

NUTANIX HYBRID CLOUD DESIGN GUIDE

Increase Business Agility with Nutanix Hybrid and Multicloud Solutions



Address Your Most Pressing **Hybrid and Multicloud** Challenges

Operating a hybrid cloud creates many challenges that cost your organization time and money:

- **Multiple management tools.** Complex hybrid cloud management leaves your IT team siloed and inefficient.
- **Lack of visibility.** Inability to see and compare performance and costs across environments results in inefficient resource allocation.
- **Application incompatibility.** The inability to easily deploy applications in the cloud of your choice reduces your business's effectiveness.
- **Manual processes.** Lack of automation consumes IT staff time better spent on other tasks.
- **Complex security.** Inefficiencies in security monitoring and remediation leads to greater risk of human error, a larger attack surface, and increased vulnerability.
- **Inadequate cost governance.** Cost governance in hybrid and multicloud environments is cumbersome—many teams still resort to time-consuming and error-prone spreadsheets to track resources.



Nutanix has extended its industry-leading HCI platform to address these limitations, enabling you to create a hybrid or multicloud environment spanning both on-premises datacenters and public clouds. With Nutanix, you can achieve all the benefits that hybrid cloud and multicloud environments are expected to deliver:

- **Flexibility and agility.** Gain ready access to resources to support new applications, new dev/test projects, and to quickly accommodate changing infrastructure needs. Move workloads quickly and easily between on-premises and cloud locations without refactoring.
- **Elasticity.** Respond elastically to fluctuations in resource demands. Consume and release public cloud infrastructure on demand.
- **Self-service.** Users access IT infrastructure and services through a self-service portal, so your team no longer has to serve as a middleman.
- **Cost control.** Gain visibility of both private and public cloud costs, optimize costs everywhere, and make smarter migration decisions.
- **Faster time to market.** Eliminate the barriers that slow your business and development teams down.

This guide explains some of the key Nutanix capabilities to assist you when deploying hybrid or multicloud environments.

[Additional Hybrid Cloud Resources](#)

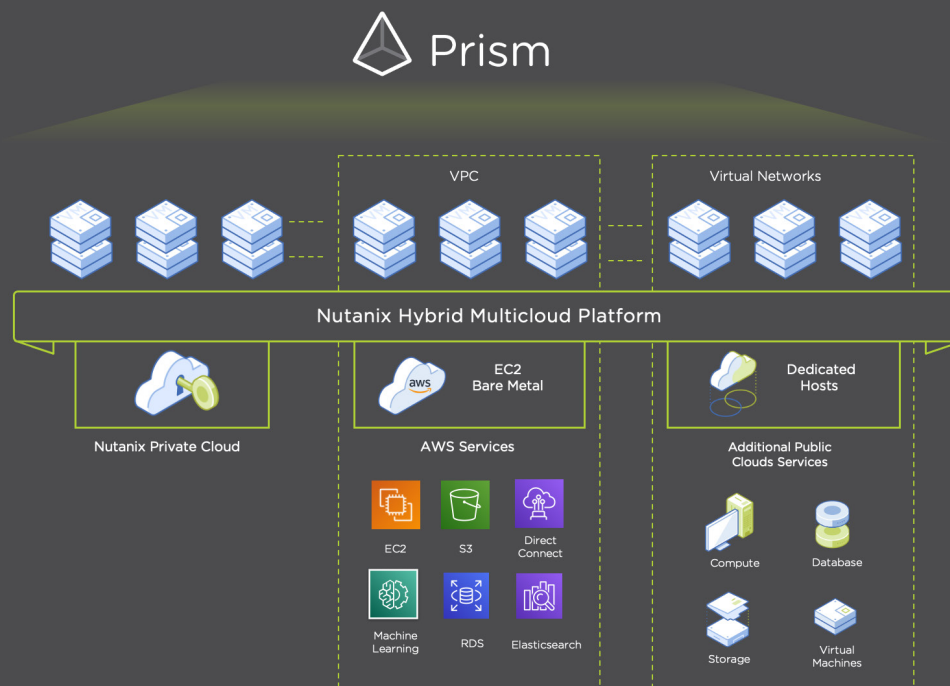
- [What is a Hybrid Cloud?](#)
- [Nutanix Hybrid Cloud Solutions](#)
- [Designing and Building a Hybrid Cloud \(O'Reilly eBook\)](#)
- [Hybrid and MultiCloud Management: Five strategies to increase agility and efficiency](#)



A Unified Platform for **Hybrid** and **Multicloud** Deployments

Because management platforms are usually different for each cloud, increased complexity is the fundamental challenge of hybrid and multicloud environments. Staying on top of capabilities and best practices for a single cloud platform is challenging enough, but when you introduce two, three, or four platforms into the mix it's impossible for one person to be effective across the whole environment. As a result, most enterprises have dedicated teams for each cloud, siloing management and creating bottlenecks.

