eBook

Deploying an Intelligent Cloud: 7 Strategies for Success

Optimize Multicloud Productivity and Cost

NUTANIX

Introduction

Building a More Intelligent Cloud

Explosive application growth is redefining the modern enterprise. An expected influx of 750 million new applications by 2025 is putting extreme pressure on IT organizations. To meet IT needs in the face of tremendous growth, many organizations are embracing “cloud-first” and “cloud-smart” strategies. (See *sidebar*.) But, in the real world, most teams are struggling to manage complexity across multiple operating environments—from datacenters to the cloud to the edge.

These are challenging waters to navigate. Simply having operations in multiple clouds is not the same as having a true *multicloud* environment. With multiple clouds, applications quickly become siloed and you are unable to deliver the flexibility or portability that dynamic business operations require. A true multicloud environment allows you to manage multiple environments—including datacenters and edge—as if they were one, with the same tools and skillsets employed everywhere.

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Multiple clouds ≠ multicloud.

Multiple clouds creates silos and increase cost and complexity.

Optimize Your Hybrid Multicloud Environment

No matter what cloud mandates your organization has in place, your IT operations are simply more diverse than they were in the past. Having a mix of operations on-premises and in one or more clouds results in significant challenges:

- **Lack of interoperability and portability.** You'd like to be able to run your applications anywhere—or everywhere—and move them between locations when business needs change, but differences between environments makes this impossible without significant investments.
- **Insufficient automation.** Automation is essential for successfully scaling your IT operations, but automating one environment is difficult enough, let alone two, or three, or five.
- **Spiraling costs.** With complex operations across multiple environments, inadequate automation, and lack of intelligent tools, your IT costs and IT challenges increase with seemingly no end in sight.

To address these challenges, *you need to unify, simplify, and automate your IT operations across environments*, while providing the necessary insights to allow your team to continuously optimize cloud operations. You need to be cloud smart.

This guide describes seven strategies that will help you work smarter so that you can rationalize and optimize your hybrid multicloud environment—an environment that may include multiple public clouds as well as datacenter and edge deployments—to achieve greater visibility and interoperability across the entirety of your IT operations.

Cloud First vs. Cloud Smart

A **cloud-first strategy** prioritizes cloud deployment over everything else. Any new project, whether migrating an existing workload or building a new app, is targeted to the public cloud. The focus is on agility and scalability, embracing the cloud's on-demand resources to adapt quickly to changing needs while eliminating upfront hardware costs. However, some workloads remain better suited to datacenter—or edge—deployment. Evaluate your needs carefully before diving in. A **cloud-smart strategy** goes beyond simply moving everything to the cloud. It's a more nuanced approach that focuses on optimizing your IT infrastructure and placing application workloads to deliver maximum value and agility, using a combination of cloud, datacenter, and edge computing resources.

Learn more about cloud-first versus cloud-smart.

Strategy 1: Make an Optimized Cloud Migration Plan

The success of your IT operations—and your company—hinges on your team's ability to deploy and manage critical digital assets in the optimal location(s) for your business needs. You need to plan carefully for cloud application migrations.

Inventory your applications. For each app:

- Identify infrastructure requirements and other dependencies.
- Where does the app run today, and which locations (datacenter, edge, cloud) have the ability to run the app as is?

Get developers involved. If you intend to move an app to the cloud, get developers and other stakeholders involved early. Review the resource consumption of the app to determine what resources it requires (CPU, storage, etc.). High resource consumption translates to a high monthly cloud bill, so explore opportunities to reduce resource consumption without affecting app performance.

Evaluate cloud providers. Shop around for the best prices. Avoid features or services offered only by a single vendor to minimize lock-in.

Choose the right "R" method for the migration. For many applications, you'll want to lift & shift or rehost the app with as little effort as possible. However, it may not be possible to move an application without modification. This may be due to infrastructure differences or inability to achieve the expected performance at the desired cost. As part of your evaluation, choose the appropriate method for migrating each application. While there are cases where it may be unavoidable—or worth it to gain specific functionality—be careful to avoid locking yourself into cloud services where equivalent services don't exist in other clouds or on-premises. As a rule, the further down the list you go the more time consuming and more expensive the migration becomes.

