The Future of Business, Collaboration, Delivered.

Singtel Unified Communications-as-a-Service (UCaaS).

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In today’s highly connected world, businesses need to communicate and collaborate well, or we may miss business opportunities and lose out to the competition.

We believe that the gamechanger for companies is cloud-based unified communications (UC) solutions or Unified Communications-as-a-Service (UCaaS), which cultivates an agile and responsive global workforce.

In this supplement, we proudly present three succinct articles to help you understand what the future of communications and collaboration holds, and how to prepare to make the move to embrace UCaaS in your organisation.

In “Mobile UC moves towards Maturity”, we explore the trend of organisations embracing mobility devices and applications in the next stage of their Unified Communications journey, as a growing number of users work away from their desks.

We also understand that security will continue to be a paramount concern, and “Best Practices to Ensure Cloud-based UC Security” will touch on the potential security risks of adopting UCaaS and the countermeasures that you can take to prevent vulnerabilities.

The article “The Road to Cloud UC” assures that migrating to UCaaS need not be a perilous journey that is fraught with pitfalls and challenges. The article explores the guidelines for deploying UCaaS with minimal disruption to your business – whether you choose wholesale migration or a hybrid approach.

We hope this supplement will help you put an end to any concerns in adopting unified communications in your organisation, and instead signal an exciting and positive start on your corporate communications journey.

Lee Han Kheng
Vice President, Global Products
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<table>
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<th>Some key benefits your business can reap from deploying Singtel UCaaS:</th>
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<tr>
<td>Enable greater business <strong>Agility</strong> and <strong>Scalability</strong> with faster provisioning of communications and collaboration capabilities across Asia</td>
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<tr>
<td>Experience greater <strong>Simplicity</strong> in the way the service is implemented, managed and used</td>
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<td>Integrate enhanced <strong>Mobility</strong> capabilities for a complete UC experience, while in the office or on the move</td>
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<td>Improve business <strong>Productivity</strong> through better collaboration with the latest in communication and collaboration tools</td>
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<td>Ensure greater <strong>Cost Efficiency</strong> with a per-user subscription model, lower IDD and mobile traffic costs due to VoIP and least cost routing</td>
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To find out how Singtel UCaaS can transform your communications and collaboration experience, please visit ucaas.singtel.com. Alternatively, please email us your contact details at g-products@singtel.com to arrange for a free consultation.
Mobility has emerged as one of the most important trends in enterprise technology. It has manifested in many ways in businesses, from machine-to-machine (M2M) to the provision of mobile apps for smartphone-using customers. However, mobility’s greatest impact must be on communications – voice, messaging and increasingly video capabilities, used between employees for productivity, or for reaching out to suppliers and partners.

Today, mobility has become a critical element of corporate agility and productivity. Mobile workforces are becoming the norm, as tasks, conversations and meetings continue to take place whether employees are travelling, at home, or with customers.

Mobile UC could well be the next stage of mobility, where the combination of UC and mobility will make enterprise employees more productive, wherever they may be. However, to realise the full benefits of mobile UC, businesses need to have more tightly-coupled and better-featured communications platforms that integrate mobility into the corporate UC.

**Telecom operators – especially fixed/mobile hybrid carriers – are among the likely providers of such cloud-based services for their corporate customers.**

But this integration adds complexity. Traditionally, business mobile phones have been separately controlled by carriers’ networks – often with different numbering, billing models and features of the corporate PBX/UC platform. Bringing the two worlds together is a challenging task – perhaps best done "in the cloud" itself.

**Mobility as a UCaaS Catalyst**

Disruptive Analysis believes that ongoing trends in devices, mobile user behaviour and evolving modes of communication are tipping the balance towards hosted Unified Communications as a Service (UCaaS) as a business communications model, and away from premise-based alternatives. This is not happening overnight – nor universally – but it is likely to become a trend that becomes gradually more important in the coming years.

Telecom operators – especially fixed/mobile hybrid carriers – are among the likely providers of such cloud-based services for their corporate customers.

The addition of mobile capabilities to UCaaS is not entirely new – early variants have been marketed for at least six years. However, few such services gained meaningful traction in the past. There were numerous reasons for this, including clunky user experiences, over-reliance on WiFi, limited handset support and poor integration with other device functions. In addition, many enterprises were still at the early stages of supplying staff with handsets – and in many cases, the primary use-case was email (via BlackBerry usually), rather than UC.

