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TRANSFORMING WITH VMWARE CLOUD

AUTHORED BY
Darian Bird
Principal Advisor, Ecosystm

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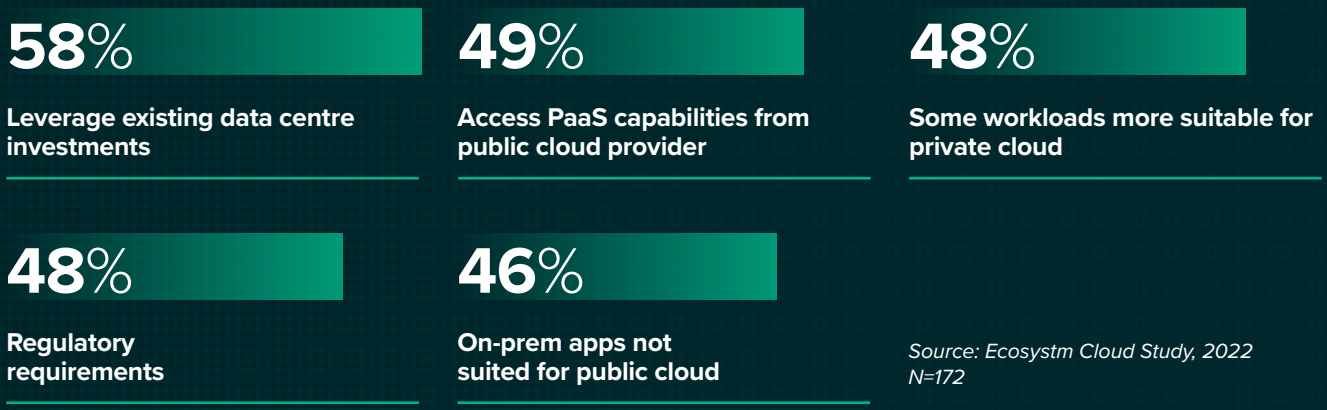
Overview

Most organisations have already deployed selected SaaS-based collaboration or enterprise applications and used web servers or development environments from the likes of AWS, Azure, and Google Cloud.

Many core workloads, however, have remained on-prem due to concerns about data sovereignty, security, insufficient skills for migration and management, or because organisations have already made significant investments in building and optimising their own data centres. Organisations are looking for a solution that can help them bridge the divide between public and private cloud environments as part of their digital transformation journey.

FIGURE 1:

Primary Reasons for Choosing Hybrid Cloud



Source: Ecosystm Cloud Study, 2022
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VMware's range of hybrid cloud offerings launched in conjunction with the hyperscalers provide such a platform, namely VMware Cloud on AWS, Azure VMware Solution, and Google Cloud VMware Engine. Each of these services provides single tenant architecture hosted within the hyperscaler's own cloud data centre. The services are provisioned and managed with VMware software-defined data centre tools – vSphere, vSAN, and NSX – that many IT Operations teams are already accustomed to. Workloads can be migrated from on-prem to public cloud as seamlessly as if they are being shifted within the organisation's own infrastructure.

Ultimately, the main benefit of running workloads in VMware on the cloud is the ability to redirect resources to higher value initiatives. Overburdened IT Operations teams can shift their focus from deploying and maintaining physical infrastructure to more efficient tools such as Kubernetes, AIOps, and serverless computing. Developers who are able to more rapidly provision resources themselves can focus on creating innovative new services. The cost savings associated with rationalising data centre space allow for investment in innovation further up the stack, that drives revenue growth rather than merely keeping the lights on.

Benefits of VMware Cloud

The benefits of moving to cloud are numerous, including elasticity, consumption pricing, and agility.

Most organisations, however, are unable to migrate completely to a public cloud environment. Shifting to a hybrid cloud model, using VMware, provides a means of straddling both public and private environments.

