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Accelerating Cloud Migration for VMware Customers

NUTANIX

IMPEX technologies

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Introduction

Broadcom's acquisition of VMware has created significant un ertainty. As a VMware customer, you're likely concerned about its potential impacts on your business operations, including possible price increases, reduced innovation, and decreasing service levels.

In response, many VMware customers are reevaluating their options, and—especially for those with existing cloud mandates—there's a growing urgency to accelerate cloud adoption. This white paper explores the challenges and opportunities for long-time VMware customers as they strive to extend their operations to the public cloud to mitigate risk and increase agility.

Cloud Pain Points

Moving workloads to the cloud is a significant unde taking for VMware customers grappling with hundreds of applications and thousands of VMs. There are three critical pain points:

- **Rehost, Replatform, Refactor, or Rearchitect?** Which applications can you move “as is”, which must you replatform, and which should be refactored or re-architected?
- **Dependency Management.** Managing dependencies can be complex, especially in existing applications that rely on various services such as backend databases, data protection and resiliency capabilities, etc. Identifying and replacing these dependencies with cloud-based alternatives can be challenging and is not always straightforward.
- **Staffing Challenges.** A cloud migration puts significant p essure on your staff, especially if they need to learn many new skills to be productive in the new environment. Most enterprises already operate in multiple clouds—or soon will—further increasing complexity and the pressure on staff.

Previously, a gradual migration with help from VMware might have been feasible. However, with the ongoing changes to VMware’s Partner and Cloud Service Provider programs, the prospect of lifting and shifting applications into the cloud with VMware may be less attractive. As of April 30, 2024, Broadcom is ending the VMware Cloud Service Provider Program—which allows smaller cloud operators to provide VMware-based cloud services—and replacing it with an invitation-only program.

If your organization has already incorporated or is considering incorporating VMware cloud or cloud service provider options into your cloud expansion plan, even as a short-term solution, the uncertainties surrounding service levels and pricing should raise significant oncern. VMware’s approach to cloud implementation isn’t portable, thereby increasing vendor lock-in and exacerbating uncertainties.

Planning a Successful Cloud Expansion

If you're planning a partial or complete cloud migration, success hinges on your team's ability to migrate critical applications to the optimal cloud location(s) for your business needs, while also ensuring effi ient management post-migration. You'll need to develop a comprehensive strategy and a plan of attack to minimize the pain points described above. The key elements of a successful cloud migration are outlined in the following sections.

Inventory and Analyze

Analyze the applications that need to be migrated and understand the requirements and dependencies of each application in the following areas:

Compute

- Does or will the application run in a virtual machine or container?
- Does it have any unusual compute requirements like significant C U resources, GPUs, or other specialized processing?

This information is critical for choosing the applications' proper compute instances and its components.

Data Services

- What type(s) of storage does the application require (block, file, obje t)?
- Does it require bulk storage, high performance, or both?
- If the application is data intensive, does it require random or sequential access?
- Does the application require other data services for caching, messaging, streaming, etc.?

Knowing the answers to these questions will make it easier to choose the correct data service(s) upfront and minimize the risk of over or under-provisioning.

Databases

- Many enterprise applications connect to backend databases such as Oracle and Microsoft SQL Server to retrieve information, record transactions, etc.
- Identify the required database(s) for each application.
  - Will the database be migrated with the application?
    - If yes, will the database need to be replatformed or can/will you run the same platform in the cloud?
    - If not, how will the application connect to the database after migration, and what will the latency be?

This information is critical for choosing the applications' proper compute instances and its components.

Data Protection, Disaster Recovery, and Resiliency

What are the application's SLAs for data protection, disaster recovery (DR), and resiliency?

- **Based on their criticality**, all applications will require regular backups at an appropriate interval.
- **Traditional enterprise apps** typically utilize separate infrastructure services to provide online DR and resilience from failure.
- **Cloud-native apps** often build resilience features into the application itself. Kubernetes restarts failed containers automatically.

It's important to ensure these services are available and that you can deliver the same service levels after migration.

External APIs and Other Dependencies

While the items above include the most common considerations and dependencies, this is far from an exhaustive list. Here are a few more:

- **External APIs.** Applications increasingly make calls to external services (such as payment gateways) via APIs. If so, ensure that these will remain accessible.
- **Config Files.** Any application configu ation files must be upda ed to suit the new environment.
- **Security.** Does the application have any unique security requirements or controls? The security environment—authentication, authorization and other security protocols and controls—may change in ways that affect how an application behaves.