- **Retire.** It's always worth asking whether an app still benefits your company before you do the hard work of migration.
- **Repurchase/replace.** For legacy applications that aren't part of your company's digital identity—and that can't be migrated with positive ROI—it is often a good practice to replace them with a SaaS service that offers equivalent functionality. A side benefit is that this takes primary management responsibility off your IT team's plate.
- **Re-platform.** When an application is re-platformed, it is migrated to the cloud without changing its basic architecture. However, re-platforming requires other changes such as a change to the underlying OS, or a change of the database platform used.
- **Refactor.** Refactoring takes things a step further than re-platforming, optimizing the application to take advantage of the chosen cloud platform and capabilities like dynamic scaling.
- **Rearchitect.** Rearchitecting is the most time consuming and costly "R" method, typically requiring a complete re-write of the application using cloud native methods. It's typically reserved for applications that have the biggest business impact.

In addition to these methods for migrating applications to the cloud, there's a final "R" method that most organizations should consider:

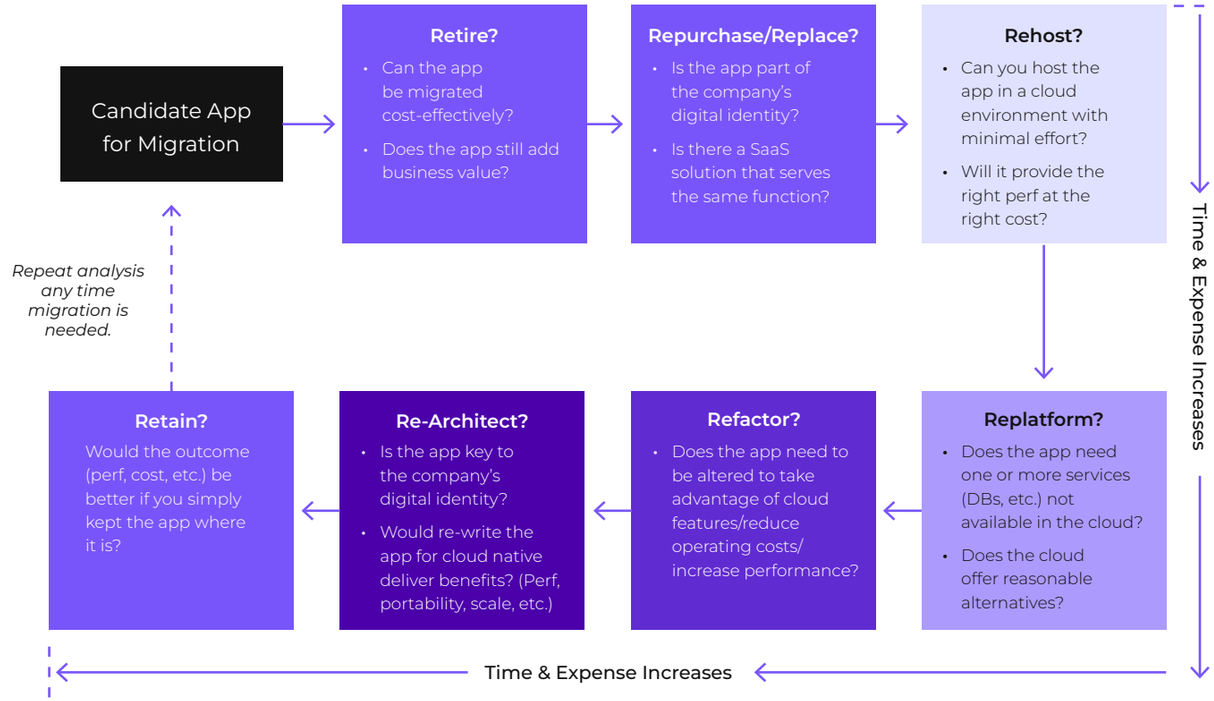
- **Retain.** After extensive efforts to move traditional applications to the cloud, many IT teams have discovered that it remains more cost effective to continue to run some apps on-premises. Intelligent workload placement is key. In some cases, leaving things where they are is the smartest thing you can do.

This article explores cloud migration details in greater depth.

What to Look For

As you plan your cloud migration, it's essential to make smart choices to accelerate success and increase flexibility:

- **Partner up.** Most organizations don't have all the skills or manpower they need to plan and execute a successful cloud migration. Choosing the right partners is the fastest way to fill gaps and avoid mistakes.
- **Think outside the box.** Your goal is to ensure you have the ability to run applications where they are needed with the right performance at the right cost and at the right time to address business needs like seasonal peaks. While the "R" methods described above play a role, also consider solutions that will let you run your current application portfolio everywhere—in the cloud, at the edge, and in the datacenter—without drastic changes.



Strategy 2: Automate Your Operations

Worldwide, IT spending is forecast to grow 8% in 2024, fueled in part by increased investments in artificial intelligence (AI) along with the accelerating pace of digital transformation. At the same time, global spending on public cloud services is forecast to increase 20.4%, driven by an increase in cloud use (and increasing cloud prices). Relying on manual task performance as your operations scale and become more complex is a recipe for failure. More than 4 out of 5 IT leaders (83%) believe workflow automation is crucial. Enhancements in analytics and automation will refocus 30% of IT operations efforts from reactive to proactive.

