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ALL EYES ON GSMA MWC SHANGHAI 2023

BlueJeans by Verizon: Creating an Inclusive, Hybrid Work Environment

B-Yond: End-to-End Automation to Yield Network Resilience

ITU Asia and the Pacific Region Focuses on **Bridging Digital Divide Through Inclusive Development**


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■ IoT and Its Role in Revolutionizing the Healthcare Industry

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■ Philippines' Cloud Market Continues to Expand

Editor in Chief & Senior ICT Analyst
Toni Eid
toni.eid@tracemedia.info

Copy Editing Director
Chris Bahara
chris.bahara@tracemedia.info

Senior Journalist & Content
Corrine Teng
corrine@telecomreviewasia.com

Senior Journalist
Camille Bersola
camille@telecomreviewasia.com

Editorial Team
Camille Bersola (Philippines), Chris Bahara (USA), Corrine Teng (Singapore), Elvi Correos (UAE), Elza Moukawam (Lebanon), Jeff Seal (USA), Jonathan Pradhan (UAE), Marielena Geagea (Lebanon), Toni Eid (UAE)

Chief Operating Officer
Issam Eid
issam@tracemedia.info

Operations Director – Group
Anna Chumak
anna@tracemedia.info

Advertising Enquiries
Mohammed Ershad - Sales Director – Group
ershad@tracemedia.info

Paul Tan - Regional Sales Manager – Singapore
paul@telecomreviewasia.com

Marian Santos - Head of Sales – Philippines
marian@telecomreviewasia.com

Graphic Designer
Tatiana Issa

News
Provided in cooperation with AFP
the global news agency

Singapore: Corrine Teng; Paul Tan
Philippines: Marian Santos; Camille Bersola

Trace Media Ltd.
Zouk Mikael, LEBANON, Kaslik Sea Side Road,
Badawi Group Building, 4th Floor,
P.O. Box 90-2113, Jdeidet el Metn
Tel. +961 9 211741
Fax +961 9 211742

Trace Media FZ.LLC.
Dubai Media City, UAE
Building 7, 3rd Floor., Office 341
P.O. Box 502498, Dubai, UAE
Tel. +971 4 4474890
Fax +971 4 4474889

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Toni Eid,
Founder of Telecom Review Group
CEO of Trace Media International
Editor in Chief

Open RAN Again!

Why does the Open RAN debate continue? When the hype of the Open RAN technology began over three years ago, Telecom Review was keen to highlight its good and bad sides. And yet this debate is being raised once again.

As several years have passed on several Open RAN deployments, telecom operators have learned their lesson that Open RAN may save money, but it's not the smoothest path to take!

Why? Because such operators have compromised their security for the sake of savings, whether CAPEX or OPEX. There are many stories to tell, particularly with multiple vendors getting involved with Open RAN. Few of the operators are willing to admit to issues such as the security of networks causing delays or crashes, concerns over financial transactions, conflicts between hardware and software suppliers and content issues.

As a result, there are threats to a multitude of services in many locations, from North America to the Middle East and Asia, where there is minimum Open RAN implementation.

The single RAN may cost you more, but at least you can hold someone responsible on their end and ask them to fix any problems that arise.

I'm looking forward to the MWC 2023, which will re-emphasize the Open RAN debates, revealing which side operators take and their best assurances of being cost-effective without compromising technology.

I hope that we will look at the issues of Open RAN not only from the cost side but also with examples of concerns that most stakeholders have been able to avoid until now.

It's time to discover if Open RAN is providing more opportunities or more challenges to the telecom industry today.

All Eyes on GSMA MWC Shanghai 2023

GSMA MWC Shanghai, an annual gathering of industry leaders and executives in the mobile industry, will return with the much-anticipated 2023 edition. Themed "Intelligent Connectivity," the event will take place at the Shanghai New International Expo Centre (SNIEC) from June 28–30, 2023.

The biggest event of its kind in Asia, MWC Shanghai 2023 will dive into topics and innovations including 5G, 6G, IoT and other immersive technologies while convening global mobile operators, device manufacturers, technology providers, vendors and content owners worldwide.

China the Focal Point for Tech in Asia

Asia Pacific has grown to be one of the most vibrant and advanced markets for mobile and digital technologies. The mobile industry in China generated 5.6% of its GDP, reaching nearly $900 billion in 2021. China and the wider Asia Pacific region also house a comprehensive mobile ecosystem

that is activating the development of advanced technologies including 5G and 6G as well as the technological capabilities driving the metaverse such as AI and XR.

This event will be China's largest trade show for the mobile communication industry since its opening earlier this year. MWC Barcelona, the sister event that just wrapped up the first week of March, boasts tens of thousands of attendees from over 200 countries. The success of MWC Barcelona is a precursor to Shanghai and subsequent editions later in the year, where Chinese attendees will likely show a strong return following the lifting of travel restrictions.

"MWC Shanghai convenes the mobile, technology and adjacent vertical industries across China and Asia. It's where stakeholders gather to network, exchange ideas and create impact. It would have been nearly impossible to bring back MWC Shanghai if not for the determination and commitment of our Host City, Shanghai, and our valued partners China Mobile, China Telecom, China Unicom, Huawei, ZTE and SNIEC, and we are truly grateful to them," said the CEO of GSMA Ltd., John Hoffman.

Shanghai's Executive Vice Mayor, Wu Qing, said, "Shanghai greatly values MWC Shanghai and supports its continuing growth. The city of Shanghai welcomes global industry partners to gather in Shanghai and participate at MWC Shanghai to showcase the best technological innovation and digital transformation. We welcome the global mobile ecosystem to reconvene at MWC Shanghai and look forward to the advancement of a globally harmonized development of the innovation ecosystem."

Showcases at MWC Shanghai 2023

Even though the event will showcase a global perspective on the mobile communications industry, attention will spotlight China as a 5G leader and what it has to offer. Already, over 150 companies from China are being represented at the event.

"MWC Shanghai is Asia's leading event for next-generation technologies. It is also a critical platform to convene and advance the mobile industry. As its exhibitor and Diamond Partner, China Mobile will be committed to facilitating and participating at MWC Shanghai, leveraging new infrastructures of 5G, computing force network and smart middle-platform, as well as its new service framework for 'Connectivity + Computing Force + Ability,' to showcase emerging information technologies, AI, smart cities [and] smart living that will enhance the thriving development of digital economy," said the Chairman of China Mobile, Yang Jie.

"MWC Shanghai has been one of the bellwethers of global technological advancement by continuing to foster innovation and promoting win-win cooperation and collaboration. China Telecom looks forward to exhibiting our latest products and services in infrastructure, technological innovation, industrial application and ecosystem cooperation to our partners, customers and friends at MWC Shanghai 2023," said the Chairman of China Telecom, Ke Ruiwen.

"As the north star for the development of global mobile communication technologies, MWC Shanghai has become an important platform for international dialogue that convenes stakeholders from the global mobile industry to reach consensus, strengthen collaboration, and seek mutual development. China Unicom will join industry partners worldwide to participate in this exceptional event to extensively exhibit our new accomplishments across big connectivity, big computing, big data, big application and big security, and to share novel practices for the deployment of digital information infrastructure and application of 5G innovations, so as to contribute more to the prosperous global digital economy," said the Chairman of China Unicom, Liu Liehong.

At MWC Shanghai, world-leading companies and trailblazers will share the latest thinking about the progression and future of connectivity. For exhibitors such as Huawei and ZTE, it is an unmissable platform to exhibit ground-breaking products and technologies and make remarkable connections with senior decision-makers, creators and innovators in the industry.

MWC Shanghai will showcase the highlights and latest developments from the GSMA 5G Innovation and Investment Group (5G IN). This is an initiative established in Greater China, which brings together mobile operators, industry and ecosystem partners, and investors to stimulate 5G innovation and increase collaboration across sectors.

China and the wider Asia Pacific region also house a comprehensive mobile ecosystem that is activating the development of advanced technologies

> MWC Shanghai is Asia's leading event for next-generation technologies. It is also a critical platform to convene and advance the mobile industry

"There is exceptional demand for a return to in-person convening, and none more so than for the dynamism and buzz generated by MWC Shanghai. There has never been a more pressing moment to come together to discuss trends, innovations and understandings. MWC Shanghai creates a mix of inspiration and gathering of key decision-makers where we will see collaborations blossom, enabling new growth to emerge," said the Head of Greater China, GSMA, Sihan Bo Chen.

Much-Awaited Reopening

By effectively removing all pandemic restrictions as of January 8, 2023, China reopens its borders to international travel and the hosting of international events and exhibitions.

Last year, GSMA had to cancel MWC Shanghai 2022, originally scheduled from June 29 to July 1, 2022, owing to emerging pandemic conditions in Shanghai. However, MWC Shanghai went ahead as planned. Themed "Connected Impact," the event attracted about 25,000 attendees from 114 countries and territories, despite extensive travel restrictions in China owing to the pandemic.

"The event went ahead as a positive signal of our industry's determination to connect people, industry and society and contribute to global recovery," said John Hoffman, CEO of GSMA.

The My MWCS Online portal accounted for approximately 30% of attendee turnout. Another 175,000 people viewed presentations, keynotes and other program components via the event's official media partner.

A leading event for the industry in Asia, MWC Shanghai 2021 gathered close to 350 speakers. In the venue spanning 50,000 square meters across

the Shanghai New International Expo Centre and Kerry Hotel Pudong, 220 exhibitors and sponsors gathered, with the conference crowd comprising about 58% senior-level executives, including 576 CEOs.

Given the circumstances, MWC Shanghai 2021 proved to be a resounding success, as with preceding years. This year's MWC Shanghai is expected to draw crowds similar to pre-pandemic levels in 2019, if not more, as the industry reunites after a few years of disconnectedness.

As with previous years, the event will showcase the Asia Mobile Awards (AMO) in recognition of individuals, teams, organizations and partnerships that have relentlessly strived to better the world through connectivity, from game-changing mobile devices and technologies to the resilient leadership that has driven our industry forward. Another highlight of the event is the 5G Innovation Zone, a showcase where mobile operators and investors come together to explore the digital ecosystem for 5G. Some of the themes surrounding this exhibition include 5G cities, metaverse and new tech.

According to ZTE Product Promotion Manager, Gu Yuan, "when it comes to network, this is a very professional event, providing a great platform for all manufacturers to meet with each other."

