



CIO Essential Guidance: Managing Multi-Cloud

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73% of enterprises are currently using multiple clouds.¹

Introduction: Why Multi-Cloud is the Dominant Architecture

Multi-cloud has become the dominant enterprise architecture, with the majority of enterprises either already using multi-cloud or planning to in the near future. According to VMware's FY22 H2 Benchmark Study on Digital Momentum, 73 percent of enterprises are using multiple public clouds today, and 81 percent expect to be operating across multiple clouds by 2024.¹

It's no wonder — a multi-cloud approach enables companies to match best-in-breed public cloud services to fit the specific needs of critical workloads. It makes sense, then, that their leaders seek to employ the best of all worlds to support the wide-ranging needs of a dynamic enterprise.

The ability to match each application to the environment that provides the best resources and support has become a key driver of business expansion and operational efficiency. It enables the agile development of new products and services, allowing companies to speed delivery of transformational apps to customers and employees—which strengthens their competitive position while at the same time, delights their customers. Perhaps most important in the era of disruption and differentiation, multi-cloud gives enterprises access to expansive new development, deployment and management capabilities.

“What a lot of people actually are trying to achieve is modernization... underneath the covers it's really about how to deliver faster to customers, give them a better experience, and drive more top-line revenue. And on the flip side from an infrastructure standpoint, how to optimize things to lower costs at the same time.”

Kit Colbert, Chief Technology Officer, VMware

When managed carefully, multi-cloud investment can pay off significantly. According to the study mentioned above:

- Multi-cloud strategies have resulted in a 42 percent faster time to release applications, leading to 35 percent more revenue.
- Companies have experienced 41 percent lower costs and fewer hours spent on IT infrastructure and security incidents.
- They also saw a 35 percent savings in productivity across a distributed workforce.¹

1. VMware. “VMware FY22 H2 Benchmark: Digital Momentum; N=557 Enterprise (5,000+ employee) Technology Decision Makers.” August 2021.

Two types of companies are emerging in the marketplace, those that know they have a multi-cloud problem, and those that don't realize they do.

In addition, multi-cloud organizations are more likely than mono-cloud organizations to be more diversified across all types of environments, including at the edge. They're also more likely to grow their app portfolio at a faster rate over the next three years.²

The benefits are clear, but are all companies making the most of their multi-cloud resources?

Part 1: With Multi-Cloud Comes Challenges

Despite all the upsides, multi-cloud can easily spiral in terms of complexity, cost and security. This stems from a basic truth: without a unifying strategy, each cloud operates in a silo, running on its own administrative, operational and security processes. This leads to myriad challenges.

Running multi-cloud without a unifying strategy can lead to:

- Lack of visibility
- Inefficient use of resources
- Specialized skills and teams required for each cloud
- Rising complexity as each new cloud is added
- Inconsistent security
- Cost overruns
- Difficulty in moving apps/workloads between clouds

Many companies grapple with these issues. Of those surveyed in VMware's FY22 Q3 Executive Pulse, 91 percent said that they wanted to improve consistency across their multi-cloud environment.³

Two types of companies are emerging in the marketplace, those that know they have a multi-cloud problem, and those that don't realize they do.

2. VMware. "VMware FY22 H2 Benchmark: Digital Momentum; N=557 Enterprise (5,000+ employee) Technology Decision Makers." August 2021.

3. VMware. "VMware FY22 Q3 Executive Pulse." September 2021.



25 percent reported inconsistent infrastructure for APIs, databases, networks and security

Respondents in VMware's FY22 Q3 Executive Pulse⁴ cited a number of real-world challenges:

- 25 percent reported risks related to security, data and privacy issues.
- 25 percent reported inconsistent infrastructure for APIs, databases, networks and security.
- 24 percent reported the need to hire or train personnel in new, specialized skills that support public clouds.
- 23 percent reported complexity in environment management policies.
- 23 percent reported difficulties optimizing spend.

In order to tackle the complexities of multi-cloud, CIOs must be proactive rather than reactive. They must put systems in place that allow them to maximize the benefits of public cloud services, while mitigating risk and managing cost.

Key Questions to Ask:

How can we manage and run multiple clouds as if they were one cloud?

Do we have visibility into every area of our multi-cloud estate?

Is every part of our multi-cloud estate secure?

Part 2: Factors to Consider When Creating an Enterprise Multi-Cloud Strategy

The ideal scenario for any enterprise IT organization is having the flexibility to develop any type of application, deploy to any cloud and deliver to any device—all while maintaining security and governance as users and application requirements continue to escalate. But delivering this level of flexibility brings complexity, and complexity means risk.

