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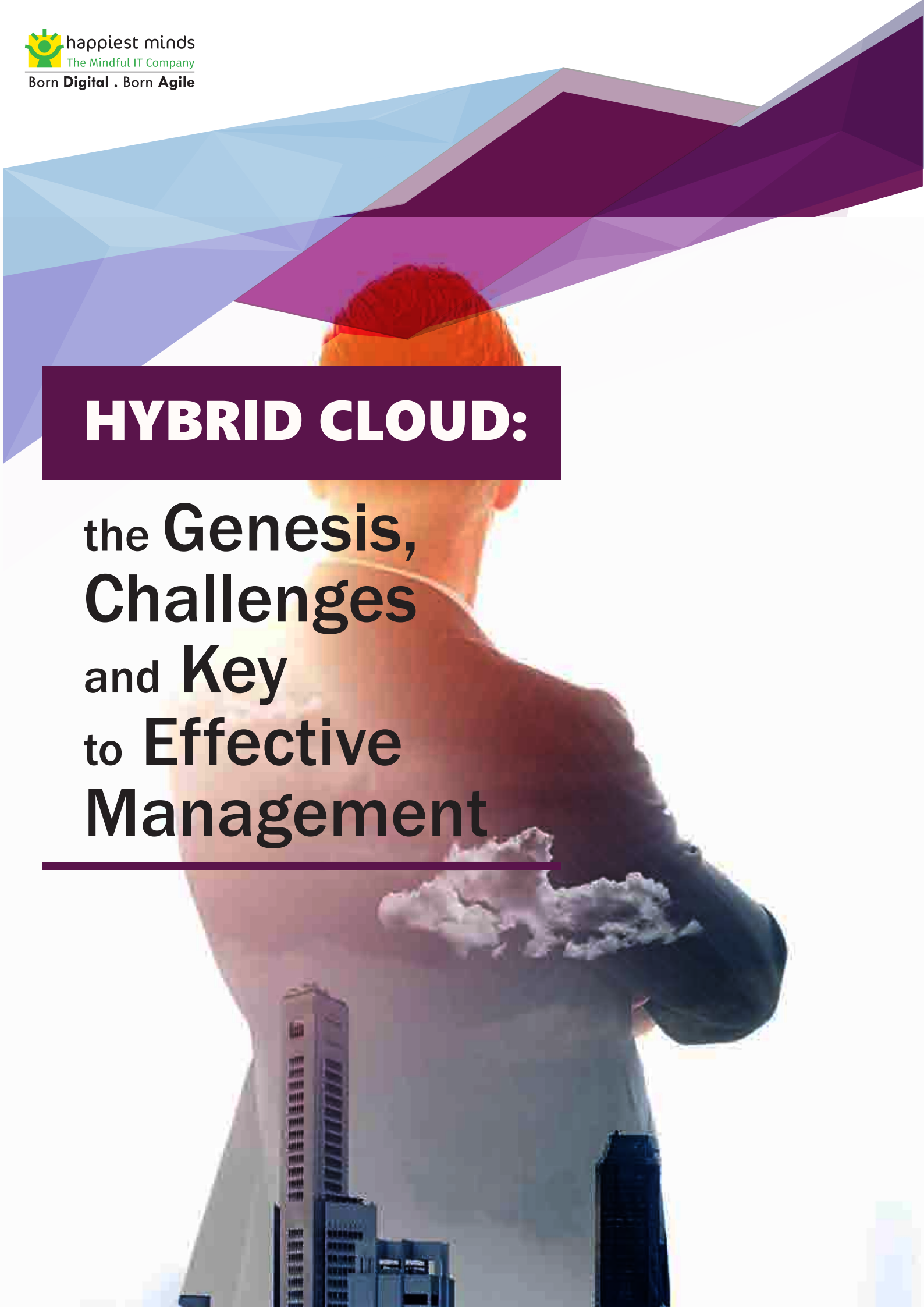
HYBRID CLOUD:

the Genesis, Challenges and Key to Effective Management



In the current cloud era, "cloud computing" and "hybrid cloud" are familiar terms. Most enterprises run at least some of their applications on a hybrid cloud. But not long ago, a hybrid cloud only meant a combination of private and public cloud. However, things have changed quickly, and now, a hybrid cloud refers to a pairing of traditional systems running on-premise with a single or multiple public and/or private clouds. Let's look at how it all began and the constant evolution of the cloud!

