vmware

Multi-Cloud IT Executive Buyer's Guide

Chart your path to successful multi-cloud with a five-step approach

Executive Summary

Intentionally establishing a multi-cloud strategy is a powerful way to accomplish your organization's goals:

- **Short term:** Scale and disaster recovery, cost-reduction, and the foundation to modernize your applications and infrastructure.
- **Long term:** Speed, agility, and risk mitigation for your digital transformation. Gaining the freedom to build on any cloud with the simplicity of one, while maintaining high-availability, security, and compliance.

The process to pick the best-fit multi-cloud platform for your organization should begin with an internal assessment. What are your goals?

Identifying your needs—both current and future use cases—will help you better evaluate private and public cloud capabilities as well as the multi-cloud operations you will need to serve all your application types and deployment locations.

For example, if your organization has applications running on both VMs and Kubernetes, deployed across multiple public cloud hyperscalers, then you will want to choose a multi-cloud provider that unifies operations and seamlessly supports every app, in any cloud.

This IT Executive Buyer's Guide features a five-step approach with checklists that will help you and your IT team chart a successful journey to multi-cloud. Use it to document your needs as you evolve your cloud operating model for the future, supporting multiple application architectures and environments to deliver the most agile, scalable, and secure infrastructure for your business.

Future Ready

Evidence that IT is a strategic asset has never been more apparent than during the pandemic. IT teams moved quickly to respond, sustaining operations and meeting immediate employee and customer needs. Yet continued economic uncertainty paradoxically requires more investment in technology to adapt business operations and fuel innovation.

An agile digital transformation strategy provides the best chance for your organization to adapt quickly now while also emerging from this and other challenging periods stronger and faster than your competitors. In fact, the ability to align technology investments with business goals is now a strategic imperative because future ready organizations have an advantage. They respond quickly to a crisis, adapt to a new reality, and accelerate innovation.

Future Ready Cloud

A multi-cloud strategy delivers the flexibility your organization needs to address both short- and long-term digital transformation goals. These include scaling infrastructure, modernizing your application portfolio, and taking advantage of more efficient and consistent IT operations.

But inconsistent architectures between existing infrastructure and cloud providers have hindered these efforts. So have rigid infrastructures, tethering employees to a suite of legacy applications with high built-in costs and limited flexibility to scale up or down as demand fluctuates.

It's time to find a more efficient and cost-effective pathway to modernize with minimum risk—and fast. But how? The answer is a future ready multi-cloud model empowering your organization to overcome these challenges, unlocking the power of cloud to rapidly migrate apps, scale resources up or down based on demand, deliver resources for distributed work initiatives, and drive app modernization strategies.

A future ready multi-cloud solution gives you all the flexibility you need while optimizing cloud spend and strengthening security across all cloud environments. It's finally a cloud operating model for multiple environments that lets you both modernize data center service delivery, enable modern app development, and tap public cloud scale and cloud-native services to meet both business and technical needs.

OPPORTUNITY

Increase business resiliency now AND ensure IT long-term strategic capability

Chart Your Path to Successful Multi-Cloud

Cloud strategy conversations typically start with “why” and “what” discussions, followed by “who,” “how,” and “when” debate. Because of this, setting cloud strategy based only on the number of workloads moved to the cloud may fail to help your organization truly focus on critical needs and what’s best for your digital business. A new five-step process not only changes the conversation, it accelerates your decision making.

Step 1 helps your organization identify how you will use your cloud infrastructure now and in the future. In Step 2, you evaluate the services that you will offer as well as their impacts on your people, processes, and governance. Steps 3 and 4 examine key considerations for technology platforms. And Step 5 illustrates how to get started, simplifying your multi-cloud journey with VMware Cloud and moving forward with VMware.

1 Assess Your Needs: Identify Key Use Cases

What does your organization need from the cloud infrastructure? Before evaluating solutions, think about both your current and anticipated future needs.

