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Whitepaper

Hybrid Multi-Cloud Management Integrated solution to boost agility and flexibility

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Executive Summary

The great restructuring has just begun and organizations are putting themselves for reinvention. The challenges that organizations faced during the pandemic have made them realize that having multiple IT service consumption options with business agility and resiliency are key for surviving and succeeding in this world of uncertainty.

Organizations have started taking steps to enhance their digital service capabilities to tap into new markets by developing state-of-the-art apps and services using cloud-native technology embracing microservices whilst integrating it with existing traditional apps running at their datacenters to have a balance of both, being innovative and sustaining existing business.

Having a comprehensive roadmap will help organizations to embark on their modernization journey of building IT services across true hybrid multi-cloud platforms to meet business requirements.

Hybrid cloud will be the key driver of business expansion and operational efficiency for the near future. Enterprises are understanding the importance of hybrid multi-cloud operating models to accomplish application modernization and enable the agile development of new apps and services. In the midst of this key IT infrastructure and operations stakeholders are struggling to efficiently deploy their hybrid multi-cloud strategy and transform & manage their organizations' IT landscape using optimized hybrid multi-cloud deployments.

This paper intends to highlight the areas in which IT leaders should focus to bring in digital operations and modernization in their IT services by having a unified management platform with integrated tools and open pluggable core to manage hybrid multi-cloud deployments.

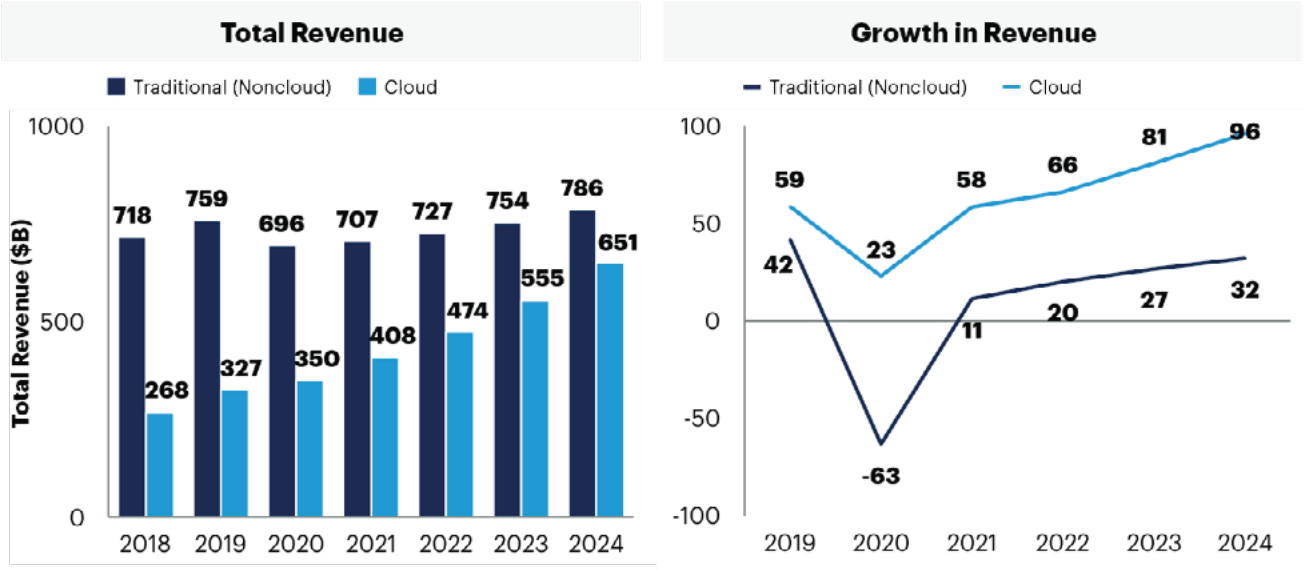
88% of senior business and IT leaders feel that improving their application portfolio is the key to improving customer experience to drive revenue.[1]

1. A Forrester Consulting Thought Leadership Paper Commissioned By VMware March 2020. 'Improving Customer Experience And Revenue Starts With The App Portfolio'.

