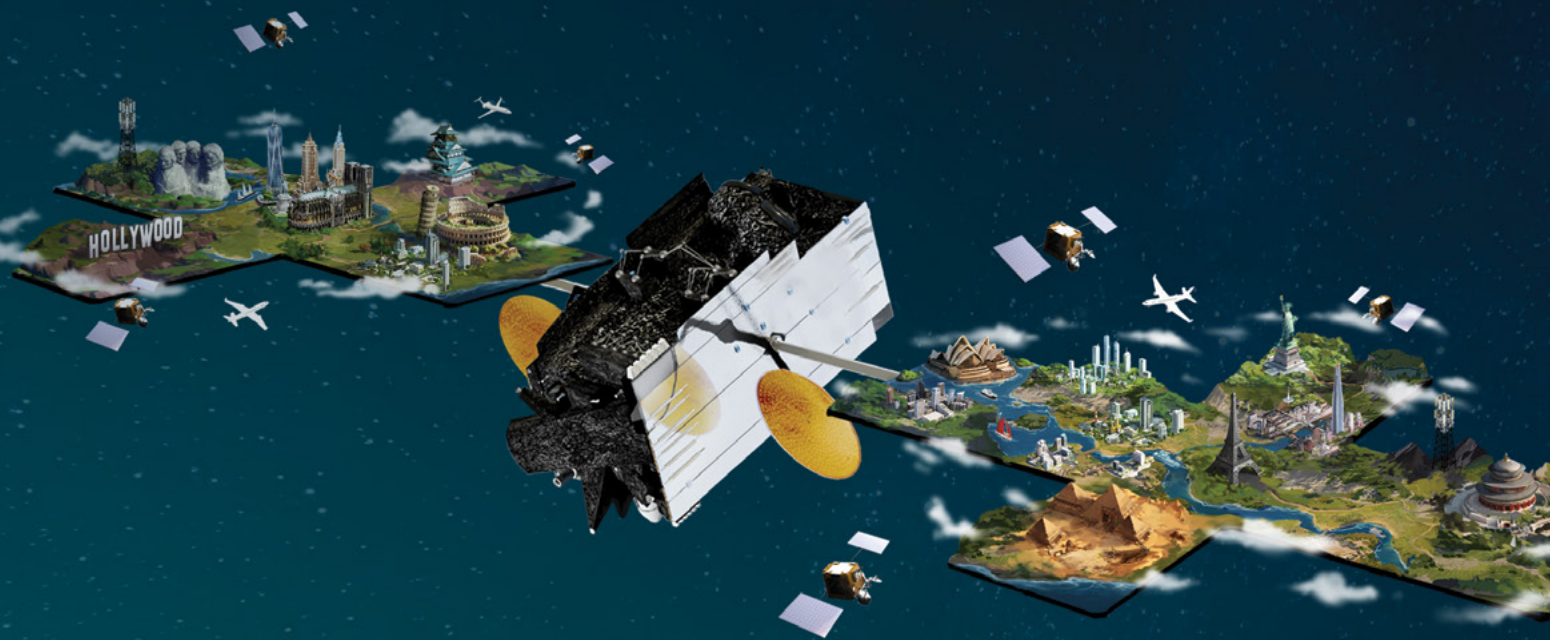- New models for tower power
- What's hot in satcoms?
- Is Asia ready for 6G?

INTEGRASYS

'We are delighted to have won the MSUA for the third year in a row!'

Alvaro Sanchez, CEO, Integrasys

INTEGRASYS, established in 1990 is a software development and engineering company specialized in wireless satellite network design, deployment, maintenance, and interference mitigation tools for monitoring critical satellite infrastructure in the commercial and defense fields, offering a wide range of signal monitoring products and VSAT Deployment, maintenance, link budget solutions, and capacity management.

INTEGRASYS's mission is to provide the industry with solutions for their challenges, along with the customer service and care that our clients deserve. INTEGRASYS develops its own products for monitoring and controlling distributed systems, and tailored projects for customers. INTEGRASYS developments are high-quality controlled and secure. The satellite industry recognizes INTEGRASYS as the Innovation Leader in Monitoring Systems with 8 industry awards in the last years.

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INTEGRASYS
Building success from innovation

KADIUM

Telekom Malaysia's Unifi Business unit launches e-Pharmacy app

Telekom Malaysia's enterprise unit, Unifi Business, has launched an 'e-Pharmacy' mobile application that enables e-prescriptions via teleconsultation for pharmacists and their walk-in patients.

Developed in collaboration with local telemedicine platform Teleme Technologies, the e-Pharmacy app includes access to over 500 licensed healthcare professionals for teleconsultation, e-prescriptions, customised Digital Signature, e-health articles, and a repository for patients' medical records.

The app aims to help pharmacists dispense essential medications and pharmaceutical services, especially among rural and underserved communities, via e-prescriptions that enable seamless access to prescribed medications.

The e-Pharmacy offering is bundled with Unifi Business' fixed broadband plans from 100 Mbps to 2Gbps. Telekom Malaysia says that under the Malaysian government's Geran Digital PMKS Madani (GDPM), eligible MSME pharmacies will be entitled to claim rebates up to 50% discounts off Unifi Business' commercial package price for 12 months. The GDPM aims to help MSMEs receive government support to embrace digitalisation.

"By integrating connectivity and technologies into patient care, our e-Pharmacy solution aims to support healthcare professionals and the government in providing efficient and beneficial services for all Malaysians, especially among communities where healthcare access remains a challenge," said Telekom Malaysia group CEO Amar Huzaimi Md Deris.

Bangladesh's operators receive unified licences

Grameenphone, Banglalink, Robi Axiata and Teletalk have each received a unified licence from Bangladesh Telecommunication Regulatory Commission (BTRC) to streamline their operations and 5G evolution paths.

The unified licences combine existing authorisations to use 2G, 3G and 4G technologies, making it technology-agnostic across those generations, and include provisions for rolling out future technologies like 5G and 6G.

The new licences also facilitate the active sharing of infrastructure resources between operators, provide clearer guidelines on data retention, offer more clarity regarding the audit period, and rationalize various fees and charges. They also have the procedural benefit of simplifying and streamlining licence renewal to a single process.

Grameenphone said the unified licenses foster competition in the industry, driving innovation and thereby benefiting customers through better quality and experience. They also mandate robust protections against cyber threats and adherence to international standards as a timely and strategic measure to protect Bangladesh's growing digital ecosystem.

Grameenphone and Banglalink also made the point that the unified licence scheme supports the adoption of smart technologies and aligns with the country's vision of a 'Smart Bangladesh' – which also sees 5G as playing a central role in that vision.

"We look forward to ensuring superior customer experience, fostering digital inclusion and cocreating a smarter, sustainable Bangladesh," said Grameenphone CEO Yasir Azman. "Looking at a future dominated by smart devices, AI and connected technologies, we will be able to cocreate an ecosystem which will serve to make our customers life safer, healthier, and happier."

Banglalink CEO Erik Aas said that the new licence would "liberate crucial resources for us to focus on providing a superior customer experience. These changes will positively impact Banglalink's adoption of advanced technologies and help us support the Smart Bangladesh vision."

Malaysia leads the pack on 5G consistency

According to Ookla, the 5G median download speed in Singapore is 329.73Mbps, while in Thailand it is 129.40Mbps and in the Philippines it is 125.14Mbps.

With a 97.3% consistency score for the fourth quarter of 2023, Malaysia's 5G network achieved the highest consistency score worldwide.

"The result indicates that 97.3% of Speedtest Intelligence samples on Malaysia's 5G networks exceeded the consistency threshold, which is currently set at a minimum download speed of 25Mbps and a minimum upload speed of 3Mbps," read the report.

Malaysia's 5G availability increased from 21.0% in Q1 2023 to 27.0% in Q4 2023. In 2021, Malaysia opted to implement 5G through a Single Wholesale Network (SWN) model, leading to the establishment of Malaysia's Digital Nasional Bhd (DNB).

"Since its launch more than two years ago, Malaysia's 5G network has consistently performed well, making it one of the best-performing 5G networks worldwide," said the report, which noted that the mobile speeds in every state in Malaysia have increased by at least 1.45 times across all technologies combined.

Malaysia's government administrative city of Putrajaya emerged as having the fastest mobile median download speeds in the country at 190.86Mbps, an increase of more than 2.5 times compared to the fourth quarter of 2022, which was at 61.24Mbps.

Although 5G availability in Malaysia has seen some improvement, it falls short compared to neighbouring countries with established commercial 5G networks. In the fourth quarter of 2023, Malaysia's 5G availability stood at 27.0%, almost half of Singapore's (53.7%) and 20 percentage points lower than Thailand's (45.5%). Malaysia's 5G availability marginally surpassed that of the Philippines at 26.2%.

Microsoft pledges to train 100,000 Philippine women in AI

Microsoft has said that it will train 100,000 Philippine women in artificial intelligence (AI) technology and cybersecurity.

The women will use an online platform to learn how to use Microsoft's AI tools, including those powered by OpenAI's large language models, to gain workplace skills and to be able to recognise cybersecurity threats. Microsoft will partner with government agencies and local schools to provide the training to government employees.

Philippine trade undersecretary Rafaelita Aldaba said that the training could "help to bolster cybersecurity and trust in tech adoption."

The joint initiative could also help address the Philippines' problem with disinformation, said Mary Snapp, vice-president of global strategic initiatives at Microsoft: "there's going to be a really strong focus and education campaign so that people who are looking at content are much better able to identify what's been changed and what's not been changed."

Microsoft also aims to roll out an AI-powered reading progress tool for around 27 million Philippine students, in partnership with the Philippine education department.

CDL enhances land mobile coverage with Intelsat FlexMove

Cloudcast Digital (CDL) has expanded satellite communication connectivity using Intelsat's FlexMove to deliver land mobile services to customers in hard-to-reach locations throughout India.

CDL's technology services are managed by teleport and video platform services provider Planetcase, which has been a long-time customer of Intelsat, particularly utilizing Intelsat 17 and Intelsat 20 satellites.

CDL and Intelsat introduced Flex services into India in 2022, combining Intelsat satellite capacity over the region, a Flex gateway in Noida, India, and CDL's In-Flight and Maritime Connectivity (IFMC) license to deliver FlexMaritime service for vessels travelling in Indian territorial waters. Intelsat said that the Flex service simplifies the management and delivery of broadband.

Edotco Bangladesh and Huawei to deploy fibreglass towers to cut CO2

Edotco Bangladesh has signed an MoU with Huawei Technologies (Bangladesh) to collaborate on deploying a telecoms tower in Bangladesh made of fiberglass reinforced plastics (FRP).

Edotco Bangladesh said it will become the first TowerCo in the country to offer its fiberglass tower solutions to mobile network operators, with Huawei serving as technology partner to help deploy the tower.

FRP is a composite material consisting of a polymer matrix reinforced with fibres. The fibres – which can be made from materials such as glass, carbon, aramid, or basalt – provide the strength and stiffness to the composite material.

Using FRP materials reduces tower weight up to 44%, making such towers suitable for rooftop sites in high-density areas. This also makes them easy to install and transport, which will increase construction efficiency up to 75%. FRP towers are engineered not to reflect radio waves, ensuring efficient microwave transmission, while their durability allows them to withstand high voltage without damage. The towers also promise low CO2 emissions.

"We are dedicated to shape the future of this industry and continue to enable connected Bangladesh with advanced sustainable practices in line with SDGs," said Sunil Issac, country managing director of Edotco Bangladesh.

Telkomsel inaugurates 5G Smart Warehouse in West Java

Telkomsel has inaugurated a 5G Smart Warehouse and 5G Innovation Center in Bekasi Regency, West Java, in collaboration with Huawei, which the company claims is the first in Indonesia.

The facility showcases the potential of 5G technology to transform warehouse management, boosting operational efficiency, and creating new opportunities for the logistics industry.

"We are optimistic that the deployment of the 5G Smart Warehouse alongside the 5G Innovation Center's conceptual solutions will inaugurate a transformative era for professionals within the logistics sector, particularly by enhancing managerial competencies and amplifying the operational efficacy of warehousing systems," said Telkomsel in a statement.

Telkomsel said that the 5G Smart Warehouse leverages advanced technologies like IoT and big data analytics to streamline operations, enhance safety and security, increase efficiency, and reduce energy consumption and potential unexpected losses. Additionally, warehouse managers can use digital twins and real-time data analysis to optimise inventory management and prevent stockouts.

"The 5G network also facilitates swift and accurate communication between staff and autonomous guided vehicles (AGVs), ensuring efficient goods movement. Additionally, intelligent security systems powered by video and infrared sensors ensure warehouse safety," added Telkomsel.

The 5G BTS technology powering the warehouse consumes 5W, equivalent to a single energy-saving light bulb, making it a sustainable solution for the future.

The 5G Smart Warehouse technology development is expected to transform warehouse management to support the digital economy towards the Golden Indonesia Vision 2045.

Eutelsat OneWeb gains trial spectrum in India for 90 days

Eutelsat OneWeb has received trial spectrum from the Department of Telecommunications (DoT) in the Ku and Ka bands for 90 days.

The operator applied for the spectrum via the administrative route for a nominal application fee. The Ku band is frequencies in the 27.5-29.1GHz and 29.5-30GHz and the Ka band is frequencies in the 14GHz band.

The Ku band will used to serve OneWeb's Earth stations while the Ka band will be used for the user access terminals (UATs).

The Government of India and all the relevant space bodies have granted the necessary permissions to Eutelsat OneWeb, which has made its intent clear to focus on the B2B model only. The company is expected to get the spectrum for final commercial deployment by June.

According to local media, Eutelsat OneWeb has started using the demo airwaves to run advanced trials with key customers in India's defence forces and some large PSUs. Eutelsat OneWeb is expecting the DoT to opt for an early interim allocation of commercial satellite spectrum in the same bands.
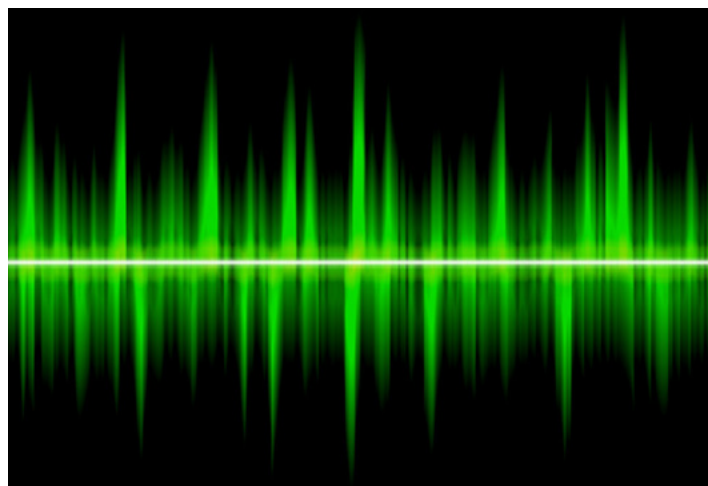
Cambodia: 5G firmly on the horizon

Cambodia's minister of posts and telecommunication (MPT) has reportedly promised that the ministry is preparing to launch 5G technology in the near future to support the country's digital ambitions.

