# TELECOM Review

ASIA PACIFIC

THE TELECOM INDUSTRY'S MEDIA PLATFORM

ASIA SPECIAL EDITION 2018 -S87


telecomreviewasia.com


# China, Japan and South Korea leading the way for 5G commercialization

**"The wholesale carrier industry needs to develop standards for the use of blockchain"** – Carol Wan, PCCW Global

**"Cloud Computing empowers digital transformation"** – Patrick Low, Huawei

**Did China 'trump' the US in trade talks?**


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Provided in cooperation with AFP, the global news agency

**Published by**
TRACE MEDIA Ltd.
www.tracemedia.info

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**Printing**
UPP - United Printing & Publishing



**- S87 -**

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# Artificial Intelligence: is it real or just a hype?

Starting 2017, Artificial Intelligence (AI) was everywhere! New technologies driven by AI have emerged and most of the new devices, cameras or sensors are now equipped with AI features.

Artificial intelligence existed a long time ago in every R&D, laboratory and business development master plan of the largest Hi-tech companies, otherwise, it wouldn't have reached its current level of advancement. However, it was only recently that it became a recurrent topic.

This technology had become a marketing tool used by many companies and has contributed to boosting the conference businesses by creating hype over topics such as blockchain or 5G.

Going deeper into this technology, here are some examples of what the AI world is bringing:

Artificial Intelligence is allowing computers to be smarter and predict human behavior. In the case of autonomous cars, before AI, smart sensors weren't able to recognize which obstacle to avoid in case of an accident! Now thanks to AI, cars are programmed to avoid hitting pedestrians when faced with a choice of either hitting pedestrians or another car.

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# China, Japan and South Korea leading the way for 5G commercialization

**The global momentum towards the development and subsequent deployment of next-generation technology continues to gather pace. However, it's in Asia where most of the significant groundwork has been made in an effort to pave the way for the emergence of 5G.**

Whilst it's clear that the race to deploy 5G technology is much of a global effort, there can be no disputing the fact that the race to become the first nation in the world to commercially launch 5G network services is between China, South Korea, Japan and the United States.

Japan, China and South Korea have entered into discussions in a bid to find the best practices and ways to cooperate on 5G. Communication ministers from Japan, China and South Korea all recently met at a special summit in Tokyo – and it has been disclosed that the three countries have all universally agreed to work together as part of a coherent approach to foster the development of 5G networks.

Japan's Communication Minister Seiko Noda said, "Our 3 countries should maximize the use of information and communication technology to build a more open global economy. It's

also important for us to cooperate to guarantee ICT security."

In this feature, we'll attempt to examine the technological advancements in relation to the next-generation technology that have already been made by the countries aforementioned on an individual basis, in an effort to determine which country is best placed to win the race for 5G commercialization.

South Korea
South Korea boasts the fastest internet in the world. However, the country's progressive government and people are technology-obsessed and aren't satisfied with having the fastest internet connectivity speeds in the world. The country wants to become a global leader in 5G and is determined to become the first nation in the world to commercially deploy the technology which is being tipped to completely revolutionize the world as we know it.

South Korea has undergone a dramatic transformation in recent decades. Once considered a rice republic, it has now emerged as a global technological and economic heavyweight. South Korea's position as a global leader in technological advancements was reiterated further this year when 5G made its global debut at the 2018 Winter Olympics.

It used the Winter Olympics as a testing platform, as part of its overall objective which is to ultimately progress its 5th generation wireless telecommunications. South Korean telecommunications colossus KT Corporation offered spectators a '5G experience' at the games, by providing them with the opportunity to watch live events in HD video with a 5G equipped table or VR headset.

Spectators were able to watch the events in real-time - there was a delay of one millisecond, but that is much too short for a human to notice. It enabled spectators to view a bobsled hurtling down a track at thunderous speeds through an athlete's head cam, which makes the spectator feel like they're in the bobsled.

South Korea's telecommunications operators supported by the government have decided to collaborate on a single nationwide 5G infrastructure according to widespread reports. It has been claimed that a collaboration effort between all mobile operators would save the major players an estimated $938m over a ten-year period.

The objective of this is to ultimately facilitate South Korea's primary goal which is to lead the Fourth Industrial Revolution and support the early commercialization of 5G technology. South Korea is undoubtedly well positioned to become a global leader in relation to 5G. This has been evidenced further by the fact it has recently surpassed the United States in a new study on 5G readiness.

South Korea still trails China in relation to 5G readiness, but it is clearly closing the gap on China for a combination of factors. One of the factors is the role of its progressive and supportive government in relation to spectrum allocation and regulation, and the other is the uniformed approach by the country's operators to collaborate to construct a single nationwide 5G infrastructure. The synergy of these factors could help South Korea lead the way in 5G commercialization.

Japan
Japan is currently preparing to host the Olympic Games in 2020, which is one of the biggest sporting events in the world. Millions are expected to descend on Tokyo throughout the event which lasts from July 24th to August 9th.

One key aspect of its preparation for the Olympic Games in 2020 centers on the adoption of 5G technology. Japan is hoping to use the games as the perfect opportunity to showcase its prowess and leadership in the commercialization of the next-generation wireless technology.

Japan's telecommunications operators have been embarking on a number of 5G trials. NTT DoCoMo has conducted several with Chinese vendor Huawei. The two conglomerates recently announced they had agreed to collaborate with Tobu Railway on the testing of a 5G millimeter wave system at Tokyo Sky-Tree Town.

These 5G trials have been endorsed, advocated and heavily supported by Japan's Ministry of Internal Affairs and Communications (MIC) who are confident that 5G networks can be commercially deployed in time for the Olympic Games in two years.

Representatives of both NTT DoCoMo and Huawei said the trial was conducted with the main aim of researching technical conditions to use the 28 GHz band and other candidate spectrum for 5G in dense urban areas. Both companies completed a successful joint field trial for 5G mobile communications over a long distance using the 39 GHZ mmWave band in Yokohama.

However, NTT's rival SoftBank is also prominent in relation to 5G activity and is desperate to secure its footing in its effort to propel Japan's push for next-generation technology deployments. The Japanese telecommunications operator has also entered into a partnership agreement with Huawei in an effort to demonstrate potential 5G use cases for its enterprise partners.
Meanwhile, rival operator SoftBank is also very active in the 5G field. The Japanese telco has recently inked a partnership with Huawei to demonstrate potential 5G use cases for its enterprise partners. A demonstration included real-time UHD video transmission using ultra-high throughput, remote control of a robotic arm using ultra-low latency transmission and remote rendering via a GPU server using edge computing. The real-time UHD video transmission demonstrated throughput of over 800 Mbps.

In 2017, SoftBank had also worked with ZTE and Wireless City Planning to verify 24-stream space division multiplexing technology by using pre-standard 5G TDD massive multiple-input multiple-output technology on a commercial network in Nagasaki, Japan.

SoftBank has been also working with Ericsson in the execution of 5G trials in Japan. In September 2017, the two companies had announced plans to conduct a joint trial of 5G in the 4.5 GHz band in urban areas of Tokyo. This 5G trial included two new radios, virtualized radio access network and evolved packet core RAN, beamforming, massive MIMO functionality and support services.

SoftBank said it is planning various experiments to study 5G technologies and aims to launch 5G commercial services around 2020.

Japan will continue to focus its resources and efforts on the implementation of 5G services. However, the rigid 2020 timeframe for the Olympic Games means that China, South Korea and the United States have all made gains. Japan will undoubtedly become a major 5G player, although it remains likely that either, South Korea, China or the US will beat them in relation to the network commercialization of 5G.

China
China is an economic and global superpower across all industries and is being tipped to eventually overcome the United States as having the largest economy in the entire world. According to a number of recently conducted studies, China is also winning the race to deploy 5G technology, and if it does pip the United States to network commercialization of the next-generation technology then that will be very significant.

Qualcomm's CEO, Steve Mollenkopf, declared that he firmly believed 5G will have a revolutionary societal impact, and compared its emergence to the introduction of electricity. That statement highlighted the consensus amongst the industry that 5G is going to be nothing like anything we had experienced before. It couldn't be compared to 2G, 3G or 4G. 5G will transform lives, so getting a foothold in relation to its commercialization is critical – and China is acutely aware that if it can emerge as the global leader of 5G by gaining that foothold, then it will inevitably become home to the world's largest economy.

The Chinese government has been aggressive and robust in its push to develop its 5G industry, naturally it has favored its own companies such as Huawei and ZTE - which both make equipment necessary for the technology to work.