Although operational silos may seem like a necessity, they are the single biggest impediment to hybrid and multicloud success. With little interoperability or integration between clouds, collaboration is difficult, and agility decreases.



Nutanix solved these challenges by creating a hybrid and multicloud platform with a single control plane to span all your cloud environments. You can monitor and manage both private and public clouds with the same tools and easily extend operations, burst to multiple clouds, and move applications with ease.

Hybrid and multicloud solutions built on Nutanix Clusters enable you to extend an on-premises Nutanix environment to encompass public cloud. Using Nutanix for private cloud and public cloud deployments results in an environment with the flexibility, simplicity, and cost efficiency you need to manage applications more effectively everywhere.

Nutanix Clusters is a solution that extends our proven IT environment seamlessly to public cloud, delivering significant benefits versus competing approaches:

- **Fast Cloud Provisioning.** Spin up a new cluster on a public cloud in under an hour.
- **Operational Simplicity.** A single management plane spans private and public cloud environments. Use the same toolset everywhere and avoid retraining.
- **Seamless Application Mobility.** Move applications across environments with no code changes or re-platforming.
- **Optimized Cost.** Run the same Nutanix environment with the same licenses across all supported clouds, fully utilizing your IT investment. Gain control of hybrid cloud spend with automated cost governance.



Enable New Use Cases

The Nutanix Cloud Platform unlocks use cases that may have been difficult or impossible before:



Business Continuity

Using the public cloud for DR is a goal for many IT teams, but it's simply not possible if an application requires significant replatforming to run in the cloud. By ensuring that every application can run anywhere in your hybrid or multicloud environment, Nutanix Cloud Platform makes simpler, more flexible, and more cost-effective business continuity options a reality.

- Protect apps and data with a resilient architecture and anywhere recovery
- Take advantage of cloud regions around the globe to regionalize backup and DR
- Reduce downtime up to 85%¹
- Recover up to 41% faster¹
- Use familiar Nutanix backup and recovery tools with no added complexity.



On Demand Elasticity

Easy application mobility enables you to utilize the public cloud to gain access to additional resources as needed. For example, because of the pandemic, you probably needed more EUC horsepower than your datacenter could provide on short notice. Nutanix provides the mobility to move or extend applications into a public cloud to gain access to the necessary computing power.

- Expand applications and workloads to address seasonal or temporary needs
- Provision datacenter capacity to meet normal demand and burst into public cloud during peaks
- Move licenses between clouds to maximize the value of your investment
- Take advantage of self-service and automation to streamline operations
- Reduce cloud costs up to 35% by optimizing consumption and purchase plans
- Control costs by hibernating public cloud instances when not in use

¹ Compared to 3-tier infrastructure



Lift and Shift

It's difficult to lift and shift many applications from private to public clouds without re-platforming or refactoring. Nutanix gives you the freedom to move applications with no code changes to wherever they are needed—or wherever makes sense at the moment—to satisfy changing business needs.

- Build a hybrid cloud in one hour or less
- Move VMs, containers, storage, and data
- A single control plane streamlines management

See the Nutanix Hybrid and Multicloud Use Case Design Guide for more specifics on the three important use cases above.



Cloud Native Services

One of the major attractions of public clouds is their innovative services. With Nutanix, you can move an existing application to the cloud and immediately begin taking advantage of these cloud services, gaining new functionality in a fraction of the time. Nutanix integrates natively with cloud networking, avoiding the need for network overlays when accessing cloud services, making for a simpler to deploy, easier to manage solution that delivers higher performance from cloud services than competing solutions.

- Take advantage of the latest cloud services with less effort and full performance
- Minimize code changes and avoid the need to refactor existing code
- Utilize native networking and avoid performance penalties



Dev/Test

Software development is on the critical path for companies in all industries. Nutanix hybrid and multicloud solutions enable you to ensure that teams never run short of necessary infrastructure resources. Developers and test engineers can utilize on-prem and public cloud resources as needed without having to alter processes. Nutanix Calm simplifies the deployment of test environments and enables self-service for immediate resource access.

- Provision dev/test environments in the cloud of choice
- Accelerate development while reducing infrastructure overhead
- Develop on VMs or containers/Kubernetes
- Utilize pre-integrated or custom Calm blueprints and the Nutanix Marketplace to enable self-service and reduce friction



VDI on Cloud

In 2020, many enterprises found themselves reliant on VDI to ensure that employees working from home could remain productive. Nutanix enables you to scale VDI on public cloud infrastructure.