MPT minister Chea Vandeth said the ministry has been working out policy that will give operators access to the required 100MHz of spectrum to run 5G networks. According to Vandeth, the ministry is committed to connecting the entire country with 5G, although he didn't give a timeline for that commitment.

"Cambodia will consider launching 5G technology at an appropriate time in the near future," said Vandeth.

Cambodian operators Metfone, Smart Axiata and CamGSM conducted 5G trials between 2018-2020, but the MPT retracted their trial licences in 2020 over concerns that it would be wasteful and inefficient for everyone to build their own 5G infrastructure.

However, mobile internet usage has surged in Cambodia in the last few years, spurred by the COVID-19 pandemic, which is putting the country's 4G networks under increasing pressure.

COAI calls for more action on tower gear thefts

The Cellular Operators Association of India (COAI) has reportedly urged the Department of Telecommunications (DoT) to do more to stop the theft of telecoms gear from cell towers, which has escalated in the last few months amid aggressive 5G rollouts.

The COAI sent a letter to DoT secretary Neeraj Mittal saying that incidents of theft have increased several times over since October 2023.

In the letter, COAI director general SP Kochhar said that thieves are mainly making off with remote radio units (RRUs) and baseband units (BBUs). He also said that theft is particularly rampant in Delhi NCR, Rajasthan, Assam, Andhra Pradesh & Telangana, Tamil Nadu, Karnataka, and Punjab & Haryana, with just 31 districts contributing to as much as 50% of the theft incidents reported pan India.

The letter said that a huge number of sites have been stolen from several times and claims that the stolen gear is being openly sold on e-commerce sites such as Ebay, Telefly, Seeker816, Dorfatrade, and Alibaba. In most cases, telcos are unable to recover both the stolen equipment and the subsequent losses in replacing them.

The COAI letter asked the DoT to contact all state chief secretaries to prioritise telecoms theft cases, arrange police protection for telecoms infrastructure and block websites selling the equipment.

DNB to upgrade to 5G Advanced

Ericsson will upgrade Malaysia's 5G network to 5G Advanced, a move that will open new features and capabilities to attract adoption from enterprises.
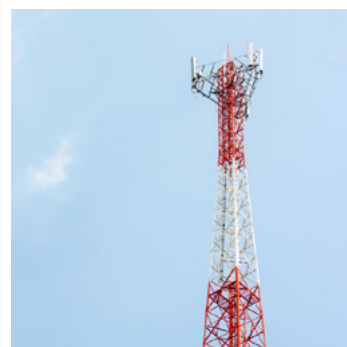
Ericsson signed a MoU with Digital Nasional Berhad (DNB), Malaysia's special purpose vehicle company that is tasked with managing a singular shared 5G network shared by all operators. The upgrade will be done through enhancements to the RAN paired with AI technology to build a high-performing network while optimising user experience.

The companies will collaborate for use cases that use end-to-end network slicing and deploy high reliability and low latency features for public events such as live video broadcasting, industrial surveillance and industrial automation applications. Ericsson said the 5G network will see a world first by trialling 3GPP R18 software.

Another focus for the partners is encouraging SMEs to adopt 5G use cases and accelerate Malaysia's digital economy.

"The next phase of 5G capabilities will allow businesses of all types to reap the benefits of enhanced mobility, flexibility, reliability and security," said David Hägerbro, Head of Ericsson Malaysia, Sri Lanka and Bangladesh.

"DNB has successfully accelerated the 5G deployment to cover 80% coverage of populated areas by the end of 2023," said Nasution Mohamed, chief Operating Officer of DNB. "We will continue to work with our strategic partner, Ericsson to upgrade DNB's world-class 5G network with the latest technology as standardised by global standard 3GPP."

Asia-Pacific leads the way on 5G+

Asia-Pacific's mobile communications services revenue is forecasted to increase to US$388.7 billion by 2028 with a compound annual growth rate (CAGR) of 4%, driven by the booming 5G mobile data services sector, according to GlobalData.

Mobile data services will continue to be the dominant source of revenue in the mobile services industry in the region from 2023-2028 due to the increased adoption of higher average revenue per user (ARPU) in the 5G services in the region.

"With 5G services already launched in almost all the developed markets including Australia, China, Japan, Hong Kong, and Korea — and set to be launched soon in countries like Bangladesh and Sri Lanka — the revenue prospect for the mobile data segment will remain strong through the forecast period," said Hrushikesh Mahananda, telecom analyst at GlobalData.

Governments in the region will play an essential role in facilitating the expansion of 5G technology. Regulatory agencies and governing authorities in Australia, China, India, South Korea, Japan, and Taiwan have implemented national strategies and action plans to provide a clear vision and specific criteria for creating strong and comprehensive 5G ecosystems, including investments from the public sector, financial incentives, collaboration between business and government, and mechanisms for licensing to improve the use of spectrum.

Additionally, monthly data usage is expected to increase from 22.5GB in 2023 to 40.7GB in 2028, driven by the introduction of 5G services, the expansion of regional markets, and the increasing consumption of online video and social media material on smartphones.

Countries in the Asia Pacific region are leading the race for the domination of 5G+. With 5G+, users can expect faster data speeds, lower latency, and increased network capacity, revolutionizing various sectors such as healthcare, transportation, and manufacturing. Additionally, 5G+ promises to enable innovative applications like augmented reality (AR), virtual reality (VR), and the Internet of Things (IoT), paving the way for enhanced connectivity and productivity across industries.

VNPT wins 5G 3700-3800MHz band spectrum

The Vietnam Posts and Telecommunications Group (VNPT) is the second telco to score 5G spectrum in March after winning the auction for the 3700-3800MHz band for 15 years.

While the price was not released, the Ministry of Information and Communications (MIC) set the starting price for the band at VND1.95 trillion.

VNPT said that the combination of the 3700-3800MHz band with its existing 1800MHz licence will give it "a great advantage in promoting 5G" in the future, as well as laying the foundation for 6G. VNPT is looking at 5G use cases like cloud, IoT, AI, machine learning and data analytics for the industrial sector, the report said.

Meanwhile, the MIC's 5G auction for the 3800-3900MHz was cancelled due to "a lack of qualified bidders." This is a potential complication in the strive towards bridging the digital divide; however, Vietnam's telco sector is notoriously competitive, putting off new market entrants.

BIS adopts Wi-SUN Alliance FAN specs

The Bureau of Indian Standards (BIS), the national standards body of India, has adopted the Wi-SUN Alliance FAN (Field Area Networks) specification, included in IEEE 2857-2021, as the national standard for India's Smart Meter RF Communication Networks. This move should promote interoperable, multi-service, and secure wireless communication networks across various sectors in the country.

The Wi-SUN Alliance specification, driven by a global ecosystem of over 350 companies, is used to support the specification and rollout of large-scale outdoor networks, including smart metering projects, smart grids, street lighting, and other IoT applications.

India is implementing the world's largest smart metering scheme to reduce power distribution losses. This program aims to replace 250 million conventional meters while increasing the yearly income of heavily indebted energy distribution companies (discoms) to Rs 1.38 trillion. The adoption aligns with India's focus on achieving energy independence through renewable energy initiatives and the development of 100 smart cities.

"The adoption of Wi-SUN Alliance wireless communications specification, incorporated in IEEE 2857, as a standard for India by the BIS is a clear signal that the National Standards Body recognizes the role that wireless mesh technology will play in driving the growth of smart cities in India and the rapid rollout of smart meter projects over the next few years," said Phil Beecher, president and CEO of Wi-SUN Alliance.

The Wi-SUN Alliance said its FAN specification offers transparency, interoperability, and security, making it an ideal choice for long-term operations and maintenance. Its adoption of IPv6 and public-key infrastructure (PKI) enhances network security and facilitates better network visibility.

Wi-SUN's wireless mesh technology is currently supporting the Smart City Living Lab project in Hyderabad, showcasing its effectiveness in real-world smart city environments.

"Smart meters are pivotal for India's ambitious Smart City projects, and they will help distribution companies manage the dynamic and disruptive changes occurring in the grids, especially with the infusion of solar energy, home automation systems, electric vehicles, and more," said Amarjeet Kumar, India regional coordinator, Wi-SUN Alliance. "For any Smart City, smart metering is a prerequisite. Wi-SUN's wireless communication standards are great for implementing such large-scale projects in the country as they provide the credibility of an open standard that is secure and interoperable."

Additionally, the Wi-SUN Alliance is actively running the Wi-SUN FAN PHY certification program for the Indian frequency band (865-868MHz) and working towards starting the certification program for Wi-SUN FAN specification soon.

While India has currently installed 8.6 million smart meters, this initiative aims to enhance the operational efficiency and profitability of power distribution companies in India.

Globe Telecom deploys hybrid solar units at 26 sites

Globe Telecom has deployed hybrid solar units across 26 sites as part of wider plans to become a net zero emissions company by 2050.

The operator has deployed three solar units in the National Capital Region (NCR), 17 in South Luzon and six in Mindanao. These sites formerly depended solely on diesel generators and can now be powered solely on renewable energy or a combination of the two.

Following tests, Globe said that the initiative saved over 119,000 litres of diesel, 67,000KWh, equating to a saving of PHP 6.9 million. The MNO said this proves the effectiveness of its sustainability strategy by saving money and cutting emissions.

"Successfully implementing hybrid solar power across multiple sites represents a big leap in our efforts to decarbonise our operations," said Globe Head of Network Planning and Engineering Joel Agustin. "Beyond demonstrating our dedication to environmental stewardship, it also cements Globe's status as the Most Sustainability-Driven Network Operator in the Philippines."

Banglalink picks CSG for billing solution

Banglalink has selected CSG for modular wholesale billing and settlement solutions to address its anticipated CDR growth over the next five years. This will help Banglalink to manage its daily call detail records (CDRs).

"By leveraging CSG's expertise and advanced technology, we are not only optimizing our operational efficiency but also positioning ourselves for future growth and opportunities. This strategic partnership is designed to empower our customers, providing them with the tools to thrive in a dynamic landscape and reinforcing our position as an innovative digital operator," said Bangalink in a statement.

CSG currently collaborates with CSPs in the Asia-Pacific (APAC) region, including Banglalink, Airtel Africa, M1, and PLDT, to streamline operations, enable transparent self-service billing, and propel enterprise segment growth. This deal will assist Banglalink in embracing customer-first digital transformation.

Vi connects India's first underwater rail customers

Vodafone Idea (Vi) has completed its network deployment to provide connectivity across Kolkata's underwater metro rail service – also India's first underwater metro rail service.

Customers traveling via the metro service will now be able to experience network connectivity across the entire 16.6km route of the Green Line metro.

To ensure seamless network connectivity for travellers commuting from Howrah Maidan to Esplanade, Vi has deployed network infrastructure across all 17 stations on the Green Line route, including a 10.8km stretch consisting of six underground stations (Phool Bagan, Sealdah, Esplanade, Mahakaran, Howrah Station, Howrah Maidan) and 11 ground/elevated stations (Teghoria, Raghunathpur, Baguiati, Dum Dum Park, Kestopur, Salt Lake Sector V, Karunamoyee, Central Park, City Centre, Bengal Chemical, and Salt Lake Stadium).

Of these 11 elevated stations, six - Salt Lake Sector V, Karunamoyee, Central Park, City Centre, Bengal Chemical, and Salt Lake Stadium - are accessible to the public and the other five stations will also be opened in due course. However, network infrastructure deployment across all the stations is completed.

To enable connectivity inside the tunnel, which is located 13m below the Hooghly riverbed and 33m below the surface level, Vi has deployed in-building solutions inside the tunnel under the river as well as the underground metro tunnel.

"The inauguration of this East-West Metro corridor is a long-cherished dream for the citizens of Kolkata & Howrah," said Naveen Singhvi, cluster business head - East, Vodafone Idea. "We are delighted to share that our network deployment across this underwater rail route will offer an uninterrupted, seamless, and superior network experience to our Vi customers. This initiative is a testament to Vi's commitment to providing a delightful experience to our customers for a better tomorrow."

SEA-ME-WE 4 cable system upgraded to impressive 122Tbps

To support growing demand for more bandwidth across the Asia-to-Europe route, SEA-ME-WE 4 (South East Asia – Middle East – Western Europe 4) has completed an upgrade to its submarine cable system. The upgrade enables a capacity increase from 65Tbps to 122Tbps.

"Ciena's cutting-edge technology is helping us in optimizing the resources of the SEA-ME-WE 4 cable, thereby enhancing its capabilities to address evolving connectivity demands through enhancement in network capacity, flexibility, and durability. This upgrade holds particular significance given the pivotal role of the SEA-ME-WE 4 cable system in driving digitalization efforts across the diverse regions where the system is passing through," said Sidheeque Machinal, management committee chairman, SEA-ME-WE 4 consortium.

With GeoMesh Extreme, leveraging Ciena's 6500 Packet-Optical platform, SEA-ME-WE 4 can maintain pace with voracious global demand for bandwidth, protect terabits of traffic, and ensure optimal network availability. Additionally, Ciena's WaveLogic 5 Extreme coherent optics help significantly lower costs by increasing the capacity per wave up to 450Gbps. SEA-ME-WE 4 is also utilizing Ciena's Navigator Network Control Suite for real-time visibility into and control of network performance.

"The Europe-to-Asia route, where SEA-ME-WE 4 is situated, is experiencing a major digitalization push, resulting in extreme capacity demands. With Ciena's field-proven expertise in building critical submarine network infrastructure, we're helping SEA-ME-WE 4 address rising capacity demands by making the switch to network architectures that adapt to leverage intelligence, scalability, and programmability," said Thomas Soerensen, vice president, global submarine solutions, Ciena.

Vietnam opens 5G spectrum auction

Vietnam's Ministry of Information and Communications (MIC) has opened its 5G spectrum auction to all players, starting with the 2500-2600MHz band.

The auction is first offering 15-year 5G licences for the 2500-2600MHz band, with a starting price of VND3.9 trillion.

The MIC is also offering spectrum for two other 5G mid-bands – 3700-3800MHz and 3800-3900MHz – with a starting price of VND1.89 trillion.

According to MIC minister Nguyen Manh Hung, the auction is open to all eligible enterprises, not just existing mobile operators.

However, given increasing competition and shrinking profits, new market entrants are not expected. Moreover, the cost of greenfield 5G network infrastructure is estimated to be at least US$1 billion, so there's little incentive for new players to enter the already competitive market.

