

For communications professionals in the southern Asian region

SOUTHERN ASIAN WIRELESS COMMUNICATIONS

Q3 2023

Volume 16 Number 3

- Enabling smarter cities
- Communicating through disaster
- Satcoms consolidation - implications for Asia



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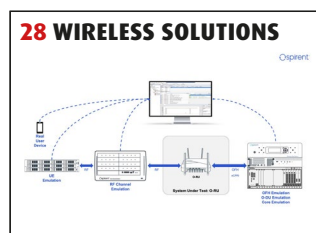
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BSNL to launch 4G at 300 sites a day

Bharat Sanchar Nigam Limited (BSNL) is looking to launch 4G in remote villages in India.

The state-run operator is set to bring homegrown 4G to 32 remote villages in Kothagudem, a city in Telangana. According to Priyanka Ala, district collector, BSNL will construct 4G towers in 32 villages where there is no cell coverage in the district.

After a meeting with the BSNL officials, the collector was requested to allocate two guntas (1,089 square feet) of land for the construction of cell towers in the villages. Out of the 32 villages, in 26 the land would be allocated by the revenue department while in

the remaining 6, the land would be allocated after discussions with the agricultural officials. This is because, in some villages, the land is under the agriculture department.

These villages have been chosen by the officials and the government because there is no cell connectivity there. Getting access to high-speed mobile networks would be a beneficial thing for the people living in these areas. BSNL will be bringing homegrown 4G in all these villages, something none of the private telcos could do.

Tata Consultancy Services (TCS) and Tejas Networks will help BSNL roll out the networks. Ashwini Vaishnaw, IT and telecom minister,

said that BSNL will roll out 4G in 300 sites every day after September.



Indosat and ITU join forces on digital literacy

Indosat Ooredoo Hutchison (IOH) and the International Telecommunication Union (ITU) have signed a joint declaration to strengthen digital literacy and facilitate digital skills training in remote and underserved communities in Indonesia.

The collaboration will focus on scaling and enhancing digital skills training programmes delivered by the Digital Transformation Centres Initiative (DTCI) and other ITU initiatives in Indonesia.

DTCI is an ITU and Cisco-led initiative that supports countries all over the world, including across Asia, to provide digital skills training programmes to their citizens.

IOH has agreed to support the DTC initiative in Indonesia by providing free data for DTC training programme participants, additional training covering industry-needed digital skills, and mentorship and internship opportunities for graduates of the DTC programmes who are interested in pursuing careers in the technology industry.

The collaboration is aimed to support Indonesia's digital transformation agenda by increasing the number of people with access to digital skills training and to mobile internet data in remote communities across Indonesia.

"Indosat has a larger purpose to connect and empower the people of Indonesia by accelerating the nation's digital transformation," said Vikram Sinha, president director and CEO of Indosat Ooredoo Hutchison. "Our new partnership with the ITU and its DTC Initiative will advance this purpose through outstanding digital skills training that unlocks exciting new career opportunities. We believe that this novel partnership-led approach will provide an example for the industry in Asia and establish Indonesia firmly at the forefront of the region's digital transformation journey."

Ncell Axiata brings 4G to remote districts of Nepal

Ncell Axiata, Nepal's first private telecommunications service provider, has announced the launch of 4G mobile broadband services in remote districts of Karnali and Sudurpaschim Province.

This expansion will provide high-speed internet access to previously underserved areas. According to Ncell, the 4G service is expected to benefit residents of Gamgadhi, Dunai, Martadi, and Simikot, as well as the district headquarters of Mugu, Dolpa, Humla, and Bajura. These areas now have access to high-speed internet and the opportunities that come with digital connectivity.

To enable 4G connectivity, Ncell has installed four 4G base transceiver stations (BTS) in Thuli Bheri Municipality (Dolpa), Chhayanath Rara Municipality

(Mugu), Badimalika Municipality (Bajura) and Simikot Rural Municipality (Humla) last month. This infrastructure upgrade replaced the basic mobile service provided through VSAT technology.

"We are delighted to empower our customers with new technology. It is a milestone because, with this, we have connected all districts of Karnali Province and Sudurpaschim Province, contributing to the Digital Nepal vision of the government and building of digital inclusive communities," said Ncell in a statement.

Ncell plans to further extend its 4G coverage to the Manang district and continues to prioritise the expansion and capacity enhancement of its 4G network. This will allow locals to access a range of digital

services, including streaming of high-definition video content, VoLTE calls, fast downloads, and uploads, sharing of large files in real-time and time-sensitive data immediately.

Ncell has already installed over 4,100 4G BTS sites across the country, and it is actively working to enhance the capacity of its 4G network to increase access to mobile broadband services. In the fiscal year 2022/23, Ncell installed 338 new sites in different parts of the country and upgraded 4G capacity in numerous towers across 60 districts.

This expansion of 4G connectivity in remote areas of Nepal is expected to bring improved communication, access to online services, and economic opportunities to the local population.

Reliance Jio launches fixed wireless access in 8 cities

Reliance Jio has introduced a fixed wireless access (FWA) service in eight cities in India, stating that the technology using its 5G network overcomes last-mile connectivity constraints, with the potential to connect every home and small business.

"We are expanding our addressable market to rapidly cover every home in our country with similar quality of service," said Reliance Jio chairman Akash Ambani.

The company's Fibre To The Home (FTTH) service JioFiber already serves more than 10 million customers, but there are still millions of homes and small businesses to be connected at a rapid pace.

The new AirFiber service delivers an integrated service covering high-speed broadband, home entertainment and smart home services. The first cities to receive the service include Delhi, Mumbai, Bengaluru, Chennai, and Kolkata.

The entry-level plan is INR599 per month, with a maximum speed of 30Mbps, while the top-tier package is INR3,999 a month, offering a speed of 1Gbps. Both include access to 550 digital TV channels and 14 OTT apps, such as Netflix and Amazon Prime.

Jio, the largest mobile player in the country by connections, said its optical-fibre infrastructure spans more than 1.5 million kilometres, with its FTTH service passing some 200 million premises nationwide.

Allo upgrades optical network with Infinera

Infinera's ICE-X intelligent coherent pluggables and XTM Series are being used by Allo Technology Sdn. Bhd., a wholly owned subsidiary of Tenaga Nasional Berhad (TNB), to boost Allo's nationwide optical network and expand services across Malaysia.

The unique capabilities of ICE-X, including integrated intelligence and industry-leading performance, provide Allo with a cost-effective and operationally seamless method of significantly increasing network capacity while enabling the delivery of new enhanced services to Allo's customers.

The selection of Infinera's solutions is based on the superior point-to-point performance during a recent field trial where Infinera's suite of ICE-X intelligent pluggables was hosted in Infinera's XTM Series packet optical networking platform across Allo's network spanning

1,228km from the Thailand border to Malaysia. The demonstration delivered both high transmission performance and efficient traffic aggregation, while also significantly expanding overall network capacity. Infinera's solutions enable Allo to expand its services across Malaysia to bring broadband connectivity to the entire country, extending broadband services to parts of the country where services are not currently available.

The deployment of Infinera's ICE-X coherent pluggables technology is an important milestone for Allo, making it the first operator in the region to do so. The Allo Carrier Network System (ACNS) is the optical backbone for Malaysia, providing direct connectivity with broad coverage spanning the peninsula. Allo remains focused on its ACNS to identify innovative ways to enhance

and maximize its network assets to offer customers cost-efficient, high-capacity next-generation services that are competitive and scalable.

"Infinera's ICE-X suite of coherent pluggables is redefining network scalability, flexibility, and economics for bandwidth applications for single- and dual-fibre networks. For network

operators like Allo, Infinera's latest solutions are game changing, enabling them to leverage existing network assets to extend bandwidth services seamlessly and efficiently," said Ryan Perera, senior vice president, APAC sales at Infinera. "This increases the value of their network infrastructure while positioning them for future growth."



MEASAT close to connecting 600 schools via CONNECTme NOW

MEASAT Global Berhad is now connecting close to 600 school sites in remote locations nationwide through its CONNECTme NOW high-speed wireless satellite broadband services, in line with its commitment to provide greater access to connectivity for education, especially in underserved rural communities.

"The CONNECTme NOW model is ideal for locations with little or no terrestrial connectivity and provides equitable access and lower costs per school. MEASAT is pleased to

collaborate with Maxis to expand high-speed satellite broadband coverage to more schools through our CONNECTme NOW service. In this era when internet connectivity is a basic utility like water and electricity, satellite broadband can bridge the digital divide for the remaining 3 percent of Malaysians in remote areas without telecommunications infrastructure," said Ganendra Selvaraj, MEASAT's chief commercial officer.

The CONNECTme NOW service

can dynamically allocate bandwidth on demand. As the quota allocation is provided on a per user basis, schools with populations of any size – small or large, can easily scale up using this architecture, addressing potential bandwidth congestion.

The internet connectivity services will benefit teachers and students by offering download speeds of up to 100Mbps per location. Beyond the allocated quota for the school, additional quota can be purchased on a per user basis to meet personal

consumption demands.

The service is supported by MEASAT's 24x7 network management centre as well as an established local distributor network. Satellite broadband capacity is ideal for providing rapid, ubiquitous communications networks that are independent of geographical barriers or terrestrial infrastructure. It is suitable for very remote locations that are difficult to access, or in terrains that are less feasible for normal terrestrial services or mobile towers.

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Now Corp. and Fortinet target 5G cybersecurity for enterprise

NOW Corporation and Fortinet have signed an MoU to enhance cybersecurity solutions for 5G-enabled networks catering to enterprise clients in the Philippines, supporting the country's digital transformation efforts.

According to NOW Corp., the partnership will push the enhancement of security solutions tailored for enterprises and build a secure ecosystem for the development of 5G application. The two companies will work on identifying potential vulnerabilities and addressing them with appropriate solutions to lay the foundations for a 5G ecosystem.

"NOW Corp. and our telecommunications affiliate, NOW Telecom, play a pivotal role in advocating for the adoption of secure networks within telecommunications infrastructure, commonly referred to as a 'Trusted Network.' Through our ongoing partnership with the US government, the NOW Group is committed to establishing a secure, high-speed and reliable network that

spurs not only economic growth but also ensures national security," said the president and CEO of NOW Corp., Henry Andrews Abes. "Our collaboration with Fortinet aligns with our Indo-Pacific agenda, which emphasizes the development of secure and resilient network architectures. Moreover, this alliance strengthens NOW Corp's Managed Services offering, enriching our portfolio with cybersecurity services to cater to the evolving needs of the

enterprise market."

"Our partnership with NOW Corp. enables us to deliver value-added security services to enterprises. Leveraging NOW Corp.'s telecommunications and technology capabilities, enhanced by Fortinet's security expertise, we aim to empower businesses with efficient security solutions, helping them thrive in an increasingly digital landscape," said country manager of Fortinet Philippines, Alan Reyes.



Celona brings private 5G to southeast Asia

Celona is extending its global presence into southeast Asia, making strategic partnerships with leading service and solution providers within the Philippines, Korea and Vietnam to deliver next generation 5G LAN solutions to enterprises throughout the region that will accelerate the use of private 5G to support a new generation of business initiatives.

Celona recently signed an MoU with TMT conglomerate NOW Corporation and NOW Telecom in the Philippines, and non-binding agreements with mobile network operators throughout southeast Asia including Viettel in Vietnam, and Peratech and WIZCORE in South Korea.

Under the MoUs, the companies will collaborate to develop a service model for jointly offering turnkey Celona 5G stand-alone (SA) private wireless networks to a wide range of vertical markets including ports, transportation hubs, factories, and logistics operations.

The partnerships will focus on the integration, interoperability testing, and validation of a Celona's private 5G solution as well as sales and marketing strategies for delivering private wireless solutions throughout the region. The MoUs provide a strategic direction for the companies leading to a commercial framework in the future.

Celona's 5G LAN solution will benefit southeast Asian businesses and operators looking to easily deploy a comprehensive private cellular network that is built on cloud-first architecture, utilizing plug-and-play technology, self-organizing wireless, and sophisticated quality of service features that deliver the highest levels of security, reliability, and deterministic performance.

"We view private networks as the next mobile technology to revolutionize the enterprise as digital transformation initiatives drive business transformation," said Henry Andrews Abes, NOW

Corp. president and CEO. "As a strategic offshore hub, the Philippines represents a massive opportunity to deliver innovative private networks at scale to what is effectively an untapped market. With a best-in-class private wireless LAN solution purposely architected for the enterprise, Celona is an ideal partner to help us capitalize on this opportunity."

"The globalization of private wireless technology is undeniable as organizations look to exploit the benefits of private 5G to modernize operational efficiencies and improve productivity as part of their larger digital transformation efforts," said Rajeev Shah, co-founder and CEO of Celona. "Celona is ideally positioned to capitalize on this worldwide phenomenon and is confident that our market-leading products and technology will play a crucial role in setting the right conditions for scaling private 5G throughout Southeast Asian markets."

M1 modernises 4G/5G mobile transport network

Ericsson has been selected by M1 as a partner to modernise its 4G/5G mobile transport network by deploying the high-performance Ericsson Router 6676, marking the world's first deployment of Router 6676 with M1.

Router 6676 is a high capacity cell site router designed to enhance network performance in advanced 4G and 5G networks. Ericsson will prepare M1 with the necessary infrastructure to meet future 5G network requirements, including increased capacity, scalability, and responsiveness. Key features of Ericsson's Router 6676 include segment routing and a higher density of 25G ports with 100G capability.

"Fast route learning and robust scaling capabilities will enhance the resilience of M1's 5G networks, particularly as 5G deployment expands into large enterprises like airports, seaports, and factories," said Ericsson.

"We are excited to extend our partnership with Ericsson as we continue on this journey to modernize our 4G and 5G mobile transport network. With the new Router 6676, M1 is set to deliver higher quality network performance. This is part of M1's effort in driving our company-wide 5G goals," said M1 in a statement.



TRAI explores in-building connectivity

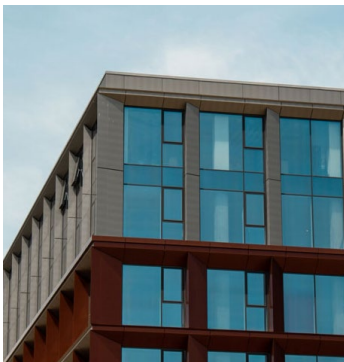
The Telecom Regulatory Authority of India (TRAI) has released a consultation paper on 'Regulation on Rating Framework for Digital Connectivity in Buildings or Areas.'

While there has been significant improvement in network coverage on the street, there are still gaps observed in meeting the coverage demands of users inside buildings/residential or commercial areas. TRAI looks after the quality of services (QoS) provided by the telcos in all parts of the nation. If the telcos don't meet the basic QoS, then they are penalised.

The current telecom infrastructure needs to be upgraded, especially to provide coverage with 5G networks. While the regulator and the government have given their nod to leverage street furniture to install small cells, a lot more work must be done. Consumers have no choice but to rely on their fibre broadband connections inside their homes to get a decent connectivity experience. Relying on mobile networks would be a bad choice for most consumers due to network congestion scenarios and poor coverage.

According to TRAI, "the paper highlights the need for rating of buildings or areas for digital connectivity that meets not only the current expectations of the consumers but is also ready for future expansion or upgradation with the advancement of technologies or change in users' demand."

TRAI will accept written replies to the consultation paper until 10 November. The time for counter comments will be until 24 November 2023. Based on the comments on the consultation paper, TRAI will form its recommendations.



Vodafone Idea brings WiFi calling to southern Indian circles of Andhra Pradesh and Telegana

Vodafone Idea (Vi) has brought WiFi calling support for more telecom circles in India.

Focusing on the southern part of the country, Vodafone Idea introduced WiFi calling to two more circles - Andhra Pradesh and Telangana. Both are now added to the list of circles where VoWi-Fi calling is available. With

WiFi calling, users can make crystal clear calls even if they are inside their homes and have poor network connectivity.

Vodafone's WiFi calling is now available in Delhi, Kolkata, Gujarat, Rajasthan, UP East, UP West, Mumbai, Maharashtra & Goa, West Bengal, Haryana, Kerala, Karnataka, Bihar,

Tamil Nadu, Telangana, and Andhra Pradesh. Vodafone Idea customers living in these regions will be able to leverage VoWi-Fi calling support to make high-quality calls even when inside poor network zones. The telco is still expanding the reach of its WiFi calling in the last phase of 2023.

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Optus completes over-the-air data call with RedCap RAN software

Optus has completed an over-the-air data call using pre-commercial Ericsson reduced capability (RedCap) RAN software, preparing to enable simple, low-power and -cost devices to run on its 5G network.

Martin Wiktorin, head of Ericsson's global customer unit for Optus parent Singtel, said that the advancement will allow the company

to offer enhanced 5G connectivity for everything from consumer wearables to industrial sensors in a cost- and energy-efficient way, unlocking new use cases.

Optus MD of networks Lambo Kanagaratnam said the nation's first data call using RedCap paved "the way for future 5G wearable devices." The small size, long battery life and substantial throughput of

RedCap devices would make it ideal with many mobile consumer and industrial applications.

Ericsson's RedCap RAN software runs on TDD and FDD spectrum and is designed for devices not requiring the full range of 5G capabilities. It is scheduled to be commercially available in November as a software addition to standalone 5G networks.

Yinson adopts 4G LTW and 5G for EV network

CelcomDigi has partnered with global energy and infrastructure and technology company Yinson Holdings Berhad to develop cutting-edge electric vehicle (EV) services and infrastructure in the country, accelerating EV and green energy adoption.

Through the partnership, Yinson will be able to use CelcomDigi's extensive 4G LTE and 5G network to improve the connectivity of chargeEV, Malaysia's largest charge point station, as well as for rydeEV and drivEV in the eMobility space.

The companies will also work together to develop new solutions that will provide customers with simpler access to innovative, clean technology such as eBikes, electric automobiles, EV charging stations and the integration of solar infrastructure.