Now this is all changing. Recent developments – and likely future ones – are bringing mobile UCaaS much closer to the mainstream of corporate technology thinking. Several important changes are driving this transition:

- Improved capabilities of modern Apple iOS and Google Android devices that support high-quality, intuitive UC experiences and apps. These appeal to end-users and are easy for IT staff to deploy and manage.
- Bring Your Own Device (BYOD) models are becoming more prevalent in enterprises as employees become more reliant on their mobile devices and growing maturity in this area leads to improved security, compliance and device-management solutions, as well as non-technical best-practices such as codes of conduct for staff.
- The advent of 4G/LTE networks with its fast data access speed and higher capacities makes mobile UC increasingly viable.
- Effective partnerships between telecom operators and enterprise UC vendors, have resulted in feature-rich UCaaS solutions. This strong service provider support has allowed businesses to integrate hosted solutions gracefully and flexibly with existing premise-based UC, IP-PBX and contact centre implementations.

**Meeting Employees’ Communications Needs**

Of these issues, the BYOD and consumerisation trends are especially pivotal. Many businesses now essentially need to “compete for market share” for their own employees’ communication. Most cannot hope to control 100 percent of

Continued on page 08
Best Practices to Ensure Cloud-based UC Security

Protect your mission-critical unified communications infrastructure by learning about security risks and the countermeasures you can take to prevent vulnerabilities.

Companies, large and small, may be hesitant to use cloud services, due to concerns about security, data loss, and loss of control. However, an increasing number of organisations are considering cloud-based Unified Communications, or Unified Communications-as-a-Service (UCaaS) as a communications platform due to benefits such as agility, cost efficiency, and faster time to market.

We speak to Theresa Payton, chief advisor and CEO of Fortalice, LLC., a cybersecurity consultancy, and former White House CIO, to find out how organisations can address any concerns they may have, in order to enjoy the benefits of UCaaS without the concerns, and keep mission-critical communications flowing smoothly within their organisation.

Q: Are security concerns about UCaaS valid, or just a manifestation of perceived lack of control?

Security concerns are always valid. However, it is good to also put the concerns for security and privacy into perspective – cyberthreats will always be prevalent, whether it is in the cloud, or a wholly-owned on-premise solution.

Additionally, security is only as good as the best practices of individual companies, or individual cloud providers. In fact, if the right cloud partner is selected, this can sometimes be more secure than managing the service in-house, because they have the budget, the subject matter experts and scale across many companies to deliver a truly secure solution. If the right questions are asked, you may find that your UCaaS provider has the staff and the technology to help you leapfrog your communication needs.

Q: What are the key considerations for secure UCaaS deployment?

Combating threats requires a comprehensive approach. Some of these components include understanding your data architecture, knowing your vendors, sharing information within your peer group about cybercrime, developing relationships with law enforcement agencies, implementing tools, and updating processes to protect your digital assets and educating employees, contractors, and suppliers on what you require them to do in order to safeguard your organisation.

Q: If I decide to migrate to UCaaS, what are some of the things I need to do and consider when evaluating a service provider?

The first step to a successful decision making process is to acknowledge that managing UCaaS security will require strong vendor management, contract language, data architecture, certifications, and trust but verify processes. The great news is that you do not need to reinvent the wheel and can reuse frameworks that have been built. Keep in mind the UCaaS technologies, features and applications that are most appropriate for the organisation. If needed, educat end users about the technology.

1. First, find out what people want.

This is often overlooked in the rush to move to “anything-as-a-service”. With the help of your internal end users and your external customers, identify...

Theresa’s thoughts on migrating to UCaaS

With UCaaS becoming an increasingly attractive alternative, how do organisations decide whether to migrate or not?

1. First, find out what people want.

This is often overlooked in the rush to move to “anything-as-a-service”. With the help of your internal end users and your external customers, identify...

2. Decide if outsourcing makes sense.

Scorecard your organisation. Ask yourself: “In 2016, will I have the skills, software, and hardware in the budget to deliver high-quality communications and collaboration? And, will my team have enough staff and time to focus on the ever-changing threat landscape?” Do a realistic inventory of your internal capabilities. Do the same in your evaluation of UCaaS vendors.
mind that certifications are a great benchmark but not a guarantee of security!

Next, understand how your vendors will respond to service disruptions or a breach by asking the following questions:
1. How soon will I be notified?
2. What is your responsibility vs. my company’s responsibility for incident handling?