- Deliver new virtual desktops quickly to address unexpected needs
- Support mergers and acquisitions
- Better serve the needs of users in geographies far from a corporate datacenter

Additional Hybrid Cloud Resources

- [Nutanix Private Cloud Design Guide](#)
- [Nutanix Clusters on AWS](#)
- [Nutanix Clusters on Azure](#)
- [Clusters Solution Brief](#)
- [Intelligent Test Environment Management \(blog\)](#)

Data Protection & Disaster Recovery in the Cloud

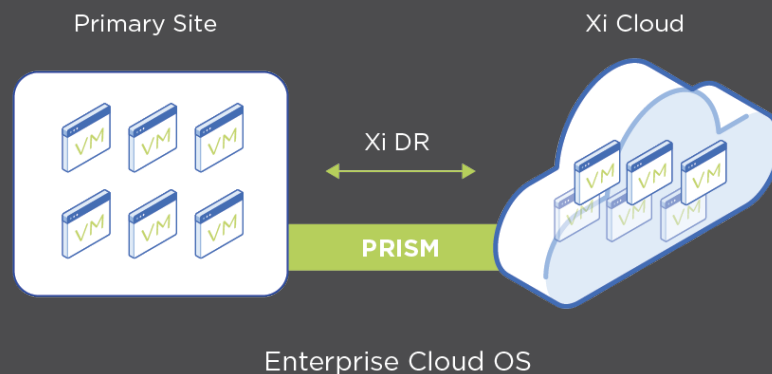
For many enterprises, the highest priority cloud use cases are data protection and disaster recovery (DR). Maintaining a secondary datacenter adds significant capital and operating expense. However, moving data protection and DR to the cloud comes with significant challenges. For critical backup and replication tasks, there's never a good time to make big changes. And, running your datacenter applications in the cloud is often harder than it should be.

By offering the same platform on-premises and in the cloud, Nutanix solves these problems. With Nutanix, you can:

- Use the same tools and methods to manage data protection and DR on-premises and in the cloud
- Add backup or DR to the cloud without having to learn new skillsets
- Continue to use existing policies, scripts, and automation playbooks

For DR to the cloud, Nutanix offers two options:

- [DR to Nutanix Clusters](#) running on a public cloud for those who intend to support other use cases
- [Xi Leap](#) for those who just need DR as a Service (DRaaS)



Nutanix Clusters as a DR Target

If you already use Nutanix DR between datacenters, you can use Nutanix Clusters running in a public cloud as a DR target just like any other location. Using DR to Nutanix Clusters, you manage infrastructure in the cloud and retain complete control over your DR operations. Cloud infrastructure serves as a replication target, and spare CPU cycles can be used for other workloads.

With the same platform across private and public clouds, you can continue to use familiar Nutanix capabilities to replicate your VMs and data to the cloud. You can use either asynchronous replication or NearSync (depending on the proximity of the cloud target to your datacenter). NearSync provides near synchronous replication and can achieve a recovery point objective (RPO) as low as 1 minute.



Business Continuity

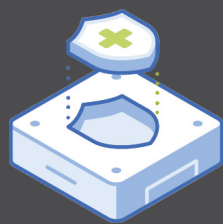
Use the Cloud for high availability and disaster recovery

Xi Leap

Xi Leap provides flexible, cloud-based DR-as-a-Service (DRaaS) that eliminates the complexity of DR. With Xi Leap you can:

- Protect your apps in minutes without having to buy or manage more infrastructure
- Reduce TCO versus traditional DR and other cloud-based DR solutions
- Achieve your SLAs using a solution that integrates with your existing Nutanix operations
- Take advantage of end-to-end security with encrypted data-at-rest and data-in-motion

Failover and failback with one-click to keep your business applications, data, and services available if your datacenter goes down. Continuous testing ensures that your recovery plans won't fail you when you need.



Built-in



Instant Onboarding



Centralized DR
Management

Additional Resources for this Section

- [Definitive Guide to Data Protection and DR](#)
- [Private Cloud Design Guide: Data Protection and DR](#)
- [Xi Leap Solution Brief](#)
- [Nutanix Clusters Business Continuity Solution Brief](#)

Hybrid and Multicloud Security

As your IT environment expands to encompass multiple private and public clouds, security challenges increase:

- **Complex security monitoring and remediation.** With different security models and tools in each cloud, there is no single, standard set of security best practices.
- **Growing risk of human error.** Applying security policies manually across different environments can be complicated and error prone.
- **Increasing threats.** With a large percentage of employees working remotely, the number of possible attack vectors has increased.