Table 1 outlines multi-cloud use cases related to today's needs and tomorrow's visions. If more than 4 of the 17 use cases fit your organization's plans, consider a multi-cloud solution that delivers consistent infrastructure and consistent operations as well as a cloud operating model for new and traditional applications wherever you deploy them.

Multi-Cloud Infrastructure Use Cases	Current Need	Future Need
Application Migration – migrate application workloads to any cloud provider quickly, without disrupting the business		
• **Choice –** Migrate and run applications on any cloud with frictionless portability		
• **Speed –** Move applications to the cloud without the time and cost of refactoring code		
• **Control –** Increase migration success with application-level intelligence to improve resource planning and decision making		

Multi-Cloud Infrastructure Use Cases	Current Need	Future Need
Application Modernization – Support the entire spectrum of application needs		
• **Rehost –** Move apps "as is" to a cloud environment without changing architecture or code		
• **Replatform –** Containerize traditional apps to increase agility and standardize on automated development and deployment tool chains		
• **Refactor –** Utilize cloud-native and microservice architectures by rewriting code or building new apps		

Multi-Cloud Infrastructure Use Cases	Current Need	Future Need
Developer-Ready Infrastructure – Allow on-demand infrastructure service consumption		
• **Efficient –** Enable API-driven infrastructure services, integrated with development and release tools, so developers can build and deliver new services quickly		
• **Consistent –** Standardize infrastructure services independent of location, with integrated Kubernetes and the option to use cloud-native services of multiple hyperscale cloud providers		
• **Diverse –** Support a mix of both virtual machine (VM), container, and cloud-native application types		
Cloud Operations – Enable a cloud operating model with IT skills, policy, and process portability		
• **Unified –** Use a single platform to manage infrastructure and applications in the data center, hyperscaler cloud providers, and edge locations		
• **Automated –** Enable on-demand service delivery across current infrastructure and new public cloud environments		
• **Optimized –** Use the same tools, processes, and people to optimize performance, workload placement, infrastructure utilization, monitoring and tracing, as well as incident response and service support		
Data Center Modernization – Drive greater IT efficiency and effectiveness		
• **Reduce CapEx –** Use full-stack, software-defined technology on industry-standard hardware, with workload placement and density optimization, to reduce infrastructure costs		
• **Reduce OpEx –** Optimize platform lifecycle management, standardize and streamline service delivery and consumption, and simplify migration of workloads to reduce operating costs		
Scale and Disaster Recovery – Eliminate the need for on-premises CapEx increases		
• **Minimize unplanned downtime –** Use a cloud-based recovery solution that provides optimal availability as-a-service		
• **Consolidate data center(s) –** Modernize infrastructure resources for flexible scaling of performance and capacity		
• **Digital workspace flexibility –** Choose where and when to host desktop and application services		

TABLE 1: Multi-Cloud Use Cases

2 Evaluate Multi-Cloud Operations

Cloud capability conversations typically start with “what” and “who,” and then cover “how” and “when.” No matter where your cloud conversation begins, it should address key services and skills questions such as these: What standardized services will your IT organization deliver? How should you organize your people into teams? What roles do you need to have in place to successfully deliver services on-premises and operate across cloud environments? How will your IT organization integrate and automate DevOps concepts and Agile methods for developers while also applying those powerful concepts to IT initiatives?

Table 2 outlines how to evaluate critical operations capabilities you will need across multi-cloud platforms as well as important cost, service quality, agility, and risk questions in mind.

