MAXIMIZING VMWARE INVESTMENTS IN THE CLOUD

NATIVE VMWARE ENVIRONMENT STREAMLINES CLOUD MIGRATION

INTRODUCTION

VMware is prevalent in the enterprise – a truism and understatement in one sentence. Nearly 100% of Fortune 500 companies use VMware, and more than 80% of virtualized workloads run in virtual machines powered by VMware. ESXi is the hypervisor of choice for enterprise IT, and vSphere is the control plane by which IT infrastructure is deployed, provisioned, and managed.

IT organizations look to leverage the significant investments in VMware to enable their digital transformation and IT modernization efforts. The tools and services in the VMware portfolio deliver the infrastructure supporting cloud, cloud-native, and edge computing environments.

The public cloud and a collective "cloud-first" approach to adoption and migration can potentially disrupt an organization's existing investment in VMware technologies and services. As companies leverage the public cloud more for IT services and functions, their specific VMware environments often cannot be replicated. Bespoke operating environments and management toolchains must give way to the public cloud. This dynamic can cause significant challenges in application performance, negatively impacting the business. IT organizations already struggling to support the needs of the digitally transformed business can quickly become overwhelmed with the complications associated with cloud migrations.

In 2020, Oracle announced Oracle Cloud VMware Solution to address these challenges. This dedicated, cloud-native VMware-based environment enables enterprises to seamlessly move their production VMware workloads to Oracle Cloud VMware Solution, a service within Oracle Cloud Infrastructure (OCI). Oracle Cloud VMware Solution provides the benefits of the public cloud for VMware environments without disruption, enabling seamless on-premises-to-public-cloud transition and operations for the enterprise.

This research brief will explore Oracle Cloud VMware Solution and how it stands differentiated in the public cloud marketplace.

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THE COMPLEXITY OF CLOUD MIGRATION

We live in a cloud-first world – in terms of both architecting and deploying applications and data. Many organizations have taken a cloud-first strategy to achieve operational and business agility, as enterprise IT is more challenged than ever to deliver infrastructure, platforms, and frameworks that support the business without requisite increases in budget or headcount.

Getting to the cloud is often challenging, as migration plans are fraught with cost, and schedule overruns are common. Organizations with a risk assessment and associated risk mitigation strategy for VMware environment lift-and-shift projects find that version incompatibilities, application-level security, connectivity issues, and latency challenges all combine to complicate cloud migration. The process of moving from on-premises to the cloud is far more complicated than what is seen in a Gantt chart or PowerPoint slide.

The challenges of migrating VMware environments to the cloud can be complex and costly – impacting IT professionals, data center managers, and enterprise architects individually and collectively. Due to many risks, these challenges can lead to a hesitancy to migrate mission-critical systems, functions, and applications to the cloud. Some of these risks are detailed below:

- **Versioning and compatibility**. As the typical public cloud provides a standard VMware environment to port virtual machines, applications, and data, there is a real risk that an organization's standard versions and revisions will be out of sync with what resides in the cloud. This can lead to refactoring and rearchitecting environments and applications before migration can begin.

- **Unfamiliar toolchains**. As enterprise IT has built a particular "muscle memory" around managing its VMware environment, shifting to the public cloud will mean a new set of tools and interfaces for deploying and managing a virtualized environment. Learning a new set of tools will lead to short-term organizational inefficiencies directly impacting the business.

- **Data residency challenges**. In some cases, users give up control over where data resides for a hosted environment. This can cause organizations to run into conflicts with data privacy and sovereignty regulations.

- **Loss of control**. Simply put, a move to the public cloud usually means an organization is giving up some control of its operating environment. This directly

contributes to the hesitancy around migrating mission-critical functions for IT organizations.