Diverse management tools and models, inconsistent security models and heterogeneous user policies mean more for IT to manage and master. At the least, this can be a drain on efficiency and introduce unexpected costs. At worst, it could threaten the security of intellectual property and customer information.

To take advantage of multi-cloud benefits without increasing complexity and risk, enterprises need to address the following five factors.

Factor 1: Portability

In order for a company to be agile in the face of an ever-changing digital landscape, being able to quickly and effectively migrate apps and workloads between clouds is key. Unfortunately, many clouds are operational silos, with each provider offering its own operating model, a unique set of APIs and a unique set of semantics. And while containers make portability easier, not everything is containerized.

4. VMware. "VMware FY22 Q3 Executive Pulse." September 2021.

Downsides of Lack of Portability

Compliance: With global regulations updated regularly, if one cloud provider can't fulfill changing compliance requirements, you need to be able to shift workloads with little to no business disruption.

Security: If a threat emerges, you must be able to migrate your data and workloads as quickly as possible.

Cost: You need to quickly—and smoothly—move between clouds to make the most efficient use of resources for specific workloads.

Advantages of Consistency:

- Developers can write apps using their preferred framework.
- Operators can choose the cloud that best fits a particular app.
- Security teams can apply zero-trust policies consistently across the estate.
- Ops has visibility into the performance, compliance and cost of their entire portfolio, regardless of the cloud.

“A multi-cloud environment is key to our success as a fast-growing company with multiple, geographically spread locations around the world.”

Salvatore Cassara, CIO, SGB-SMIT Group

Operating your multi-cloud environment in silos can invite a host of inefficiencies. When a workload needs to be migrated—whether due to compliance issues, cost, security needs or optimization goals—it can be time-consuming and expensive to go from one environment to another if the operations, services, administration and infrastructure don't align. And when workloads can't be easily moved between environments, you leave yourself vulnerable to a host of negative outcomes.

Key Questions to Ask:

Can my organization's critical workloads be quickly moved between clouds?

Can we easily migrate apps and workloads to make the best use of our resources?

Factor 2: Consistency

The biggest advantage of multi-cloud is that companies can find the right cloud provider for a specific workload based on a variety of capabilities including cost, performance, security, compliance and more, unique to each cloud.

But without a unifying strategy or platform, companies might need to hire different developers for different clouds. They might even need to refactor their apps to function on another cloud. It's also challenging for security teams to apply security policies consistently across different cloud environments. This all results in complexity, inefficient use of resources, and delays.

From an operational perspective, you must be able to manage your multi-cloud estate with consistency, as if it were one cloud.

Consistency across multi-cloud accelerates DevOps processes, as applications can be deployed to one or more public clouds without major rework. Such consistency across the estate could also mean that companies will require fewer highly skilled IT employees to manage the infrastructure.

As an example, IndusInd Bank needed a dependable IT infrastructure for its employees to ensure glitch-free business execution. The bank chose a strong technology partner to help deploy a hybrid cloud, with virtualized network security and storage virtualization to protect and run all its critical applications. Now, IndusInd Bank can scale its IT and develop new products quickly, in alignment with business needs—and insight-driven operations enable the IT team to respond promptly to business disruptions.⁵

Key Questions to Ask:

Is the workflow the same regardless of cloud provider?

How do we create a seamless platform for developers to write code for their apps?

How do we give operators the freedom to deploy apps and manage them in the same way for any cloud?

Factor 3: Visibility and Governance

When companies are running multiple clouds in silos, it's significantly more difficult to manage operations without a unified view of the estate. This can impact cost, efficiency, security and compliance.

You must be able to easily see and manage what resources are being used, by what app, and on which cloud, and allocate resources appropriately. Policies need to be applied consistently across the entire organization to ensure compliance, cost and security measures are followed.

According to 451 Research, “A unified view of the IT estate ... delivers a single source of truth for monitoring resources and usage across clouds, deployment modalities and roles. This would effectively break down silos and help drive IT accountability throughout the organization.”⁶

Knowledge is power, and without visibility, you have less control over some of your most valuable resources: your apps, workloads and data.

Key Questions to Ask:

How do we track resources across all our clouds?

How do we create processes that will make the best use of our resources?