Needed Capabilities	Priority? (Yes/No)
Cloud Services	
• **Management Services –** Management layer applied consistently across any combination of clouds and application architectures to streamline operations, maintain compliance, and optimize IT costs	
• **Infrastructure Services –** Standardized, blueprinted, and sourced from multiple environments including on-premises, hosted providers, and public clouds	
• **Developer Services –** A variety of services, such as a compliant and conformant Kubernetes API, PaaS and developer build and runtime frameworks, CI/CD workstream integration including tooling and automation services to support app developers	
• **Runtime Services –** Container and Kubernetes services that orchestrate platform updates, as well as patching and maintenance	
• **Digital Workspace Services –** Delivery of on-demand virtual desktops and user persona-aligned applications to any device from your choice of infrastructure environments	
• **Data Analytics Services –** A variety of services such as artificial intelligence/machine learning (AI/ML), data lakes, and business intelligence (BI) applications as well as monitoring and observability from on-premises or cloud environments	

Needed Capabilities	Priority? (Yes/No)
Process	
• **Placement –** One set of tools and processes for automated workload deployment across environments	
• **Migration –** Rehosting of workloads without cost and effort of refactoring code	
• **Load Balancing –** Automated cross-cluster and cross-cloud with service-mesh capabilities	
• **Performance –** Optimized based on full-stack monitoring, visibility, and traceability	
• **Automation –** Service delivery that is blueprinted and consumed via a service catalog or programmatically via an API	
• **Capacity –** Space extended to cloud and optimized through planning, modeling, forecasting, and predictive scheduling	
People	
• **Skills Reuse –** Extend and leverage existing admin skills and runbook process to new environments and workloads	
• **Skills Path –** Expand careers into higher value work with more programming and automation as well as Kubernetes, containers, and cloud-native expertise	
• **Cloud Operations –** Build a team focused on interoperability, service onboarding, user onboarding, and ongoing operations	
Governance	
• **Cloud Center of Excellence –** Elevate a team to focus on architecture, governance, usage, cost monitoring, and optimization	
• **Cost Optimization –** Monitor multi-cloud consumption and spend, modifying to optimize cost	
• **Access and Usage –** Control access, permissions, usage limits, and namespace programming constructs	
• **Disaster Recovery –** Automate and enable seamless response in a best-fit environment	

TABLE 2: Multi-Cloud Operations Capabilities

3 Evaluate Public Cloud

Public cloud adoption can be a game changer for your organization's scale and agility. Yet because every enterprise is different, and every cloud is different, you will need to determine which public cloud(s) can best meet your needs.

Among the questions to consider are these: How will public cloud expand your IT service delivery options? How will it meet your app modernization needs? How will it make your developers more productive? How will it optimize IT budget and spending across CapEx and OpEx? How will you choose which, and how many, public cloud services to offer?

Table 3 outlines key public cloud capabilities for consideration.

Needed Capabilities	Priority? (Yes/No)
Services	
• **Infrastructure Services –** On-demand, at-scale services billed by usage	
• **Cloud-Native Services –** Unique offerings that go beyond basic infrastructure services (e.g., AI/ML, big data, etc.)	
• **Management Services –** An abstraction layer to create consistent infrastructure services consumed programmatically	
• **Service Catalog –** Templated infrastructure services available via self-service	
Security and Governance	
• **Attack Protection –** Defend IT environment against hackers and Distributed Denial of Service (DDoS) attacks	
• **Data Security –** Protect sensitive data with encryption, configuration, and tools that reduce unauthorized access and usage	
• **Configuration Auditing –** Continuously audit cloud configurations against industry benchmarks for security to catch mistakes that adversaries can exploit	
• **Availability –** Include traceability and monitoring, orchestration with scaling, as well as multi-availability zone and multi-cluster High Availability and Disaster Recovery (HA/DR)	
• **Reliability –** Service assurance with design principles that assume failures will occur, service mesh, and orchestration with failover	

Needed Capabilities	Priority? (Yes/No)
Architecture	
• **Consistent Infrastructure –** A software-defined and virtualized stack that is the same across public and private cloud environments	
• **Consistent Operations –** The same processes, runbook, and management tools across environments, for example, for monitoring, traceability, and incident management	
• **Optimization Tools –** AI/ML and other resources to automate workload placement, capability utilization, migration, and workload lifecycle management	
Cloud Providers	
• **Single –** Plan to use just one hyperscale public cloud IaaS provider	
• **Dual –** Plan to use a single primary and single secondary hyperscale public cloud IaaS provider to avoid lock-in	
• **Multiple –** Plan to adopt a range of public cloud options—infrastructure and services—so IT service consumers have the ultimate flexibility to choose from a mix of providers for business, compliance, or specific technical reasons or application requirements	