In 2021, the 5G Innovation Zone drew 80 exhibitors displaying an array of immersive 5G experiences and innovations, successfully connecting start-ups and entrepreneurs with investors.

Given the media attention and industry interest, MWC Shanghai is the go-to platform for brands to showcase the latest innovations. TR

> There is exceptional demand for a return to in-person convening, and none more so than for the dynamism and buzz generated by MWC Shanghai

Joe McStravick, managing director of international for BlueJeans by Verizon

BlueJeans by Verizon: Creating an Inclusive, Hybrid Work Environment

In an exclusive interview with Joe McStravick, managing director of international for BlueJeans by Verizon, he explains why the future of work is hybrid and how digital platforms are driving a new era with virtual, remote and hybrid events.

Can you give us some insights into your product roadmap?
Engagement in today's hybrid workplace is so important — especially in this next phase with more people going back into the office. But the truth is, virtual events and meetings aren't going away.

You could say we are in the perfect storm of transformation of hybrid work. Organizations rushed to deploy collaboration tools during the pandemic, and now organizations are evaluating the engagement of said tools.

How many times have you heard about "video fatigue" over the past few years? Or feelings of isolation and team disconnect? The challenge has now become a matter of: how do you make sure there's an equally engaging experience for those in person and those attending virtually. And how do you make sure creating these experiences is simple, polished and

open for everyone to take advantage of?

During the pandemic, a range of features was added to collaboration solutions to help make meetings more user-friendly for virtual attendees. But those don't necessarily translate across a hybrid experience, especially when it comes to large-scale events.

At BlueJeans, we're focused on creating a hybrid work environment that is inclusive for all; one that delivers immersive, TV-production-grade experiences that drive audience engagement and interactivity.

Our platform is designed with inclusivity in mind, where any team — large or small — can extend its brand and message to its peers, employees and fans in a way that promotes engagement.

This is why we've launched BlueJeans Studio and BlueJeans Expo in 2022 and will continually look to improve these offerings and our Events platform through customer feedback and co-innovation.

Studio equals the playing field for any organization or content creator to design professional and engaging videos and livestreams with TV production quality tools in the hands of the user.

Expo combines live and on-demand video, event management and content hosting into one powerful yet easy-to-manage platform.

From individual creators to enterprise marketers and everyone in between, there's a real need for these solutions, and we're excited about the projects our customers are looking to deliver through BlueJeans, both now and in the future.

What kinds of features and benefits will you bring to your customers over the coming 12 months?

Video has become a fundamental part of the enterprise. And while the COVID-19 pandemic forced organizations around the world to quickly pivot to a virtual environment, now business leaders are taking a step back to reevaluate their overall communication strategies and supporting technologies to determine the best path forward.

The key to creating a collaborative workplace in today's environment is to ensure a seamless experience for employees across devices and work modes. The same must also be true for how customers and audiences consume your content.

With the combined strength of BlueJeans and Verizon's 5G network, we're making the hybrid work experience one that's immersive, inclusive and engaging.

It's all about connectivity and mobility. This is the benefit that Verizon and BlueJeans bring to customers. And we look forward to showing you more of what's to come soon.

What trends are you seeing in the market currently?

Creating a sense of inclusion and equity for all workers, regardless of what work mode they've chosen — hybrid, remote/field, home or office. This is something that will be especially important as more workers start heading back into the office.

Employees expect a level of connectivity and experience parity, no matter where they are working from. This means being browser-agnostic, having mobile experiences on par with desktop experiences, being able to quickly and seamlessly switch between modalities and more.

A key part of our platform is interoperability, which gives us a leg up when it comes to designing and partnering with technologies that can help bridge the digital divide.

Furthermore, as I've said, virtual and hybrid events are here to stay. There's no doubting their value in terms of cost savings, audience reach and scale, especially when it comes to reaching large, distributed audiences.

And while the COVID-19 pandemic gave a major boost to the creative economy, not all creators and brands have the resources and tools necessary to compete in today's crowded marketplace.

BlueJeans Events already leads the virtual event industry with the ability to host up to 150,000 worldwide interactive event participants and multi-language support for over 70 languages. Now, with the addition of Studio, users can easily create TV production-level events that engage and wow audiences while helping to elevate their brand and expand their reach.

I anticipate we'll continue to see more innovation in the market focused on making event production and livestreaming more polished and easy-to-use for all.

What tips do you have for managing challenges with hybrid work?

What I would say is that one size doesn't fit all, which is a good thing. The culture of an organization is extremely important in helping to facilitate different work models and expectations for employees. Verizon has done a particularly good job with this through the company's Work Forward program, which provides guidelines and allows flexibility in how we work.

Personally, I am a strong believer in personal equity and setting boundaries you're comfortable with. There are always going to be instances where meeting someone in person is ideal. The connection and trust that can be built in person is powerful. From there, you can better leverage the digital tools at your disposal to stay connected.

Regardless of how you meet, spending time getting to know your employees and peers is so important. Making a connection with an individual really can make all the difference.

Ultimately, emphasizing culture and leading with kindness will enable choice and drive change. TR

Dr. Atsuko Okuda, head of ITU Regional Office for Asia and the Pacific

ITU Asia and the Pacific Region Focuses on Bridging Digital Divide Through Inclusive Development

One of the distinguished guests during the 16th Telecom Review Leaders' Summit was Dr. Atsuko Okuda, head of ITU Regional Office for Asia and the Pacific. Together with the Telecom Review Group Founder Toni Eid, she was part of the debate focusing on "Building the Asian Dream," where she was also a panelist in the event's esteemed Women in ICT panel.

In this exclusive interview, Dr. Okuda talked about some of the regional initiatives they have implemented, particularly in support of girls and young women, and how ITU contributes to connecting and empowering communities in Asia-Pacific's digital economy.

Can you share with us the progress in the implementation of the ITU Regional Initiatives for the Asia-Pacific region?

Our Asia and the Pacific Regional Office is implementing five regional initiatives which were adopted by the ITU membership. These provide the key pillars to structure our work around addressing the special needs of least developed countries (LDCs), Small Island Developing States (SIDS) landlocked developing countries (LLDCs), as well as harnessing ICTs to support the digital society and economy, enabling policy and regulatory environment, and development of infrastructure

to enhance digital connectivity and promoting a safe and secure environment.

We recently completed the implementation of the previous regional initiatives, and due to COVID-19 pandemic and the increased demand for digitization, we had several activities and requests coming from member countries. We look forward to partnerships and collaboration across the industry and among our member states.

Asia-Pacific is one of the most dynamic regions in digital advancement worldwide. How will ITU keep up with the demand for utilizing ICTs and bridging the digital divide?

We are making sure that we accelerate our effort to connect the unconnected but at the same time making sure that they will not be left behind in the digital transformation effort. Asia and the Pacific region is diverse but dichotomies still exist. On one hand we have countries that are global leaders in 5G and fiber optics technology as well as innovative digital and e-commerce services. On the other hand, there are countries which need to catch up with the rapid changes of these technologies and services.

Our office works closely with member states to identify the relevant interventions, policies and programs to ensure that we make accelerated progress towards connecting the unconnected.

How will the Asia-Pacific region achieve inclusive and meaningful connectivity through ITU's collective efforts and partnerships?

To achieve inclusive and sustainable development we need collective and concerted efforts. A one-size-fits-all approach will have limited efficacy. We have several targeted interventions tailored specifically to achieve this goal. For example, the gender digital divide is a real concern for all of us in Asia and the Pacific region and for girls and young women. Currently, we are implementing two flagship ITU programs to address the gender divide.

First is the Girls in ICT Day celebration. As part of it, ITU celebrates with its partners at the end of April every year to raise their awareness and encourage girls and young women to pursue a Science Technology Engineering and Mathematics (STEM) career in the universities as well as in the ICT sector. This program has become quite popular across the region. I hope that this initiative will increase and enhance the awareness and interest among girls and young women who are considering to pursue a career in STEM. The second program we are implementing is called EQUALS with GSMA and United Nations universities, among others.

We hope that these programs will collectively make significant progress to encourage more girls and young women to join the digital transformation journey and at the same time benefit from digital transformation and advances in technology. We also have other programs for persons with disabilities and older persons, as well as for child online protection.

As one of the formidable women in ICT leadership, how can you play a role in encouraging young women and professionals to enter the ICT industry and make significant contributions?

ITU's initiatives are not for us alone to provide solutions for everyone but to really connect the girls and young women with different agencies, industries, governments, partners, programs and initiatives. I hope that it will motivate them to do something different. Through the programs that I have mentioned, I hope to motivate and inspire more and more young girls and women to have the right skillsets to pursue a career in the ICT industry which has traditionally been male dominated.

What is your outlook on Asia-Pacific's digital economy in the coming years, and how will ITU continue to play its role moving forward?

I hope the digital economy in Asia-Pacific will be more inclusive and can reach people in remote and rural areas. I hope that will energize the rural economy and communities to facilitate their participation in the digital economy, not only within their own country but also across the region. I hope that it will be more sustainability and create more employment, education and health opportunities in those connected and empowered communities. TR

We are making sure that we accelerate our effort to connect the unconnected but at the same time making sure that they will not be left behind in the digital transformation effort

IoT and Its Role in Revolutionizing the Healthcare Industry

The healthcare industry has witnessed a big leap with IoT technology. The ability of the Internet of Things (IoT) to connect real-time data with users — together with the emergence of ultra-low latency, high bandwidth 5G — is a game-changer for the healthcare industry.

Think remote monitoring, smart ambulances and wearable biometric sensors. These are just some of the many IoT healthcare applications that are impacting the industry and delivering tangible benefits to patients.

According to Straits Research, the global IoT healthcare market was valued at $99.58 billion in 2022. This amount is projected to reach $486.34 billion by 2031, representing a compound annual growth rate (CAGR) of 19.27% during this period. In the Asia Pacific, market growth can be attributed to the widespread availability of high-speed Internet, increased adoption of artificial intelligence (AI) and heightened government initiatives to roll out digital health. By 2031, it is estimated that 20% of healthcare facilities will employ IoT-based sensor technology in the region.

