



Minister Ibrahim opens CommunicAsia2017

On the eve of CommunicAsia2017, Singapore's Minister for Communications and Information, Dr Yaacob Ibrahim, delivered a short address to a roomful of ASEAN dignitaries.

Stefan Hammond

"They say 'change is the only constant', but change has never come at a faster rate," said Ibrahim. "Convergence and disruption are transforming the way we operate. Every so often, we see another Airbnb or Uber come along, up-ending the way our economies function."

Global upheaval

"Across the world, we see greater calls for protectionism," he said. "I am sure we recognize this reality in our countries. But how do we deal with such upheaval?"

"We can, of course, try to protect our economies and close them off—take the easier path. But history has shown that those who resist change eventually fall

behind and end up playing catch-up."

Digital strategies

"As ministers and policy-makers, we have been looking at the policies to prepare our country, so that we are digitally ready to thrive in the future economy," said Ibrahim. "The TechSkills Accelerator, or TeSA, we launched last year aims to deepen skills and capabilities. Over 10,000 ICT professionals have gained from TeSA so far."

"We will be training another 10,000 public servants in data science to improve capabilities in the public service. We are also reaching out to the small medium enterprises. With the SMEs Go Digital program, we want to help our small businesses scale up and boost productivity through technology"

Culture of experimentation

"We want to encourage a culture of collaborating, sharing and experimenting," said the Minister. "One way we are doing this is to provide dedicated spaces and tools for people to tinker around with innovative projects, and exchange ideas with others in the community."

"The PIXEL Lab at the Jurong Regional Library is one such space. Tools and equipment like 3D printers and micro-controllers are available for anyone who wants to play around with them."

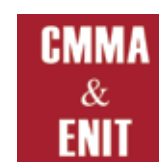
Regulation without stifling innovation

"How do we regulate without stifling innovation? Last year, the Monetary Authority of Singapore, or MAS, launched a regulatory sandbox for fi-

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ancial institutions and FinTech players. The idea is to provide a conducive space where certain regulatory requirements are relaxed for a period of time, to encourage firms to test their solutions. If the experiment fails—and there will be some that do, it does so within a confined space, without major impact on our financial system."

"Digital is the future, but the future is not only digital," said Ibrahim. "I believe analogue will remain for some time in many of our countries. We must look into harnessing the benefits of digital to transform older, analogue processes and sectors. This is one way to ensure a more inclusive and equitable distribution of benefits we gain from technology." ◀

Malaysian operator YTL uses 4G to "leapfrog" region

Lachlan Colquhoun

Malaysian mobile operator YTL plans to speed up the pace of digital innovation as it challenges incumbents in its home market, says the company's CEO Wing K Lee.

Lee is set to address the CommunicAsia2017 Summit today on the subject of "A Nationwide 4G Leapfrog." He says YTL's six-year journey from WiMAX start-up to operator of Malaysia's first 4G

LTE service in June last year has "lifted the standard of competitiveness" on mobile internet.

Although granted a WiMAX license at the same time as other new competitors, YTL took longer to go to market with its product and spent more time building its geographical coverage.

It followed up its original 2010 launch with its LTE network, built by network partner Samsung Electronics, which also offers VoLTE. The network covers around

85 percent of Malaysia with data speeds as high as 100 Mbps.

YTL's "digital roadmap" and experience serves as a regional case study on "leapfrogging": using new technology in a greenfield environment to create better infrastructure than more advanced areas which developed their tech infrastructure earlier on legacy frameworks.

"As a completely greenfield player, we had the good fortune to start from a clean slate, free of legacy processing and

thinking," says Lee. "So we created a digital-first experience—from automation to care—for both our customers and our dealers."

Skill-sets of the century

Another game-changer came four years ago, when YTL won an open tender from Malaysia's Ministry of Education to provide 4G broadband in all public schools.

Continued on page 3 ...

OVERNIGHT WIRE

Japan's Mitsui to acquire 10% of Smart Axiata

Malaysia's Axiata Group has secured a new strategic partner and minority investor in its Cambodian operations. Japanese conglomerate Mitsui & Co and its affiliate will collectively take a 10% stake in Smart Axiata in a deal worth \$66 million. The agreement is expected to close by end-May, and also covers a call option granting Mitsui the right to acquire an additional 10% stake in Smart within 12 months post-completion. Axiata group CEO Tan Sri Jamaludin Ibrahim said the strategic partnership will help Smart's growth efforts in areas including digital services and the IoT. He said Axiata Group remains committed to maintaining a majority stake in Smart.

Celcom, Ericsson conduct Malaysia's first 5G trial

Celcom Axiata and Ericsson have completed Malaysia's first 5G trial, and the first 5G trial in South East Asia concentrating on the 28-GHz band. The trial achieved a peak throughput of up to 18Gbps and latency as low as 3ms using 5G radio prototypes from Ericsson. Celcom and Ericsson entered an agreement in February to jointly evaluate opportunities for 5G and the IoT in Malaysia. Celcom recently announced plans to deploy key pre-5G technologies including 4x4 multiple-input-multiple-output (MIMO) and 256 quadrature amplitude modulation (QAM) as part of its journey to 5G, and the collaboration with Ericsson forms part of this initiative.

AIS projects 5% revenue growth for 2017

Thailand's AIS is projecting a 5% increase in revenue and a 44% growth in ebitda this year as a result of strong growth in 4G customers. The operator is projecting service revenue for the year of 129 billion baht (\$3.75 billion), with the majority expected to come from data services. The operator's total 4G customer base roughly doubled in the past 12 months to reach 12 million by the end of March. According to AIS VP of investor relations Nattiya Poapongsakorn, AIS aims to increase its revenue market share to 50% this year, up from 48% as of March. She said the operator's 4G users have an ARPU of 400 baht, compared to just 250 baht overall.

Optus launches cloud-based telephony system for SMBs

Australia's Optus has launched a new cloud-based telephony system for SMB customers that promises to help cut costs and reduce the complexity associated with traditional PABX telephony systems. The service, Optus Loop, has been developed in collaboration with unified communications service provider Broadsoft. It combines mobile and fixed line telephony, supporting voice, instant messaging and presence, desktop file sharing, virtual meeting rooms and voice and video conferencing capabilities. Features include seamless transfer of calls from desk phones to mobile, voicemails incorporated into email, simultaneous ringing on all devices as well as custom on hold call messages. Loop will be offered in both prepaid options or as part of a 12-60 month plan.

Your vision, our business

Susan Tan, UBM SES

The first day of the event has revealed a brand new look for future editions of CommunicAsia and BroadcastAsia. We turn the spotlight on Susan Tan, Director of Marcom, UBM SES to ask her about the new branding and what it means for the show and its participants.

What is ConneCTechAsia?

ConneCTechAsia is where technology, ideas, and business converge. Encompassing CommunicAsia, BroadcastAsia, and the new event NXTAsia, ConneCTechAsia, the new parent brand, covers the entire spectrum of communication, broadcast, and enterprise technology and services reflecting the pulse of Asia today, and how the future will look like, tomorrow.

Why have you decided to change the look for the event?

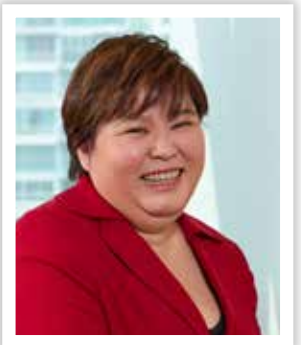
CommunicAsia and BroadcastAsia have served the IT and media industry alongside the sister show, EnterpriseIT. This industry changes faster than almost any other sector in today's economy and it is important to stay relevant in such changing times. We felt the time was right to take our event into the future with a fresh look and a more

focused value proposition, to help our exhibitors and visitors have a more enriching and informative experience at the event.

What new changes will you introduce next year?

Besides the parent brand ConneCTechAsia we will also be launching NXTAsia to replace EnterpriseIT, which will be the definitive guide on emerging technologies and enterprise solutions for companies across sectors. Based on feedback from industry stakeholders and peers it was clear that we needed a response to the expanded needs of the industry for the community to see, discover, and experience more of the solutions today that will affect businesses of tomorrow.

In 2018, ConneCTechAsia will host more than 2,000 exhibitors, technical and business seminars, and networking forums through an array of experiential activities, allowing attendees to gain the maximum amount of industry insights and useful contacts in one event. ◀

**"Malaysian operator YTL uses 4G to "leapfrog" region" from page 1...**

The operator has partnered with Google to deploy 4G Chromebooks to schools throughout Malaysia, integrating Google Apps for Education into its cloud-based learning platform which supports 10 million students, teachers, and parents.

Cloud cover over Malaysia

Given the national footprint, YTL uses a cloud-based approach to enable "anywhere, anytime learning" and instill a "21st century skill-set" in young Malaysians.

Lee says the way forward for YTL was to continue to invest in the cloud to create a new platform to deliver value.

The education project, he said, was a good example of how the company wants to use connectivity in a transformative way to create new services and products, often in collaborative partnerships.

"We won't play the same game as legacy players," he said. "We're just getting warmed up and will continue to speed up the pace and diversity of innovation." ◀

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QUESTEX

telecomasia

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Wok, bicycle, Nokia 3310

Stefan Hammond



Simple, reliable, efficient devices proliferate worldwide and span decades, if not centuries. Let's look at a few.

Woks keep knives in the kitchen (and out of guests' hands, a plus if you're dealing with bristly warlords) and maximize the heat-energy used to cook. Bicycles need no external fuel, and transform humans into load-carrying machines—not to mention their basic transportation function. The simplicity and usefulness of these devices means that millions are used daily, subtly altering the trajectory of civilization.

Let's toss electricity into the mix. Nokia released their iconic 3310 mobile in 2000. During those feature phone days, the 3310 was the shiznit. It made calls and allowed threaded SMSs, and the battery (about the size of a large chocolate mint) was legendary. The phone was beloved by its users, although entertainment was mostly limited to Snake: a simplistic game that proved surprisingly addictive.

I'm bored, swap the case!

I was one of the 126 million who bought a 3310. In Asia, retailers offered cheap swap-'em-out plastic cases for popular phones. I liked that the phone "could be infinitely customised with garish fascias," as UK newspaper *The Telegraph* put it. My favorite was combining a white case with a silver case: by using a white top with a silver bottom I was able to spoof the look of an iPod (then available only in that color-configuration).

