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Seven Strategies for Successful Hybrid Multicloud Operations

Accelerate digital business while reducing risk and controlling costs

NUTANIX



Hybrid Multicloud is the Future of IT

The last several years have witnessed explosive application growth that is redefining the modern enterprise. An expected influx of [750 million new applications by 2025](#)—each with unique infrastructure and data needs—is putting extreme pressure on IT organizations. Your team may already be struggling to manage complexity across multiple operating environments—from on-premises to the cloud to the edge.

This year's [Enterprise Cloud Index](#) shows that a large percentage of organizations will be embracing a hybrid multicloud operating model—possibly encompassing datacenters, clouds, service providers, SaaS, branch, edge locations, and more. The hybrid multicloud and multicloud operating models are the only ones expected to show significant growth.

Without careful planning, a rapidly expanding hybrid multicloud environment is a recipe for chaos. While a lot of organizations already operate in multiple environments, many are really operating at the level of cloud silos, with minimal connectivity between environments and no ability to monitor and manage the entire thing cohesively. This guide details seven strategies that can be essential for hybrid multicloud success. It will help you rationalize your hybrid multicloud environment while enabling greater visibility and interoperability between clouds.

Cloud Operating Models: Definitions

- **Hybrid Cloud:** Combines on-premises (datacenter/edge) operations with a single public cloud.
- **Multicloud:** Use of multiple public cloud providers such as AWS, Azure, Google Cloud and managed service providers.
- **Hybrid Multicloud:** On-premises (datacenter/edge) operations plus multiple public clouds, i.e. a combination of hybrid cloud and multicloud but with a common operating model.

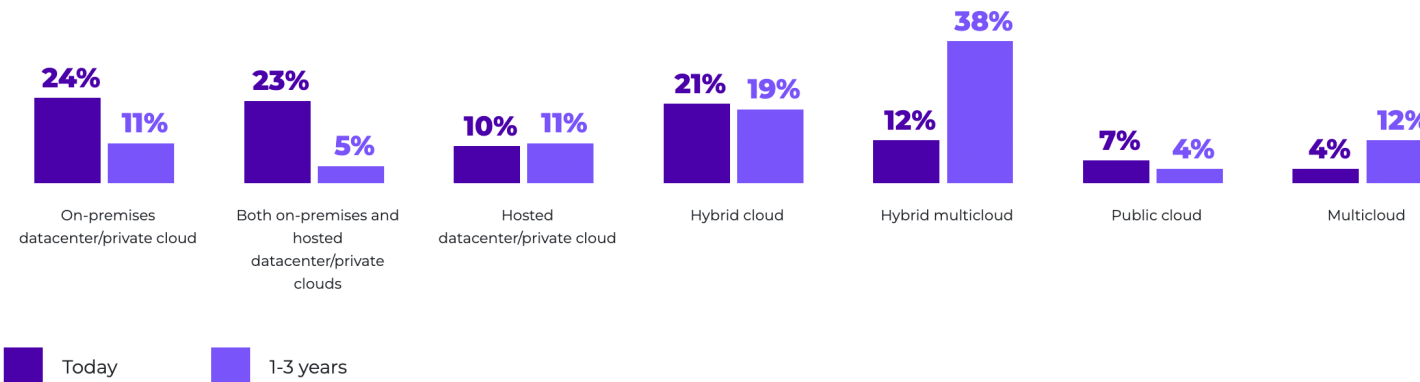


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Strategy #1: Modernize Infrastructure and Eliminate Silos

Almost nothing impedes hybrid multicloud progress more than an outdated technology stack. If your datacenters still rely on traditional three-tier infrastructure with separate servers and storage connected by storage area networks (SAN), your operations lack the flexibility and agility you need to address accelerating business demands.