Broadly, IoT healthcare can be segmented into telemedicine, connected imaging, clinical operations, workflow management and inpatient monitoring. By leveraging IoT healthcare solutions, doctors can now improve diagnostic and treatment options for patients through methods such as capsule endoscopy, which relies on machine learning to help doctors gather more information about a medical condition and hence facilitate their decision-making. Future-proof smart ambulances allow paramedics to connect with doctors via a telemedicine system to send the latter clear and accurate real-time information about a patient even before he or she arrives at the hospital to receive timely treatments.

Apart from delivering improved medical diagnostics, IoT takes healthcare one step further with high-precision robotic surgeries that leave little or no room for human error and thus significantly improve healthcare outcomes. In a hospital, IoT devices are equipped with sensors and AI technology for staff to better track inventory, including equipment and medication. For instance, hospitals can use a predictive model that uses AI to manage their medication and supply levels. Hospitals can also tap into a similar technology to manage the allocation of hospital beds, thereby effectively improving processes and enhancing overall productivity.

Outside of medical facilities, IoT powers wearable monitoring devices and sensors that allow patients to monitor biometrics such as temperate glucose levels and blood oxygen levels in the comfort of their homes, delivering a marked improvement to preventive medicine in the healthcare industry. With mobility healthcare solutions, patients can rely on mobile applications to alert doctors in the event of an emergency, allowing for real-time evaluation and, hence, a shorter response time. For many, the result is a reduced length of stay in hospitals or a reduced frequency of doctor appointments, greater convenience and comfort, as well as reduced healthcare costs in the long run.

Given the benefits of IoT healthcare, more effort is being channeled into this field. For instance, in January, a major tech company in Vietnam entered into a partnership with Microsoft to develop AI-empowered healthcare services that will support early detection and increase workflow productivity.

However, while IoT is critical to digitalizing the healthcare industry, implementing it in healthcare is not without its challenges. Given the amount of information as well as the sensitivity of the information, security and privacy are major concerns surrounding IoT-enabled devices and applications. Extra care must be taken to boost security measures to ensure that sensitive information is not compromised.

For instance, the Cyber Security Agency of Singapore (CSA) recently introduced a labeling scheme for medical devices to help providers make better decisions relating to their cybersecurity policies.

As many countries grapple with an aging population, a surge in chronic diseases and other ailments, as well as limited medical resources, IoT healthcare solutions hold the potential of refining and transforming the global healthcare industries to bring about enhanced processes, workflows and outcomes. In the coming years, we can expect continued interest and a rise in IoT healthcare investments to harness its full benefits. TR

In the Asia Pacific, market growth can be attributed to the widespread availability of high-speed Internet, increased adoption of artificial intelligence (AI) and heightened government initiatives to roll out digital health

Southeast Asian Telcos:

Cyber Defense and the Push for Digitalization

In 2023, cybersecurity laws will be high on the agenda for many governments across the world as they continue to deal with growing pressure to protect their people and infrastructure from cyberattacks, according to mobile industry group GSMA.

It added that cybercriminals have also started practicing innovative approaches to target individuals and employees through social engineering. Cybersecurity has therefore become part of more extensive security and privacy strategies.

In its report, the GSMA said that there has been a rise in real and perceived threats to national security and public safety, especially as more people now heavily rely on the internet to communicate and transact businesses, among other activities online. And these have made them more at risk of ransomware and other cybersecurity issues.

Citing Interpol, the GSMA reported that ransomware, phishing, online scams and hacking are the latest cybercrime activities that are determined to be the most threatening to many people and organizations.

In Asia Pacific, more technologically advanced countries like Singapore and Japan have already extended their help to less-developed neighboring countries. The regions are trying to counter these threats with a stronger commitment to mutual defense, the adoption of cyber norms and regional-level capacity building.

As more countries in Southeast Asia are now moving forward with their digital transformation strategies, securing their cyber defenses is also deemed a critical part of their digitalization goals. What follows are some of the latest measures that both the public and private sectors have been enforcing to ensure their citizens and infrastructure are protected.

Singapore

Amid Singapore's push for a more advanced digital economy, Singtel has warned that in 2023, "the gravest cyber threats to companies may come in the form of lurking, almost invisible attacks produced by hidden, organized networks of expert hackers."

Singapore's major telecom operator said that the world is now in the age of Advanced Persistent Threat (APT), which involves: "stealthy and continuous cyberattacks orchestrated across months or years; and unleashed on large businesses, government institutions or high-value individuals."

Singtel said that those being targeted by these attackers are VIPs, multinational companies or nations for data theft, economic gains or political advantage.

To protect against these potential dangers, the company has developed its program, Singtel Threat Management, which features end-to-end security services that make use of 10 federated security operations centers globally and the talents of over 2,000 global cybersecurity professionals to ensure round-the-clock response readiness.

The Singapore government also continues to strengthen its cybersecurity workforce, according to its Cyber Security Agency of Singapore (CSA). In a statement, it emphasized the importance of strong cyber leaders, saying it was "important to lead and groom the next generation of cyber talent so that they can perform cybersecurity roles at various levels in organizations."

It added that robust local cybersecurity leadership is also key to supporting Singapore's ambition as an APAC cybersecurity hub.

Philippines

The International Telecommunication Union (ITU) placed the Philippines 61st out of 194 countries in its latest Global Security Index. In a statement, Microsoft Philippines' National Technology and Security Officer, Dale Jose, said: "It is more crucial than ever to develop a better cyber defense posture in the country as it is fundamental to establishing stronger grounds for digitalization. Now, we put the MDDR into the Philippine context and discuss action points the government must prioritize in order to prepare for, respond to and recover from cyberattacks and security breaches."

As the government moves ahead with its plans for digital transformation, it is also looking towards updating the National Cybersecurity Plan. Among its technology partners, Microsoft is planning to build a safer cyberspace for the Philippines. The massive number of signals it receives and analyzes allows Microsoft to assess the threat landscape and provide data-driven insights to support the development of Philippine policies on cybersecurity.

Microsoft has already started working with its customers, partners and communities in the country to strengthen their collaboration, share knowledge and toughen security for organizations nationwide.

Telecom giant PLDT Group, meanwhile, said it has continued beefing up its cybersecurity. As of the end of 2022, PLDT and Smart's Cyber Security Operations Group had prevented more than 182 million cyberattacks and breach attempts. The Cyber Security Operations Group has also accumulated more than 123 million indicators of compromise in its threat intelligence database that it uses for cybersecurity correlation.

Its rival, Globe Telecom, announced that it had blocked a record high 2.72 billion scam and spam messages in 2022, more than double the 2021 total of 1.15 billion. The move, it said, is a reflection of the impact of its stepped-up campaign against malicious SMS.

As a result of its intensified crackdown against fraudsters, Globe also blocked 83.4 million bank-related spam messages last year. Globe has partnered

with all major commercial banks and online retailers in the country to ensure quick and efficient information exchange for a more efficient, coordinated response to spam and fraud SMS.

It has also teamed up with global firm, Palo Alto Networks, to improve enterprise cybersecurity.

Globe boasts its Business Endpoint Detection & Response (EDR) Solutions, powered by Palo Alto Networks Cortex XDR, the industry's first extended detection and response platform, to enable security teams to block modern attacks. By combining rich data and analytics, EDR can identify tactics and techniques deployed by attackers, hunt for malicious activities and provide the visibility needed to investigate and respond to incidents.

Globe allows enterprises to access integrated Next-Generation Firewalls from Palo Alto Networks as organizations shift to a cloud-delivered network security model. The cybersecurity firm's natively-integrated Prisma Access and Prisma Software-Defined Wide Area Network solutions provide security and uninterrupted connectivity.

Thailand

According to a report by the Bangkok Post, Thailand saw 44,000 cyberattacks in the first half of 2022, resulting in a loss of 3 billion baht.

International Data Corporation said that as Thailand becomes more digitally advanced, cyber risks also increase. It added that businesses are more mindful of cyber threats, as reflected in their software spending. In fact, the market saw security software spending go up by 22.5% year-on-year in the first half of 2022. IDC expects to see continuous investment in security in Thailand as attack patterns and cyber threats are always changing and becoming more complex.

In his article for the World Economic Forum, Sigve Brekke, chief executive officer, Telenor Group, the majority owner of dtac, said, "It isn't digitalisation that's making us more vulnerable to cyberattacks; rather, it's the interconnection between everything and everyone across borders."

He stressed that by relying on partnerships, particularly its collaboration with Cisco, they have enabled young people in Thailand to have a good knowledge of the solutions for cybersecurity and online safety challenges.

AIS also expanded its cyber threat awareness project, Aunjai Cyber, which is the first digital skill enhancement learning program in Thailand. This year, the project will cover 245 educational areas, including 29,000 schools across the country.

Among its objectives is to provide youth with proper online communication skills and behavior in order to protect them from cyber threats and help create a community of a modern digital world for children, youth and Thai people.

Malaysia

Malaysia's Cyber Security Commission has vowed to strengthen the country's cybersecurity. The Prime Minister has announced that the Minister of Communications and Digital (KKD), Fahmi Fadzil, represented Malaysia in Singapore to sign a memorandum of understanding to promote cooperation in the aspects of data, cyber security and the digital economy.

Following this meeting in Singapore, the government announced its plans to form the Malaysian Cyber Security Commission as part of efforts to enhance the country's cybersecurity framework.

This comes ahead of the 5G network implementation in the country, which, as of now, is still under review. The assessment of the 5G network implementation is expected to be completed by the end of March.

TM One, the business-to-business arm of Telekom Malaysia, reminds enterprises of the risks that come with their digitalization efforts, noting that a heavy reliance on technological tools and services presents a higher vulnerability to cyberattacks.

Shazurawati Abd Karim, Executive Vice President at TM One, quoted a 2022 Kroll Cyber Risk and CFOs study of CFOs in Asia Pacific where 84 percent of the respondents confirmed they had more than three cybersecurity incidents in the last 18 months.

TM One cited a ranking by VPN service company SurfShark, placing Malaysia at the 11th spot as a highly invasive and digitally threatened country. This indicates that businesses with weak cyber defenses may experience an influx of cybercrimes in the future, resulting in potential data and financial loss.

Shazurawati said that to achieve total digital transformation, businesses must ensure that pursuing and upgrading cybersecurity networks remains an uncompromising priority.