Case-swapping was silly, but the phone was rock-solid. Drop it, kick it around, let the dog chew on it...it'd still work. You could carry a spare battery in your wallet, but you probably wouldn't need it. The 3310 had a magic aura about it other Nokia handsets couldn't match. According to Wikipedia, in 2015 the Nokia 3310 was chosen as one of the first three "National Emojis" for Finland.

Publicity coup

In 2017, as manufacturers release sleek lookalike Android-powered phones, Nokia decided to one-up the "shiny rectangle" form factor by going retro. And someone in Nokia's PR chain had a stellar publicity idea: re-issue the long-discontinued phone with new features.

The telecoms press erupted when the 3310 2.0 version—manufactured by Finnish company HMD Global—was announced. How much of the original not-so-smart phone would be retained? And...what about that snake game?

80 grams of 2.5G

Unsurprisingly, the new 3310 adds features like a micro-SD card slot, a color screen, even a built-in camera with a stonking 2 megapixels for those precious selfies. And while the battery on the original 3310 was impressive, the new phone promises "22-hour talk-time and month-long standby" on a single charge. Gloss finishes in yellow and "Warm Red" have that shiny candy look, but more se-

date users may prefer matte finish dark blue or grey.

And no one's forgotten Snake, which kept users of the original glued to the 3310's keyboard, trying to keep an incrementally lengthening digital snake from doubling back on itself as it slid around the 48x84-pixel monochrome screen. "Snake will be slaking its way back into people's hearts," said HMD in a statement, promising a new version "available to play on Messenger, part of Facebook's Instant Games cross platform experience." At press time there was no information on whether users not hooked into the Facebook mother-ship can use Snake as a standalone game.

All sounds good, but what about that 2.5G cap?

2G or not-2G

"Yes, [the] Nokia 3310 is a 2.5G phone," said an HMD spokesperson. "We will start rolling it out in Q2 to markets where a 2.5G device is demanded by our customers."

OK, but some markets are closing down their sub-3G networks—the latest being Singapore, whose telcos shut their 2G networks on April 1 (no joke) to free up spectrum for future use. No 2G network access effectively turns the new 3310 into a shiny red or sedate blue brick.

You could still play Snake assuming you don't have to be tethered to Facebook 24/7.

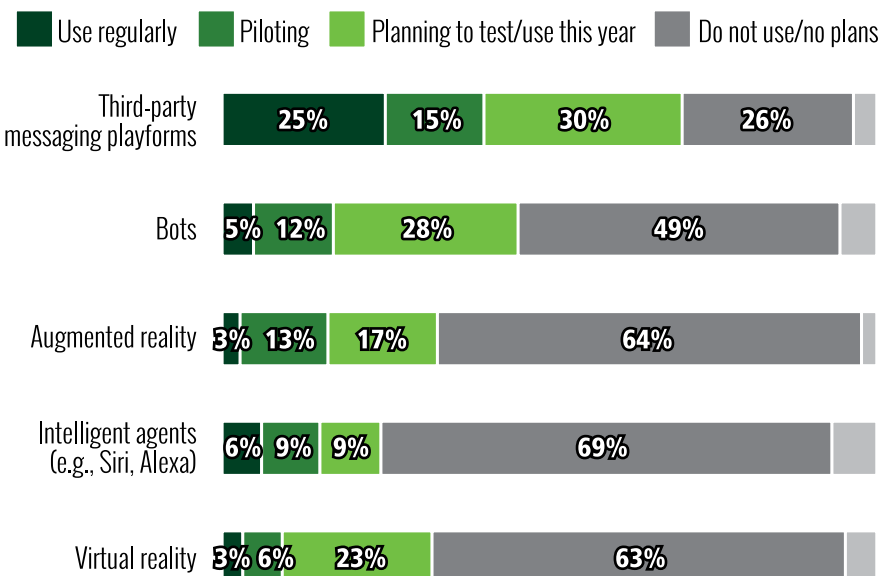
Asked about the possibility of a 3G version, the HMD spokesperson said: "We are focusing the shipping start of Nokia 3310 in Q2 right now. We won't comment on our future plans."

Fair enough. The introduction of mobile telephony to developing countries has changed the lives of countless villagers, and a phone with massive battery life and the ability to deliver, say, the latest crop prices via SMS, carries great value in some parts of the world. The 3310 was part of that original revolution and, like the legendary Ouroboros snake that eats its own tail, its reintroduction takes us back to the future once again. ◀



STAT SNAP

Marketers' plans for emerging technologies grow in 2017



Source: Forrester

IoT Scorecard 2017: China Mobile and Vodafone lauded in emerging Asia-Pacific

Sherrie Huang and Michele Mackenzie, Analysys Mason

Analysys Mason's 'IoT Scorecard 2017' for EMAP (emerging Asia-Pacific) does not rank CSPs based on size alone; instead, we assess how the market pioneers have established successful IoT businesses to achieve scale and examine their best practices."

In its IoT Scorecard report for 2017, Analysys Mason has identified two telecoms operators in emerging Asia-Pacific which have excelled in strategy and execution: China Mobile, and Vodafone.

China Mobile topped the overall pioneer ranking thanks to its heavy investment in network technologies and IoT capabilities, as well as its presence in multiple sectors and a dedicated IoT business unit to drive growth. Vodafone is also a pioneer due to its advanced vision and strategy, extensive international coverage and partnerships, which it leverages in the region to facilitate inbound and outbound IoT services. These operators' strengths and best practices serve as a guide for other operators seeking to build an IoT business.

Best practice, not size, defines the IoT pioneers in EMAP

Both China Mobile and Vodafone enjoy significant scale in the IoT market, but Analysys Mason's IoT Scorecard 2017 does not rank based on size alone. Instead, we assess how the market pioneers have established successful IoT businesses to achieve this scale and examine the best practices that they have developed to succeed.

The IoT Scorecard 2017 focused on six key categories on which operators in emerging Asia-Pacific were ranked: strategy and vision, structure and organization, ecosystem and partnership, market status and size, network status and technology, and capabilities and portfolio.

Important areas where both leading operators excelled include the following:

Structure and organization: Both China Mobile and Vodafone scored highly in their structure and organi-

zation for delivering IoT services. To enhance their chances of success, operators worldwide need to have an IoT division that operates with a high level of independence, but is still able to lev-

and Reliance India launched a separate IoT business unit, UNLIMIT, in November 2016.

Network status and technology: While most of the operators surveyed

Both operators ranked highly in other criteria. For example, Vodafone has invested significantly in building partnerships with other players that are active in building their IoT businesses



zation. China Mobile established an independent IoT business unit in September 2012—China Mobile IoT subsidiary—in order to grow its IoT business. Its primary role is to innovate and consolidate resource across the IoT value chain.

Similarly, Vodafone IoT benefits from a high degree of autonomy, despite being part of Vodafone's Group Enterprise. It exerts sufficient influence within the group to ensure that IoT is represented in network investment decisions (for example, in NB-IoT).

Vodafone Automotive operates as a separate business unit, which is dedicated to building this new growth area. Both companies have demonstrated that success in this segment depends on a relatively independent business unit that focuses on new business opportunities separate from legacy business considerations. Other operators are adopting this best practice. For example, Indosat Indonesia has had a separate IoT operating division since 2013,

and have a strong portfolio of cellular technologies, China Mobile and Vodafone stand out as pioneers, thanks to the bold moves that they have made to support IoT-specific wide-area networks. China Mobile has conducted outdoor trials of NB-IoT with Huawei and ZTE and is a NB-IoT Forum member. It is also trialling LTE-M with Ericsson and Qualcomm.

Vodafone has been at the forefront of promoting NB-IoT standards and is preparing to launch the technology commercially in several of its European markets. It is working to build the ecosystem and to establish the technology as a worldwide standard.

Both operators have made significant investments in backing their preferred standards and building support from other operators and players, such as module manufacturers and application developers instrumental to the IoT ecosystem. Both China Mobile and Vodafone have led the way in ensuring that wide-area cellular networks remain relevant to IoT.

in the region. Finally, China Mobile has invested in enabling capabilities such as its OneNet platform.

Operators have different approaches to the IoT market

China Mobile and Vodafone have taken very different approaches to building their IoT businesses. China Mobile has typically focused on their domestic market while Vodafone has pursued opportunities that require international mobility and enable it to leverage its global footprint.

However, their strategies start to converge as they focus on delivering IoT services into and out of the EMAP region for local and global companies alike. Both have made significant investments in developing IoT best practices across a range of criteria and leveraged these to build successful IoT businesses in emerging Asia-Pacific. ◀

Sherrie Huang is head of APAC research and Michele Mackenzie is principal analyst, Analysys Mason

Operators to spend \$21b on 5G New Radio infrastructure by 2025

Mobile operators worldwide will spend more than \$21 billion on standardized 5G NR (New Radio) infrastructure by the end of 2025, according to SNS Research.

Despite the lack of sufficient LTE coverage in parts of the world, mobile operators and vendors have embarked on R&D initiatives to develop 5G. According to the GSA (Global Mobile Suppliers Association), in Q1 2017 at least 25 operators from 15 countries have demonstrated 5G technologies or announced 5G tests or trials.

With pre-standard 5G network deployments underway, the GSA released an estimate in March predicting mobile operators worldwide will spend more than \$250 million on pre-standard 5G

network rollouts by the end of 2017.

Although 2020 is the accepted headline date for 5G commercialization, the first standardized deployments of the technology are expected to be commercialized as early as 2019 with the 3GPP's initial 5G specifications set to be implementation-ready by March 2018.

Between 2019 and 2025, SNS Research expects the standardized 5G NR infrastructure market to grow at a CAGR of approximately 70%, eventually accounting for over \$21 billion in annual spend by the end of 2025.

The market will be complemented by additional investments of over \$7 billion on nextgen core and transport (fronthaul/backhaul) networking infrastructure, estimates the research firm. ◀

Telco API revenues set to reach \$207b by 2022

Global revenues from telecommunications application programming interfaces (APIs) is on track to reach \$207 billion worldwide by 2022, Research and Markets has predicted.

A new report from the research firm finds that the telco API market has significantly matured in recent years. But much market activity has so far been limited to larger operators in developed countries, leaving significant room for growth in emerging markets.

During the past five years, operators have leveraged APIs to derive wholesale transaction revenues from third-parties such as OTT providers and enterprises, as well as communication-enabled application revenue, the report states.

Operators have the potential to achieve incremental growth by providing a variety of services and application support, such as unwanted-call blocking services that support do-not-call registries and compliance with consumer protection regulation.

In the long term, revenue from traditional consumer-centric services supported by telecom APIs is expected to level off, with revenue associated with IoT services becoming the new market driver.