The legacy three-tier architecture results in dedicated silos of infrastructure optimized for specific workloads. For example, you may dedicate infrastructure to high-performance database needs, or to prevent VDI boot storms from affecting other workloads. This fragmentation prevents resources from being shared or easily re-purposed and makes it difficult to achieve economies of scale, hampering productivity, slowing down projects, and increasing infrastructure and management costs. Siloed operations leads to siloed management. You likely have separate teams dedicated to different infrastructure components—servers, storage, and networks—as well as people dedicated to specific applications.

The more you rely on siloed operations, the more your costs and liabilities escalate, creating significant security, governance, scalability, and operational concerns. And, because the legacy technology stack doesn't translate well to the public cloud—or the edge—applications may have to be re-platformed or re-factored as you deploy them to new environments.

What to Look For

As you consider modernizing your datacenter(s), look for technologies that enable greater choice and flexibility:

- **Operating Locations:** Can the same infrastructure technology be operated and managed the same in the datacenter and at the edge? What about public clouds and service providers?
- **Available Hardware Options:** Are you locked into one or a few hardware options or can the solution run on a wide range of platforms?
- **License Portability:** Is licensing limited to on-premises locations or can you move licenses between on-prem and cloud locations as your needs evolve?

To achieve hybrid multicloud success, it's essential to minimize infrastructure and management silos to provide a consistent, simple, and cost-effective way to run applications and manage data everywhere. Almost all [ECI survey respondents](#) (94%) report they would “benefit from having a single, unified control plane to manage applications and data across diverse environments.”

Enterprises are increasingly turning to software-defined, hyperconverged infrastructure (HCI) based platforms to replace traditional three-tier infrastructure. A centralized, easily managed system supports growing needs for automation—allowing your operations to extend from the datacenter to the cloud and beyond.



Strategy #2: Support Traditional and Cloud Native Apps

As enterprises cross the digital divide, the majority of new development work and new applications leverage cloud native tools like containers and Kubernetes. However, at most companies, VMs and containers will continue to co-exist for a long time.

While it can be tempting to silo traditional and cloud native applications on separate infrastructure—with separate management teams—the hazards associated with siloed infrastructure and management discussed above still apply. It's preferable to make infrastructure and tool choices that can support both domains.

What to Look For

To the greatest extent possible, choose on-premises infrastructure, cloud infrastructure services, and management tools that address the needs of traditional and cloud native applications. For example, it's common to run containers inside VMs, where each VM stands in for a bare metal server and hosts multiple containers. This is how managed Kubernetes services like Amazon Elastic Kubernetes Service (EKS) operate.

By running Kubernetes and containers in a virtual environment, you are able to immediately leverage existing investments in tools and skills, providing a common baseline to support both cloud native and traditional apps. While you can even run traditional applications and cloud native applications on the same cluster, organizations often dedicate clusters for each domain.

The key thing is that the underlying infrastructure and processes remain the same, making it easier for your team to function across environments without having to learn all new processes and skills.



Strategy #3: Unify Cybersecurity

As you build out your hybrid multicloud, each cloud you integrate brings its own unique cybersecurity controls, creating complexity. These security silos increase the risk of a cyber event due to the increased chances of human error, misconfiguration, or the inability to patch security vulnerabilities. Ensuring a unified security posture requires a global platform that streamlines security with the same tools everywhere, with multiple layers of defense and cyber resilience so that business operations can continue in the face of constant attacks.

What to Look For

To keep your expanding hybrid multicloud operations secure, you need integrated security and malware protection from a single multicloud platform that can leverage your current security tool investments. Capabilities to consider include:

- **Operates Anywhere:** Security operations that work your way, providing visibility and governance for your unique environment across all your datacenters, edges, clouds, data, and apps.
- **Integrated and Automated:** Reduce the overall size of your security toolset with native, integrated controls on one platform that can be used by non-security personnel. Automatic monitoring and remediation using self-healing AI and machine learning are becoming a necessity.
- **Security by Policy:** Deploy policies that span your multicloud environment for identical operations everywhere, eliminating the risk from human errors and misconfigurations.
- **Strengthen Cyber Resilience:** With cyber threats a constant and growing risk, it's not enough to just protect or defend anymore. Look for features and tools that make it possible to endure attacks while continuing operations and ensuring the integrity of critical data and apps.
- **Reduce TCO:** A single validated security platform that integrates with your other existing tools can reduce operational costs while improving threat detection and enhancing the business value of all your security investments.