The Cloud Evolution:

Pre-2010: Skepticism in Shifting to the Cloud

Organizations started taking baby steps toward cloud adoption. In most instances, Enterprises began experimenting by moving some of their non-critical development and testing applications to the cloud. However, there was lack of support for Enterprise-grade applications and a clear majority of decision makers were still skeptical about embracing the cloud due to reliability, performance, security, compliance and cost concerns.

2010-2015: Sudden Surge in Cloud Adoption

By 2010, most of the Enterprises wanted a piece of the cloud, but it was mostly in the form of Lift-and-Shift migration. Enterprises that were running applications on premise, in their own or hosted data centers began realizing that the cloud could address real business problems. This led to the surge in cloud subscriptions with enterprises moving their on-premise applications to the public cloud. The cloud, on the other hand, was now prepared to run Enterprise-grade applications. The sudden exuberance resulted in maturing of cloud marketplace services and ecosystems. Private cloud platforms too started gaining prominence.

Post-2015: The Rise of the Hybrid Cloud

After 2015, acceptance and adoption of the public cloud increased further, and the Enterprises realized that they could opt for a heterogeneous portfolio of clouds and technologies. They began taking advantage of the best-of-breed services from different cloud service providers. Certain large Enterprises, with an objective of maintaining cost-efficiency, shifted a few of their applications from the cloud back to their Data Center. These shifts, together, led to the rise of the hybrid cloud.

Hybrid Cloud Management: The Definition

Hybrid Cloud Management, as the name suggests, involves the administration of a cloud environment that comprises a combination of on-premise private cloud and external public cloud services with seamless orchestration between the two platforms. As requirements change, hybrid cloud offers enterprises the flexibility to move between private and public clouds. It sounds interesting, doesn't it? Then, why aren't all enterprises embracing the hybrid cloud model? Well, there are quite a few hurdles on the way!

Key Challenges with Hybrid Cloud Management

Monitoring, managing and securing the hybrid cloud is the most fundamental challenge that enterprises are facing. However, understanding and acknowledging this challenge and the various aspects of the hybrid cloud that it affects is the first step toward effective mitigation.

Data Governance, Security and Compliance Management

This is conceivably the most pervasive hybrid cloud management issue that enterprises face. Inside one's own premises or data center, the enterprise has complete control over security management. However, when applications move onto the public cloud, enterprises are required to trust cloud service providers to establish security controls on their behalf. Furthermore, enterprises also enforce their own security controls.

Rise in Operational Complexity

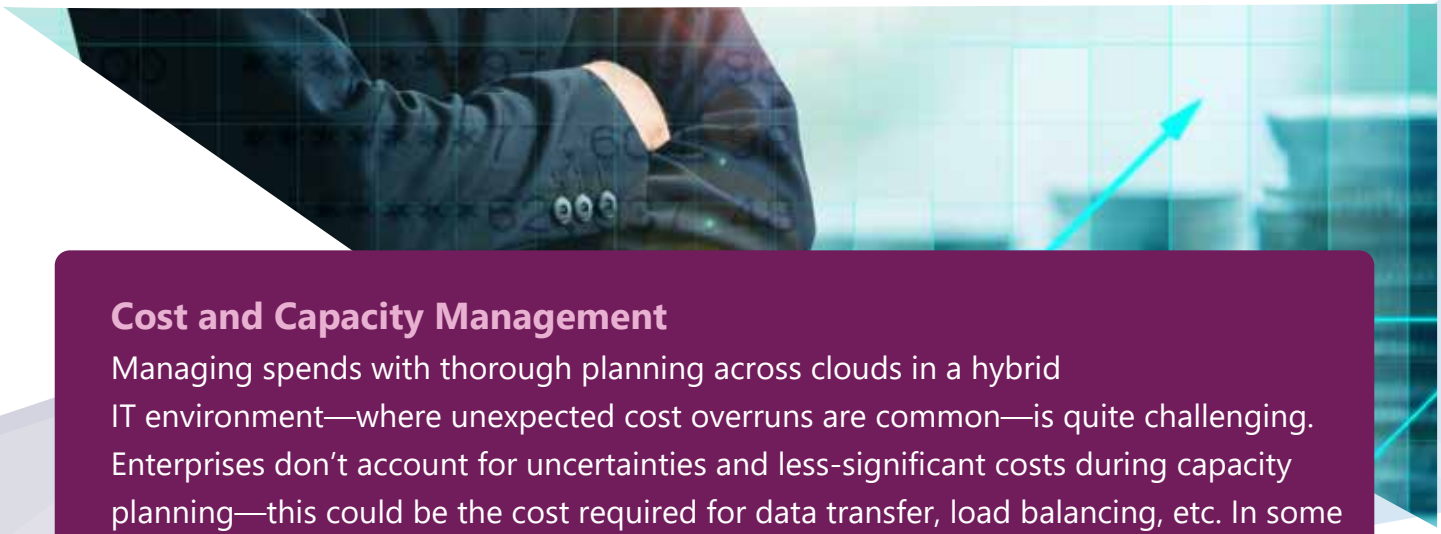
Enterprises struggle to manage multiple technologies and applications that reside in their own internal data centers. Add to this the management of a multitude of cloud services and features. That can be quite an arduous task. This rise in the number of products and technologies to be managed has been making efficient hybrid cloud management hard to accomplish.