The report predicts that communication-enabled network revenue will plateau as IoT network support revenue becomes more substantial for telecom APIs by 2025. ◀

ABI Research: NFV market to reach \$38b by 2022

The Network Function Virtualization (NFV) market will be worth \$38 billion by 2022, driven by investments by major telcoms operators, according to ABI Research.

Yet the market will see a decline in hardware spend—including servers, storage devices and switches—while spend on NFV software and services will grow 55% and 50% respectively. Standardization and multi-vendor involvement challenges will remain stagnant for the next couple of years, predicts the research firm.

North America will lead the market, accumulating \$13 billion in NFV-related investments during 2022, while Europe will see the highest growth rate at 53% CAGR between 2017 and 2022.

Neha Pachade, senior analyst at ABI Research, says the market experienced some early successes but mostly reconsiderations and failures with NFV over the last two years.

“Early adopters conducted proof-of-concept testing and NFV-integrated system demonstrations with the aim to understand the true impact of NFV in the technical, operational, and cultural domains,” says Pachade.

“Our forecasts indicate that NFV will become a sizeable opportunity for vendors, although it is not yet clear whether it will cannibalize existing hardware-based product lines or create new market use cases,” she says.

Early contracts and market trends indicate the biggest winners are likely to be established vendors like Ericsson, Huawei, and Nokia—as well as specialists like Amdocs and Netcracker—with systems integration becoming increasingly important.

“Several vendors also place heavy and risky bets on open-source software, which may increase business opportunities but may also create difficult choices for them in the future, particularly if telco interest in specific open source projects fizzles out,” says Pachade.

NFV is mostly considered as a cost-cutting exercise, since new revenue opportunities require a transformation in a much broader context, which is more likely to be driven by 5G, after 2020. ◀

Google challenges Samsung in smartphone VR race

Competition in the high-end smartphone virtual reality market heats up in 2017 with Google's Daydream platform emerging to offer an alternative to the established market leader, Samsung's Gear VR, predicts research firm IHS Markit.

Daydream View headset sales are forecast to jump from 120,000 in 2016 to 2.23 million in 2017 and will enjoy growing industry support from third-party smartphone vendors in the second half of 2017.

While this growth is impressive, IHS Markit forecasts that Samsung's Gear VR will remain the market leader in 2017.

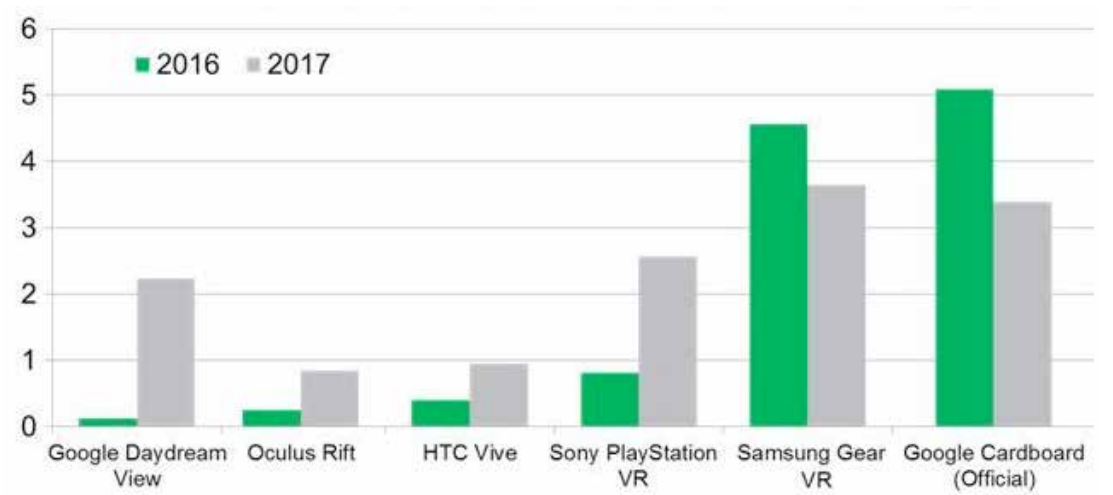
Samsung ended 2016 as the VR platform market leader due to its early mover advantage, high-

quality VR experience, and aggressive go-to-market strategy for Gear VR.

However, the competitive landscape for VR headsets is volatile and newly released products from major competitors can quickly alter the balance of the market, IHS Markit says, forecasting that consumer sales of Samsung's Gear VR will decline by 9.6% by year-end from 4.56 million in 2016 to 4.12 million.

Google Daydream's impact on the market will take time to materialize as smartphone vendors come to grips with the high-end requirements for Daydream accredited phones, especially supply-chain pinch points such as OLED displays, the research firm says. ◀

World consumer VR headset sales: 2016 actual versus 2017 forecast (m)



Source: IHS Markit 2017

IDC Research: 41% of APeJ healthcare orgs plan IoT launches in the next two years

Results from the IDC 2016 Global IoT Decision Maker Survey says 41% of healthcare organizations in Asia Pacific excluding Japan (APeJ) plan to launch at least one IoT solution in the next two years, with over 63% of organizations believing it to be the central theme for driving digital transformation in health.

Other key findings for APeJ from the 2016 survey include:

- 63% of organizations see IoT as strategic to their business in order to overcome disruptive changes in the health delivery process.
- Remote patient monitoring, resource utilization and tracking are the key priority areas that these health organizations will focus their IOT efforts on.
- Security related concerns and the fear of recurring costs are the two primary reasons for acceptance of IOT on a large scale—especially with large private hospitals.

The promise of reduced operational costs in the longer run, improved en-

ergy efficiency and creating new revenue streams are the key features decision makers expect as an outcome of an IOT implementation.

Decision influencers for IOT implementation are now evenly distributed between the IT departments and the Line of Business.

“The focus on mobility and analytics, coupled with the need for optimizing resource distribution, especially in the urban setting are driving acceptance for IOT implementation at healthcare organizations” said Ashwin Moduga, research manager health insights, APeJ, IDC Asia/Pacific.

“With the advent of digital disruptors in the form of virtual care, the traditional hospital system could face gradual revenue losses unless digital transformation is undertaken as a proactive measure for the next decade—and [the] IOT is key to improve operational efficiency, clinical confidence and patient engagement for any large hospital,” said Moduga.

The survey, now in its third year,

serves as a way to gain insights from large and medium sized healthcare enterprises, including both IT and business decision makers about their perception of the IoT as well as their future plans for deployment of IoT solutions. Topics covered in the survey include: levels of enterprise awareness of the IoT; deployment plans; IoT adoption drivers and inhibitors; perceptions of IoT vendors

and vendor selection criteria; organizational factors; and security, cloud, and analytics requirements. The survey covered responses from enterprises where respondents were moderately to very familiar with the term ‘Internet of things’ and managed a minimum of 100 employees. Respondents are required to be involved in IT and/or business decisions at their company. ◀



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Disruption and transformation are key drivers to building 'smarter' cities

Victor Wong, UBM SES

SD: How does the event play a part in creating a smarter future?

The first edition of CommunicAsia was held 38 years ago in 1979, the same year that the Walkman launched. It was a time predating mobile phones and broadband Internet. Since then, CommunicAsia has stayed relevant and evolved with the marked rise of technology's impact on our everyday lives. The event continues to be a platform that showcases the latest innovations of our time, from mobile phones in the 1990s to artificial intelligence and robotics today. CommunicAsia demonstrates how these emerging technologies will further reshape society and make our world smarter, and more connected.

This year we have more than 1,100 companies from 52 countries and regions to help illustrate how the rise of cloud computing, the Internet of Things (IoT), harnessing big data analytics, and satellite communications work together to link our hyperconnected world, to solve rural and urban problems to create a better and smarter future for everyone.

What are some of the smart highlights at this year's show?

NXT on level five is designed to be a hub of all things smart, featuring an ecosystem of disruptive solutions that will drive industries and shape our digital tomorrow. It is a hotbed of collaboration and partnership between enterprises and governments looking to adopt and integrate innovations in AI, robotics, autonomous driving, cybersecurity, IoT, cloud, big data and VR/AR.

NXT also encompasses Disrupt+, the new zone will play host to some 40 start-ups as part of the new Startup Alley, with many showcasing AI solutions and chatbots. Seedstars World, a global seed-stage tech start-up competition will be hosting their local leg of the event at Disrupt+, with eight start-ups competing to represent Singapore on the global stage in Switzerland.

SatComm2017 on level one is Asia's largest gathering of satellite companies. Satellites keep global communications alive, they allow us to communicate securely anywhere in the world, and are vital to global connectivity. This year,

SatComm will also include satellite solutions that will enable upcoming technologies such as 4K or even 8K in Asia and IoT to support smart city developments.

Adding to the show's narrative of a smart future, the CommunicAsia Summit will feature thought-leadership from more than 180 industry leaders covering the latest trends in the tech space. Tomorrow, Rohit Talwar, Futurist and CEO of Fast Future Research, will deliver the Visionary Address titled "Artificial Intelligence vs. Genuine Stupidity – Navigating Exponential Technologies to Create a Very Human Future".

What do you hope participants will takeaway from CommunicAsia?

With the data revolution and a growing digital economy, new norms emerge in how we conduct business, how governments develop their cities, and how we interact with the world in our day to day lives. Entire industries are transformed and we also face new challenges and threats every day.



Victor Wong, Project Director of Communications Events at UBM SES

We have designed CommunicAsia and NXT to address all facets of our smart future by creating a holistic and interactive experience for all attendees. It is our hope that they will discover, explore and be inspired by how tech is changing our world, to evolve and advance in their digital transformation journey. ◀

RESEARCH NOTE

Increasingly complex retail telecoms services to boost wholesale revenue

We estimate that the total revenue available to wholesalers for providing telecoms services to intermediaries was \$176bn in 2016 (10.0% of total telecoms revenue that year). That is expected to increase to more than \$213bn in 2021 (CAGR 3.8%, reaching 10.8% of the total).

This faster growth of wholesale revenue reflects the growing importance of wholesale services to enable increasingly complex retail telecoms services.

The Americas is forecast to remain the region with the highest total wholesale revenue across the forecast period (\$74bn in 2016, rising to \$88bn in 2021). This is a slower predicted increase in overall wholesale revenue in North

America than globally across the period (CAGR 3.5% versus 3.8%). This is due to the combination of strong competition, declining prices, and a fall in the proportion of global traffic between North America and other regions as those regions host more indigenous content and applications.