"This is a significant milestone in our long-standing partnership with Yinson — the first time in Malaysia that a telecommunication service provider teams up with a global energy infrastructure and technology company to jointly innovate the way we bring EV services to consumers," said Datuk Idham Nawawi, chief executive officer of CelcomDigi. "The automotive industry is undergoing radical transformation, with automakers agreeing that the next five years will bring about more change than the previous three decades, driven by the significant possibilities brought about by electric vehicles in particular and green technology in general."

"Connectivity and innovative technology are the building blocks of the efficient, clean and equitable transportation system of the future. To this end, we are pleased to join hands with Malaysia's largest mobile network operator, CelcomDigi, further supported by progressive policies by the Malaysian government. Together, we hope to put clean, integrated transportation solutions into the hands of everyday Malaysians, bringing us collectively closer to achieving the nation's net zero goals," said Lim Chern Yuan, Yinson's group chief executive officer.

WhatsApp launches in-chat payments in India

WhatsApp has expanded its fast-growing payment offering in its biggest market by launching an in-chat payments service for businesses in India.

The WhatsApp service already boasts hundreds of millions of users in India. Now they will be able to pay for products and services through the app.

Shoppers can buy products and services from businesses using

credit and debit cards, WhatsApp Pay and India's public digital payments network UPI. This new service also allows the platform to gather more data to help it target and personalise existing advertising. The recent passing of India's data protection bill, which excludes rules on data sharing by companies, may support that objective.

This could massively boost

WhatsApp's chances of becoming one of the top digital payments apps in the country – but it's also important to Meta as a way to further monetise its platforms. Companies are charged for delivering marketing or customer service messages to their customers via WhatsApp, and to run ads on Facebook or Instagram that take a potential customer directly into a WhatsApp chat with the company.

DoT works towards SMS emergency warning system

India's Department of Telecommunications (DoT) is working on bringing a new SMS alert service for users living in Jammu & Kashmir (J&K) to deliver warnings related to emergency situations.

Users in J&K will soon get to see new safety messaging with 'warning sounds' and 'auto-readout alerts' for emergency situations. This measure

will ensure that people living in the region are properly informed about what's going on and what they should do to stay safe. The new safety feature will be powered by the Cell Broadcast Alert System (CBAS) and it has already been tested successfully by the DoT.

Vijay Kumar Surendra, additional director general (ADG), Telecom, J&K, said that the tests have already

been conducted and the unique alert system is very different from the normal SMS tones, with a higher volume. This will help people keep themselves thoroughly informed about the ongoing emergencies in their area. The same safety messaging feature can also be used by the government in other parts of the country where emergency situations keep on arising.

According to Kumar Surendra, the technical capabilities of the messaging system have been enhanced so that the message is delivered to all mobile users in a select region simultaneously. This minimises the response time for the users to a given emergency which can result in many lives being saved.

SMS alert systems have been in place for a long time already, but with this new effort, the DoT will use a more effective way to use the SMS to let users know about the emergencies in their area. Many might not see regular emergency SMS which can lead to them not being aware of emergency situations which can be fatal.



PLDT launches FTTH in IGACOS

PLDT Inc. has launched fibre-to-the-home (FTTH) services in the Island Garden City of Samal (IGACOS), owing to the growing population and thriving tourism industry.

“The arrival of PLDT fiber in IGACOS will be beneficial to both residents and tourists. This is also very timely. We really need the internet connection at our new city hall and for the local college we are running,” said IGACOS city administrator Nieljun Esdrelon.

“We are thrilled with the

launching of PLDT Home Fiber in the Island Garden City of Samal. This marks a momentous occasion as we bring fast and reliable internet connectivity to the island — enabling entertainment needs of residents and tourists alike and powering hybrid workplaces,” said Vismin head for PLDT home sales George Carmelo Clemente.

As one of the founding members of the government-mandated Presidential Private Sector Advisory Council (PSAC) under the Digital

Infrastructure Pillar, PLDT and Smart’s ongoing efforts to broaden and improve their integrated fixed and mobile networks are in line with their commitment to the government’s overall digitalization thrust to eliminate the digital divide.

In addition to supporting the connectivity requirements of businesses and enterprises of all sizes on the island, PLDT’s rollout of fibre in the area is anticipated to improve Smart’s mobile network services in the region.

IoT to experience strong growth in APAC

IDC has forecast spending and investment in the IoT sector to register double-digit growth this year, driven by increasing demand for remote operations, supply chain efficiency and a widening digital footprint.

IDC expects spending on IoT to grow 11% to \$277.5 billion along with predicting investments to grow a compound annual growth rate (CAGR) of 11.7% between 2023-2027 to \$435 billion. Areas with the

fastest IoT spending in 2023 are China, Singapore, and Hong Kong.

IDC stated discrete and process manufacturing are expected to register the largest investment.

“Power-saving IoT devices built with 5G enhanced machine-type communications technologies... will start to be introduced into the market to gradually replace LTE Cat 3/4 devices,” said Bill Rojas, adjunct research director for IDC Asia Pacific. He believes this will

result in “more video-enabled end points and advanced analytics,” adding that “satellite connectivity is expected to be introduced to the market during the forecast period, further extending the reach of IoT to remote areas.”

“Organisations are more focused on data-driven operations to address specific business goals and customer challenges, and investing in the IoT ecosystem is crucial,” said market analyst Sharad Kotagi.

USA and India collaborate on 6G technology

The Bharat 6G Alliance and Next G Alliance of the USA have signed a MoU (Memorandum of Understanding) to work together to develop 6G technology.

It is a first step from both countries to deepen the public-private partnerships and build stronger relationships between the vendors and the telecom operators.

A leading Open RAN manufacturer

will also conduct a 5G O-RAN pilot with a leading Indian telecom operator before deploying the tech commercially. This will enable the vendor and the Indian telecom operator to understand the technology better and further position them to serve their customers in a more meaningful manner.

While studies and research towards 6G are ongoing, both

countries collaborating to work on developing new technologies will help boost to the ecosystem and enable the economies to thrive. Reliance Jio has already developed 5G solutions that can be exported to countries such as the US and other developing nations that rely too much on European vendors who charge high money for their equipment and solutions.

Malaysia defends Starlink

The Malaysian Communication and Multimedia Commission (MCMC) has defended the country awarding a licence to Starlink following a local media report which raised concerns the service could interfere with telecoms services.

MCMC said that it relies on the ITU’s framework for decision making over spectrum allocation and interference management. It highlighted that Starlink’s operation in the country is “in line with the international framework,” adding ITU Radio Regulations provide “a global framework for coordinating and regulating” satellite services.

“It clearly outlines protection criteria, including obligations to prevent harmful interference to existing services and the procedures for resolving interference disputes,” said MCMC. MCMC noted there have been no complaints of interference so far.

Malaysia issued a licence to Starlink in July to deliver internet services to schools and universities in remote areas. MCMC said that it communicated with “key stakeholders to ensure their concerns and considerations were taken into account” before the licence was granted.



Can Marine Systems brings next-gen satcoms to Asia’s maritime sector

Eutelsat Communications has partnered with Can Marine Systems to bring next-generation satellite communication services to the maritime sector across Asia, offering enhanced connectivity and capabilities for maritime businesses operating at sea (cargo shipping, passenger ferries, and offshore).

The partnership leverages the Eutelsat ADVANCE hybrid GEO/LEO service portfolio, a satellite network-as-a-service providing high-end connectivity to users through

a global network of unparalleled coverage. Eutelsat ADVANCE offers a range of scalable versatile managed connectivity services that combine LEO constellation coverage ubiquity and low latency with robust GEO satellite reliability and predictable committed throughput. This unique combined offering will help Can Marine address business opportunities across Asia, tailoring solutions to customers’ specific needs, and reinforcing their position as a leading provider of

maritime systems in the region.

“We acknowledge and appreciate the Eutelsat ADVANCE Hybrid LEO/ GEO services and their alignment with our strategic future objectives, especially their seamless integration with our Canopus Suite of services,” said Lim Ding Liang, vice president of Can Marine Systems. “This partnership aims to further augment the reach of comprehensive connectivity services within our region, promoting growth and providing

unparalleled solutions to our valued users.”

“We are proud to see our managed connectivity solution, Eutelsat ADVANCE, continue to successfully expand with Can Marine. This collaboration testifies to the strong momentum of the maritime connectivity business, particularly within Asia, and further establishes Eutelsat as an indispensable player in maritime connectivity,” said Cyril Dujardin, general manager of the connectivity business unit.

Thaicom and Eutelsat partner on new satellite

Space Tech Innovation Limited (STI) - a subsidiary of Thaicom - and Eutelsat Asia, have signed a partnership agreement for a new satellite to be launched at the orbital slot of 119.5 degrees East.

Under the agreement, Eutelsat is committed to lease and operate the service for 50% of the satellite capacity during its lifetime of 16 years. Thaicom is currently finalising the procurement process of the satellite.

The satellite is part of a new generation of broadband software-defined high throughput satellites (HTS). It will allow flexibility and instant reconfiguration to adapt dynamically to the service areas and will thus provide a significant confidence boost for the company's customers and partners throughout Asia-Pacific.

"This partnership is strategic for our new satellite project at the orbital slot of 119.5 degrees East as it not only provides a long-term and secure utilization of 50% of our new satellite, but more importantly, it will create synergies between the two organisations to capture new growth opportunities in the future," said Patompob (Nile) Suwansiri, Thaicom's chief executive officer.



Talking critical

Harald Ludwig, chair, TCCA Technical Forum; and Asif Hamidullah, head of certification IoT & verticals, GCF



How broadband mission critical device certification is being led by GCF and TCCA

Mission critical services (MCS) and critical communications must be available when needed, reliably providing voice and data connectivity to first responders, public safety services, transportation sectors, and more.

These services and devices must also support the sectors' unique needs and operational protocols and provide ubiquitous coverage that can handle high peak usage levels. Demand for broadband data services is increasing, as images and video become a central part of critical communications. Reliable voice communication, however, is still the core function that must be maintained at all times.

While TETRA remains the dominant mission critical standard for now, the next generation of MCS are being delivered over LTE cellular networks and evolving towards 5G. These newer technologies, based on standards maintained by 3GPP, deliver the bandwidth needed for effective emergency responses.

To provide reliable communications, mission critical devices and networks must be interoperable. The Global Certification Forum (GCF) and The Critical Communications Association (TCCA) have been working together over the past few years to deliver a certification programme for devices supporting 3GPP standards-based mission critical services. This is based on prioritising industry requirements and undertaking a gap analysis of required frequency bands and mission-critical functionalities against currently available functions and processes within GCF.

The programme will ensure that devices and applications are interoperable with mission critical networks and are compliant with the relevant standards and specifications.

The certification programme

To help deliver the certification programme, TCCA and GCF have created the Mission Critical Services Work Stream¹ (MCSWS), open to all TCCA and GCF members, and invited experts from industry. GCF and TCCA are working to include all the relevant industry players in the discussion about this new MCS landscape and its

certification programmes.

The workstream is tasked with the development of a certification programme with launch targeted for the end of 2023. The current scope of the certification focuses on Mission Critical Push-to-Talk (MCPTT), Mission Critical Video (MCVideo) and Mission Critical Data (MCDData). In each case, the scope covers the relevant 3GPP Rel 14 and Rel 15 standards.

Certification of MCX products will include both conformance and field trials testing. Conformance testing ensures that the appropriate 3GPP standards are being complied with and is mandatory for certification. Field trials testing is used to ensure interoperability between the device and commercial network, and is currently optional, given special authorisations required to access and test on commercial MCX networks.

To complete the certification programme, and to ensure a successful launch, GCF is responsible for validating conformance test platforms, while a TCCA sub-working group is progressing on development and verification of live network testing for field trials. An initial set of field trials test cases has already been developed, with finalisation and verification targeted for end of 2023.

To ensure the appropriate set of tests cases are targeted for validation, a survey to the MCS community has been undertaken, to understand the importance of MCX features required by the operators and the corresponding support from the supplier community. The feedback from this survey has been used to reprioritise certain test cases, to ensure the best targeting of the features required by industry.

How can agencies and companies engage and support this process?

Mission critical operators and authorities are invited to join the MCSWS to help develop standards-driven MCS, and to share their requirements regarding MCX products. They can also contribute to the ongoing technical development of the certification scheme and future roadmap planning, consider having field trials performed in their live networks, and help grow the certification scheme by requesting GCF certification for devices or clients in their commercial tenders.

Mission critical product suppliers are also invited to join the MCSWS. Device manufacturers and client vendors can work together in defining the scope of

the GCF Certification program to ensure interoperability on key MCS functionalities, and to support test platform validation activities in GCF with devices and clients implementing the latest specifications.

By working together, the mission critical industry can help build a certification programme that benefits all stakeholders and ensures the seamless interoperability of mission critical devices and networks.

Reliable and innovative communications

Mission critical services are constantly evolving, adding support for new technologies, and adapting to developments in the fast-moving communications industry. With huge advances reaching the market in LTE and 5G, the next generation of critical communications will bring revolutionary changes and will move from existing technologies to be delivered over these newer, 3GPP-based networks and devices.

As the 3GPP standards continue to develop, we can see new features and enhancements coming up, that will improve critical communications in the years ahead. Coverage will be improved, interoperability with other types of communications solutions, such as with satellite connectivity, will become more accessible, and the shift from narrowband to broadband will enable better working practices based on intelligent data, more accurate positioning services, and enhanced support for images and video.

But we must not abandon our industry's commitment to standardisation and interoperability, which is the bedrock of providing reliable communications. Balancing progress with guaranteed conformance is a delicate task, and everyone's input must be heard. GCF and TCCA are keen to ensure that all parties interested in ensuring the seamless interoperability of devices and networks in this new MCS world can contribute to the discussion and, in doing so, help to build a certification programme that benefits everyone.

Working together, TCCA and GCF are delivering the certification programme needed by the critical communications industry. By combining their experience, they are creating a practical, focussed programme, that is relevant to the industry's needs, while also guaranteeing the highest levels of interoperability - and thus ensuring that new generations of mission critical services and devices deliver the reliability and performance needed.

From Telco to Techco: A Transformation Journey of Indosat Ooredoo Hutchison in Empowering Indonesia

Indonesia is the fourth most populous country in the world, with a land mass comparable to Europe. As such, capex intensity is high compared to other parts of the world. However, you must invest to grow the market. For telcos, it's about being in the right place at the right time; and right now, there is a huge potential for growth in the country. Back in 2020, COVID-19 brought with it a silver lining; remote working, healthcare and education highlighted the importance of telecommunications. It's up to us how we build on this opportunity.

From telco to techco

Before the merger of Indosat Ooredoo and Hutchison 3 Indonesia last year to create Indosat Ooredoo Hutchison (Indosat or IOH), most people had written us off. Fitch had placed us on negative watch, and Moody's cited integration and execution risks as well as uncertainties over future financial policies.

Prior to the merger, we had a market cap of US\$2.3 billion – today it's more than US\$5 billion. Our share price too has increased fourfold from IDR2,300 to IDR9,700. Following a merger, employee satisfaction usually falls, but for us, it's actually improved 4pp. This merger is good for Indonesia, for customers, for employees, and for our shareholders.

Now that we're 20 months on from the merger, we're moving from integration to transformation, from telco to techco. We're moving from telecom infrastructure to a technology platform; from being dependent upon a few larger suppliers to developing strong technology capabilities. With this transformation, we move to high growth, with ecosystem revenue rather than simple connectivity revenues.

Our techco journey features five pillars

Pillar one – empowering Indonesia – will see us serve 275 million Indonesians, 64 million MSMEs, and help expand the digital economy from IDR1.408 trillion in 2022 to IDR3.216 trillion in 2027. We are coming up with products which are solving real problems and challenges across the entire ecosystem. Today's telco industry is growing at 4-5%, but the digital economy is maturing too, and we want to be involved. In the next four years, there will be 22 million new users coming from rural Indonesia.

Pillar two – marvellous experience – involves focusing on employees, partners, digital, users, and brand experience. We're very focused on delivering a marvellous experience throughout the entire value chain.

Pillar three – innovation engine

– explores methods for growth, including data, platform, AI and automation, and product innovation. We have created an innovation experience in Jakarta that is on par with Silicon Valley.

Pillar four – digital leadership – starts with building the next generation of leaders. Our top 100 leaders are working together with a single objective, representing key business priorities, and utilising coaches, captains, and team leaders to improve performance targets. It started with building a culture to break down the silos and create tribes.

Pillar five – 'gotong royong' or mutual cooperation – talks about partnering strategically with the best and recognising world-class partnerships. I am a strong believer of the philosophy of Indonesia, where you all come together to solve a problem.

Getting the connectivity right

You have to get the connectivity right. It's about going back to basics, focusing on the connectivity itself. It's important to establish exactly how we can help. Rather than focusing on the technology in and of itself, we must contribute to solving the real challenges, sustainably.

Today, Indosat has rolled out close to 750 5G sites. The most important thing in 5G is not speed, but the ecosystem. We are learning from everyone, especially some of the big market rollouts we have seen in India. All the investments we've made in the last three years are all software-upgradeable to 5G.

We want to make sure that we learn from 2G, 3G, 4G, and we feel that there is still a lot more 'juice' in 4G. When I speak about connecting rural Indonesia, it's all 4G. We need to provide opportunities to people across rural Indonesia, but we must grow in a manner where our capex

intensity can balance it. We started with Nusantara where we have made significant investments to ensure that we can deliver 4G. We are looking at East Indonesia now, assessing ARPU.

Once we've provided that connectivity, we don't just connect and forget. We explore the business case for customers, beyond consumer. We looked at options for SMEs, enterprise, and small ticket lending turns out to be in high demand. Accordingly, we've partnered with a bank – we can't do everything ourselves! – for digital lending.

Equal opportunities are important too, particularly in rural regions. Today we're helping women in rural Indonesia; we have created a programme to build their business proposal, and they get funding as well, sometimes at 0% interest rates. More than just CSR, providing equal opportunities to women has commercial value as well, benefiting you as a company, as a community, and as a society.