FIGURE 1: CLOUD MIGRATION RISK CONSIDERATIONS
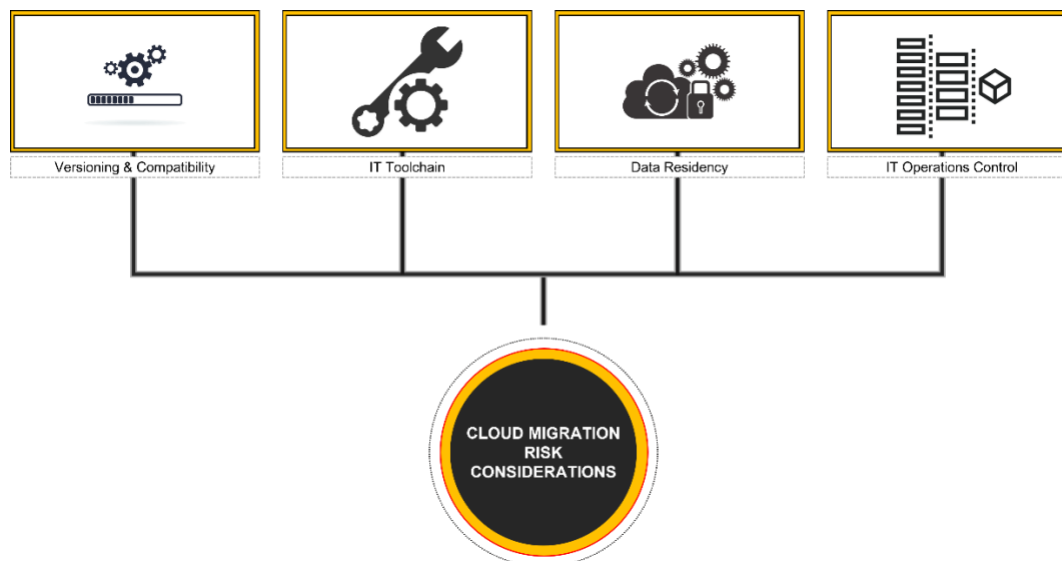
Source: Moor Insights & Strategy

Many enterprise organizations have standardized their virtual computing on VMware for well over a decade, with it serving as the foundation of many IT and business functions. This means stringent operating environment standards make requalifying environments a significant effort. Because of this, lift-and-shift efforts that require refactoring and requalifying environments and applications can expose an organization to real control, security, ROI, and performance risks. Many organizations have avoided introducing this cloud migration into their businesses.

CONSIDERATIONS FOR CLOUD MIGRATIONS

The challenges of migrating VMware environments are directly proportional to how critical VMware is to an organization's IT infrastructure: The more an organization relies on VMware technologies to support its infrastructure, the more challenging a cloud migration will be.

Moor Insights & Strategy (MI&S) has identified four guiding principles that organizations should consider when evaluating cloud providers for cloud migration:

1. **Total Cost of Ownership (TCO)**: While capital expenditures (CapEx) are a big part of any TCO equation, operational expenditures (OpEx) and the "softer" costs

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associated with migrating to the cloud are equally important. Any migration to the cloud should measurably lower the cost of maintaining an organization's VMware environment.

2. **Agility**: A move to the cloud should increase operational and business agility, not compromise it operationally. A familiar architecture supporting familiar processes – combined with greater capacity – should be the immediate end state for any cloud migration.

3. **Risk Profile**: Any changes to compliance posture, security, monitoring, or management will increase an organizations' risk profile post-migration. Organizations should give serious consideration to anything that will increase risk profiles before proceeding.

4. **Manageability**: A move to the cloud should increase visibility and control of VMware environments. Look for solutions with the greatest control and little to no loss of management capabilities.

