



UNWINDING THE COMPLEXITY OF MULTIPLE CLOUDS

While many would caution against operating in multiple clouds, it is an unescapable reality for most enterprises. Increasingly, we rely on hybrid IT consisting of on-premises infrastructure and multiple public (and private) clouds, with the goal of consistent operations regardless of workload location.¹ A recent study found that 85% of organizations already use more than one cloud and predicts that number will increase to 98% by 2022.² Workloads continue to move to different clouds—public, private and edge—for a variety of reasons: geography, cost or cloud-native services. That growth is also manifesting in on-premises data centers, which continue to see significant workload growth.

Enterprises want to imbue their entire IT operation with a consistent cloud operating model, an approach that views cloud not as a destination or location but as a universal utility method and model of using and consuming IT resources that can be applied equally to all IT environments, no matter how they are consumed.

However, the approach calls for organizations to change the way they think about cloud and to adopt a view that the cloud is ubiquitous, regardless of provenance or location and regardless of whether the cloud infrastructure is delivered as a service (IaaS, PaaS, SaaS or FaaS) or on premises with traditional or hyper-converged infrastructure (HCI). By embracing a cloud operating model everywhere, enterprises gain the ability to modernize their application portfolio.

VMware and VMware Cloud Foundation offer a path to make this possible, enabling organizations to benefit from leveraging technologies they already know and use.

Since consistency across environments is key to overcoming multicloud complexity, this paper looks at the benefits of adopting a consistent hybrid cloud approach to multiple cloud environments and offers advice on how to structure it effectively.

THE CLOUD COMPLEXITY CONUNDRUM

IT mandates may often say “cloud first,” but the business reality is “workloads everywhere.” A strictly cloud-first policy can be a recipe for application churn, since moving monolithic applications just for the sake of using cloud can quickly expose operational problems. It can also lead to unexpected cloud provider costs, such as data egress and data access fees, as well as data gravity, which is felt when data is too large to effectively move with the application that uses it. Because workloads may not be optimized for a given cloud, migrating without considering business and applications needs—just for the sake of a mandate—can lead to negative outcomes.

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1 “The Cloud Complexity Imperative: Why Organizations Must Unify and Simplify the Management of Their Sprawling Multi-cloud Environments,” Enterprise Strategy Group, 2020

2 “85% of Companies Now Operating in a Multi-cloud Environment,” IT Pro, Aug. 7, 2019

Most enterprises use a mix of private cloud and public cloud infrastructure. And as workloads find their way to different cloud providers, cloud sprawl introduces new layers of complexity for development, IT and operations teams.

First, there is the problem of multiple tool sets. Each cloud provider has its own tools, each virtualization and container platform has its own tools, and each piece of on-premises infrastructure has its own tools as well. Layer upon layer of management tools can make even the simplest tasks tedious. And there is the challenge of delivering the right technology stack for each application. When there is an obvious solution, it often adds further complexity to the infrastructure.

The reality organizations are facing is that many workloads will never move out of their data centers, whether due to security concerns, regulatory compliance issues, data gravity or simply required service levels for mission-critical applications. For example, off-the-shelf applications cannot be easily containerized, so if a modern, microservices architecture is desired, these applications will need to be replaced. As a result, many legacy applications will never be re-platformed and thus will serve out their useful life where they began: on premises.

REDEFINING THE CLOUD



Organizations should look at the cloud not as a destination but as an IT operating methodology. That means cloud is about where we interact with IT—not where applications are run. Having consistent operations between clouds and on premises provides many benefits, such as speeding workload deployment time and greatly reducing the amount of time needed to manage all IT infrastructure, whether in a public cloud or on premises.

Consistency eases the development burden, helping to accelerate application modernization through containers, Kubernetes orchestration and microservices approaches, which enable faster, more frequent code drops. The goal is simply to enable workloads to run the same way regardless of which cloud they run on: public or private.

RISKS OF INACTION

Not adopting a consistent approach to these cloud environments can accentuate certain business risks, and first amongst those is lack of agility. More than 95% of organizations surveyed believe that simplifying multicloud management will make it easier for developers to push code to production and that a lack of agility often translates to an inability to innovate, leading to competitive disadvantage.³

Enterprises that spend an excessive amount of time maintaining multiple systems are disproportionately challenged by legacy workloads. They need the ability to maintain what is already in place—perhaps for decades—while supporting new, cloud-native, modern applications.