Nutanix addresses these challenges with:

- A secure, unified platform across private and multiple public clouds
- Nutanix Flow for advanced microsegmentation and global security visibility
- Security Central for detecting and remediating vulnerabilities of public cloud resources

Hardened Platform

With Nutanix, security begins with a robust software foundation built for private, hybrid, and multicloud operations. Nutanix starts with a hardened software platform that is inherently more secure than traditional IT architectures and builds on that foundation with features and functions to improve security posture, detect and prevent security threats, prevent data loss, and ensure continuous business operations.

- **RBAC and MFA.** Role-based access control and multi-factor authentication are key elements of the Nutanix security model.
- **Nutanix STIG.** Security hardening guides based on US Department of Defense (DOD) Security Technical Implementation Guide (STIG) frameworks ensure our software is automatically configured to a hardened standard, with regular health-checks to keep it that way.
- **Simplified Upgrades.** One-click nondisruptive upgrades take the pain out of patching infrastructure software, making it far easier to stay up to date and reducing risk.

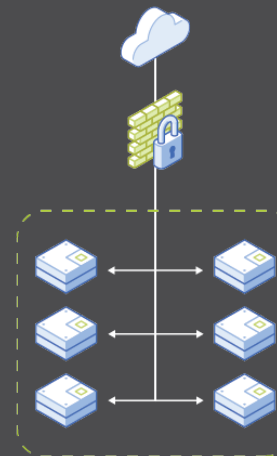
Microsegmentation and Network Security

A “zero trust” philosophy is becoming essential for application and data security. Nutanix Flow makes network security simple. It allows you to discover applications and network traffic through intuitive visualizations so you can segment applications and virtual networks to secure workloads.

Microsegmentation provides granular control and governance of all traffic into and out of a virtual machine (VM) or groups of VMs. It ensures that only permitted traffic between application tiers or other logical boundaries is allowed.

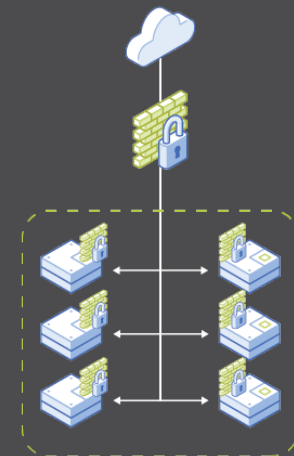
Flow Networking brings virtual private cloud (VPC) and other advanced virtual networking constructs together to bridge traditional and cloud-native network models.

Traditional Security



Network Segment

Flow Microsegmentation



Network Segment

Security Planning, Operations, and Compliance

Security Central, included with Nutanix Flow, provides a hub for Nutanix security operations, so your team can easily assess the overall security posture and gain the context required to implement a zero-trust security strategy, including:

- Security posture monitoring
- Security audit and remediation
- Microsegmentation security planning
- Cloud security compliance

Nutanix provides a comprehensive view of security posture across your entire Nutanix environment.

Additional Security Resources

- [Nutanix Security](#)
- [Nutanix Flow](#)
- [Private Cloud Security Design Guide](#)



Cost Governance

Hybrid cloud compounds the complexity of cost governance. There is a need for cost governance tools that centralize visibility across all clouds and apply policies to keep overall IT spending within budget. Public clouds come with an itemized monthly bill but given the ease of grabbing new resources—and creating entirely new deployments—it can be difficult to track and control consumption and optimize purchasing. For private clouds, cost overruns result from excessive upfront costs, unexpected scaling costs, wasted or poorly utilized resources, and lack of visibility into total cost of ownership.

Nutanix gives cloud operators complete visibility into hybrid cloud costs. [Xi Beam](#) provides a unified solution for cost governance of on-premises and public cloud workloads. Machine intelligence continuously assesses cloud usage and provides recommendations.

Beam's built-in Total Cost of Ownership (TCO) model calculates all direct and indirect costs for on-premises IT infrastructure, providing immediate visibility into the true cost of VMs and workloads in your Nutanix private cloud. Beam also imports data from public clouds including AWS, Azure, and Google Cloud. Cost centers are inherently multicloud, allowing you to see private cloud and public cloud costs in the same view with high granularity. By accurately identifying resource consumption for each cost center you define, Beam helps you more accurately track spending across your operations, delivering 35% or more in public cloud cost savings.



Visibility

Unified visibility into public & private spending to simplify cost governance and multi-cloud management.



