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VIEW POINT



IF TWO IS TROUBLE, How do you deal with Multi-cloud



According to the eleventh annual Flexera 2022 State of the Cloud Report, a Multi-Cloud approach is still the de facto standard among organizations with almost 92% of them reporting a Multi-Cloud strategy or planning to put one in place in the coming days.¹

So, you are not alone if you are thinking of it. However, the extent of adoption, the context and drivers vary for every enterprise. It is not a simple path either, there are several layers that require careful

considerations before you take a plunge. In this article we try to demystify some of these. We will look at why Multi-Cloud is getting prominence and why enterprises are thinking about it, the challenges they face, different adoption strategies and finally a framework that will help in your Multi-Cloud journey.

Why Multi-Cloud matters

Enterprises seek to adopt Multi-Cloud for various scenarios. The drivers for adoption can be categorized into 4 broad buckets – M&A, Architecture, Sourcing Flexibility and Data & Disaster Resiliency.

M&A

The merger and acquisition of discrete entities that retain their cloud service providers for specific business requirements or applications results in a Multi-Cloud scenario. Post mergers, the enterprise must manage the Multi-Cloud to gain advantages of the merger.

Consider the case of an organization that is using one cloud provider such as Azure, acquiring another organization that may be using a different cloud provider such as Google Cloud. Such an acquisition requires Multi-Cloud capabilities to manage the extended cloud footprint.

Architecture

Modern applications can be designed to effectively leverage unique capabilities of Multi-Cloud and create compelling new business capabilities for enterprises. The complexity is reduced through modular design capable of distributed deployments. Similarly, multiple clouds reduce challenges in effective transformation of the existing enterprise application and data landscape to cloud.



Sourcing Flexibility

Analyzing multiple enterprises on their rationale for Multi-Cloud brings up some of the most common and obvious ones.

- Avoid or minimize vendor lock-in

 Learning from the experiences of legacy lock-ins with traditional data centers, enterprises today prefer to build flexibility and freedom by operating across clouds and not risk their business with all eggs in one basket.
- Availability, Data Sovereignty and Regulatory Requirements - In case desired services from the preferred cloud service provider (CSP) is not available across regions, enterprises may choose a secondary or tertiary CSP in other regions to meet all its needs - for eq: Australian Prudential Regulation Authority (APRA), General Data Protection Regulation (GDPR) requirements. Some organizations with multi-region requirements seek to create geography-specific workloads on different clouds for better performance and compliance with regulatory requirements.
- Lowering Costs With the flexibility to create workloads in different clouds, enterprises are also looking to lower their cloud costs.

Data & Disaster Resiliency

Regulatory mandates and business requirements need disaster recovery and backup to be set outside the primary cloud in which workloads are deployed. With the focus on resiliency, most enterprises are turning in to cost-effective Multi-Cloud options and are establishing Multi-Cloud connectivity through cloud exchanges for cross-cloud disaster recovery (DR) options.

Typical Challenges

While the drivers are largely justified, the journey is not easy and straightforward. It is complex and poses a set of challenges that enterprises need to meticulously plan for. We bucket these challenges to 3 broad areas:





Technical

- Complex network and connectivity solutions especially with respect to security and application performance
- Multi-Cloud application architecture patterns are complex to maintain – especially for smaller organizations where this can be expensive
- Identity Integration across multiple cloud platforms with a single identity solution for multiple accounts across multiple CSPs can become cumbersome
- Consolidate CI/CD solutions across
 organization to enable Multi-Cloud
 build, deployment and releases

² Source: HashiCorp State of Cloud Strategy Survey: https://www.hashicorp.com/state-of-the-cloud

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Skills

A survey by HashiCorp² reported that while the Multi-Cloud operating model is being adopted widely, 57% of enterprises are unable to find the right skills. The lack of skilled resources inhibits operationalization of Multi-Cloud IT environments and is an impediment for cloud-native technologies and workflows. In addition, creating an organization structure to handle diverse technologies from traditional to cloud native, and uplifting skills on an

ongoing basis are major challenges

Governance

- Multi-Cloud orchestration The absence of a single pane view of Multi-Cloud estates, consistent implementation of policies & security controls for seamless interoperability is a critical challenge
- Cloud FinOps The lack of visibility into consumption of Multi-Cloud resources leads to sub-optimal cost allocation across portfolios and inadequate cost governance

Multi-Cloud Adoption Curve (MAC)

While the selection of the CSP itself is complex, Multi-Cloud adds another layer of complexity. Based on an evaluation of the strategies adopted by enterprises, we have 5 distinct cohorts in the enterprise journey towards Multi-Cloud. We call this the Multi-Cloud Adoption curve (MAC). If you consider the strategies adopted by various organizations, they can be broadly classified into the following curve.

- **Conscious Single Cloud** Experience indicates that 5%-10% of enterprises prefer to go all in with a single cloud provider to achieve better economies of scale and deepen capabilities with personalized support and pricing.
- Challenger Cloud Splitting the workloads between primary and secondary clouds. Most enterprises choose AWS/Azure as primary for their Enterprise workloads and Business apps and use GCP for their Data and Analytics workloads, leverage cloud for Backup/DR for Resiliency.

Such enterprises adopt the 80-20 principle, wherein 80% of the workload is on the primary cloud and 20% on the secondary cloud.