Then, have conversations on the security built into the service in the following areas:
1. User access controls & passwords: Strong passwords should be used for every password required, for your employees, and your vendor’s staff. Business VoIP phones should especially be protected by unique strong Session Initiation Protocol (SIP) passwords.
2. Maintenance & patching: How frequently does your vendor perform maintenance and patching?
3. Turn off unused services: Shut down unused services to lessen the potential attack surface. This can improve your security and it might improve performance by reducing the protocol overhead on the network.
4. Behaviour based monitoring: Find an approach that baselines usage by location, time of day, and different communication and collaboration patterns so that you can use that information to search for anomalies which could detect a security breach more quickly than just security monitoring tools alone.

Q: Is security the sole responsibility of the service provider? What are some of the things that we should do to make sure that organisation-wide deployment is secure?

Security is not the sole responsibility of the service provider or the IT department. It is a team sport. Start with your marketing and communications department – ask them what the impact would be of a security breach.

And because the source of much of your data lies with the end-user, you should also be clear about end-user guidelines.

An incredibly valuable tool is base-lining behaviours such as caller location, modes of communication, the times of day, and benchmarking data transferred during communications. Wild shifts in usage behavior might be an indicator that there is a security breach someplace in the supply chain for communications.

The next important step to take is to teach the end users about your acceptable use policies, problem reporting, and how they can keep their communications safe. Impart the information in a practical way but leverage contests, Internet safety games, posters and other fun methods to drive the security and privacy points home.

Your technology team and your UCaaS provider need the entire staff to be alert, aware, and engaged on protecting the security and privacy of your company’s communications. They cannot win against the cybercriminals without your help.

3. Set specific use cases.
If you do not know where to start, ask the vendor(s) for any business use cases they have. Clear and articulated use cases can help demonstrate potential ROI.

4. Consider forming a UC centre of excellence.
This is not an information technology project. Your IT team is a critical player in this decision but not the driver; the business needs to drive the decision. From the outset, designate a group that brings together individuals from various areas of your company — IT, marketing, legal, and customer service — to form a council that will provide guidance and direction for UC plans, project development and ongoing usage.

5. Decide between premises-based, hybrid or a full implementation of UCaaS.
There are benefits to each. An increasing number of cloud-based UC offerings are available today, and transitioning to the cloud can help you to have the capacity you need without paying for it every day of the year but instead when you use it. UCaaS can also improve the customer experience and application performance and better allocate IT resources. First of all, you need to decide what works for your organisation.
The Road to Cloud UC

How should UCaaS be deployed with minimal disruption to your business?

Choosing the Right Cloud Solution

Given the large number of cloud and communications providers today, start your search for the right vendor by looking at these key vendor attributes:

a. Good coverage,
b. Comprehensive service offering across both the fixed and mobile space,
c. Strong interoperability and integration,
d. Future roadmap and innovation, and

e. Service reliability.

Coverage: A vendor with wide regional reach will enable you to extend your communications footprint as you expand regionally, providing you with local support in the countries you are expanding to. Users will also be able to access the same feature sets anywhere in Asia via an easy-to-use interface common across all devices. This will provide a consistent user experience, standardise communications services all across Asia, and ultimately, simplify service management.

Comprehensive service offering across fixed and mobile space: Organisations with a mix of fixed and mobile end users should look for a UCaaS solution that brings together multiple collaboration tools for both fixed and mobile devices to enable smooth and seamless transition of communications even when on the move, and between different modes, such as from Instant Messaging (IM) to voice, video or conferencing.

Interoperability & integration: To step up productivity within your organisation, look for a UCaaS solution that can integrate to and interoperate with other third-party applications that your organisation uses.

Future roadmap & innovation: To be future-ready, ensure that the UCaaS solution is always up to date with the latest version, accommodates the development of new mobility features, supports Bring Your Own Device (BYOD)

Paving the Way for UCaaS

At every step, involve your service provider. Singtel is well-positioned to help you pave the way to a smooth UCaaS deployment. Like all our services, Singtel UCaaS is built on the core pillars of Singtel Group Enterprise capabilities, that range from having strong regional network and coverage, to having the right people, skills and services.

Singtel’s regional network, group assets, infrastructure and architecture are core to our services. With an award-winning infrastructure and Asia-wide coverage, Singtel’s network is one of the best networks in Asia Pacific. Hosted in our world-class data centres, Singtel UCaaS can be deployed regionally, via ConnectPlus IP VPN, ensuring robust and reliable service delivery, backed with SLA.