Optimization

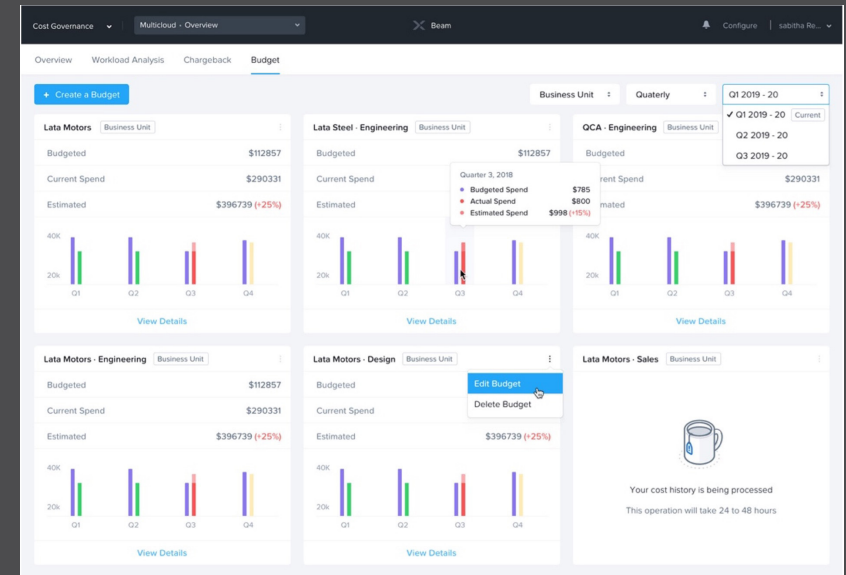
Drive deep cloud savings with automated scheduling tasks, right-sizing cloud resources and intelligent RI purchases



Control

Easily allocate resource costs according to business consumption and drive governance with multi-cloud chargeback.

- **Multicloud chargeback and budgeting.** Track and allocate spending across clouds using multicloud show back and chargeback reports.
- **Automated resource rightsizing.** Detect anomalous spending patterns and identify and eliminate unused or idle resources. Right-size infrastructure to ensure optimal consumption.
- **Automated scheduling actions.** Eliminate having resources running when they are not needed. Configure policies to shut down resources and bring them back up at a pre-determined time.
- **Intelligent reserved instance and savings plan purchases.** Identify the optimal reserved instances, savings plans, etc. based on consumption history to reduce cloud spend.
- **Cost-aware workload migration.** Identify the total cost of a cloud workload, compare the cost of similarly sized workloads in other clouds, and receive cost-saving recommendations (currently in development).



Additional Governance Resources

- [Private Cloud Cost Governance Design Guide](#)
- [Nutanix Xi Beam](#)
- [Cloud Cost savings](#)

Getting **Started**

Nutanix hybrid and multicloud solutions are uniquely suited to meet your company's needs. Because Nutanix provides visibility and control over infrastructure and applications across your entire hybrid cloud, your hybrid cloud is more agile, more scalable, and—ultimately—more efficient and cost effective. Nutanix reduces the cost of deploying and operating a hybrid or multicloud, while increasing organizational agility.

To begin designing your cloud environment, you can start by answering a few simple questions:

What are your biggest organizational pain points?

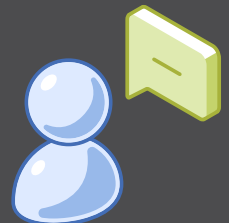
- Infrastructure control
- Complex hybrid/multicloud operations
- Application life cycle control
- Application migration
- Inconsistent security and governance
- Cost optimization and cloud spending

Is your on-prem infrastructure meeting your needs in terms of:

- Performance
- Scaling
- Data services
- Automation

Do your cloud services suffer from:

- Operational silos
- Complex life cycle management
- Lack of application portability
- Security vulnerabilities
- Inadequate cost governance



Using the information discussed in this guide, you can begin thinking about and planning a hybrid cloud that meets your needs in these key areas. Use the links in each section to dig deeper into specific topics.

To learn more about how Nutanix can help you transform hybrid and multicloud operations visit nutanix.com/hybrid. You can contact Nutanix at info@nutanix.com, follow us on Twitter [@nutanix](https://twitter.com/nutanix), or send us a request at www.nutanix.com/demo to set up your own customized briefing.

[Take a Test Drive](#)

You can [take a test drive](#) of Nutanix infrastructure with no hardware, setup, or cost. Experience the simplicity and agility of public cloud combined with on premises performance, security, and control via an easy-to-follow guided tour.

Test Drive