However, China's 5G efforts were almost derailed following an escalation in trade tensions between China and the United States. The Trump administration had said that the existing trade agreements and practices currently in place between the two countries was unfair. The US President declared that the United States had to get tougher on its trade deal with its Chinese counterparts.

In addition to this, a number of high profile and prominent Republican congressman tabled legislation which prohibited any US government departments from using telecoms equipment manufactured and supplied by either Huawei or ZTE. The Republican congressman believed that both companies were a severe risk to national security, claiming both telecommunication vendors had engaged in espionage against the US government, by allowing the Chinese government to spy on the United States using devices manufactured by ZTE and Huawei.

Representatives of both ZTE and Huawei vehemently denied and refuted the allegation being aimed at them by the US intelligence community. Tensions between the two nations deteriorated further following the decision by the US Department of Commerce to impose an exports ban which would prohibit US companies from selling equipment and parts to ZTE for seven years – after it claimed that ZTE had failed to make the relevant changes to its management and board following trade violations it committed in 2016.

ZTE released a statement saying that the draconian ban had forced them to suspend all major operating activities and said the ban would put them out of business. Chinese officials pleaded with the US to amend the ban and the US President intervened vowing to save ZTE from going out of business. He rescued ZTE by rescinding the initial ban, imposing a fine of $1.3bn, insisting it makes changes to its management and board and have provided the US with high-level security guarantees. This has put ZTE back in the 5G game, although the damage this saga has done to the company remains unknown, although sources in China estimate the vendor has lost more than $3bn.

Due to the size of the Chinese market, which is expected to be the biggest for 5G by 2022, according to data from CCS Insight, both Huawei and ZTE could have an advantage. Huawei, in particular, has been trying to broaden its reach beyond China.


> China is acutely aware that if it can emerge as the global leader of 5G, then it will inevitably become home to the world's largest economy

Beijing has signed 25 agreements with telecoms operators around the world to trial 5G equipment. It also announced plans earlier this week to scrap domestic data roaming fees and reduce prices for mobile internet. China's leadership hopes to have pre-commercial products ready by the end of 2018.

Such a top-down approach is helping to boost the efforts of local carriers to roll out 5G. State-owned China Mobile, for example, plans to build this year what it claims would be the world's largest 5G trial.

In dozens of studies conducted on 5G readiness, China is No.1, and leading the way towards commercialization and there's no doubt that the US and Europe are lagging behind. The US dominated the 4G industry and its economy soared as a result. The loss of leadership in 5G would hugely be detrimental to the US economy. China knows if it can continue to charge forward with its investment in 5G development, it will undoubtedly overtake the US as the world's most powerful economy. It's best positioned to do just that, so it's up to the United States to stop them, but is it already too late? The race to 5G is certainly heating up. TR

# Chinese operator expands operations in Japan

Chinese Mobile International, which is a wholly-owned subsidiary of Chinese telecommunications incumbent China Mobile, has announced it plans to expand its operations in Japan in preparation for the forthcoming Olympic Games which will be held in Tokyo in 2020.

Song Yaoming, Minister of the Economic and Commercial Office at the Chinese Embassy in Japan, addressed attendees at the official opening of the offices in the Japanese capital, and said that the Olympic Games would provide a diverse array of new business opportunities for the country.

The Minister said, "The 2020 Olympic Games will be held in Tokyo, which will predictably bring many business opportunities to Japan. And the number of tourists from all over the world, especially China, will increase significantly."

Its expansion into Japan is part of the operator's overall 'big connectivity' strategy, which aims to globalize its business in an effort to meet the increasing demand for data and connectivity. China Mobile is the world's largest mobile player and has a total of 890 million subscribers. In a statement issued by the company's EVP, Jian Qin, the operator said it aimed to accelerate the pace of expanding its global network.

In addition to this, the EVP highlighted that its move into the Japanese telecommunication services market would serve as a 'communications bridge' which would subsequently allow domestic firms to access the Chinese market.

Qin said, "The new office will provide localized telecoms services for Chinese enterprises in Japan, and offer a 'communications bridge' for Japanese companies to access the Chinese market and countries involved in the mainland's belt and road connectivity initiative.

The establishment of Japan office will promote interrelation of information and communications infrastructure - and strengthen cooperation in emerging technologies such as 5G and Internet of Things."

# Huawei unveils world's first commercial NB-IoT solution

Huawei recently released the world's first 3GPP R14-based commercial NB-IoT solution in eRAN13.1. This latest NB-IoT solution can provide much better performance than its predecessors.

It effectively increases the data rates by a factor of seven, offers double cell capacity and coverage, and introduces new improvements in location services.

With this solution, we can expect to witness a revolutionary development from GPRS-based IoT into NB-IoT.

NB-IoT boasts a number of favorable features, such as large capacity, low power consumption, and deep coverage. Since the NB-IoT standards were frozen, NB-IoT has quickly prevailed in Low Power Wide Area (LPWA) markets.

As of May 2018, 45 commercial NB-IoT networks had been globally deployed and more than 500,000 NB-IoT base stations had been established.

Currently, a total of 40 use cases (such as wireless meter reading, connected cows, smart manhole covers, wireless smoke detectors, and smart door locks) have benefited from batch deployment. More than 10 million NB-IoT connections have been widely used in urban management and people's lives.

NB-IoT has been recognized by 3GPP and GSMA as a 5G-oriented IoT technology.

It will experience long-term evolution in LPWA markets. However, the first-generation NB-IoT solution in compliance with 3GPP R13 cannot meet the high requirements of a number of IoT applications in fast-growing IoT markets.

For example, asset or pet tracking requires a positioning function with low power consumption to reduce equipment costs and charging frequency. In addition, GPRS provides low spectral efficiency. Operators are in urgent need of a new IoT technology that can support high-data-rate communications to accelerate GSM spectrum re-farming.

NB-IoT has been further developed to deliver enhanced features in 3GPP R14. Huawei's eRAN13.1 provides the world's first 3GPP R14-based commercial NB-IoT solution, which has the following highlights:

- x7 data rates: The uplink peak rate and downlink single-user peak rate can reach 157 kbit/s and 102 kbit/s, respectively. The single-user data rates enable NB-IoT applications to serve as the perfect replacement for the GPRS-based examples.
- x2 cell capacity: The maximum number of users in a single cell can reach over 80,000, almost doubling the cell capacity of the previous release. This will effectively help towards providing large capacity to promote the realization of a fully connected world.
- x2 cell coverage: Huawei proprietary uplink channel estimation enhancement technologies improve the deep coverage capability of cells and reduce network construction costs.
- GPS-free location services: NB-IoT terminals can deliver a positioning accuracy of 50 meters without the integration of GPS modules. Such terminals boast a power consumption and positioning delay that is only half of that provided by a GPS-based solution.

GPS-free location services are ideally suited for applications such as asset tracking, logistics, and pet tracking.

Chen Chuanfei, Vice President of Huawei LTE Product Line, said: "Global operators have reached a consensus that networks providing a full range of services will be developed over the next upcoming years. IoT will become the best practice for operators pursuing the development of vertical industries. The newly released 3GPP R14-based commercial NB-IoT solution can improve the performance of NB-IoT networks in data rates, cell capacity and cell coverage, expand the potential scope of application for NB-IoT through location services. In 2018, Huawei promises to improve network performance, build ecosystems, and explore businesses with the help of NB-IoT open labs and local industry alliances. Together with operators and partners, we will unveil a glorious golden era of large-scale commercial deployment of IoT."