For 5G, meanwhile, our focus will be on creating a private public partnership ecosystem and addressing Industry 4.0. We have learned that if you create a private network, the local community also benefits. The use case is the most important aspect for success. There will be a lot of investment coming in on 5G – and the real questions is, how are we going to monetize that? How do we make sure that all these investments are reaching the end users?

We've recently partnered with China Mobile to help us bring the whole ecosystem together, especially on the enterprise side. I've been very impressed with their AI capabilities and their home broadband strategy. We're keen to see how AI can increase revenue, and China Mobile has done this at scale already.

The opportunities in Indonesia are immense – it's up to us how we capitalise on them. ■



**Vikram Sinha, President Director and CEO,
Indosat Ooredoo Hutchison**

Airtel undergoes significant growth

Bharti Airtel has witnessed substantial growth in its data subscriber base and market share. The company continues to experience robust additions of 4G/5G subscribers, and it foresees further expansion in both data subscribers and post-paid customers.

Airtel continues to add 4G/5G subscribers at a strong pace, with 24.5 million additions in the last 12 months. CLSA forecasts Airtel to achieve annual upgrades of 20 million by the end of the 2026 financial year and data subscribers reaching 293 million, leading to a significant increase in ARPU. CLSA estimates that this increase in data subscriber additions will contribute to increase in Airtel's ARPU from Rs200 to Rs257 by close of financial 2026.

CLSA also highlighted that Bharti Airtel is

experiencing an uptick in post-paid subscriber additions, with 0.83 million in the first quarter of 2024, marking a 3.4x year on year growth. This growth extends to 4.8 million when considering IoT/M2M subscriptions. Post-paid subscribers are contributing to revenue growth.

According to CLSA's report, Bharti Airtel's positive trajectory includes rising ARPU, increasing data subscriber penetration, and further market share gains.

In other news, Airtel has been penalised by Telecom Regulatory Authority of India (TRAI) with a Rs 2,81,39,000 penalty because the operator couldn't curb the unsolicited commercial communications (UCC) – essentially SPAM – sent on its network.

Globe Telecom slashes full year revenue growth target amidst economic factors

Globe Telecom has lowered its full-year revenue growth target, highlighting extended macroeconomic pressures including rising inflation which weakened consumers' purchasing power.

Its service revenue growth forecast for 2023 was changed from a mid-single digit to a mid-to-low single digit figure. In addition to general economic factors, the operator stated the adjustment was spurred by a continued decline in its legacy broadband business.

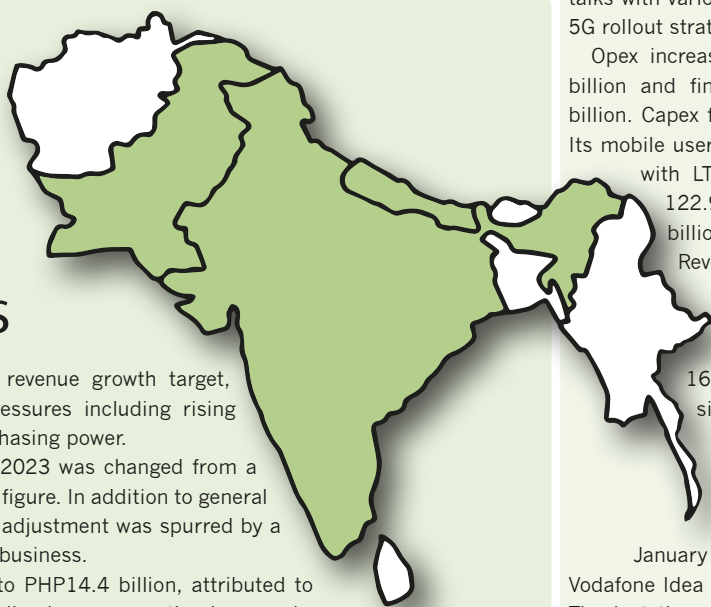
Net profit in H1 fell 27% year-on-year to PHP14.4 billion, attributed to increased depreciation expenses and a decline in non-operating income due to a one-off gain of PHP8.5 billion from the partial sale of its data centre business in the same period in 2022.

Consolidated operating revenue rose 3% to PHP89.5 billion, backed by data growth across its mobile and enterprise businesses. Mobile service revenue grew 1% to PHP54.8 billion, with 5% data growth offsetting double-digit declines in voice and SMS.

Its prepaid user base declined 5% to 80.3 million, due to a government SIM registration initiative. Post-paid subscribers remained at 2.5 million. While non-active SIMs are churned out of the system, resulting in lower prepaid subscribers, the company does not expect any impact on its top-line.

Prepaid ARPU rose 2% to PHP101 and post-paid number fell 1% to PHP845. Home broadband revenue dropped 7% to PHP12.8 billion and corporate data improved 11% to PHP9.1 billion. Non-telecom units booked 47.4% growth to PHP2.8 billion. Capex dropped 25% to PHP37.7 billion.

Globe Telecom said that 5G outdoor coverage in greater Manila reached 97.4% at end-June.



Vodafone Idea reports net loss for Q1

Vodafone Idea recorded a wider loss in its fiscal Q1 2024 (ending 30 June), hit by a rise in operating and financing costs, and a loss of 19 million mobile subscribers as 4G growth slowed.

CEO Akshaya Moondra reported that Vodafone Idea booked an eighth consecutive quarter of growth in ARPU and 4G subscribers, and 'remains engaged' with lenders to raise funds to pay down debt, along with other parties for equity or equity-linked fundraising to make the required investments for network expansion, including a 5G rollout. Vodafone Idea is holding talks with various network vendors to finalise its 5G rollout strategy.

Opex increased 6.8% year-on-year to INR65 billion and financing costs 9.8% to INR63.8 billion. Capex fell nearly 50% to INR4.5 billion. Its mobile user base fell 7.9% to 221.4 million, with LTE subscribers growing 3.3% to 122.9 million. A net loss of INR78.4 billion was up from INR73 billion. Revenue rose 2.4% to INR106.6 billion, aided by 7.1% rise in ARPU to INR139. Average LTE data usage increased 9.7% to 16GB a month. Total broadband sites fell by 12,600 to 442,100.

As of end-September, Vodafone Idea's shares were at their highest for 20 months; the last time it closed above Rs 12 was January 2022. With these gains, shares of Vodafone Idea are up nearly 36% in September. The last time the stock gained over 30% in a single month was in December 2021, when the stock had risen by almost 40%.

Telenor Pakistan names Khurram Ashfaq CEO

Telenor Pakistan has promoted COO Khurram Ashfaq to CEO, replacing Irfan Wahab Khan who will take a new role as SVP in Telenor Asia.

Ashfaq began his role in mid-September. He has served Telenor Pakistan for 17 years in multiple senior roles, including as CTO for six years between 2014 to 2020, before he was promoted to COO.

"As we navigate the evolving telecommunications landscape, my focus will be on empowering our

customers and driving digital transformation," said Ashfaq.

Khan takes up his new role on the same day, joining the Telenor Asia leadership team in Singapore. He joined Telenor Pakistan in 2004 as its first employee and has held various leadership positions across the Telenor Group in Europe and Asia.



Telemor renews SES partnership for 8 years

Telemor has extended its partnership with SES for another eight years. This collaboration, in effect since 2015, aims to enhance mobile connectivity in the region.

Under this renewed agreement, Telemor will leverage SES's O3b constellation, operating in medium Earth orbit (MEO), to deliver upgraded mobile connectivity services to both residents and businesses in Timor-Leste.

With mobile phone subscriptions in Timor-Leste reaching 106.5 per 100 people in 2023, Telemor will continue to match the growing demand for bandwidth. The expansion is expected to benefit up to 1.4 million users, including those in remote areas, ensuring seamless access to video applications, voice communication, and online services.

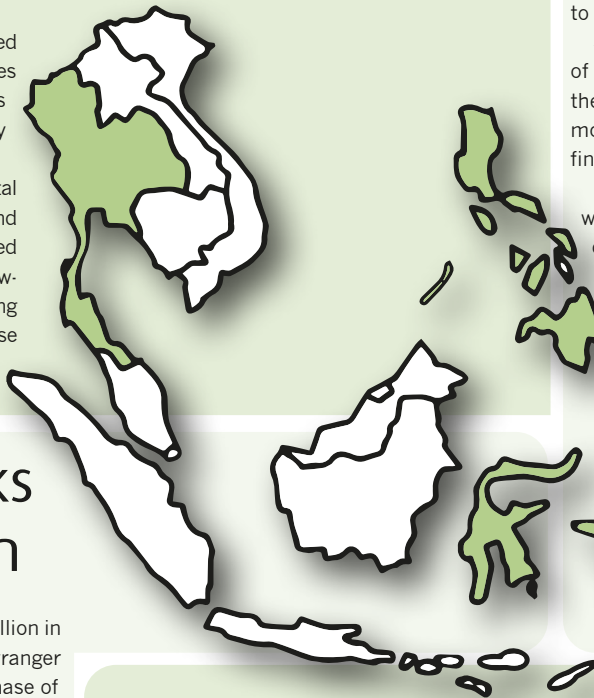
The partnership will facilitate uninterrupted access to data-intensive online services delivered via content delivery networks (CDNs), enabling efficient handling of daily online requests from subscribers.

"As Timor-Leste looks to accelerate digital inclusion and offer adequate speed and qualitative connectivity, we at SES are thrilled to see how much high-performance, low-latency, satellite-enabled connectivity will bring online services closer to the East Timorese population," said SES in a statement.

"For the last couple of years, we have

been cementing our position as the leading operator with the highest number of subscriptions in Timor-Leste and are committed to delivering the superior internet experience needed by our subscribers. Living by the slogan 'Telemor - Hetan diak liu (deliver better life),' we remain committed to our mission to bring the best services as well as the latest and most integrated technology to serve the Timorese," announced Telemor.

This initiative aligns with Timor-Leste's mission to accelerate digital inclusion and provide reliable, high-quality connectivity. Telemor is poised to deliver improved internet experiences and the latest technology, ultimately unlocking digitally-enabled economic opportunities, even in remote regions.



Reliance Jio seeks to raise \$2 billion

Reliance Jio Infocomm is raising up to \$2 billion in offshore loans with BNP Paribas as lead arranger of an initiative that will help fund the purchase of 5G network gear from Ericsson.

BNP Paribas will provide US\$1.9-2 billion over a nine-month period. Swedish export credit agency EKN recently provided US\$2.2-billion cover to Reliance Jio. This will insure Ericsson, and big lenders like BNP Paribas, from risk.

Jio plans an overall 5G investment of about US\$25 billion. Spectrum has already cost it about US\$11 billion, which includes the 700MHz band of which Jio is the only holder. Jio is likely to achieve pan-India 5G coverage by December. It already claims some 50 million 5G users of services rolled out to around 6,260 cities and towns.

Jio said that it will be the largest 5G SA-only network operator in the world in the second half of 2023.



Vijay Shekhar Sharma bumps up Paytm stake

India mobile payments giant Paytm revealed that founder Vijay Shekhar Sharma will become its largest shareholder, after agreeing to buy 10% of the company from an affiliate of Ant Group.

The additional equity will make the company's founder its largest shareholder with a 19.4% stake while Antfin's will be cut to 13.5%. Paytm noted the value of the shareholding was \$628 million though the buyer will issue Optionally Convertible Debentures, a form of debt security, to Antfin for the stake rather than cash.

Sharma said that Paytm was "a true champion of made-in-India financial innovation" highlighting the company's "achievements in revolutionising mobile payments and contributing to formal financial services inclusion in the country."

Bloomberg suggested the move could be a way to cut its backing from investors with China ownership at a time of economic tensions between the country and India.

Paytm's monthly users jumped 20% in July-August to an average of 94 million. Loan disbursements, a key growth metric, more than doubled to 107.1 billion Indian rupees.

Paytm recently unveiled a \$12 device that allows customers to make payments by scanning a QR code or tapping cards on a reader, and alerts merchants when money is credited to their account. The machine accepts all major credit card networks, including homegrown RuPay.

True Corp suffers spike in expenses

True Corp has more than doubled its 5G user base year-on-year in Q2, but a spike in expenses including merger integration costs resulted in a significant net loss.

5G population coverage hit 90% by end-June, with 8.3 million subscribers compared with 3.4 million in Q2 2022. 5G ARPU continued to be 10-15% more than other technologies, mainly driven by device bundling. Prepaid ARPU remained at THB104 per month and post-paid at THB416.

True Corp reported a net loss of THB2.3 billion compared with a profit of THB2.6 billion in Q2 2022, with revenue falling 8.8% to THB49.1 billion. True Corp attributed the loss to a reversal of deferred tax assets on losses from a subsidiary, higher depreciation and amortisation expenses, and integration costs of about THB250 million. It benefitted from larger economies of scale, which optimised capex and resulted in savings of THB3 billion since the

merger with Telenor unit dtac in March.

Mobile service revenue declined 2% to THB31.8 billion. Online sales were flat at THB5.8 billion and pay-TV dropped 4.7% to THB1.6 billion. Capex hit THB3.4 billion, with the full-year outlay expected to be between THB25 billion and THB30 billion.



Future looks rosy for XL Axiata

XL Axiata has forecast high single-digit revenue growth for the full year after booking an increase in Q2.

President director and CEO Dian Siswarini said that the company benefitted from a focus on converging products, networks, IT infrastructure, distribution system and the overall organisation.

Parent company Axiata Group unveiled plans in May to position its two operating units in Indonesia as a converged service company and a specialist wholesale fibre company. The group

acquired a majority stake in major broadband internet and cable-TV provider Link Net in June 2022, enabling XL to accelerate fixed mobile convergence (FMC) services.

Net profit rose 1.3% year-on-year to IDR453 billion, with revenue increasing 12% to IDR8.2 trillion. It added 1.2 million mobile customers, bringing its total to 58 million. The number of 4G base stations grew 9.8% to 97,100 sites. Over the past two years, 3G sites fell from 52,500 to about 1,200. Full-year capex is forecast to decline 11.1% to IDR8 trillion.

India's MNOs may owe customer refunds

Indian telecom operators have been asked to return any excess amount they have charged consumers.

According to a new order from the telecom regulatory body, if an audit proves that the operators have overcharged customers, they will have to refund the money. Further, the refund has to be actioned within three months of receiving the slip from the auditor that the customers have been overcharged.

The Telecom Regulatory Authority of India (TRAI) said that the new regulations put an emphasis on refund of maximum amount in a definite time frame, which have been overcharged from consumers.

The new measure is a part of the 'Quality of Service (Code of Practice for Metering and Billing Accuracy) Regulations, 2023,'

dated 11 September 2023. If the MNOs fail to submit the report, they will have to face a financial penalty of up to Rs 50 lakh per report. TRAI has recommended a panel of auditors, and the telcos must use them to get their accounts audited.

TRAI has eased the burden on telcos; instead of four audits for each LSA (licensed service area) per financial year, the total audit will be reduced to just one per financial year for each LSA. However, to ensure that the customers' interests are put on top, TRAI has ordered the telcos to get the maximum of their tariffs audited instead of the most popular 15, which was the rule before.

The new rules will help in reducing the audit burden on the telcos by almost 75%, while also helping in protecting customers.

PLDT's Q2 net profit up 22%

PLDT cut capex in the first six months of 2023 and reduced its number of 5G base stations by more than a third as part of efforts to reduce network spending and achieve positive free cash flow.

Company president and CEO Alfredo Panlilio said amid an extremely challenging macroeconomic outlook it forecast single-digit service revenue growth for the full year.

Capex in the first six months of the year fell 11% to PHP40.8 billion, with the capex to service revenue ratio dropping to 41% from 48% the year earlier. Despite the number of 5G base stations being cut by 2,500 to 4,700 at end-June, 5G connections rose 84% year-on-year to 3.9 million.

PLDT stopped deploying new 5G base stations in early 2022 and was converting some sites to LTE as part of a network optimisation programme, following a massive capex overrun.

Net profit in Q2 grew per 22.4% year-on-year to PHP9.5 billion, attributed mainly to a lower loss from its Voyager holdings compared with

the previous year. Consolidation service revenue rose 1.4% to PHP49.5 billion. Mobile service revenue dipped 1.9% to PHP23.1 billion, with voice and SMS down 19.4% to PHP2.9 billion and 6.9% to PHP1.4 billion, respectively.

Mobile data revenue was flat at PHP18.4 billion. Prepaid ARPU at mobile unit Smart Communications increased 4.8% to PHP109 and post-paid fell 11.4% to PHP691. Post-paid subscribers increased 3% to 2 million, while prepaid subs dropped 5% to 59.9 million, due mainly to the government's SIM registration drive.

LTE and 3G sites remained stable year-on-year at 38,800 and 17,000, respectively.



DITO Telecommunity gains cash injection

DITO Telecommunity has obtained a 15-year \$3.9 billion loan from a group of international banks to finance the expansion of its network. The arrangement will be one of the largest long-term debt coordinations for a Philippine company.

Around US\$1.3 billion will be used to repay short-term bridge loan facilities, with the remainder used to pay contractors and fund the company's subsidiary DITO Telecommunity's ongoing network rollout. The cash injection will improve the customer experience while also accelerating the adoption of DITO's FWA 5G and post-paid products.

The loan is a key milestone to ensure the company stays on track with its long-term goals and, potentially, meets them sooner. DITO Telecommunity went commercial in March 2021, reportedly planning to break even in 2025 and turn a profit in 2028.

"This project finance facility represents strategic trust and confidence in the vision of the Company to be a major enabler of digital services in the Philippines," said DITO CME president Ernesto Alberto.



Verizon: no plans to invest in Vodafone Idea

In contrast with industry scuttlebutt, Verizon has no plans to invest in Vodafone Idea (Vi), preferring to focus on its local US market.

Vodafone Idea has also denied any acquisition talks with other companies and is trying to raise funds through equity and debt instruments. Vodafone Idea's promoters had promised the government that they would bring external investment into the company, but this is yet to materialise.

The Indian government has made clear that it doesn't want to interfere in the day-to-day operations of the MNO. However, Vodafone Idea is in need of a huge fundraising as it has more short-term payments coming up along with the need to invest further in the mobile networks.