To address these needs for digitalization, TM One partnered with top global and Malaysian tech and smart service providers for the 5G Sphere Programme — an ecosystem of smart and digital solution enablers for enterprise innovation and Next-Generation transformation. TR

> Cybercriminals have also started practicing innovative approaches to target individuals and employees through social engineering. Cybersecurity has therefore become part of more extensive security and privacy strategies

Why Smartphone Shipments Are on the Decline

Global smartphone shipments have dipped sharply by 18.3% to 300.3 million units in the last quarter of 2002, reported IDC, making the holiday quarter the worst decline in a single quarter in 2022 and the fourth consecutive quarter for declined shipments. With smartphone shipments totaling 1.21 billion units in 2022, last year saw the lowest annual smartphone shipment since 2013, when shipments have slumped 11.3%.

Major smartphone makers suffered a significant decline. However, the standings of smartphone makers remained unchanged from a year ago, according to a report from Canalys. The Middles East suffered the greatest hit with a 20% decline. Europe experience a decline of 12%, while Asia Pacific reported an 8% drop in smartphone shipments in 2022.

Samsung claimed the first spot with a 22% market share and 257.9 million shipments, though it was down by 15.6%. Apple ranked second with a 19% market share and 232.2 million shipments. During the holiday quarter, Apple reported the first-ever double-digit decline, at 14.9%, partly due to iPhones production issues when factories in China were forced to shut down during Covid lockdowns.

This is one contributing factor leading to Apple's report of its first decline in revenue in three and a half years, when total revenue stood at $117.2 billion, down 5.5% compared to the same period in 2021.

Coming in third with 152.7 million shipments, Xiaomi experienced the largest decline at 26.5%. OPPO and vivo took subsequent spots with 113.4 million and 101.9 million shipments, respectively.

But the biggest contributor to the overall slump in smartphone shipment remains to be weak demand driven by global layoffs, high inflation and lower spending as consumers and businesses brace themselves for recessionary times.

In the region, Asia experienced peak inflation against major economies including the US and Europe, an economist from Morgan Stanley relayed. To make matters worse, the average length of phone ownership is increasing.

In India, smartphone shipments plummeted 9% year-on-year, even though revenue stayed relatively unchanged, according to a Counterpoint Research report.

China's smartphone shipments totaled 286 million, down 13% year-on-year, attributed to strict Covid measures that muted the Chinese economy and spending. Despite China's reopening, factory activities have yet to rebound significantly. However, Apple has said that supply chain issues impacting its iPhone shipments have been resolved and "production is what we need it to be".

To make matters worse, IEEE has reported that more people are holding on to their existing phones for more than three years. With 5G still in its infancy stages in most countries, newer smartphone models do not offer significant innovations and features. For the majority, upgrading their smartphones is not a priority in this economic and political landscape. In China, for instance, sales of smartphones in China declined 14% year on year in 2022 to record its fifth consecutive year of decline.

Plagued by weakened consumer demand and supply chain disruptions, China's smartphone market might need some time to recover. However, industry watchers are more hopeful about the premium segment.

While consumers remain cautious about spending, the collective push for 5G acceleration and 5G-ready devices can potentially drive consumers to purchase smartphone models with 5G features, especially in countries where 5G services are more readily accessible, therein allowing for market growth. TR

"The biggest contributor to the overall slump in smartphone shipment remains to be weak demand driven by global layoffs, high inflation and lower spending"

Advancing Enterprise 5G to Sustain Growth and Transformation

5G promises new and innovative capabilities that bring marked improvements to enterprises. Apart from being the improved version of preceding mobile communication technology, 5G enables new applications across enterprise sectors, taking IoT and industrial applications to unprecedented levels. These new capacities allow enterprises to create new digital services, new business opportunities and viable monetization models to raise their overall competitive edge in a fast-evolving business landscape.

A report by IDC outlined that 5G enterprise services in the Asia Pacific, excluding Japan, were valued at $1 billion in 2021, and are expected to reach $8 billion by 2026, representing a compound annual growth rate (CAGR) of 137%.

Even though consumer 5G has been the emphasis, telcos are aware that they must embrace enterprise 5G, as its use cases will exceed those of consumers in the very near future. With this knowledge, telcos are well-positioned to cash in on rising enterprise opportunities.

While 5G is still in the early stages of development in most parts of Asia, it is creating buzz as a long-term investment, introducing speeds that are up to 100 times greater compared to those of the predominant 4G.

According to Research and Markets, the notable research repository, 5G enterprise in the Asia Pacific is driven by intelligence and automation that taps into artificial intelligence (AI) to address behaviors, needs and preferences. With these solutions, enterprises can expect improved operations and differentiated customer experiences.

To capture the full enterprise potential, telcos are challenged to build new capabilities to support enterprise customers in new use cases. To do this, they will need to leverage partnerships with application providers and ICT vendors to co-create viable solutions for industries.

In India, where 5G is currently taking flight, Airtel recently announced a partnership with Tech Mahindra to deploy 5G private networks at Mahindra & Mahindra's Chakan facility, India's first 5G-enabled auto manufacturing unit. Even though 5G services were officially launched late last year, their impact is quickly growing. According to the GSMA, 5G is forecast to account for $455 billion of the country's economy between 2023 and 2040.

Similarly, Axiata has inked an agreement with Tech Mahindra to develop and commercialize 5G enterprise in countries including Malaysia, Nepal, Sri Lanka and Bangladesh.

In the Philippines, PLDT and Cisco are building a 5G standalone (SA) service platform that will drive both enterprise and consumer 5G in the country. The platform will leverage private 5G SA service architecture — a service-based, customizable end-to-end network — to help enterprises develop myriad digital use cases across verticals.

Major telcos, including Singtel and Starhub, also aim to transform enterprises with 5G. In Singapore, Singtel led the way in launching an all-in-one 5G MEC and cloud orchestration platform. Through a partnership with Intel, Singtel's Paragon platform will enable enterprises to adopt 5G seamlessly and deploy applications at the edge to drive innovation and accelerate digital transformation.

While Malaysia's 5G journey had not been without some obstacles previously, 5G deployment is now on track. A study commissioned by Ericsson revealed that out of 15 countries, Malaysia will be a significant beneficiary of 5G deployment. As a result, its GDP is forecast to grow incrementally but steadily faster than other emerging economies.

In 2022, Maxis formed a 5G alliance to drive 5G technology and IoT enterprise solutions in an effort to create and commercialize 5G use cases. The goal of this formation is to advance digital transformation efforts and raise the tech competitiveness of Malaysia in the region.

Indonesia, a fast-growing economy in the region, offers immense potential for 5G enterprise. To capture this growth, Indosat Ooredoo Hutchinson (IOH), for instance, has partnered with IBM in late 2022 to develop a 5G enterprise industry solutions platform. With this partnership, IOH will contribute much-needed infrastructure, while IBM delivers its cloud, artificial intelligence (AI) and security capabilities. The key is offering enterprise customers go-to-market 5G solutions.

Essentially, the ability to capture value in 5G enterprise depends on the country's level of ICT maturity as well as the telco's capabilities to capture new markets and growth opportunities. For 5G enterprise to fully take off and for telcos to successfully monetize enterprise 5G services, industry alliances are key to growing new collaborations and fostering the exchange of expertise. By doing so, industry stakeholders can benefit from cross-fertilization. Needless to say, a sound regulatory framework and spectrum management are also fundamental. TR

While 5G is still in the early stages of development in most parts of Asia, it is creating buzz as a long-term investment, introducing speeds that are up to 100 times greater compared to those of the predominant 4G

CelcomDigi to Further MBSB Bank's Digitalization Journey

MBSB Bank has signed a Memorandum of Understanding (MOU) with CelcomDigi as part of its continuous digitalization journey to future-proof its banking operations and enrich customers' experiences. This maiden partnership between the Islamic bank and the country's largest telecommunications company will support MBSB Bank in continuing to serve its customers better and, at the same time, enhance its operational efficiency.

Under this partnership, MBSB Bank and CelcomDigi will explore opportunities in end-to-end smart banking solutions that include comprehensive services for cyber security, smart retail solutions financing and cloud infrastructure technology, among others. Additionally, both companies intend to collaborate on finding new commercial opportunities and joint go-to-market activities that will benefit their customers and employees.

"Partnering with CelcomDigi is certainly a key milestone, especially in an industry like ours, which has become increasingly competitive due to technological advances; hence, it is our hope that working strategically with a market leader can accelerate our progress in that space," said MBSB Bank's Datuk Nor Azam M. Taib.

"We plan to establish industrial IoT solutions as part of the business financing, focusing on green tech adoption, automation and quality assurance. We also intend to leverage on cloud technology in order to advance our digital capabilities, as this shall help to increase our competitiveness level."

CelcomDigi's Datuk Mohamad Idham Nawawi added, "We are excited to be MBSB Bank's trusted digital partner to support their digitalisation needs. We believe we have the right expertise and resources that will help advance MBSB Bank's digital capabilities, as the bank progresses in leveraging technology to bring enhanced products, services, and experiences for its customers. We look forward to unlocking more value from our synergies, as we innovate together while supporting the nation's digital agenda."

Singtel, GULF and AIS Partner to Build Thailand Data Center

Singtel, GULF and AIS have commenced the construction of a new data center strategically located near Thailand's capital, Bangkok. The data center, which is scheduled to begin commercial operations in 2025 and offer 20 MW or more in capacity, will be operated by its joint venture company, GSA Data Center Company Limited (GSA).

The best-in-class hyperconnected data center will feature state-of-the-art technologies, including comprehensive security and access control systems, efficient energy management and incorporate the use of renewable energy to reduce its carbon footprint, to meet the needs of enterprises and cloud service providers in Thailand and overseas as their economies undergo rapid digitalization. The GSA data center will be constructed in compliance with world-class standards to obtain certifications such as TIA-942 Certification Rated-3, LEED Gold, Threat and Vulnerability Assessment (TVRA) and ISO 27001.

Ravi Kurmarohita, chief executive officer, GSA Data Center Company Limited, said, "Today's ground-breaking ceremony marks another milestone in GSA's data center development and is considered an auspicious occasion to officially start the construction of the GSA data center. This state-of-the-art, high-quality data center is located in a strategic location near Bangkok. It seeks to integrate cutting-edge technology and renewable energy to reduce greenhouse gas emissions and enhance efficiency in energy management to support sustainable operations. With increasing demand from enterprises, particularly cloud service providers, the company therefore sees a strong growth potential of the data center business in a move towards digital transformation."