FIGURE 2: MEASURING CLOUD MIGRATION SUCCESS
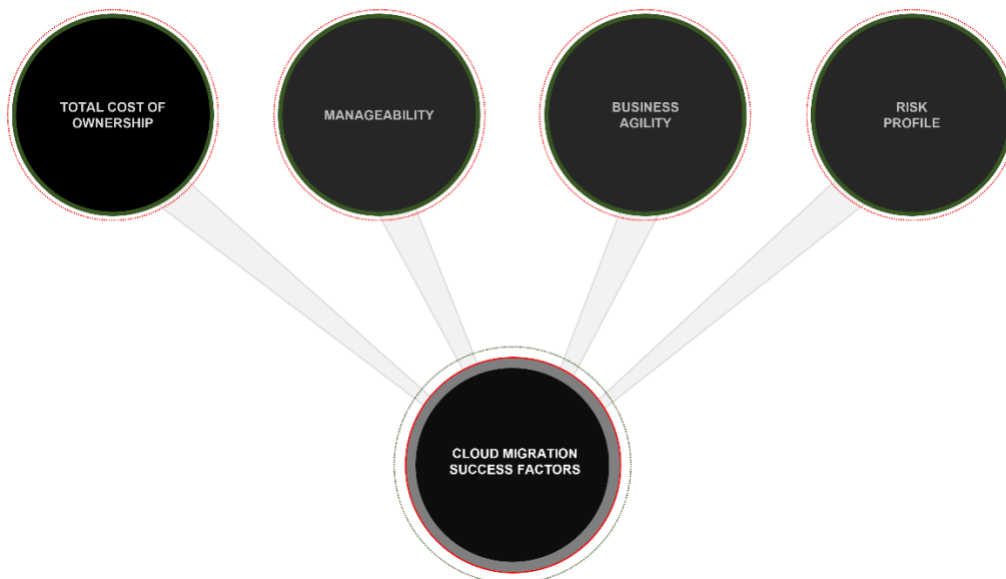
Source: Moor Insights & Strategy

The above list is neither idealistic nor unachievable. Rather, these should be table stakes for any IT organization considering the public cloud to host their VMware environment. MI&S sees OCI as uniquely positioned in this space.

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CLOUD-NATIVE VMWARE IS A KEY DIFFERENTIATOR

While many of today's cloud providers have roots in hyperscale datacenter architectures repurposed for cloud customers, OCI was built as a native cloud environment. This gives the company the ability to deliver different services that are more custom – and native – to the market. Further, cloud-native datacenter designs remove the risk and cost associated with utilizing less-than-optimized infrastructure.

OCI's cloud-native support for VMware environments is significant. OCI starts with bare metal instances to migrate customer-specific VMware environments and associated workloads, applications, and data to the cloud. These are commoditized bare metal servers (with NVMe storage) – a literal extension of the company's on-premises datacenter in any of Oracle Cloud's regions. If preferred or required, customers can run their VMware environments in OCI-dedicated regions housed in the customer's datacenter.

FIGURE 3: ORACLE VMWARE DEPLOYMENT & MIGRATION SOLUTION
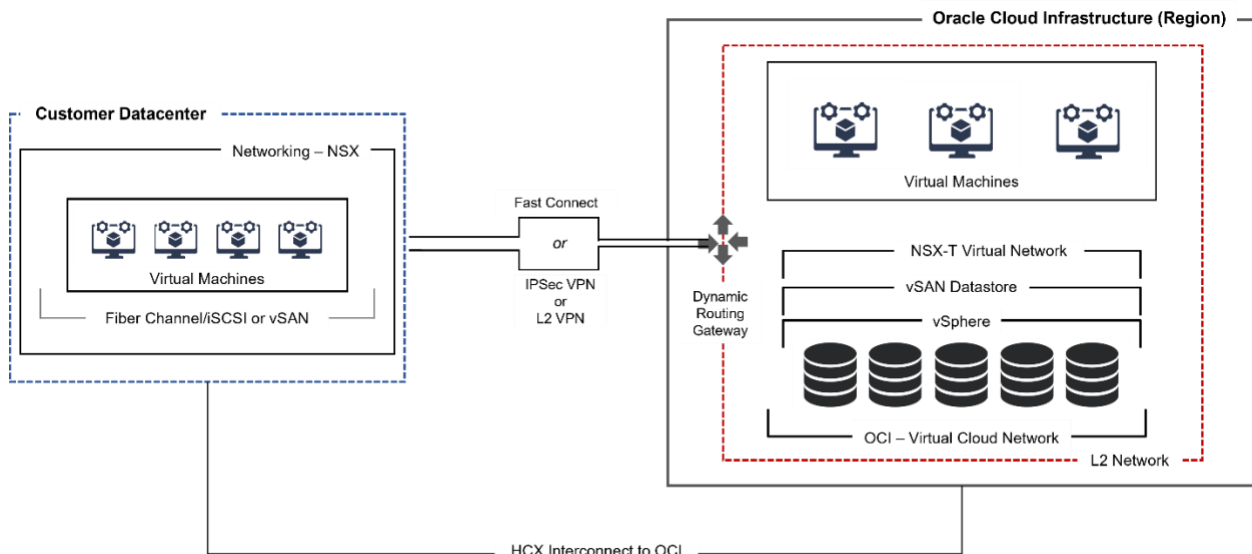
Source: Moor Insights & Strategy