VNMedia reported in 2023 that the 2500-2600MHz auction winners will be required to deploy at least 3,000 5G broadcasting stations using the band within two years after they receive the licence. They must also commit to launching commercial 5G services using the band within the first 12 months.

MIC has set a target to provide 5G coverage to 99% of the population by 2025, with minimum data speeds of 100Mbps.

Edotco, Telkom University and TIP collaborate for neutral host ecosystem

Edotco has formed a strategic collaboration with Telecom Infra Project (TIP) and Telkom University to create a neutral host ecosystem for southeast Asia by leveraging Open RAN.

The initiative aims leverage open and disaggregated network technology standards to enable seamless connectivity across diverse networks and enhance digital experiences for businesses and consumers. A key objective is to develop a comprehensive blueprint for the neutral host model within the telecoms industry based on Open RAN solutions, with the goal of creating a scalable and efficient framework for seamless connectivity.

According to Edotco, Open RAN solutions will enable interoperability and flexibility, leading to more efficient utilisation of network resources and benefiting consumers and businesses with improved coverage, reduced latency, and enhanced digital experiences.

TIP's Community Lab at Telkom University will serve as a hub for testing and validating these solutions, bringing together researchers, industry players, and startups to develop commercially viable products and services.

TIP executive director Kristian Toivo described the neutral host initiative as a "game changer" for the telecoms sector in Southeast Asia: "our collective vision is to unlock new possibilities that transcend conventional connectivity boundaries, positioning southeast Asia at the forefront of the global digital revolution."

5G users consume 3.6 times more data than 4G

Some 18 months on from 5G's launch in India, it's been reported that 5G users consume some 3.6 times more data than 4G users. It has also led to a growth in overall data consumption.

Over the last five years, mobile data traffic in India expanded at a 26% compound annual growth rate (CAGR) to reach 17.4 EB per month in 2023. One of the major contributors to the growth in data consumption is 5G at no additional cost coupled with unlimited data. With time, as more people upgrade to 5G phones and when 5G is rolled out in more towns and cities, the overall data consumption will increase further still.

According to Nokia's latest Mobile Broadband Index (MBiT) report of 2024, 5G contributed 15% of all the data traffic in 2023, and, in the metro circles, had a 20% share in overall mobile data traffic. For every 5GB of data consumed, 1GB was 5G.

Nokia reports that approximately 17% of active 4G devices in India, 134 million out of 796 million, are 5G capable. The numbers would rise as people upgrade to 5G devices in the coming months and years. The average monthly data traffic per user also surged by 24% year-on-year in 2023, reaching 24.1GB per user per month.

AIS advances mobile emergency alert system

AIS is advancing the creation of an emergency alert system through mobile phones using the Cell Broadcast Service.

AIS aims to enhance the safety of the general public and tourists, particularly in the aftermath of violent incidents, shootings, and various natural disasters. NBTC and AIS jointly announced the success of developing an alert system using the Cell Broadcast Service. NBTC has collaborated with various agencies to develop a location-specific emergency alert system with support from the Universal Service Obligation (USO) and Telecommunications Infrastructure Fund.

According to AIS, the location-specific emergency alert system involves sending direct warning messages from communication signal towers in the area to all mobile phones within that region. This system differs from regular SMS as it doesn't require phone numbers, allowing for rapid and efficient communication of emergency information that covers the entire affected area. Importantly, the public doesn't need to download any specific applications.

"We have collaborated with the NBTC and the government in selecting technology suitable for the country's emergency alert system according to international standards. This technology is known as Cell Broadcast Service, a direct messaging communication system to mobile phones of the public. This system is well-suited for emergency notifications as it can send messages to mobile phones in the coverage area of the respective base station simultaneously. The message is displayed on the mobile phone screen as a Near Real-Time Triggering Pop-Up Notification, enabling immediate awareness of the situation. The latest testing of this technology has successfully achieved its intended goals, and we are ready to expand its integration with the country's emergency alert system efficiently going forward," said AIS in a release.

Talking critical

TCCA's TETRA Industry Group, chaired by TCCA Board member Francesco Pasquali

TETRA, a resilient force shaping critical communication in Asia

TETRA (Terrestrial Trunked Radio) stands as the unwavering technology of choice for critical communication. With a rich history marked by unparalleled reliability and adaptability, TETRA has not only become known for its excellence but has also evolved into a cornerstone supporting the region's private radio networks.

It is a testament to TETRA's continuous commitment to delivering innovative solutions that anticipate and address the needs of a variety of industries which has solidified its enduring dominance.

But why TETRA?

Success in Asia can mainly be attributed to its unparalleled reliability. In industries where split-second decisions can be a matter of life and death, TETRA's robust infrastructure ensures seamless communication, even in the most challenging environments. The technology has not only continued to have a profound impact on public safety agencies, such as police and emergency services, but its ability to provide uninterrupted communication in urban jungles and remote landscapes alike sets TETRA apart in meeting the multifaceted needs of businesses throughout this diverse landscape.

Asia's rapid urbanisation and diverse geographical features present unique connectivity challenges. TETRA's robust infrastructure guarantees reliable communication, even in the face of network congestion or interference. This resilience is not just a technological feat; it is a validation of TETRA's unwavering strength in maintaining communication channels during critical situations, which is vital for worker safety and emergency response.

When interoperability is non-negotiable, TETRA's open standard architecture ensures seamless integration with existing communication systems. This interoperability is a game-changer, enabling efficient communication between different entities, be it public safety agencies, utilities, or transportation authorities.

The increasing digitisation of operations across diverse industries in the region has amplified the concerns around protection against potential breaches in industries where confidentiality is paramount. TETRA's ongoing commitment to offer the highest level of embedded encryption, means it is uniquely positioned to support and mitigate these security concerns. Whether in the realm of public safety, transportation, utilities, or government services, TETRA protects sensitive information and safeguards against unauthorised access.

TETRA's inherent scalability makes it a future-ready choice for communication requirements across industries. Whether it is the expansion of urban rail network or the integration of smart technologies, TETRA's flexibility ensures that it can grow alongside the dynamic landscape of the Asian market.

Whether in densely populated urban areas or remote and challenging terrains, TETRA's intuitive design facilitates seamless operation even in high-stress situations or where effective communication is integral to operational efficiency. Allowing industry professionals and end-users alike to easily navigate and operate the communication system and harness its full potential.

TETRA's impact on key industries in Asia

TETRA's pedigree and innovative edge cement its leadership in dynamic Asian markets, marking a continuous commitment to cutting-edge critical communication solutions. The cost-effectiveness of TETRA's infrastructure and services further enhances its appeal, making it an attractive option for businesses, government agencies, and public services alike.

This commitment to providing efficient and budget-friendly solutions underscores TETRA's understanding of the economic considerations inherent in Asia's diverse markets, positioning it as a comprehensive and value-driven choice for industries seeking innovative critical communication solutions.

Managing sprawling airport operations and ensuring the smooth flow of rail passengers in bustling cities, TETRA's impact is profound. Its real-time communication capabilities enable seamless coordination between different nodes in the transportation network, enhancing not only operational efficiency but also contributing significantly to passenger safety and experience. Whether it is optimising logistics, managing traffic flow, or ensuring swift emergency responses, TETRA's influence has become synonymous with the evolution of transportation in Asia.

For utility companies responsible for delivering essential services, the secure and interoperable communication provided by TETRA is indispensable for utility workers navigating the challenges of diverse terrains. TETRA's ability to withstand these challenges ensures that communication remains seamless, thereby enhancing the reliability and resilience of critical infrastructure. This uplift in communication technology has not only improved operational efficiency for utility companies but has also played a vital role in ensuring the consistent and reliable delivery of essential services like electricity and water to the ever-growing demand in Asia.

TETRA's impact also extends into heavy industries, including manufacturing and construction, where its seamless integration with existing communication systems streamlines operations and improves safety. Beyond facilitating communication, TETRA is becoming a must-have solution for complex industrial processes. In environments where precision and coordination are paramount, TETRA's impact resonates through improved communication channels, leading to streamlined operations, enhanced safety protocols, and ultimately contributing to the overall efficiency of heavy industries in Asia.

For government agencies and public services in Asia managing urban infrastructure, as well as disaster response agencies coordinating relief efforts, TETRA's adaptability and interoperability is indispensable. The technology ensures that critical information flows seamlessly across different departments, facilitating swift and coordinated responses to emergencies and public service needs, and ensuring the welfare and safety of the public.

Conclusion

TETRA's ability to adapt and innovate ensures it remains at the forefront of critical communication solutions, adding a layer of dynamism to its dominance in the Asian market. This adaptability not only enables TETRA to meet the current demands of these diverse industries, but also equips it to proactively address future challenges, and ensures it remains an influential force in shaping the trajectory of critical communication in the region.

Maxis and Huawei sign 5.5G MoU

Maxis has signed a Memorandum of Understanding (MoU) with Huawei Technologies (Malaysia) to collaborate on a 5G-Advanced (5.5G) acceleration program.

This includes various areas to drive commercialisation and adoption in Malaysia, including use cases, key technologies, technology evolution, and the ecosystem.

Maxis and Huawei will also collaborate with solution providers to drive application and ecosystem innovation. Both companies will also explore initiatives to promote adoption and facilitate migration, further accelerating the technology's acceptance.

Maxis and Huawei will showcase the benefits of end-to-end 5.5G versatility, security, and robustness through trials and testing, as noted in the joint statement. They will utilize network insights to identify opportunities for business solutions and optimization enabled by 5G and 5.5G, with a focus on consumers and businesses, including small and medium enterprises (SMEs).

Cisco and XL Axiata join forces on cloud-based IoT

XL Axiata has partnered with Cisco to introduce a cloud-based IoT connectivity management platform to help customers in Indonesia securely scale their IoT businesses.

XL Axiata's 'IoT Connectivity+' platform aims to address the growing complexity of large-scale IoT deployments due to the range of devices and their varying technological sophistication – especially in areas like cybersecurity – which makes such systems harder to manage.

The platform, powered by Cisco's IoT Control Center, promises a unified architecture designed to manage a large scale of diverse endpoints and platforms. The platform sports an AI-powered anomaly detection capability that proactively finds and alerts the business about any device or connectivity issues in the background, which improves service reliability. The IoT platform also features enterprise-grade, end-to-end security to help protect users, devices, and critical infrastructure. This also includes real-time device monitoring and analytics to detect unusual data or connectivity patterns.

XL Axiata expects IoT connections in Indonesia to grow threefold to approximately 404 million by 2028, with cellular connections constituting a quarter of this figure and growing further to 148 million by 2032. The company's IoT services will target connected car OEMs, major banks, electrical utility providers, security solutions, and fleet management customers.

"As connectivity continues to improve across Indonesia, businesses are now looking to scale the IoT deployments and bring to life various use cases," said Yessie D. Yosetya, director and chief enterprise business and corporate affairs officer at XL Axiata. "However, they realise that to be successful in this area in the long run, they need to ensure they can address the complexity associated with IoT deployment and keep them secure from malicious actors. As such, they need a simple, scalable, and secure platform that can help them achieve those goals and XL Axiata IoT Connectivity+ provides exactly that."

Globe Telecom built 894 new 5G sites in 2023

Globe Telecom expanded its network in 2023 with 1,217 new cell sites and upgraded 6,975 existing mobile sites to 4G LTE technology to ensure access to high-speed connectivity among more Filipinos nationwide. In the same year, Globe accelerated its deployment of 5G network infrastructure, with 894 new 5G sites launched in response to current market dynamics.

To expand fibre infrastructure, in line with high-speed connectivity technologies, Globe has also deployed more than 199,000 fibre-to-the-home (FTTH) lines during the year 2023, utilising its existing fibre inventory.

"Our priorities remain consistent and focused on delivering network builds and optimising network services across all regions and territories to expand and strengthen our coverage across the country," said Globe Telecom in a statement.

Globe spent US$1.3 billion in capex in 2023, of which 91% was used to boost data infrastructure as demand for data connectivity steadily increased. The company continues to deploy green network solutions in line with its commitment to achieve Net Zero GHG emissions by 2050. These include using the latest technologies to achieve energy efficiency, the use of eco-friendly batteries in core sites, and shifting high-energy facilities to renewable energy.

India's new 5G spectrum auction set for May - discludes 600MHz band

India's Department of Telecommunications' (DoT) next spectrum auction will commence on 20 May.

The DoT will offer spectrum in the 800MHz, 900MHz, 1800MHz, 2100MHz, 2300MHz, 2500MHz, 3300MHz and 26GHz bands. Just over 10,523MHz of 5G spectrum is up for grabs, worth INR963.1 billion.

The auction will not include the 600MHz band, as the DoT is still working out how to mitigate potential interference issues with satellite operators.

Auction winners will keep their licences for a minimum of ten years and will not be required to pay spectrum usage charges (SUC). Participants must hold a permit for either a unified access service licence (UASL) or a unified licence (UL), although new entrants who commit to obtaining a UL can also bid for spectrum. Companies that don't hold spectrum (or whose spectrum licences have expired) in particular licence service areas (LSAs) will be treated as new entrants and must show a net worth of INR1 billion per LSA, with the exception of Jammu and Kashmir and the Northeast circles, in which case its INR500 million.

All entrants have until 22 April to apply for the auction.

However, local media suggests that the auction may not attract much interest this time around, as the 5G spectrum bought by telcos in July 2022 is enough to serve their current needs. Much of the spectrum in that auction went unsold.

Netcracker and Indosat extend FTTH partnership to support uptake

Netcracker Technology and Indosat Ooredoo Hutchison (Indosat) will expand their partnership to support increasing fibre-to-the-home (FTTH) subscriber numbers, which have grown ten-fold after significant expansion of the operator's fibre footprint.

Using the Netcracker Digital BSS portfolio, Indosat will modernize its IT infrastructure to better address the needs of its rapidly-growing business, including to support home broadband (HBB), fixed wireless access (FWA) and OTT.

As Indonesia experiences rapid economic growth and industrialization, digital transformation will play a key role in furthering innovation and modernizing the telecommunications infrastructure within the country. The ongoing partnership aims to advance Indosat's home broadband business through an expanded digital infrastructure and enhanced connectivity as the operator champions Indonesia's digital transformation in support of government initiatives.

Netcracker Digital BSS will enable Indosat Ooredoo Hutchison to explore new monetization opportunities and will streamline its business and operations to support new product and service offerings.

"At Indosat, we aspire to become the main driver of the empowerment of Indonesia. Collaborating with Netcracker reflects our shared vision to accelerate the nation's digital transformation," said Vikram Sinha, president director and CEO of Indosat Ooredoo Hutchison. "This partnership will broaden our portfolio and expand our home broadband business, helping us to consistently deliver world-class digital experiences to our customers. We are confident this partnership will set a new milestone in the longstanding collaboration journey between Indosat and Netcracker."