Strategy #4: Take Control of Your Data

The growing importance of digital operations combined with the growth of hybrid multicloud translates to more data in more places. Just 40% of respondents to the 2023 ECI survey report having complete visibility into where their data resides. Taking control of your data means gaining control over:

- **Data Services:** As you move beyond the datacenter, you need file, block, object, and other data services that move with you so there are no operational challenges or unexpected performance changes.
- **Data Protection:** You don't want to be reliant on different data protection and DR tools in different environments.

You need tools to rationalize and unify data services and data protection everywhere you operate.

What to Look For

Data Services

When it comes to data services, you'll need to identify the set of services you need for both traditional and cloud native applications. This could include block, file, and object storage as well as databases (or access to centralized databases), message brokers, caching services, and more. Once you've identified the necessary services, you'll need to determine how to make them available everywhere they are needed. Avoid having different or separate services for traditional applications and cloud native applications if possible. Ideally, you want to minimize the number of storage pools you need to increase efficiency.

Data Protection

Consolidating the set of data services you offer helps to simplify the process of data protection. To ensure you deliver adequate data protection everywhere, look for a baseline set of tools that you can use to securely protect your data across on-premises, cloud, and edge. Typically, this includes:

- **Snapshots:** Provides a first line of defense and fast and convenient recovery.
- **Replication:** Copies snapshots to a remote location for longer—term retention and site-level resilience.
- **Cloning:** Eliminates the need to make full copies of VMs or storage volumes.

Look for implementations that are storage efficient and have minimal or no impact on system performance.

Once you have your set of baseline tools in place, you can use them to automate data protection and DR for most of your applications. In addition, you will probably want or need to continue to use a limited set of application-specific tools such as Oracle RMAN and SQL Server AlwaysOn. As with security, make sure new tools integrate with other data protection tools you have standardized on such as HYCU, Veeam and others.



Strategy #5: Virtualize Networking

The explosion of applications and data across diverse environments has resulted in complex physical networks that require a high degree of expertise to configure correctly and careful management and monitoring to keep them working properly. Deployment, management, and network availability challenges can lead to network silos and security gaps.

By adopting software-defined networking (SDN) you can simplify the creation and configuration of virtual networks and bridge the gap between traditional and cloud native network models, while avoiding time-consuming manual configurations of physical networks, routing, and IP address assignment. Virtual networking enables your entire network to be consistent across environments while enabling granular control.

What to Look For

The right software-defined networking solution gives you the ability to logically isolate virtual networks without changing underlying physical networks, provides network consistency and visibility into network traffic across clouds, and enables self-service for developers and application owners. When considering SDN for your hybrid multicloud, the following capabilities are valuable:

- **Network Visibility:** The ability to view network traffic metrics no matter where the communication originated allows your organizations to troubleshoot connectivity problems, plan to accommodate growth and change, and meter network traffic.
- **Virtual Private Cloud support:** A virtual private cloud or VPC is a secure, logically isolated namespace that provides greater control over the networking environment, including IP address range, subnets, routing, and gateways. VPCs increase security and convenience while enabling connectivity across different environments and facilitating access to cloud services.
- **Stretched Layer 2 Networking:** The ability to extend layer 2 traffic across different VPCs is valuable for disaster recovery, partial failover, to support active/active sites, and to bridge to physical networks.
- **NAT and VPN Services:** Network address translation (NAT) and virtual private network (VPN) capabilities enable you to securely link multiple VPCs and connect to private networks and remote sites.
- **Service Insertion:** The ability to insert advanced security functions from third party vendors into your software-defined network enhances overall security and allows you to respond more quickly to emerging needs.
- **Multi-tenant Isolation:** The ability to fully isolate tenant networks, allows separate groups to share resources with less risk.