# European vendor secures contract to upgrade optical transport network in China

Nokia's Chinese subsidiary, Nokia Shanghai Bell (NSB), has won the State Grid Corporation of China (SGCC) optical transport network (OTN) project. The deployment will cover SGCC Beijing and Tianjin and will help SGCC to smoothly evolve the transport network from 10Gb/s to beyond 100Gb/s, based on Nokia's in-house innovative PSE chipset.
The State Grid Corporation of China (SGCC) constructs and operates power grids providing power to over 1.1 billion people in 26 provinces, autonomous regions and municipalities, covering 88 percent of China.
With a mission to provide safer, cleaner and a more economical and sustainable power supply, SGCC is improving its production and management process. An upgraded optical transport network for support of integrated data network and operations network services is a key step, meeting growing bandwidth capacity demands and paving the way for future smart grid developments.
This project follows the successful deployment of a similar optical network by Nokia Shanghai Bell in Hebei, which currently serves 100 million customers of SGCC Jibei.
The Nokia 1830 PSS-32 platform is at the core of the new SGCC optical transport network.
The 1830 Photonic Service Switch (PSS) portfolio consists of platforms optimized for varying optical network deployment environments ranging from interconnecting data centers to efficiently scaling large metro, regional and long-haul optical networks.
Each platform leverages common software, hardware, management and control to offer seamless operations across the portfolio.
The Nokia 1830 PSS-32 also provides intelligent and reliable network control and restoration through distributed GMPLS and/or centralized SDN control options for improved network capacity, efficiency, reliability and service deployment velocity.
This will enable SGCC to deliver high availability services rapidly, reduce network operating costs and extend network lifecycles.
Zhang Huijian, Vice-General Manager of SGCC Tianjin Electric Information Communication Corporation, said: "The new OTN network can provide better technology support for communications, deliver higher level of security and reliability for the power grid, and raise operational efficiency, while improving the business environment to help us deliver better services to our customers. We are pleased to be working with Nokia, which has advanced optical/IP technologies and provides high-quality and professional services to support us in this project."
Jin Jian, Executive Vice President at Nokia Shanghai Bell, Head of Enterprise & Public Sector, said, "We are very happy to be working again with SGCC to improve its core network, this time in Beijing and Tianjin. The new network will not only meet its capacity needs but will also improve efficiency and support a wide range of technologies that will be required as it make its electrical grid smarter."

# Japanese conglomerate finalizes $21bn sale of its chip unit


Toshiba has formally announced that it has finally completed the protracted sale of its prized chip unit. The Japanese conglomerate sold its memory chip business to an investment consortium for a fee of $21bn.
Toshiba was desperate to offload its chip unit in an effort to generate much needed finance following the disastrous purchase of US nuclear energy firm Westinghouse. The deal had been subject to a lengthy delay as Chinese regulators examined whether or not the acquisition could potentially violate anti-trust laws. However, it has now been officially rubberstamped and approved by Chinese regulators. In a statement the group said, "Toshiba hereby gives notice that the closing of the sale has been completed today as scheduled."
The business was purchased by K.K Pangea, which is a special-purpose company controlled by a consortium led by prominent and powerful US investor Bain Capital. The Bain-led group includes US tech giants Apple and Dell, as well as South Korean chipmaker SK Hynix.
Toshiba has confirmed that it will reinvest a total of 350.5 billion yen in Pangea, acquiring a 40.2 percent stake. The sale and reinvestment will provide the Japanese firm with a pre-tax profit of 970 billion yen, though the bump was already built into forecasts it announced last month.
The firm booked a record net profit of 804 billion yen for the year ending March 31, compared with a loss of 965.7 billion yen a year earlier. That marks the first net profit for the firm in four years, and was helped by one-off revenue from tax cuts linked to the sale of its nuclear units.

# Samsung ordered to pay US tech giants $533m


South Korean conglomerate Samsung has been ordered by a US federal court to pay Apple $533m in a patent dispute case that has been ongoing now for seven years.

Samsung has been found guilty of copying the iPhone design and a federal court jury has now awarded an additional $5m in damages for a pair of patented functions to be paid to the US technology colossus. The award appeared to be a bit of a victory for Apple, which had argued in court that design was essential to the iPhone. This particular case has been watched closely and identified as a potential precedent for whether design is so important that it could actually be considered the "article of design" even in a product as complex as a smartphone.

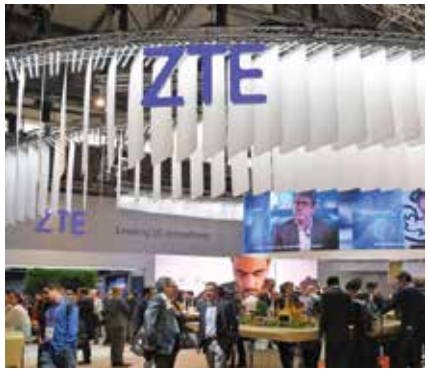
Samsung attorney John Quinn rejected the court's decision at the court hearing which was held in Silicon Valley. Quinn said, "We don't think it is supported by the evidence. We have every concern about the determinations about the article of manufacture."

However, Samsung's attorney decided to decline the offer made by Judge Lucy Koh to send jurors back to deliberate on the ruling further, saying the South Korean company would instead pursue post-trial motions to address its concerns about the verdict.

Juror Christine Calderon said the panel agreed that one of the design patents - the grid of colored icons, did represent the whole phone, while the other two at issue in the trial were seen as the display assembly that gave the iPhone its look. She compared it to the Mona Lisa: "You use the paint, but it is not the article of manufacture."

The case had been sent back to the district court following a Supreme Court decision to revisit an earlier $400 million damage award. Apple reasoned in court that design was so integral to the iPhone that it was the "article of manufacture" and worth all the money Samsung made by copying the features.

# ZTE agrees deal with US on trade sanctions




Chinese telecommunications vendor ZTE has announced that it has reached a deal with the US Commerce Department over the trade sanctions that threatened to put the powerful conglomerate out of business.

ZTE has vowed to clean up its act in light of the decision by the US after weeks of protracted talks between officials in Beijing and Washington. In April, the US Commerce Department prohibited the sale of crucial US components to ZTE for a period of seven years. It had found that the Chinese telecommunications colossus had failed to take the appropriate actions against its staff in relation to the trade violation it engaged in with Iran and North Korea.

ZTE chairman Yin Yimin said the company had to start holding the relevant people to account for the trade violations in 2016, and said the ban imposed in April highlighted the issues within its internal management systems.

In a statement released to Bloomberg, the chairman said, "We must deeply realize that this issue in essence mirrored problems in our compliance culture and management. We should hold relevant people accountable and avoid similar issues in the future."

It has been disclosed that part of the deal agreed between the US and ZTE will see the Chinese vendor pay a $1bn penalty, with another $400m in escrow to cover possible future violations. In addition to this, ZTE will also be forced to overhaul its entire board of directors and must hire outside legal compliance specialists who will in turn report directly to the Commerce Department for 10 years.

Once ZTE has executed these changes Washington will strike the company from a sanctions list. China's foreign ministry on Friday offered a muted response to the ZTE deal, but a spokeswoman added the following statement, "We also hope the US can provide a fair, equal and friendly atmosphere for Chinese enterprises' investments and operations there."

# Australian operator confirms it will axe 400 jobs

Australian operator Optus has confirmed that it will cut its workforce by 400 due to increased competition caused by a move from one of its rivals to introduce unlimited 4G data plans. The job cuts are expected to be made in the next few months - and Optus CEO Allen Lew has informed staff that the measures are being implemented in an effort to future-proof the company and fund future investment.

Optus is the country's second-largest mobile player with a market share of 31% by subscribers. However, last week it announced that it would close down its subsidiary Virgin Mobile, which will result in 200 job losses. The decision will also oversee the closure of 36 stores nationwide.

Optus has come under increasing pressure primarily due to the decision of rivals Telstra and Vodafone Australia to offer unlimited mobile data plans specifically designed to end excess data charges. Telstra issued a margin warning and its CEO Andrew Penn said the industry as a whole faces increased completion which has inevitably placed fixed and mobile margins under pressure.

In addition to this, analysts have also pointed out that the operators are coming under increased pressure from MVNOs, which accounted for 45% of all new mobile connections in the first half of 2017, according to research compiled by Telsyte.

Optus, which is owned by Singapore-based Singtel posted strong financial results for its fiscal year ending 31st March, with net profit and operating revenue both increasing by 2.8% and 3.4% respectively.

In January it signed a five-year network management contract with Nokia. The outsourcing deal first announced in October 2017, is expected to result in about 170 job losses.

# Plans to construct a $14bn 'pollution-free' city in Philippines unveiled

The Philippines Government has officially announced its detailed plans to construct a new $14bn 'pollution-free' super city - that would be bigger than Manhattan in an effort to address the chronic air pollution and traffic problems in its capital city of Manilla.

Bidding has now commenced for companies that are interested in conducting the design, building, financing, or operations for the new city in the Philippines.

The new 'smart city' is being built as an alternative to the hyper-dense capital of Manilla which has been labelled by environmentalists as having the 'worst traffic' in the entire world. Manilla has serious mobility issues, and many say its urban congestion which has subsequently caused massive air pollution is irreversible.

In order to combat this, the new pollution-free smart city which will be known as 'New Clark City', offers residents in the Philippines with an opportunity to live in a healthy, eco-friendly and sustainable city. Reports are suggesting that the developers spearheading the project, BCDA Group and Surbana Jurong, plan to build most of the new eco-city's infrastructure through private-public partnerships.

The new city will be constructed about 75 miles outside the country's capital city of Manila - and is expected to cover about 36 square miles and eventually house 2 million residents.

