



# Strengthen hybrid cloud operations and controls with Liquid Sky™

Singtel Liquid Sky™ is a hybrid cloud management portal that enables enterprises to manage their cloud services easily and efficiently in an increasingly complex multi-cloud environment characterised by rapid growth in applications and infrastructure. Liquid Sky™ comprises of a suite of toolsets and services that helps enterprises to optimise the benefits of hybrid cloud with best-in-class operations, management and controls.

## Managing complexity in a multi-cloud environment

A hybrid strategy enables enterprises to address changing business needs in an era of digital transformation by providing a flexible mix of service delivery options. However, as enterprises move towards hybrid cloud to optimise IT spend and address varied business needs, it is important that they stay ahead of the complexity challenge and effectively manage the growth in applications and infrastructure.

As they do this, enterprises will have to avoid environment-specific tools, skills and processes as well as hardwired automation that will curtail their flexibility and control. Instead, they have to find a way to optimise the benefits of hybrid cloud by delivering speed and scale, as well as efficiency and control.

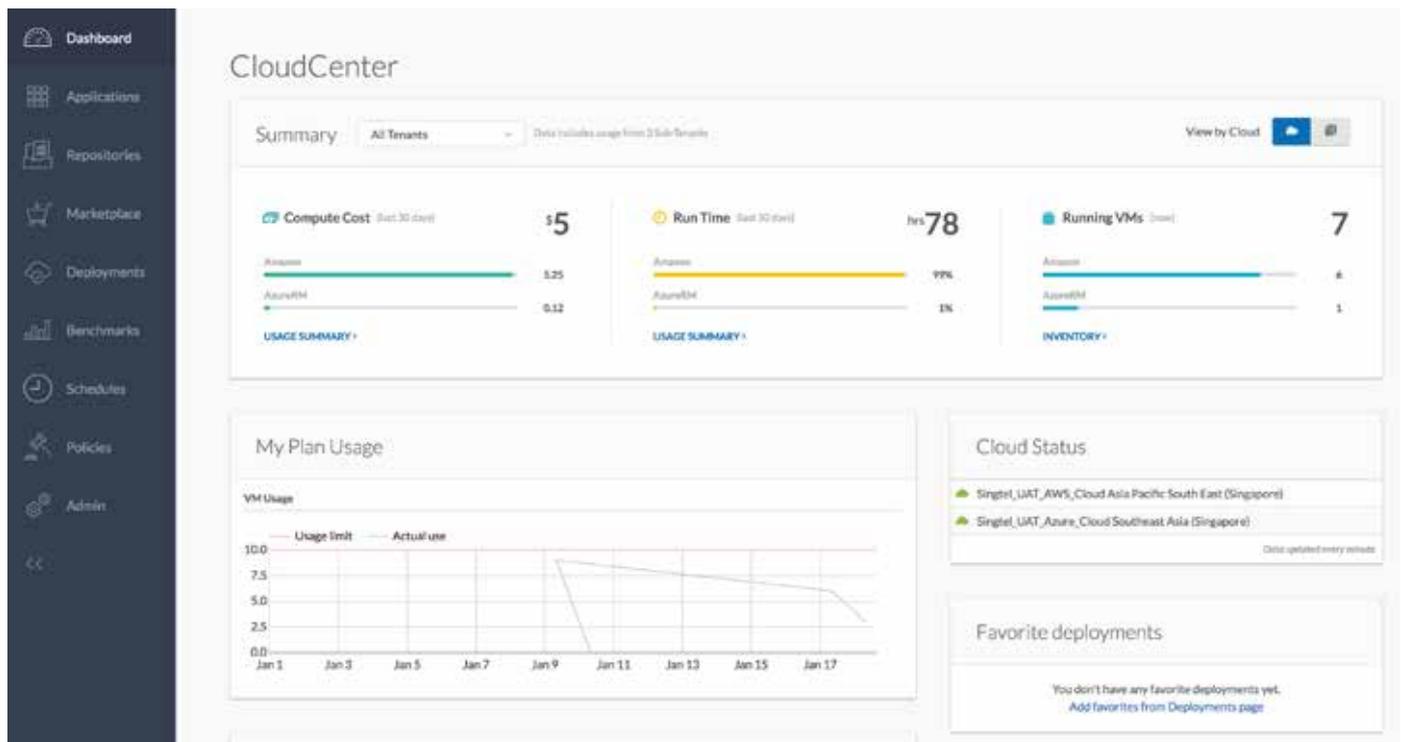
## Singtel Liquid Sky™

Singtel Liquid Sky™ is a self-service hybrid cloud management portal which helps automate the world of multi-clouds and manage it through the simplicity of a single dashboard. As part of the Singtel Managed Cloud Portfolio, Liquid Sky™ enables businesses to integrate a hybrid cloud environment and deliver best-in-class operations to ensure alignment between IT and business goals.

At the heart of Liquid Sky™ is the Hybrid Cloud Management System (HCMS), an application-driven cloud management solution which allows businesses to create cloud-agnostic application profiles, define the associated infrastructure and application requirements, and deploy the applications securely to any data centre or cloud environment. The applications can then be managed through policy-driven automation.

By providing administration and governance capabilities across applications, clouds and users, Liquid Sky™ helps ensure that all these are managed according to the best practices of the target environment. Administrators can centrally manage cloud accounts, manage costs, implement role-based access control and report on usage. Businesses also have the option of using Liquid Sky™ to self-manage their cloud environment.

## Singtel Liquid Sky™ Dashboard



## Components and features of Singtel Liquid Sky™

Liquid Sky™ comprises of a suite of toolsets and services that make it easy for enterprises to manage their cloud environment - be it public, private or hybrid.