"We are delighted that Indosat Ooredoo Hutchison has selected Netcracker as its preferred IT supplier of choice as the company adds new lines of business and builds up its presence across different customer segments," said Sylvain Seignour, president of Netcracker. "Our partnership with the Ooredoo and Hutchison groups is extremely meaningful, and we look forward to helping them reach their goals."
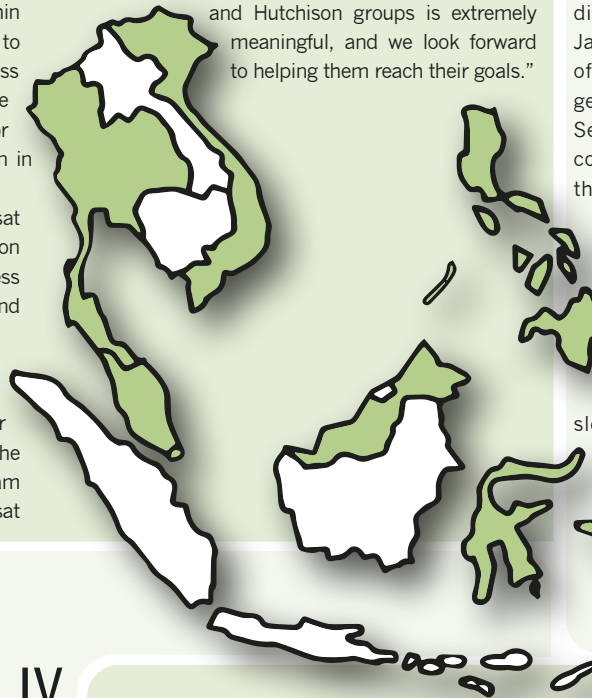
Thailand may lose satellite orbital slot as no takers

Thailand may lose at least one of its two satellite orbital slots in 2025 if the National Broadcasting and Telecommunications Commission (NBTC) can't find any takers in its upcoming allocation plan.

Thailand's rights for the orbital slot at 50.5° E expires next year, while another slot at 142° E will expire in 2027. Both slots have been vacant for some time, and efforts by the NBTC to sell them have been unsuccessful – according to digital economy and society minister Prasert Jantararuangthong, one reason for the lack of popularity is that the slots also provide geostationary coverage for the Caribbean Sea and the Middle East, which presents commercial challenges for any Thai company that takes them.

The NBTC attempted to award the two slots in January 2023 as part of a broader auction of five sets of orbital slots. Space Tech Innovation paid 797 million baht for two sets (78.5° E and 119.5° E/120° E), while state telco National Telecom (NT) paid 9.07 million baht for the 126° E slot. However, the slots for 50.5° E, 51° E and 142° E went unsold.

The NBTC is reportedly planning to award the 50.5° E and 142° E slots in June 2024 to avoid having to return them to the International Telecommunication Union (ITU) - only time will tell if this is successful or not…

PhilTower and MIDC to form 5G JV

Phil-Tower Consortium Inc. (PhilTower) and Miescor Infrastructure Development Corporation (MIDC) plan to form a joint-venture company to fuel the growing demand for 4G and 5G infrastructure in the Philippines.

The new joint-venture company will own both Phil-Tower and MIDC, with the purpose to maximise their geographic footprints to deliver improved connectivity for customers. PhilTower operates 1,250 towers in three regions: Luzon, Visayas and Mindanao. MIDC has over 1,250 towers primarily in Luzon.

The companies have seen a surge in growth in the Philippines information and communications technology sector with investment approvals exceeding US$1.7 billion.

The new joint-venture's formation is subject to regulatory approval from the Philippines Securities and Exchange Commission and the Competition Commission.

SpaceX and Vietnam pause service talks and pilot project

SpaceX and Vietnam's Ministry of Information and Communications (MIC) have paused talks to allow Starlink satellite broadband services in the country, as has a pilot project with coast guard drones using Starlink connectivity.

According to Reuters, SpaceX has had several meetings with MIC officials during the second half of 2023 to negotiate Starlink's entry into the Vietnamese market. However, the talks broke down when the MIC made it clear the government would not relax foreign ownership limits for SpaceX.

Vietnam's current telecoms law, passed in 2009, limits foreign ownership to a non-controlling 50% stake of telecoms companies with network infrastructure. In November 2023, parliament approved a revised telecoms law that kept those limits in place. In March, a draft decree to implement the 2024 telecoms law in July added a requirement that foreign satellite service providers must ensure that all traffic generated by satellite subscriber terminals in Vietnam passes through a local ground gateway connected to the public telecoms network.

According to a report from VNA, the MIC considers cross-border satellite communications to be a risk in terms of data from Vietnamese internet users being collected abroad and used illegally.

Singtel raises $710 million with 0.8% Airtel stake sale

Singtel has sold a 0.8% stake in Bharti Airtel for $710.81 million, cutting its stake in the operator to 29%. The sale will fund the growth of its data center business and also reduce its overall debt.

"We're pleased to have raised S$0.95 billion, while adding a marquee name to Airtel's share base," said Arthur Lang, CFO at Singtel. "The Group is now in an even stronger position to execute our disciplined capital approach of balancing investing for greater growth and delivering strong, sustainable returns for our shareholders. Airtel continues to see steady growth across all its businesses and has been rewarded with strong market valuations. We believe there's more room for growth given India's accelerated digital transformation and we intend to stay invested for the long term while working with Bharti Enterprises to equalise our effective stake in Airtel over time."

PLDT targets 100% renewable energy in 33 facilities in Greater Metro Manila

PLDT plans to switch 33 facilities in Greater Metro Manila to use 100% renewable energy via a partnership with ACEN's supply retail unit, ACEN Renewable Energy Solutions (ACEN RES).

Under the partnership, PLDT will leverage ACEN RES' portfolio of solar and geothermal power solutions to reduce dependency on power from fossil fuel and non-renewable sources, as well as boost operational efficiency.

The facilities include PLDT's 24/7 integrated operations centre in Makati City that oversees network operations and manages performance of PLDT's fibre infrastructure and the wireless facilities of its subsidiary Smart Communications across the Philippines.

"This supply agreement with ACEN RES expands and diversifies renewables in the energy mix of our key facilities," said PLDT VP and sector head for property and facilities Leo Gonzales.

PLDT first VP, chief sustainability officer, and head of investor relations Melissa Vergel de Dios said that the deal is expected to generate savings in energy and operating costs for PLDT, as well as support its ongoing groupwide decarbonization roadmap with an estimated reduction of almost 21,000 tons of carbon emissions annually.

"Integral to achieving our strategic direction of ensuring long-term profitability by doing business responsibly are initiatives like this that allow us to achieve operational efficiencies and reduce our environmental footprint at the same time," said Vergel de Dios. "This is a model that we aim to keep scaling up to accelerate our decarbonization roadmap and support the global ambition to achieve Net Zero by 2050."

Under the roadmap, PLDT Group aims to reduce Scope 1 and Scope 2 greenhouse gas emissions by 40% by 2030, coming from a 2019 baseline. To hit that target, PLDT Group has been venturing into using renewables, green technologies, and various resource optimization initiatives for its network sites, business offices, and key facilities nationwide.

Vi converts OCDs into equity shares as per ATC request

Vodafone Idea (Vi) has converted Optionally Convertible Debentures (OCDs) into equity shares, following a request from ATC Telecom Infrastructure Private Limited (ATC).

The conversion, valued at Rs 14.4 billion (Rs 1,440 crore), will result in the issuance of 144 crore fully paid-up equity shares with a face value of Rs 10 each. ATC will hold around 2.9% of the revised shareholding after the conversion.

"As per the terms of the OCDs, on 18 March 2024 ATC has requested Vi for conversion of 14,400 OCDs amounting to Rs 14.4 billion into 144,00,00,000 fully paid-up equity shares of face value of Rs 10 each. Vi will take necessary actions to allot the equity shares to ATC pursuant to the conversion of the said OCDs, as per the terms of the OCDs," said Vodafone Idea in a statement.

Initially issued in February 2023 for a total of Rs 16 billion, the OCDs were extended by 12 months in August 2023, covering the first tranche worth Rs 8 billion. ATC subscribed to the OCDs, and the funds raised from the OCD issuance were primarily utilised to settle outstanding dues owed to ATC.

Viettel wins 2500-2600MHz band for 5G in Vietnam

Viettel Group has won the Ministry of Information and Communications' auction for the 2500-2600MHz band for 5G usage in Vietnam.

Under the new spectrum licence, Viettel will have rights to the 2500-2600MHz band for the next 15 years and can use the band for both 4G and 5G services. No financial details were disclosed, although earlier reports said that the starting price was VND3.9 trillion.

Viettel said the 2500-2600 MHz band would give it an advantage over the other two bands up for auction (3700-3800MHz and 3800-3900MHz) as it offers slightly wider coverage.

The operator plans to launch the national 5G network in the shortest possible time and is planning deployments in locations where there is both high demand and a high concentration of 5G-compatible devices, such as industrial zones, export processing zones and innovation centres.

Mindanao gains 276 new cell sites in 2023

Globe Telecom has improved connectivity throughout Mindanao by constructing 276 new sites and upgrading 2,509 sites to 4G LTE in 2023.

These upgrades play a crucial role in expediting growth in an area that has long been impeded by conflict and poverty.

Enhanced connectivity enables smoother communication channels, facilitating easier access to information and resources. This is particularly vital in areas like Mindanao, where geographical challenges and previous infrastructure limitations may have hindered effective communication networks. With improved connectivity, residents gain access to essential services, educational resources, and employment opportunities, thereby contributing to poverty alleviation and economic empowerment.

The transition to 4G LTE also delivers faster internet speeds and greater bandwidth capacity, which enables individuals and businesses in Mindanao to engage more seamlessly in online activities such as e-commerce, distance learning, telecommuting, and digital entrepreneurship. As a result, the region can tap into the digital economy more effectively, fostering innovation, entrepreneurship, and economic growth.

Globe's network activities complement the government's efforts to empower the region by providing better access to digital services, promoting economic opportunities, and improving the quality of life for its citizens. The company uses cutting-edge telecommunications technologies to facilitate Mindanao's digital revolution and offer a resilient foundation for innovation and connection.

Bharti Hexacom to open for IPO

Bharti Airtel subsidiary Bharti Hexacom is set to open for IPO (Initial Public Offer) on 3 April 2024.

Telecommunications Consultants India Limited (TCIL) is set to sell a 15% stake in the company to the public. At present, TCIL owns a 30% stake in the company and the remaining stake is with Bharti Airtel. Post IPO, a 15% stake of TCIL will be sold to the public, and TCIL's stake will come down to 15% from the current 30%, while Bharti Airtel's stake will remain unchanged.

Since it is an offer for sale (OFS) from TCIL, no fresh proceeds will be generated for the company. TCIL would only be generating money from the stake sale. Bharti Hexacom has said in a late exchange filing that bidding for anchor investors would start a day early on 2 April 2024. The IPO will start on 3 April and finish on 5 April 2024.

Bharti Hexacom operates its business in the northeast states of India as well as Rajasthan. The company has access to the mid-band 5G spectrum with which it is already serving customers with 5G non-standalone (NSA) services. The ARPU of Bharti Hexacom jumped from Rs135 in FY21 to Rs195 in the first six months of September 2023.

Hexacom has 29.1 million customers, and with Airtel focusing more on investing in rural areas, the subscriber count should go up significantly. In the first half of FY24, total mobile towers under Bharti Hexacom jumped from 19,965 to 23,748. The company's profits dropped from Rs 195 crore to Rs 69 crore YoY in the first half of FY24.

Talking satellite

Carlo Agdamag, digital transformation manager, Access Partnership

Accelerating the digital transformation of APAC through satellite connectivity

Satellite technology is not strictly a new communications tool. Major Asian nations have long used satellite solutions to deliver traditional telecoms and broadcasting services, albeit on a narrow scale. However, recent leaps in innovation have enabled new use cases that could bring the benefits of satellites to a wider population.

Increased reliance on satellite technology can improve the state of connectivity in the region. The latest data from the International Telecommunications Union shows that a third of the Asia Pacific population remains offline, highlighting how substantial this effect could be. The divide is even greater between urban and rural areas, with only half of the latter's population currently able to access the internet. The rollout of new-generation satellite systems is expected to help address this, given their adaptability and cost-effectiveness. As an Asian Development Bank study points out, the boom of low Earth orbit (LEO) satellite constellations has tremendous potential to positively impact developing countries in the region as high-speed and high-quality internet connectivity becomes a reality.

However, beyond providing connectivity, satellites have the potential to improve human lives by empowering communities and stimulating economic development. Governments are starting to recognise the transformative power of satellite communications to drive digital inclusion and unlock new pathways to progress, especially in oft-overlooked areas.

Enabling access to digitally-based public services

Satellite connectivity is highly adaptable for countries with challenging geographical conditions. As such, it is not surprising that the archipelagos that envelop the Pacific have been increasingly leveraging satellites for the delivery of crucial public services, especially in unconnected areas.

In Indonesia, the government has launched the Nusantara-3 satellite, which is specifically targeted to advance the country's digital transformation initiatives. Apart from sustaining the digital economy, the satellite aims to foster the conduct of educational activities by enabling remote learning and access to different educational resources. This year, Indonesia intends to launch another satellite, the Nusantara-5, the capabilities of which extend beyond communication infrastructure. Nusantara-5 aims to bolster the country's food and environmental security initiatives through its disaster management, agricultural monitoring, and Earth observation functionalities.

Meanwhile, the Philippines recently announced an agreement with Astranis to deploy two micro-GEO satellites later this year. These satellites, dubbed Agila, will provide coverage for 10 million users in remote areas. The project aims to spur wider digital adoption in the countryside by creating more than 10,000 direct and indirect jobs and generating US$400 million in investments over the next eight years. This would be useful for the country's fledging agriculture industry, as connectivity provided by satellites could be used for crop monitoring and irrigation activities. It could even improve access to credit by farmers, effectively contributing to financial inclusion goals.

Saving lives and improving health outcomes

Satellite technology has also helped to improve health outcomes. In Papua New Guinea, the PNG Sustainable Development Program has worked with Kacific and a renewable energy company to install 30 satellite dishes powered by a solar system. These dishes have connected 30 remote health facilities in the country's Western Province to the outside world, enabling local community health workers to access the internet through mobile phones and seek specialist medical advice from doctors based at hospitals outside these rural areas. This solution has averted medical emergencies, with health workers no longer having to travel three days by foot to access specialist advice from other facilities.