Strategy #6: Gain an “Edge”

Organizations are shifting infrastructure to “the edge” to bring digital services closer to the workloads and people that rely on them. By some estimates, up to 50% of enterprise data will be generated at the edge by 2026. If your business is expanding at the edge, it can subject your IT team to challenges you may not be well prepared to address, including infrastructure cost and complexity, difficult remote management, and problems ensuring security and availability. If you have edge operations that are untethered (not connected to a wired network, possibly with only low-bandwidth, intermittent, or no connectivity) the challenges become that much greater.

What to Look For

To succeed at the edge, there are many things to consider:

- **Management:** Ease-of-management has a big impact on your operations. Ideally, you want the ability to remotely manage edge operations from the same pane of glass as everything else.
- **Data Storage:** Storage needs can significantly increase space requirements and costs. You may need object storage in addition to the file and block storage used by traditional applications.
 - Look for solutions that address your needs for different types of storage with the ability to allocate storage for different workloads from a single pool.
 - Don't overlook the need for storage performance as well as capacity, or edge applications could end up hamstrung.
 - Storage that integrates data protection and DR capabilities helps ensure data is protected and keeps things simple.
- **Security:** Edge solutions need built-in security. You can waste too much effort integrating and managing niche security solutions.
- **Scalability:** Look for solutions that fit in the available space today and scale out easily without ballooning the footprint.

To address diverse needs at the enterprise edge, many organizations are turning to HCI-based solutions. Integrated HCI solutions can offer a compact footprint, flexible storage options, simpler management, and greater security and resilience.



Strategy #7: Rein in Costs

According to 85% of those surveyed in this year's Enterprise Cloud Index, managing cloud costs is difficult. More than a third (34%) rank it as a significant challenge. The more environments you operate in, the harder it is to gain the cost visibility you need to make smart decisions with regard to workload placement. Multicloud cost governance is essential for the long-term success of hybrid multicloud IT.

What to Look For

Spreadsheets are not enough for multicloud cost management, nor can you solely rely on the various cost management tools that may be available in various clouds. You need a way to optimize costs across the lifecycle of your infrastructure that provides:

- **Visibility:** The ability to see costs across on-prem and cloud environments simplifies cost management and multicloud governance.
- **Optimization:** Look for capabilities such as task automation, self-service, resource rightsizing, and optimization of existing and committed storage and compute resources across on-prem and cloud.
- **Control:** The ability to allocate resource costs with a high level of granularity and implement showback or chargeback can help you control resource consumption, reclaim underused or unused resources, and prevent monthly cloud bills from spiraling upward.



Nutanix: One Platform to Run Your Apps and Data, Anywhere

Drawing on a proven track record of HCI innovation, Nutanix delivers the technology and expertise to help you break down the barriers between on-premises, cloud, and edge. Only Nutanix delivers a single, unified simple-to-use platform across all endpoints—with full license portability. Eliminate infrastructure and management silos and take control of your entire hybrid multicloud environment from a single pane of glass.

The Nutanix Cloud Platform empowers you to seize the power of simplicity. With a single platform, 1-click upgrades, seamless scaling, and consistent management, Nutanix eliminates the need for retooling, retraining, or refactoring. And Nutanix provides exceptional worldwide support to ensure your success. Nutanix has maintained a 90+ Net Promoter Score (NPS) average for the past seven years, ranking high in the technology industry for customer loyalty and satisfaction.

If you'd like to try out Nutanix Cloud Platform firsthand, you can take a test drive to see the Nutanix difference for yourself.

[Take a Test Drive](#)

Or visit nutanix.com to learn more. You can also contact Nutanix at info@nutanix.com or send us a request at www.nutanix.com/demo to set up your own customized briefing.

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