3 Ibid. footnote 1

In any case, enterprises are wise to remember that securing all these applications is not the cloud provider's burden alone. There is a shared responsibility model, as there is for on-premises applications, and both the organization and provider must ensure they are taking the steps necessary to secure their part of the total solution.

WHAT THE ENTERPRISE WANTS

What should an organization look for when defining a cloud operating model?

- The ability to simply solve operational issues and complexity.
- The ability to leverage existing operating environments, virtualization platforms, infrastructure, knowledge, skills and tools.
- Flexibility to select the right deployment environment for each use case by letting business requirements and application needs dictate where workloads reside. In many cases, data residency or regulatory mandates such as HIPAA or GDPR will make that choice for the IT organization.
- Consistency across environments—namely a single operational model for public clouds, on-premises data centers and the edge.

Ideally, a cloud operating model can bring the best of the public cloud to the data center in the form of private cloud, as well as extend current best practices back to the public cloud.

Ideally, a cloud operating model can bring the best of the public cloud to the data center in the form of private cloud, as well as extend current best practices back to the public cloud, such as NSX policies that follow the application regardless of its execution environment. In this manner, enterprises can take advantage of VMware Cloud Foundation for some workloads in the public cloud while keeping others on premises, behind the corporate firewall.

Without these key factors, organizations cannot get the full cloud value for workloads, especially if IT and development teams are spending an inordinate amount of time managing multiple infrastructures rather than focusing on productive work.

Essential technologies from Dell Technologies make all this possible.

THE DELL-VMWARE CLOUD PARTNERSHIP

Forged with multicloud enterprises in mind, the Dell-VMware partnership delivers the right infrastructure to address each underlying need from data center to cloud to edge, with technology solutions that include file storage to hyper-converged infrastructure (HCI) to multicloud data protection.

Dell-VMware offers best in class systems for every need, so there is no need to shoehorn “one size fits all” for unique differences. Dell provides turnkey private cloud solutions that feature unique integration with VMware Cloud Foundation that deliver automated lifecycle management to streamline operations and reduce TCO by 47% when compared to public cloud.⁴

⁴ “IDC White Paper, sponsored by Dell EMC, Benefits of the Consistent Hybrid Cloud: A Total Cost of Ownership Analysis of the Dell Technologies Cloud, April 2019. Results based on U.S. costs of the Dell Technologies Cloud deploying common cloud environment workloads over a five-year period v. a leading native public cloud service provider. Actual results will vary.”

Dell offers data protection layered on top of public clouds, with encryption at rest, network microsegmentation and backup to ensure availability of all data regardless of where it was created. And for organizations looking to adopt infrastructure to support containers, Dell provides production-ready Kubernetes with latest versions of VMware Cloud Foundation with Tanzu and vSphere with Tanzu.

But the partnership is not just about technology. It is an approach to IT simplification and modernization. Dell is a trusted adviser and essential technology vendor that can help every organization build its own cloud, one that adapts to the business with flexible implementation across the entire portfolio. Furthermore, Dell and VMware provide a single source for support, from pre-sales to design consultations to technical assistance after deployment.

Enterprises can gain Opex flexibility for all of their infrastructure, since Dell offers consumption model pricing, enabling them to adopt the same pay-as-you-go strategy for on-premises and public cloud alike.

As computing at the edge gains increasing importance, driven in part by an explosion of Internet of Things devices, Dell can enable new ways to collect and analyze data out to the edge, helping to give data captured at the edge a second life in the cloud. That data can power new loyalty programs, improve inventory management and provide a feedback loop for the training and deep learning needed to truly enable autonomy at the edge.

Dell is uniquely qualified to deliver a cloud operating model to on-premises, edge and ruggedized environments, all with a global support organization that offers Dell and VMware's combined expertise.

Since business happens at the edge, having enterprise-tested, purpose-built hardware and a deep relationship with key ecosystem partners helps ensure that Dell can deliver the necessary solutions from public cloud to private cloud to the edge.

NEXT STEPS

Visit [Dell Technologies for VMware](#) to learn more.

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