I D C I N C O N V E R S A T I O N

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Taking Control of Your Clouds

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Cloud computing is transforming the ways organizations are paying and budgeting for staff, and managing their technology assets while optimizing how they source and deploy their IT resources. IDC predicts that by 2019, more than 60% of enterprise IT organizations building hybrid clouds will purchase new or updated workload-centric cloud management solutions. This will drive the need for traditional management solutions to be upgraded or replaced with solutions that work across various cloud deployment models in an integrated manner. Unified service catalogs and cloud broker platforms with service level monitoring, service cost and capacity analytics will become a necessity for organizations to efficiently manage their hybrid cloud architecture.

With organizations increasing their cloud-based spending, operating in a dispersed "hybrid cloud" and "multicloud" IT environment will become a norm. IDC predicts that by 2020, at least 40% of net-new IT spending will be cloud based, -shrinking non-cloud enterprise applications spend by 18%. It is projected that more than 50% of all IT assets used by organizations will be housed offsite colocation, hosting, and cloud datacenters. Large enterprises will also shift more data to the cloud than their own datacenters, driving changes in the way we manage data for performance, security and privacy. This will drive the adoption of hyperconverged servers for the managed private cloud market as they provide efficiency in rack space design and storage needs while catering to organizations' data privacy requirements.

William Lee, Associate Research Director of IDC's Asia/Pacific Cloud Services Practice, speaks to Sandip Gupta, Vice President, Cloud Business, Singtel (Group Enterprise) about the challenges facing today's corporate IT to become more agile to the growing needs of the business while maintaining a consistent IT governance over the dynamic cloud deployment environment. This IDC In Conversation interview cuts through the complexity of cloud services management to provide insights into how organizations can leverage on essential cloud management tools and "best-in-class" IT offerings on cloud to maximize the value from their investment in cloud.

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Q: What are the key drivers for organizations to rethink their cloud strategy to operating in a dispersed "hybrid cloud" and "multicloud" IT environment?

A: The digital transformation trend has been the key driver for enterprises to move to cloud to meet the expectations of today's business needs. Underlying the enterprise's ability to digitally transform are enablers such as modernizing infrastructure, accommodating smart devices, Internet-of-things sensors, innovative applications, and exploiting data for new insights. For businesses to deliver growth and profit, they will need innovation, speed and agility. It is Singtel's cloud vision to enable the enterprise's digital transformation journey with enterprise-grade IT-as-a-Service (ITaaS) that delivers compelling business outcomes.

The cloud is not just one thing. There are different types of cloud solutions to meet different needs. Enterprises' specific applications data and workload will determine which type of cloud is best suited to the requirement. Singtel can remove the complexity of cloud through our managed capability and expert services to firstly advise, then transform, and finally operate the integrated cloud solutions for enterprise in the dispersed "hybrid cloud" and "multicloud" IT environment.

Singtel will take our customer beyond the euphoria phase of cloud adoption to a stage of maturity, helping enterprises execute their IT Transformational journey by mapping onto a Cloud Operating Model (COM) framework which aims to help identify current level of maturity, define the desire end state and recommend how enterprises can move towards successful cloud adoption — through the stages of euphoria to reality to maturity. The COM framework will also serve as a roadmap to help organizations define their future state of maturity.

Q: What should organizations do to progress in the stage maturity? Could you elaborate more on Cloud Operating Model (COM) framework?

A: The goal of Cloud Operating Model (COM) is to accelerate the adoption of hybrid cloud and get enterprises to maturity. It identifies the dimensions of core IT and business readiness for an organization, giving them clear outcomes to measure at full maturity. For each stage of maturity, the COM provides a framework for operations to build a certain set of capabilities, multiple activities to be performed in service management and operations.

The operating model also addresses the need for cultural change including forming new team structures, creating new roles, and acquiring new skills. Translating the traditional silos of server, security, storage and network into service owners, DevOps/Cloud Ops, platform engineering, and so on. This will lead to convergence of skills, better productivity and an agile organization prepared for digital transformation.

These new ways of working set the scene for adopting new processes for managing cloud services. This includes creating new workflows and policies, for example, around API usage. This approach paves the way for standardization, optimization and ultimately automation, where the end state would be for businesses to automate policy-based brokering of service requests across hybrid resources.

Alongside with this, a governance framework is also provided to structure the moving of IT budgets from capex to opex. Defining new KPIs and SLAs and evaluating and adapting existing security policies. Such policy-driven governance will drive stricter compliance and better user empowerment.

Finally, the COM also addresses an approach to develop an ecosystem of service and industry application partners to support enterprises' transformation drive. Implementing the COM, enterprises can quickly test and publish new services without being tied up with complicated questions about where and how workloads are hosted and in what cloud. They will know how much

they are spending on cloud infrastructure at any moment, and be able to easily and quickly adjust spending as budgets change. Ultimately allowing them to validate cloud strategy and spending, enabling the business to respond much faster and cost-effectively.

Singtel uses this COM framework to serve as a roadmap to help organizations define their future state of maturity; one where they have the capabilities to deliver services to their customers and employees using a software-defined architecture and the hybrid cloud. Singtel offers this blueprint to assess where organizations want to be and the tools and services to reach their hybrid cloud destination.

Q: What are the key capabilities and tools for organizations to have in place to efficiently run applications/workloads in multiple cloud environment (multiple public clouds, multiple private clouds, public cloud to private cloud, cloud to non-cloud)?