Bill Chang, chief executive officer of Singtel's Regional Data Center business, added, "The commencement of the construction phase of our Thai data center marks an exciting milestone for our regional data center strategy, which aims to create the high-quality digital infrastructure needed to address the accelerating digital needs of ASEAN enterprises and cloud service providers, so as to entrench Singtel's position as a leading regional data center player. Thailand's digital economy, in particular, is one of the fastest growing in the region with a compound growth rate of 15% every year to 2025, and our announcement today signals our firm intention to leverage the combined expertise of the joint venture partners to build and operate a best-in-class green data center to support this exciting market."

SKT Uses AI to Perform Cell Tower Safety Checks

SK Telecom has developed and applied a system that checks the safety of cell towers using drones and image analysis AI. The image analysis AI model, which was developed by SKT's in-house experts, is capable of determining the status of bolts and nuts by analyzing images taken by drones.

Cell towers equipped with transmitting and receiving antennas are installed all across the nation and reach a height of up to 75 meters. Since these cell towers require periodic maintenance to prevent accidents caused by deterioration, such as corrosion or loosening of bolts and nuts, specialized personnel have traditionally had to climb the towers or study the images of cell towers taken by drones to visually check the conditions.

Now, with the intelligent safety inspection system in place, SKT can not only prevent accidents due to aging cell towers but can also secure the safety of these personnel by minimizing their need to go up the cell towers.

Moreover, the company boosts work productivity through the application of an AI model that automatically identifies defects by analyzing images taken by drones. Previously, safety inspectors had to study around 100 images to complete the safety inspection of one cell tower. With the adoption of this AI analysis model, SKT was able to reduce the time required for the process by 95% while increasing the reliability and consistency of the analysis results.

"By building an intelligent safety inspection system that can complement the existing visual inspection, we have secured greater safety for workers," said Park Myung-soon, SKT's vice president and head of Infra DT Office. "We will continue to make efforts to achieve AI transformation of our telecommunication networks while focusing on developing our field workers into experts who can develop and operate AI."

Starhub Embarks on Cloud Infinity Transformation to Improve Services

StarHub has embarked on a Cloud Infinity transformation to boost the delivery, scalability and performance of StarHub services while reducing the costs of operating the network business.

Cloud Infinity is a low-latency multi-cloud architecture uniquely conceptualized by StarHub and a first of its kind in the world. By deploying this network design, StarHub is able to improve customer experiences, launch new services quicker and deploy more data security measures. Cloud Infinity builds on an additional investment of up to $40 million to advance StarHub's DARE+ five-year growth program to strengthen cost rationalization for the company and prime it for sustainable business growth in the long term.

"Having embarked on DARE+ in 2021, we have reached the point where we are no longer just achieving project milestones, but going beyond telco to set new benchmarks for the entire industry," said Ayush Sharma, chief technology officer, StarHub. "Maximizing agility, Cloud Infinity will serve as a cradle of innovation for our enterprise and consumer businesses, allowing us to deliver the market's most unique, meaningful, and enriching products and services with speed and reliability. We are pleased to work with Amazon Web Services (AWS), Google, NAVER Cloud, and Nokia to deploy this new network architecture, doubling down on digital to realise growth without frontiers and reimagining what StarHub can be for our customers, partners, and stakeholders."

Cloud Infinity addresses challenges and new business opportunities using cloud-native and simplified architecture, operating and delivery models. Through this transformation, StarHub's network infrastructure will adopt a new highly scalable and access-agnostic hybrid cloud architecture, which allows the company to co-develop platforms and solutions with enterprises and differentiate services through low-latency multi-access technologies such as 5G and 10Gbps.

"AWS is proud to expand our long-term collaboration with StarHub on its cloud journey. Over the past two years, we have worked with StarHub to digitally transform beyond telco through initiatives such as DARE+ and Cloud Infinity, combining the power of StarHub and AWS to accelerate innovation, unify data and leverage analytics to gain meaningful customer insights and deliver personalised content to reimagine the customer experience," said Priscilla Chong, country manager, AWS Singapore. "StarHub can benefit from the agility, scalability and security offered by the broad and deep set of differentiated offerings of AWS and access a global partner network to help deliver solutions to end users. We look forward to continue to support StarHub in its mission to delight customers and achieve sustainable growth."

ZTE Partners With TM R&D to Deliver 50 Gbps Experience in Malaysia

The innovation arm of Telekom Malaysia Berhad (TM), TM R&D, has recently signed a Memorandum of Understanding (MoU) with ZTE Malaysia Corporation (ZTE), a leading global provider of information and communication technology solutions, to collaborate on optical network research, bringing the first 50 Gbps bandwidth experience to Malaysia.

The MoU was signed by Dr. Sharlene Thiagarajah, chief executive officer, TM R&D, and Steven Ge, chief executive officer, ZTE Malaysia. Under this agreement, TM R&D and ZTE will jointly explore the capabilities of next-generation Passive Optical Network (PON) access technology, 50GPON, to support various application scenarios. In addition, both entities will look into use cases that can deliver ultra-broadband access to the government, enterprise and consumers, as well as support the requirements of innovative services such as 5G, cloud virtual reality (VR), industrial intelligent manufacturing for high bandwidth, low latency and jitter, and clock synchronization, all of which will enhance the user experience in Malaysia.

Commenting on the MoU, Dr. Sharlene Thiagarajah, , TM R&D, said: "TM R&D is committed to conducting research on future technologies and innovating new value-added smarter eco-systems that will improve the quality of user experience and ultimately bring a positive impact on their lives. This fits well into the TM Group's transformation towards becoming a human-centered TechCo. We are very excited to partner with a renowned global player such as ZTE to innovate on future generation PON technology in line with the global trend and technology roadmap."

Steven Ge, CEO, ZTE Malaysia, said: "With gigabit home broadband services widely used in Malaysia at present and the basic fixed network in the time window of evolution from GPON to 10G PON, this partnership could not have come at a better time."

"ZTE is pleased with the opportunity to collaborate with TM R&D on future research in next-generation PON technology supporting Digital Malaysia," he added.

Telin and OneQode Partner to Grow Connectivity in Asia Pacific

Telin, along with OneQode, a global Infrastructure-as-a-Service (IaaS) company operating a latency-optimized international carrier network and high-performance cloud platform, have announced a Memorandum of Understanding (MoU) to collaborate on a joint go-to-market strategy for global managed Internet and network, as well as application performance optimization services.

The strategic partnership between Telin and OneQode is expected to create colocation and connectivity partnerships in Singapore, Indonesia, Guam and Australia.

Telin's chief executive officer, Budi Satria Dharma Purba, said, "We are very pleased to announce the joint collaboration with OneQode for co-location and connectivity in Singapore, Indonesia, Guam and Australia. Telin is committed to paving the way for our partners and customers to connect in more ways than ever. This partnership will meet the rapidly growing demand for high-speed connectivity by introducing innovative technologies that elevate the customer experience. We hope this collaboration will expand our global presence in Asia Pacific and beyond."

Matthew Shearing, chief executive officer of OneQode, commented, "We're excited to partner with Telin to collaborate on joint solutions across the region. Asia Pacific's infrastructure needs are growing, and partnerships like this mean both parties can provide even more value for our customers. We're particularly looking forward to working with Telin to enhance our Indonesian presence and bring better outcomes to customers across Asia Pacific."

Ben Cooper, OneQode's co-founder and chief architect, added, "Through this partnership, we will be able to deploy domestic cloud capacity to Indonesia, bringing low-latency and high-performance services to customers and end-users there. Telin is rapidly positioning Indonesia as a leading hub for South-East Asia, and it's a pleasure to work with their exceptional team. We are honored to be a part of their efforts to empower Indonesian startups and companies, helping them to connect and succeed on a global scale."

B-Yond: End-to-End Automation to Yield Network Resilience

Ricky Boyle, senior vice president, business development, B-Yond

Intelligent automation outperforms costly, labor-intensive and manual processes, making a provision for remediation and delivering enhanced network performance. In an interview with Telecom Review Asia, Ricky Boyle, senior vice president, business development, B-Yond, delved deep into the importance of network automation and how operators can meet SLAs in today's hyper-connected world.

Can you tell us about the importance of network automation for operators when navigating a fast-evolving digital landscape?

Essentially, the complexity of the network is accelerating. With growing network demands, network automation is important across the board to ensure a standard of service that meets what we're accustomed to in the past, much less to meet the requirements of our customers moving into the future and unleash the full potential of network assets.

How can operators meet new SLA requirements?

Many elements come into play — everything from better data curation, which is useful for many use cases, to the concept of end-to-end solutions. We've historically been managing our networks in a very verticalized way, whether it's core versus access or fixed versus wireless. However, we have to look across all layers, from application, service and network to the infrastructure, especially as more services migrate to the cloud. Most operators do not fully understand the implications that operating in the cloud has on their services. And so these are some of the key elements and issues that we have to address to meet more stringent SLAs as we navigate a more complex and yet more versatile network environment.

How does B-Yond facilitate transformation?

We assess where operators are today in their evolution, and we bring some of our IP and assets to help bridge gaps and address issues such as automated root cause analysis, fallouts and failures in labs or production to yield network service delivery optimization. And we also bring elements of partnerships to the ecosystem to drive automation at scale.

What is the outlook for network automation in APAC?

Asia Pacific is a leader in innovation in many ways. As a region, APAC embraces the ecosystem concept, where you bring together many partners to collaborate. Asia, in particular, is very advanced when it comes to adopting ecosystems to yield shared successes. With these ecosystems, operators bring in other elements into their network partnerships — applications and service providers — to provide a verticalized solution for customers. As a result, network complexity is further compounded, and this makes driving end-to-end automation even more critical in the region. TR

How Some Southeast Asian Countries Narrow Digital Gap

The internet became more affordable for users of different income groups all over the world in 2022, according to an assessment by the International Telecommunication Union (ITU).

The increased access to online technology was due to the lower costs of internet services.

"The digital divide is no longer just a technology divide — it is an opportunity divide," said Doreen Bogdan-Martin, director of the ITU's telecommunication development bureau and ITU secretary-general. "We live in a world filled with crisis and need. For its part, Partner2Connect's success in mobilizing commitments will be central to global efforts to get every person online."