Legacy Application Migration

Applications and technologies running in an enterprise data center could be multi-generational with a host of products accrued over a period of years. While the cloud offers abstraction of the underlying infrastructure, migrating the legacy IT and business apps from private Data Centers to the cloud can be complex.

Siloed Toolsets and Processes for Monitoring and Managing Cloud Infrastructure

It is unfortunate that toolsets and processes for cloud management and monitoring have been deployed in a siloed manner. Different teams within an enterprise monitor and manage different private and public cloud platforms. Functions offered by different products overlap at times, and sometimes, have absolutely no common thread. This has resulted in inefficiencies.



Cost and Capacity Management

Managing spends with thorough planning across clouds in a hybrid IT environment—where unexpected cost overruns are common—is quite challenging. Enterprises don't account for uncertainties and less-significant costs during capacity planning—this could be the cost required for data transfer, load balancing, etc. In some instances, expensive cloud services are utilized more than what was originally planned.

How can Enterprises overcome these challenges? The IT industry is embracing hybrid cloud, and to gain the competitive edge, it is imperative for organizations to counter these challenges rather than opt out of the innovative hybrid cloud model.

The Solution: A Holistic Approach

Well, there may not be a single approach or solution to solve all problems. However, a strategic and holistic approach toward monitoring, managing and securing the hybrid cloud can help Enterprises unlock the true potential of the hybrid cloud model. Here are a few recommendations that can help enterprises in their hybrid cloud management journey.

Security and Compliance

Powerful, streamlined and automated security for networks, applications and systems can help prevent security breaches. Enterprises will also need to consider effective strategies for identity and access management, consolidating the various identities and credentials that employees create for on-premise networks and cloud services. Security Information and Event Management (SIEM) integration is also the need of the hour—to identify potentially useful security information, as well as tools that can interpret such information generated by all software on any given network.

Unified IT Monitoring

Enterprises should invest in data-driven automation and intelligent monitoring via an infrastructure and application-agnostic solution that offers end-to-end visibility into their on-premise and cloud platforms with advanced analytics for operational decision making. Tools to map dependencies between applications and underlying infrastructure enable event correlation, effective impact analysis, change planning and self-healing automation.

Self-service Provisioning

Self-service provisioning—through service catalogs and self-service portals—is a great feature that Enterprises must consider while shortlisting cloud service providers. It lets organizations launch services or applications, and also allows them to automate provisioning and de-provisioning of resources, all by themselves without interference from the service provider.

Cost Management

To address the challenge of spiking costs with hybrid cloud, Enterprises must optimize their public cloud cost management strategy. With billing and metering tools that offer visibility into costs, organizations can keep a constant eye on cloud resource and capacity utilization. Well-implemented chargeback and showback reporting systems can help decision makers pin-point factors that drive expenses, helping them manage spends.

Enabling Developers

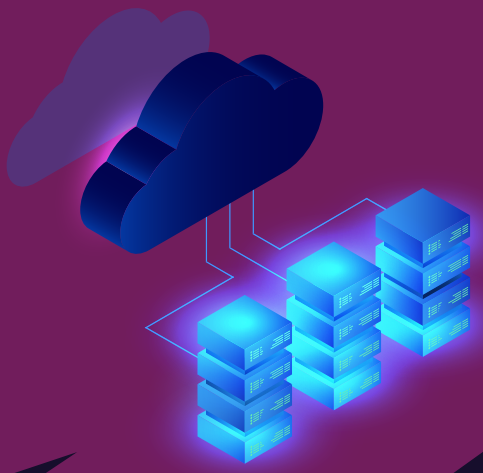
Code and infrastructure deployment automation, and DevSecOps integration—by incorporating security controls into DevOps—are effective solutions to securing the hybrid cloud. It is essential to embed robust security practices at each and every step of the software development life cycle (SDLC)—right from design to deployment to production environment testing.