This increased localization of content and greater availability of wholesale access services contribute to the significant increases in national wholesale revenues we expect in the Middle East & Africa (CAGR 4.8%) and in Latin America & the Caribbean (CAGR 9.2%). ◀

David James, practice leader, Wholesale Team, Ovum



OTT entertainment sector set to embark on new era

Ed Barton, Ovum

Ovum believes a new era of OTT entertainment is upon us. The competitive dynamics of the industry have changed and intensified:

- The emergence of pay TV OTT (skinny bundles) from pay TV (DirecTV Now) and digital media (YouTube TV, Hulu TV).
- Go-to-market strategies evolving as OTT service aggregation (Amazon streaming partners, Hulu/CBS) and bundling (AT&T/DirecTV Now) accelerates.
- As US and European SVOD markets mature, Asia-Pacific is becoming the key battleground. Vigorous competition from services such as iFlix, Hooq and Viu make Asia-Pacific a markedly tougher region for Netflix, Amazon, and local pay-TV operators to build OTT audiences.
- The improving capabilities of fixed and mobile networks to deliver live streaming video at scale, although this is an ongoing story for cellular networks which will continue to evolve with the launch of 5G networks.
- SVOD catalogues are improving, and not just Netflix's. SVOD competition for content in the first pay window is intensifying in both mature markets (US) and in evolving regions (Asia-Pacific).
- Games streaming viewership is scaling, with e-sports attracting skyrocketing levels of sponsorship and start-

ing to appear on traditional TV.

- Piracy has improved. OTT sports streams, Kodi boxes preconfigured for illegal content sources, and the quality of pirate hardware have all improved markedly in quality and in their ease of use for audiences who are not even slightly technically inclined.

The challenges contenders face:

Pay-TV service providers have already started segmenting their customers more effectively by introducing low-cost OTT pay-TV services and, in some cases, higher-end services to drive ARPU. OTT pay-TV market potential is constrained given that these services tend to address customers who have never spent with pay TV previously, rather than convince existing subscribers to trade down (which would be a commercial disaster). The services are low cost in order to appeal to value-conscious customers who tend to churn aggressively and offer low to negative margins.

Broadcasters and channel owners face challenging traditional TV market conditions with widespread concern over the sustainability of commercial broadcast in the face of declining live audiences. There are opportunities in OTT and mobile from content licensing and, although challenging to realize, direct-to-consumer OTT services. Flourishing on a long-term basis is dependent on production and ownership of original IP, using the reach of terrestrial broadcast to build audiences for these shows then

distributing via OTT, exploiting as many release windows as possible. Commercial broadcasters must also determine their positioning for addressable advertising deployments by pay-TV service providers.

Telcos and operators are looking to address the cost of data transport for streaming entertainment across cellular networks. This is slowly being resolved through bundling and zero-rating (AT&T/DirecTV Now), however, this will remain an issue in many markets for some time to come. Addressing the constraint of mobile data charges for video is critical to driving usage and spending. Subscriber spending levels and the network economics thus enabled will ultimately determine the video monetization strategies available to the operator and partnered video services.

Online streaming service providers continue to proliferate globally with competition intensifying across Asia. Netflix and Amazon enjoy scaled economics way beyond what companies operating in single markets can muster. Looking ahead, SVOD services are examining aggregation strategies, bringing multiple OTT services together into a single consumer proposition, and partnering with telcos and operators to be bundled with broadband and mobile services. AVOD is a tough market which tends to be dominated by YouTube in many markets. There is growth potential in ad spending on commercial broadcaster catch-up services as measurement

standards are increasingly addressed, but this has been a slowly growing segment. The challenge of encroaching meaningfully on TV advertising spending has yet to be realized.

Content owners are divided into those whose wares drive purchasing decisions and everyone else. Potential licensees are multiplying as services proliferate in all release windows and distributors emerge from telcos (BT, Telefonica) and mobile operators (Telkomsel, ASI), social networks (Facebook), and digital media (Amazon Prime Video). There are more potential licensees available, however, rights pricing outside TV continues to be way below what rights owners have become accustomed to.

For sports rights owners, the issue is exacerbated by premium sports channels increasingly being excluded from basic pay-TV channel bundles across both traditional pay-TV services and OTT pay-TV (skinny bundles). The eternal struggle to balance reach and revenue is becoming harder – the more so if the rights are being sold exclusively to distributors lacking either. Hybrid licensing strategies are likely to become more prevalent with rights owners keeping contract lengths short to allow for flexibility in the face of a fast-evolving marketplace. E-sports constitute long-term competition for the hearts and minds of young viewers (mostly male, especially in Asia) and should be taken seriously. As well as Twitch and YouTube, e-gaming broadcasters are striking carriage deals with pay-TV service providers (Sky UK, Orange France). Competition for sponsorships from e-sports will likely increase over time as well. ◀

Ed Barton is TV practice leader and principal analyst, Ovum

Entertainment accounts for over half of smartphone data traffic

Stephen Sale, Analysys Mason

Research this month from Analysys Mason analyzes real-world usage from over 8,000 smartphones in Germany, India, the UK and the USA. The data was collected by Verto Analytics using a passive on-device monitoring app on panelists' smartphones.

The data reveals that entertainment is the dominant activity on a smartphone, in terms of both time spent

(nearly a third) and data usage (57%). Social networking was the largest single contributor to time spent on a smartphone (15% out of an average of 171 minutes overall) and is increasingly media-rich, which accounts for its disproportionate contribution to data usage (29%). Dedicated TV/video services were the second largest contributor to data usage (24%) but accounted for only 6% of time spent.

Over 80% of panelists used dedi-

cated TV/video apps, with advertising-funded services such as YouTube most commonly used. An increasing proportion of panelists used paid-for services such as Google Play Movies (TVoD) and Netflix (SVoD).

Average usage for Facebook Messenger was relatively low for a communications app: just 3.2 minutes per day on average in the UK, 3.5 minutes in the USA. This is less than half the time spent on WhatsApp, and usage is not

growing. These low usage levels pose a challenge for Facebook given that Messenger is the stated vehicle for its platform ambitions.

Panelists in India spent over 32 minutes per month on average using Amazon's app, and 33 minutes using Flipkart's. Both apps had nearly identical levels of penetration among participants, at around 35%. ◀

Stephen Sale is research director, Analysys Mason

23 MAY 2017

Mobile payments: a key enabler of cashless societies

Quah Mei Lee, Frost & Sullivan

Throughout Asia-Pacific, where smartphone penetration is the highest in the world, consistent progress by local governments toward cashless societies benefits the mobile payments market. Leading the cashless transformation within Asia Pacific are high-income developed nations such as South Korea, Australia and Singapore. Malaysia and China are still middle-income nations, but benefit from strong regulatory pressure coupled with rapidly growing payment-infrastructure should soon raise them to the ranks of high-income nations.

It's all about the smartphone

Going cashless is seen as a catalyst for the mobile payments market: both in markets where use of cards transitions gradually into use of mobile payments, and in markets where consumers are leapfrogging to mobile payments from cash. The common denominator is the penetration and rapid growth of smartphones in this region.

Ideally, a cashless society revolves around an ecosystem that utilizes e-payment methods such as e-money and debit/credit cards exclusively. But getting there means that mobile payments must realize their full potential as a key enabler. And that means ubiquitous, cost-effective use of app-based and online solutions in a region where smartphones are prevalent.

Mobile payments now integrate into everyday life. From payment acceptance including micro-payments, financial services and retail, merchants see mobile phones as the future form factor for payments. R&D spend on concepts like Amazon Go, Honda's in-vehicle payments for parking and fuel in partnership with Visa, and Pepper—Softbank's robot service attendant, created in partnership with MasterCard—proliferate. As cost pressures increase, the finance ecosystem (including banks, service providers and merchants) will eventually shift to support mobile payments.

Number crunch

The mobile payments market in Asia-Pacific is led by Japan, South Korea, Australia and Singapore as well as China. The regional top down regulatory push

towards cashless societies across APAC will help the \$71.9 billion market (total 2016 mobile payments excluding China and India) grow to reach \$271.5 billion by 2021, while the number of active customers will double to 130 million users.

The market in China alone will grow to \$1.4 trillion by 2021. Regulatory push, standardization, the availability of a ubiquitous payments infrastructure and comprehensive solutions—as well as local consumer behavior—play a role in determining the take-up of mobile payments and how fast the transition to 100% cashless will be in each country.

Although benefiting from regulatory pushes, the initial slow take-up is mainly due to the drawbacks of today's mobile phone as end-device. This includes the lack of user interface and payment flow standardization, the need for additional security features such as biometrics authentication, effective resolution of data privacy issues and, above all, a mobile phone that doesn't replicate a physical wallet.

The presence of proprietary local e-wallets built to differing security standards co-existing alongside global and open third-party e-wallets adds further confusion. More effort must be made to meet the needs and expectations of consumers to expedite growth of mobile payments.

Ubiquity: the golden rule

Standardization efforts are underway in some countries and contactless-payment facilities are growing. However, going 100% cashless means a standard interface must be available (and functioning) on trolleys, at toilets, for donations to churches, at tourist foreign exchanges etc.

And there's a lack of comprehensive solutions to attract segments determined to use cash: the poor, the elderly, people with disabilities, people living in rural areas, short term visitors and tourists—anyone who completes a transaction that involves a payment method, loyalty/rewards/social welfare benefits, receipts and, in some instances, even identification. Users don't like having to juggle an additional device to complete everyday transactions.

Replicating physical wallets and offering seamless user experiences requires a universal standard. Regulators must address international coordination on payment flow, guidelines on minimum security, and handling of data privacy issues. Plans should keep in mind the end goal of 100% cashless and cater for small merchants and usage solutions outside of major towns and city centers.

Governments can lead the incorporation of identification into the mobile phone and encourage use of compre-

hensive solutions on all mobile phones. Ultimately, the focus now should shift to mobile payments in order to build a 100% cashless future across Asia Pacific.

Checkmating the cash-king

Because cash is seen as a permanent payment option, solution providers aren't developing mobile payments solutions that truly disrupt the payment ecosystem. Apple Pay, Samsung Pay and Android Pay have caused some disruption in the marketplace—collectively, these three are responsible for over 40% of global mobile payments transactions. There are also the China players (Alipay and WeChat) and Hong Kong's Octopus card.

Mobile payments form a small, albeit growing, fraction of the global payments market. How can we blame it on consumer behavior and regulatory factors when we have seen the likes of Airbnb, Uber and Pokemon Go flourish, and seen both consumer behavior and regulatory factors change with the right solution?