But despite this development, the International Monetary Fund (IMF) in its latest study said Asia's digital divides are still evident in many parts of the region today and therefore hamper productivity growth. It added that access to cutting-edge digital technologies is highly uneven within countries and across providers.

A new study released by the IMF suggests that almost 50% of small and medium enterprises and about a third of large businesses in emerging and developing countries in the region still face challenges in obtaining financing, which has become a major obstacle to technology adoption. Lacking digital means has made it difficult for them to sell and market their products and services, even amid the pandemic.

The technological gap is also triggered by a slow distribution between leading and lagging firms.

These digital divides, it adds, also deter workers from maximizing the benefits of participating in the new economy and achieving their full potential. It cites as an example the low percentage of internet users in Southeast Asia. It notes that although internet access is affordable in countries like Vietnam and Bangladesh, the connection still remains slow most of the time.

In early 2022, the ITU reported that roughly one-third of the global population still doesn't have access to the Internet, a figure that was higher than that of 2021.

According to Bogdan-Martin, while more people today can afford internet connectivity, it does not imply fast and equal access across the world, as it should. "Too many people still live in digital darkness. Our global challenge is to commit the resources that would allow everyone to benefit in a meaningful way from being connected."

The IMF suggests some reforms to allow more productivity and broad-based innovation in Asia. These include: "enhancing countries' digital infrastructure to improve access to information and technology; upgrading digital literacy and upskilling the young workforce in many countries to meet employers' demand; and alleviating financing constraints faced by SMEs to help them adopt new technologies.

Greater access to finance would help innovators introduce new products and facilitate adoption of new technologies by streamlining regulations in line with the evolving digital industry, enhancing the legal environment, including on data and intellectual property rights protection and facilitating digital trade."

To narrow the digital divide among their populations, here is how countries in some parts of Southeast Asia are trying to achieve their digitalization goals.

Philippines

Although it is still behind in the technology race in the region, the Philippines has now welcomed more technology service providers to help address the increasing demands for digital transformation.

And the country is now advancing its national ICT agenda.

One of its largest telecom providers, PLDT, said it continues to update its network to provide fiber to underserved areas, particularly in regions outside the capital region of Metro Manila. As of the end of 2022, PLDT had expanded its total fiber footprint to over 1.09 million kilometers, consisting of over 231,000 kilometers of international fiber and almost 860,000 kilometers of domestic fiber.

Its main rival, Globe Telecom, also said it continues to expand and upgrade its network, especially in isolated, disadvantaged and conflict-affected communities, to help deliver connectivity to 17,000 public schools that still do not have data or internet access.

According to Globe, it allocated 89 billion pesos in 2022 for its capital expenditures. For the first six months of that same year, it had already spent 22 billion pesos on the construction of 572 new base stations. An additional 1,700 cell sites were installed nationwide by the end of the year to reach more unserved and underserved citizens.

In terms of public services, the Philippines has now made revenue collection digital and has launched its digital ID system, which will strengthen the delivery of public services such as social protection.

The country's ICT authority has also continued to conduct free professional training designed by Google, with the Google Career Certificates Scholarship Program. The program can grant certificates for Data Analytics, User Experience (UX) Design, Project Management and IT Support. It hopes to enable Filipinos to prepare for a new career in ICT.

The government is also supporting startups to boost the public sector's support of what they call "technopreneurship" and innovation, which will create a network of globally competitive innovators.

Indonesia

Indonesia is reported to be the fifth most internet-engaged country in the world after the Philippines, Brazil, Thailand and Colombia, according to the World Bank, which further states that the percentage of households with internet connectivity rose from 42% to 82% between 2015 and 2021. And the rural-urban access divide also dropped from 30% to 15% in that period.

To promote digital inclusion, one of its major telecom operators, XL Axiata, launched a digital literacy program for women who own small and medium businesses across the country. In a statement, it said, "XL Axiata believes that the use of digital facilities and technology will accelerate women's MSMEs to be more empowered, productive and upgraded."

As of today, a total of more than 58,000 MSMEs owned by women have been given support by XL Axiata through the "Sisternet" app.

The World Bank has launched "ID for Inclusive Service Delivery and Digital Transformation in Indonesia," another notable project to assist in responding to the challenges of pursuing a digital economy.

It believes that using digital tools will help upgrade the citizen-state's interactions and services.

The World Bank has earmarked $250 million in funding for Indonesia's civil registration and to further promote the use of biometric digital identification for accessing public and private sector services.

Cambodia

Data from Cambodia's Ministry of Post and Telecommunications suggests that the number of internet subscribers across the country has reached almost 18 million.

This figure is higher than the country's population of 16 million.

As a result, Cambodia's digital development has accelerated.

During the G20 Digital Economy Ministers' Meeting in September 2022, led by Cambodia as the ASEAN Chair 2022, three topics were high on the agenda: digital connectivity and recovery from the COVID -19 crisis; digital skills and literacy; and cross-border data flows. Leaders during the summit deemed these issues particularly important in responding to and recovering from the global pandemic.

The summit has provided more opportunities for Cambodia to learn, exchange experiences and seek support for its digital transformation by focusing on the use of digital technology through the Digital Economy and Society Policy Framework 2021–2035 and the Digital Government Policy 2022–2035.

According to an October report by the Phnom Penh Post, the Minister of Education, Youth and Sport, Hang Chuon Naron, gave a speech during the conference on digital transformation in Cambodia.

The conference sought to promote awareness of, as well as contributions to, the digital transformation of the kingdom. The minister went on to say that the pandemic aided Cambodia's digital transformation, as they established a digital government, conducted electronic trade and promoted digital education. TR

Philippines' Cloud Market Continues to Expand

The Philippines placed 59th among 132 countries in the 2022 Global Innovation Index (GII) and 11th among 17 economies in Southeast Asia, East Asia and Oceania.

The Global Innovation Index ranks world economies according to their innovation capabilities. The country slipped eight places from 2021.

According to the report, the country's ranking "fell back slightly, underlining the importance of sustaining innovation effort over time."

The Director General of the Intellectual Property Office of the Philippines called this alarming and said, "This calls for the urgent task of accelerating work at the National Innovation Council (NIC) to sustain innovation over time."

However, according to the study, the Philippines is also among those markets "having an increasingly important potential for transforming the global innovation landscape."

Although it was reported to have a lower level of innovation inputs globally, the study indicates that the Philippines is among the economies in Southeast Asia, East Asia and Oceania that continue to top key innovation indicators as well, and in fact, it ranks second in high-tech exports.

According to the study, "As to technological catch-up and convergence, the past three decades were an unacknowledged golden age that has led to unconditional and historic convergence. This was thanks to increased globalization and what came with it in terms of knowledge diffusion and technology and innovation transfer, including managerial and other organizational and process innovations."

But amid an accelerating digital economy prompted by the pandemic recovery in Southeast Asia, the Philippines has also started to move ahead with its innovation efforts.

The year-end report by PWC, titled "The year that was: Major deals in 2022," shows that the technology and telecommunications sectors lead the Philippine M&A space, thanks to the recent developments linked to the open towers regulation and the enhanced digital transformation during the pandemic.

The study also cited the 2022 Global Opportunity Index assessment, which placed the Philippines in the 83rd spot.

Looking ahead, it says that 2023 may be a good year for higher investor confidence in emerging industries, including telecommunications and renewable energy, among others. It added that amid the 5G projects, leading enterprises will continue to commercialize their assets to support network expansion efforts.

But like its regional neighbors such as Thailand, which is among those leading the race in digital transformation, the Philippines' Information and Communications Technology authorities said that governments also "need to keep up with the pace of a hyper-connected world and the demands of their citizens for faster, real-time, transparent, inclusive, efficient and responsive public services."

A DICT official said during the Alibaba Cloud Summit Philippines 2022 that "to do this, the Philippines' core strategy is to promote and achieve digital transformation. Leveraging on cloud-based technologies and solutions should be part of the groundwork towards digital governance and eventually building a robust digital economy."

The head of the Department of Trade and Industry also said that the Philippines is now geared towards a stronger post-pandemic recovery, resulting in more potential for trade and investment — a good sign to welcome high-technology firms, including hyperscalers and data centers.

More Tech Companies Set Up Data Centers in the Philippines

During the Alibaba Cloud Summit Philippines 2022 that took place in October, the Chinese tech giant unveiled the "Cloud ONE" program, which aims to support eligible local companies to capitalize on emerging digital technologies.

In November, the company announced it would expand its investments in the country following the launch of its data center here in 2021. It said that the facility now caters to over 200 local and international firms.

Earlier in 2022, the local digital infrastructure firm, YCO Cloud Centers (YCC), announced that it was planning to invest $500 million in the Philippines over the next three years.

YCO's data center campus in Batangas Province, south of the capital city, will deliver up to 32 megawatts of IT capacity for hyperscale clients.

The construction of the 12 MW initial phase of YCO's Batangas project started this year, as the company targets to make it operational within 2023. It will be followed by the 20-megawatt second phase in the next few years.

Taking a cue from its Southeast Asian neighbors, the Philippine government also aims to migrate its processes to locally-based cloud facilities to streamline services and strengthen data security, and YCO said it will further increase demand for rackspace.

Singapore-based data center provider SpaceDC also unveiled its plans to put up a data center in the Philippines. Dubbed MNL1, this "green data center" is expected to be fully powered with renewable energy, including wind and geothermal.

According to the company, "MNL1 will be the largest hyperscale data center campus in the Philippines and will deliver 72 MW of critical power. With an outstanding PUE of 1.3, MNL1 will also lead in terms of energy efficiency and design to minimize carbon footprint."

In addition, in April, the Philippine Board of Investments (BOI) announced plans to invest in hyperscale data center projects in the country. It said that they had met with Diode Ventures to discuss potential investment plans in hyperscale data centers and renewable energy generation projects in the country.

In August, BOI organized a webinar, "The Philippines as the Next Hyperscaler Hub in APAC – Opportunities for Investments and Partnerships," wherein it underscored the attractions for hyperscalers and data centers to expand their operations in the Philippines.

During the webinar, the Consul General of the Philippines to Hong Kong said, "In recent years, the Philippines attracted some well-known global hyperscaler and data center giants to enter the country, such as Alibaba Cloud, Google Cloud, Microsoft Azure, HGC Global Communications and so on. This is excellent evidence to prove that the Philippines has a superior environment for hyperscaler activities and data center operations in the APAC region."