In the Pacific more generally, lives are often put in danger due to the threats posed by natural disasters. During these critical times, satellite connectivity has become instrumental in responding not just during the onset of disasters but also during their aftermath. In Tonga, for instance, the volcanic eruption and resulting tsunami that battered the island state in 2022 severely damaged the subsea cable linking it to the internet, effectively cutting the country off from the rest of the world. Portable satellite terminals have been sent to Tonga to provide temporary relief and aid in recovery efforts. This serves as a testament to the resilience of satellite technology, as well as its capabilities in ever-changing conditions.

Fulfilling the promise of meaningful connectivity

Satellite technology currently appears to be the practical choice in Asia Pacific. It also has the momentum to help catalyse the ongoing digital transformation of nations in the region. Beyond providing access to information, the resulting connectivity from satellites opens a realm of possibilities, especially for communities that have traditionally been left behind. This enables opportunities for millions who remain unconnected, offering a new way to access critical public services that have the potential to improve their quality of living. In effect, satellite technology can not just bridge the connectivity gap but also act as a link towards progress and prosperity.

Managing Multiorbit network with Starlink Network Management System of INTEGRASYS

LEONMS is the new product that INTEGRASYS has developed to keep up with the ever-changing space sector that has been rapidly advancing since the arrival of Elon Musk's new Internet company, Starlink. This company has become a standard in the industry and one of the major parties in space, since 2019 when they started launching satellites into space, in only 5 years they have managed to own 10 times more satellites than the entire GEO satellite industry together.

This is where INTEGRASYS comes into play with LEO NMS, a software tool that allows users to manage Starlink dishes as a network and not be required to manage 1 antenna at a time. With this new product integrated with Starlink, the user can manage and control multiple antennas at the same time for a seamless operation, reporting, and customer-facing portal of all their dishes, empowering distributors, and integrators to manage their customer networks more efficiently; service level agreements and quality of service, as well as the contracts and leases management with the award-winning technology FlexCap.

LEO NMS includes but is not limited to Starlink (Multiorbit, Multiprovider) with centralized redundant cloud infrastructure to accommodate the
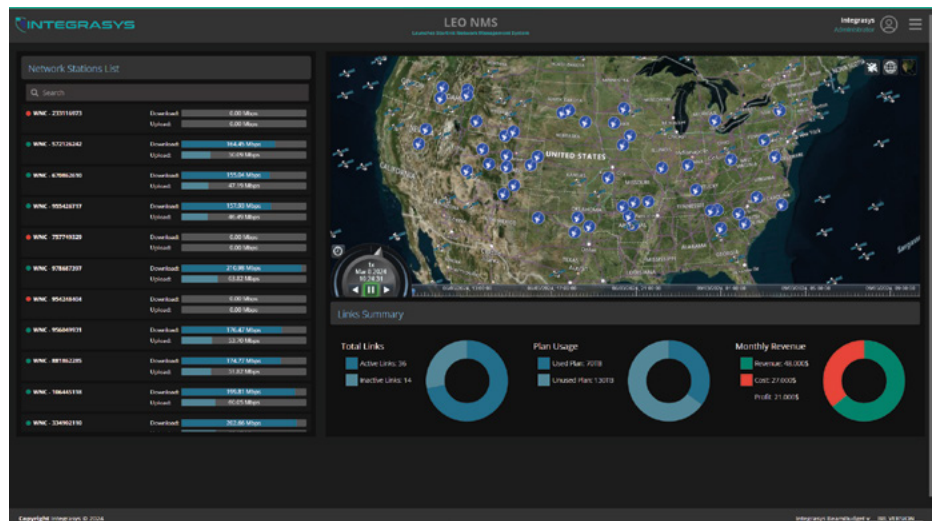
automation and AI portal to ease and operate a well-managed network providing uptime/downtime, speeds, QoS, and SLA (Service Level Agreement) latency metrics per dish or terminal, in real-time, and perpetual storage.

Some major benefits:
- web-based and multi-user tool with API access.facilitates the orchestration, management, and maintenance of LEO, MEO, and GEO constellations to operate seamlessly and save time.
- calculates and reports network metrics integration with FlexCap and

INTEGRASYS Enterprise Management & Control maximizing customer's visibility of their Mbits play activity by deactivating or invoicing new and existing customers as well as, tracking cost, revenues, and profits.

Our product FlexCap was recently granted an MSUA innovation award at the Satellite Show 2024 event, as Software Defined Network Innovation of the Year. Making this the third year in a row that INTEGRASYS has been awarded an MSUA prize in Washington DC's biggest space event of the year dedicated to communication.

FlexCap is a groundbreaking advancement in the realm of satellite technology, specifically designed to cater to the intricate needs of Very High Throughput Satellites (VHTS), High Throughput Satellites (HTS), and satellites across diverse orbits, including GEO, MEO, and LEO. This sophisticated solution is developed for Satellite Operators, Service Providers, and Government Agencies, offering a comprehensive approach to satellite capacity management. ■

The rise of diverse mobile networks

Sanjeev Verma, CEO, Squire Technologies

Mobile networks will become increasingly complicated as operators invest in standalone 5G (SA5G), despite switching off 2G and 3G. Without signalling interworking between 4G and various 5G types, network management will be challenging, and consumers will experience poor connections, jeopardising profits.

In GSMA's 'Network Slicing Use Cases Requirements' report, experts state: "...the requirements of verticals are many and diverse, and operators would need to manage a high level of risk in the complexity of their service offering and cumbersome management, driving up costs."

Mobile network operators (MNOs) have numerous obstacles to overcome. Non-standalone 5G (NSA5G) bolted on to 4G LTE, convoluted SA5G deployment strategies, and SA5G diversification opportunities will create hugely varied networks, complicating management. However, there are reasons to be optimistic. While many are lauding the role SA5G will play in businesses, these network changes might also radically alter how subscribers perceive mobile technology. Altogether, it could shake up the entire industry. Giants will be felled, new sectors will emerge, along with new leaders, and the great, decades-long commoditisation of the mobile market will end.

The end of the mobile industry's race to the bottom

MNOs have been in a bloody fight for a long time according to Strategy& from PWC, resulting in a race to the bottom and years of thinning profit margins.

Their report and those of MTN Consulting and Ofcom show how the market has been commoditised and focused on cost-cutting and price differentiation as subscribers increasingly get more data for less money.

However, things may change as SA5G offers more paths for differentiation strategies. For the first time in years, MNOs and mobile virtual network operators and enablers (MVNO/Es) could move away from low-cost strategies, sparking a de-commoditisation of the market of ubiquitous contracts and bundles.

Unfortunately, to get to this ocean of opportunities, MNOs must first navigate turbulent waters as they establish new networks and upgrade existing ones. It is expected to be costly and will result in complicated networks.

Why will networks be more convoluted?

Some governments are reluctant to invest in the expense of rolling out SA5G. The challenges of monetising 5G are likely the cause of their reluctance. PWC describes these challenges as often occurring due to consumer beliefs that quality mobile services should come at low prices.

Therefore, to afford rollouts, MNOs will probably adopt typical deployment strategies that focus on high-consumer areas first, like cities. Doing so will likely create an SA5G patchwork, where subscribers lose their SA5G benefits as soon as they leave an area of coverage. It has been a similar situation with 4G.

Returns on capital invested across different network generations

Still, it is possible to cover large areas with SA5G. GSMA's guide to 5G spectrum shows how MNOs can opt for different types of 5G that sacrifice network speeds for more coverage. While mmWave 5G has the least coverage and difficulty penetrating concrete, it offers ultra-reliable low latency connections and massive Internet of Things device capabilities (IoT). Transport hubs, stadiums, and other high-population areas will benefit from mmWave 5G, and it could spur a wave of innovations and job creation as phones turn into revenue-generating devices.

Arguably, this presents one of the best sales options for MNOs wanting to convince subscribers to upgrade to SA5G during a time of global inflation. If successful, it could open the way for a surge in individuals using their mobile devices for business. Forbes has documented an explosion of content creators and influencers, and SA5G will make this an attractive path for anyone with a mobile phone. To this end, operators that want to differentiate should stop viewing subscribers as end users and start looking at them as budding entrepreneurs.

Similarly, the diversification of networks sets the stage for an upswing in new MVNOs. MVNO Nation reveals how niche market opportunities are emerging for radical MVNOs to exploit. However, the array of new uses will create a granular network of spectrum layers and slices, transferring ever-larger amounts of data and creating disorder for network management.

How will network management change?

Network slicing will be central for competitive business strategies that seek to use the versatility of SA5G. Slices of networks tailored for hospitals, schools, content creators, connected cars, or the private networks of individual businesses will offer a multitude of revenue paths for MNOs, and create masses of network connections to manage.

According to recent insights from Qualcomm, coverage and connectivity are the top concerns of mobile subscribers. So, an unreliable network could damage brand perceptions and revenues. If MNOs want to keep consumers happy, they must optimise their networks.

As 4G didn't replace 2G and 3G, 5G will not replace 4G. Therefore, multi-generation and multi-band networks and spectrum slices must integrate and work seamlessly to deliver the experience consumers and businesses expect. In this regard, there are opportunities to improve efficiency and reduce costs while upgrading to SA5G.

Using existing infrastructure, similarly to how NSA5G uses 4G LTE infrastructure, operators can reduce SA5G rollout costs. By utilising signalling interworking between 4G and 5G networks, operators can save money and provide reliable coverage and connectivity to customers. ∎

Source: PwC Analysis, CTIA and Capital IQ data
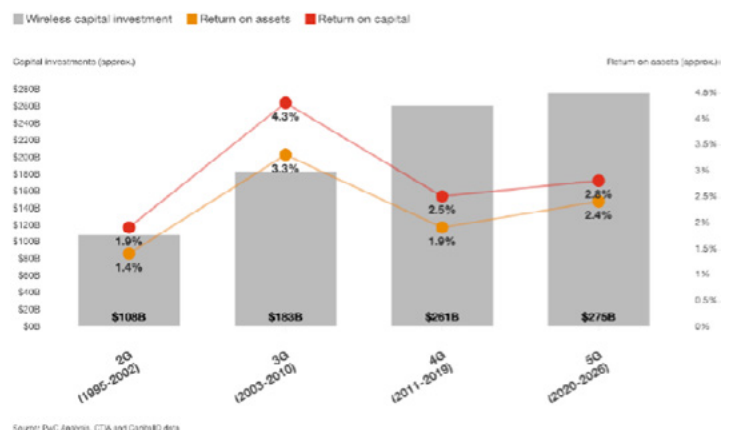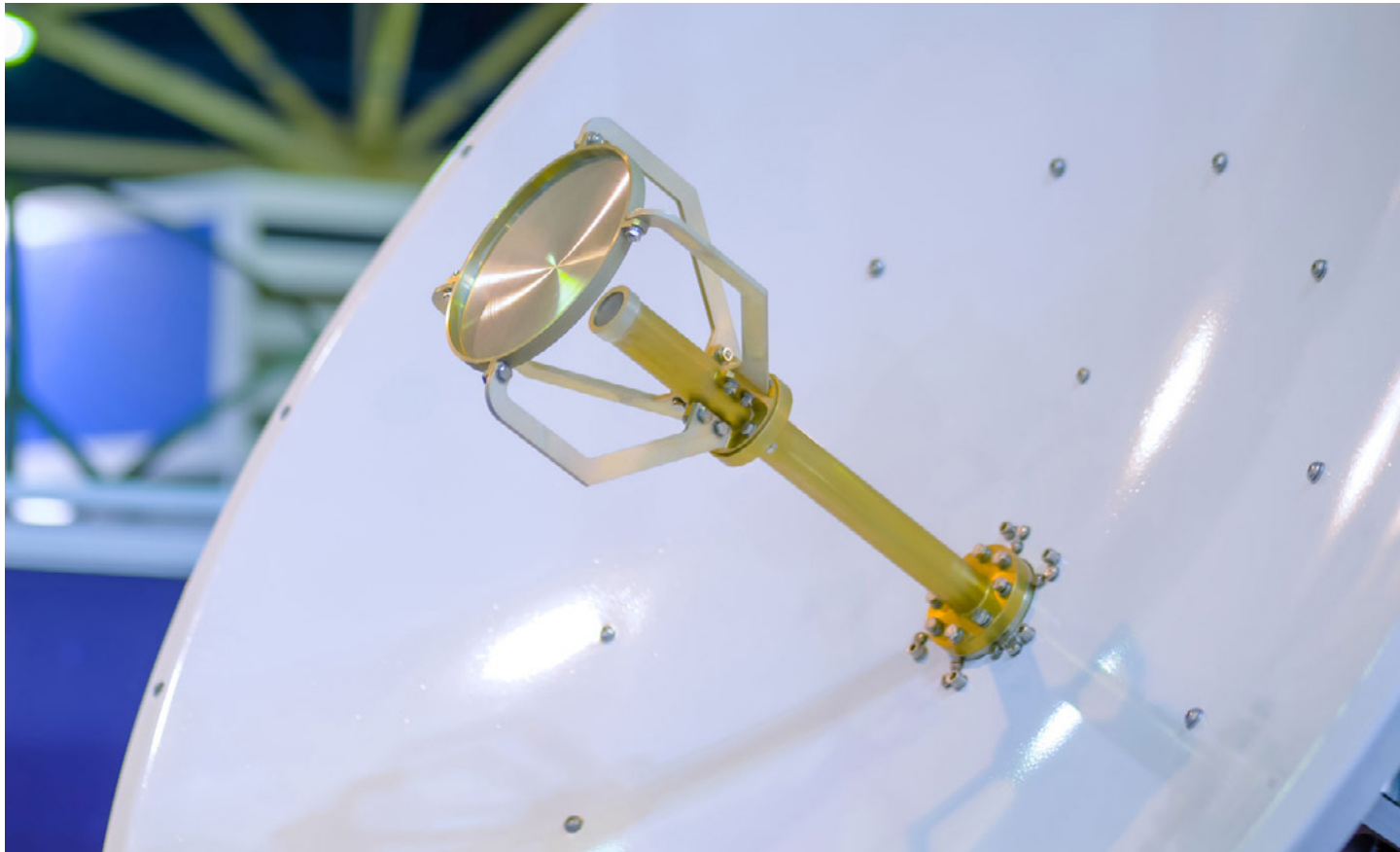
Satcoms – what's hot in southern Asia?

Satellite has long been a staple technology for southern Asia's wireless communications – but how is that evolving amidst new applications and next generation mobile standards?

Southern Asia is a broad territory comprising topologies of all kinds spread across tens of unique nations. From the economically developed Singapore to the many less developed countries, the range in technological maturity is extremely wide.

"South Asia has already made remarkable progress over the past decade in raising income, reducing poverty and integrating into the world economy, and, as broadband becomes available in places where there was no coverage, there is no doubt that the region and its inhabitants will benefit by experiencing social and economic progress," says Gaurav Kharod, regional VP, Asia Pacific, Intelsat.