Developers say the city's construction and design will be oriented around new amenities frequently associated with smart cities like drones, driverless cars as well as green building technologies to make structures more efficient in terms of water and energy usage.

The make-up of New Clark has been disclosed and will consist of five districts, each with a different function – government, business, education, agriculture, and recreation.

"You'll gradually see Manila becoming a different type of city, and in New Clark City, and in New Clark City you'll see new technology companies coming through," Heang Fine Wong, CEO of Surbana Jurong, informed CNBC.

The BCDA Group and Surbana Jurong will be responsible for developing the smart city, which will be larger than Manhattan and 184ft above sea level. Construction of the city is anticipated to begin in 2022 - accompanied by a new railway line connecting the new city to the capital.

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# Thuraya Communications reaches new milestone with release of groundbreaking solutions

**Thuraya Telecommunications Company is an industry leading MSS operator and a global telecommunication provider offering innovative communications solutions to a variety of sectors including energy, broadcast media, maritime, military and humanitarian NGOs.**

The company, which is headquartered in Dubai, United Arab Emirates, boasts a diverse range of technologically superior and highly reliable mobile satellite handsets and broadband devices that provide ease of use, value, quality and efficiency. Thuraya remains committed to serving humanity through delivering the essential tools for optimal connectivity, never leaving anyone out of reach.

Thuraya Communications is one of the most reputable companies in the world since its inception in 1997, and is renowned globally for developing

some of the most cutting-edge innovative communication solutions that serve a wide range of industries all across the world.

Its commitment and strategic approach towards embracing innovation have been at its core and are two of the fundamental factors of its success. This has been evidenced further by the launch of two new 'groundbreaking' solutions by the global telecommunications provider – which has elevated the company to reach a new milestone.

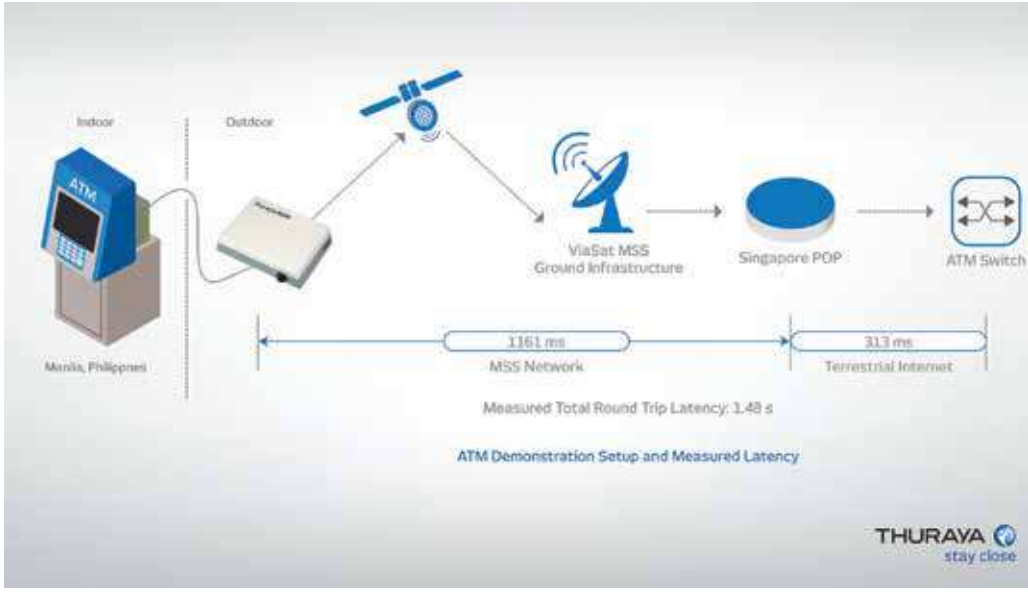
The new revolutionary solutions they've introduced to the market are the Thuraya X5-Touch, which it has claimed to be the world's smartest satellite phone and the Thuraya Tracking and Monitoring (T2M) solution.

The Thuraya X5-Touch is the first Android-based satellite and GSM phone in the industry offering unparalleled flexibility for users.

Thuraya Telecommunications unveiled the world's first satellite smartphone during its partner conference in Dubai. The Thuraya X5-Touch runs on the Android Operating System and has a 5.2" full HD touchscreen. It targets users who frequently move in and out of terrestrial coverage across a range of market sectors including government missions, energy projects, enterprise communications, and NGO deployments. The phone offers fast and simple connectivity on the move, in remote areas normally beyond the reach of smartphones.

The Thuraya X5-Touch is a step closer towards complete convergence between terrestrial and satellite communications through its full dual-mode and dual-SIM capability. It has two SIM-card slots for full user flexibility, and with the dual-active mode, it has the ability to have both its satellite and GSM (2G, 3G, or 4G) modes 'always on' simultaneously.

To cater for the needs of users in harsh and remote conditions, the Thuraya X5-Touch comes with a Gorilla® glass display, is the most




rugged phone in the MSS industry with an IP67 standard for full dust and water protection, and complies with MIL standard. It also has a host of advanced features and functionalities including a high-capacity battery for extended talk time and standby time, a built-in SOS button and a front and rear camera.

Ahmed Al Shamsi, acting Chief Executive Officer at Thuraya said, "Today, Thuraya reached a new milestone by introducing another innovative and ground breaking product to the MSS market. Building on the heritage of a long line of successful satellite phones, this new development focuses primarily on delivering a unique and more interactive experience to our customers. With the Android platform there is already a multitude of Apps readily available to work on the Thuraya X5-Touch, and developers will have easy access to develop and customize Apps for the needs of their customers. It complements the "Bring Your Own Application" (BYOA) concept - customers have the flexibility to download any App of their choice, thereby breaking the paradigm and revolutionizing the way the satellite handset will be used"

The Thuraya X5-Touch is equipped with GPS, Glonass, and BeiDou systems for advanced navigation and tracking functions, which are important safety features during critical situations and it comes with Wi-Fi, Bluetooth, and NFC.

"The Thuraya X5-Touch is a game changer and a big step forward in design and functionality placing it in a league of its own," said Alexander Lachner, Director of Voice Services at Thuraya. "Creating smarter satellite phones is our constant goal and we are happy to offer our customers a new user experience that many in the industry have been asking and waiting for."

The advanced omni-directional satellite antenna on the Thuraya X5 Touch ensures uninterrupted communications, offering seamless walk-and-talk functionality even in satellite mode.
Thuraya's comprehensive satellite network provides reliable, clear and uninterrupted communications in more than 160 countries across Europe, Africa, Asia and Australia; and in terrestrial mode, the Thuraya X5-Touch supports most 2G/3G/4G frequencies across the world. The phone works either with Thuraya SIM cards or with GSM SIM cards or a combination of both. The Thuraya X5-Touch will be available at Thuraya Service Partners in Q4/2018.

However, this isn't the only groundbreaking and innovative solution that Thuraya

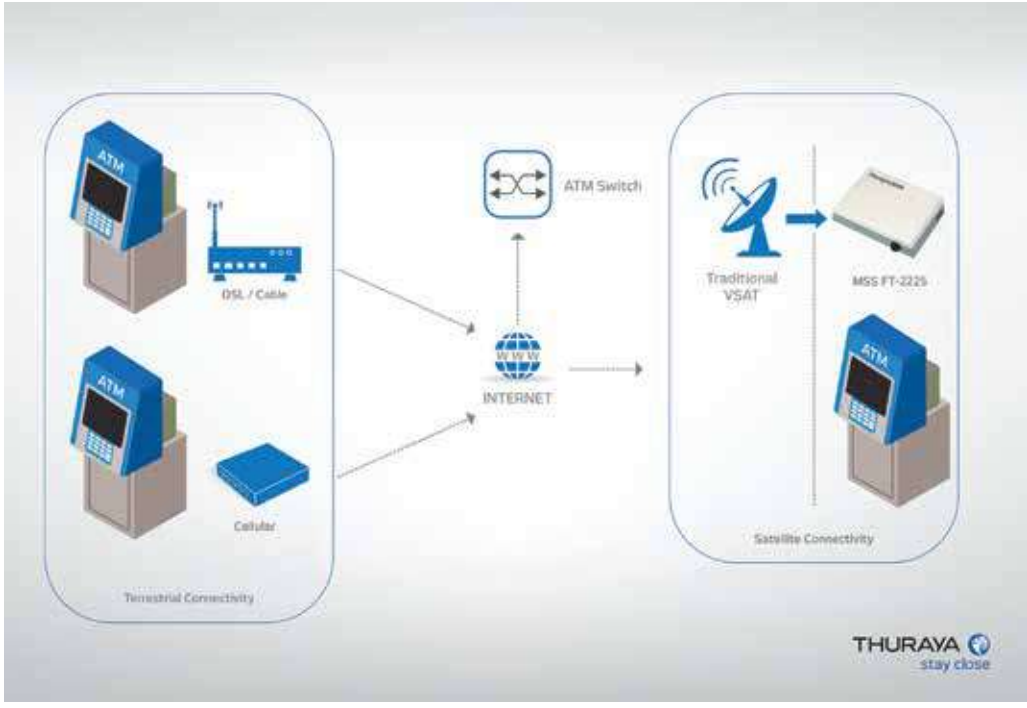
Communicatins has launched in 2018. The introduction of its first dual-mode Mobile M2M solution resonated with a number of businesses and industries who are constantly seeking to find new solutions that provide them with a competitive advantage, lower-risks and cost-saving potential.