BRIDGING THE SKILLS GAP

A major inhibitor to any IT modernisation project is the lack of in-house skills to shift to a new environment. Concurrently refactoring applications, conducting the migration to the unfamiliar environment of a hyperscaler, and successfully carrying out day-two operations require significant investment in retraining current employees and recruiting new talent. This must all be done in a tight labour market where lack of skills is an impediment to any transformation project. Migrating applications to the cloud with VMware is an efficient use of skills built up over years of on-prem experience. This operational consistency allows time for in-house skills to evolve over time rather than requiring immediate change.

SIMPLER, FASTER MIGRATION

The prospect of either refactoring an application or simply lifting and shifting it to the cloud can be daunting when organisations are already stretched with day-to-day operations. Migrating applications within the familiar VMware environment can dramatically simplify and speed up the process. This translates directly into business value, if it can solve availability issues, allows for improved scalability in the lead up to a peak business period, or reduces expenditure on infrastructure management.

HYBRID CLOUD

Most organisations are operating across multiple cloud providers and in both on-prem and public environments. Many of these workloads, however, are running as silos without a unified management plane, which could reduce complexity and accelerate provisioning. With a hybrid cloud environment, applications can burst out to the public cloud to meet peak traffic levels without service disruption. True business value can only be unlocked by integrating on-prem and public cloud environments with a hybrid approach. This will quickly become more apparent as organisations begin generating increasing volumes of machine data and deploying AI applications at the network edge. Hybrid cloud will enable, for example, compute-intensive machine learning to occur in the cloud and then push new inference models out to the network edge to achieve low latency for IoT applications.

SHIFT FROM CAPEX TO OPEX

Upfront capital necessary for a new data centre build and ongoing maintenance and management costs require years before a return on investment is realised. Meanwhile, new digital initiatives are often expected to show returns in the short term. Running applications in the cloud and switching to an OPEX model allows expenditure to be more directly coupled with revenue. This is particularly attractive for workloads that require scalability, where computing and storage consumption costs predictably ebb and flow in line with business performance.

VMware Cloud Use Cases

DATA CENTRE CLOSURE OR SPACE CONSTRAINTS

The most abrupt driver for a shift to cloud is the need to evacuate a data centre, often due to an expiring lease, lack of physical space for expansion, or power constraints. Many organisations faced with a decision to either extend a lease, move to another facility, or migrate to cloud, choose the later. With such a dramatic change in operating model, organisations search for the least disruptive method of migration. Using VMware as a bridge to public cloud allows organisations to use the skills that have already been built up internally.

AVAILABILITY CHALLENGES

As on-prem infrastructure begins to age, organisations outgrow their systems, or when human error occurs, availability suffers. Costly downtime provides business stakeholders with impetus to shift to the highly available environment provided by the cloud. The major hyperscalers have three physically separate availability zones in many of the regions in which they operate. VMware provides the tools to rapidly migrate to public cloud without overhauling the physical infrastructure. Similarly, disaster recovery can be ensured simply by taking advantage of the multiple regions offered by some hyperscalers.

DATA SOVEREIGNTY AND RESIDENCY REQUIREMENTS

Many applications that require access to sensitive information have remained on-prem for data sovereignty and residency reasons. As a result, they have forgone the performance and scalability advantages of the cloud. It is possible instead to rearchitect these applications to call on cloud-adjacent databases to ensure compliance without hindering other services delivered from the public cloud. An example of this would be an application in which the database is hosted privately in an Equinix data centre, connected to VMware Cloud on AWS through Direct Connect without the need to transit the public Internet.

IT PERSONNEL REBALANCING

Organisations on the path to digital transformation have realised that day-to-day management of their physical infrastructure is no longer a valuable use of their human capital. Software updates, patch management, and hardware upgrades can all be managed by cloud service providers more efficiently than by most in-house IT teams. Cloud infrastructure tends to be more advanced than that found on-prem and the software is often a version ahead. Organisations that require the IT department to focus on innovation further up the stack, can shift to a managed service and unburden themselves from repetitive tasks.

END-OF-LIFE HARDWARE

Organisations running applications on hardware that is approaching end of life encounter many challenges. Maintenance costs begin to escalate due to scarcity of parts and the need to hire third-party services for extended support. As vendors trim back on firmware updates and security fixes, organisations face increasing cyber threats. Moreover, end-of-life hardware lacks recent innovations in power efficiency, flexibility, and performance. Operating a hybrid environment allows IT Operations teams to migrate individual workloads to the cloud as the underlying hardware approaches end of life, while making use of remaining systems not yet in need of replacement.