2024's hot topics

The delivery of satellite communications throughout the southern Asian region is providing a crucial boost to countries and regions facing inadequate terrestrial supply, like Pakistan, Bangladesh, Sri Lanka, India, etc., as well as remote and rural regions and island nations, among others. The expansion of broadband-speed internet coverage is set to bring millions more into the digital economy, having a significant positive impact on national economies and all-round quality of life.

Accordingly, connecting the unconnected – with meaningful high-speed connectivity to both unserved and underserved regions - remains one of the most prominent topics discussed today.

"Bridging the digital divide in rural regions through satellite connectivity is a top priority in this region as many individuals throughout southern Asia lack basic connectivity to reliable internet services," opines Joe Bernabucci, director of strategy, Hughes Network Systems.

"There is a rising demand for satcom services in south Asia due to the pace of technological change and the speed at which economies are growing," explains Gautam Sharma, managing director, India, Viasat. "At almost 6% in 2023, south Asia was the fastest-growing region in the world. For that reason, the satcoms industry must continue to innovate. Satcoms services will help meet the needs that come with a high growth rate and ensure that remote communities are not left behind without access to internet."

The World Bank has forecast a robust 5.6% growth for the southern Asian economy this year, driven largely by strong expansion in India – which, naturally, remains a key talking point for satcoms.

"The region is home to the largest offline population, with more than a quarter of the world's 'unconnected.' Some 375 million people remain offline in India, more than a quarter of the country's population. A huge number that we cannot ignore, considering the impact that connectivity has on populations in terms of health, economic development, and education," says Kharod. "Satellite is the only way to respond to the geographic challenges of the region with its mountainous terrains that make it challenging for terrestrial networks such as fibre and microwave to reach spread-out villages, many of them located in hard-to-reach areas."

Nimrod Kapon, founder and CEO of Oasis Networks, highlights the recent release of its new Telecommunications Bill, which "has identified its focus on connectivity for the country. With spectrum allocation a focal point of the act, it's clear that India is looking to enable its entire population to access satcom broadband services."

"Given that the region is dominated by India in terms of market size and opportunity, opening up of the Indian market to private, international players is the most important issue currently," asserts Jose Del Rosario, research

director, mobility, government & military, NSR, an Analysys Mason Company. "Deregulation has taken place, but many have regarded the pace as slow. However, when not if, the Indian market does open up at a higher level, a significant market stimulus will take place where growth strategies by players in the satcom value chain including satellite operators, services providers and equipment manufacturers, will be anchored on tapping the Indian market."

But it's not just India where satellite connectivity is important for service delivery, reports Kapon. There are many barriers to connectivity in the entire region, including remote location of communities, poverty, and difficult geography, that makes rolling out terrestrial connectivity a challenge.

"The use of VSATs within the region continues to be strong, especially for island nations like the Philippines where it is extremely difficult to connect communities using terrestrial means," says Kapon. "With many new businesses looking to deliver low Earth orbit (LEO)-based broadband offerings at accessible prices, it is easy to see why many believe that this new tranche of satcom will be utilised to improve connectivity to underserved regions, allowing for growth in services and economies. It is expected that Starlink's licence to operate in India will be approved soon and it will be interesting to see the uptake that it achieves. With up-and-coming services in the pipeline as well, such as Kuiper and OneWeb, this is sure to be a big talking point in southern Asia and beyond."

Why satcoms?

The old arguments for satellite communications services remain valid even in 2024. The provision of communications for remote and rural regions, disaster recovery, mobility, broadcasting, redundancy, and secure government and military applications are as reliably supplied from space as ever.

Moreover, "satcom technology is flexible and scalable, without the need for extensive ground infrastructure like terrestrial communications methods," says Bernabucci. "Satellite communications are also less susceptible to physical disruptions on the ground, such as natural disasters – making them a very reliable option to cover vast, remote areas."

However, recent years have seen a boom in demand for satellite services throughout the region. According to Mordor Intelligence, the ASEAN satellite communication market is valued at US$1.21 billion in 2024 and is expected to grow at a compound annual growth rate of 14.24% through 2029 to US$2.38 billion.

"We are witnessing an increase in interest in satcoms within southern Asia," reports Kapon. "Satcoms are enabling areas to connect to reliable, high-speed internet despite having poor terrestrial groundworks, thus enabling the incorporation of technological infrastructures within health, education, and business and the

Gaurav Kharod

ability to push these critical services out to people that really need them and may not have previously had access to."

"Satcom services can deliver reliable connectivity to the hardest-to-reach places that lack terrestrial infrastructure – empowering a whole host of smart solutions. One solution where satcoms plays a crucial role is providing internet to rural and remote areas, reducing the digital divide," says Sharma. "For instance, almost 50% of India's population has yet to be connected. Taking proactive steps to address this digital divide, Viasat has installed 22 new Ka-band gateways over a 30-month period in India, helping the country connect people in underserved areas."

Indeed, in a post-pandemic landscape, governments, communities, and consumers alike have grasped the benefits that broadband has to offer, and demand for data has never been higher. For some of southern Asia's more challenging terrains where terrestrial may struggle or be price-prohibitive, satellite is an obvious answer.

"With over 60% of the Indian and Pakistani population living in rural areas, only satellite can reach rural and remote sites. The Himalayas and the Deccan Plateau might be some of the most well-known features of the region, but its rainforests, valleys, deserts, and grasslands make it such an exceptional and diverse region – but not an easy one to access," explains Kharod. "Satellites' ubiquitous coverage means that there are no 'last mile' issues, while the scalable and cost-effective space-based solutions can help countries meet connectivity challenges quickly and bridge the digital gap."

Additionally, "besides helping close the digital divide, satcom terminals deliver fast and reliable maritime broadband services to even the most congested areas," explains Sharma. "This is essential in busy shipping lanes like the Malacca Strait, which around 94,000

Nimrod Kapon

Jose Del Rosario

ships pass through each year. In collaboration with Cobham, Viasat is delivering the next generation of maritime antennas to provide seamless connectivity and amplify maritime missions like search and rescue."

Del Rosario identifies three key benefits of satcoms vs terrestrial connectivity options, including ubiquitous coverage; speed of deployment; and lower total cost of ownership in low population density areas.

"It is more cost-effective for instance to deploy a satellite ground station in a rural, remote and/or underserved area than to deploy fibre or terrestrial microwave," adds Del Rosario.

This holds particularly true at a time when, despite long-held notions, capacity, and device pricing has plummeted dramatically across the globe.

Joe Bernabucci

"Advancements in satellite technology such as high throughput satellites (HTS) deliver bandwidth at competitive prices. Couple this with falling terminal prices, and satellite is a cost-effective and highly reliable solution. We're also seeing growing interest in the new LEO offerings that deliver cost-effective connectivity with low latency and businesses and organizations are keen to test these out," explains Kapon.

Challenges vs opportunities

Southern Asia is one of the most populous parts of the world and accounts for some of the most promising growth markets for the near future. Asia-Pacific & Advisory Services have predicted a CAGR of 20% for 2023-2028 for the satellite internet market in southeast Asia.

Connecting the unconnected, growing demand in mobility and enterprise services, and the increasing frequency of natural and manmade disasters in the region leave users crying out for more services; while government projects for digital infrastructure and smart cities, too, are driving uptake.

Despite the wealth of opportunities for satcom operators and service providers in the region, regulations and policy remains a key topic of concern.

"Innovations in technology are set to advance the quality, efficiency, and accessibility of satcoms – bringing an array of new opportunities for providers," agrees Sharma. "However, achieving digital inclusion goals needs coordination between government and commercial partners. Partnerships will be vital to bring together technical expertise and resources and establish clear regulatory frameworks."

Providers in southern Asia often face regulatory challenges related to spectrum allocation, licensing, and market access. Navigating complex regulatory frameworks across multiple countries in the region can be both time-consuming and expensive.

"There are still challenges that exist such as tricky regulatory regimes and a fragmented market. In some countries, it can be difficult to get landing rights, for example," shares Kapon. "There are also other challenges, more physical, such as location and it's important that teams can be there to help install and train people in satcom use."

Del Rosario, however, believes that "the biggest challenges are market access and disposable income levels in the consumer broadband segment."

It's certainly true that, while more developed countries like India and Pakistan have better access to satellite technology with established infrastructure and services, those with less established ecosystems like Nepal and Bhutan continue to struggle with access. Moreover, while major cities in much of southern Asia have a range of consumer broadband options available, market penetration remains low due to affordability challenges – both for services and devices. Here, governments will play a key role in supporting schemes to affordably drive uptake and expand coverage.

"There is tremendous opportunity for satcoms if we continue to enrich the connectivity that we provide to the region. Users in remote locations want to use the latest applications over the internet. Businesses want to connect to suppliers and serve their customers and compete in the digital economy. Students want to learn and join the gig economy," concludes Bernabucci. "Therefore, to serve this growing demand providers need to improve service with higher speeds and access to the cloud for business. We need to make it easier and faster to install satellite networks."

Moving towards 5G

5G and 6G are hot topics for southern Asia right now. Operators are debuting 5G services across the region on a near-daily basis and leading the world in the development of next generation 6G technologies, particularly India. Satellite is expected to play a significant role in the rollout of both by addressing coverage gaps, providing backhaul connectivity, and enabling new use cases.

"Telco integration, infrastructure-as-a-service, network-as-a-service, wireless backhaul and direct-to-device (D2D) offerings," will all be relevant for the next generations of mobile technologies, says Del Rosario.

"Satellite services will enable telcos to bridge the connectivity gaps that inevitably exist across the region to ensure ubiquitous 5G/6G services," says Kapon. "They will help to extend the scale and reach of these services and so that they can benefit everyone."

Bernabucci adds that "satellite communications already play an integral part in the rollout of 5G, and eventually 6G networks in southern Asia. There are two primary reasons it will be essential to the rollout of 5G and 6G. First, satellite communication methods complement terrestrial networks by extending coverage to underserved regions, allowing for 5G and eventually 6G networks to have a greater reach. Second, satellite communication methods can also serve as backhaul solutions for secure 5G private networks, which we are already deploying."

"MNOs will be able to complement their 5G services with satellite connectivity to offload their terrestrial networks in a large scale," agrees Kharod. "They can take advantage of satellite's inherent multicasting/broadcast functionality, while preserving high-value wireless spectrum for latency-sensitive services. Satellite's broad coverage will complement the buildout of 5G in remote areas where building terrestrial networks is too cost prohibitive."

Satcoms also have a key role to play in bridging the divide for high-speed broadband while users await upcoming 5G/6G services.

"Although satcom services are not technically involved in the rollout of 5G and 6G, they could help bridge the digital divide and enable businesses waiting on the rollouts to power both daily operations and high-speed applications," says Sharma. "Community WiFi hotspots are one way that satcom services help close the gap in connectivity. By providing internet at the community level, people and businesses in remote locations have anytime access to information and internet communication."

Augmenting services with MNOs

Working hand in hand, satellite and mobile operators have significant opportunities to support government connectivity initiatives and offer innovative new services, while also plumping up the bottom line.

"Satcom services can offer network capacity and help telecom providers in south Asia cater to a broader customer base more efficiently," agrees Sharma. "With increased network capacity, telecom providers can maximise the use of available spectrum resources, allowing them to provide consistent and reliable network connection even during peak usage periods."

Reaching remote communities is often uneconomical or not feasible for MNOs, leaving those communities unable to take advantage of the many benefits of a connected society, says Kharod: "satellite is the only way to expand coverage quickly and economically in these areas. Today's advancements in satellite technology, including HTS and dynamic bandwidth allocation capabilities, combined with geostationary satellites' ubiquitous coverage, enable MNOs to, quickly and cost-effectively, connect thousands of rural and remote cell sites."

Gautam Sharma

"Bandwidth continues to be a challenge for telcos, with consumers wanting lots of fast data," opines Kapon. "As in other areas of the world, I predict that satcoms will enhance 5G/6G offerings through the 'network of networks,' where cloud-based orchestration will enable access to the most efficient, cost-effective way of delivering the connectivity required. Not only will the network be able to switch between terrestrial and satellite networks, but within satcoms, the network will be able to bounce between orbits, depending on user requirement. Satcoms is going to be crucial in allowing 5G/6G to expand."

Satcoms have long been utilised to deliver last mile connectivity, particularly for remote and rural regions where terrestrial networks are insufficient. Backhaul links connecting remote towers in such regions to the core network infrastructure can help expand telco customer base and open up new revenue opportunities. Accordingly, partnerships and collaboration will be key.

Bernabucci highlights that "there are lot of choices that telecom operators have when it comes to their satcom infrastructure. Guiding and providing a ubiquitous experience in managing and deploying these choices needs to be made simple and transparent. Security is increasingly important, and also ensuring that the networks are using the best alternatives for providing coverage and capacity for their users."

"As we move forward, it will be important that standards are put in place to ensure that this mesh of technologies can integrate and that truly virtualised ground infrastructures can provide seamless connectivity for users that makes most sense for the application at the time," says Kapon, sharing his thoughts for the future. "Indeed, the satellite industry is starting to embrace standards from the telco world in order to make this happen." ■

Is Asia ready for 6G?

While 5G remains in its infancy in vast swathes of the world, the relentless pursuit of progress sees certain nations marching onwards, with 6G becoming closer than ever...

Increasing levels of global interconnection and expanding reliance upon digital technologies is seeing hefty demand for ubiquitous, reliable, high-speed connectivity.

6G, the next generation of mobile technology, is expected to address this demand by offering unprecedented speeds, minimal latency, and seamless connectivity, revolutionising various industries, and enhancing the overall digital experience.

"It is difficult at this phase to say with certainty how 6G will be implemented and how it will benefit customers, but research and industry trends point to a few likely outcomes," says Sarah LaSelva, director of 6G, Keysight Technologies. "For example, 6G will be the first generation that will be designed around post quantum security. While we can retrofit older generations, 6G will benefit from new security features added throughout all parts of a wireless system."

Emerging technologies

According to BIS Research, the Asia-Pacific's 6G market is expected to expand at a compound annual growth rate (CAGR) of 106.42% over the forecast period to reach US$275.91 billion by 2035. The driving force is primarily the escalating demand for high-speed and dependable connectivity, coupled with the adoption of cutting-edge technologies. This is a response to the increasing need to meet the growing demands of data-intensive applications and the emergence of technologies such as augmented reality (AR), virtual reality (VR), and IoT.

6G is coming on in leaps and bounds but remains in its infancy – as does its predecessor 5G. As such, its relevance for southern Asia will depend on factors such as the region's existing telecommunications infrastructure, economic priorities, technological capabilities, and international collaborations. And although 6G is not an immediate priority for many southern Asian countries, it's essential for policymakers and stakeholders to keep an eye on emerging technologies.