What we need is a trump card, ideally one that can work across the fragmented Asia Pacific region. Until then, we need to keep our eye on 100% cashless as the end goal despite the challenges. ◀

Quah Mei Lee, Industry Principal at Frost & Sullivan



Four digital payments insights from Analysys Mason's Digital Economy Readiness Index 2017

Enrique Velasco-Castillo,
Analysys Mason

Insight 1: Payments and digital identity are becoming increasingly intertwined

Identity services are converging in mobile handsets due to the potential to use data to understand users' behavior and prevent fraud. In Sweden, Swish, a mobile payments app developed by six of the largest retail banks. Key to Swish's success is BankID (launched in 2003), an electronic identity platform for financial services issued by banks. BankID is used for authentication and digital signatures by nearly 60% of Sweden's population. Consumers' familiarity with Mobile BankID was instrumental in ensuring that they would feel comfortable with transacting through Swish's app.

Identity and mobile financial services are also converging in developing countries. In Pakistan, Telenor faced the mandatory re-registration of all active SIMs in 2015, and turned this otherwise costly process into an opportunity to provide more-sophisticated MFS thanks to the additional data that it holds on its customers.

Insight 2: Multi-sided markets are challenging, even for established players

In developed countries with high banking penetration, Apple, Google, and Samsung have launched solutions for contactless payments in shops. This met with the challenges inherent to multi-sided markets, but distracted innovators from what we believe is the real opportunity for mobile payments: online transactions.

Apple, encountered delays in establishing partnerships with retail banks in Australia and the UK, while Google had to pivot its mobile payments strategy from contactless payments on Google Wallet to online payments through the redesigned Android Pay platform.

In contrast, Tencent (the Chinese company behind WeChat), focused instead on QR codes—a technology widely used in China. In doing so, Tencent sidestepped the issues of NFC compatibility on its users' handsets, and the availability of contactless terminals at shops.

Insight 3: To succeed against incumbents, some telecoms operators are becoming banks

Operators face competition in digital services from players with worldwide reach, and potential disruption from new entrants. We believe that the most defensible opportunities for operators are in activities that are highly regulated, nationally bound, and require high levels of investment.

Banking is a good example. It is an activity that is increasingly becoming mobile-centric, as customers become comfortable with transacting



through their mobile devices, and banks look to reduce costs by moving customer points of contact online.

Operators have realized that to succeed against incumbents they will need to invest heavily in acquiring financial services capabilities—and maybe even become banks themselves. In France, Orange acquired 65% of Groupama Banque in 2016, and in 2017 plans to launch Orange Bank, a mobile-centric retail bank offering current and savings accounts, credit, and payments products. This initiative comes despite the setbacks of its mobile banking partnership with mBank in Poland, where only 2.1% of its 16.4 million subscribers have used the service at some point after it was launched in 2014. Another example of a telco buying a bank is Telenor Pakistan, which acquired the remaining 49% of Tameer Bank that it did not yet own in March 2016, making it a wholly owned entity within Telenor Group.

Insight 4: Payments joint ventures have a high risk of failure due to misaligned incentives

Joint ventures (JVs) are considered a good way to gain market share by combining the customer bases of the constituent firms. However, JVs between operators and retailers in developed countries have failed due to misaligned incentives—for example, there is no single owner to champion the development of new features, or to carry the cost of launching and marketing the solution.

- WyWallet—a JV between Swedish operators Tele, Telenor Sweden and Telia—was sold to payments provider Payex in 2015 after operating at a loss for several years.
- MCX, the consortium comprised of Best Buy, Walmart and other US retailers that developed the CurrentC service, shut down in June 2016.
- Softcard (formerly known as ISIS), an operator partnership between AT&T Mobility, T-Mobile USA and Verizon Wireless, was sold to Google in 2015. ◀

Enrique Velasco-Castillo is a senior analyst, Analysys Mason

EXHIBITORS UPDATE

COMPANY NAME	BOOTH NO.
BITDEFENDER	BE3-01
BRITEYELLOW LTD	BF2-09
CERAGON NETWORKS APAC (SINGAPORE) PTE LTD	L4, PEONY 4510
CEXINA	BE3-01
CV. CAKRAWALA CREATIVE	BR2-01
DATUMSTRUCT (CFS) PTE LTD	5F3-09
ETA2U	BE3-01
EXICOM TELE-SYSTEMS (SINGAPORE) PTE LTD	BM5-06
FPT CORPORATION	BM3-01
GLOBETEK INFOWAY	BD2-12
HELLOHOLO: MIXED REALITY SHOWCASE FT. ROBORAID	BD2-07
HOMEGRID FORUM	5B1-04
HP INC	5F2-07
INSTAREM PTE LTD	5K8-12
JSPOT EMC	BR2-01
KIORA MEDIA	5K8-07
LASER AND SOLARTECHNOLOGY COOPERATION LTD. (LSTECH CO.LTD)	BH4-09
LETEL GROUP	BF2-05
LUXOFT	BE3-01
METASWITCH	L3, CORAL OFFICE SPACE
MICROELECTRONICS CENTER OF INSTITUTTEKNOLOGI BANDUNG	BR2-01
MIND	BE3-01
MINISTRY OF BUSINESS ENVIRONMENT, COMMERCE AND ENTREPRENEURSHIP	BE3-01
MOBIFONE CORPORATION	BM3-01
MYASSET PTE LTD	5E4-09
OMIBIT	BE3-01
POINTWESTTECHONOLOGIES CORPORATION	BL3-07
PT QWORDS COMPANT INTERNATIONAL	BR2-01
PT. AYENA MANDIRI SINEMA	BR2-01
PT. DATA AKSARA MATRA	BR2-01
PT. DAYA SINERGI TEKNOMANDIRI	BR2-01
PT. DELAPAN SEBELAS INDONESIA (I-811)	BR2-01
PT. DUNIACATFISH KREATIF MEDIA	BR2-01
PT. INTERLINK TECHNOLOGY	BR2-01
PT. MEDIA ANTAR NUSA	BR2-01
PT. NOCOLA IOT SOLUTION	BR2-01
PT. PANGGUNG ELECTRIC CITRABUANA	BR2-01
PT. SUITMEDIA KREASI INDONESIA	BR2-01
PT. SYDECO	BR2-01
RALLYENGINE	BG2-01
SCTV	BM3-01
SENZO	5F3-12
SILICON SERVICE	BE3-01
SIMPLERCLOUD PTE LTD	5F3-06
SOFTTECH	BE3-01
SPRING VALLEYTECH CORP	BL3-07
TYKTECHNOLOGIES LTD	BF2-10
VIETNAM MULTIMEDIA CORPORATION	BM3-01
VIETNAM POSTS AND TELECOMMUNICATIONS GROUP (VNPT)	BM3-01
VIETTEL GROUP	BM3-01
WINNING-SOFT	BR2-01

The state of IoT in Asia-Pacific

Tan Wee Kwang

By 2019, 86% of organizations in Asia-Pacific will have some form of IoT in place, according to 'The Internet of Things: Today and Tomorrow' research report by Aruba.

While organizations adopt IoT to leverage the business benefits of enhanced efficiency and innovation across the enterprise, the study warns that connecting thousands of things to existing business networks will open up new se-

and easy to build upon. If you want to turn your IoT navigation system into a tool for helping business customers manage their fleets more efficient, or launch a new car sharing service, you probably can. IoT deployments seldom end: most users keep thinking up new ways to get value out of them."

How global organizations use the IoT

Aruba's research reveals varying levels of IoT maturity across different

based surveillance cameras for physical security within industrial organizations, but when asked about future implementations, surveillance jumped to 32%. Across the sector, 83% report increased business efficiency and another 80% find improved visibility across the organization.

3) Healthcare improves patient monitoring, reduces cost, and fosters innovation

An impressive 60% of healthcare organizations globally have introduced IoT devices into their facilities. Across the sector, 42% of executives rank monitoring and maintenance as the number one use of IoT—higher than all other sectors.

Eight in ten report an increase in innovation, and another 73% report cost savings.

4) Retailers boost sales using indoor location technology

While 49% of retailers use IoT technology, 81% of these report improved customer experiences. An improved customer experience is likely to have a significant impact on customer loyalty and ultimately, revenue.

In-store location services delivering personalized offers and product information to shoppers were listed as the number one implementation for IoT, followed by monitoring and maintenance. Four in ten retailers ranked surveillance in their top three key use-cases.

5) Governments lag in IoT adoption and struggle with legacy technology

The slowest sector to adopt IoT, only 42% of municipalities have deployed IoT devices and sensors. A third (35%) of IT decision makers claim their executives have little to no understanding of IoT—double the global average.

While nearly half (49%) of government IT departments are struggling with legacy technology, seven in ten IoT adopters in the public sector report cost savings and improved organizational visibility as the major benefits.

Obstacles to IoT adoption

Alongside these positive returns, a number of obstacles are preventing IoT from delivering greater business impact. Organizations in Asia-Pacific cited the cost of implementation (53%), cost of maintenance (52%), and difficulty integrating with legacy technologies (47%) as key issues.

Another challenge lies in the ability to effectively use data. While nearly all (98%) of organizations that have adopted IoT claim to be able to analyze data, the same majority admitted to challenges in creating value from this data. Over a third (35%) of organizations in Asia-Pacific are not extracting or analyzing data within corporate networks.

Secure all the 'things'

Most importantly, security flaws were found across many IoT deployments. The study found that 88% of organizations in Asia-Pacific have experienced at least one IoT-related security breach—the highest rate in the world. More than half of respondents declared that external attacks are a key barrier to

"IOT DEPLOYMENTS SELDOM END: MOST USERS KEEP THINKING UP NEW WAYS TO GET VALUE OUT OF THEM."
— IoT technologist Kevin Ashton

curity challenges, which has resulted in security breaches for a large majority of organizations in the region.

IoT deployments exceed expectations

Asia-Pacific organizations which invested in IoT deployments found that actual gains exceeded initial expectations. 35% of business leaders cited significant profit increases, a 20% increase from those who projected a large profit gain from their IoT investment (15%). While 39% of executives expected their IoT strategies to yield huge business efficiency improvements, actual results show that over half of those who implemented the tech (51%) experienced great business efficiency gains.

According to IoT technologist Kevin Ashton, who first coined the term "Internet of Things" in 1999: "First, the Internet of Things is not only a new way to gather facts but also a way to gather new facts. Most data that is gathered automatically is data that has never been gathered before. When an organization adopts the IoT, it gains knowledge where it was ignorant; moves from assumption to information; and understands new things."