Automation is an essential part of successful IT operations, but multicloud automation remains a significant pain point. Automation tools that work effectively in one cloud may not be available in another. To understand how critical this problem is, think about cloud security. Each public cloud has unique security controls. Resources that are improperly protected due to human error remain a significant cause of data breaches, making it essential to have intelligent tools that automate security across multiple cloud environments.

If you're not careful, you can end up with separate teams responsible for the management of each environment, an expensive and complex solution that is antithetical to the goal of enabling all your locations to function as part of a single seamless environment.

What to Look For

Your IT operations will never reach their full potential if you are forced to rely on separate teams, separate management tools, and separate automation in each cloud.

- **Integrated Management and Automation**. Look for a management model that automates day 1 and day 2 operations in all the environments where you have IT operations.

Strategy 3: Embrace FinOps

For most enterprises, the complexity of the hybrid multicloud landscape results in unoptimized spending due to lack of consumption controls, multiple purchasing options, and the complexity of calculating on-premises versus cloud spend. The more environments you operate, the harder it is to gain the cost visibility you need to make smart decisions regarding intelligent workload placement.

Intelligent, multicloud cost governance is essential for the long-term success of modern cloud operations. Increasingly, enterprises are turning to FinOps to fill the gaps and gain control over costs.

What is FinOps?

The FinOps Foundation Technical Advisory Council defines FinOps as an evolving cloud financial management discipline and cultural practice that enables organizations to get maximum business value by helping engineering, finance, technology, and business teams to collaborate on data-driven spending decisions.
The right FinOps and FinOps-as-a-Service solutions centralize the management functionality and dashboard accessibility to a single unified console so that operators can monitor important information. Having visible benchmarks and spending metrics is beneficial for monitoring and managing costs as well as for improving cost efficiency.

This recent article explores the topic of FinOps in greater detail.

What to Look For

As you consider FinOps solutions, it's important to focus on a balance of three key capabilities:

- **Inform.** Provide visibility across datacenters, public clouds, and edge while accurately allocating budgets to their respective cost centers.
- **Optimize.** Identify unused or underutilized resources, and take advantage of in-depth Reserved Instance (RI) purchase recommendations.
- **Operate.** Continue to optimize and save by fostering a culture of FinOps across the organization.

> "Cost Governance has paid for itself by providing the insight we need to control costs. In one instance, we uncovered an API on a development environment that did not need to be running, and shut it off, saving thousands of dollars per month."
>
> **Declan Fleming Enterprise Architect for Cloud, UCSD**

UCSD Takes Charge of its Multicloud Environment with NCM Cost Governance

With 1100 AWS accounts on campus—100 of which are major accounts for researchers, instructors, and administrators—University of California San Diego (UCSD) faced serious challenges in understanding, optimizing, and managing costs.
The UCSD IT staff needed a solution that could help ensure consistency, security, and efficient cost tracking. Nutanix Cloud Manager (NCM) Cost Governance gives the team the capabilities it needs to address the administrative overhead—and do much more.

It enables deep visibility and rich analytics detailing cloud consumption patterns, along with one-click cost optimization across cloud environments.

Benefits

- Provided visibility into usage costs across a multicloud academic and research campus.
- Automated compliance checks and one-click security mitigation improve compliance with government and academic requirements.
- Streamlined and automated administrative tasksReview summarization for e-commerce apps.
- Customer-specific marketing campaigns.
- Predictive modeling in research and development.

Strategy 4: Take Control of Data Services

The rapid pace of digital transformation combined with the increasing complexity of cloud operations translates to more data in more places. The 2023 Enterprise Cloud Index survey focused on the explosion of data across clouds, finding that just 40% of respondents had complete visibility into where their data resides.

The challenges associated with managing data in hybrid multicloud environments include:

- **Different data services in every cloud.** Today's data-driven applications have diverse needs. It can be a challenge to deliver comparable SLAs for performance and availability as data moves from one location to another.
- **Database challenges.** As with other data services, available database services—and deployment and management tools—are different in every cloud, making it harder to move database-dependent applications.
- **Complex data protection.** Tools for data protection similarly vary from one environment to another, making it difficult to ensure that critical data is protected and secure from unauthorized access.
- **Loss of metadata**. Moving data between clouds often results in the loss of valuable metadata.