AIS wins court case amidst profit boost

AIS has prevailed over National Telecom (NT) in a legal case claiming that the operator breached a concession agreement, with a court backing an earlier ruling by the Arbitration Tribunal dismissing the state-owned company's claim for compensation.

The Central Administrative Court rejected a petition by NT seeking to overturn the tribunal's decision, which dismissed its claim for THB32.8 billion in damages for AIS porting subscribers to its network between May 2013 and September 2015 following the end of a 900MHz concession.

NT can appeal the decision to the Central Administrative Court within 30 days.

Earlier in September, NT reached a deal to transfer half its 700MHz spectrum acquired in 2020 to AIS, which agreed to lease RAN equipment the state-owned company to allow it to deliver 5G services.

AIS has reported gains in profit and 5G subscribers in Q2 but declines in ARPU and device sales weighed on its mobile business. Net profit grew 14% to THB7.2 billion, with CEO Somchai Lertsutiwong citing successful cost management for the gain. Revenue fell 1.1% to THB44.8 billion. Lertsutiwong said that the company sees a gradual rebound in the economy driven by a recovery in tourism, which he noted is a key growth engine for the country. The operator stood by guidance forecasting mobile service revenue to increase 3-5% this year.

Mobile service revenue was up 1% to THB29.5 billion. SIM and device sales dropped 15% to THB7.5 billion. The operator added nearly 4 million 5G subscriptions to reach 7.8 million. Total mobile users remained at 45.3 million, as a 5% increase in post-paid offset a 2.4% decline in prepaid. Prepaid ARPU dropped 2.7% to THB123 and post-paid 2.6% to THB448. The operator claimed 87% 5G population coverage nationwide. Fixed broadband sales grew 15% to THB2.9 billion and enterprise 2.2% to THB1.3 billion. Full-year capex guidance remains at THB27 billion to THB30 billion.



Talking satellite

Carlo Agdamag, space and spectrum policy manager, Access Partnership



Riding the wave of consolidations: implications for competition, convergence, and the region

Unless you have been living under a (space) rock, you are probably aware that the biggest trend that jolted the space industry in the past year was a string of mergers and acquisitions, mostly involving established satellite companies.

Beyond altering the dynamics of competition in the sector, these deals are likely to influence the pace of space-related developments and how overall innovation in this fast-moving industry would play out. In such a case, flagging market concentration may not remain a purely economic assessment, as regulatory and scientific factors must also be equally considered, such as ITU filings, orbital slots, and spectrum holdings.

While the eventual aftermath of this trend of consolidation remains to be seen, this would surely have repercussions on how to determine an ideal number of satellite operators in a market, how this affects the road to network convergence, and how Asia would play a role in the unfolding of these developments.

An optimal number of satellite players

Despite the continuous boom of the satellite industry, the number of players has become increasingly smaller, with one acquisition after another. As such, prior to the consummation of these transactions, regulators have been assessing whether the heightened level of concentration would be harmful to the market, and the possible measures that can be done to avert likely harms. To this date, not even the most proactive regulators, such as the European Commission, have raised major red flags about the deals. At most, the concerns flagged only pertain to a specific subsegment of services (such as inflight connectivity) in a confined geographic area.

Stripped of technicalities, the absence of market concentration issues could be attributed to the continuing presence of a sufficient number of players competing in the market. However, as satellite companies find it more efficient to combine their

operations and technologies, reaching a breaking point could become an immediate possibility. Determining an ideal number of players in telecommunications remains a long-running debate, especially in the realm of mobile networks. While having three – or even four – mobile network operators has long been regarded as the magic number, this is disputed by several assessments and even by competition regulators, who say that each jurisdiction must be judged on its own merits.

Whether such an optimal number would come to exist for satellites remains up in the air. For one, the method for analysing competitive impact varies per industry. Unlike in mobile markets, where the issue of spectrum allocation is a major factor in determining the presence of competitive harm, the dynamics are different in the case of satellites. However, with the evolving landscape of terrestrial and satellite connectivity, even the method for assessing harm in the market may likely change as well.

A challenge to industry convergence

Perhaps the most game-changing development in telecommunications in recent memory is the advent of direct-to-handset (DTH) connectivity. Previously, there existed a clear demarcation in the markets of satellite operators and terrestrial networks. However, with DTH technology, the lines are now blurred as easily accessible consumer handsets, such as smartphones, are now capable of connecting to satellites. Much has been said about the immense benefits that this convergence would bring to consumers. From providing an additional layer of safeguard in disasters and emergencies to making ubiquitous connectivity anywhere in the world more accessible, DTH signifies a new frontier in telecommunications.

However, while the technical aspect of this innovation seems to be in advanced stages, the regulatory component remains to be fleshed out. This includes how the competition dynamics of the mobile-satellite divide would be treated. With a backdrop of DTH mainstreaming, coupled with a continuous trend of consolidation among satellite players, it might be inevitable that both satellite and mobile operators would be considered within the scope of a single market for the provision of connectivity to consumer handsets. While satellite operators have been marketing DTH as a mere complementary service to mobile networks, how it is perceived by competition regulators may be starkly different, especially when

assessed with factors like spectrum sharing.

Implications for Asia

Mergers of satellite companies happen on a global scale, and the jurisdictions which initially flagged concerns about these transactions are mostly from the western region. However, there are two notable developments happening in the Asia Pacific region which could be pivotal in how the competition dynamics between terrestrial and satellite ecosystems pan out.

The first involves a wave of mergers by southeast Asian telecommunication firms. For instance, in Thailand, the second-ranked operator True has merged with third-ranked DTAC, creating an entity which dislodged the erstwhile leader AIS from the top spot. The same situation transpired in Malaysia, with Celcom combining with Digi.com to create a new market leader in the country. Both transactions resulted in a more concentrated mobile network market, and while they are purely independent from satellite or DTH developments, regulators could regard the resulting concentration in terrestrial markets as a factor in assessing satellite-related transactions, given the possible complementarity or substitutability scenarios arising from DTH technology.

The other involves the wave of DTH developments happening in Asia. Currently, most DTH services are limited to emergency communications, and given the geographical and topographical conditions of Asian countries, many operators are initially piloting their services in the region. The most relevant among these are partnerships between mobile network operators and satellite operators, some of which encompass the latter's use of the licensed mobile spectrum. The rules regarding this are on shaky ground, and again, how these partnerships unfold would be a relevant factor in assessing the competition dynamics in the satellite industry.

All told, it appears that the current trend of consolidation among satellite firms would create a ripple effect that could have tremendous implications for the entire telecommunications industry, including in Asia. But while satellite business strategies and technological innovations are trying to outpace each other, competition regulation is still playing catch-up. Until then, the market remains in a wait-and-see attitude as to how these developments would be perceived.

IGT: resilience in trying conditions

How does Irrawaddy Green Towers strategically navigate market shifts such as the departures of key players like Telenor and Ooredoo, and confront market challenges?

Myanmar has moved from a growing market to a consolidating market. There are almost no new towers to build, we must wait until the economic situation improves.

Currency is a new challenge. We have contracts with operators in US\$ who will only be paid in local currency. This is resulting in difficult exchange rate negotiations. There is the CBM (Central Bank of Myanmar) rate 2,100 MMK/US\$, the 'official rate' 2,922 MMK/US\$, and the rate on the market, which fluctuates around 175% of the CBM rate. Although we don't have to buy towers in US\$ right now, we still need to replace, or upgrade; batteries, power equipment, generators, and buy spares to keep the network running. Moreover, importing from countries other than China is extremely difficult due to various rules and regulations, and this is unlikely to change any time soon.

The financial bottom line, for almost all businesses, is under huge pressure.

Could you describe an instance where IGT exhibited exceptional resilience and adaptability in the face of a significant obstacle in site management, in a challenging environment?

Every situation has its own challenges, but that's what makes network operations interesting!

Today in Myanmar, there's power instability, with many hydro power plant projects put on halt; maintenance lag on turbines made some of them fail; resulting in the degradation in grid power availability. However, in the last two years, we've installed on many sites that are only connected to the Grid, Lithium-Ion batteries, which we can charge faster by adding rectifiers. That's significantly reducing the impact of the power-scheduling, although the needed rectifiers again, must be bought with US\$.

The aim is to deliver up-time as we always do, and to navigate through the moments of lag of equipment by operating in a smart way, moving equipment from site-to-site with minimum impact for our customers.

The roadblocks, curfew, confrontations with armed groups, sabotage that we're seeing now, all need a special approach. Now we must live with 'the new normal,' demanding a new and special management approach. We've instructed employees to deal with the situation on the ground as best as is possible, doing whatever they need to do, to stay safe.

With your extensive experience in emerging economies, what would you identify as the three pivotal factors for ensuring a successful operation and sustained infrastructure maintenance?

Process automation; full control; and management.

Our enterprise system is a combination of four coupled base systems: Asset Management System (ERP), WO & TT System (ClickOnSite), RMS System (Invendis) and the Electronic Key System. With the combination of these systems we can manage all our end-to-end

processes (including roll-out), with build in controls.

In emerging markets, people are not trained, or aware of, the fundamentals in quality, discipline, project management, etc. Things that are normal for western economies are alien to those in emerging countries. You must start with selecting the right people and training them to a mutual perception of quality and maintenance.

Three years ago, we implemented the Trouble Ticketing (TT) & Work Order (WO) system ClickOnSite with an integrated Mobile App. If a site encounters problems, automatically a trouble ticket is sent out to rectify. Based on experiences in other markets where the maintenance guy actually never visited the site, and instead sent doctored photos, we implemented tight controls. Trouble tickets can only be closed on site, which is confirmed via geofencing. With the ClickOnSite Mobile App, a photo is taken directly through the app to evidence the work – it cannot be manipulated. We have a full record of all activities done on site.

Meanwhile, we control the movement of assets by utilising a combination of barcodes scanning (to identify the asset) and geofencing (to identify the location of the asset). These barcodes cannot be tampered with as they're embedded into the equipment. This ensures that the data we have is accurate. Coupling of the generator controllers and Li-Ion-batteries-management-systems, to the Remote Management System gives us early warnings and full visibility of what's happening on site.

Without the right management, all these supporting systems/tools and available data are useless. Managed well, the gain is huge.

What do you feel is the most significant contribution of the telecommunications industry to society?

For emerging markets, the benefits are endless, improving quality of life through education, creating competition, improving knowledge, instant support, etc.

When I was in Uganda, there was, for example, a fisherman who sold his catch for \$1 per kg to a reseller who approached him at the lake. This reseller would take the fish to market to sell for \$5 per kg – because the fisherman didn't know the market price, he was not in the position to negotiate a better price. With telecommunications, the fisherman could gain knowledge of the market, and benefit more from his own work.

Has there been a mentor or strong influential figure who has played a pivotal role in your professional journey?

When I started in the telecom industry, I had two inspiring people in my life: Marius Shouten and Chiel v.d. Linde. From them I learned about people management; the value of empowering people; the power of winning teams; never being too old to learn; and the joy of coaching people and bringing them to the next level. Being vulnerable (not always knowing everything) is a strength if you apply it right!

Do you adhere to a philosophy or have a guiding mantra that informs your decisions and actions in your daily professional life?

Don't wait to decide until you have ALL the information; information is fast outdated; decisions are made on 80% of the information and more importantly on your 'gut feeling,' which develops through experience. BUT do not hesitate to change your decision when you receive information that dictates so, or you discover that you made a mistake. ■



Hans Moritz, CTO at Irrawaddy Green Towers

Communicating through a disaster



Subodh Vardhan, vice president & managing director
South & South East Asia, Motorola Solutions

In the aftermath of a natural disaster such as an earthquake, flood, or other event, one of the greatest challenges for aid agencies and responders is accessing reliable and robust communication on the ground.

Enhancing situational awareness

Major events often cause traditional cellular networks to become damaged or unavailable, but land mobile radio (LMR) networks provide exceptional coverage, are hardened and are highly secure.

Throughout history, LMR technology has provided the most resilient and reliable form of communication. Even if LMR infrastructure is damaged, LMR handsets can operate via direct mode of operation (DMO) for point-to-point communications on the ground without the need for communications infrastructure. This is especially important for enhancing situational awareness and safety among first responders who need to share real-time updates about how events are unfolding with their colleagues.

With so many disasters nowadays requiring a multi-agency response, it's also important to have equipment such as donor radios programmed and ready to go into the hands of first responders as soon as they arrive on scene. However, in some emergencies the best and most effective devices for first responders to use are the ones they already carry. That may be a radio handset, but it may also be a smartphone or tablet.

This need has driven the development of broadband push-to-talk services as well as the integration between conventional radio and satellite services to provide continuous coverage in rural and remote areas that may not be serviced by other networks. Additionally, a growing number of public safety agencies are investing in converged mobile devices that bring together reliable voice communication and access to vital data applications within the one handset.

Planning for what's coming next

Southeast Asia is known to be one of the most hazard-prone regions in Asia and the Pacific. It is estimated that the region suffered \$91 billion in financial losses from 2004–2014 alone from a variety of events including typhoons, storm surges, floods, drought, and earthquakes.

The unpredictable and frequent nature of disasters in the region make it difficult to plan and prepare for what's next. Additionally, the region is naturally exposed to natural disasters with some countries having low lying areas with limited coastal defences and others located on known disaster fault lines.

From a technology standpoint, this further emphasises the need for robust and reliable communication. The availability of spectrum also differs across countries, so technologies that enable instant, interoperable, and seamless communication are very important.

The demand for voice communication for effective disaster management isn't going

away. The TETRA and APCO P25 radio standards have long been the most proven global standards for providing resilient and dependable communication for emergency services. In fact, LMR continues to benefit from continued investment and innovation including the development of HF radios that provide long-distance communications without the need for infrastructure.

However, the nature of crises and emergency response are both evolving so there is now a far greater need for voice and data both in the field and the control room. The continuing emergence of advanced, AI-enabled video and software tools are helping to further strengthen

used to filter, analyse and present actionable data from the masses of information generated during an emergency. Giving responders the most relevant and precise information they need during a crisis helps them to make better and faster decisions and ultimately leads to a safer and more efficient response.

The future of disaster management

A well-known term associated with disaster response is the 'Golden Hour' - in other words, the brief but critical window of time after disaster strikes where the actions of responders can make all the difference in saving lives and property.

"The nature of crises and emergency response are both evolving so there is now a far greater need for voice and data both in the field and the control room."

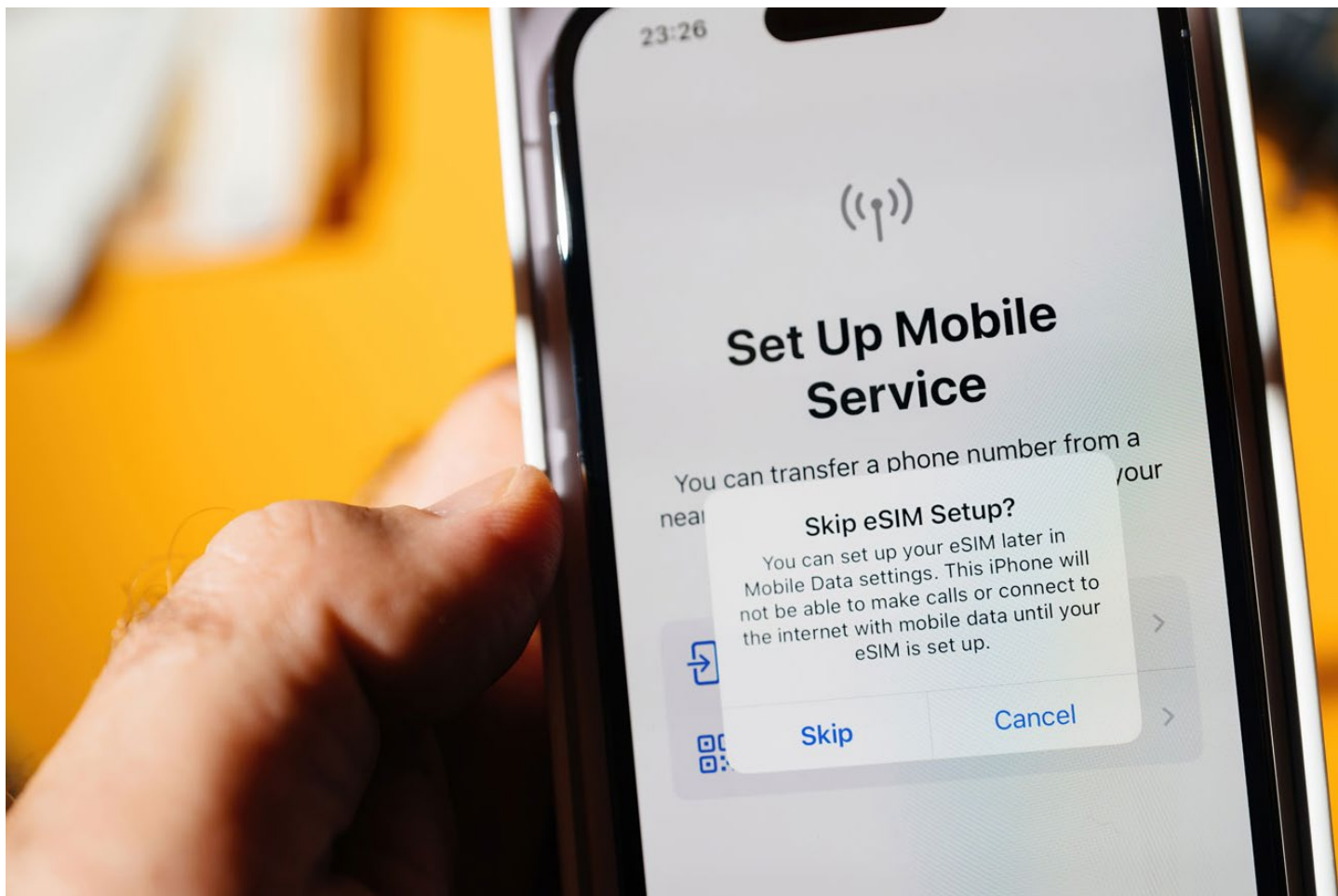
the links between responders in the field and their colleagues in the control room.