"Second, IoT technologies, like the Internet itself, tend to be open, flexible,

industry sectors. The following five entities and vertical industries are leaders in their adoption of IoT and have realized tangible business benefits from a focused, use-case approach to adoption:

1) Enterprises create smart workplaces for productivity and efficiency

Over seven in ten (72%) enterprises have introduced IoT devices into the workplace. Indoor location-based services rank as the second most promising use-case to improve employee productivity, after remote monitoring. 20% report remote operation of building lighting and temperature as a key use-case, but that number more than doubles to 53% when asked about future IoT implementations. 78% say the introduction of IoT in the workplace has improved the effectiveness of their IT team, and 75% find it has increased profitability.

2) The industrial sector increases business efficiency and visibility

More than six in ten (62%) respondents in the industrial sector have already implemented IoT-based technologies. Using IoT to monitor and maintain essential industrial functions was identified as the most impactful use-case in the sector.

Only 6% of respondents use IP-

GOVERNMENTS LAG IN IOT ADOPTION AND STRUGGLE WITH LEGACY TECHNOLOGY

adopting an IoT strategy. This confirms that a holistic IoT security strategy—built on a strong network access control and policy management—will protect enterprises and simplify the security approach for IT.

"When developing an IoT strategy, security of the 'things' is even more important than security of the data," said Ashton. "This is a new way of thinking for most IT departments. The best and simplest way to address this is to select a technology partner with a track record of IoT security (not just data security) and hire separate and independent IoT hackers—then give them incentives to find your system's vulnerabilities." ◀

OVERNIGHT WIRE

SoftBank Vision Fund raises over \$93b in first major close

The Softbank Vision Fund has raised over \$93 billion in capital in its first major close. Major investors in the first close include SoftBank Group, the Public Investment Fund of the Kingdom of Saudi Arabia, Apple, Foxconn, Qualcomm and Sharp. The fund is targeting a total of \$100 billion in committed capital and expects to reach a final close within six months. SoftBank CEO Masayoshi Son said the fund will be used to make large-scale long-term investments aimed at supporting the next stage of the information revolution. It will acquire minority and majority stakes in businesses of all sizes working across a range of technology sectors including the IoT, AI, robotics, mobile applications and computing, next-generation communications infrastructure and cloud technologies.

Global chatbot market tipped to reach \$3.17b by 2021

The global chatbot or smart advisor market is on track to grow from \$703.3 million last year to \$3.17 billion by 2021, representing a CAGR of 35.2%, ReportsnReports has estimated. A study by the company found that growth is being driven by the strong need for companies to understand consumer behavior, as well as growing adoption of cloud technology and intelligent customer engagement solutions. Asia-Pacific is expected to lead the world by adoption. The websites segment will lead the market by usage throughout the forecast period, but the mobile platform segment is expected to grow at the highest CAGR due to growing smartphone and BYOD adoption.

IBM to provide iPad apps for Singapore Airlines pilots

IBM has secured a contract to provide MobileFirst for iOS apps for the Singapore Airlines Group. The company will provide the Fly Now and Roster for iPad apps to help equip pilots on Singapore Airlines flights with relevant information and flight-related updates. The airline will be able to digitize previously manual processes, enhancing pilot productivity by expediting mandatory pre-flight to post-flight operations. Fly Now provides a single real-time hub for flight-related information including flight plans, information on specific aircraft and access to technical reports. Roster will meanwhile give pilots a 60-day view of flights assigned and provide alert-based tracking of the status of visas, passports and flying certifications.

NTT Com powering LINE-based AI chatbot for SMFG

NTT Communications and Accenture Japan have helped develop a LINE-based AI chatbot for the Sumitomo Mitsui Financial Group (SMFG). The SMBC Nikko Securities Contact Center will launch the new chatbot on Thursday. It will be capable of understanding customer input on LINE Talk and automatically providing an appropriate response, including guidance on ways to open accounts and guidance for participation in IPOs. In the future, the chatbot will be used to provide customer support after hours and during holidays, and to cover more topics such as share price inquiries. The services uses an NTT Com AI engine known as COTOHA, which is capable of mimicking human dialog for an enhanced customer experience.

IoT devices pose security threat in Hong Kong

Nancy Ho

According to a Hong Kong Security Watch Report released by Hong Kong Computer Emergency Response Team Coordination Centre (HKCERT) earlier this year, 4,656 botnet security events occurred in the fourth quarter of 2016, up 77% from Q3 2017. The top botnet was Mirai, accounting for 41% of the total number of botnet events.

Mirai malware targeted IoT devices like IP cameras and home routers. The infected IoT devices formed a botnet that had launched a massive distributed denial of service (DDoS) attack on major websites globally. 100,000 IoT devices were compromised by Mirai.

According to HKCERT, Mirai infected around 2,000 connected devices in Hong Kong from October 2016 until April 2017.

Weak devices pwned, slaved to botnet

The infected devices included IP cameras and digital video recorders that are vulnerable to cyber attacks. Many of those devices were not patched, and equipped only with weak passwords that can be cracked easily.

HKCERT views IoT hacking as one of the potential cybercrime threat trends in 2017. "IoT devices can be a jumping board for leaking user passwords or breaching other devices," said HKCERT consultant Wally Wong at a "Build a Secure Cyberspace" seminar in Hong

Kong in April. "Cybercriminals can control them to attack corporate or home networks."

Speaking at the same seminar, Dicky Wong of the Cyber Security and Technology Crime Bureau (CSTCB) of the Hong Kong Police Force concurred.

"Though we did not receive IoT incident reports so far, we see it as a potential threat in Hong Kong," said Wong, detective senior inspector of police, CSTCB. "As [the] IoT is one of the elements in the [Hong Kong] government's smart city blueprint, IoT devices may be a potential target for hackers."

Bake in security to beat the bad guys

To minimize the risk of IoT devices being hacked, security experts believe IoT devices must be protected at their design stage by adopting international security evaluation standards and the application of an IoT security framework.

"It's better to involve the designers, engineers and users and maybe regulators if appropriate," said HKCERT's Wong. "Products should be shipped with security by default."

Before purchasing an IoT device, users have to understand whether the device's admin password can be changed, security patches can be updated and data transfer will be encrypted. ◀



COMMUNICASIA2017 SUMMIT

Highlights for Day One: Tuesday, May 23

Morning Plenary | 8.00am – 10.40am**Level 4, Orchid 4202**

- 8.00 Registration
- 8.50 Chairman's Welcome Address – Tony Poulos, Founder, DisruptiveAsia
- 9.00 Opening Keynote: Time to Design your 5G Future
Industry digitalization investments are growing and generating revenue for ICT players worth an estimated USD 3.3 trillion by 2026. 5G has the potential to deliver unparalleled benefits to society and businesses. Ericsson and Singtel will share industry developments, use cases and the key steps to advance the road to 5G.
Joint Presenters:
Tay Yeow Lian, Managing Director - Networks, Singtel
Dr. Magnus Ewerbring, Chief Technology Officer, Ericsson Asia-Pacific
The Growing Importance of Cloud in ICT: Opportunities and Challenges in Asian Emerging Markets
- 9.30 • Greater business opportunities brought about by well-established mobile networks
• Prevalence of broadband and its convergence into other technologies at an unprecedented rate (for e.g. smart cities (Indonesia) / coinless nations (India) made possible by internet connectivity)
• Increasing cloud services infrastructure resulting in media content and commerce as key drivers in emerging markets
Jerry Chung, Head of Southeast Asia & Pacific, CDNetworks
- 10.00 Thought Leaders Panel: Diversifying Your Business Model Through Creative Partnerships, Strategic Collaborations, and Disruptive Innovations
• Improving network capabilities to support different qualities of content delivery experience, seeking more valuable and applied service packages with suitable marketing models
• How the changing landscape of telco industry will open up new partnerships and collaboration
• Spectrum and connectivity planning to compete sustainably in the IoT world
• How to hop onto new businesses such as (mobile money, OTT)? What are the relevant and commercially viable diversification strategies to apply?
Panellists:
Magnus Ewerbring, CTO (APAC), Ericsson
Kireeti Kompella, CTO- JDI, Juniper Networks
Mike van den Bergh, CMO, PCCW Global
Rohit Talwar, Futurist, CEO of Fast Future
Helen Wong, Director, Partner & Product Strategy Asia Pacific, Verizon
Bryan Tan, Infrastructure Partnership APAC, Facebook
Moderator: Tony Poulos, Founder, DisruptiveAsia

BROADBAND – New Business Models for Telecoms**Level 4, Melati 4103**

- 10.50 Chairman's Welcome Address – Gary Kim, Founder, Spectrum Futures
Leapfrogging into the Digital Business – Crafting Services that Matters to the New Age Connected User
• Ascertaining your digital roadmap on how to rethink customer experience, disrupt business models and expand unknown territories
• Integrating customer-facing activities with data analytics and business intelligence to deliver and match the advancing customer demands
• Implementing a more agile approach to the development of new technologies to continuously adapt to telco's evolving business requirements
Panellists:
Wing Lee, CEO, YTL Communications Sdn Bhd
Joachim Horn, Chief Technology and Information Advisor, PLDT
Sundi Balu, CIO, Global Enterprise & Services and International, Telstra
Mahmoud Dasser, VP, Partnership and Marketing, VADS (Part of TM Group)
Donald Chan, International Director, Circles.Life
Ivan Landen, Chief Wireless Officer, Blue Wireless
Moderator: Mohit Gidwani, Principal - Telecom, Media and Technology, Roland Berger
- 11.50 A Nationwide 4G Leapfrog – Learning is Anywhere, Anytime
• How YTL has built a nationwide all-IP 4G network to drive country level digital transformation and leapfrog in Malaysia
• Deploying the first nationwide LTE network with VoLTE using deepest 4G spectrum capacity with 80MHz
• Showcasing the largest digital cloud infrastructure to support learning transformation for all public schools
Wing Lee, CEO, YTL Communications Sdn Bhd
- 1.30 Will 2017 Be Another Breakthrough Year for Wi-Fi Technology?
• How to achieve the potential of future wireless technology?
• Supporting network densification and content consumption as users weave social, mixed reality and mobility
• Making Wi-Fi technology sustainable and affordable - addressing operator's needs to deliver comprehensive solutions at reduced operational costs
Jon Walkenhorst, CTO - Connected Home, Technicolor
- 2.00 Reshaping Your Business on Cloud Market Insight
• Understanding the current challenges for telcos, such as decreasing revenue, yet increasing demand for more CAPEX spending in 4G services.
• Transforming your business on cloud: How telco wear both hats?