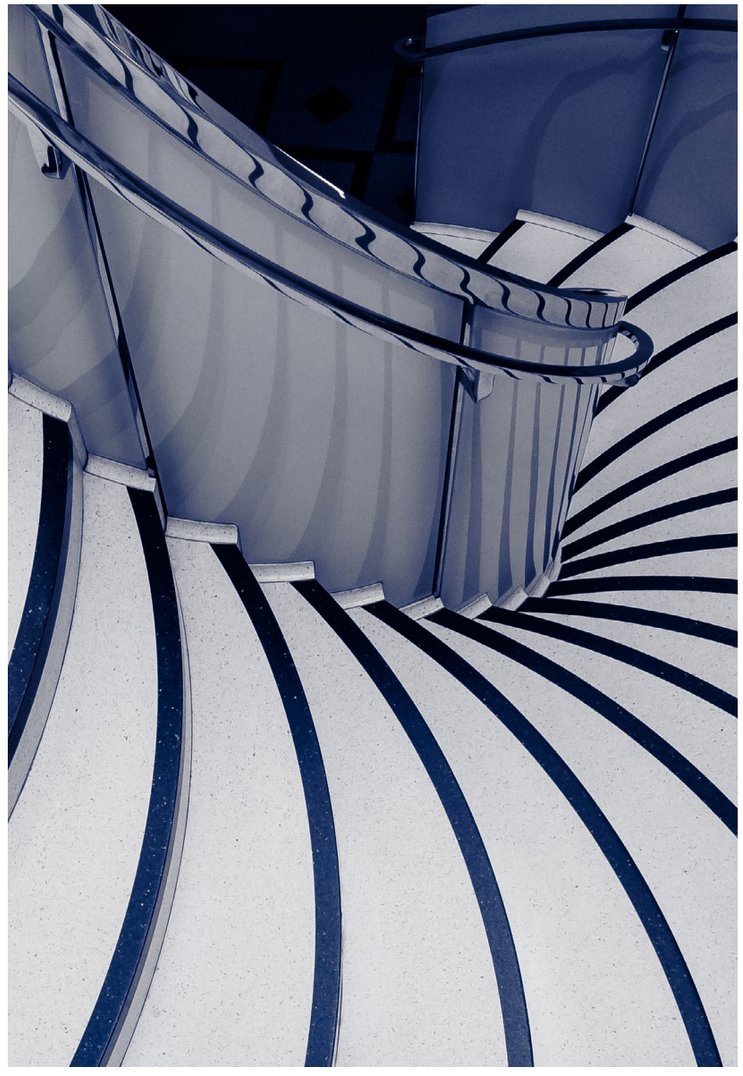
What to Look for

Data Services
Start by identifying the set of services you need for both traditional and cloud native applications. This could include block, file, and object storage, message brokers, caching services, and more. Once you've identified the necessary services, make those services available everywhere they are needed so there are no operational challenges or unexpected performance changes when an application moves between clouds.

Database
With databases, your goal should be to automate database provisioning while maintaining control of the database engines and versions you make available to your teams. Restrict access to databases with role-based access controls to ensure compliance. Consider solutions that automate the scheduling of operating system and database patching to occur during pre-determined maintenance windows.

Data Protection
Consolidating the set of data services and databases 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 datacenter, cloud, and edge. Typically, this includes snapshots, replication, and cloning. Look for implementations that are storage efficient and have minimal or no impact on performance.

For databases, integrated snapshots simplify database backup and recovery. Tier backup snapshots to optimized storage and make sure you can restore database snapshots to a specific point in time to meet RPO and RTO requirements.



Strategy 5: Build a Foundation for Cloud Native

Most of the apps you run today are likely still traditional enterprise apps running in VMs. However, much of your app development—now and in the future—will be cloud native. A cloud strategy that is truly smart should encompass both.

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 include stranded resources, increased costs, and decreased flexibility.

What to Look For

Infrastructure and tool choices should support both domains to the greatest extent possible.

Virtualize Kubernetes. By running Kubernetes and containers in a virtual environment, you can immediately leverage existing investments in tools and skills, providing a common baseline to support both cloud native and traditional apps.

Ensure portability. If you follow the advice regarding data services, you make it much easier to run traditional and cloud native apps everywhere by ensuring that the data services they need are available.

- Make traditional apps more portable by running the same or a compatible hypervisor everywhere.
- Protect the portability of cloud native apps by avoiding the use of services that are only available in a single cloud. Run the same or a compatible version of Kubernetes everywhere with compatible tools.

Choose partners wisely. Pick partners that understand both VMs and containers.

Strategy 6: Activate the Edge to Improve Access

Enterprise operations are increasingly moving to the edge to deliver digital services closer to the consumer. By some estimates, up to 50% of enterprise data will be generated at the edge by 2026. Many enterprises also want to move AI services to the edge, to get closer to that data.