VMware Cloud Foundation Partners

VMware announced public cloud alliances with AWS and IBM in 2016 and has steadily added new partners since then.

Each partner offers a similar suite of VMware tools but has slightly differentiated offerings according to their own cloud infrastructure and data centre footprint. Below are VMware's preferred public cloud partners.

VMware Cloud on AWS

Generally available since 2017, VMware Cloud on AWS is a hybrid cloud solution hosted in AWS data centres and managed by VMware. The service was initially launched on AWS US West but was expanded to include Sydney, Singapore, Mumbai, Seoul, Tokyo, and Osaka in Asia Pacific. VMware Cloud on AWS Outposts was recently announced for AWS infrastructure on-prem managed through the VMware Cloud portal. Initial deliveries will be to US-based clients.

Azure VMware Solution

In early 2021, Microsoft announced general availability of Azure VMware Solution Next Evolution, effectively replacing Azure VMware Solution by CloudSimple. The move was likely prompted by Google's acquisition of CloudSimple in 2019. In Asia Pacific, Azure VMware Solution is available from New South Wales, Victoria, Singapore, and Tokyo, with Osaka and Hong Kong expected soon.

Google Cloud VMware Engine

Google accelerated its push towards delivering VMware services with its acquisition of CloudSimple. Shortly after, in 2020, it made Google Cloud VMware Engine generally available, including in Asia Pacific from Sydney, Mumbai, Singapore, and Tokyo.

IBM Cloud for VMware Solutions

Launched in 2016, IBM Cloud for VMware Solutions was VMware's first foray into public cloud with its close infrastructure and services partner, IBM. The service comes in dedicated and shared infrastructure options, with the later billed either on demand or as reserved instances. Asia Pacific data centre locations include Sydney, Melbourne, Singapore, Chennai, Seoul, Tokyo, and Hong Kong.

Oracle Cloud VMware Solution

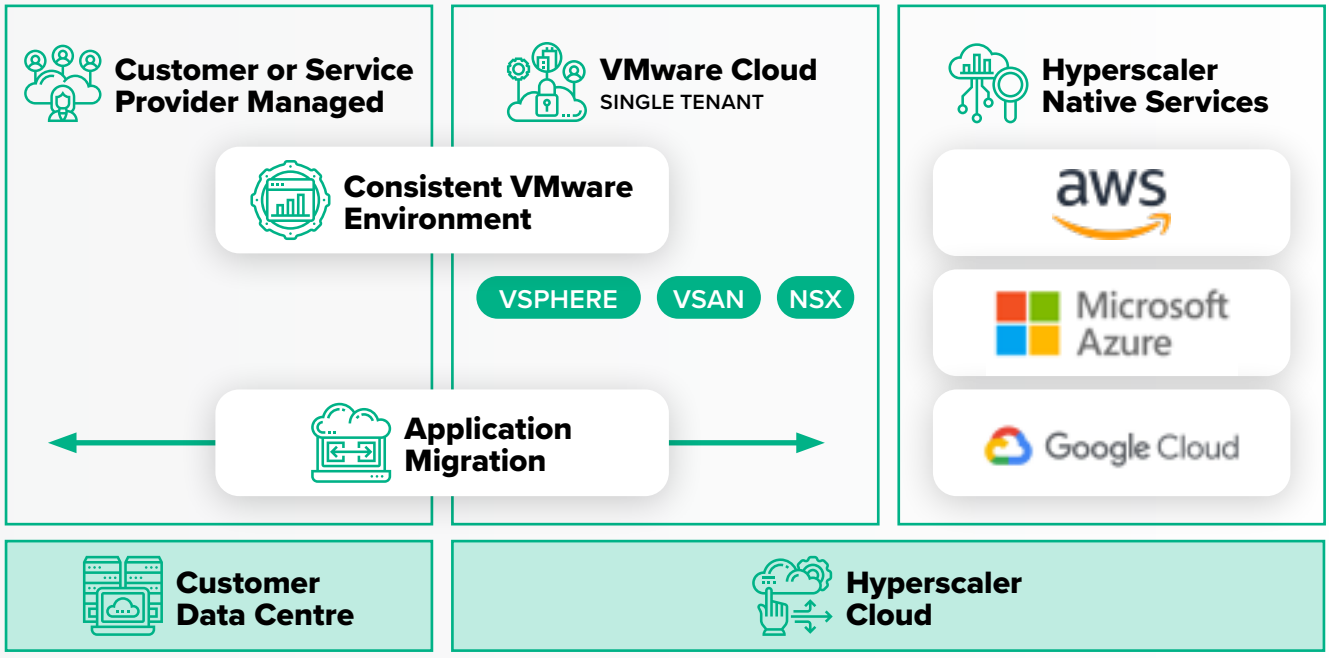
Launched in 2019, Oracle Cloud VMware Solution is particularly suited to Oracle database and application clients looking to migrate to the cloud. In Asia Pacific, Oracle Cloud VMware Solution is available from two regions each in Australia, India, Japan, and South Korea, while Singapore will go live soon.