TABLE 3: Public Cloud Capabilities

4 Optimize Private Cloud

Infrastructure optimization is a core requirement of private cloud deployments, providing the agility and scale for cloud services to be delivered from your data center to your organization.

Key considerations when evaluating private cloud include: How will your private cloud accommodate and build on existing investments and systems in the data center? How will it support aging applications? How will it integrate with existing IT operations stacks? How will your network extend to the perimeter, branch or edge, and beyond?

Because your organization likely doesn't have the luxury of starting from scratch, your private cloud must build on and enhance your current IT environment. Table 4 below illustrates many of the private cloud capabilities that you need to form the foundation of a hybrid, and then multi-cloud model for your infrastructure.

Needed Capabilities	Priority? (Yes/No)
Modern Infrastructure	
• **Full-Stack Hyperconverged Infrastructure (HCI) –** Deploy and scale fully integrated compute, storage, network, and management	
• **Unified Management –** Seamless operations of heterogenous infrastructure delivering scale, performance, and availability	
• **Container Workloads –** Support for large-scale container and VM clusters with integrated Kubernetes runtime and compliant and conformant APIs	
Service Delivery	
• **Cloud IaaS –** On-demand, self-service, programmatic consumption of infrastructure services (similar to public cloud)	
• **Developer Productivity –** DevOps and CI/CD tool chain integration and programmatic service consumption	
• **Development Environment –** Developer-focused constructs and enforcement of enterprise-class policies for capacity, resilience, quality of service, security, and access control	

Needed Capabilities	Priority? (Yes/No)
Security and Policies	
• **Intrinsic Security –** Built-in workload protection with network isolation and load balancing rules across diverse applications and multi-cloud environments for both container and VM-based applications at scale	
• **Network –** Micro-segmentation and security tied to individual workloads where policies travel with workloads independent of network topology	
• **Storage –** Encryption of data at rest and in transit, as well as key management	
Networking and Perimeter (e.g. Branch/Edge)	
• **Cloud-Scale Networking –** Single pane of glass capabilities with enhanced constructs for data path multi-tenancy and service chaining	
• **Perimeter –** Firewall and load balancer capabilities with network virtualization, micro-segmentation, load balancing, and integrated security	
• **Remote Location –** Full-stack workload placement and processing closer to workloads and users with software-defined wide area network (SD-WAN) to optimize WAN links that connect edge and ROBO locations across distance	

TABLE 4: Private Cloud Capabilities

5 Get Started: Simplify with VMware Cloud

Although there are many considerations, multi-cloud is a powerful IT modernization strategy. And VMware has the Future Ready Cloud™ to help you achieve your organization's short- and long-term goals.

VMware Cloud is the ubiquitous multi-cloud platform delivering consistent infrastructure and consistent operations, enabling a cloud operating model for new and traditional workloads wherever they are deployed.

VMware Cloud

Redefine the foundation of IT with cloud capabilities, modern architectures, and consistent operations in the data center, any cloud, and edge for all applications. VMware Cloud transforms private data centers, hyperscalers, and remote sites into a unified and elastic multi-cloud platform with integrated compute, network, storage, security, Kubernetes, and cloud management optimized to securely and reliably deliver any application, everywhere.

VMware Cloud integrates Kubernetes as an infrastructure service for developers as well as cluster management and container workload orchestration for IT admins. As a result, both VM and container workloads are treated as first-class citizens. That means developers have a compliant and conformant API interface while IT admins have trusted, familiar tools and operating processes for systems management.