Characterizing all of an application's dependencies is essential for determining what it will take to get the app running in a cloud environment.

Stakeholder Involvement

As you plan the migration of each application to the cloud, ensure early involvement of developers and other stakeholders. You should also review each app's resource consumption to determine the required resources (CPU, storage, etc. as described above). Evaluate whether the app is under or over-provisioned in the current datacenter environment. High resource consumption can lead to elevated monthly cloud expenses, so it's crucial to explore any opportunities to reduce usage without affecting application performance.

Evaluate Cloud Providers

Once you've gained a thorough understanding of application requirements, the next step is to assess various cloud providers to determine which one best fulfills the needs of ach application, considering both functionality and cost.

While it's ideal to avoid unnecessary complexity by limiting the number of providers, it may be necessary to choose different providers for different applications or collections of apps. This allows you to better align with a specific ap 's functionality or to better accommodate different geographies.

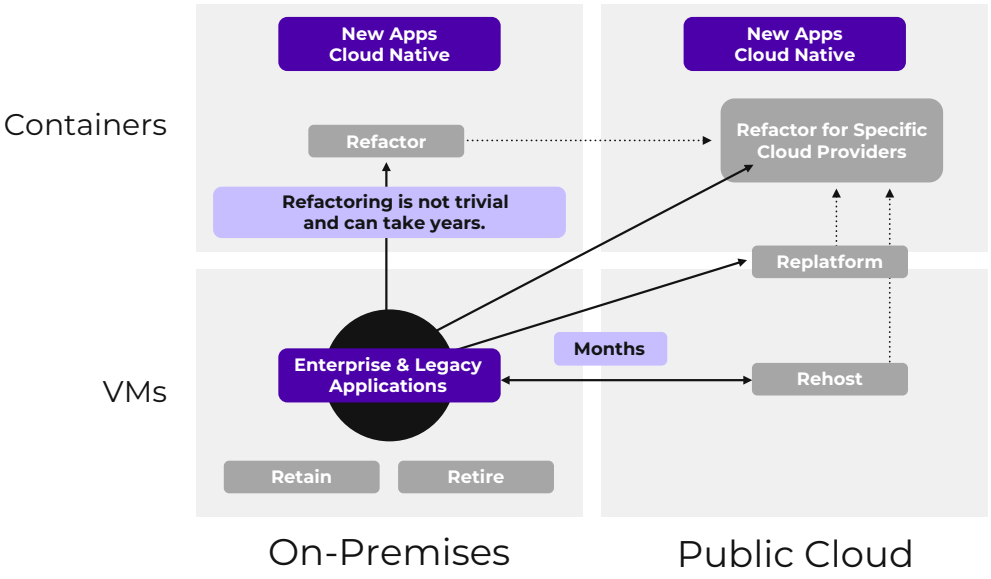
While major public clouds like AWS, Microsoft Azure, and Google Cloud Platform (GCP) are often chosen for their breadth of services and geographical reach, don't overlook smaller cloud service providers. These smaller providers may be more willing and able to cater to unique requirements and often specialize in catering to specific indust y needs.

Keep the app's functionality and required services in mind while comparing prices across providers. Minimizing vendor lock-in is critical, so it's advisable to avoid cloud features or services exclusive to a single vendor.. For example, opting for a service that's only available in AWS could limit your ability to migrate easily to another cloud platform in the future.

Choose Your Migration Method

For each application you are migrating, you should identify a migration plan. While the goal for most applications is to rehost or perform a lift and shift with minimal effort, certain applications may require modifications be ore migration. These adjustments might be necessary due to infrastructure differences or the inability to achieve the required performance at the desired cost.