The meeting had representatives of major Hong Kong companies, which are already engaged in hyperscaler activities and data center operations.

This year, GlobalData announced that strong cloud demand in the country will propel the cloud market to grow solidly to US$ 2.8 billion by 2025. TR

A2P SMS Fraud a Rising Threat

As part of their omnichannel messaging strategy, application-to-person (A2P) messaging is a way that enterprises connect with their customers. This simple yet direct method of communicating with customers has proven to be popular over time.

As more verticals and businesses adopt digital practices, A2P messaging has been witnessing a steady increase. With growing smartphone penetration and internet services, coupled with the cost-effectiveness, ubiquity and immediacy of A2P SMS for businesses to engage customers, the global A2P SMS messaging market is poised for further growth. Valued at about $62 billion in 2021, the market is projected to climb at a compound annual growth rate (CAGR) of 4.1% from 2022 to 2030, according to statistics from Beyond Market Insights.

With Asia Pacific having the world's largest population and number of mobile subscribers, telecom operators' generous SMS bundles provide the ideal breeding ground for fraudsters to misappropriate A2P SMS. Using gray routes, fraudsters use illegal interconnections to deliver an SMS and avoid termination fees. This undermines an operator's duty to provide a threat-free environment for brands to engage their customers, resulting in reduced customer dissatisfaction and significant revenue loss for mobile operators.

Rising threats such as gray routes and spam impact mobile operators' SMS monetization. Mobile operators are challenged to invest in protecting their networks from gray routes and other fraud types.

The topic of A2P fraud was recently brought to the spotlight as Elon Musk claimed that "Twitter was scammed to the tune of $60 million a year for SMS texts, not counting North America." If what Musk claimed is true, this amount would account for about a third of Twitter's reported total losses in 2021.

With regards to widespread A2P SMS fraud, Simeon Coney, chief strategy officer at Enea AdaptiveMobile Security, noted that Artificial Inflation of Traffic (AIT) is also a big contributor to SMS scams. Essentially, AIT is the generation of fake traffic from legitimate websites and apps to drive revenue for mobile operators. Attacks happen when fraudsters use legit online services to generate fake traffic using bots to increase revenue and then profit from it.

"AIT takes place over revenue call share numbers, shortcodes, and premium numbers, which bear a cost to the end-user, where the information provider inflates the traffic for financial gain," said Coney. "This inflated traffic is often in the form of spam messages, designed to lure people into calling a particular number to exploit gaps in billing systems."

Implementing SMS Firewall

With SMS becoming a more integral communication mode in people's lives, SMS firewall implementation is becoming more critical in securing telecom's customer data. Globally, the SMS firewall market has been on the rise, influenced by growing requirements to safeguard networks against gray route traffic and counter frauds that can potentially result in heavy revenue losses. In 2021, the global market size for SMS firewalls was $2.3 billion. Markets & Research predicts that this value will reach $3.3 billion by 2028.

However, most mobile operators view SMS firewalls as a secondary investment, as their focus remains fixed on revenue generation to offset rising network investment costs. However, this presents a catch-22 for operators, as A2P SMS is an important source of revenue that is worth safeguarding. TR

"With Asia Pacific having the world's largest population and number of mobile subscribers, telecom operators' generous SMS bundles provide the ideal breeding ground for fraudsters to misappropriate A2P SMS"

China Mobile, ZTE and Qualcomm Technologies Complete Industry First

ZTE, in partnership with China Mobile and Qualcomm Technologies, Inc., has successfully completed 5G Sub-band Full-Duplex (SBFD) verification and compatibility testing in the Xi'an Joint Innovation Lab, achieving the industry's first sub-band full-duplex gNB with higher uplink throughput over 1.47Gbps and lower end-to-end latency of 3.9ms simultaneously in TDD band with 100MHz system bandwidth.

This flexible frame structure was verified with a Snapdragon® X65 Modem-RF System-based reference device.

As ZTE continues delivering enhanced mobile broadband experiences and extending 5G reach into new use cases, the company is seeing major breakthroughs in 5G technology, allowing for higher flexibility and efficiency on limited radio spectrums within a conventional TDD band.

Sub-band full-duplex (SBFD) is a promising enhancement as it allows gNB to perform simultaneous transmission and reception at the same time but in different non-overlapping sub-bands. 5G Advanced SBFD is a key milestone towards full-duplex evolution. Thanks to SBFD, gNB allows flexible UL/DL resource allocation and adaptation based on UL/DL traffic. Further, it will help reduce latency while improving UL coverage and system throughput.

ZTE has launched the industry's first SBFD RRU (Remote Radio Unit) with enhanced transceiver architecture by integrating multiple self-interference cancellation schemes like spatial isolation, analog sub-band filter and digital interference cancellation. The self-interference could be mitigated over 130 dB which enables optimal reception performance of the uplink signal at the gNB receiver. In addition, ZTE's SBFD solution adopts a "Flexible" slot in frame structure configuration and uses UE-level radio resource scheduling mechanisms to be compatible with legacy UEs.

As the industry moves towards 5G Advanced, China Mobile, ZTE and Qualcomm Technologies have been demonstrating their continuous push towards innovations, expecting to capture new growth opportunities in the consumer and enterprise segments.

Rakuten Symphony RAN Commander Boosts Productivity

Rakuten Symphony has launched the general availability of its Symworld™ RAN Commander solution for automated 5G mobile network planning and optimization. RAN Commander has proven to boost Radio Access Network (RAN) productivity planning by four times to overcome the limitations of conventional planning and optimization methods.

The ever-increasing number of connected devices demands real-time, data-driven planning to ensure the high performance and accuracy of premium coverage. In the 5G era, operators recognize the urgent need to scale processes through automation, improve and speed up decision-making with a much richer set of network and subscriber data, and minimize timelines and budgets for expensive, complex integration projects.

"Network planning and optimization has always been fragmented, with different teams responsible for different parts of the process. Symworld™ RAN Commander offers an integrated approach to RF planning and optimization on a single platform, enabling planning and optimization teams to collaborate closely with advanced tools and technologies as they design, deploy and optimize networks in a more coordinated and efficient manner," said Narendra Narayana, president, intelligent operations business unit, Rakuten Symphony.

Like all Rakuten Symphony Intelligent Operations solutions, the Symworld™ RAN Commander suite leverages the scalable, cloud-native Symworld™ Platform to streamline the complex mesh of support systems and custom integrations that all operators have accumulated. This helps telecom operators scale faster as cloud sets the pace for speed, innovation and network expectations.

Symworld™ Platform allows for seamless integration between products within the RAN Commander suite and other Symworld™ applications to leverage the power of data for improved planning and optimization.

Starhub Unveils 10G-XGS-PON Broadband

StarHub has announced the UltraSpeed Broadband trialing of broadband speeds up to 10 times the speed and bandwidth of standard broadband services in Singapore. Using the completely new 10G-XGS-PON (Gigabit-capable Symmetric Passive Optical Network) standard, StarHub UltraSpeed will thoroughly boost connectivity for households in this nationwide trial, unlocking maximum responsiveness for online gaming and flash speeds for content streaming. The service also enables customers to freely engage in bandwidth-hungry activities concurrently on multiple devices, such as livestreaming in high-definition, uploading 4K/8K videos online and video conferencing, as well as transferring large files quickly on the cloud without straining the connection of shared users.

"As the demand for faster connection continues to grow exponentially, StarHub is proud to offer the fastest broadband service in Singapore at the best value, which will not only provide unparalleled speeds for customers to simultaneously stream, download, game and surf on the fastest network but also future-proof them for next-generation devices and data-intensive applications and features such as the high-resolution cloud gaming, augmented and virtual reality, and the metaverse," said Johan Buse, chief, consumer business group, StarHub. "With UltraSpeed, we will deliver fibre broadband speeds to a new standard in Singapore, up to 10 times faster than what is currently available, and enhance the lives of our customers through non-stop digital innovation."

Having embarked on its Cloud Infinity transformation this year, StarHub is reimagining customers' experiences and helping them stay on top of the technological curve by providing the market's best network services. Besides powering concurrent high-bandwidth usage for multiple users, UltraSpeed also adds a layer of network resiliency through segment routing technology, which enables a stable and secure connection for each individual user. Perfect for families with multiple broadband users, UltraSpeed will deliver a truly worry-free network experience that modernizes homes further into fully integrated work-live-play spaces.

KDDI Begins Deployment of 5G Open vRAN Sites in Japan With Samsung and Fujitsu

KDDI announced that, in partnership with Samsung Electronics and Fujitsu Limited, it has initiated the commercial deployment of O-RAN compliant 5G Open Virtual Radio Access Network sites in Osaka City, Japan, on January 19.

For the new sites, KDDI updated the software of an O-RAN-compliant 5G Open vRAN site that they successfully turned on in February 2022.

Samsung's 5G virtualized CU (vCU) and virtualized DU (vDU) and Fujitsu's radio units (MMU: Massive MIMO Units) are interconnected with an open interface. Wireless controllers are equipped with fully virtualized RAN software on general-purpose servers to realize network functions, while wireless devices are both compact and lightweight and consume less power by utilizing high-efficiency, wide-band power amplification technology.

Core functions are implemented as software to enable flexible and efficient management of network resources. KDDI further updated the software of the new sites to support the 5G NSA solution connected to existing 4G sites and functions that were realized in conventional sites using dedicated equipment, including Multi-User MIMO (MU-MIMO). As a result, customers with existing 5G NSA smartphones will be able to enjoy the same comfortable communication as before.

Futhermore, the company said this is the world's first commercial MU-MIMO implementation with O-RAN compliant multivendor interoperability.

In addition, KDDI constructed a Zero-Touch Provisioning system to automate configuration tasks when the base stations start operating. The system automates the setup of servers and virtualized platforms from different vendors and contributes to rapid base station deployment nationwide, including in rural areas.

Globe, Skytower Sign Partnership Deal on Tower Lease

Globe Telecom and Skytowers signed a lease agreement covering several towers in the Philippines' Southern Luzon region on February 6 as part of Globe's "overall strategy to monetize passive assets to maintain a healthy balance sheet."

In a statement, Globe said that, together with Skytowers, it is now exploring the possibility of expanding its tower lease in the Visayas and Mindanao areas.