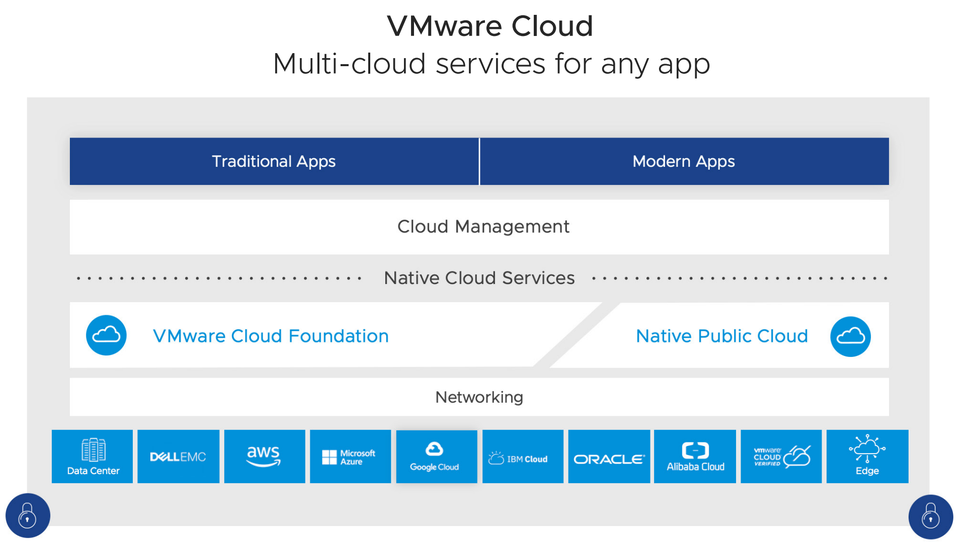
LEARN MORE

Drive Digital Business with App and Cloud Transformation

Because VMware has built some of the largest and most successful private and hybrid clouds in the world, we can help you with your multi-cloud planning and execution—no matter which public cloud provider(s) you choose. VMware Cloud solutions give you a seamless extension from your on-premises environment to:

- VMware Cloud™ on AWS
- Google Cloud VMware Engine
- IBM Cloud for VMware Solutions
- Microsoft Azure VMware solution
- Oracle Cloud VMware Solution
- More than 200 VMware Cloud Provider Program (VCPP) partners offer VMware Cloud Verified services on the same VMware platform

With VMware Cloud, get the freedom and innovation of every cloud, with the simplicity of one.



VMware Cloud Universal

VMware Cloud Universal simplifies the purchase and consumption of VMware Cloud services with subscription licensing that allows you to shift both private and public cloud infrastructure costs from CapEx to OpEx and allocate infrastructure between private and public cloud as needed.

Learn more about VMware Cloud Universal here.

Move Forward with VMware

VMware understands that the process of building a multi-cloud model for IT doesn't stop with choosing a platform. That's why VMware also offers project execution, cloud migration, and business success guidance, including helping you and your team:

- Assess your application portfolio and identify expected changes
- Develop a cloud strategy that supports the spectrum of application migration and modernization needs
- Assess and plan your IT operational readiness for an optimal cloud operating model
- Plan for a pilot-based launch and scale over time

VMware Success 360 is the comprehensive customer success offering that can guide you through all stages of your cloud journey. *Learn more about VMware Success 360 here.*

Cloud adoption, with its tremendous opportunities, also can present some challenges. Team with VMware for a complete multi-cloud solution—all the software products and services you need to gain the maximum benefit from the clouds you choose.

Start Building a Business Case

Learn about the business value of running your applications on VMware Cloud, in the *IDC Study here.*

Calculate your estimated cost savings and get a free *Total Cost of Ownership* comparison report for your organization in minutes.

Join us online:

vmware®

VMware, Inc. 3401 Hillview Avenue Palo Alto CA 94304 USA Tel 877-486-9273 Fax 650-427-5001 vmware.com