Market Opportunity

- More than 90% of enterprise clients and customers follow a multi-cloud strategy.
- More than 80% of enterprise clients and customers have workloads running on both traditional on-premises and public cloud environments.
- On an average, organizations are currently using about 2.6 public cloud and 2.7 private cloud in line with their hybrid multi-cloud strategy.
- Most enterprises expect to add 2 new cloud environments into their public cloud portfolio by the end of 2021.

Sizing Cloud Shift, Worldwide, 2018 Through 2024



Source: Gartner

Source: 1. Flexera State of Cloud Report 2021 | 2. IBM Report | 3. VMware Executive Pulse, January 2021

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Why Hybrid Multi-Cloud?

In today's digital age, adaptability is the key in staying one-step ahead of the competition. Enterprises are constantly looking for new ways to deliver their services without forfeiting compatibility and compromising security. To accelerate innovation and meet unique business needs, enterprises are adopting infrastructure and solutions across different cloud service providers. To fully leverage the variety of cloud-native functionalities available on the market, a hybrid multi-cloud environment is quickly becoming the new normal. While businesses are looking for rapid cloud adoption, there is a subset of workloads that must remain on-premises due to various requirements such as regulatory compliances, data sovereignty and latency concerns.

In a digital economy, IT serves as a foundation of business. In the present hybrid era, many enterprises need the ability to extend/migrate their operations from private cloud to public cloud or vice-versa, and to support legacy as well as cloud-native applications. Enterprises with an effective hybrid multi-cloud strategy can leverage the benefits of both private and public cloud with consistent operations across environments, bringing out the best of both worlds.

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Hybrid Multi-Cloud Top Use Cases

Application Modernization

- Optimally leverage cloud-native services to build next-gen applications.
- Rearchitect existing applications to increase performance on cloud.
- Deploy cloud-agnostic hybrid applications.

Scaling Operations

- Deploy predictable workloads on traditional on-premises.
- Deploy elastic workloads on public cloud in coherence with business needs.
- Proliferate geographical footprint.

Improved Resiliency

- Leverage public cloud to implement disaster recovery services.
- Pay-as-you-go - to reduce expense leveraging cloud economics.
- Capitalize on cloud-based resiliency to optimally achieve SLOs.

450 MILLION NEW APPS IN NEXT 5 YEARS[2]

Nearly three-quarters (73%) of organizations plan to containerize existing applications[3]

2. CNBC. "Next frontier in Microsoft, Google, Amazon cloud battle is over a world without code." Eric Rosenbaum, April 1, 2020
3. VMware Market Insights, "App Modernization in a Multi-Cloud World." 2020

Need for Effective Management of Hybrid Multi-Cloud Environment

With a well-designed hybrid multi-cloud strategy and an apt implementation framework, enterprises can support a broad spectrum of hybrid multi-cloud use cases. However, as businesses operationalize their hybrid multi-cloud, a barrage of pain points emerges.

IT Sprawl

In a hybrid multi-cloud environment, workloads and applications are deployed across different cloud vendors as well as on an on-prem environment, which brings in different toolsets and technologies, increasing operational complexity. The lack of skilled employees to manage these multiple platforms adds further to the problem at hand.

Siloed Workflows

Fragmented visibility and siloed workflows are other challenges. In this hybrid environment, different teams such as development, security and operations often work in silos resulting in a significant decrease in IT efficiency and overall productivity.

Complex Application Lifecycle Management

Managing and configuring workloads & applications across multiple environments becomes a hassle. Full stack deployments across different geographical locations or different cloud service providers can be a tedious process and may require a wide range of technical expertise.

Complex Workload Migration

Agility and flexibility to run workloads across different environments are crucial for enterprises. An application running in a particular cloud environment, might not work on a different cloud provider. Some applications may require to be replatformed while others refactored or rearchitected to operate efficiently. In addition to this data migration between clouds is a monumental task. This results in vendor lock-in with enterprises unable to change these service providers without disruption in services.