OCI's native support of VMware environments is unique in the market. Typically, cloud providers offer pre-existing VMware environments that allow IT organizations to migrate virtual machines. This approach cuts against the guiding principles previously outlined, as customers will likely require a refactoring of operating environments and applications, potentially impacting performance and manageability. Ultimately, operational cost increases will negatively impact projected ROI timelines.

Environments of Oracle Cloud VMware Solution customers run in what OCI calls *off-box virtualization*. Separate from the general OCI infrastructure, off-box virtualization is comprised of dedicated bare metal servers running a company's environment. These are isolated from the general OCI environment but directly link the customer's on-premises VMware and OCI environments.

Figure 3 illustrates an Oracle Cloud VMware Solution incorporating a full Layer 2 network delivering a seamless transition of an on-premises VMware NSX to the cloud without on-premises network architectural changes. This enables a predictable migration with equal or better operating performance for VMware environments.

MAJOR BENEFITS OF NATIVE VMWARE TO ENTERPRISE IT

MI&S sees OCI delivering on each of the four guiding principles when evaluating public cloud offerings for enterprise IT organizations. Some of the more compelling values are detailed below:

- **Integrity of VMware environment.** OCI's approach to providing VMware environments on bare metal instances allows customers a true "lift-and-shift" from on-premises to the cloud without refactoring or rearchitecting.

- **Faster time to cloud.** Enterprise IT organizations should achieve seamless migration to the cloud faster when deploying on OCI. Further, OCI should enable customers to transition on its timelines without sacrificing performance or security.

- **Maximizing VMware investments.** Oracle's unique support model enables enterprise IT organizations to preserve and maximize their VMware investments, which has a real and direct impact on ROI.

- **Control over environment and data.** While researching VMware within enterprise IT, MI&S has found that lack of control is often cited for cloud migration hesitancy. Oracle Cloud VMware Solution allows customers to have control over the operating environment and control (and management) of applications and data. Because of this, we believe enterprises will find Oracle Cloud VMware Solution compelling.

- **Lowest egress costs.** The actual cost of migrating VMware environments to the Oracle Cloud VMware solution is the lowest in the industry, according to the company. When considering this factor, along with the speed of migrating, organization's should benefit from a real cost of ownership savings.

It is important to note that Oracle's VMware solution is available globally – across its 37+ OCI regions, and as a dedicated region. This addresses the challenges organizations can have with data sovereignty and locality.

SUMMARY

Enterprise IT organizations have made significant investments in VMware, both technologically and operationally. VMware is the control plane for infrastructure and the underpinning of transformation and modernization projects for many enterprise IT organizations.

Given the maturity and reach of VMware in the enterprise, it is fair to say that no two organizations' VMware requirements are alike. The more dependent an enterprise IT organization is on VMware, the more likely it is to be unique in its standardized versions and operations.

Because of this, VMware cloud migrations can be far more challenging, time-consuming, and expensive than many organizations have an appetite for. If not addressed properly, this can lead to disparate on-premises vs. off-premises environments that sacrifice performance, control, and security. And these challenges are exacerbated by the non-native model in which most cloud providers offer VMware support.

Enterprise organizations should consider the four guiding principles outlined here when evaluating cloud providers as potential vendors for VMware environments. Gains in TCO, agility, risk profile, and manageability should be an essential and measurable outcome of the migration.

MI&S sees Oracle Cloud VMware Solution as a viable offering to deliver on these four guiding principles, primarily due to its dedicated and bare-metal design that enables seamless and simplified VMware migrations. Enterprise IT organizations looking to leverage the benefits of the cloud while minimizing the challenges associated with such lift-and-shifts should strongly consider Oracle Cloud VMware Solution.

For more information, visit www.oracle.com/vmware.

IMPORTANT INFORMATION ABOUT THIS PAPER