If you're 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, remote management, and application security and availability.

For most enterprises, a cloud strategy that doesn't include the edge is no strategy at all.

What to Look For

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

Strategy 7: Embrace AIOps

Humans are proving unequal to the task of keeping up with the scale and scope of enterprise IT. As your digital footprint continues to expand faster than your ability to find skilled staff, artificial intelligence (AI) becomes essential to support your IT operations.

Modern IT produces mountains of log data and teams are increasingly turning to AIOps to identify correlations and anomalies quickly so that minor problems never have a chance to grow into full-scale disasters. For example, with cybercrime on the rise, AI and ML can uncover threats that are hard to spot using traditional methods, increasing the odds of detecting attacks before damage is done. Time is of the essence when malware and ransomware are lurking.

What to Look For

As you evaluate AIOps solutions, look for tools that offer the following capabilities:

- **Multicloud operations.** You want one solution that works in all the environments where you operate: clouds, datacenters, and edge locations. Applications increasingly span boundaries. A single application may run in one cloud but link to services running on-premises, in another cloud, or at a SaaS provider. To be useful, AIOps should have visibility everywhere.
- **Optimization and remediation.** Look for capabilities including predictive analysis of resource consumption, optimization/rightsizing of resource usage, and anomaly detection.
- **Operational automation.** Tools should be able to take automated action when an anomaly is detected.
- **Deep insights**. Tools should deliver the insight you need to simplify capacity planning and facilitate intelligent workload placement.

Generative AI. Gen AI is the new frontier in AIOps, with the potential to offer greater insights with less effort, increasing your organization's efficiency and scale. Many vendors will be "Gen-AI-washing" their existing products. Look for vendors who have a track record with advanced AI and a credible roadmap for Gen-AI-enabled features.

Enhance Your Cloud Strategy with Nutanix

By following the seven strategies outlined above, you can build a cloud smart approach that will help your business succeed. Nutanix helps you break down the barriers that are keeping you from realizing your cloud goals. Only Nutanix delivers a single, unified and simple-to-use platform across clouds, datacenters, and edge—with full license portability. **Apps running in the public cloud on Nutanix Cloud Clusters can be up to 53% lower cost than native public cloud.**

With Nutanix, you can:

- Manage, secure, protect, and move applications between clouds, all from a single control plane.
- Build enterprise-grade, modern apps and deploy them everywhere.
- Take advantage of visibility, chargeback, and showback for public cloud and datacenter spend.
- Build an AI-enabled, secure edge.

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.

Nutanix makes it simple to implement the strategies discussed in this guide and accelerates your path to cloud productivity.

How Nutanix helps

Cloud Migration Planning

- Nutanix Cloud Platform runs across all locations—public cloud, datacenter, and edge—simplifying app migration and minimizing the need for replatforming, refactoring, and rearchitecting.
- The Nutanix Professional Services team has the knowledge and expertise to support you every step of the way.

Automation

- Nutanix Cloud Platform simplifies routine tasks with 1-Click simplicity.
- Nutanix Cloud Manager (NCM) Intelligent Operations makes it fast and easy to automate day-to-day operational tasks with a few clicks and zero coding, improving productivity. And it works across datacenters, clouds, and edge and integrates easily with the tools you already have.

FinOps

- NCM Cost Governance drives financial accountability with intelligent resource sizing and accurate visibility into metering and chargeback across clouds, datacenters, and the edge.
- Nutanix FinOps-as-a-Service combines the power of NCM Cost Governance and Nutanix Professional Services team to deliver the FinOps capabilities you need with less effort.

Data Services

- Nutanix Unified Storage delivers the file, block, and object services you need across cloud, datacenter, and edge with no surprises.
- Nutanix Database Service (NDB) enables Database-as-a-Service across on-premises and public clouds, simplifying the deployment and management of popular databases like Microsoft SQL Server, Oracle, PostgreSQL, MongoDB, and MySQL.

Cloud Native

- Nutanix Cloud Platform supports both VMs and containers with no compromises.
- Nutanix supports your choice of Kubernetes distributions including a close partnership with Red Hat to jointly enable OpenShift.

Edge Operations

- Nutanix Cloud Platform provides a compact, cost-effective full stack edge solution that solves your edge challenges.

AIOps

- NCM Intelligent Operations has the AI capabilities your team needs to automate your operations, optimize resources, place workloads intelligently, and forecast future requirements with greater accuracy and less effort.

Let’s Get Started

Don’t let anything stand between you and cloud success. 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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