The 'visualisation' of information in the aftermath of a major event such as an earthquake is vitally important. For example, drones and robots can be sent in ahead of human responders to broadcast real-time images, video streams and other situational updates back to the control room. This helps to increase awareness of what dangers may lie ahead before placing responders at risk.

Other new and emerging technologies include intelligent video analytics solutions, artificial intelligence, citizen engagement tools and software that can also be

Success during the Golden Hour during a major crisis requires a continuous cycle of strategic and operational planning to establish the right priorities, planning, equipment, and training needs. Technology plays an important role throughout their entire lifespan of a major event - from the onset of disaster, throughout the recovery stages and lasting until response operations have officially ended.

The future of emergency management will be defined by technology that enables agencies to seamlessly communicate with each other while integrating new data sources to create an even clearer, common picture as disasters unfold. ■



The eSIM opportunity

eSIM technology is revolutionising consumer and enterprise markets across the globe, with Asia pegged as the leading world market in a few short years...

eSIMs hold a wealth of promise across a variety of applications, offering flexibility, convenience, connectivity, and the ability to leverage emerging technologies. Instead of an integrated circuit on a removable SIM card, eSIMs comprise software installed onto an eUICC chip which is permanently installed on the device. Once active, the eSIM can be reprogrammed remotely with new information, enabling rapid, hands-free carrier switching.

The first standard for eSIMs was released by the GSMA in 2016. Since then, eSIMs have been taking the wireless connectivity market by storm. Early adopters of eSIM technology – the USA, the UK, Europe – have typically been developed world regions. However, huge untapped markets exist in emerging economies in Asia and Africa. In fact,

Asia is expected to be the largest market for eSIM technology in the years to come.

Data Bridge Market Research estimates that Asia Pacific's eSIM market is likely to experience a compound annual growth rate (CAGR) of 13.8% over 2023-2027, driven by increased awareness of the advantages of the technology. Significant market drivers include the rapid adoption of IoT devices for both consumer and enterprise applications; increasing demand for connected cars; the expansion of 5G; and the growing need for innovative consumer electronics.

Local opportunities

Asia's MNOs are rapidly adapting to the new opportunities presented by eSIM technology,

although the business case varies from one MNO to another, depending on customer base, market position and business objectives.

The market opportunity for eSIMs can broadly be split into two categories: consumer and IoT.

The consumer market includes traditional mobile services - for which eSIMs are particularly useful in Asia's smaller nations, where consumers can switch carriers as they cross borders without swapping out physical SIM cards – as well as connected wearables, in addition to new market revenue streams like value added services (VAS). For now, the consumer market dominates, although uptake remains lower than in western countries where more people own more devices. This is expected to change, however, with Asia's emerging middle class, strong GDP growth, and

increasing access to high-speed connectivity, rendering connected devices a more attractive and affordable proposition.

Sachin Arora, head of connectivity and IoT at Giesecke+Devrient India, agrees: “at the moment, the eSIM market is still dominated by the consumer sector (mobile phones, smart watches, etc.). However, within the next 3-5 years, there will be more IoT devices which will require eSIM. Currently the penetration is not deep and will take some time.”

Indeed, the adoption of eSIMs for IoT/M2M applications is expected to be significant due to the specific requirements and scalability of deployments in sectors like agriculture, energy, transportation, and healthcare. eSIMs are particularly well-suited for IoT/M2M applications due to their ability to enable seamless connectivity and remote management of devices, ideal for delivering large-scale IoT deployments while achieving significant savings compared with managing physical SIM cards. Going forwards, IoT/M2M is expected to overtake the consumer market as smart homes, cities, vehicles, utilities, etc. continue to expand, and increasing digitisation grows the total number of non-consumer connected devices.

“Currently, we see the future of eSIM with automotive (telematics), consumer business (mobile phones and smart watches), and fixed wireless access (FWA) use cases,” adds Arora.

Standing out from the crowd

Both segments – consumer and IoT – allow Asia’s MNOs to leverage emerging markets and industries to expand their customer base and grow revenues, while adopting eSIMs can help MNOs stand out from the crowd in competitive markets. By offering more flexible options to consumers like seamless switching and innovative services, operators can attract customers that value flexibility and convenience.

Additionally, eSIMs enable the sale of connectivity services more efficiently without having to worry about customer relations or support.

“The digital transformation of customer engagement has become a priority for most operators looking to improve operational efficiency and customer experience,” says Eulalia Marin, principal analyst at Analysys Mason. “eSIMs enable the provision of a full digital service experience where the customer acquisition and onboarding processes are managed using digital channels.”

“The digital transformation of customer engagement has become a priority for most operators looking to improve operational efficiency and customer experience.”

Indeed, remote SIM provisioning and management simplifies device onboarding and reduces support costs while enhancing overall operational efficiency. By bypassing traditional physical SIM card distribution and remotely activating eSIMs, significant cost savings can be achieved, particularly in remote or rural areas.

Ultimately, eSIMs may well replace traditional SIMs in most applications – and those MNOs that do not adapt will be left behind.

Encouraging adoption

eSIM uptake for consumer devices like smartphones, wearables, and tablets across Asia is strong, but not as rampant as in Africa, where heavy investment by governments and vendors are encouraging rapid uptake. Further, several reports cite a lack of awareness as slowing down the eSIM opportunity, particularly in emerging markets.

“eSIMs are now available in more than 190 countries worldwide but awareness and adoption remain low, partly due to operators’ reluctance to promote the digital solution over fears of increased churn and revenue loss,” says Marin.

However, this churn can also be viewed as an opportunity, explains Marin: “eSIMs’ potential to reduce customer adoption barriers and increase churn can also be advantageous to operators as it can help them to attract new customers more efficiently. Operators can use eSIM technology to attract customers to their own networks. By offering a test-drive, operators can convince users on competing networks to subscribe to their services.”

Asia is a big place with many distinctly different countries with variations in economic and technological maturity. Accordingly, different countries are addressing the eSIM opportunity, and management of eSIM platforms, differently.

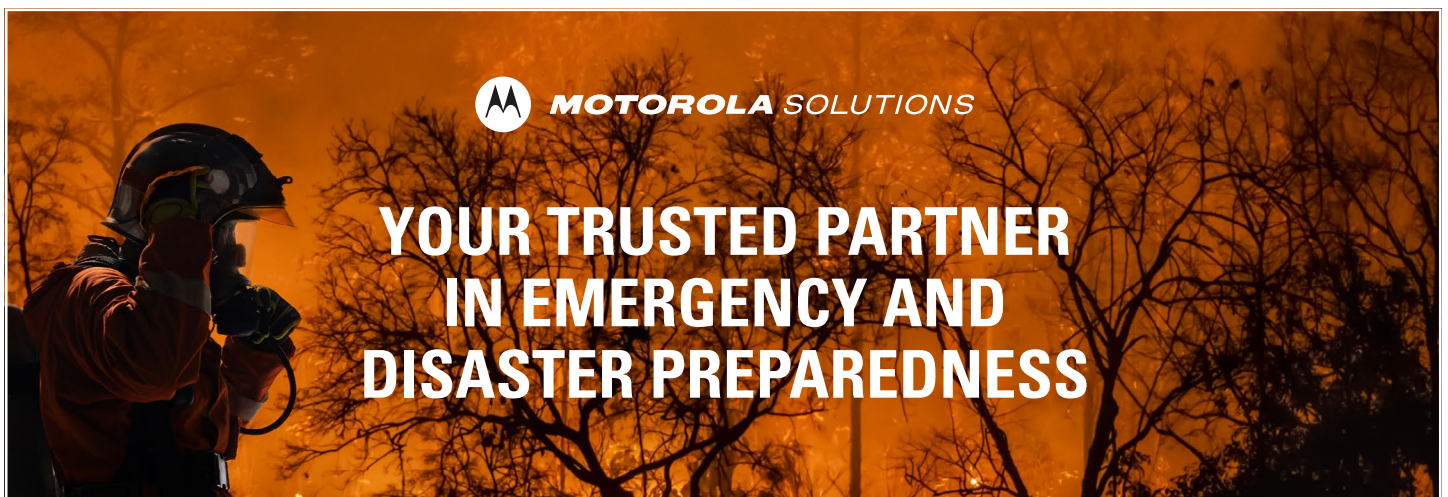
“Most MNOs in southeast Asia and India are equipping themselves with eSIM management platforms,” concurs Arora. “In India, MNOs look for their onsite system, although in southeast Asia, managed service systems are more prominent. The reason for this is to be prepared for the technology shift (physical to digital SIM) and the growth market of IoT devices which require connectivity.”

Ultimately, eSIM uptake depends heavily upon regulatory support, infrastructure development, and partnerships and ecosystem development. With the drive we’re seeing to connect all of Asia, eSIMs will necessarily play a significant role in connecting the unconnected, bridging the digital divide, and digitally transforming the entire continent ■




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Enabling smarter cities across Asia

Asia might be leading the way in global smart city initiatives, but what roles must CSPs play to guarantee success?

Smart cities are taking the world by storm, utilising modern wireless connectivity to enhance the lives of citizens across the globe. From intelligent street lighting that changes with the season, to public bins that notify maintenance when they need emptying or traffic lights which warn officials of road blocks – smart city developments offer governments an efficient, sustainable solution for urban centre management.

The world's leading smart city developments, according to Juniper Research – Shanghai, Seoul, Shenzhen, Sydney, and Beijing – are all situated in the Asia Pacific (APAC) region. Notably, none reside in southern or southeastern Asia. Spending for Asia's smart cities is expected to

reach \$42 billion by 2028, up from \$19 billion in 2023. However, growth is higher at 303% for 2023-2028 in the rest of APAC when compared to India (231%) and Far East and China (76%). Slower growth in the latter region is attributed to mature projects there compared with the emerging markets for the rest of APAC.

“Current estimates by the United Nations say that by the end of the decade, over 60% of the global population will be concentrated in cities. Nowhere will this growth be more evident than in Asia, dramatically challenging the delivery of connectivity and public services,” says Dominic Smith, marketing director, Cerillion.

And it's not just cities benefiting from smart technologies: “from my experience, southern

Asia has taken a leadership role in smart city development over the past decade,” says Simon Vaughan, chief commercial officer, GlobalReach Technology. “This ambition goes beyond cities and into creating entire smart states.”

Communications service providers (CSPs), naturally, play a crucial role in enabling smart cities, leveraging advanced technologies to enhance the quality of life for residents, improve efficiency, and promote sustainability.

“CSPs are essential partners in building and optimising smart cities. Their expertise in connectivity, data management, security, and monetisation, are all vital for the successful implementation of intelligent, efficient, and sustainable smart cities in

southern Asia,” says Smith.

The success of Asia’s smart cities ultimately rely upon network infrastructure. Modern, efficient, high-speed networks deployed and maintained by CSPs enable IoT devices, sensors, data transmission, machine-to-machine communications, etc., all the cogs that comprise a smart city. Reliable real-time data collection and transfer is a must to enable the monitoring of so many smart city initiatives like the monitoring of air quality, traffic, waste management, utilities, and so on. CSPs facilitate the communication between devices and central data platforms and transmit to data centres for management and cloud services that enable cities to store and process large volumes of data efficiently.

“Communication networks therefore play a critical role,” explains Kunal Shukla, senior vice president of technology, Digital Barriers. “By providing reliable, secure, and high-speed connectivity, communication networks can help to improve the efficiency of city operations, make better decisions, and ultimately improve the quality of life for citizens.”

“As urban environments become increasingly connected and data driven, CSPs can provide the essential communication networks and city services, using smart devices, sensors, and IoT to gather data and optimise various processes, manage critical infrastructure and transportation systems, and enable access to public services,” says Smith.

CSPs throughout Asia are working closely with local governments and authorities to understand and action their specific needs, offering customised solutions to meet unique local demand. While local authorities and often central government will form the strategic plan and be clear about their vision, CSPs are the right partners to lead the deployment, asserts Vaughan.

“I want to stress the term ‘partnership,’ because smart city deployments around the world are usually handled by conglomerates working together, to drive and support economic growth, and improve collaboration and connectivity for the regions and citizens,” says Vaughan. “The role of the CSP is to share the same ambition, understand the environment and design and deploy a connectivity service that can transform public services and IoT connectivity to modernise and transform public utilities, transport and communications.”

Data security in a smart world

With the vast quantities of data flowing through smart city networks and infrastructure, data privacy and security becomes a concern. Network owners and operators are obliged to uphold privacy standards, protect citizen data, and comply with relevant regulations.

“With the enormous amount of data being collected and analysed, it is imperative to take a holistic approach that prioritises data privacy and security by design at all layers within smart city solutions,” says Shukla. “Technology is very important here as are the people and

processes that surround it. For example, a privacy impact assessment should be conducted for all smart city deployments that collect or process personal data. There should also be clear governance frameworks in place to ensure privacy and security are always front of mind in the design, development, and operation of smart city solutions.”

However, according to Vaughan, “collecting personal data is not absolutely necessary to provide smart city connectivity. GlobalReach Technology works in many global smart city environments where the service provider prioritises the user experience over data collection. This means users get online quicker, using other login experiences.”

From a technology standpoint, says Shukla, the encryption of all data at rest and in transit, the implementation of strong protocols for authorisations, and authentication and the use of data anonymisation wherever feasible are just some of the protections that should be put in place.

Anonymisation or pseudonymisation of data can reduce the risk of individuals being identified, helping protect the privacy of citizens while still enabling valuable data analysis. Data minimisation - collecting only the data necessary for the intended purpose - should also be practiced, avoiding excess data collection, and retaining data only for as long as required by law or the specific use case.

“Ideally, where data is collected, the best practice in our view is that the communications provider should not hold any PII (identifiable information / data) in their system,” shares Vaughan. “It’s unnecessary and strictly doesn’t belong to them. The communications provider should pass any data onto the service provider or the venue to hold in their CRM or other secure database.”

Regular privacy audits and assessments to evaluate data handling practices and identify areas for improvement can help ensure ongoing compliance with privacy standards; and collaboration between CSPs and smart city authorities, technology vendors, and other stakeholders to develop privacy-preserving solutions and strategies for data collection and use within the smart city ecosystem should also be adopted to build trust and ensure the responsible development of smart cities.

Moreover, in the event of a data breach, CSPs should have processes and procedures in place to detect, report, and respond to breaches promptly. This includes notifying affected parties and relevant authorities as required by data protection laws.

“As Spiderman’s Uncle Ben said, with great power comes great responsibilities,” adds Shukla.

Are smart cities the answer?

According to Statista, as of 2022, 60% of the global population resides in Asia, and while the region doesn’t have growth rates comparable to Africa, 1.84% population expansion is expected for 2020-2025, and a further



Dominic Smith



Simon Vaughan



Kunal Shukla

1.58% over 2025-2030.

Smart cities can make a significant difference to the multifaceted challenges presented by a growing population. Investing in sustainable modern infrastructure and technologies like smart grids, water and energy can better serve a larger proportion of the population with improved access and reduced congestion, reducing emissions and environmental impact. Moreover, smart transportation systems, including public transit, autonomous vehicles, and ridesharing, can help alleviate traffic congestion and make it easier for people to move around in densely populated areas.

“As cities become busier, resources are put under stress and public administrations need

to find more creative ways to understand the flow of people, plan services and maintain an attractive living environment,” agrees Vaughan. “We’re seeing firsthand the difference that smart rubbish handling, smart traffic management, smart street furniture, small signage and more exciting and emerging projects, is having.”

Digital education, telehealth services, and e-governance – which often comes hand-in-hand with smart cities – can enhance access to essential services for a growing population.

“I see them (smart cities and e-governance) as complimentary concepts that can together dramatically improve the efficiency and effectiveness of initiatives to create a citizen centric government,” explains Shukla. “Smart cities are about using technology to collect and analyse data based on which dynamic decisions can be made to improve the quality of life for the citizen and drive efficiency across a city’s operations. E-governance is about leveraging technology to make citizen access to government services easier, simpler, and more efficient.”

“If cities make significant information technology investments, their number one goal is typically to raise the quality of the services governments deliver to citizens and businesses, and all their service providers, including CSPs, should have KPIs that underpin this,” adds Vaughan. “That said, we have worked on a major connectivity project in Malaysia where, alongside modernising public utilities and services, the local government had feedback from citizens in a local survey that they wanted better WiFi simply for their own collaboration and connectivity.”

Smart cities leverage data analytics to make informed decisions about urban planning, resource allocation, and disaster management, which can be crucial when dealing with a larger and growing population. Meanwhile, focusing on improving living conditions – air quality, public safety, and healthcare – can enhance the overall quality of life for residents, even in the face of population growth.

“Evolutions in communications technology such as 5G, AI, edge and other advancements are driving efficiency in the way we live, work, and interact as a society. For example, making it easier to monitor and adjust traffic flow, public transport, and emergency response,” says Shukla. “Overall, smart cities can be a valuable tool for addressing the global population challenge and in conjunction with other strategies, such as sustainable development and environmental protection, can improve our quality of life for today and generations to come.”

However, with the broad variation between southern Asian economies, if they are to be successful, smart city projects must account for wide differences in socio-economic conditions among consumers to ensure inclusivity, equitable access to benefits, and the overall success.

A simplistic indicator of a nation’s economic wellbeing, India’s GDP growth was reported at 7.8% in June 2023 by Trading Economics; however, when it comes to country-wide conditions, there remains a huge gap between rural areas not yet

served by wireless connectivity and urban centres seeing their first smart city projects. Bangladesh (7.25%), Cambodia (5.3%), Bhutan (5.2%), and Indonesia (5.17%) all saw reasonable GDP growth rates, while Singapore (0.5%), Thailand (1.8%), and Nepal (1.9%) have experienced slow growth. Sri Lanka experienced negative GDP growth of -11.5% as of March 2023, the only negative value for all southern Asia. The country continues to battle its worst financial crisis since 1948 amidst record low foreign exchange reserves.