This is supported by in-country regional sales offices, ensuring that customers have a single point of contact for their UCaaS requirements, wherever they are located.

Our regional presence is complemented by our committed and passionate worldwide team, which comprises over 4,000 ICT certified professionals who hold qualifications across Partner Certification and Technology Processes Certifications.

Besides a well-defined delivery framework, Singtel takes a holistic look at the organisational needs that are necessary to contribute to the smooth and successful transition, and eventual sustainable delivery of Singtel UCaaS. Our delivery framework ensures that our service deployment is in line with our customers’ business strategy at every stage of the UCaaS life cycle.

To ensure the delivery of a full-featured UCaaS service, which marries the best of fixed and mobile capabilities in the cloud, Singtel’s ICT managed services and professional services team delivers a comprehensive suite of services that starts with a robust network and extends to sophisticated business applications for an end-to-end ICT experience.

To find out how Singtel UCaaS can transform your communications and collaboration experience, please visit http://ucaas.Singtel.com. Alternatively, please email us your contact details at g-products@Singtel.com to arrange for a free consultation.
Migrating to Cloud UC

implementation, and extends UCaaS into Contact Centre-as-a-Service (CCaaS), and Video Conference-as-a-Service (VCaaS).

Service reliability: Because communications is crucial to business, look for a UCaaS solution that is deployed on reliable and robust underlying infrastructure, complete with a Service Level Agreement (SLA).

Ensure End-User Buy-In
Next, you want to make sure that your organisation’s end-users are ready to adopt UCaaS, regardless of their role. The best way to do so is to give them some hands-on experience with the service. To achieve that, you can do either one, or both of the following: request a demo involving your stakeholders, and adopt a pilot program for an established pilot group.

A demo introduces your stakeholders to the capabilities of UCaaS, providing them with an understanding of how the various UCaaS features can be applied to different work situations. They will also be able to test out the service on the different demo devices, and explore the end-user portal, to discover its ease of use.

The other approach is to deploy UCaaS for the pilot group for a pre-determined period, such as three months. This allows for an immersive UCaaS experience, allowing end-users to experience UCaaS in their real-life work experience. After the pilot program, the pilot end-users can also be change leaders for the organisation.

Post-deployment, it would also be a good idea to engage your service provider to conduct in-depth training for your end users to familiarise them with the service usage for their various devices.

Decide on your Migration Path
Once you have confirmed that UCaaS is the way forward, you would need to decide on the migration path ideal for your organisation. In general, there are two main approaches: wholesale migration or hybrid migration.

Wholesale migration takes place when organisations migrate their entire communications network to the cloud at a go. This approach is suitable if existing infrastructure is no longer able to support the fast changing needs of the organisation.

Hybrid migration takes place when organisations choose to migrate or deploy UCaaS for only selected parts of their organisation, while retaining existing on-premise infrastructure for the other parts.

Such a migration method is usually adopted for customers who prefer to migrate to UCaaS in phases, or who want to retain their existing infrastructure, but want to complement its capabilities with new UC features e.g. mobility, IM/Presence, or video, etc. Another instance is when customers want to scale quickly, or grow regionally without incurring additional equipment Capital Expenditure (CAPEX) costs for new offices or users.

Such an approach allows customers to maximise their existing investments, while still simultaneously enjoying the

Congratulations!
Now that you have decided to migrate to UCaaS, what is the next step?
Here are the 3 key steps for a smooth migration

1. Choose the Right Cloud Solution
   - Good regional coverage
   - Comprehensive service offering
   - Interoperability and integration
   - Future roadmap and innovation
   - Service reliability

Singtel’s expertise in fixed, mobile and cloud solutions delivers a UCaaS solution that meets your needs.

2. Get End-User Buy-In
   - Onsite Demo
   - Pilot Group
   - Singtel will conduct in-depth training to familiarise your people on how to use UCaaS on various devices.

3. Decide on your Migration Path
   - Wholesale
   - Hybrid
   - Singtel’s strong IT skills and service delivery frameworks ensure a smooth migration path that is in line with your business strategy.

Hybrid models:
- Structured Migration
- Depreciation-based Migration
- Strategic Migration

STORAGE
COMPUTING
NETWORKING
Presence
Video
Voice
Mobility
Collaboration
Presence

Good regional coverage
Comprehensive service offering
Interoperability and integration
Future roadmap and innovation
Service reliability

Singtel’s expertise in fixed, mobile and cloud solutions delivers a UCaaS solution that meets your needs.