When Thuraya Telecommunications Company launched its Thuraya Tracking and Monitoring (T2M) service in conjunction with the launch of the first product release of the year, the T2M-DUAL terminal, it certainly struck a chord with a large number of enterprises.

A mobile, dual-mode device for superior machine-to-machine (M2M) communications and remote asset tracking and monitoring, the T2M-DUAL enables the simultaneous collection of data from multiple points including location information; data from external sensors and peripheral devices, and input gathered from vehicle or heavy equipment CANBus.

The T2M-DUAL's robust system and interoperability render it a top-class solution for widespread projects in sectors like transportation, logistics, energy, utilities, agriculture and mining. The terminal brings unprecedented ease of integration to applications that are traditionally more complex to manage and monitor such as vehicle tracking and fuel consumption, thereby resulting in operational efficiency.

The flexible tracker allows for the integration of any third-party application and has several built-in smart features such as geo-fencing, network selection based on least cost routing, internal battery backup and location and sensor data. With dual-mode capabilities, T2M-DUAL ensures that connectivity is automatically maintained as assets move between regions covered by GSM and those that lie beyond the confines of cellular networks - under the strong and secure coverage of Thuraya's satellite-backed M2M network.




The T2M-DUAl device is designed to support on-the-move M2M and IoT applications seamlessly on Satellite and GSM networks, allowing for optimized connectivity based on the best available network. The terminal is built to withstand harsh environmental conditions, vibration and shock. The T2M-DUAL's automated network mode selection is determined by least cost routing, which ensures unrivaled total cost of ownership.

Rashid Baba, A/Chief Commercial Officer at Thuraya said, "Industries and businesses are constantly looking for solutions that give them a competitive advantage with lower risks, higher automation and cost-saving potential. As more players enter sectors like logistics and transportation, for example, the monitoring of remote assets on the move by managers increase opportunities for faster decision-making, deployments, worker safety, and operational efficiency.

Thuraya's resilient network and IoT services already have a strong foothold across verticals that require high-security connectivity for remote, mission-critical operations. T2M-DUAL caters to these sectors' evolving needs and we are confident that it's well-placed to meet the market demands."

Thuraya T2M-DUAL diversifies the company's growing M2M portfolio. Its advanced capabilities serve a different set of requirements than the previously released terminal, Thuraya FT2225, which provides M2M communications for fixed applications.

Last year, Thuraya also launched its IP M2M service, which enhances remote communications by supporting high-throughput M2M applications and enabling the collection of large data amounts from inaccessible points and industrial zones.

In addition to this, Thuraya Communications Company also conducted an in-depth and very fascinating case study which was entitled - Enabling scalable and affordable ATM connectivity in emerging Markets. The details of that particular case study are disclosed below.

**Abstract**

Automated Teller Machines (ATMs) require high-availability and secure

IP connectivity. Traditionally, here terrestrial infrastructure is unavailable. This connectivity is provided via dedicated Very Small Aperture Terminals (VSATs). Thuraya M2M Mobile Satellite Services (MSS) partnered with ViaSat managed service and network and utilizes a low-latency and highly-secure worldwide satellite network to provide a significantly improved value proposition over existing satellite-based alternatives.

### ATM network brief

ATM network architectures are based on a standard client/server model. An ATM Switch is used by financial institutions to route transactions between remote ATM Clients and core banking systems. ATM Clients provide the user interface/local functionality to generate requests to the server. ATMs are located in many venues and need to rely on the local communications infrastructure to provide IP connectivity to the centralized ATM Server. Local communications infrastructure may be comprised of a variety of technologies including wired terrestrial (e.g. cable, DSL, leased lines) and wireless terrestrial (e.g. 3G/4G cellular).

### Emerging market challenges

In regions with underdeveloped terrestrial infrastructure, ATM IP connectivity may be forced to depend on unreliable connectivity options or higher-cost dedicated VSAT-based systems both of which may not fully cover the cybersecurity risks.

Africa, the Middle East and East Asia have strong potential for future economic growth. However, financial institutions in these regions are challenged with finding an economic way to deploy their ATM network across large geographic areas that have limited cyber-secure IP connectivity options.

### MSS solution:

Thuraya's M2M, powered by the ViaSat network, provides scalable, reliable, and cyber-secure IP connectivity, via a compelling value proposition, solving today's remote communication limitations. Thuraya's ATM solution includes:

- Worldwide high-availability coverage via our global L-band satellite constellation that is resistant to inclement weather conditions
- Terminals with simple installations, ruggedized to IP66 standards
- Static IP addressing to eliminate polling delays
- Full-duplex IP connectivity with embedded AES-256 encryption

### Secure financial transactions

MSS uses the same encryption, AES-256, as commercial Virtual Private Network (VPN) routers. Your network becomes an extension of our terrestrial VPN tunnels, bridging through the satellite network, enabling secure end-to-end connections between the remote client (ATM) and the server (ATM Switch). This AES-256 encryption, which is designed for FIPS 140 Level 2 compliance, facilitates implementation of secure communications for financial transaction activities, such as ANSI X9-based Financial Services.

### MSS advantages vs traditional VSAT

Traditional VSAT systems have been used when reliable terrestrial connectivity is not available.

Advantages of MSS when compared with traditional VSAT systems include:

| | MSS | VSAT |
|---|---|---|
| **Simplicity** | **Single self-contained terminal with reduced footprint** | **Separate outdoor antenna and indoor modem units** |
| **Bandwidth Efficiency** | **Shared asynchronous on-demand bandwidth** | **Requires fixed-bandwidth point-to-point links** |
| **Costs** | **Offers lower CapEx & OpEx due to terminal simplicity and bandwidth efficiency** | **Traditional hardware and service contracts** |
| **Installation** | **Easy to mount and point** | **Requires precise pointing during installation** |
| **Security** | **Native AES-256 Link Layer Encryption** | **None** |

### ATM demonstration

In coordination with a Phillipine bank, ViaSat demonstrated a plug-and-play connectivity of an existing ATM Client in the Philippines that was connected to the bank's ATM Server via the ViaSat MSS network. The ATM was powered on and operated securely and reliably with the ATM Server. TR

> Industries and businesses are constantly looking for solutions that give them a competitive advantage with lower risks

# "Cloud Computing empowers digital transformation" – Patrick Low, Huawei

**Huawei's Principal Architect at its CTO office, Patrick Low,** has declared that the Chinese vendor remains dedicated and committed to working with its partners in order to empower digital transformation services across all industries.

Telecom Review managed to secure an exclusive interview with Low, who outlined his roles and responsibilities within the CTO office, discussed the meaning of Industry Community Clouds - and highlighted Huawei's approach to promoting a single digital economy in ASEAN.

**Can you outline to us in detail what your primary responsibilities and duties are as Huawei's Principal Architect at its CTO Office?**

The key responsibilities of the CTO office include defining IT systems architecture to support the company's business strategy. Tactically speaking, we collectively ensure that the company's technology objectives are aligned with its business goals, and to do that well requires one to hold an in-depth knowledge of the company's business areas as well as the abilities to talk to both technical developers and business managers on relevant matters like industries trends, products qualities and recognizing operations patterns so as to we keep abreast of the development and changes happening in the industries.

**There is a consensus now prevalent amongst cloud experts that cloud services need to meet specific industry requirements in a more comprehensive way. This has been labelled as Industry Community Clouds. Can you explain to us in more detail what Industry Community Clouds mean?**

From a technical standpoint, community cloud is a multi-tenant platform that is accessible only for a specific subset of customers. A good example will be the government agencies/entities sharing common characteristics like security, auditability and privacy concerns/ requirements using a highly-regulated cloud platform governed by a trusted entity. Such an approach gives users much more confidence in the platform that they use to deploy their sensitive workloads. Additionally, community cloud providers are much more willing to bend and adjust to the requirements that might be difficult to fulfill in a public cloud scenario.