Despite the socio-economic challenges present, it’s broadly agreed that the smart city revolution could be game changing for government, enterprise, and consumer alike.

“There’s solid research that internet connectivity changes civilisation on a par with roads, transportation, running water and power,” opines Vaughan. “When a city becomes a smart city, it changes how people interact, access and

share information, and with that, it improves outcomes in how we live, work, learn and socialise. I think it’s naive to ignore inequalities caused by the digital divide.”

However, smart cities are just one piece of the puzzle when it comes to meeting the expanding challenges of a growing global population, in southern Asia and across the globe.

“There is no silver bullet to address the challenges of a growing global population, but smart city technology can certainly play its part in addressing challenges with urbanisation,” explains Shukla.

Indeed, effective urban planning, environmental conservation, global cooperation, and achieving social and economic equity must also be the goal. A holistic approach combining technological innovation, sustainable practices, social equity, and international cooperation is essential to raise living standards for the long term with modern, digital, solutions. ■

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How AI, IoT, and 5G are powering growth in APAC



Nassia Skoulikariti, director of IoT programmes, Mobile Ecosystem Forum

intelligence (AI). Within this remarkable digital evolution journey, the Asia Pacific (APAC) region is emerging as a vanguard of transformation, unfurling a new telecom paradigm set to reshape industries in unprecedented ways.

The Asia Pacific region, renowned for its technological dynamism, has become the front-runner for the amalgamation of AI, IoT, and 5G into the fabric of telecommunications. This confluence isn't just about communication; it orchestrates connectivity, intelligence, and speed.

Technology as a catalyst for digital transformation

In contemporary innovation, the trilogy of AI, the IoT, and 5G networks has risen as the quintessential catalysts for profound digital transformations. In a world moved by data-driven decisions and hyper-connected ecosystems, these technologies are not merely tools; they are the architects of change for digital metamorphosis on a global scale.

Their combined influence isn't just confined to optimizing operational efficiencies or

incrementally improving business processes. It extends far beyond, altering the very DNA of industries and enabling them to navigate disruptions with unparalleled resilience.

As the digital narrative unfolds, the strategic integration of 5G and IoT takes centre stage. They create a paradigm shift in how businesses function and serve their customers. The ongoing global deployment of 5G networks sets the stage for a new era of connectivity – one marked by unprecedented speed, ultra-low latency, and the ability to support a massive influx of connected devices. With 5G delivering seamless, high-speed connectivity and IoT orchestrating sensor-based interactions seamlessly, businesses gain invaluable insights into consumer behaviour, market trends, and operational efficiencies.

We are moving towards a world where machines communicate flawlessly, supply chains remain perpetually optimized, and urban environments adapt in real-time to changing demands. This is the reality that the marriage of 5G and IoT ushers in – an era where industries seamlessly coalesce into intricate ecosystems of interconnectivity, blurring the line between

In the dynamic landscape of today's rapidly evolving technological advancements, industries are undergoing profound shifts catalyzed by the convergence of innovative technologies. The telecom sector is at the forefront of this transformation, experiencing a remarkable overhaul driven by the seamless integration of groundbreaking technologies such as the internet of things (IoT), 5G networks, and artificial

physical and digital realms and turning unpredictability into knowledge.

The APAC telco landscape: a front-runner in digital transformation

The APAC region is witnessing a rapid transformation in the telecom sector, driven by the dynamic adoption of AI, IoT, and 5G technologies. As a hub of technological innovation, APAC is leading the global investment in 5G infrastructure.

According to Goldman Sachs, integrating AI and 5G could potentially drive a \$7 trillion increase in global GDP, lifting productivity growth by 1.5% over ten years. This massive opportunity is not lost on the telco industry, which eagerly embraces these technologies to stay at the forefront of this digital revolution.

According to the latest GSMA report, by 2030, APAC is set to have 1.4 billion 5G connections, mainly driven by the drop in 5G device cost, the expanding 5G network deployments and the concerted efforts of governments pushing mobile technologies to the very fabric of society. Australia, Japan, Singapore, and South Korea lead the way to 5G innovation.

Yet barriers cast shadows over other parts of APAC, with access and usage challenges

a new age of intelligent connectivity.

The global IoT market is projected to reach a value of over \$900 billion per year by 2025, experiencing a significant surge from its \$348 billion value in 2019. APAC stands as the largest IoT market worldwide in terms of its potential for economic growth and expansion of connections.

Telco digital transformation: key drivers and impacts

The telecom industry in the APAC region is undergoing a seismic shift, driven by an ensemble of paramount forces reshaping its core. This metamorphosis isn't just a response to the times; several key factors, including customer demand for high-speed internet services, the proliferation of smart devices, and the need for efficient network management, are driving it. The impacts of this transformation are profound, affecting not only the telecom industry but also other sectors.

A chorus of compelling factors sets the stage upon which this digital transformation unfolds. The resonance of customer demand for high-speed internet services is a driving force that can't be overlooked. In an era where connectivity isn't a luxury but a necessity, the advent of 5G moves consumers to expect faster download and upload speeds, lower latency, and uninterrupted

These technologies allow telecom operators to deliver personalized services, automate customer support, and gain deeper insights into customer behaviour.

Impacts on various industries

The technological impacts are profound, altering not only how we communicate but also how industries operate. The connectivity ecosystem created by the telecom sector isn't isolated; it's a bridge that unites diverse sectors under its technological arch, having a ripple effect on various other sectors. From the healthcare and manufacturing sectors to retail and logistics industries, no industry remains untouched by this transformation.

For instance, 5G and IoT technologies enable remote patient monitoring, telemedicine, and AI-driven diagnostics in the healthcare sector. IoT devices are used in manufacturing for predictive maintenance, quality control, and supply chain optimization.

In the retail sector, AI enhances customer experiences through personalized recommendations and chatbots, while IoT enables smart stores and inventory management. In logistics, IoT devices are used for real-time tracking, while AI is used for route optimization and demand forecasting.

The impacts of technology on various industries are indeed far-reaching and transformative. Revolutionizing how businesses operate and deliver value, paving the way for new possibilities as these technologies converge, connect, and empower industries. As a result, businesses are reaching unprecedented heights of efficiency, innovation, and customer experience.

Conclusion

The telecom industry in APAC is on the cusp of a metamorphosis powered by the rapid evolution of AI, IoT, and 5G technologies. The next five years will usher a transformative era with increased possibilities. As these technologies mature and intertwine, they hold the key to significant changes in how telecom operators' function and deliver services.

Telecom operators are poised to transcend traditional roles, becoming envoys of a new, interconnected world. The spotlight shines on ubiquitous connectivity, where smart cities, efficient industries, and seamless customer experiences weave a fabric of convenience for all.

IoT is at the core of this interconnectivity, paving the way for unheard-of opportunities. Smart devices flood the market, giving rise to a new era where machines are sentient, data flows freely, and everything is interconnected. As operators leverage IoT to interconnect devices, they'll orchestrate a world where networks facilitate conversations and sensors weave stories. The future will undoubtedly be interesting, driven by the transformative power of interconnected and intuitive technologies. ■

“According to the latest GSMA report, by 2030, APAC is set to have 1.4 billion 5G connections, mainly driven by the drop in 5G device cost, the expanding 5G network deployments and the concerted efforts of governments pushing mobile technologies to the very fabric of society.”

persisting. Amid significant improvements, the research unveils a striking reality – nearly half the population (47%) in the Asia Pacific still lacks mobile internet access, lagging behind regions like China, Latin America, and Eurasia. Affordability, digital skills, and safety concerns contribute to this divide.

The transformative force of mobile isn't confined to communication; it shapes economies. The mobile sector contributed a staggering \$810 billion to APAC's economy in 2022 (approximately 5% of GDP) and is forecasted to be near \$1 trillion (\$990 billion) by the decade's close. 5G's contribution is poised to surpass \$133 billion, spotlighting its role as an economic catalyst.

The ongoing 5G deployments are paving the way for the proliferation of IoT devices and the emergence of AI applications, thereby fostering a new digital transformation era.

The latest IoT network generation runs on LTE networks and 3G and 2G bands. The potential of 5G connected IoT is substantial, and its adoption is getting closer daily.

The GSMA report has identified IoT as a focus point in APAC, recognizing its potential to deliver

connectivity. The rise of IoT devices and smart homes has further escalated this demand.

As technology becomes an inextricable part of everyday life, the proliferation of smart devices underscores a shift in paradigms. From wearables monitoring our health to smart home systems seamlessly managing our environments, these devices are more than tools; they are envoys of an interconnected world. The telecom industry, striding hand-in-hand with digital transformation, provides the infrastructure to weave these devices into the tapestry of modern existence.

Beneath the surface of every seamless internet experience lies the intricate art of network management, making the need for efficient network management another significant driver. As data traffic grows, telecom operators need to ensure efficient data management, seamless connectivity, and robust security. AI can play a crucial role in meeting these requirements with its predictive analytics and automation capabilities.

The desire to offer innovative services and enhance customer experiences drives telcos to adopt AI, IoT, and 5G technologies.

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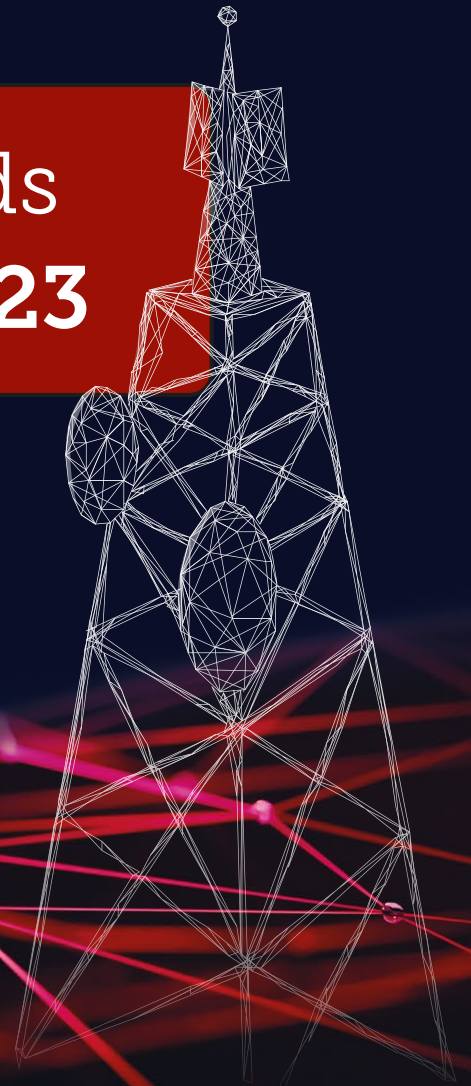
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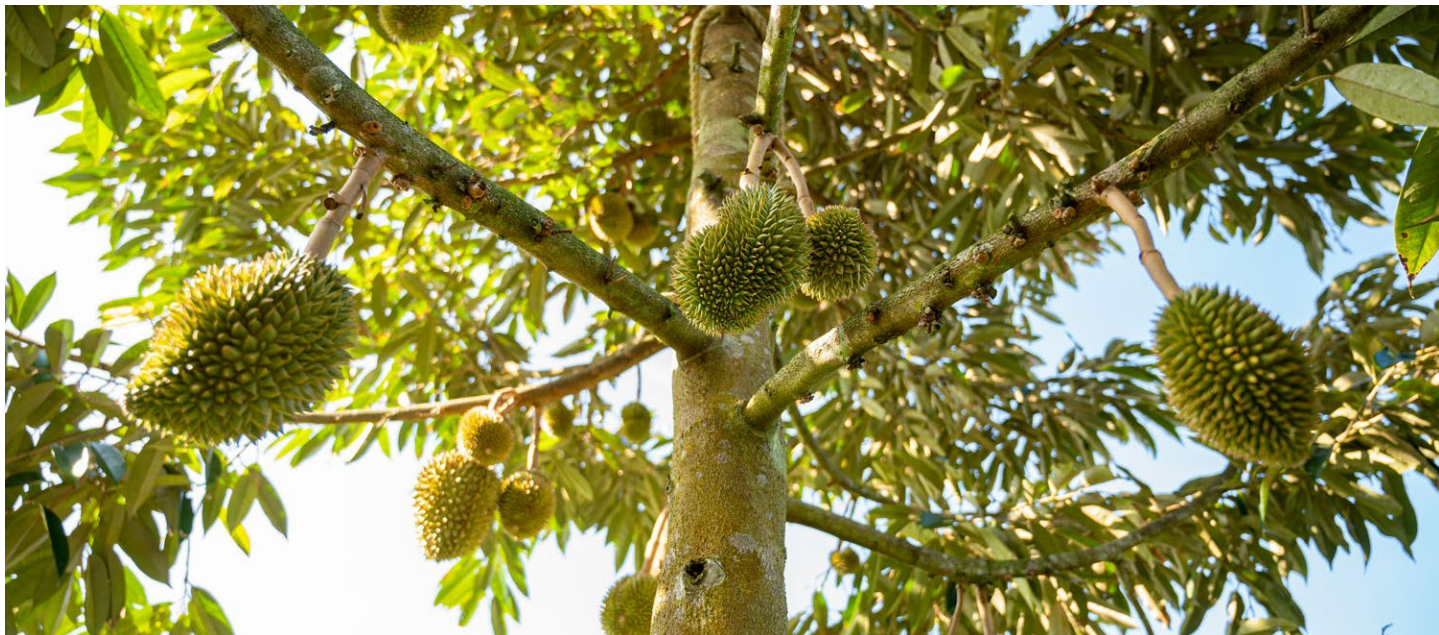
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Sustainable Hrvest deploys LoRa for Malaysia's durian farms

Climate change is having a significant impact on tropical agriculture, shortening growing periods of crops, lower yields, and extreme weather conditions such as droughts and floods. With weather conditions expected to continue to evolve, becoming more unpredictable than ever, farmers and food-producing companies are scrambling to find the right industry 4.0 partners to adapt to climate change with sustainable farming.

Durians are one of Malaysia's most popular fruits, but durian trees are challenging both to grow and to harvest. The plants are sensitive to weather and moisture conditions and need constant maintenance for high yield.

Looking to bring durian farming into the digital world, smart farming pioneer Sustainable Hrvest has deployed LoRa-enabled sensors and long range wireless wide area network (LoRaWAN) based gateways across its durian fruit farms in Malaysia, with the help of Semtech.

LoRa-enabled sensors now give Malaysian farmers real-time data on the health of their farms throughout every step of the growth cycle: pre-harvest, harvest, and post-harvest. This real-time visibility, says Semtech, has made farmers' lives easier while also helping to improve their bottom line.

Using LoRa as an IoT wireless platform, Semtech's LoRa chipsets connect sensors to the cloud and enable real-time communication of data and analytics. This instantaneous management helps to enhance the efficiency and productivity

of sustainable IoT use cases like fruit farming.

Currently, there are 30 LoRa-powered farms in Malaysia, with new plantations expected to go live in the coming years. Designed by Sustainable Hrvest, the IoT nodes utilising LoRaWAN implement LoRa's low-power, long-range sensors and last more than four years in the field without needing replacement.

This purpose-built chip-to-cloud sensor platform monitors the flow rate and pressure of irrigation systems to maintain soil moisture levels. It also tracks the nutrients in the soil. The data-driven farming practice gives Malaysian farmers the ability to remotely care for their crops.

LoRa – the de facto wireless platform for IoT

LoRa is the de facto wireless platform of IoT, says Semtech.

The company's LoRa chipsets connect sensors to the cloud and enable real-time communication of data and analytics. This instantaneous management helps to enhance the efficiency and

productivity of sustainable IoT use cases.

Globally, there are more than 300 million LoRa end nodes deployed across a wide array of customer applications from agriculture and healthcare to industrial and transportation, and more.

"We founded this company to address the farming barriers and pain points here in Malaysia. To better serve our community, we knew that we needed to improve farming practices, reduce operational costs, and help farmers deliver better yields," said Han Wei, co-founder, and chief technology officer at Sustainable Hrvest. "LoRa was an easy choice for our team. One of our biggest farms, Musang Valley Plantation, is more than 700 acres with 11,000 Durian trees. The land includes many steep hillsides which make managing the crops challenging. LoRa monitors the trees, alerts the farmer if there is an issue, and allows them to take immediate action. This response saves not only time, but also mitigates potential tree loss and revenue. Sustainable IoT and LoRa have completely overhauled farming in Malaysia." ■



Agro Farm digitises durian production with Seeed's IIoT solution

MIE Agro Farm Sdn Bhd aims to create well-established IIoT solutions for smart farming and automated farm management, embracing the fourth industrial revolution. Since its foundation, Agro Farm has been actively investing in durian cultivation, and recently successfully established a 200-acre durian plantation in Selangor Fruits Valley, Rawang Town in Selangor State at the end of 2018. Some 6,000 durian trees of large-scale durian varieties were planted, including Musang King, Blackthorn, and IOI.

Committed to developing a sustainable and ecologically conscious value chain of durian business, Agro Farm targets continuous learning of transparent management systems, ranging from paying attention to durian samples and the growth path of durian to monitoring irrigation patterns, pest control, processing, and export.

In 2020, agronomists and engineers from Agro Farm conducted a series of research and experiments to solve the complex challenges of durian cultivation in Malaysia, which are unique to the tropical fruit, and include high susceptibility to disease and nutrient deficiencies.

LoRaWAN IIoT solution delivers unrivalled functionality

The researchers identified Seeed's SenseCAP LoRaWAN IIoT solution as the best option for connectivity function among all other Low Power Wide Area Network (LPWAN) technologies.

The Agro Farm IoT team headed by Pui Boon Hean deployed more than 20 SenseCAP LoRaWAN gateways and sensors, to measure and monitor soil moisture and temperature levels, air temperature and humidity, pressure

barometric, light intensity, and CO₂.

The team first installed the sensors - responsible for collecting environmental data - at different locations in the durian plantation. The collected data is then transferred to the SenseCAP Cloud Server via gateways, where the transferred data will be stored and integrated. Subsequently, the integrated data will be displayed on a data platform on the farmers' smartphones, so that they can check all the necessary environmental conditions in real-time.