Singtel will conduct in-depth training to familiarise your people on how to use UCaaS on various devices.

Singtel’s strong IT skills and service delivery frameworks ensure a smooth migration path that is in line with your business strategy.
benefits of UCaaS. It is also a risk-free migration path which allows the customer to fall back to his existing infrastructure. A third benefit is that organisations can expand their business cost-effectively and quickly, and still continue to ensure that the regional communications network works seamlessly together, regardless of the platform.

For organisations that choose to take a hybrid migration approach, the options include:

- **Structured migration**: this is a methodological approach where selected users will start using UCaaS with subsequent deployment being handled as a project-planning exercise.
- **Depreciation-based migration**: For organisations with existing PBXs, an approach is to schedule migration for the sites without any UC infrastructure, or those with depreciated infrastructure, placing the sites with working PBX and UC equipment further down the migration schedule.
- **Strategic migration**: With the growing popularity of the mobile worker, and flexible workspaces, some organisations may take the opportunity to downsize their enterprise’s real-estate footprint by enabling greater mobility for their teams with UCaaS’ mobile UC features at targeted sites.

Ultimately, migrating Unified Communications to the cloud need not be a challenging process. Selecting a partner like Singtel with the requisite people, skills, and reach, will position your organisation well for a successful UCaaS deployment.

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1The points were adapted from a Wainhouse Research White Paper by Bill Haskins and Andy Nilssen, "Migrating Collaboration to the Cloud: An Objective Guide on How to Move Forward", page 8-9.

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**Continued from page 03**

staff telecoms – sometimes, they will be forced by clients to use third-party tools for conferencing or messaging, and many BYOD staff may use consumer-grade apps such as WhatsApp or LINE for mobile business communications.

Against that backdrop, UC solutions – especially mobile UC – used in enterprises need to continually evolve to match users’ expectations. Users now have so much choice, that their consumption drifts to the most convenient and full-featured tools and apps, even if this does not fit their employers’ guidelines.

Few businesses will want to continually add new features to their in-house UC systems, due to high costs, long deployment times, management complexity and manpower constraints – but hosted variants should be able to keep up with the times, integrating and testing extra capabilities – much more simply. This particularly applies to UC being integrated with “cloud communications” – embedding voice and video into applications or specific use-cases, typically via developer-facing APIs.

For example, sales or B2C customer-service apps may integrate voice or video directly, in future. A cloud UC platform run by a major service provider may be able to add such capabilities more simply. In addition, today’s convenient model for updating smartphone apps means that hosted solutions can easily deliver updates, such as adding better enterprise collaboration applications.

**Conclusions: Towards the Future**

Mobility, both for personal voice/video/messaging communications, as well as more data-centric applications and workflow, is critical for enterprises in all sectors of the economy, and of all sizes.

In Disruptive Analysis’ view, a combination of factors is tipping the balance towards hosting or outsourcing. These factors include: extra complexity from mobility, with new issues around BYOD, device security, tablets, app management and social/cloud integration. While mobile UC is maturing quickly, many enterprises do not yet have the skills to manage all these internally. The future trend of embedding mobile-oriented communications directly into applications and websites will make in-house management of UC still more difficult. Hosted mobile UCaaS provides an option to simplify and streamline the processes, while keeping costs under control. It is fairly early in the adoption cycle, but it will likely become significantly more important over coming years.

The role of telecom service providers in UCaaS is also still evolving. In Disruptive Analysis’ view, those that have established corporate businesses – with good technical and account skills, and understanding of major clients' needs through long relationships – are well-placed. An ability to combine traditional fixed telephony/UC with aspects of mobility is important, for many companies will need to undertake integration and migration. Telcos offering mobile UCaaS should also be able to create innovative packages around UCaaS, both in terms of pricing, but also value-added features such as cloud/SaaS integration, WiFi access, roaming deals, and perhaps developer-centric APIs and other add-on services.

In summary, mobile UCaaS is an important trend. It will be critical for both vendors and service providers to maintain leading features and user experience, if employees are to be prevented from “consumerising” too much of their overall communications needs. But if hosted offers can “future-proof” themselves, embracing trends in devices, apps, social and cloud – whilst remaining enterprise-grade and secure – then corporate IT and communications managers should take them seriously as a platform and evaluate them for adoption.