A: Developing the optimal cloud strategy, selecting the right cloud platforms, and having the internal skillsets to manage both traditional IT and multiple cloud environments, having the right automation tools are very challenging to many organizations. Some of these challenges include:

- **Security** – Ensuring adequate security policies are in place and practices are implemented consistently across hybrid cloud environments
- **Networking** – Extending native network topology seamlessly to the cloud and providing the necessary performance in a distributed environment
- **Data and Application Integration** – Need for applications to handle individual components residing in different parts of a hybrid cloud
- **Compatibility** – Efficiently deal with mismatches that surface between different infrastructure and software stacks
- **Portability** – Seamlessly moving applications, metadata and configurations across the clouds
- **Tooling and Skillset** – Need for personnel that are proficient in the areas of infrastructure, applications and business process to remake IT while taking advantage of the cloud model.

Organizations today need a provider that can deliver the flexibility of various cloud options depending on actual workloads. Singtel is focused on delivering security by leveraging off Singtel's unique assets in security and network, interoperability by providing a set of services that are abstracted from underlying infrastructure of a hybrid cloud environment and cloud manageability by providing orchestration and automation to enable the management and scalability of IT assets. Singtel terms this as SIM (Security, Interoperability, and Manageability).

Q: What is the trend you see in terms of organizations' IT spending in the coming years ahead — cloud versus non-cloud?

A: IDC has predicted that by 2018, more than 60% of enterprise IT organizations will have committed to multicloud architectures, driving up the rate and pace of change in IT organization. Singtel is also seeing similar trends with many of our enterprise customers planning to grow and thrive with multicloud. Cloud IT spending by enterprises has been growing rapidly and we are seeing many organization's cloud-based spending exceeding traditional non-cloud spending.

Singtel's private cloud offering is also moving towards a hyperconverged system, a software-driven platform to drive scaling and new services. This will be the fastest growing segment for integrated systems globally, reaching almost $6.4 billion by 2020, according to IDC. Singtel is seeing private

cloud hyperconvergence adoption to accelerate with the benefit of cost savings for organizations in the long run. With less equipment to purchase, maintain, and support, the recurring costs of supporting a hyperconverged data center will be lower.

Q: What do you see as some of the key trends that will shape cloud computing in the next few years?

A: Cloud security will be an ongoing concern with enterprises moving to cloud. It is also a multi-layered affair, requiring shared responsibility between users and service providers, and a strong, wide-ranging arsenal of security technologies and policies. There is no single product or solution to solve all of today and tomorrow's regulatory, application and data security requirements. Enterprises must look for cloud service provider with diverse security partnerships to ensure consistent security auditing and up-to-date certifications. Regular third-party internal audits, risk assessments, and an ongoing certification and standards regime are key to ensure that your cloud service provider are committed to a sound security model.

Organizations will increasingly prefer a multicloud approach where they work with cloud providers for various applications. IDC has predicted that by 2020 more than 90% of enterprise IT organizations will use multicloud architectures. Thus, cloud interoperability will be an important aspect and enabler in the multicloud environment. Enterprises planning to host applications and data in the cloud is expecting the freedom to move among the clouds – from public to private and back again. Such freedom requires full data interoperability as well as abstraction from the hardware, but no two vendors' cloud environments are implemented in the same way.

Singtel sees the adoption of a single-view management platform as a trend to overcome such complexity. Whether it's a private cloud or multiple clouds, a single-view management framework will allow for a seamless application move to a target cloud, even if the applications have to be ported.

We are also seeing the growing importance of cloud manageability with automation and orchestration of workflow processes becoming an essential component of cloud computing. This is key to lower overall IT costs, free up engineering time, and improve delivery times. An orchestration system will allow enterprises to bridge the traditional IT and cloud systems, allowing enterprises to leverage existing scripts and automation tools while transitioning long-term to more sophisticated orchestration workflows.

These key trends shaping cloud computing are also aligned with Singtel's SIM (Security, Interoperability, and Manageability) approach to provide an experienced guide to assist the end-to-end planning, adoption, implementation and management of an enterprise's cloud services strategy.

For more information on how you can partner with Singtel to be successful at cloud adoption, please email to **g-segmentict@singtel.com.**

ABOUT WILLIAM LEE

Dr William Lee is a domain leader of IDC's Cloud Services Research program. He represents IDC externally via media channels and internally as a domain lead to support bespoke consulting and integrated marketing program engagement. William has over 15 years of experience in the field of industrial infocommunications technologies. He is an accomplished speaker and practitioner in ICT, market research innovation and process excellence. William was previously involved with IDC's Manufacturing Insights before he started his own consulting and advisory services firm for IT-led service innovation and digital transformation. William graduated from Cranfield University, United Kingdom, with an Engineering Doctorate in Industrial and Systems Engineering.

ABOUT SANDIP GUPTA

As the Vice President of Cloud Business in Singtel, Sandip is responsible for the comprehensive and integrated ICT solutions ranging from mobile voice, data infrastructure, managed services, cloud computing, IT services and professional consulting services. His main role is to drive the Group Enterprise's Cloud Business and is responsible for cloud strategy, product roadmap, sales and operations. He has previously held leadership roles at NTT Data, Virtela, Netmagic and Ensim. Sandip has over 25 years of experience in managing and growing businesses, including global Cloud and IT infrastructure products and services. He was an active investor, advisor and board member at multiple cloud and infrastructure companies prior to joining Singtel. Sandip holds a Master of Business Administration from NYU's Stern School of Business and a Bachelor of Engineering from National Institute of Technology in India.

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