The SenseCAP LoRaWAN devices were combined with the deployment of a compact weather station, which not only monitors irrigation periods but also predicts the

probability of diseases and pests using chronological data.

As a result of the project, farm workers and managers have witnessed a drastic decrease in time and natural resource consumption in managing the durian plantation. Additionally, two hours of in-person daily field inspections were replaced. After the implementation of the SenseCAP series, Agro Farm significantly decreased the demand for outside workers and managed to reduce operating costs.

Projects such as these enable farmers and farm managers to channel their energy into other aspects, such as plant health inspection. Moreover, some of Agro Farm's IoT team members have taken the initiative to create benchmarks of durian cultivation for future reference. ■



Flexible and PCB patch antennas for cellular applications

Amphenol RF has launched flexible and PCB patch antennas for use inside connected devices.

The antennas feature either a flexible pad or rigid printed circuit board which can be mounted inside the device. Flexible and PCB patch antennas are commonly terminated to wireless modules featuring the AMC or other industry-standard

ultraminature connectors. These types of internal antennas are often used in wireless applications such as WiFi enabled IoT technology and portable entertainment devices.

Flexible and PCB patch antennas are available in dual-band, multi-band, and wide-band configurations with WiFi 6E supported options with reliable frequency range up to

7.2GHz. These 50ohm antennas have a dipole design which has a relatively low profile and can be mounted in various locations and support standard cellular protocols which makes them well-suited for IoT, WiFi and LTE technology. These antennas use centre-fed micro-coax cables that terminate to an ultraminature AMC connector. The

extremely thin antenna features an adhesive mounting tape on one side for secure placement inside the device.

The antennas are compatible with a wide variety of standard RF interfaces. They are well suited for applications that require a wireless signal such as drones, navigation systems, payment terminals, etc.

Next-gen O-RU test solution utilises application layer testing with any commercial device

NI and Spirent Communications have announced the first and only O-RU (Radio Unit) test solution that uses application layer testing with any commercial device, providing comprehensive, real-time O-RU validation. This unique capability enables customers to validate their systems faster and in a real-world environment while reducing costs

all in one validation solution.

Traditional testing of O-RAN systems has been very time-intensive and cost-prohibitive due to the need for engineers to manually test their systems from beginning to end. Built on common technologies, the Spirent/NI joint solution combines Spirent's software and emulation environment, including pre-built test

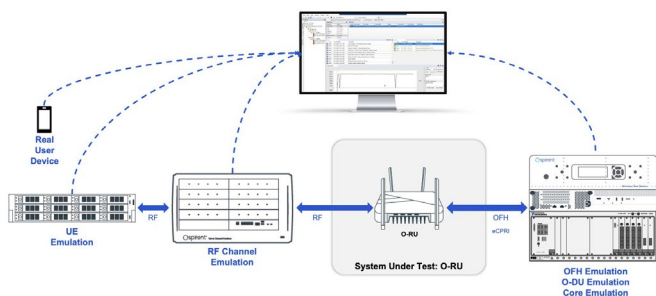
cases, with NI's high-performance instrumentation, providing a robust and integrated O-RU validation solution that improves time to market with full automation through a single, intuitive GUI while also minimizing instrument cost and footprint.

The solution wraps the O-RU with a real-time O-DU emulator through a fully compliant O-RAN 7.2 interface, a CU emulator, a core network emulator, and a commercial UE emulator for real-world interoperability testing (IOT) to deliver a testbed capable of running real-world test scenarios in the lab. Customers can also use a commercial device in place of the UE emulator to validate all timing, full throughput including 4x4 MIMO, and any system-level test that an O-RU would experience in a real-world deployment scenario

to test true performance and interoperability at a functional level rather than at the interface. On the production side, NI also has an O-RAN O-RU APT test system which uses the same O-DU emulation and combines this with NI's PXIe-5841 VST for parametric measurements for best-in-class efficiency with unmatched measurement accuracy.

This test system is highly configurable, real-time, and ORAN FH compliant. It enables customers to configure the O-DU to emulate various timing profiles, test corner cases, and validate the system performance under real-time conditions. In addition, having the same test systems used in validation facilitates a streamlined O-RU development process that connects validation to production and drastically reduces test time, cost, and development effort.

Spirent



Aspire NetZero to cut energy costs for MNOs

NEC Corporation has released Aspire NetZero, by NEC Aspire Technology Limited, an NEC subsidiary.

Aspire NetZero is an AI-enabled SaaS-based intelligent standalone energy reduction solution, designed to support MNOs in reducing unnecessary energy consumption in the Radio Access Network (RAN). The vendor-agnostic solution is adaptable to each mobile operator's requirements while supporting 3G, 4G, and 5G.

GSMA Intelligence calculated that, on average, mobile RAN is responsible for 73% of an MNO's total energy consumption. Energy is usually the third biggest cost after site rentals and labour, and energy

costs have increased from two-fold to eight-fold in the past year. The growth of 5G is also weighing heavily on MNO energy bills. GSMA Intelligence estimates that even in a best-case scenario, mobile networks are on course to almost double their power consumption between 2020-2025, thanks to 5G growth.

The power-saving features developed by different RAN equipment vendors for the various radio access technologies are generally static and not optimized for fluctuating traffic profiles. Aspire NetZero leverages AI to autonomously analyse and predict network traffic patterns enabling operators to adjust resources to

required capacity and performance, resulting in considerable power usage reductions. The solution automatically configures and orchestrates vendor features to continuously provide maximum savings and ensure the best end-user experience.

Aspire NetZero is designed to support hybrid-powered sites and to maximize battery run-time during off-grid periods, thus extending mobile service availability. The solution can realise at least a three-fold energy savings compared to standard energy reduction vendor features. These savings are increased up to ten times, depending on traffic behaviour and network topology.

"5G is putting a lot of pressure on energy consumption for operators, especially while they keep 2G, 3G, and 4G networks running," said Declan Friel, CTO, NEC Aspire Technology. "Our AI-powered, multi-vendor application learns traffic behaviour and continuously takes action in a fully automated closed loop, without any manual intervention. The solution is live and delivering OPEX savings to operators globally, and we are now extending that footprint together with NEC."

Network operators can establish an estimation of their potential savings (in kWh and OPEX) with Aspire NetZero by using an online calculator.

Liquid cooled servers for telco environments

Iceotope's new KUL RAN, an ultra-resilient and highly-energy efficient precision liquid cooled server solution, was recently launched to address extreme edge deployment challenges.

KUL RAN is a new 19-inch short-depth rack form factor with HPE ProLiant DL110 servers and 4th Gen Intel Xeon Scalable processors optimised for high-density, low-latency edge, virtualised RAN, and 5G services. The solution fits to existing deployed infrastructure.

KUL RAN is specifically designed for telco and harsh edge deployments to meet the need for reliable data processing installations close to the point of use in the face of a range of challenges from power constraints to service accessibility, as well as local

environment and ambient weather conditions. The solution, developed in partnership with Intel and HPE, will help accelerate adoption by achieving game-changing reductions in power consumption and maintenance costs while maintaining or enhancing data center density.

KUL RAN delivers up to a 40% power saving compared to other edge servers in its class. Precision Liquid Cooling removes nearly 100% of the heat generated by the electronic components of a server. This not only reduces energy consumption, but also eliminates all water consumption as well. With much of the power usage in telco networks coming from RAN sites, KUL RAN stands as a clear enabler for energy efficiency, expediting telcos' path to net zero.

With thousands of sites in remote locations, telco providers are continuously looking for ways to minimise on-site maintenance costs. KUL RAN has been created as a 'fit and forget' solution, for reliable operations with significantly fewer service visits, greatly reducing the OpEx burden on operators. It can be installed, removed, and replaced without risk of weather or contaminant ingress reaching sensitive HPE ProLiant DL110 server components and 4th Gen Intel Xeon Scalable processors, thanks to its sealed chassis. Its IP67-rated enclosure provides 100% protection from thermal shock, dust, and other airborne contaminants, keeping the housed solution factory clean throughout its operational life.

Connect LPWA enables MNOs to launch 5G more efficiently and with reduced costs

Velos IoT's new Connect LPWA is one of the largest Low Power Wide Area (LPWA) coverage solutions in the market, and is aimed at resellers, enterprises, and OEMs who are currently on 2G and 3G networks and want energy-efficient devices deployed worldwide with reduced cost and maximised battery life.

Many MNOs launching 5G networks are having to reuse spectrum currently allocated to 2G and 3G networks. Companies need to plan and find alternative replacements for these networks as early as possible to minimise the impact on their business. So, it is not a question of if but when to deploy LPWA technology for IoT connectivity.

Velos IoT's Connect LPWA solution offers connectivity on the two most

popular LPWA technologies - NB-IoT and CAT-M1. NB-IoT connectivity is currently available on 47 networks in 35 countries, with LTE-M (CAT-M1) on 77 networks in 42 countries, and the list is constantly growing. Both options support low-power features like PSM (Power Saving Mode) and eDRX (extended Discontinuous Reception); users can allocate dynamic and fixed IPs and connect securely through custom APNs, all of which are managed on the Nomad Connectivity Management Platform with a single invoice.

The Connect LPWA solution will help to maximise the lifetime of devices with efficient battery management on an IoT network technology designed for the future.

Graham Hart-Ives, VP of Sales at

Velos IoT, said:

"IoT users are facing a real issue with the decommissioning of 2G and 3G networks around the globe. Velos IoT truly believes that our newly launched connectivity options will enable customers with no choice but to replace devices with a long-term, cost-effective alternative."



Amdocs amAlz delivers generative AI for telcos

Amdocs amAlz is a pioneering telco generative AI framework, combining carrier-grade architecture leveraging open-source technology with large language AI models, creating a foundation for global communications service providers, enabling them to benefit from the immense potential of generative AI.

Open and agnostic by design, Amdocs amAlz delivers both templated use cases based on deep industry expertise and perspective,

as well as tooling and infrastructure that can be quickly adopted to accelerate time to market, improve operational efficiencies, and increase quality of service through generative AI-powered experiences. Amdocs amAlz addresses the telecom industry-specific challenges of security, data privacy, scalability, and the complexity of data governance, as well as the intentional focus on a telco-specific taxonomy.

Leveraging Amdocs' telco-specific

expertise, the Amdocs amAlz framework will empower CSPs to deploy generative AI use cases across the telecom ecosystem, from customer experience to network provisioning. At the same time, Amdocs amAlz will revolutionize a service provider's ability to explore, assist, generate, and recommend activities across the entire customer and operations lifecycle, and deliver increased efficiencies and productivity.

Look out for...

Enabling wireless connectivity via blockchain

Wireless traffic is expected to increase 80 times over between 2020-2030, necessitating upgrading and securing wireless resources for optimum use.

While investing in new cell towers is one way of managing this expected boom in traffic, wireless LANs and private 5G networks also hold a potential route, while minimising costs. Tokyo, for example, has around 20 times more wireless LAN access points than are required; however, sharing that access is problematic due to challenges in security and usage efficiency.

To address these challenges, NTT has conducted tests connecting users to wireless access equipment with blockchain technology, targeting a reduction in power consumption for service providers.

In a world first, the company used blockchain to create a one-time contract enabling users to access any wireless access equipment. It used a mechanism for conducting secure blockchain-based transactions between individuals and wireless access providers, meaning that the operators of the WiFi access point gets paid and the users get connected.

The trial enabled each radio base station to use blockchain-ledger information to smooth out the number of terminal connections in a decentralised and autonomous manner and improve communications quality (technology for improving use of radio resources).

According to NTT, its proposed sharing technology could boost wireless providers' income, lower the cost of investment in facilities, and reduce radio wave interference and energy use. It said that the technology can lower the "cost of constructing a shared system since a decentralised autonomous blockchain system negates the need for centralised control stations."

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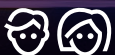
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SESSIONS



200

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Global offline population reduced to 2.6 billion, but gender divide up - inclusion programmes needed



The annual State of Broadband Report – co-authored by Access Partnership and the Broadband Commission – has been released.

The global offline population has continued to decline this year, to 2.6 billion people from the estimated 2.7 billion people in 2022. This year's report revealed this demand for connectivity, particularly in the un- and under-connected global south, has shifted from emerging to substantial and sustained. It recommends that policymakers take stock of lessons learned during the COVID-19 pandemic, where connectivity's pivotal role in everything from health to education to transactions was thrown into stark relief and prioritise investing in communications infrastructure. The report predicts that this investment will result in a tipping point in the 'cost/return equation,' and feed GDP growth, rather than follow it.

Another of the report's findings were that micro, small, and medium-sized enterprises (MSME) around the

world are one of the primary drivers of demand for broadband services, due to their continued domination of the business landscape. The other key driver is government itself, as a supplier of digital services to meet its citizens' needs. As such, the report suggests that governments capitalise on this strong shift towards digital foundation building, both in terms of need and service capabilities, and create virtuous cycles of innovation and entrepreneurship with stronger financial inclusion programmes for MSMEs, and minority and disadvantaged groups.

In terms of improvements required, among others, the report also highlighted the fact that the gender gap in smartphone ownership had been reducing year-on-year across LMICs, but this year the gap has started increasing again. Allowing access to information and its corresponding digital literacy is important to ensure that women can access and use mobile money on par with men, as well as equipping them with the means to protect

their data privacy and bolster digital defences against gender-based violence online. With this gap largely being attributed to affordability, a recommendation is for regulators to subsidise smartphone ownership or data for under-served women.

Separate from the hardware and infrastructure challenges, this year's edition also emphasised that digital skills – media, information, and digital literacy – are an important enabler towards universal connectivity. Policymakers are encouraged to do more to promote the development of these skills, as the lack of them is one of the main causes of digital exclusion, misuse, and underuse of digital technologies. It also reports findings that the young 'digital native' narrative has been debunked, with younger users often overestimating their own digital skills and many still lacking the productivity skills needed for their studies and future work.

"A strong running theme in our research is the pivotal role connectivity has in levelling the

playing field – both socially and economically," said Lim May-Ann, director of Access Partnership's Fair Tech Institute and principal author of the report. "The pandemic lockdowns proved the need, the fall-out proved the value, and the current global economic climate is proving the dangers of ignoring it, with the under-connected being hit harder than any other community. Investing in connectivity means investing in a more equitable global society."

"While the global markets still face strong economic headwinds today, digital connectivity has accelerated as people, businesses, and governments pivoted strongly towards online communications, and we continue to see new internet devices and applications growing broadband penetration into developing markets. This improvement in connectivity is another step in the right direction, and one more step towards leaving no one behind in support of the UN Sustainable Development Goals," said Doreen Bogdan-Martin, ITU secretary-general.

Telefónica de Argentina picks Kyndryl for modernisation



Telefónica de Argentina has selected Kyndryl to accelerate the modernisation of its technology environment.

With a three-year extended agreement, Kyndryl will manage improving the operator's services along with the application experience of its customers in Argentina. In addition to

managing Telefónica de Argentina's mission-critical infrastructure, Kyndryl's consulting arm, Kyndryl Consult, will advise on and implement IT automation to improve business application management.

This project will be led by Kyndryl Consult experts who will integrate and assess data obtained from different

business processes to identify automation opportunities that could improve IT systems and provide insights to enhance application performance. With the modernisation of its IT infrastructure, Telefónica de Argentina will be able to provide better service and a differentiated experience to customers using

its applications.

Kyndryl Consult experts will assess industry shifts and challenges to shape and establish a digital transformation roadmap, including the automation of IT processes to simplify, modernise and streamline the management of Telefónica de Argentina's IT infrastructure.

Paratus to distribute Starlink services across Africa



Paratus Group has entered an agreement as a distributor for Starlink's high-speed services across the African continent.

This agreement will allow Paratus to provide Starlink to its customers across Africa, as operating licenses are awarded to Starlink in those countries. Initially, and with immediate effect, Starlink will be available from Paratus in Mozambique, Kenya, Rwanda & Nigeria before being rolled out to

more countries.

Starlink currently provides services to tens of thousands of business locations and serves customers in a multitude of capacities, including primary enterprise connectivity, replacement of 4G and VSAT, backup, interim setup, and emergency services. Across its network, Starlink maintains greater than 99.5% up-time across all customers – and higher for unobstructed installations. Up-time is measured without mitigating factors, such as weather


and wire-cut outages.

Paratus will be able to provide its customers with both fixed, mobility and maritime services with immediate effect. Paratus will be able to provide its customers 24/7/365 enterprise support.

"This agreement aligns perfectly with our vision of transforming Africa through exceptional digital infrastructure and customer service. It means we can offer industry sectors – such as land and offshore energy, mining, hospitality, education,

healthcare, agriculture and more – the reliable and constant connectivity they need to flourish, no matter how remote they are," said group chief commercial officer of Paratus, Martin Cox. "The Starlink agreement further strengthens our LEO (low earth orbit) satellite services offering across Africa and affirms our considerable capability and reach on the continent. It reinforces our goal to collaborate with entities that share our vision of transforming both African businesses and communities."

Beeline Uzbekistan completes phase one of network upgrade, expands remote coverage

 Veon's Beeline Uzbekistan unit has completed the first phase of its network upgrade as part of wider plans to improve 4G coverage from 78-85% and overall service.

Veon detailed the project stretches across 14 regions of Uzbekistan, upgrading connectivity in 54 cities. The company expects to hit its 85%

target by the end of this year. Beeline recorded 6 million 4G customers as of July after gaining 1.1 million 4G users year-on-year. Connections on 4G account for 69.3% of its customer base.


The first phase of its network upgrade was completed in August in more remote locations including Fergana Valley and Karakalpakstan.

In its second phase, Beeline will bolster its 4G network in major urban locations including Tashkent, Samarkand and other densely populated regions.

"We are determined to provide superior digital experiences throughout Uzbekistan with our '4G for All' focus and digital operator strategy. With high quality mobile

internet and the digital services, we can better serve the country's young and ambitious population. We are investing in this vision not only with our network enhancement projects, but also by educating and developing the local talent who will create the locally relevant digital products and services in Uzbekistan," said Beeline Uzbekistan CEO Andrzej Malinowski.