Reporting and Analytics

Last, but not the least, dashboards comprising availability, performance, capacity, cost, SLA and compliance reports have the potential to deliver valuable analytics-driven actionable insights to CXOs, IT admins and end users as per their roles.

A Phased Approach To Hybrid Cloud Management

Hybrid Cloud Management is more than just migration of an organization's legacy applications, and a phased approach such as the following could make the hybrid cloud management journey easier. With each phase, while the complexity rises, business value delivered is also higher.



Phase 1: Standardization

Enterprises may begin with IT process and workflow analysis and optimization. They should also take up tool rationalization at this stage—identifying what applications need to be retained, replaced, retired or consolidated. Configurations should be analyzed and standardized, addressing potential challenges that could negatively impact critical applications in the hybrid cloud model. Standardization of runbooks, known error databases (KEDBs), knowledge management databases (KMDBs) and standard operating procedures is an important step. Implementing an optimized cost management strategy will help gain complete visibility into spends right from the beginning. At the same time, the IT service catalog which is an integral and crucial cloud computing architecture component should be designed and implemented.

Phase 2: Analytics-driven Operational Efficiency

This is where unified IT monitoring should be considered—discovering application dependency mapping and intelligently monitoring hybrid cloud infrastructure and apps. Enterprises should now be able to generate standard reports and dashboards that offer a bird's eye view of the IT landscape as well as the ability to drill down when required, providing advanced analytics for operational insights and better correlation between metrics and operational information.

Phase 3: Agility through Automation

Self-service provisioning, deployment of self-healing IT infrastructure and data-driven automation at this stage helps simplify hybrid cloud management via automatic provisioning and lifecycle management of applications and infrastructure. DevSecOps integration, by seamlessly introducing security into DevOps, is also equally important.

Phase 4: IT Consumerization

Enterprises should consider multi-cloud and hybrid cloud integration. Cloud brokerage aggregation should also be implemented in this phase. In addition to enabling IT migration from on-premise to the cloud, cloud aggregation enables Enterprises to coordinate and handle varied services on an integrated platform. Implementation of efficient billing, metering, chargeback and show-back reporting systems can make cost management easier. A well-planned governance model for hybrid cloud is essential to maintain smooth functioning and management.

Conclusion

The Hybrid Cloud is promising! Proper planning and a healthy hybrid cloud management approach—whether it is in phases as mentioned above or a platform-based path—will allow enterprises to derive benefits such as unified visibility, faster time-to-market, cost and capacity optimization, continuous compliance and informed decision-making ability.

About Happiest Minds Technologies

Happiest Minds, the Mindful IT Company, applies agile methodologies to enable digital transformation for enterprises and technology providers by delivering seamless customer experience, business efficiency and actionable insights. We leverage a spectrum of disruptive technologies such as: Big Data Analytics, AI & Cognitive Computing, Internet of Things, Cloud, Security, SDN-NFV, RPA, Blockchain, etc. Positioned as "Born Digital . Born Agile", our capabilities spans across product engineering, digital business solutions, infrastructure management and security services. We deliver these services across industry sectors such as retail, consumer packaged goods, edutech, e-commerce, banking, insurance, hi-tech, engineering R&D, manufacturing, automotive and travel/transportation/ hospitality.

Headquartered in Bangalore, India Happiest Minds has operations in USA, UK, The Netherlands, Australia and Middle East.

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Girish Chandangoudar has over 25 years of experience in Telecom and Enterprise IT services spanning Internet Services, Network Operations, System Integration, Managed Services, Infrastructure Design & Architecture and Technical Pre-sales. He is currently a part of Infrastructure Management and Security Services business unit in Happiest Minds Technologies Pvt Ltd. He is responsible for infrastructure practice strategy, solution and offering development, pre-sales and enabling delivery teams. Girish has wide ranging interests in cloud, data center, networking and emerging technologies.

To know more about our offerings. Please write to us at **business@happiestminds.com**