Community cloud is an important component of the overall hybrid cloud marketplace. It helps to address industry specific requirements at the same time delivering the value of a public cloud. It's a great example of a "glocal"

> Community cloud is a multi-tenant platform that is accessible only for a specific subset of customers

approach where the providers with global experience delivers services tailored to the needs of a local market.

**Collectively, ASEAN is the sixth largest economy in the world. In your expert opinion, how can the ISP industry speed up digital transformation and promote a single digital economy in ASEAN?**
The digital integration of ASEAN will promote rapid growth of the digital economy, including safe and smart city solutions, to stimulate economic development and inform social intelligence. As ASEAN sets the stage for a single digital economy to harness its full economic potential, it is crucial for key players within the ICT sector to collaborate and contribute to the robust infrastructure necessary to accelerate ASEAN's growth.

Huawei is dedicated to working with partners across industries to empower their digital transformation and enrich their services to thrive in the new ICT era. As a case in point, Huawei is working with Converge, an ISP partner in the Philippines, to build an innovative next-generation network. Converge's legacy network had too many layers with an unclear architecture, affecting the fast rollout and configuration of new services. Huawei created a three-year network construction solution and formulated a service deployment plan so that Converge's new network is elastic, simple, and future oriented to adapt to new services. Huawei has and will continue to develop products aimed at equipping ISP customers with the technology to effectively power ASEAN's single digital market ambition.

**Can you highlight some of the cloud computing solutions and innovations you showcased and launched at the event?**
In this event, Huawei has launched the FusionCloud 6.3 Cloud Infrastructure Solution which taps on cloud computing and big data technologies to provide resource pooling and full-stack cloud service capabilities to effectively address business challenges and enabling industry digital transformation. We are deeply honored and proud that this solution has been awarded "Best Cloud Infrastructure Solution" by at the 2018 Information Management Awards organized by NetworkWorld Asia (NWA). From the votes garnered during the judging process, it bears testimony to the innovation and responsiveness of our solution in meeting the growing needs of end-user organizations due to the burgeoning adoption and application of big data, IoT, cybersecurity, the hybrid cloud and AI.

> Huawei is dedicated to working with partners across industries to empower their digital transformation and enrich their services to thrive in the new ICT era

**Huawei has just announced the launch of its Intelligent Computing initiative, an AI driven computing platform meant for digital transformation of businesses and enterprises. What impact will this initiative have on Huawei's Cloud Data Centers attempts to evolve from server intelligence to data center intelligence?**
Composed of simple words but profound in meaning, the Intelligent (or Boundless) Computing concept literally means breaking through the boundaries of physical constraints. This is something the industry has already been busy examining, with the virtualization and cloud technologies actually addressing this subject. Huawei has now empowered it with three more concepts point:

- Go beyond the CPU boundary: To unlock the computing potential and improve computing efficiency, there are more options than simply increasing the CPU quantity.
- Go beyond the server boundary: To implement DC-level resource pooling and on-demand provisioning, improving resource utilization with it.
- Go beyond the DC boundary: To carry out computing not only inside DCs, but to take computing to the edge or wherever more suitable, empowering everything with intelligence.

An integral element to Boundless Computing is Huawei's capabilities of innovating from the chip level, and based on that to further develop differentiated values and features.

Currently, Huawei leverages its innovations with computing, storage, networking, and management chips for servers to improve computing efficiency for the industries to evolve towards holistic management of intelligence.

**Can you outline to us what your primary objectives and goals are for the rest of 2018?**
Huawei's Vision and Mission is to "bring digital to every person, home and organization for a fully connected, intelligent world." We will continue to focus on the distribution, presentation, transmission, processing, and storage of information by providing innovative end-to-end ICT solutions and products for three customer groups: carriers, enterprises, and consumers. In the era of ICT convergence, our customer-oriented organizational architecture enables us to achieve synergies in product innovation, and to deliver differentiated services to different customer groups based on their unique characteristics. TR

# " The wholesale carrier industry needs to develop standards for the use of blockchain" - Carol Wan, PCCW Global

**Carol Wan, Vice President, Data Sales for the Asia Pacific region at PCCW Global** has called for the wholesale carrier industry to start developing standards for the development and use of blockchain technology. Telecom Review managed to secure an exclusive interview with the charismatic executive who expressed eloquently how the industry needs to cooperate in order to embrace the cutting-edge technology, which she feels will bring many benefits to the sector.

Carol gave an insightful and engaging interview during which she disclosed the results of the blockchain PoC (Proof of Concept) trial it recently conducted in collaboration with Colt Technology Services, and highlighted the importance of the connectivity project PCCW Global has embarked upon with Mauritius Telecom in the Rodrigues Islands. She took time to outline the company's objectives and goals for the remainder of 2018 as well.

**Do you believe that the entire wholesale carrier industry should embrace blockchain technology in order to reduce costs and improve operational efficiency? How important is industry cooperation in this sector?**

Blockchain, at the end of the day, is a technology that allows an exchange of information through a trusted and secure shared repository. There are many potential use cases in the wholesale carrier environment where such technology can yield efficiencies, cost reductions, improved security and agility. To list a few: Wholesale voice settlement (which PCCW Global and Colt have already demonstrated through a PoC as already mentioned), the Orchestration of on-demand connectivity in a multi-domain wholesale environment, Shared inventory repositories, Ported numbers repository, Shared blacklist repositories and others.

Blockchain, by its nature, requires cooperation, as all participants must use the same platform in the same manner for the platform to properly operate. However, my view is that cooperation should be expressed on higher levels than just an operational framework. The industry should be developing standards for the development and use of the technology, in a manner that ensures standard-based solutions and an approach which avoids proprietary solutions and vendor lock-in.

**Can you tell us about the recent Blockchain PoC (Proof of Concept)**

**trials you've conducted with Colt Technology Services – and outline the impact the initiative has had on the industry?**
The PoC, which is still underway, has proven the participants' ability to automate the manual process of dispute resolution and settlement. In its initial phase the scope was limited to the bilateral relationship between the pair of wholesale voice carriers.

The PoC successfully demonstrated that a blockchain and AI combined platform was able to automatically extract CDRs from both carriers, in near-real time, compare the records of both bilateral partners, identify discrepancies, use AI to resolve disputes, and generate undisputed invoices for settlement. In the second phase, which is currently underway, the scope has been extended to include up to eight operators, with the purpose of proving scalability as well as the ability to resolve more complex dispute scenarios. Future versions will also explore the automation of financial transactions as well as fraud detection and prevention.

We have seen an enormous interest in the PoC and the list of wholesale carriers that want to take part in the upcoming phases of the PoC keeps growing. In parallel we are defining the industry-led vehicle that will drive and govern the deployment of this technology, and will also develop the methods and standards required to extend this PoC to a commercially operational platform.

**Can you tell us more about the project you've embarked on with Mauritius Telecom which will see you construct a high-speed submarine cable that will improve connectivity on the Island of Rodrigues?**
Rodrigues Island used to be the tenth District of Mauritius; it gained autonomous status on 10 December 2002, and it is governed by the Rodrigues Regional Assembly (RRA).

The telecommunications infrastructure currently connecting Rodrigues to Mauritius and rest of the world is inadequate. The only means of connectivity available at the moment is satellite communication which is expensive and very limited capacity. The situation is limiting the citizens' lives as well as the development of the local economy.

The RRA was very aware of these limitations and looked for an alternative, finally deciding to build a submarine cable connecting Rodrigues and Mauritius, along with Global IP access. A Public Tender was issued in earlier 2017 to select a right partner.

PCCW Global and Mauritius Telecom teamed up and participated in the tender, proposing to deliver a turnkey solution to both build the submarine cable and provide Global IP access. In the third quarter of 2017, Mauritius Telecom was being announced as the winner of the tender and entered into agreement with RRA to build the submarine cable and Global IP access.

PCCW Global has in turn entered into an agreement with Mauritius Telecom to provide a turnkey solution and related project management to build the submarine cable, which will abe known as MARS (the Mauritius Rodrigues Submarine cable system).