### **Self-Service Portal**

This is a unified self-service web portal that allows enterprises to provision system images, enable metering and billing, and establish policies for workload optimisation. The portal, which includes a Cloud Service Catalogue, also supports the configuration of cloud resources and provides advanced monitoring capabilities.

### **Cloud Service Catalogue**

The service catalogue provides details and pricing of Singtel's cloud services, making it easy for enterprises to select the options that best suit their requirements.

### **API Automation & Orchestration**

Readily-available application programming interfaces (API) enable enterprises to integrate applications easily with HCMS for service automation and orchestration. Once integrated, the applications can be deployed and managed easily with unified administration and governance.

### **Automated Provisioning**

Automated provisioning enables the different layers of a client-server architecture (N-tier architecture) to be deployed seamlessly in a hybrid cloud environment.

### **Billing & Showback**

The Cloud Service Catalogue gives business units better visibility into the prices of IT resources that they have requested for.

### **DevOps**

Container services support DevOps (development operations) by enabling enterprises to package applications with the required code, runtime, system tools and libraries, and run them in any environment.

### **Compliance & Governance**

Enterprises can set up rules and configure various automated actions to ensure compliance with governance requirements.

### **Spend Management**

A cloud cost control and collaboration tool called Liquid Sky™ Cloud Cost Control (C3) enables enterprises to manage their cloud spend through a comprehensive dashboard and to analyse costs for more effective budget planning and allocation. Spend alerts enable enterprises to react quickly to exceptions and avoid bill shocks. The tool also helps reduce waste and better manage budgets by identifying under-utilised resources.

### **Policy-based Administration**

Enterprises can create action policies, scaling policies and aging policies to better manage the cloud environment. Action policies will trigger predetermined activities when a particular event occurs, impacting a particular resource. Scaling policies enable enterprises to increase or decrease the number of virtual machines associated with a particular application deployment tier, either on a scheduled basis or when certain conditions relating to CPU, memory, network usage or other system metrics occur. Aging policies will suspend or terminate an application deployment after it has been running for a designated period.