"Moving applications and data to public-cloud platforms involves working through a formidable set of technology, security, operational, and financial issues." [4]

4. McKinsey, The progressive cloud: A new approach to migration, 2018

Disparate Security and Compliance

Each public and private cloud environment has its own set of security policies and regulatory requirements. The disparity in security tools deployed across different environments cripples the security stance of an enterprise. Multiple endpoints without a proper security framework lead to vulnerability and increase the chances of security breaches.

Cost Control

With multiple teams utilizing resources across different environments, it becomes difficult to have cloud expense visibility. Resource provisioning without proper central monitoring leads to resource sprawl and wasted resources which can rapidly increase the TCO of the hybrid multi-cloud strategy.

"2020 taught enterprises that hybrid and multi-cloud are a necessary path for corporate resiliency, but the question remains: what mix of cloud best meets the needs of my organization? Performance, TCO, security, consistency from an application perspective, IP control—there are many factors to consider to ensure the decision makes your company more resilient and not less secure." [5]

5. Rebecca Weekly, Vice President, GM, Hyperscale Strategy and Execution, Senior Principal Engineer at Intel Corporation

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Key Aspects of Hybrid Multi-Cloud Management

- Unified visibility and consistent management.
- Merge siloed workflows.
- VM & container life cycle management.
- Application-centric management.
- Infrastructure-as-code.
- Configuration-as-code.
- Observability & automated APM.
- Consistent security and integrated governance.
- Cloud expense visibility and optimization.

Digital Hybrid Infrastructure Platform

DHIP is a comprehensive solution for enterprise customers to manage their hybrid multi-cloud environment employing hyperautomation, observability, and AI-enabled digital services in a complete app-centric way to realize IT transformation and SRE-enabled operations. To deliver upon the promises of hybrid multi-cloud without increasing complexity and risk, it enables consistent operations across cloud providers with support for multiple hypervisor and container platforms.

3-Step Modernization Approach with DHIP

DHIP's 3-step modernization approach enables enterprises to embark on their hybrid multi-cloud journey with correct tooling and a proper implementation framework.

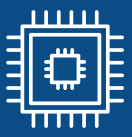
Comprehensive Infrastructure & App Management

- Application-centric management.
- Unified visibility & tooling.
- Programmable infrastructure.

Cloud Native Modernization

- Containerization.
- Micro-services enablement.
- DevSecOps enablement.

AIOps - Intelligent Automation



- Observability & cloud-native monitoring.
- Resource optimization.
- Event correlation, predictive analysis & automated resolution.

Enterprises can leverage DHIP to modernize their applications by transforming them to containerized workloads, thus improving the quality of the release and reducing the time-to-market by enabling DevSecOps. With SRE-enabled operations IT productivity increases, and hyperautomation improves provisioning speeds in a cost-optimized way.