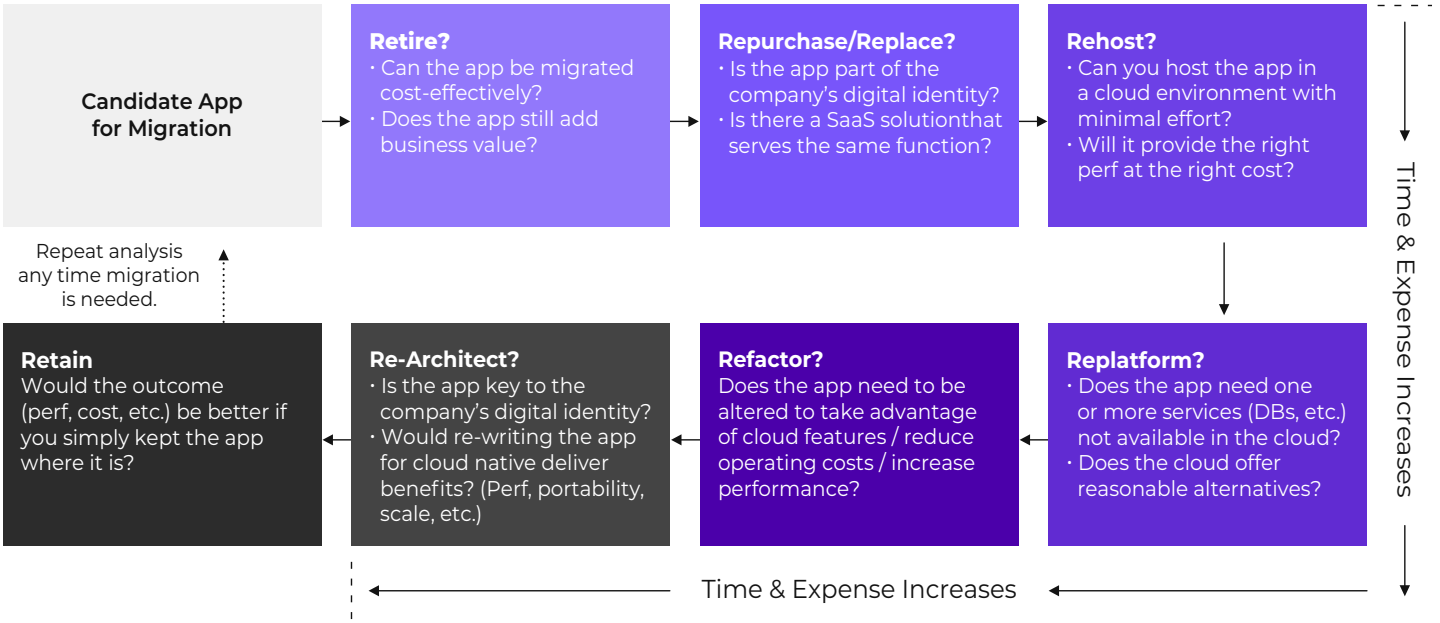
During the evaluation period, it's essential to carefully consider the appropriate method for migrating each application by selecting the correct "R" method: Retire, Replace, Rehost, Replatform, Refactor, Re-architect or Retain.



- **Retire.** Always assess whether an application continues to provide suffi ient value to your company before committing to the laborious and costly process of migration.
- **Repurchase/replace.** For legacy applications that no longer align with your company's digital identity and that cannot be migrated with positive ROI, consider replacing them with a Software-as-a-Service (SaaS) solution that offers equivalent functionality. This approach also reduces the primary management burden on your team.
- **Rehost (lift and shift).** Move the application to a cloud environment with the minimal effort. This involves running the same virtual machines (VMs) in the cloud environment using similar resources and services.
- **Replatform.** When an application is replatformed, it is migrated to the cloud without changing its basic architecture. However, replatforming typically requires other less drastic changes, such as switching the underlying OS or database platform.
- **Refactor.** Refactoring goes beyond replatforming, optimizing the application to take advantage of the chosen cloud platform and capabilities like dynamic scaling. It typically involves smaller, localized changes within the codebase, like renaming variables, extracting functions, or improving code structure.
- **Re-architect.** This is the most time-consuming and costly method, typically involving a complete rewrite of the application using cloud-native methods. The aim is to address any limitations or issues in the application's design to improve its performance, scalability, maintainability, security, or functionality. In the context of a cloud migration, re-architecting is often done to allow applications that have significant p ak resource needs to allocate and release resources in response to load. This allows the app to scale to accommodate peak loads (especially useful in situations where you can't accurately predict what that will be), while reducing your total cloud spend by releasing resources at other times.

In addition to these methods for migrating applications to the cloud, there's a final "R" method that mos organizations may also want 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. In some cases, leaving things where they are is the smartest thing you can do.



For most enterprises, the high-level migration strategy is:

- **Rehost the majority** of your applications (if possible). Requires the least effort and can be accomplished relatively quickly.
- **Replatform as necessary** to replace dependencies that aren't available or won't run in your chosen cloud environment.
- **Refactor and re-architect only where you expect a significant return on investment** or where it is absolutely necessary to get the desired performance and economics from a critical application.