**PCCW Global recently announced it had entered into an agreement with Virtutel to bring hosted unified voice services to Australia and New Zealand. Can you elaborate on what benefits this partnership will entail?**
Virtutel is a fast growing Australian-based wholesale and enterprise telecom service provider. PCCW Global has entered into an agreement to provide a turnkey UCaaS (Unified Communication as a Service) solution to Virtutel, using its market-leading nTwine UCaaS platform. This will enable Virtutel to expand its business rapidly in both Australia and New Zealand using this innovative platform offering.

Our solution offering includes the provision of a fully white-labelled hosted platform together with a best-of-breed fully-automated orchestration, operation and business solution, allowing Virtutel to offer customized service propositions to its enterprise customers. In addition, as our partner, we provide Virtutel with a flexible Opex-based commercial model to align with their expansion plan.

Available in more than 30 countries, the nTwine service leverages PCCW Global's global fibre network and its relationship with over 200 global operators to provide international voice and voice over IPX services, eliminating the need for our customers/partners to invest in and run their own communications infrastructure.

**Can you outline to us what the primary objectives and goals are for PCCW Global in 2018?**
PCCW Global has built a strong reputation as a trusted partner to both Service Providers and multi-national enterprises around the world – supporting them with flexible and scalable next generation network and digital solutions.

We shall continue to enhance our core international data and voice service offerings enabling our carrier partners and enterprise customers to better meet their future business and communication needs. In addition to nTwine service as described above, we also offer a suite of value-adding digital solutions in the Media, Security and Mobility domain.

To support the ongoing shift to digital business and cloud workloads, PCCW Global recently launched Console connect, a software-defined interconnect platform across its global IP network that enables customers to instantly provision private, direct connections to remote data centers, partners, and cloud service providers.

As the international operating arm of HKT (Hong Kong's premier telecommunications service provider), we deliver innovations and operating experience developed in Hong Kong in the fields of network, media, and smart services to global markets via our GDS (Global Development Services) venture. Using this vehicle we are able to assist our local partners/operators to leapfrog their competitors by providing them with access to highly innovative market-proven solution and skillsets.TR


Steven YAP, M800 Co-founder, serving as Chairman and CEO, proudly received the Most Innovative Telecomm Partner of the Year Award for M800, proving the company as a high-caliber partner for enterprises.

# M800

## leading digital communication through high-level collaborations

**Forming partnerships is a recognized approach for enterprises to achieve business growth, increase revenue and broaden business benefits. This is because collaborations allow companies to utilize specific strengths of their partners in conjunction with their own to achieve accomplishments that are unique to the partnership. M800 Limited has a proven history of improving the revenue of their partners by providing distinctive offerings that lead to success.**

Key partner for global enterprises M800 Limited is an established CPaaS provider headquartered in Hong Kong but has extensive reach across the world and especially Asia. The company is extremely familiar with the interests of Asian enterprises through its founders and interactions with regional partners.

One of M800 core values is being part of a larger team where fellow industry players are allies and partners. Since its incorporation, M800 has been building its network with global carriers, both physically and corporately. Currently, the company is partner with over 260 telecommunication partners serving all of its solutions.

In addition, M800 has also invested in over 20 POPs (Point of Presence) around the world, deploying its CPaaS platform on a planet-scale and bringing their servers close to all end-users. The investment in servers is necessary in order for M800 to provide seamless communication and ensure a low CAPEX entry for its partners.

Beyond its partnerships to serve the capabilities of its communication solutions, M800 has engaged in multiple partnerships and worked with over 500 enterprises across various vertical industries, including those in finance, hospitality, fashion and more in order to empower their revenue streams.

M800 relationship with its partners differs depending on the kind of collaboration they have. The partners can range from being a reseller, reselling M800 products in different regions to being involved in product development.

### Why partner with M800

M800 communication solutions have shown to many that they can help create new revenue streams. This, in turn, has attracted a lot of attention from both businesses that want to empower their products by utilizing them and those that want to add the solutions to their list of offerings through reselling.

For companies that wish to be a partner reseller of M800, there are two main routes: license-based or through a reseller portal.

### Reselling a successful product

In the license-based model, M800 offers companies the right to resell their products as they are to their own portfolio of clients. An illustration of this is the recent partnership between M800 and Telecom Italia Sparkle, the international service arm of TIM Group, a leading global telecommunications provider based in the UK. M800

collaborated with Sparkle to launch its revolutionary live customer service support platform, liveConnect, in Europe.

In the digital age, customer service is expected to be quick, convenient and flexible. This means that a customer should be able to contact a representative no matter where he is, at any time and via any means. Sparkle was interested in liveConnect for exactly these capabilities that it is able to offer. The support platform is built with a chatbox that can be easily fitted on a website or mobile app. Once embedded, it can deliver instant messages and facilitate phone calls, both on-net and off-net worldwide. The multitude of functions offered by liveConnect has made it an attractive solution for enterprises across various industries that want to power up their customer services.

Seeing the enormous demand that it satisfies, Sparkle became a reseller of liveConnect and enriched its portfolio of ICT solutions.

## Collaborator for OTT communication

Over-the-top (OTT) services have witnessed a considerable rise in demand during the last few years. With this in mind, communication has shifted to OTT apps and many companies now desire their own. M800 noticed this demand and has developed an OTT white-label communication app suite for enterprises to create their own communication app or be a new stream of revenue generation.

The readily-available, secure and customizable OTT white-label communication app allows app-to-app and app-to-phone calling, instant messaging, SMS, video call, and conferencing services.

Accompanying M800 OTT white-label communication app is an all-inclusive reseller partner program where M800 partners are given a reseller portal to aid them in selling the app suite to their corporate clients with convenience and ease. The portal allows the resellers to quickly create the OTT app for their buyers, making the go-to-market quick and fast. It also supports the resale of the product to enterprise customers with auto-provisioning, CRM, and big data analytics features, allowing both M800 partners and their clients to make smart, expert decisions.


M800 Limited exhibited at Mobile World Congress 2018, the biggest mobile tech event of the year. During the event, they promoted the products of their partners extensively.

## Smart city & IoT development supporter

With over 35 years of experience developing industry-leading solutions in the telecommunication, mobile and software industry, M800 is aware of the direction the communication industry is heading, and its smart cities and IoT. The CPaaS company places a huge emphasis on forming partnership agreements with other companies who are attempting to become involved in the construction of smart cities and production of IoT.

As evidence of M800 commitment to IoT development, the company has partnered with a number of OEMs and other IoT producers to strengthen the communication capabilities of their products and help open doors for other large-scale partnerships, leading to further development in both existing and new markets.

For example, one of their partners is Cinatic Technology - an OEM that has been manufacturing smart security devices for some of the biggest multinational brands and proponent of smart cities across the globe.

Cinatic had integrated M800 communication SDK suite into their products. The solution consists of a package of SDKs that add communication layers to smart devices. In the case of Cinatic, the solution allowed their products to deliver real-time bilateral video calls, akin to a face-to-face conversation, as well as crystal clear voice call.

Looking towards the future, M800 plans on utilizing their solutions in further IoT and promoting specific areas of smart city development such as Smart Mobility. In this area, M800 solutions can be used in creating products such as fully automated self-driving cars.

## Uniting strengths for a combined product

In addition to partnerships where companies utilize M800 solutions to power up their devices, M800 is also involved in collaborations where they develop along with their partners a bundled product. This means that the companies come together to create a single product, which has the best elements and support of both parties' solutions and resources. This allows the creation of a product that is unique to both companies.

## Providing supplementary support

On top of the technological benefits, M800 provides their partners with external promotion as well. Throughout the partnership, they advertise the collaboration agreement between both parties via social media, PR, and events. Some named events where M800 has featured its partners include Mobile World Congress, GITEX, and Telecom Review Summit. In addition, M800 also participates in joint-exhibition events where they and their partners share the same booth and promote their collaboration and solutions together. TR

# "Openness is the best strategy to attract global talents"

**Acquiring foreign talent is proved to be a shortcut to promote social and economic development of a place. The United States being well known as the melting pot of various nationalities is a typical example in this respect.**

Researchers from the World Intellectual Property Organisation studied the place of birth and subsequent nationality of over four million inventors with international patents (PCT) from 1990 to 2010. They found that nearly 40% of inventors in Switzerland were born in foreign countries, while that in Luxembourg was 35%. The U.S. ranked 5th with less than 20%; but with more than half coming from low-income and middle-income countries (eg. China and India), which had the highest ratio among all countries. As observed, this group of immigrant inventors was able to generate twice as many patents as native scientists in the U.S. over the last 20 years, while the patents were only increased by less than 40% in the EU.

At the same time, other scholars have also pointed out that social diversification is more conducive to social and economic development.