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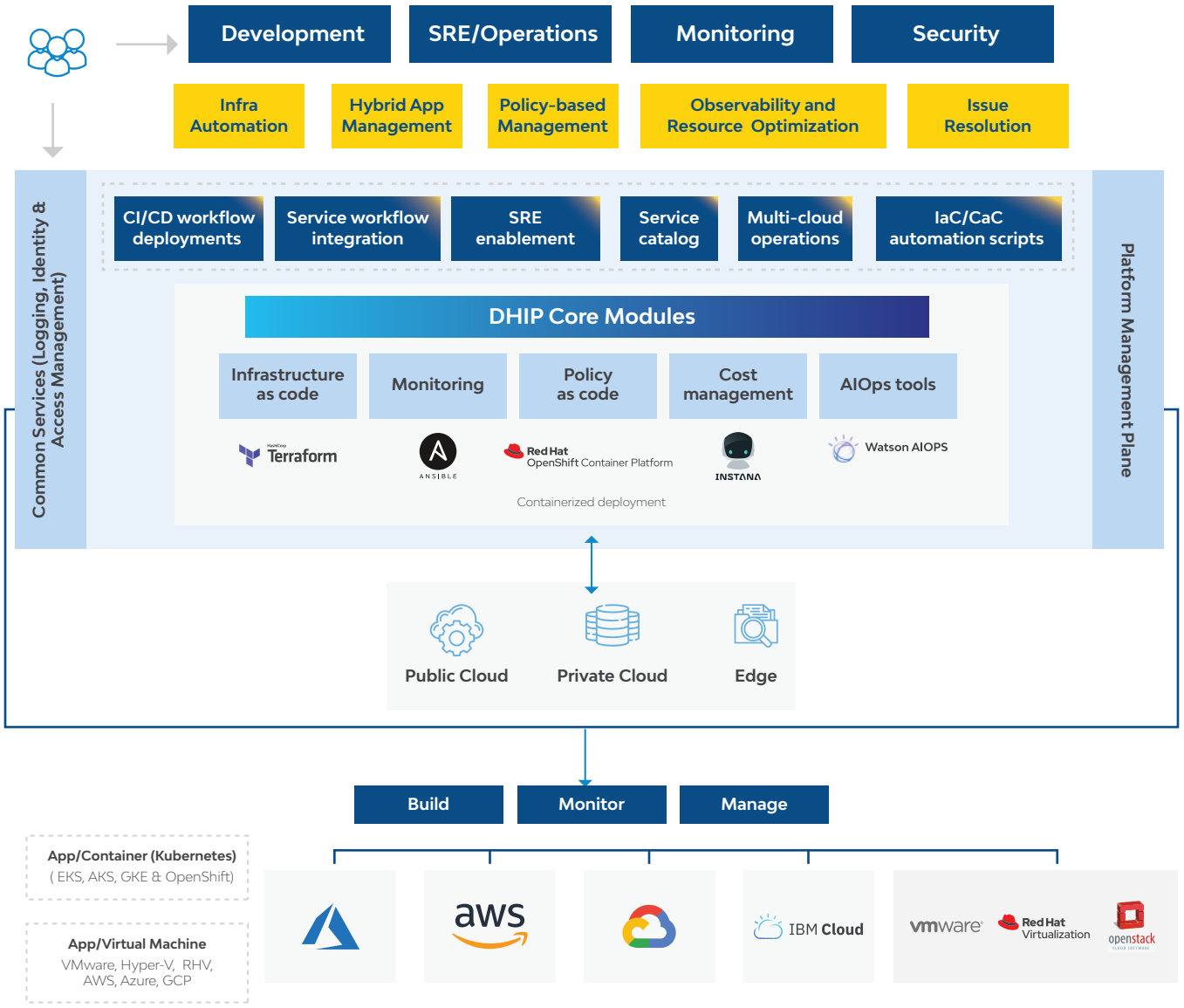
DHIP - Architecture & Deployment Overview



DHIP Use Cases

Hybrid Cloud Connectivity

- Single pane of glass view across entire IT landscape.
- Consistent management with a central control platform.
- Unified tooling and DevSecOps enablement.

Infrastructure Automation

- Automated provisioning with infrastructure-as-code.
- Enable underlying infrastructure to support containerization and micro services architecture.
- Leverage configuration -as-a-service.

Application Impact Avoidance

- Leverage observability for anomaly detection.
- Event grouping and root cause analysis.
- Enable ChatOps and runbook automation.

Conclusion

As hybrid multi-cloud environments become the de facto standard in the quest for digital transformation, management and security challenges can escalate without a strategic approach. Your hybrid multi-cloud strategy should accelerate digital transformation rather than complicate it.

Enterprises must take the time to evaluate their hybrid multi-cloud strategy and application management framework. LTIMindtree offers DHIP as a secure, integrated solution powered by hyperautomation, observability, and AIOps to give enterprises better control of their operations and improve application performance, while optimizing investments across their hybrid multi-cloud environment.

Hybrid Multi-Cloud Management References

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Utkarsh has technical expertise on hybrid multi-cloud management tools and technologies. He is a DHIP – Solution Architect with core expertise in IT infrastructure management, hyperautomation and hybrid application. He has a bachelor's in technology from Indian Institute of Technology, Kanpur.

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Nilesh has technical expertise on Datacenter & Hybrid Cloud technologies. He has 14 years of Industry experience and handled multiple large projects in enterprises datacenters covering Solutioning, Design, Build and Deployment. At LTIMindtree, he is responsible for IBM business covering Cloud management platform, Container platform, Distributed & Edge computing.