- Adaptive Cloud Such enterprises establish a broad set of guidelines regarding where the workloads should reside-like Apps on AWS, Data on GCP, ERP on Azure, Oracle Suite on OCI, etc. Workloads are expected to be disjointed and self-sufficient and there is place for each CSP provider.
- Strategic Multi Cloud Enterprises decide to adopt Multi-Cloud based on careful consideration of 4Cs (explained below) and have clearly articulated strategies as to where they want to adopt Right Cloud vs be Cloud Agnostic.
- Cloud Agnostic Enterprises build capabilities to drive cloud agnostic platforms helping them move workloads between clouds.

These enterprises invest in modernizing applications with portable technology like containers; design & build platform independent microservices, comply with 12 factor principles, establish a platform engineering practice for cloud agnostic orchestration and adopt everything-as-a-code including infrastructure, configuration and environment.

Enterprises need to fully understand their drivers for Multi-Cloud and whether it makes sense in their context. Every enterprise context is different and there is no one-size fits-all solution as seen in the MAC. However, organizations need to carefully consider multiple dimensions before they decide on their journey and what truly works for them. It depends on their ability to invest, nurture, and scale their Multi-Cloud approaches.

5 Cohorts in the enterprise journey towards Multi-Cloud



4Cs & 5Ds that matter the most

To simplify the path to Multi-Cloud management, Infosys offers a glide path based on the ability to invest, nurture and scale. We call this the 4Cs and 5Ds that matter the most. This is a time-tested framework that helped several enterprises in taking the right approach helping them decide which cohort they belong to, the investments required and the capabilities they need to build.

Compatibility Existing Apps / Partnerships

Some applications in the existing portfolio may be more suitable for deployment on a particular cloud. For instance, when a COTS product supplier has a strategic partnership with a CSP, it makes sense to adopt that cloud for the application.

Cost

Migration / Hosting / Licenses The TCO does matter in addition to the value delivered hence enterprises need to evaluate hosting, migration costs, license portability for existing products and associated fees, while making the cloud choices.



Capabilities

Innovative Services / Scale & Performance

The richness of services varies across CSPs and leveraging that effectively in building new business features can provide a competitive advantage for enterprises.

Compliance *Regulatory / organizational*

Each cloud is built differently for specific regulations such as General Data Protection Regulation (GDPR), Australian Prudential Regulation Authority (APRA) etc.

CSPs should be selected based on their ability to meet both enterprise needs and regulatory mandates.

In the adoption of Multi-Cloud, the approach to implement it also needs careful consideration. A Multi-Cloud implementation should realize three goals, namely:

 Seamless Orchestration helps enterprises deploy workloads on the desired cloud, with consistent enforcement of security, policy and compliance needs. Investing in an orchestration platform helps enterprises get a better control on their cloud landscape.

- Interoperability provides a superior user experience and simplifies workload management. Further, standards-based processes and data exchange between applications, and a unified toolset for developers and system operators ensure that interdependent workloads across clouds deliver business outcomes.
- Portability improves management of the technology stack by providing the flexibility to move workloads across application, infrastructure and data stacks. Moreover, it rationalizes upfront engineering investments in multiple clouds.

5 Decision Pairs(5Ds) drive Multi-Cloud Adoption

In our experience there are 5 Decision pairs (5 Ds) that are critical in providing a direction towards their Multi-Cloud preferences. Each of these collectively help in deciding whether enterprises want to stay as Conscious Single Cloud, consider Challenger Cloud options, be flexible with Adaptive Cloud strategy, define clear path for adopting Strategic Multi Cloud or invest to become fully Cloud Agnostic. These decision pairs help in navigating & crystalizing Multi-Cloud adoption before enterprises take a plunge.



who has deeper Multi-Cloud practices with differentiators and solutions required to accelerate cloud journey

Conclusion

Adoption of Multi-Cloud is becoming a key success factor for digital business as many enterprises seek to build integrated solutions and address complex business needs. Successful implementation of Multi-Cloud in any organizations will require right balance of strategy and decisions. Enterprises can use the Multi-Cloud Adoption Curve (MAC) to map how they see themselves across cohorts and pick right approaches based on 4Cs and 5Ds framework.

About the Author



Pradeep Yadlapati

Vice-President, Infosys Cloud Ecosystem

Pradeep Yadlapati is a seasoned technology executive with over 24 years of IT experience. As a Vice-President, Pradeep heads the Infosys Cloud Ecosystem as part of Infosys Cobalt, managing Cloud business spanning from Cloud Advisory and Strategy, helping design roadmaps for enterprise Cloud Transformation, Cloud Build & Migration, and Al-led Cloud Operations. He manages the analyst and advisor relationships, and brings focus on Go-To-Market programs across regions. In his role, he works closely with diverse hyperscaler partners including AWS, Microsoft Azure, Google, etc., to drive strategic client conversations, design industry solutions and platforms, and manage revenues.

Infosys Cobalt is a set of services, solutions and platforms for enterprises to accelerate their cloud journey. It offers 35,000 cloud assets and over 300 industry cloud solution blueprints. With Infosys Cobalt, regulatory and security compliance, along with technical and financial governance comes baked into every solution delivered. Visit us at www.infosys.com/cobalt



For more information contact askus@infosys.com

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