Gilat to upgrade Ethio Telecom's network

 Gilat Satellite Networks Ltd. has received a contract for satellite network modernization at Ethio Telecom of Ethiopia.

Gilat's SkyEdge II-c with hundreds of Capricorn and Gemini VSATs will be used to enable enhanced satellite-based 4G cellular backhaul capabilities and enterprise communications for remote regions of the country.

"As part of our modernization

process, we carefully evaluated our options," said Tesfaye Tadesse Woldeamayrat, chief network infrastructure officer, Ethio Telecom. "Gilat's technology, with its long history of proven satellite-based cellular backhaul experience, proved to be the right choice to enable reliable and efficient mobile connectivity and enterprise communications to enable a bright future for the people of Ethiopia."

"We're proud to be working with Ethio Telecom, one of Africa's most innovative pioneering telecom companies. We value our long partnership with Ethio Telecom and are happy to be working with them, with the latest in satellite communications technology, to enable the highest levels of connectivity all across the nation," said Yossi Gal, vice president of regional sales, Gilat.

Anatel investigates very high taxes on Brazil's telcos, suggests simplification

 Brazilian regulator Anatel's board of directors has approved a survey that addresses the very high payments made to the public purse by the telecommunications sector.

The study addresses three themes: the current tax system, the redesign of the tax system, and the redefinition of the tax burden. It will be forwarded to the ministries

of finance and communications, bodies responsible for studying and proposing legal changes related to the taxation of the sector.

It proposes a broad tax review which recognises the positive potential of a lower tax burden on service prices, quality and access to services, given the current high tax burden applied to telecommunications service

providers in Brazil – one of the largest such burdens in the world. Additionally, it's not only the taxes that are an issue but the complexity of calculating and policing them, creating an additional cost for the sector and for Anatel.

Anatel's board has proposed a significant simplification of the tax system and a reduction of the tax burden.

Single Digits launches OpenWiFi for Ronald McDonald House Charities

 Single Digits has announced the successful deployment of an OpenWiFi network at the Ronald McDonald House Charities (RMHC) of Greater Charlotte.

"Staying connected with loved ones is paramount during a stay, and our new OpenWiFi network enables children and their families to do just that," said Vicky Seksinsky, representative office administrator at RMHC of Greater Charlotte.

The open source-based WiFi network supports RMHC's mission to embrace families of sick or injured children by providing the comfort and support of home during their greatest time of need. RMHC of Greater Charlotte's mission aligns with Single Digits' commitment to creating connected experiences that enhance the quality of life. This WiFi deployment will offer families seamless internet connectivity, ensuring they can stay in touch with loved ones and access vital information during their stay.

Leveraging community-driven OpenWiFi architecture to enable part multivendor, managed WiFi networks, Single Digits integrates its managed services through The Connected Life Platform. The program facilitates the easy installation and zero-touch provisioning of access points from Edgecore and NetExperience's cloud controller, resulting in an efficient and effective setup process for RMHC of Greater Charlotte.

Kcell to deploy single 5G RAN network

 Kcell has selected Ericsson as a 5G radio access network partner in a seven-year partnership aimed at accelerating Kazakhstan's digital transformation and widespread adoption of 5G technology.

The partnership envisions a roadmap spanning 2023-2030, during which both companies will work in tandem to foster innovation, drive economic growth, and strengthen the country's technology

infrastructure.

Kcell will deploy Ericsson's state-of-the-art 5G technology over at least 50% of Kazakhstan's territory including Almaty, Shymkent, and several others, contributing to the growth of both urban and rural connectivity.

The 5G deployment of a single RAN approach involves the seamless integration of 5G into the existing 2G, 3G and 4G infrastructure, maximising the efficient use of

network resources and simplifying the transition to the new technology.

"We are building a network of the future that will not only offer superior connectivity for Kcell customers but also deliver an innovation platform that can help to transform industries and pave the way to a more connected digital society, fostering economic growth and societal advancement," said Andrea Missori, head of South East Mediterranean and Eurasia, Ericsson.

Royal Fleet Auxiliary ship Argus utilises LEO satellite for critical communications



The crew of the Royal Fleet Auxiliary ship Argus is using internet with coverage provided by low Earth orbit (LEO) satellite from OneWeb in collaboration with distribution partner Airbus.

The connectivity is being provided by the company's Kymeta Peregrine u8 terminal, which was fitted while Argus was docked in Falmouth this summer. It is the first military vessel to be using the technology.

"The maritime terminal will provide reliable, low latency, high-speed broadband connectivity anywhere in the world, even during challenging sea conditions and high-speed motions," said a spokesperson.

"Crew welfare and morale is a key tenet of a platform's fighting

capability. Enhanced connectivity, such as that delivered by low Earth orbit satellite networks is an area that the Royal Navy are looking to exploit," said Lieutenant commander Ben Slater from the Royal Navy's digital unit. "Through close collaboration with industry partners, we have been able to fit a capability onboard RFA Argus that will enable her crew to keep in touch with family and friends. We are looking forward to seeing how it performs at sea for the first time on a naval vessel."

RFA Argus performs several important roles for the UK armed forces, including being their primary casualty-receiving ship, equipped with a 100-bed hospital in times of conflict. It is also a training vessel for military helicopters operating at sea.



Polish rail to gain advanced communications standard



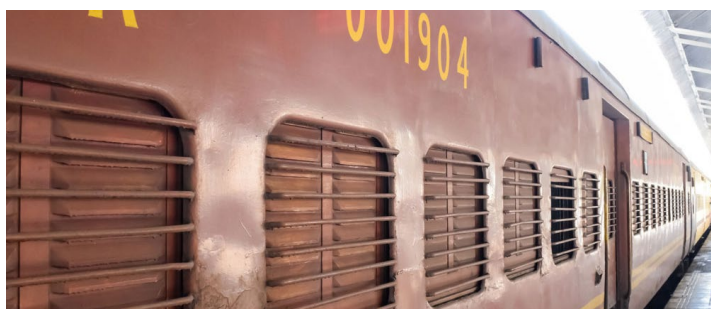
The Future Railway Mobile Communication System (FRMCS), an advanced communications standard meant to replace the currently used GSM-R system, may soon be on its way to Poland.

Transportation solutions company Alstom, Ericsson, NetWorkSI, the largest provider of radio access network solutions in Poland, and the Polish Railway Institute, have signed a letter of intent regarding the implementation and testing of FRMCS in Poland.

The main goal of FRMCS is to increase the capacity of existing railway networks and optimise their costs of operation. It has been designed by the International Union of Railways, in cooperation with key representatives of the railway

sector, and, it is claimed, represents an important step towards the full digitalisation of rail transport.

The partners will engage in joint research and development projects, verify requirements and solutions in actual railway conditions, and create and develop training models and certifications for the FRMCS system. Alstom will provide a modern control subsystem for vehicles; Ericsson will provide a radio telecommunications network for the FRMCS pilot implementation; and NetWorkSI will provide competences in telecommunications solutions for the railway sector, as well as the construction and maintenance of the FRMCS test network. The Polish Railway Institute will provide the necessary research infrastructure where the FRMCS system will be tested.



Blue Planet helps Virgin Media Ireland expand high-speed fibre network



Virgin Media Ireland is working with Blue Planet to support the company's three-year move to a full fibre network, and transition from traditional cable services to fully automated high-speed fibre broadband services.

With the Blue Planet platform as the foundation of its network and service automation strategy, Virgin Media can deliver a better end-user experience and ultra-fast broadband connectivity for its customers.

As part of its commitment to revolutionize the way their residential and business customers connect and experience the digital world, Virgin Media selected Blue Planet's intelligent automation platform to modernize its Operational Support Systems (OSS) stack.

"Blue Planet's zero-touch model-driven service fulfilment and strong DevOps ecosystem enable us to speed up the order to service process. From creation and update to completion or cancellation, we can easily launch superfast and reliable fibre broadband services. This strategically positions Virgin Media as a leading innovator in Ireland and improves our ability

to offer the best experience to our customers," said John Walsh, director of technology transformation, Virgin Media Ireland.

Integrated and deployed by telco focused Prodapt, a Blue Orbit and Virgin Media network OSS implementation partner, the Blue Planet platform is enabling Virgin Media to quickly launch 2Gb Full Fibre Broadband to homes and businesses across Ireland. Blue Planet also provides Virgin Media a single 'source of truth' for network and IT users that reflects the current state of the network. Additionally, Blue Planet Orchestration accelerates service velocity, improves service agility and supports dynamic service delivery.

"Blue Planet is supporting Virgin Media Ireland with an adaptable, automated end-to-end order to service lifecycle, reducing delays and human errors often associated with legacy manual operations. By embracing intelligent automation, Virgin Media is in a better position to meet its goal of bringing faster connectivity across Ireland," said Joe Cumello, senior vice president and general manager, Blue Planet.

EOLo picks Intracom Telecom for expansion

 EOLO awarded the multimillion expansion contract to Intracom Telecom following a lengthy testing of the device at the laboratory and the field. The deployment of the WiBAS G5 dual-BS is part of EOLO's extensive investment in its fast expanding network across Italy, aiming at staying at the top of Italian FWA service providers, with a portfolio of ultra-broadband services to residential and SME subscribers.

The WiBAS™ G5 dual-BS interoperate with Intracom Telecom's terminal stations already installed and operated by EOLO. Thanks to its innovative hardware and software unique features it has twice the capacity in terms of subscribers and three times the throughput compared to the previous generation device.

Intracom Telecom's WiBAS G5 dual-BS platform can be leveraged by operators to build gigabit services through software upgrades and

achieve download speeds equivalent to 5G. The device includes novel technologies for this category of devices, such as MU-MIMO. The provisioning process of the device is performed via uniMS SON Gateway, a software platform accelerating the service activation by automatically discovering terminals and instantly provisioning the subscription profile.

"Building a reliable and future-proof network requires determination and a careful planning that EOLO and Intracom Telecom have carried out together over the past 6 years of collaboration," said Guido Garrone, co-CEO of Network Division, EOLO. "With its mmWave FWA network, EOLO serves residential, businesses and wholesale customers. EOLO's mission has always been to guarantee access to an ultra-fast, high-performance and resilient network to all Italian families and businesses, reaching the most remote areas of the country,

creating value for the territory in which it operates. Intracom Telecom showed flexibility and commitment in supporting us in our journey. Thanks to its technological expertise, Intracom Telecom engineers have enhanced their product with new features allowing for a continuous improvement of our offers."

"We are proud to be trusted once again by EOLO and support them in becoming the top fixed access provider in Italy as well as a global reference for their connectivity offers to residential and business customers. Since 2017, we have been working with EOLO to address their future network needs by developing innovative solutions that accelerate their network expansion and growth. We look forward to implement this new expansion and connect our brand name, as the key technology partner, with EOLO's success," said Kartlos Edilashvili, acting CEO of Intracom Telecom.


Lebanon to gain solar-powered internet

 Lebanon has received a multimillion-dollar donation from China to install solar energy for the country's internet provider, according to Lebanon's ministry of telecommunications.

According to local media, state-owned Ogero will receive more than US\$8 million to supply more than 830 of its sites with solar energy panels. The solar energy project is expected to be operating by summer 2024.

The national grid Électricité du Liban (EDL) barely produces three or four hours of power a day and outages are common for landline, mobile and internet users. Ogero has in the past resorted to backup generators.

Nigeria's 5G subscriptions surpass 500,000

 The number of subscriptions to 5G services has crossed the 500,000 mark in Nigeria, a year after the commercial launch of the technology in the country, reports Umar Danbatta, executive vice chairman of the Nigerian Communications Commission (NCC).


In September 2022, MTN Nigeria became the first operator to launch commercial 5G in the country with Ericsson technical support. The company was joined this year by Mafab Communications in January and Airtel in June.

5G is expected to help accelerate the government's broadband

adoption targets. The country is targeting a broadband penetration rate of around 70% by 2025 and 50% before the end of 2023. According to the latest data from the NCC, Nigeria had 89.73 million broadband subscriptions as of July 2023, representing a penetration rate of 47.01%.



IoT market heats up - competing tech raises challenges

 Wide-area Internet of Things (IoT) connectivity vendors are fighting for space in an increasingly crowded market.

According to ABI Research, Low-Power Wide Area Networks (LPWAN) will reach 5.3 billion connections in 2030. LPWAN companies are competing in integral IoT applications such as smart metering, asset tracking, and condition-based monitoring, with a vendor's competitive advantage often hinging on factors beyond a network's technical capabilities.

"The business environment surrounding a networking technology can be as influential to its success as its data rate, bandwidth, and power requirements," said Lizzie Stokes,

IoT hardware and devices and IoT networks and services analyst at ABI Research. "As new connectivity technologies enter the market and others pivot or leave entirely, it is important to understand how various market dynamics – such as regional availability and stages of development – impact a technology's successes and failures."

When competing against newer technologies and other wide-area networks, cellular LPWANs struggle with fractured regional deployments and higher device and connectivity costs than other LPWA technologies. LPWA solutions are increasingly confronted with complexity concerns as IoT users demand user-friendly, end-to-end IoT systems.

To maintain market share, vendors must dynamically respond to these obstacles while navigating new, potentially disruptive standards and protocols such as DECT-2020 NR, MIOTY, and ZETA.

Short-Range Wireless (SRW) technologies face a different competitive landscape than LPWANs in the IoT domain. WiFi and Bluetooth are primarily used in home automation use cases but are also finding greater use in commercial IoT applications. Bluetooth Low Energy (BLE) and WiFi HaLow expand the technologies' place in industrial and wide-area IoT deployments. Hybrid use cases, where customers deploy SRW and LPWA technologies simultaneously to optimize an IoT

deployment, have further increased Bluetooth's and WiFi's presence in long-range applications. Though the wireless IoT networking market has a history of intense competition, trends in hybrid use cases suggest some IoT vendors are leaning toward collaboration.

"Competition in the wireless connectivity market continues to be fierce," said Stokes. "Vendors should attempt to carve out a unique place in the market by thoroughly understanding their client's coverage and power requirements. Vendors should cater to specific use cases and regional needs while acknowledging that customers will respond to technologies that can work well with others."

Q&A

Himanshu Agarwal —
regional director, Asia Pacific region —
Hughes Network Systems

**Who was your hero when you were growing up?**

My dad has always been my hero – he instilled the values in me that continue to influence how I live my life. He taught me to work hard to fulfill my ambitions, be truthful and trustworthy, and show respect to everyone you meet.

Growing up in India, I was always fascinated by the major industrialists who developed large companies from the ground up. In particular, I looked up to Ratan Tata for his leadership qualities displayed while growing the Tata group into an international powerhouse. He was a fair and ethical leader who made strategic business decisions while also maintaining very generous philanthropic pursuits.

What was your big career break?

I can't believe I've been working for nearly 25 years now, but there are two main turning points in my career that stand out.

Prior to joining Hughes in 2017,

how to match customers with the right set of solutions from a wide variety of options.

It really helped broaden my scope of work and ultimately prepared me for my current role at Hughes, where I interface daily with customers and develop new channel partners across the world to provide them with customised connectivity solutions. At Hughes, I've had the opportunity to learn new industry verticals and explore different areas within the satellite industry and that has been a major highlight of my career so far.

What did you want to be when you were growing up?

I never dreamed of being an engineer or having a sales role, but now I can't imagine doing anything else! I am lucky to be able to do something that I love every single day. But when I was younger, I always thought I would go into administrative service or qualify for the prestigious Indian Foreign Service and become an ambassador of the country.

"The best piece of advice I've received came from my current manager at Hughes, Vaibhav Magow. He always stresses how important it is to keep up with market trends in the satellite industry – read articles, listen to podcasts, subscribe to industry publications, follow the discussion on social media, etc."

I worked at Oracle for five years. That role allowed me to spread my wings beyond India and break into the vast Asia Pacific market. I had to wear many hats in this job and work with a variety of teams across the company and the world, including R&D, sales, product and more. I was able to hone my skills managing a team and learned

What would you do with £1 million?

I absolutely love traveling so first I would take a fabulous trip around the world. Then I would build a palatial home so I would have somewhere comfortable to come back to after my trip. I'd give back by adopting a village

to empower the people who live there with resources to help them build a better life. Whatever is left over, I'd invest to ensure I have enough money to take care of my family in the future.

"I'd love to have the opportunity to sit with Narendra Modi, the prime minister of India, for a meal. I think it would be so interesting to understand firsthand what his life is like as the leader of such a large and diverse country"

If you could dine with any famous person, past or present, who would you choose?

I'd love to have the opportunity to sit with Narendra Modi, the prime minister of India, for a meal. I think it would be so interesting to understand firsthand what his life is like as the leader of such a large and diverse country.

What's the best piece of advice you've been given?

The best piece of advice I've received came from my current manager at Hughes, Vaibhav Magow. He always stresses how important it is to keep up with market trends in the satellite industry – read articles, listen to podcasts, subscribe to industry publications, follow the discussion on social media, etc. Strive to learn everything you can about your competitors, which comes in handy when you are trying to negotiate and ultimately win a deal. You must understand how to position your offer and product in comparison to the competition.

If you had to work in a different industry, which would you choose?

I love the satellite and telecommunications industry,

but if I had to choose, I'd probably pick another part of the information and communications technology (ICT) industry. I like working with businesses to solve their problems using the latest

advancements in technology, so I think I could apply this across many different industries. Anything that keeps me at the forefront of technology trends and innovations!

The Rolling Stones or the Beatles?

I don't know that I can pick just one – both The Rolling Stones and the Beatles are incredibly influential and important bands in the history of popular music. They both made a huge impact on the world when they emerged onto the music scene. It really just comes down to personal preference!

What's the greatest technological advancement in your lifetime?

With the pace of technological advancements, it is difficult to select just one, but the video call stands out to me. Back in my early career at Alcatel, we were doing some testing and I can still remember the first time I saw someone else's picture in real time on the other side of a call – I was completely thrilled to talk to a person in another location. These days, especially in the last few years, we can't imagine life without the ability to video chat with colleagues and friends around the world, but that wasn't always the case. ■

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