"This partnership represents an important step in improving digital infrastructure in the Philippines, and we are excited to work with Skytowers to bring sustainable solutions to the market. We look forward to further strengthening our relationship with Thailand in this venture and other areas of collaboration," said Ernest Cu, president and CEO of the Globe Group.

Globe said that the partnership is a testament to the strong relationship between the Philippines and Thailand and their commitment to promoting economic growth and development.

Complementing Globe's sustainability efforts, the tower company is determined to reduce its carbon footprint by using renewable energy to reduce fossil fuel consumption.

Skytowers Infra Inc. is affiliated with Electric Power and Telecommunication Infrastructure (STOWER), which has extensive experience in the engineering, design and manufacturing of such infrastructure builds.

It offers telecom services and T3 Technology for broadband/fiber optic solutions in markets such as Thailand, Malaysia, Vietnam and Indonesia. Former Ambassador of Thailand to the Philippines Thanip Upatising is the firm's Chairman of the Board.

South Korea to Roll Out 6G in 2028

South Korea has announced its plans to roll out the commercialization of the 6th generation of mobile communication (6G) by 2028, two years ahead of the original schedule of 2030 under the K-Network 2030 plan.

The Ministry of Science and ICT made the announcement, saying however, that the exact schedule of commercialization is still to be confirmed according to future standardization and technology development schedules, and as of now, "it is difficult to determine this in detail."

The ministry said that it has allocated 625.3 billion won ($481.7 million) for a feasibility study for a research and development project on core 6G technologies.

South Korea's push for 6G development is a response to growing competition with other countries. It also aims to address recent changes in technology trends and the increasing demand for higher speed and lower latency in wireless communications.

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HKT and HKMU Team Up to Enhance Academic and Research Programs

The School of Science and Technology of Hong Kong Metropolitan University (HKMU) has partnered with HKT to foster innovative collaboration, research and talent development, paving the way for the sustainable development of the ICT industry in Hong Kong. Under the agreement, the two parties will collaborate on the development and enhancement of academic and research programs, facilitate knowledge exchange and experience sharing, and provide support and guidance for students on internship and career development.

Dr. Kevin Hung King-fai, head of the department of electronic engineering and computer science and associate professor of the school, and Leung Wing-keung, senior vice president, integrated project & technology services, Commercial Group of HKT, represented the two parties to sign the MoU. The signing was also witnessed by Prof. Philips Wang Fu-lee, dean of the school, and Steve Ng Ka-lung, managing director, Commercial Group of HKT.

Professor Philips Wang noted, "HKMU is committed to contributing to the development of engineering, communication technology and information technology in Hong Kong by offering a variety of related bachelor's degree programmes designed with different depth and breadth, covering Electronic and Computer Engineering, Computer Science, Cybersecurity and Data Science. HKMU cultivates hundreds of professionals for society every year to foster the development of Hong Kong's technology industry. The collaboration with HKT will strengthen the exchange between HKMU and HKT in various areas and contribute towards building a smart city."

Steve Ng also commented, "As a technology, media and telecommunications leader in Hong Kong, HKT plays an important role as an incubator for tech-savvy young talent, offering them opportunities to participate in the digital transformation of enterprises and smart city development and gain exposure in the Greater Bay Area (GBA) after tertiary graduation.

"We are excited about collaborating with HKMU to nurture more technology professionals, provide students with practical field experience and share with them the technologies adopted to empower digital transformation in various industries in Hong Kong and the GBA as well as the challenges they face. We are looking forward to co-developing smart solutions employing emerging technologies to accelerate smart city development in Hong Kong and promote sustainable socio-economic development together with HKMU."

Vietnam Smartphone Shipments Drop to 2015 Levels

Vietnam's smartphone shipments declined by 15.6% in 2022 to 13.4 million units, according to International Data Corporation's (IDC's) Worldwide Quarterly Mobile Phone Tracker.

These volumes were just slightly better than the 13.2 million units in 2015, when the market was still on the rise. In the fourth quarter of 2022, significantly dampened consumer demand, high inflation, and economic uncertainties pushed the market down 50.3% year over year to 2.6 million units, a total not seen since the third quarter of 2021, when the market was struggling with supplies during the COVID-19 pandemic. This is despite the fourth quarter of the year usually being a seasonally strong period.

"The rising living cost and growing macro-economic concerns resulted in a significantly low consumer demand, dampening any rebound in 2022 when Vietnam re-opened," said Thanh Vo, research analyst for client devices at IDC Vietnam. "This has led to a cautious start in 2023 as vendors rethought their portfolio of devices amidst profitability concerns."

Apple was a bright spot in 2022, being the only top smartphone vendor to weather the decline with positive growth due to the high demand for the iPhone 14 series despite the production issues in China affecting the iPhone 14 Pro and iPhone 14 Pro Max supplies.

SubOptic

SubOptic is a global conference focused on the submarine cable industry, bringing together experts and leaders to discuss technology and market trends.

Place: ICONSIAM, Bangkok, Thailand

13 - 16 MARCH

Digital Transformation World Asia

Digital Transformation World Asia is the leading connectivity event for 'how-to' knowledge through connecting people, forging partnerships, collaboration, and igniting conversations.

Place: Centara Grand at CentralWorld, Bangkok, Thailand

14 - 16 MARCH

Submarine Networks

Submarine Networks features the world's leading annual submarine communications gathering to exchange knowledge, explore the latest projects, develop strategies and form lucrative new partnerships to drive the industry forward.

Place: Suntec Convention Centre, Singapore

27 - 28 SEPTEMBER

Vietnam ICTCOMM

Vietnam ICTCOMM is an annual exhibition and conference showcasing the latest technology and trends in the telecommunications and information technology industry.

Place: Saigon Exhibition and Convention Center, Ho Chi Minh City, Vietnam

14 - 16 AUGUST - OCTOBER

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GITEX Global

Gitex is an annual technology exhibition and conference showcasing the latest innovations and trends in the tech industry.

Place: Dubai World Trade Center, Dubai, UAE

16 - 20 OCTOBER

Telecoms World Asia

Telecoms World Asia is an annual conference bringing together telecom operators, industry experts, and solution providers to discuss digital transformation and innovation.

Place: Centara Grand & Bangkok Convention Centre CentralWorl, Bangkok, Thailand

15 - 16 NOVEMBER

Telecom Review Leaders' Summit 2023

The 17th edition of the leading ICT gathering will convene industry leaders and partners, held in a hybrid format to tackle the latest industry trends.

06 - 07 DECEMBER

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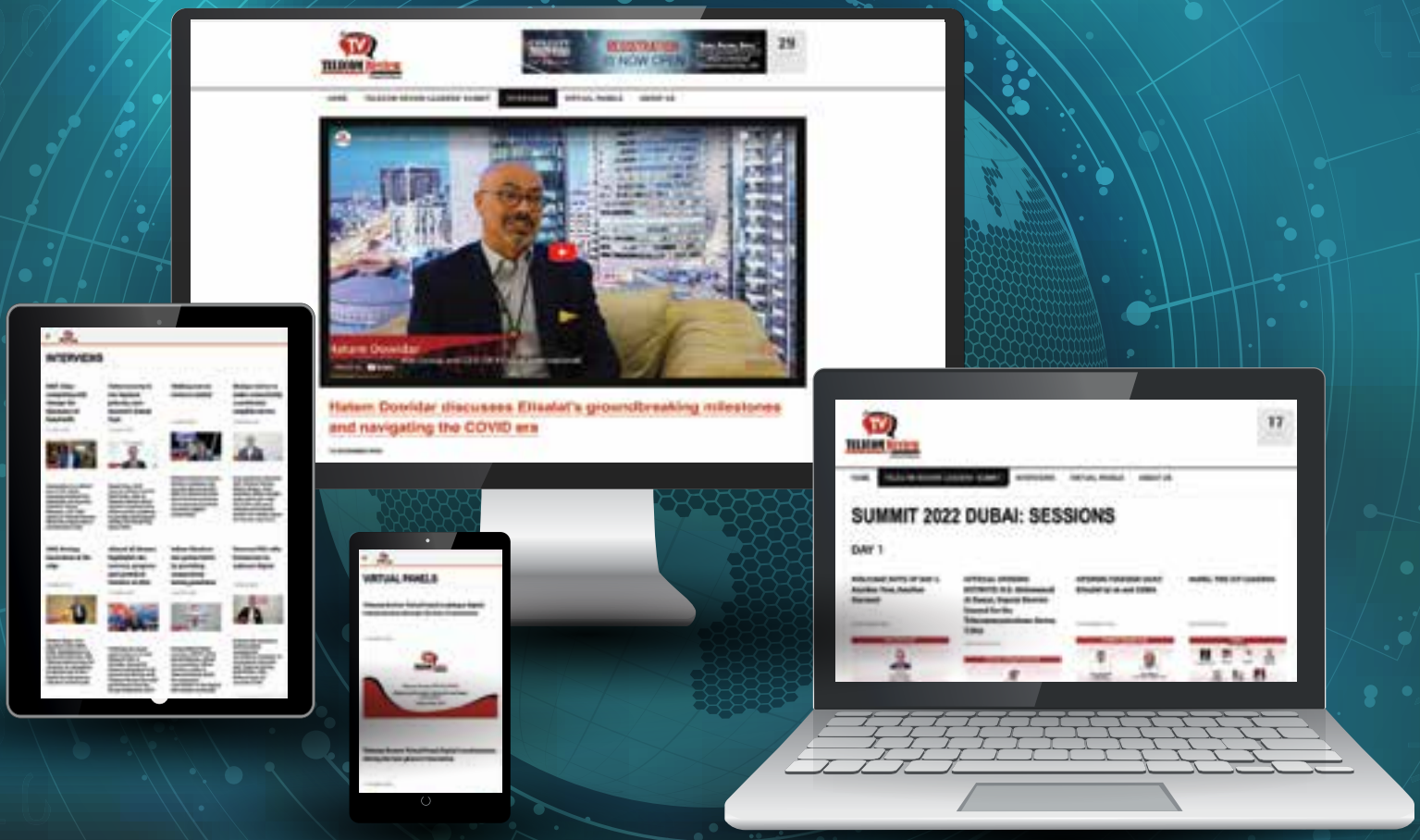

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