Extend Your VMware Operations to the Cloud with Nutanix

Nutanix pioneered the concept of hyperconverged infrastructure (HCI), initially focusing on delivering simpler and more effi ient infrastructure for running VMware. Over time, Nutanix has evolved to become the leader in hybrid multicloud operations and open systems, offering customers the freedom to choose the right technologies for their business needs while minimizing the risk of lock-in.

Migrating your operations to Nutanix restores operational fl xibility while simplifying the process versus migrating to native public cloud services. Nutanix offers:

- **Seamless Migration.** Lift and shift existing VMware apps to Nutanix Cloud Clusters (NC2) with minimal effort and no surprises. Avoid the complexities of replatforming, refactoring, or re-architecting the majority of your apps thanks to Nutanix Move, which brings one-click simplicity to the migration process.
- **Enhanced Flexibility.** The Nutanix AHV hypervisor, along with the full Nutanix stack, runs everywhere—on-premises, at the edge, at leading service providers, and in AWS and Azure—so you can move applications between environments easily with no code changes and minimal operational changes.
- **User-Friendly Interface:** Transitioning from VMware to Nutanix is a breeze for administrators who can quickly adapt to the Nutanix environment with its intuitive interface.
- **Automated Updates.** Nutanix Lifecycle Manager automates ongoing software updates and patch management, relieving IT teams of the perennial headache associated with manual updates.
- **License Portability.** Enjoy the fl xibility of moving licenses between datacenters and public clouds as needed as operational needs evolve, without the need for relicensing and preventing capital investments from going to waste.
- **Leverage Existing Cloud Credits.** Run Nutanix in AWS or Microsoft Azure using cloud credits you've previously purchased.
- **Support and Services.** Nutanix offers a full suite of migration services and unparalleled support to ensure your success.

> AHV Virtualization is one of the main distinguishing factors for Nutanix. The out-of-the-box experience is fantastic, and AHV virtualization has all the features we need.

Jake Yang
Senior Director of Global Systems,
Nasdaq

Rehost, Replatform, Refactor, or Re-Architect?

Nutanix Cloud Clusters (NC2) provides a full-featured alternative to VMC and VMware Cloud Service Providers, removing uncertainty and risk. Nutanix makes it simple to rehost existing VMware applications into the cloud. The Nutanix AHV hypervisor takes the place of ESXi, without sacrifi ing critical functionality.

Migration Method	How Nutanix Helps
Rehost	· Lift and shift a larger fraction of VMware apps · Rehost applications in the cloud of your choice quickly and with minimal effort
Replatform	· Minimizes the need to replatform by allowing you to lift and shift VMware environment · Unencumbered full-speed access to native cloud services
Refactor	· Accelerate app development using Nutanix clones, snapshots, and other tools. · Run containers and VMs on the same intuitive platform.
Re-architect	· Choose the K8s distro and other cloud-native tools of your choice. · Nutanix HCI is a preferred choice for Red Hat Enterprise Linux and OpenShift.
Retain	· Keep necessary apps on-premises w/o VMware · Migrate to VMware on Nutanix and move to Nutanix AHV at your own pace · Portable licenses protect your investment if you decide to move more operations to Nutanix in the cloud later.

Manage Dependencies

For each application, Nutanix makes it easy to size and map your VMware virtual machines to Nutanix equivalents so migration occurs without any big surprises. The Nutanix platform integrates block, file, and obje t data services for maximum convenience, and you can run your existing databases in the cloud in NC2 or replatform to use cloud services with no impediments. Nutanix also includes self-healing resiliency, fl xible data protection, and DR, so SLAs are never compromised.

Take the Pressure Off Your Staff

Nutanix offers a wide range of functionality equivalent to or better than VMware solutions. Many migrating customers find that managing a Nutanix vi tual environment is simpler than managing VMware. Existing VMware admin teams swiftly adapt to managing the Nutanix environment, thanks to one-click simplicity and intelligent operations, facilitating seamless automation.

Gain Control Over Costs

Cost control is a paramount concern for companies migrating to the cloud. Nutanix Cloud Manager offers intelligent operations and cost governance features, streamlining cost management across complex hybrid multicloud environments.

85%

consider cloud cost control a challenge

89%

agree that moving workloads to a different cloud env can be costly and time consuming

Source: 6th Annual Nutanix Enterprise Cloud Index

Get Started Now

Don't let anything stand between you and cloud success. If you'd like to try out Nutanix software fi sthand, you can take a Test Drive to see the Nutanix difference for yourself.

Take a Test Drive

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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