"At this stage, southern Asia has the opportunity to participate in fundamental research and actively shape 6G," says Sarah LaSelva, director of 6G, Keysight Technologies. "While Indian companies have been a part of shaping standards like 3GPP for years, their influence as the world's most populous nation and the first nation to deploy 5G standalone (SA) will likely be more forcefully felt in 6G."

All change

The establishment of 6G infrastructure requires significant investment in equipment, spectrum allocation, and network deployment; and may come up against significant regulatory challenges. Extensive planning, coordination, and collaboration among various stakeholders will be needed.

Building 6G infrastructure will be a considerable effort, spanning the deployment of new base stations, retrofitting existing ones, and installing advanced antenna systems to support higher frequencies and accommodate massive device connectivity.

There's also the tricky matter of standards. Back in December 2023, the ITU shared the framework for 6G standards, representing 'significant progress' in its development. The union expects 6G to require multiple frequency ranges to meet capacity and coverage needs, ranging from sub-1GHz up to bands above 100GHz. It is also working on a report on the technical feasibility of IMT mobile technologies in bands above 92GHz to meet new use cases with high data rates and low latency. As far as 6G capabilities go, the ITU is discussing peak data rates of 50-200Gbps, 0.1-1ms latencies, and spectrum efficiencies 1.5-3 times greater than 5G. 2030 remains the target date for 6G standard approval.

"By agreeing on a way forward on 6G, ITU Member States have taken an important step forward ensuring that technical progress is synonymous with affordability, security, and resilience – supporting sustainable development and digital transformation," reports Doreen Bogdan-Martin, secretary-general, ITU.

Spectrum availability continues to be one of the key challenges. The required higher frequency bands have limited range and are susceptible to signal attenuation due to atmospheric absorption and obstacles like buildings and foliage – requiring significant thought on the part of equipment manufacturers. Moreover, spectrum auctions, regulatory frameworks, and international coordination will be necessary to allocate and manage spectrum resources effectively.

"There are issues globally related to spectrum," agrees LaSelva. "There are no obvious frequency bands available for global harmonisation for 6G. There is a desire to deploy 6G between 7-24GHz, but incumbents including many satellite applications and governments exist so innovative ways to share spectrum are needed."

However, as far as southern Asian deployments go, "India has an advantage over the rest of the world

in deploying 6G networks when they become available. India decided not to deploy 5G NSA and went straight to SA. All indications point to the 6G core being an evolution of the 5G SA core, and having a fully deployed 5G SA core with no outdated 5G NSA core will make deploying 6G a smoother and easier process," adds LaSelva.

Should 6G be the priority?

India is leading the path for southern Asia's pursuit of super-fast 6G technologies. However, with large proportions of the population still lagging on 3G and even 2G, is this priority right?

Maybe so: being an early adopter and leader could provide operators with a significant competitive advantage in the telecommunications market, helping attract new subscribers, retain existing customers, and differentiate their services from competitors. Introducing new 6G services could also open additional revenue streams, enabling access to premium content delivery, immersive gaming experiences, VR applications, and real-time remote services.

Additionally, operators that lead the development of 6G technology may have a greater influence on regulatory and policy decisions. By actively participating in standardisation efforts, spectrum allocation discussions, and policy debates, they can shape the regulatory environment to their advantage.

"At this stage, southern Asia has the opportunity to participate in fundamental research and actively shape 6G," says LaSelva. "While Indian companies have been a part of shaping standards like 3GPP for years, their influence as the world's most populous nation and the first nation to deploy 5G SA will likely be more forcefully felt in 6G."

Prioritising 6G over 4G/5G also allows operators to future-proof their investments and infrastructure. Cell towers built for 4G/5G/6G capabilities will remain relevant for the long-term, thereby avoiding hefty infrastructure upgrades further down the line. One key aspect of future-proofing tower builds is the migration from copper to fibre, supporting higher transmit rates and lower latency – essential for both 5G and 6G. Many infrastructure owners are already committed to the change, enjoying the added benefit of avoiding service-disrupting copper cable thefts

which are rife in many regions.

The world is watching

The future for 6G in APAC is mixed. Investments are growing, standards are developing, and operators are coming on board. However, continued advancements will likely be influenced by a combination of technological advancements, policy decisions, market dynamics, and international collaborations; challenges and uncertainties remain.

Questions of priorities also

remain. While 6G is set to be a huge enabling technology in connecting the unconnected and delivering truly meaningful connectivity to remote and rural regions, so too is 5G. Accordingly, while some of southern Asia's nations are grasping onto 6G with both hands, others are focusing on the wider rollout of 4G and 5G.

No doubt, research and development will continue among richer nations, with academic and research institutions collaborating to advance the next generation of mobile

technologies. However, adoption will be unevenly distributed across the region, at least for the next few years.

LaSelva believes that, with the combination of the world's largest population and the world's only fully 5G SA deployment, India's actions will give it insights into what improvements and evolutions 6G will need in a way that other countries cannot offer.

"The world is watching with excitement as the wireless segment continues to grow in this region," concludes LaSelva. ∎

New models for tower power and management

James Gray, director of telecom strategy, PowerX

Towercos have long been the enabler of rural coverage and connectivity expansion in Southeast Asia (SEA). But as digitalisation of the region continues to boom - with strong consumer and commercial adoption driving data demand - rapid urbanisation and next-generation technology uptake is putting pressure on mobile operators to increase points of presence (PoPs) and deliver 5G.

Operators are now looking increasingly to towercos to provide efficient, reliable and low-cost urban co-locations in growing urban environments. These challenges are compounded by the increased complexity of tower management, driven by rising numbers of tower tenants (lease-up rate, LUR) and uptake of Open RAN. Highly integrated use of facilities means future towercos of SEA need to be collaborative and intelligent - and make a paradigm shift in their approach to asset management. A new model for tower power management and operations is needed, one rooted in real-time insights from data science and machine learning.

Rising data demand, 5G and urbanisation

Southeast Asia's strong digitalisation, catalysed further during the pandemic, has given rise to an explosion in data consumption. SEA has some of the world's highest growth rates for mobile use and Ericsson's research indicates that traffic per smartphone could soar to 54GB monthly by 2028. This growth trajectory is significantly influenced by next-gen technologies like 5G. Despite the gradual rollout of 5G, the region is

expected to become the largest market globally, with a projected 52% penetration of SEA by 2030, as per Fitch Solutions/BMI.

an additional 70 million are estimated by the Association of South East Asian Nations (ASEAN) to live in urban areas by 2025.
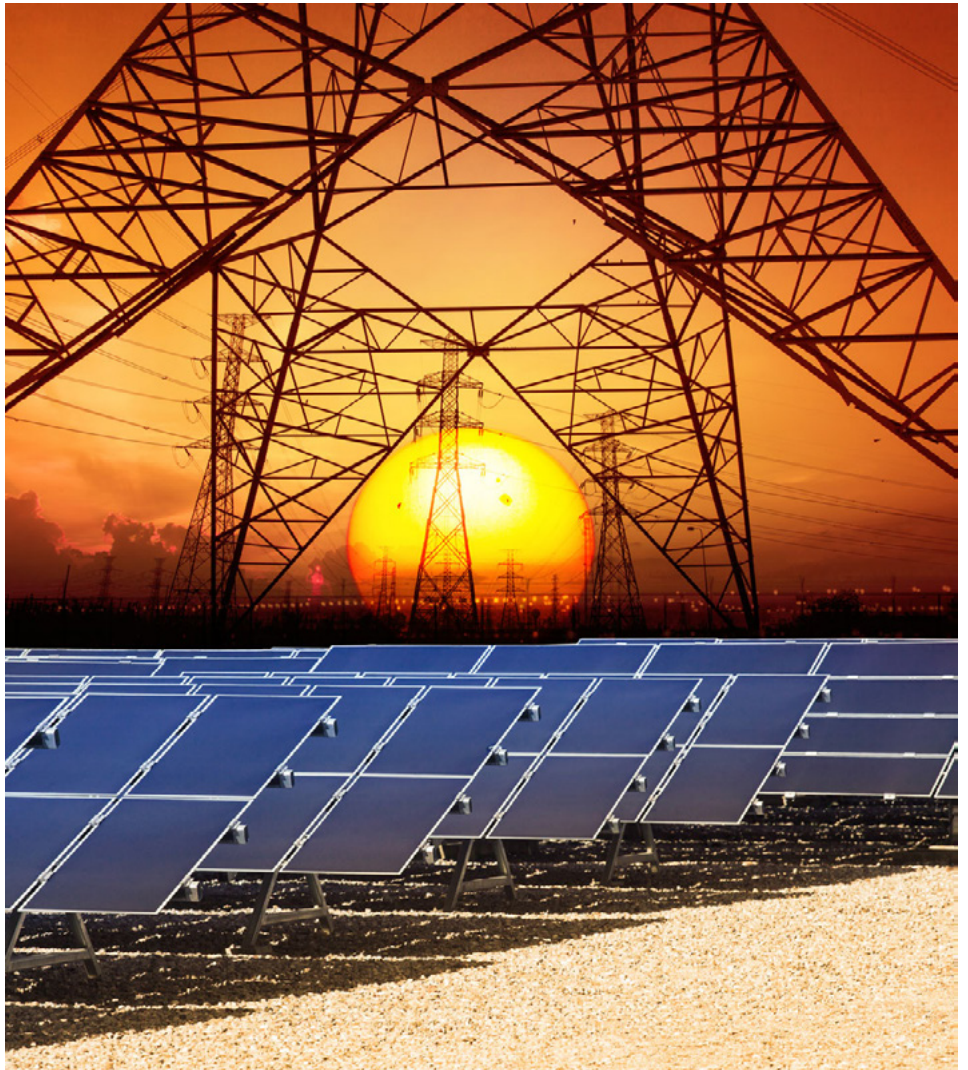
"Mobile network operators (MNOs) need scalable, cost-efficient solutions to provide uninterrupted connectivity to these growing urban populations. Demand for PoPs has tripled with the emergence of 4G and 5G, requiring towercos to densify networks rapidly and efficiently, without passing costs onto customers."

Pressure on operators is also influenced by sharp urbanisation rates and constantly changing city topography. Already today, more than half of SEA's 689 million population live in cities and

Mobile network operators (MNOs) need scalable, cost-efficient solutions to provide uninterrupted connectivity to these growing urban populations. Demand for PoPs has tripled

with the emergence of 4G and 5G, requiring towercos to densify networks rapidly and efficiently, without passing costs onto customers.

These trends point to a shift away from MNO ownership of towers towards dedicated towercos, as operators look to focus on their core competencies in order to drive more streamlined, profitable and sustainable operations. SEA telecommunications will see a focus on urban

Towercos need to look to an intelligence-driven power model and innovative power train solutions to efficiently and sustainably provision sites. Considerable time and resources are already centred on efforts to configure tower sites appropriately, yet they fall short because operations teams don't have the tools to see what is happening real time in the network.

Real-time data provides a continuous stream of

renewable energy and can reduce reliance on diesel-consuming, high carbon-emitting generators to drive down costs and emissions levels for operators.

Asset management digitalisation

In the same way that energy consumption is headed for increased complexity, operational tasks such as billing and invoicing will also be harder to manage. In the new era of SEA telecoms, traditional billing models, based on fixed rentals or flat rates, may no longer be sufficient.

SEA towercos need to evolve towards more dynamic and intelligent pricing models, which factor in real-time usage, the number of tenants per site, and even the type of services being offered – particularly as 5G grows. This approach can lead to more equitable cost distribution and help in maintaining competitive pricing strategies.

For this, a detailed and real-time view of the network is needed. With billions of data points across SEA cell tower sites and an increasing number of tenants on each, the only way to draw actionable insights from such vast and complex data is by leveraging AI and machine learning.

Insights into data capacity and energy use derived from each operator are provided in granular detail across towers, at scale. Predictive analytics also mean operators can take action - implementing advanced billing systems that can optimise revenue streams and provide more transparency to all stakeholders.

This level of oversight and actionable insights mean towercos can detangle vast and complicated webs of tower network information to deliver reliable and accurate services to each and every operator partner.

Future-ready towercos in SEA

Faced with rapid urbanisation and demand for next-gen technologies, the SEA telecom landscape will see a significant evolution in the coming years. The opportunities to connect this mobile-hungry region are great but the ecosystem needs to collaborate and work together to make sure demands are met.

The value of a towerco is evolving. As MNOs increasingly rely on towercos to deliver 5G, more sustainable operations and energy efficiency, data intelligence tools are needed to enhance the MNO customer experience. Towercos must focus on digital power management and operational solutions to provide efficient and reliable networks across SEA.

In a landscape with escalating power demands and higher LUR, towercos must leverage operational performance data and deep data intelligence for appropriate site provisioning. Adopting digitised operational and power management solutions is critical for future optimisation, growth and improved connectivity experiences across SEA. ■

> "The value of a towerco is evolving. As MNOs increasingly rely on towercos to deliver 5G, more sustainable operations and energy efficiency, data intelligence tools are needed to enhance the MNO customer experience."

co-location and Open RAN solutions for flexibility, cost reduction, and energy efficiency as data demand and network complexity skyrockets across the region.

Revolutionising power management

Against this background, power management of the towercos/MNOs/Operating Equipment Manufacturers (OEMs) ecosystem will increasingly become the responsibility of towercos. With 5G's power consumption poised to jump between 10-12kW and multiple tenants and various OEMS pushing up individual cell site power demands, it is becoming increasingly difficult to dimension the power element of sites.

information to allow 24/7 monitoring of energy usage and system performance. Combined with AI-enhanced data science and automation, this allows towercos to make automatic changes based on the specifics of a site, its performance and the environment around it. Towercos can, for example, facilitate efficient and automated power source alternation based on precise weather forecasts or remaining battery power to maximise solar energy use and storage. Intelligent AI systems can also track the real-time energy consumption of multiple tenants and monitor their unique requirements, deploying predictive analytics to better provision sites for improved energy efficiency and provision.