### **Monitoring & Assurance**

As part of the managed services offering, Liquid Sky™ ensures that the cloud environment is constantly monitored to ensure availability and reliability.

## Service schemes

Enterprise can self-manage or Singtel can help manage Liquid Sky™ through flexible service schemes based on:

- One-time charges
- Monthly recurring charges

## Business applications

Examples of use cases for Singtel Liquid Sky™ include:



### Moving applications to the cloud

Liquid Sky™ helps with migration and management, enabling enterprises to move applications to the cloud and to scale them quickly and easily. It provides users with guidance on best practices for user acceptance testing, system integration testing and production environments.



### Wide-scale enterprise application deployment

Liquid Sky™ enables enterprises to migrate and implement workloads across a hybrid cloud environment using orchestration and automation tools to simplify workflows and processes.

## Benefits



### Greater business agility

- Enables business users to self-provision fully-configured application stacks without having to know about the underlying cloud infrastructure or to manually install and configure environments.
- This boosts productivity and decreases time to market, which yields a competitive advantage.



### Enhanced productivity

- Provides an integrated tool chain with automated software development lifecycle pipeline.
- Engineers can automate the deployment of builds and environments in a continuous delivery flow involving data centre, private cloud and public cloud resources.



### Simplified management

- Delivers a single management and orchestration solution that works across multiple applications, clouds and users.
- This simplifies the management of complex cloud environments by improving visibility and control.



### Increased flexibility

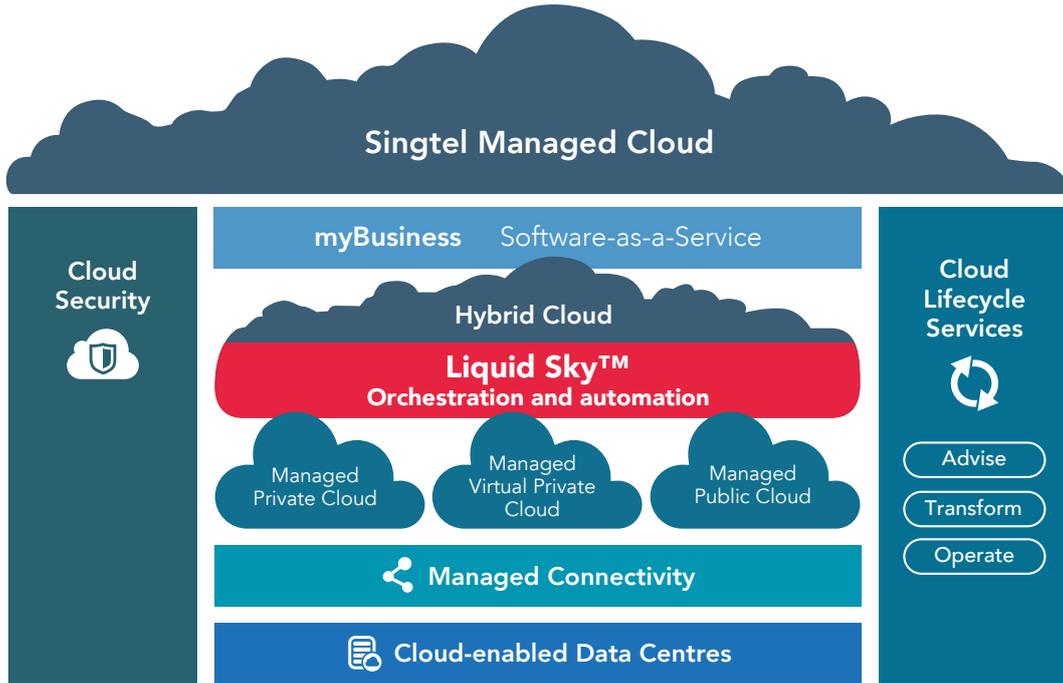
- Enables enterprises to implement an IT-as-a-Service strategy using a flexible mix of data centre and cloud IT services.
- Supports time-to-market and cost demands while reducing complexity and managing risks.
- Eliminates cloud lock-in and hefty "exit costs" as business needs change.