Alibaba Cloud VMware Solution

The most recent addition to VMware's list of cloud partners, Alibaba Cloud VMware Solution was launched in 2020. Initially available from mainland China and from Hong Kong in partnership with Equinix, the service is expected to eventually roll out to other Asia Pacific countries.

FIGURE 2:

VMware Cloud Foundation



Source: Ecosystm, 2022

Critical Elements of VMware Cloud

Each of the hyperscalers bundles together VMware virtualisation tools for servers, storage, network, and security, in addition to offering plug-ins for application migration and cloud operations management.

Below are the three key components in each offering:

01

vSphere

The server virtualisation platform, that includes ESXi, the hypervisor, and vCenter, the management console. HCX is a vSphere application portability plug-in designed to assist in migrating to cloud and rebalancing workloads across sites, availability zones, or regions. Migration options include Cold Migration (offline), HCX Bulk Migration (parallel migration, low downtime), vMotion (single VM, no downtime), and Cloud Motion (parallel cloud migration, no downtime).

02

vSAN

Storage virtualisation platform that delivers a consistent interface across on-prem and cloud environments. Integration with vSphere enables compute and storage management from one platform. Capacity scales automatically with the addition of new nodes although the recent introduction of Elastic vSAN for storage intensive workloads allows for greater capacity per node. All data at rest is encrypted while deduplication and compression are automated. Failures to Tolerate (FTT) can be configured according to requirements, while redundancy is ensured by spreading stretched clusters across multiple availability zones.

03

NSX

Network and security virtualisation platform that spans across data centres and the cloud, allowing policies to be defined and applied to workloads regardless of where they are run. Micro-segmentation limits east-west traffic between workloads, while edge firewalling filters north-south traffic to enable a zero-trust approach to security. Traffic between on-prem systems and public cloud is encrypted using a VPN.

Recommendations

CONDUCT AN APPLICATION ASSESSMENT – THE 6 Rs

The first step to developing a hybrid cloud strategy is to catalogue current applications running in the organisation and assess the most appropriate environment for each of them.

01

Rehosting

is a simple lift-and-shift to move applications to the cloud quickly. Although this does little to modernise the application, it gives an organisation valuable experience with cloud migration.

02

Replatforming

involves slight changes to the application while moving to cloud. The application gains platform improvements like availability or elasticity but ultimately resembles the original one.

03

Refactoring

requires rethinking the application to take advantage of cloud-native technologies. By shifting to a microservices architecture, organisations enjoy increased agility, improved efficiency, and greater automation.

04

Repurchasing

typically involves an organisation shifting from on-prem software to an off-the-shelf SaaS solution. ERP, CRM, and collaboration tools are most common candidates for this model.

05

Retaining

or revisiting leaves the application in its current form suggesting migration is not a priority or the current environment is fit for purpose.

06

Retiring

is appropriate for those legacy applications that are no longer demonstrating business value. Organisations need to consider whether to store the dark data in these systems for later use.