Actually, among the top ranking countries in the Global Innovation Index 2017 Report, one of the common characteristics is diversity. LinkedIn, the professional social networking website, categorized the distribution of its numerous members by geography in nine fields of study which include (1) Arts and humanities, (2) Business administration and law, (3) Education, (4) Engineering, manufacturing and construction, (5) Health and welfare, (6) Information and communication technologies, (7) Natural science, mathematics and statistics, (8) Services, and (9) Social sciences, journalism and information.

According to the report, the top 10 countries that are highly competitive, such as Switzerland, Sweden, the Netherlands, and the U.S., etc., have relatively equal number of talent in each of the above categories. In short, these countries are more diversified in terms of talent variety.

Among the top ranking countries in the Global Innovation Index 2017 Report, one of the common characteristics is diversity

For example, Switzerland, which ranked first in innovativeness, has the largest number of talent in three categories, namely business administration and law, information technology as well as social sciences. It's important to point out that each of them has less than one fifth of the whole talent population. Among the nine professional fields listed above, five of them each only constitutes 10% to 20% of the total number of talent of the country. Same case applies to the Netherlands. Moreover, these countries have no shortage of "uncommon" talents, such as artists. In the U.S., art practitioners constitute 9% of the overall talent pool. On the contrary, in some countries, a certain category of professional is particularly plentiful. For example, Uruguay has nearly 40% adults specializing in information technology, being the highest among all countries, but its global innovation ranking is not quite outstanding.

Why? Because the key to innovation and technology is a novel idea – and the top universities which are famous in artificial intelligence in the U.S., such as the Massachusetts Institute of Technology and Stanford University, have encouraged students to pursue a new "joint major" in computer science and other disciplines, such as language, music, or economics.

Their coursework also aims at integrating both disciplines, hoping to create a spark of creativity under the interaction. That's the reason why I have advocated STEAM education, that is, in addition to STEM (science, technology, engineering, and mathematics), we add in art that promotes humanistic qualities, so as to cultivate students' diversified intelligence, promote imagination, and inspire them to think out of the box.

Innovation and technology become a strong driving force for economic development. That's the reason why the Hong Kong government

Innovation and technology become a strong driving force for economic development

announced rolling out a fast track immigration scheme to attract more technology professionals in May. Almost at the same time, China's President Xi Jinping expressed his support of Hong Kong to become an international innovation and technology hub, effectively pushing the city to compete for technology talent in the global community.

In addition to the rule of law and the system, Hong Kong has the strengths to accommodate and open to the world, as mentioned recently by Jack Ma, founder and executive chairman of e-commerce giant Alibaba at the University of Hong Kong. Education is the best way to reinforce these strengths. Therefore, I hope that the government will not forget to nurture our new generation while introducing scientific and technological professionals. This is the way to succeed in the long run. TR

**By Dr. Winnie Tang, Honorary Professor, Department of Computer Science, University of Hong Kong**

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December 11, 2018

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# Building the **SMART Future**

# Did China 'trump' the US in trade talks?

**Global economic superpowers China and the US remain engaged in tense trade negotiations – although the threat of an all-out trade war between Washington and Beijing now appears to have been avoided. Relations appear to have now improved somewhat following a series of recent discussions and talks between representatives from both the United States and China and there now appears to be real hope that the issues at hand will be resolved in an amicable and fair manner.**

However, that now begs the question, what changed and which one of these economic heavyweights landed the knockout blow in these trade talks that, for a number of weeks, seemed deadlocked.

A number of financial analysts and experts had warned that if there is a breakdown in trade relations between the two nations, the US could likely come off worst. Some have suggested that China, which is home to the world's largest automotive market, would use its 'trump card' if it was forced to do so by increasing tariffs on US imports which could potentially cripple many US car manufacturers.

### What caused the friction between the US and China?

The Trump administration has launched an offensive attack against Chinese telecommunications vendors Huawei and ZTE, and has labelled both as 'huge risks' to national security. Officials from the US intelligence community including the FBI, CIA and NSA have all publicly accused Huawei and ZTE of allowing the Chinese government to use their devices to spy on the Americans.

Both Huawei and ZTE vehemently rejected the charges made against

them by the US and CEO of Huawei, Richard Yu, expressed his repulsion at the allegations, stating that the company worked tirelessly over the last 25 years to win the approval and trust of carriers and governments from all around the world.

A number of leading Republican congressman have tabled legislation which has called for a ban on all of the telecoms equipment supplied by Huawei or ZTE to be prohibited from being used in US government departments, again citing fears of espionage from the Chinese government.

Huawei is the world's second largest phone manufacturer and is desperate to break into the US market. However, it's unable to get any US carriers to sell its phones. It had agreed a deal with AT&T, but the US telecommunications incumbent pulled out at the eleventh hour following regulatory pressure.

However, the decision by the US Commerce Department to impose a ban on US tech firms selling components and software to ZTE for a period of seven-years really escalated tensions between Beijing and Washington.

The US Commerce Department claimed that ZTE hadn't made sufficient changes to its management or board following the fine it received in 2016 for violating trade sanctions with Iran and North Korea. The draconian measures implemented forced ZTE to suspend all of its major operating activities with the company's CEO saying its very future was now at risk. President Trump said he'd work closely with President Xi to find a resolution for ZTE and a way back into business, but quickly went back on his word following congressional criticism – with the President declaring that 'no deal had been done'.

**What's next?**

Reports are emerging suggesting that a resolution has been found over the ZTE crisis and that the decision by the US to amend the crippling sanctions it initially imposed, appears to have defused tensions between the two countries.

The US President has now publicly claimed that as a favor to the Chinese administration his administration is now mulling over the prospect of replacing the sanctions with a fresh set of penalties on the beleaguered Chinese telecommunications vendor which will ultimately keep ZTE in business.

Trump told reporters assembled at The White House that ZTE would more than likely receive a new fine, but stressed that no deal has yet been finalized between the two global economic superpowers.

Trump said, "ZTE could face a new fine of as much as $1.3 billion, in addition to the $1.2 billion it received in 2016 – and will be subject to a management shakeup and strict new rules. As a favor to the president, I am absolutely taking a look at it."

However, the reports that emerged claiming that a compromise had been met in relation to ZTE sparked outrage and condemnation on Capitol Hill, where a number of leading Republican and Democrat senators joined forces to denounce the proposed deal and vowed to fight it.

Republican Senator Marco Rubio blasted Trump in a series of tweets has said the US President had 'surrendered' to China and said the new punishment is the same that was imposed in the past and was subsequently deemed 'ineffective'.

Rubio tweeted, "We're now offering the same deal of a fine and employee discipline? This administration has surrendered to China. We know that making changes to their board and another fine won't stop them from spying and stealing from us."

Senate Minority Leader, and prominent Democrat of New York, Chuck Schumer weighed in with his two cents on the proposed deal and was highly critical of both President Trump and his administration, claiming that the tabled deal does nothing to protect America's national and economic security.

In a statement, Schumer said, "The proposed arrangement does nothing to protect American national or economic security - and is simply a diversion from the fact that we have lost. President Xi has played President Trump. This affair is a screaming violation of the US Constitution's emoluments clause, which flatly prohibits the acceptance of gifts and benefits from governments in the absence of congressional consent."

Treasury Secretary, Steven Mnuchin hit back when giving testimony before the Senate by declaring that the primary objective of the administration was to safeguard US interest and vehemently denied allegations that there was any quid pro quo.

The Treasury Secretary said, "The objective was not to put ZTE out of business. The objective was to make sure they abide by our sanctions programs. I can assure you anything that they consider will take into

> Relations appear to have now improved somewhat following a series of recent discussions

account the very important national security issues and those will be addressed."

Despite the political ramifications this proposed deal may have in congress in Washington – there's no doubt that a number of countries globally are now breathing a huge sigh of relief that an all-out trade war which would undoubtedly spark an economic conflict between the United States and China appears to have been avoided.

US technology giants such as Apple who trade in both countries will welcome the resolution agreement, whilst many other leading US tech firms that trade with ZTE will welcome the news that the ban imposed on the Chinese telecommunications colossus will now be amended, with the company facing a fine instead.

The volatility of the Trump White House means you can never rest assured that the issue will not raise its head in the future – and again no deal has yet been rubberstamped although it does seem like it will just be a matter of time before it's officially confirmed.

Who won this trade battle is hard to determine but there seems to be no doubting that both countries benefit. However, with ZTE faced with the very real prospect of closure, the decision by the US to drop the sanctions it imposed would appear to some that China came out on top in this trade battle. TR

> "The objective was to make sure they abide by our sanctions programs"

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