### Improved governance and cost control

- Strengthens governance control of both infrastructure and applications through automated alerts and actions.
- Helps manage costs by providing better visibility into cloud spend and supporting effective budget planning and allocation.

# Singtel Cloud Operating Model and Singtel Managed Cloud Portfolio



According to research firm IDC, there are five stages to cloud maturity - ad hoc, opportunistic, repeatable, managed and optimised. The Singtel Hybrid Cloud Operating Model (COM) helps enterprises to determine their current level of maturity and what their end stage should look like. It also identifies current gaps and opportunities for capability development, and provides a checklist of activities that enterprises need to accomplish in order to build those capabilities and achieve their target stage. These activities are focused around Governance, Information Assurance, Service Integration, Service Operations, Service Management and People Development.

Underpinning the COM is the Singtel Managed Cloud Portfolio which provides businesses with the tools, infrastructure platforms and expertise they need to succeed at each stage of cloud maturity. The portfolio comprises Managed Public Cloud, Managed Private Cloud, Managed Virtual Private Cloud as well as a suite of Cloud Lifecycle Services and an innovative hybrid cloud management tool (Liquid Sky™) for service automation and orchestration.

We also have a full range of services encompassing security, data centres, network connectivity and managed services to help businesses in their cloud journey.

## Why Singtel



The only cloud service provider to offer a COM designed to drive enterprises towards cloud maturity. COM provides a framework to help enterprises build capabilities and achieve successful outcomes required for each stage of cloud maturity.



The most complete selection of cloud platforms from public clouds to virtual private cloud and private cloud platforms, allowing you to choose the best fit for the different workloads that you have.



Extensive experience in delivering secure managed services and deploying large-scale cloud projects including the Singapore government cloud.



Highly skilled, certified cloud experts with multi-disciplinary experience in cloud solution architecture, consultation, project management and SysOps administration to support businesses in their cloud strategy planning, migration, operations and management.



Backed by a full suite of market leading network connectivity, security and data centre offerings and managed services from Singtel.



Highly-resilient world-class data centres built to TIA# Tier 4 specifications, providing secure and trusted hosting to meet businesses' data sovereignty requirements.



A single point of contact for customers looking to grow their presence in Singapore and the region.

#Telecommunication Industry Association, which publishes the Telecommunications Infrastructure Standard for Data Centres.

# About Singtel

Singtel is Asia's leading communications group providing a portfolio of services including voice and data solutions over fixed, wireless and Internet platforms as well as infocomm technology and pay TV. The Group has presence in Asia, Australia and Africa with over 610 million mobile customers in 24 countries, including India, Indonesia, the Philippines and Thailand. It also has a vast network of offices throughout Asia Pacific, Europe and the United States.

## Singtel Cloud Awards

### Asia Communication Awards

Best Enterprise Service - Connectivity as a Service (2013)  
Best Cloud Service (2011 & 2012)  
Project of the Year - G-Cloud (2014)

### Cloud & DevOps Awards 2016

Best Cloud Computing Adoption Project (G-Cloud)

### Computerworld SG Readers' Choice Awards

Best Data Centre and Hosting Services Provider  
(2007 & 2009 - 2013)  
Best Managed Connectivity Services Provider (2006 - 2013)

Computerworld Singapore Customer Care Award  
Cloud Services (2012 - 2013)

### Frost & Sullivan Asia Pacific ICT Awards

Telecom Cloud Service Provider of the Year (2012, 2016)

### IDC MarketScape in Asia Pacific 2013

A Leader for Datacenter and Hosted Cloud Services\*

NetworkWorld Asia Readers' Choice Product Excellence  
Awards (2013)

Managed Infrastructure Services  
Cloud Infrastructure Provider

### Telco Cloud Forum Awards 2016

Telco Cloud of the Year