- Telco as a user: Comparative analysis of BES cloud vs traditional cloud
- Telco as a Cloud Service Provider: GTM and product positioning
- Defining new innovative business models such as SaaS for internal and external customers
• Lessons learnt from Huawei use cases and its critical success criteria
Richard Im, Director, Business Technology Consulting, Huawei South Pacific
- 2.30 Revolutionising Indosat Ooredoo's Operational Efficiency: What A "Network Operation" Should Look Like?
• Recollecting the Indosat Ooredoo's experience from 80+ million subscribership in 2016 -What are the key findings and gaps to be considered?
• Re-evaluation of core business of telcos today as it has now become a legacy and needs refreshed strategies
• Anticipating and adopting changing trends in business models, market expansion and VAS development for the connected future
Achmad Abimanyu, Group Head Network Operation, Indosat Ooredoo
- 3.20 Beyond Maturing: A Collaborative Approach for the Japan FTTH Market
• Growth and market trends, stagnation but what's next?
• Boosting consumer market penetration with the "Collaboration Model"
• Crafting various network services to meet the emerging demands of industries, and corporate customers
• Strengthening FTTH provision to encourage stronger partnerships with mobile operator and wifi providers
Eiichi Sato, Division General Manager, NTT East Japan
- 3.50 Launching Asia's First Fully Digital Telco
• Designing the digital offering and platform
• Delivering a full end-to-end digital experience to customers from acquisition, onboarding, engagement and retention
• Operating a fully digital cloud-based operations
Donald Chan, International Director, Circles.Life
- 4.20 Fiber Network Enlightening the Digital Life
• Enhancing fiber infrastructure as the foundation towards the future
• Reducing costs with infrastructure synergy for accelerated deployment
• Shortening ROI with one-time fiber planning for multi-service
Johnny Zhang, Director of Fixed Broadband Business Strategy and Network Construction, Huawei Southern Pacific
- 4.50 Optical Fiber Infrastructure for Combined Business, Residential, Base Stations, and IoT Apps
• Reliable and secure Fiber communication network plays important role for a city developing from Standard to Smart
• The FTTH network is capable to provide unlimited super-fast internet access and would play a crucial in delivering future proof smart IoT services to all sectors of society
• All possible wireless technologies can easily be integrated with FTTH and has capability to transport large volume of data from each corner of city including mobile objects
Dr. Arvind Mishra, Vice President, FTTH Council Asia-Pacific

SECURITY OF THINGS – Threat-proofing the Future with Agility and Resilience**Level 4, Orchid 4205**

- 10.50 Chairman's Welcome Address – Dr Lua Eng Keong, Adjunct Professor of Information Systems, National University of Singapore (NUS)
- 11.00 Singapore's Cyber Threat Landscape
The always-evolving cyber threat landscape compounds the challenge for all cyber security professionals tasked to protect their organisations and even nations. This presentation will cover the cyber threats Singapore faces, and outlines the national effort by the Cyber Security Agency of Singapore in safeguarding the country against such threats.
Ho Ka Wei, Director - National Cyber Threat Analysis Centre, Cyber Security Agency of Singapore
- 11.30 The Contribution of the UNGGE to Global Cyber Security
Mohamed Abulkheir, Ambassador, Egyptian Embassy of Singapore
- 12.00 Thwarting Attackers: Defending Against Growing Security Sophistication while Managing Complexity
Every day business networks face new threats from cybersecurity attacks intended to compromise valuable information. The Asia Pacific Region is a key piece of the threat landscape because of its massive infrastructure, growing population and presence of high-profile attacks. Technology vendors are continually introducing new niche products to limit unauthorized access and protect the confidentiality, integrity, and availability of data—but more solutions can create more complexity and costs. Organizations face the challenge of increasing their IT security budgets and headcounts so they can acquire, deploy and manage these new products. In this presentation, attendees will learn:
• Managing evolving threats with a network-based and tiered solutions approach, reducing overall costs and complexity
• Adhering to regulatory and industry compliance standards
• Managing headcount and budgets when evaluating new security and threat intelligence solutions
Ricky Chau, Vice President Asia Pacific, Level 3 Communications

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- 1.30 Current Threats, Appropriate Defenses for Now and the Future: Lessons Learned from Japan, APEC, EU, North and South America
- Sharing analytics of data monitored and analysed in the Cyber Security Trend Annual Report (CSTAR)
 - Leveraging on NRIS Secure Technologies and Information Security Report, this report will target targeting information security or information systems of over 3000 listed companies globally
- Eiji Fukushima, Division Head – Business Development, Nomura Research Institute
- 2.00 Liquid Defence™ – The Evolution of Cyber Defence
- Digitisation, deep learning AI and enhanced IoT has created new security vulnerabilities for contemporary cyber criminals to exploit. Hear how this revolutionary self-healing and self-optimising solution, uses asymmetrically defending strategy to protect organisations from the increasingly unpredictable cyber threats and how the original method of Continuous Monitoring can be enhanced to empower Security Automation, Continuous Auditing and Security Intelligence sharing.
- Professor Yu Chien Siang, Chief Innovation Officer, Certis Group
- 2.30 Detecting Compromised IoT Devices
- How IoT devices can be identified in the network flow traffic of an organization
 - Detecting compromised IoT devices based on their abnormal network traffic behaviour
- Professor Yuval Elovici, Research Director of iTrust, SUTD
- 3.20 Scaling the Data Mountain Without Putting Privacy at Risk
- How companies should improve their thinking and approach to managing both data and devices across their entire lifecycle
 - How and why data erasure, coupled with data retention policies, can help minimize security risks and prevent unnecessary data loss
 - How a robust data governance program can ensure compliance with data protection laws and industry guidelines, such as EU GDPR, PCI DSS, HIPAA, ISO and NIST
- Masayuki Morita, Managing Director - APAC, Blancco Technology Group
- 3.50 Rethinking Security in the IoT Era
- We need to re-think at how we look at security in the IoT era where there will be potentially more vulnerabilities due to the massive number of devices expected to be online
 - There will be privacy issues with increased centralization of data and growing diversity of non-human agents
 - A collaborative security approach should be taken to preserve opportunities promised by the IoT era and build confidence in systems, applications, services and networks
- Rajnish Singh, Regional Director for Asia-Pacific, The Internet Society

SATCOMM – Empowering Satellite: Connecting Unlimited Possibilities
Level 4, Orchid 4204

- 10.55 Chairman's Welcome Address – Kevin French, Publisher, talkSatellite
- Welcome Address: Empowering Satellite: Connecting Unlimited Possibilities
- Dr. Seong Joong Kim, Executive Director, APSCC
- 11.05 Growing the VSAT Potential: Deep-diving on Cellular Backhaul Capabilities
- Setting the tone: The Shifting mind set of operators and visions for cellular backhauling in 2017
 - Harnessing VSAT's technology and capabilities as essential integrator for greater market growth and expansion
 - Monetising from emergence of new LEO/MEO constellations and affordable space segment cost, cellular backhauling as part of go-to-market strategy
- Stephane Palomba, VP Global Cellular Services, Speedcast
- 11.45 Satellite C-Suite Forum: Keeping the Promise of HTS and its Commercial Value
- Identifying key commercial attributes and business models to gain a stronger industry foothold
 - Is HTS what it promises to be? Learning from success stories and identifying pitfalls of HTS deployments
 - Cost-effectively expand cellular backhaul and enterprise networks with HTS
 - Enabling operators to enhance the reach and power of their networks and provide benefits to the end users
- Panelists:
- Patompob (Nile) Suwansiri, Chief Commercial Officer, Thaicom
- Elias Zaccack, Executive Vice President, Global Sales, SES Networks
- Thomas Choi, Chief Executive Officer, ABS
- Thomas Van den Driessche, CEO, Newtec
- Andrew Jordan, CEO, AsiaSat
- Terry Bleakley, Regional Vice President APAC Sales, Intelsat
- Moderator: Jose Del Rosario, Research Director, NSR
- 1.30 Uncovering the LEO-GEO Link - Commercialisation of the 78-Satellite Constellation
- Delivering secure broadband links to corporate and global networks
 - Harnessing the efficiency of Ka-band broadband with low-latency, and high-speed secured links
 - Serving applications that are highly secure without traveling over third-party networks
 - Discovering the commercial capabilities and operational efficiencies of LEO Satellite
- Mark Rigolle, Chief Executive Officer, LEOSAT
- 2.00 Inflight – Always On, Thanks to Satellite Technology: The Future of Inflight Connectiv-

ity

- Summary of market and key developments & trends - regionally, focus on APAC
 - Current trends in airline requirements for IFC services
 - Maximising the 'digitisation economy' for inflight
 - Expected key trends for IFC in APAC region
 - EUTELSAT 172B satellite is a unique solution for IFC and live TV in APAC region
 - What the future of the 'connected travel experience' may look like
- Jags Burhm, Senior Vice President, Aero Global Mobility, Eutelsat
- 2.15 Satellite Services for Maritime Sector: Market Outlook, Opportunities and Challenges Ahead
- This session will cover the prospects of the Indonesia's maritime industry, why its purchasing power remains at an all-time low. It will also discuss why there is a crucial need for Patrakom to strategise in this game i.e. to formulate creative business models, using new technologies and how to secure the right financial support.
- Endi Fitri Herlianto, Business Director, Patrakom
- 2.30 Seizing Growth Opportunities in IoT and M2M Market – How will this Revamp the Role of the Satellite Industry?
- Harvesting economies of scale from IoT and 5G networks by increasing accessibility to satellite services with complementary technologies and hybrid solutions
 - Dissecting the key benefits that SDN/NFV technologies and how it can bring into satellite communications towards 5G evolution
 - Positioning SDN/NFV as central technology enablers – Innovating enterprise agility using satellite network and advanced network resources management techniques.
- Panelists:
- Tim Last, Vice President & GM, IoT Line of Business, Iridium
- Tim Bailey, Executive Vice President, Products, Marketing, & Business Development, SpeedCast
- Ramesh Ramaswamy, SVP and GM - International Division, Hughes Network System
- Erwin Schmidt, Director of Sales Engineering, Globecom Systems
- Moderator: David Hartshorn, Secretary General, GVF
- 3.30 A Reimagined Take Off: Aeronautical Satellite Applications and its Ongoing Evolution
- Monetising from satellite applications and inflight connectivity: Differentiating between freemium against pay-as-you-use business models
 - Servicing aeronautical demand for satellite applications in aircraft operations with readily available technology, support and capabilities
 - Understanding key drivers related to security, accessibility and ease of use when installing in-flight entertainment platform
- David Bruner, Vice President of Global Communications Services, Panasonic Avionics
- 4.00 How is IP and Hybrid Networks Changing the Satellite Industry of Tomorrow?
- How will content delivery network evolve over time?
 - Where are the key areas and industries for future investments and growth?
 - Tackling growing customer expectations in VoD with more aggressive business models to attract and retain customers
- Panelists:
- Ramesh Ramaswamy, SVP and GM - International Division, Hughes Network System
- Todd McDonnell, VP – Global Government Solutions, Inmarsat
- Itzik Wulkan, Chief Executive Officer, NovelSat
- Paul Sheridan, Vice President, Optus Satellite
- Moderator: Blaine V Curcio, Principal Analyst, Northern Sky Research (NSR)