Factor 4: Security

Security might be the most important challenge of your multi-cloud estate. You need to be able to efficiently deploy and manage zero-trust security across every workload and application. However, when running on multiple clouds, using different platforms and tools, it can be difficult, if not impossible, to simultaneously have eyes into every corner of your estate.

5. VMware. “VMware Empowers IndusInd Bank To Deploy Applications Faster At Multiple User Endpoints With Centralized Management.” 2022.

6. 451 Research. “Taming Complexity in the New Multicloud World.” Jean Atelsek and Melanie Posey, January 2022.

Ways to Manage Cost in Multi-Cloud

Better visibility: With this, organizations can apply management policies to minimize spend.

Agile deployment: An organization that keeps a close watch on usage can move workloads and apps across clouds to maximize cost and efficiency.

Monitor usage: Being aware of seasonal and cyclical usage requirements allows companies to plan for usage in advance.

In order to respond to today's threats, organizations need visibility in real-time, and the ability to quickly and universally deploy fixes. Duplicating efforts across different platforms is inefficient and costly.

As an example, by adopting the right technology solutions, financial services institution Discovery is now able to mitigate risks and make more informed decisions around cloud, and is better able to accelerate its digital transformation and explore new opportunities worldwide. Overall, the organization is more efficient and effective in the way it secures and manages its multiple cloud environments.⁷

When you don't have the agility to quickly and universally pivot your security measures, you leave your organization vulnerable to bad actors.

Key Questions to Ask:

How do we consistently manage, govern and secure our entire container infrastructure?

How do we deploy a consistent zero-trust security policy across all our clouds?

Factor 5: Cost

Cost can be a blessing or a curse when it comes to multi-cloud, depending on how well you manage it.

Some believe that a multi-cloud estate can substantially offset cost without the need for additional planning and implementation. The fact is, many enterprises overspend on public cloud services because they haven't taken the proper steps to keep track of it all. This is in part due to the lack of visibility most enterprises have into spending and usage per business unit.

When you have visibility, you can apply management policies to minimize spend. However, if organizations aren't balancing their needs efficiently across cloud providers, they could be underutilizing resources with one, while going into cost overruns with another. All cost benefits can be negated by poor management.

“[Choosing the right technology solution] answered all our needs in terms of performance, cost and the user-friendliness of the tool. It was important for us to have one tool that could centralize cost visibility across our different cloud environments.”⁸

Jean-Jacques Morris, FinOps Manager, Cloud Center of Excellence, Thales DIS

Key Questions to Ask:

Are we tracking resource usage by business unit?

Are all our resources being used efficiently?

Where are the sources of waste?

7. VMware. “Discovery Takes Smart Approach to Cloud as it Pursues Global Growth.” May 2020.

8. VMware. “How CloudHealth Enables Thales DIS’ FinOps Strategy.” May 2021.

Part 3: Embracing a Cross-Cloud Strategy

By developing a cross-cloud strategy, you can eliminate complexity, minimize risk and operate seamlessly on whichever combination of clouds best suits your needs. Operating a software-based infrastructure across all clouds can eliminate the downsides to multi-cloud—and maximize the benefits. From operations and developers to customers, the experience will be the same, no matter what cloud they're on.

A cross-cloud strategy needs to address the five factors discussed in this guide:



1. Portability — Workloads must be able to migrate seamlessly between clouds.



2. Consistency — Workflow and operations should remain the same, regardless of cloud provider.



3. Visibility and Governance — You should have full and easy visibility into your full multi-cloud estate. You need policies in place so all business units follow the same guidelines and policies while using cloud services.



4. Security — Consistent security models and policies must be in place to reduce risk and vulnerabilities connected to core infrastructure, applications and devices.



5. Cost — Cost should be tracked across the entire estate in order to use resources efficiently and choose the right pricing structure.

By unifying your multi-cloud estate with a software-based infrastructure, you will reap all the benefits of multiple clouds while operating as if you're using one.

Conclusion

Maintaining a system of control and common operations across an organization's public cloud environments is critical to centralizing all public cloud operations, improving visibility and efficiency, and reducing the cost of public cloud.

Ultimately, multi-cloud environments enable companies to strengthen their competitiveness by delivering transformational apps quickly to their customers and employees. By eliminating the complexity of building, running, managing and securing these apps across clouds, enterprises are empowered to innovate faster.

Multi-cloud has arrived, and now is the time to fully harness its power and promise. Learn how VMware can help at [vmware.com/cross-cloud-services](https://www.vmware.com/cross-cloud-services).