LIFT AND SHIFT IS ONLY THE BEGINNING

Identify workloads that can easily be lifted and shifted to the cloud with minimal refactoring. This will provide the business with experience in migration and managing cloud workloads, while also delivering some of the advantages of elasticity and shifting to an OPEX model. Moreover, some workloads will be easier to reimagine and refactor once they are already in a cloud environment. To gain the most value from cloud, however, refactoring should be the longer-term goal. This allows organisations to reap the agility benefits of a microservices architecture and innovative new cloud services.

OPTIMISE VMWARE CLOUD ENVIRONMENT

Before adding services from the hyperscaler's native offerings en masse, optimise your VMware Cloud environment. Moving to an OPEX model can be costly without careful monitoring of consumption. Reserved instances should be employed when possible, leaving the more expensive on-demand hosts for temporary or variable workloads. Develop a tagging strategy to allocate cloud costs to departments and create accountability. Resource utilisation should be monitored to identify over-sized assets and policies designed to govern provisioning.

REINVEST IN RESKILLING

A key benefit of migrating to the cloud in a VMware environment is the ability to utilise the skills already built up on-prem. Shifting to a managed service also reduces the workload on IT Operations employees resulting not only in savings but also the opportunity to redeploy those employees elsewhere. As organisations move to a microservices architecture, there is a growing need to deploy automation tools to handle the increased complexity. A reskilling programme for the IT Operations team should enable them to implement and manage new tools, such as Kubernetes, AIOps, serverless infrastructure, and data fabric. Focus on continuous modernisation of skills across the organisation to ensure resiliency in a tight labour market.

REARCHITECT ORGANISATIONAL OPERATING MODEL

To gain the full benefit of shifting to cloud, change your operating model to become more agile. This not only applies to IT by adopting a microservice architecture but also on an organisation-wide scale. With the dramatic changes happening in the last two years, organisations that have implemented agile practices have proven to be more resilient and adaptable in an uncertain environment. As processes are redesigned and coupled with the agility provided by cloud, decision making improves and teams become more responsive.

About the Author

Darian helps businesses navigate the path towards digital transformation, providing insight into cloud, automation, cybersecurity, and outsourcing. He has spent two decades advising business leaders on using technology to enter new markets, improve client experience, and enhance service delivery.

Previously, Darian spent ten years at IBM, where he was a principal advisor for infrastructure services and hybrid cloud in Europe. Prior to this, he was a research manager at IDC, gaining emerging markets experience in Asia Pacific, Central Eastern Europe, Middle East, and Africa. In his final position, Darian headed up IDC's ANZ offshore research team based in Kuala Lumpur.

Originally from New Zealand, Darian is based in Prague, the Czech Republic. He holds a Bachelor of Business, majoring in marketing, from the University of Auckland. Outside of the office, Darian enjoys running up mountains, biking with his young daughters, and researching his family tree.

ABOUT HEWLETT PACKARD ENTERPRISE

Hewlett Packard Enterprise

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Some of our customers run traditional IT environments. Most are transitioning to a secure, cloud-enabled, mobile-friendly infrastructure. Many rely on a combination of both. Wherever they are in that journey, we provide the technology and solutions to help them succeed.

We make IT environments more efficient, productive and secure, enabling fast, flexible responses to a rapidly changing competitive landscape. We enable some of New Zealand's largest organisations to act quickly on ideas by delivering infrastructure that can be easily composed and recomposed to meet shifting demands, so they can lead in today's marketplace of disruptive innovation.

ABOUT ECOSYSTM

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This white paper is sponsored by Hewlett Packard Enterprise. It is based on the analyst's subject matter expertise in the area of coverage in addition to specific research based on interactions with technology buyers from multiple industries and technology vendors, industry events, and secondary research.

The data findings mentioned in all Ecosystm reports are drawn from Ecosystm's live and on-going studies on the Ecosystm research platform. This document refers to data from the global Ecosystm Cloud Study, based on participant inputs that include decision-makers from IT and other Lines of Business, from small, medium, and large enterprises.

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