SMART CITIES – Transforming Future City Livelihood and Sustainability
Level 5, Sands Ballroom 5101

- 10.55 Chairman's Welcome Address – Scott Dunn, Vice President, Growth & Strategy (Southeast Asia), AECOM
- Moving Towards a Sustainable Holistic Vision: What It Takes to Make a Smart City?
- Encapsulating the government's vision in shaping a smart city
 - Managing the uphill challenge - What are the building blocks of smart cities?
 - Smart city is NOT a destination! It's all about connecting all things in the urbanised ecosystem
- Panelists:
- Dr Er. Johnny Wong, Group Director, Building & Research Institute (BRI), Housing & Development Board (HDB)
- Prof Agachai Sumalee, Director - Smart City Research Center, King Mongkut's Institute of Technology Ladkrabang
- Craig Price, Senior Vice President, International Projects – HKT Global Development Services, PCCW Global
- Steffen Endler, SVP - Strategy & Business Excellence for South-East Asia, Siemens
- Moderator: Rohit Talwar, Futurist, CEO of Fast Future
- 11.40 Living in An Intelligent and Connected World of Smart Cities
- The Evolution of cities and Why smart cities are the need of the hour?
 - Potential opportunities and key applications
 - Enabling Technologies and major programs supported by ST
- Vishal Goyal, Senior Technical Marketing Manager (ASEAN, ANZ, and India), STMicroelectronics
- 12.10 The Stages of Becoming a Smart City
- What are the challenges in developing it?
 - Developing the right resource planning for city development

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- Considering the structural and safety implications of city planning
Carl Piva, VP Strategic Programs, TM Forum
- 1.40 PPP Panel: Plugging in the Right Financing Model to Support City Development and Infrastructure
 - Strengthening technical capacities and internal organisation to ensure a balanced partnership
 - Developing a feasible and sustainable financing model for city development and improvement
 - Drawing the difference between funding in Asia versus globally
 - Managing governance challenges in planning regulations, policy financing policies and legal issue when driving smart cities initiatives
 Panellists:
 Marie Lam-Frendo, Associate Director, PPP Advisory, Atkins Acuity
 Nonito Bernado, Co-lead - Urban Sector (Asia-Pacific), International Finance Corporation (IFC)
 Walter Fang, President of Corporate Marketing and Strategic Alliance, iSoftStone
 Jenny Koh, Regional Director Asia, GuarantCo
 Moderator: Allard M Nooy, CEO, InfraCo Asia
- 2.10 Fostering a Culture of Data Sharing and Analytics in the Interconnected City
 - Unlocking the power of open data platform: Deploying and interoperate services from smart cities
 - Deploying smart sensor networks: Harvesting accumulated data for various beneficial application domains
 - Maximising big data for effective analysis and utilisation within urbanising and developing nodes
 Daniel Teo, Director (Smart Nation Sensor Platform Programme Office), GovTech Singapore
- 2.40 Realising Iskandar Malaysia's Vision through a Smart City Framework
 - What is Iskandar Malaysia's Smart City Framework all about
 - Piecing building blocks of the Smart City Framework in support of the Iskandar Malaysia vision
 - Showcasing key smart city projects and challenges to learn from
 Maimunah Jaffar, Head, Planning & Compliance, Iskandar Regional Development Authority
- 3.30 Intelligence in Aggregate: Engaging Citizen Participation for Successful Smart Cities
 - Choosing the right technologies to enable civic participation in smart cities programs
 - Interaction design patterns for public digital experiences
 - Engaging citizens with augmented reality, IoT and other emerging technologies
 Dietrich Ayala, Developer Evangelist, Mozilla Corporation
- 4.00 Challenges of Building Smart Cities in Developing Countries: Strategies in India

Major challenges are mobilizing and channelizing of large finance through public-private-partnership, need of up-grading the existing infrastructure to meet 24x7 demand and regular moving of rural poor people to urban areas in search of jobs. Some of the main strategies in India while building smart cities are promoting opportunity and liveability for the citizens, stopping wastages and leakage in government services, use of latest technology to improve city services and promoting solar energy.

 Narinder Chhibber, Secretary General, Pacific Telecommunications Council India Foundation
- 4.30 Home Mesh - The Next Step in Home Networking
 - How can Home Mesh help increase efficiency within a Smart Home? How can we connect smart devices and systems that are of benefit to everyone? How do we ensure consumers and businesses alike benefit?
 - Maximising existing infrastructure to support the ever-increasing demand for reliable, secure, and high-performance connectivity
 - Showcasing the G.hn. – our future backbone infrastructure needs, capable of extending Wi-Fi coverage and performance throughout homes, businesses, and MDU's, which can support the ultimate in-home broadband experience
 - Creating a true hybrid network over any available medium – Extending connectivity than further before towards next generation home networking
 Yuqing Niu, Chair - Marketing Work Group Asia, HomeGrid Forum
 Chen Wei, Vice President, Zowee Technologies Co Ltd
- 5.00 Hyper Connectivity, Digital Natives & The Smarter City

As cities get smarter, they recognize one fact of life right away: any traditional networking technology isn't going to cut it. Smart City applications demand a wireless network that can deal with tough issues in outdoor and indoor environments. One that can securely communicate with thousands of different devices and sensors—smart and dumb alike—simultaneously. One that delivers superior performance for user, even in high-density areas. One that enables new services to enhance the citizen experience! Ruckus Wireless will take you on a journey of real world smart cities talking through the services, the application, the infrastructure and the monetization models that are powering these cities.

 Vasudevan Venkatakrishnan, Business Development Director SP & Special Projects, Asia Pacific, Ruckus Wireless
- Cloud Computing Association
A Bold New IoT Conversation
 - Realising the full potential of artificial intelligence through automated translation and functional integration
 - Demanding Amazon Alexa-like capabilities for enterprise, industrial and commercial applications
 - Accelerating future productivity with IoT as interactions become more conversational and context becomes king
 Jim Hunter, Chief Scientist & Technology Evangelist, Greenwave Systems
- 11.30 Self-Driving Networks: A Vision for the Next Generation of Network Operations
 - How can the lessons learned from self-driving cars be applied to net working?
 - What are the key technologies that enable self-driving networks?
 - How can AI (ML) be effectively used in networks, and what benefits can we expect?
 - How can we possibly operate, scale and secure IoT networks?
 Kireeti Kompella, CTO- JDI , Juniper Networks
- 12.00 Leadership Digitalisation with Scania and Telenor: The Heavy Vehicle Manufacturer Transformation into a Global Sustainable Transport Solution Provider

Scania has for many years worked with digitalisation and is seen as a global leader in adopting digitalisation in their business. In this session they will share their journey up until now, newly released services and the vision for the future.

 - Understanding the fundamentals in deploying global digital solutions, also learn more about Scania One (an open platform for vehicular communications/IoT) and autonomous vehicles
 - Exploring other transportation developments, and the transformation happening to the digital eco system, emerging business models and the challenges associated with realising global transportation solution opportunities
 Joint Speakers:
 Mark Cameron, Regional Director - South Malaysia & Singapore Country Manager, Scania
 Mikael Lindholm, Vice President - IoT, Telenor Group IoT
- 1.45 Advancing with Energy Digitalisation: Uncovering Big Data, Automation and its Benefits
 - Optimized planning and operations of energy networks in cities
 - Metering and demand response solutions
 - Intelligent buildings and energy efficiency
 - Community energy systems and future business models
 Edwin Lerch, Head of System Dynamics, Siemens AG
- 2.15 Strategic Mobility Showcase: Business and Nation Building Transformation with IoT in Asia Pacific
 - What are the opportunities within the IoT ecosystem
 - How organisations can leverage mobile connected technologies to create a strategic path to IoT
 - How IoT devices for automation “supports” the triple bottom line
 Joint Presenters:
 Noriyasu Yamada, Executive Officer and Chief Product Planning Officer, SATO Holdings Corporation
 Adele Beachley, Managing Director Asia Pacific, SOTI Inc
- 3.30 Security – A Missing Link for Connected Devices

Security in IoT products and services cannot be ignored and will apply to all elements of the solution as well as all stages of connected devices' life cycle. Choosing the right security solution is dependent on the evolution of security features and services in the solution's device, connectivity, and cloud technologies. This session will provide:

 - A holistic view of the IoT security market, including a snapshot of the threat environment
 - A review of security at each point in the value chain
 - Key partner considerations
 Steve Christian, SVP - Marketing, Verimatrix
- 4.00 Insecurity of Things: Legal Implications for Telecommunications, Healthcare and Retail

The World Economic Forum's Global Risks Report 2016 highlighted the Internet of Things as a global trend that brings growing cyber risks. The increased connections and cyber dependency, by and between people and machines, create an insecurity of things and challenge traditional notions of privacy. Interconnected consequences ranging from cyber security breaches to privacy violations can translate into legal liabilities and damage reputation. In this session, we will explore:-

 - Legal and regulatory issues in cyber security and data protection
 - Recent cases in telecommunications, healthcare and retail
 - Developments in Singapore and the region
 Jack Ow, Partner - Intellectual Property & Technology, RHTLaw Taylor Wessing LLP
- 4.30 Smart City IoT: Plotting a path to realizing IoT Benefits for Aged and Health Care Communities
 - IoT & Healthcare – Ecosystem Complexity & Emerging Trends
 - Technology Imperatives underpinning the Healthcare Services Value Chain
 - Simplifying Healthcare Services Convergence for Future Smart Cities
 John Gehman, Consulting Manager – APAC, ibb Consulting Group