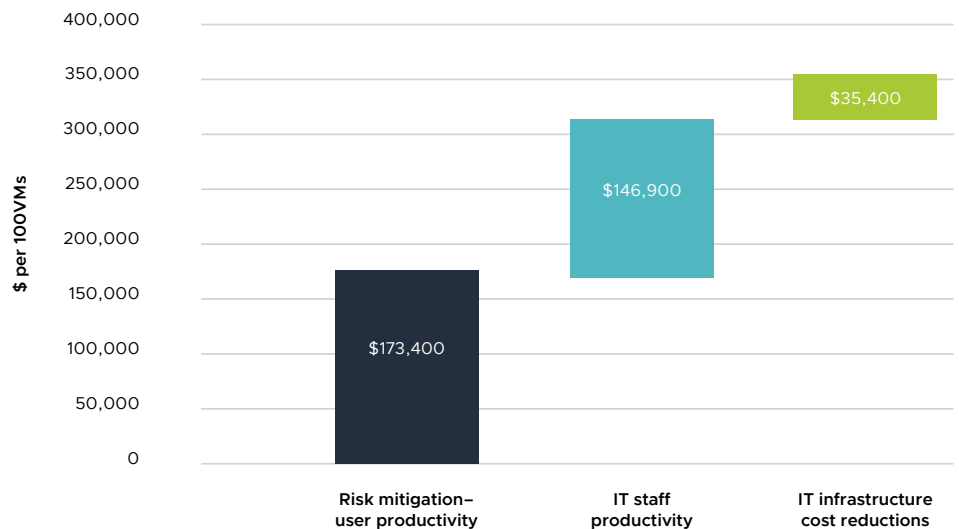


Figure 2. Average annual benefits of VMware hybrid cloud solutions⁴

ADDITIONAL RESOURCES

Find out more about *hybrid cloud management* with these additional resources.

[The Total Economic Impact™ of VMware vRealize Operations](#)
[The Total Economic Impact™ of VMware vRealize Automation](#)

A simpler, seamless way to manage hybrid cloud

Building a data center and cloud strategy that takes advantage of consistent infrastructure and operations across private cloud, public cloud, and edge environments can unlock the value of agility, flexibility, and scalability. It can also eliminate silos and avoid complexity and risk. Given the proven value of hybrid cloud, the maturity of VMware solutions and the clear pathways to risk-avoidance and success, there's never been a better time to adopt a hybrid cloud strategy.

VMware hybrid cloud management offers a simpler, seamless way to automate and optimize infrastructure and management processes to support both existing and new applications in hybrid cloud. IT organizations get consistent operations by using the same tools, processes, and people to manage their infrastructure and applications wherever they are deployed. With consistent operations, IT organizations streamline management and increase agility for faster time to market and reduced costs.

With VMware solutions for hybrid cloud management, you can achieve the business and operational outcomes of a truly seamless hybrid cloud, and:

- **Forge a fast path to the cloud** to quickly deploy cloud infrastructure, applications and automated operational processes to any cloud.
- **Build on existing investments** to extend the capabilities of your current team and infrastructure with proven and familiar VMware tools, processes, and skills.
- **Create a seamless developer experience** to provide a cloud-native developer experience for all your applications, in every environment.

VMware hybrid cloud solutions

VMware Cloud Foundation: Provides a simple path to the hybrid cloud, leveraging a common infrastructure and consistent operational model from on-premises to public cloud and edge, powered by VMware vSphere, vSAN, NSX, and vRealize Cloud Management.

VMware vRealize Cloud Management: Hybrid cloud management platform that enables IT operations to deliver a self-service private or hybrid-cloud with automation, governance, and consistent operations and allows you to manage VMs and container-based workloads with full stack end-to-end visibility. It is available on-premises and SaaS options.

vRealize Cloud Universal: Combines on-premises and SaaS into one license and supports customers' business transition to cloud, providing the flexibility to use VMware solutions to manage hybrid environments with feature parity.

VMware Skyline: Provides proactive intelligence to automatically and securely collect, aggregate, and analyze customer product usage data for issue avoidance and to improve time-to-resolution.

VMware Success 360™: A comprehensive success offering that can guide organizations through all stages of their journey, providing success planning, ongoing adoption guidance, design workshops and dedicated proactive support.

VMware Cloud™ on AWS: Deploys VMware Cloud Foundation on AWS infrastructure, and delivers a seamless hybrid cloud from vSphere to AWS Cloud.

VMware Cloud™ on Dell EMC: VMware Cloud Foundation deployed on Dell EMC VxRail hyperconverged enterprise infrastructure for data center and edge environments, delivered as a service.

VMware Cloud Verified Partners: Validated VMware partners that deliver services compatible with the VMware Cloud Foundation across private and public clouds.

1. VMware Research Snapshot: The State of Application Modernization and Hybrid Cloud Computing, Management Insight Technologies, January 2020, n=1206.
2. EMA, One Operating Model for Digital Transformation, 2019.
3. IDC White Paper, Sponsored by VMware, The Business Value of Hybrid Cloud with VMware, August 2019
3. IDC White Paper, Sponsored by VMware, The Business Value of Hybrid Cloud with VMware, August 2019 ibid



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