These powerful data-science and automation-led tools allow for maximised use of
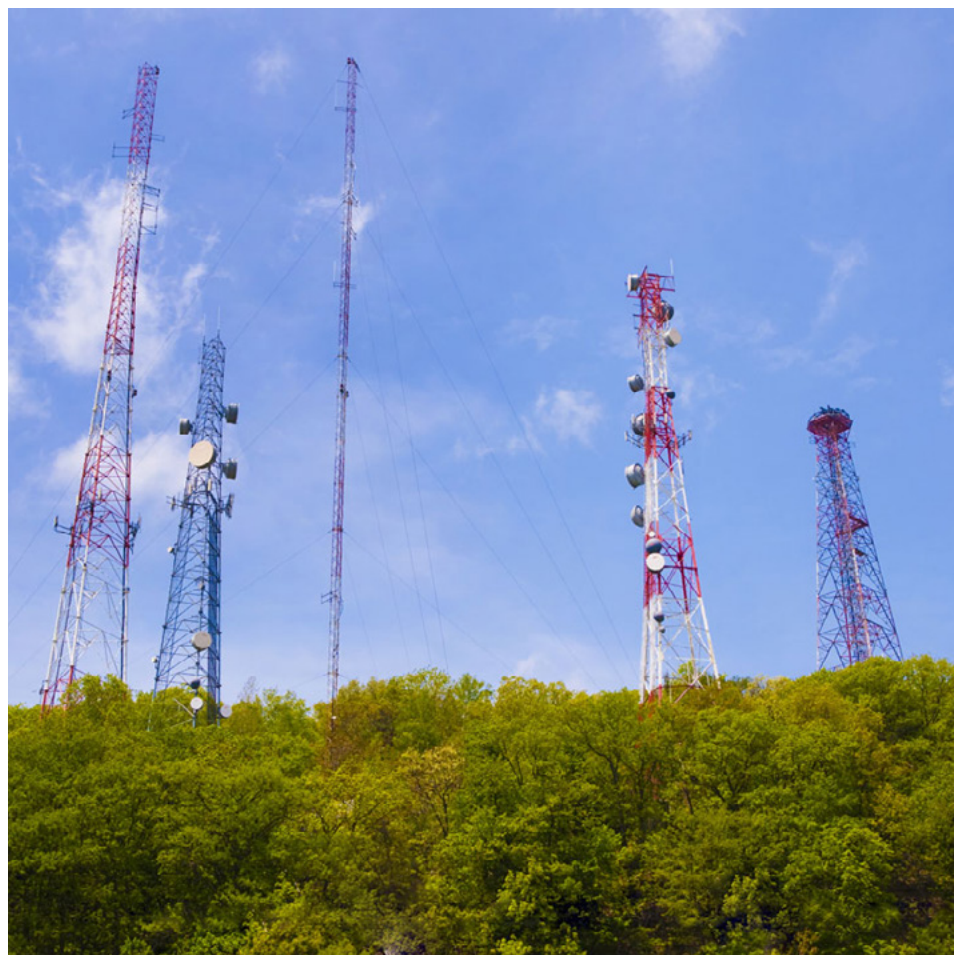
Critical communications for the Delhi-Ghaziabad-Meerut corridor

The National Capital Regional Transport Corporation (NCRTC) has identified the Delhi-Ghaziabad-Meerut corridor as the first phase of development of a rapid rail transport network. The development aims to support sustainable economic and social development through increased and improved connectivity between Delhi and the districts and towns surrounding the National Capital Territory.

With an estimated maximum speed of 180kmph, the new line will cut travel time between Delhi and Meerut to less than an hour. Expected to be fully operational by 2025, the network will transport thousands of people, making it a more sustainable transport alternative and reducing congestion on the roads.

Achieving high speeds and high train frequencies requires a reliable and secure communications system that guarantees train-to-ground communications at all times.

Communications at speed

The objective of the National Capital Regional Transport Corporation was to have a modern communications system that, using broadband technology, offers the highest levels of security and availability, as well as equipment that guarantees reliable and stable train-to-ground communications.

However, ensuring the voice communications of all the agents involved in railway operations, while guaranteeing the transmission of large volumes of data that are permanently generated on a running train, is technically challenging and requires a considerable effort and the development of a totally innovative and disruptive proposal.

Accordingly, Teltronic was selected by Alstom to supply and integrate the on-board equipment, radio terminals and the control centre solution to provide the MCX services for the 82km fast rail corridor.

At a time when broadband technology is still emerging in critical sectors, the commitment to MCX represents a pioneering milestone at a global level for medium-distance trains, being the support for both voice and data communications. The ambition to integrate all the elements is a great effort and a tremendously valuable coordination exercise, all following the commands defined in the FRMCS, and bringing the project closer to the future of railway communications.

Onboard 3GPP standard mission critical services

Teltronic's role in the project included the integration of the on-board equipment, radio dispatchers, smartphones, and the control centre solution to provide the mission critical services (MCX) to the line.

The RTP800 was selected as the on-board equipment, which can orchestrate the train to ground communications with TETRA and/or LTE. It complies with the 3GPP standard for FRMCS and MCX services, supporting all the communication needs in the very demanding transport sector. Certified according to railway regulations EN50155 and EN45545, the solution features two units per train (one in each cabin), managing different levels of redundancy to increase reliability.

MCX functionality was implemented in combination with the rest of on-board integrations, a pioneering milestone in terms of on-board equipment. The on-board solution is completed with the control console with touchscreen that allows its operation, and by the audio accessories.

Teltronic also addressed integration with various train subsystems, including the public address, intercom systems, and the train control & management system (TCMS). The on-board equipment is also connected to the router that manages train-ground connectivity for all services.

For the control centre, Teltronic deployed its NG CeCoCo solution with ten console positions. Designed for touchscreen operation, it enables communication between operators and external contacts to the control room through different networks.

Moreover, the console position is configured for different operator profiles and is the single HMI for providing a wide variety of voice and messaging communication services. It includes a dynamic map of the transport infrastructure that allows real-time visualisation of the location of trains, supervised according to several areas of control, and specific functionality like coupling, TRN assignment or alarm management.

In addition to being the onboard communications management platform, NG CeCoCo is integrated with the trackside Train Management System (TMS) to receive operational information such as alarms and train location. It also manages voice and data communications between the trains and the controllers of control centre, which complies with the commands defined by 3GPP for FRMCS and allows the control centre to communicate directly with the train passengers through the PA and intercom systems, either with pre-recorded messages or not.

The solution also includes LTE handheld terminals and LTE desktops dispatch units. The set is completed with different audio accessories, as a handset that allows private conversations or a desktop microphone.

Enabling sustainable development

The Delhi-Ghaziabad-Meerut corridor aims to enable sustainable economic and social development through greater and better connectivity between Delhi and the surrounding districts and cities. With that ambition, Teltronic is involved in making travel safer and faster for the millions of users of the line.

The use of next generation telecommunications technology will make it possible to shorten Delhi-Meerut commute time by 40%, carry 800,000 passengers each day, and help decongest roads and reduce pollution up to 250,000 tonnes of CO_2 emissions a year – an impressive achievement by any standard.

"This project is a clear demonstration that our solutions for railway environments comply with the 3GPP standard for MCX services. Teltronic reaffirms its commitment to standards as a reference framework and after a clear target to R&D to evolve our solutions to the technologies of the future, we are proud that Alstom has selected us and that we can demonstrate that Teltronic will continue to play a key role in private communications," said Felipe Sanjuán, transport business development director, Teltronic. "We have proved the validity of Teltronic's communication solutions over MCX defined by the 3GPP standard; setting a new milestone in rail communications with a technology that will allow the line operator a smooth transition to FRMCS (Future Rail Mobile Communication System) in the future." ■

KL International Airport goes digital

KL International Airport (KLIA) is one of the world's leading examples of Airports 4.0 done right. Passengers enjoy a streamlined boarding experience, can quickly check in without waiting in a long queue, and can handle work online or surf the internet using convenient networks in the departure lounge.

KLIA managing company Malaysia Airports Holdings Berhad (MAHB) is committed to creating superior connectivity and providing a seamless travel experience for passengers, by moving towards digital and intelligent airports with secure and reliable networks, smarter and convenient applications, and better quality services.

Airports 4.0

Malaysia Airports began its digital transformation back in 2018 with the Airports 4.0 initiative. Projects encompassed infrastructure enhancement, capability development, and digital innovation, with the aim of improving the efficiency of terminal optimization and operations, increasing revenue generation, and enhancing regulatory compliance.

At the heart of Malaysia Airports' plan was to enhance connectivity and real-time information sharing by connecting all passengers, tenants, airport staff, and other stakeholders to a fully integrated digital ecosystem. The company planned to improve operational efficiency via data and analysis of terminal operations; provide passengers with more control over their journeys and a more personalised experience; redefine airport security and passenger safety using target recognition and intelligent video analysis; and improve employee efficiency through digital means.

However, Malaysia Airports' original network architecture faced huge obstacles to the implementation of Airports 4.0; the company had to abandon manual configurations to become totally smart.

Airport services and surrounding tenants needed many virtual local area networks (VLANs), and the two core switches were almost fully loaded, preventing new service systems from going live. Additionally, the service systems were manually configured and were prone to faults, resulting in time-consuming and difficult repairs; it took at least ten days to roll out new service systems for airlines, ground handling departments, and airport security. Moreover, air traffic management (ATM) authorities and some airlines required physical isolation for independent networking, a requirement that Malaysia Airports could not meet.

A fully connected fibre solution

Malaysia Airports turned to Huawei, which offered up its Fully Connected Fiber Network Solution - a reliable, agile, simplified, and green technology debuted in November 2023 - which has helped KLIA resolve all its pain points during digital transformation, laying a connectivity foundation for it to make the move from Airports 2.0 to Airports 4.0.

Huawei's solution adopts an IP + DWDM dual-plane architecture. It capitalises on physical and logical service isolation to provide a highly reliable bearer of services for ATM authorities, airlines, and terminals. The router plane and WDM plane back each other up for cross-domain protection, meeting the lofty requirements of Malaysia Airports' airlines and ATM authorities for reliable and secure networks.

Huawei's Fully Connected Fiber Network Solution adopts GPON/XGS-PON technology at the access layer to realise natural Layer 2 isolation and avoid risks like network storms. It uses optical fibres instead of copper cables, which could only cover 100m at most. In addition, the solution features passive aggregation so that fewer ELV rooms are required, creating greener and more efficient airport operations.

The solution also brings with it a high degree of scalability, with no restrictions on bandwidth or distance; and cables do not need to be re-routed. This is because it supports flexible capacity expansion from GE to 10GE high-bandwidth networks. As Malaysia Airports enhances the specifications of its operational system, it needs an increasing number of smart terminals and higher bandwidth - NCE-IP delivers E2E services in one click, meeting the development requirements that will amount over the next 5-10 years.

With Huawei's help, KLIA took just 4.5 months to migrate and upgrade the entire network; a vast improvement on what would usually be a 12-18 month endeavour.

A tenfold capacity increase

Today, Malaysia Airports' new networks boasts a tenfold increase in capacity, with port speed ranges from 10-100Gbps, while the core scalability can reach as high as 400Gbps. The new, improved, and secure networks enable Malaysia Airports to implement more digital projects, benefiting passengers, merchants, and staff.

KLIA now gains from automated processes and powerful network capabilities, which enrich the passenger experience, as well as online check-in, which brings shorter queues and less congestion. Passengers can find their flight schedule and boarding gate using a mobile app, achieving a smooth boarding experience that helps the airport effectively manage passenger traffic, reduce congestion at all checkpoints, and ensure passengers can spend time shopping or dining at airport stores.

Moreover, Malaysia Airports has also flexibly configured networks based on airport tenant requirements to prevent broadcast storms caused by the rapid increase of terminals. This improves tenant experience while slashing O&M costs.

With the new solution in place, Malaysia Airports is accelerating the implementation of Airport Collaborative Decision-Making (A-CDM) and cooperating with airline partners by sharing real-time information. This is critical to reducing delays and cutting the O&M costs of airport IT systems, as well as enabling Malaysia Airports to take preventive measures against potential risks. ■

CSPs to gain from AI-enabled pricing software

The new Amdocs CPQ Pro, a next-generation configure-price-quote software, enables communications service providers (CSPs) to offer advanced enterprise services for all business types by leveraging generative AI capabilities.

Underpinned by Amdocs' pioneering telco-grade generative AI platform, amAIz, CPQ Pro aligns with Amdocs strategy of advancing generative AI co-pilot use cases across the communications industry, bringing reduced time to market, enhanced efficiency, and next-level customer experience through service differentiation across its products and services portfolio. This launch also builds on previously announced strategic partnerships with Microsoft and NVIDIA, further bringing generative AI capabilities into Amdocs' CES portfolio.

"We believe in generative AI's ability to transform the telecom industry and enhance experiences for enterprises and consumers alike," said Anthony Goonetilleke, group president of technology and head of strategy at Amdocs. "CPQ Pro is one of the industry's first generative AI-infused CPQ applications meticulously crafted for CSPs. It empowers our customers to capture and accelerate enterprise revenue opportunities, extending beyond just connectivity to encompass new digital and e-commerce services and network-based value-added services."

Designed specifically for CSPs, Amdocs CPQ Pro advanced capabilities include a telco-native generative AI co-pilot that delivers a streamlined enterprise sales experience, including the ability to easily create proposals with innovative solutions, optimized pricing, and summarized agreements with terms and conditions, reducing the overall sales process duration. Improved service delivery time and accuracy which may drive cost reduction, potentially resulting in enhanced profitability, bringing new, monetizable opportunities to life. CPQ Pro also offers partner ecosystem monetization, enabling CSPs to build compelling, partner-enriched B2B solutions, empowering sales teams to create unique offerings for customers; as well as certified pre-integration with sales, ordering, fulfilment and billing systems to deliver a seamless end-to-end experience.

Nebula246 radio now supports 2G devices

Baicells Technologies' Nebula246, a high-power outdoor radio, now offers cellular connectivity for supporting 2G user devices. The low-cost, compact Nebula246 radio offers an attractive platform for mobile operators to continue supporting their legacy 2G customer base while offering them an attractive software upgrade path to 4G/LTE.

Many regional markets still rely heavily on 2G wireless services as their critical lifeline. These legacy connectivity services are used by large numbers of wireless subscribers and will need to be maintained until an eventual upgrade to next generation services is made.

Globally, 2G devices remain popular and in widespread use due to their broad availability and low-cost. As a result, service providers continue to balance the need for network upgrades to the next 'G' against the need to continue offering a 2G wireless service that many of their wireless subscribers still expect. The Nebula246 offers a network solution with an attractive ROI by enabling operators to bridge the support of legacy 2G subscribers today while providing an attractive upgrade path when customers are ready tomorrow.

The Nebula is an all-in-one, easy to deploy platform that supports 40W total power for extended coverage range. The functionality is based on the 3GPP R12 standards supporting GSM bands 3 (1800MHz) and 8 (900MHz) to user devices. It can also be used as a cost-effective platform for offering IoT connectivity.

The radio offers a TR-69 interface for integrating into existing management platforms allowing for a smooth introduction into an existing operating environment. Redundant BSC (Base Station Controller) configurations are supported to maintain a high service availability. Longer term, the platform's 2G subscriber capacity will continue to increase and with just a software upgrade, the ability to support 4G/LTE connectivity. The Nebula246 is an economic friendly 2G onramp to 4G services and beyond.
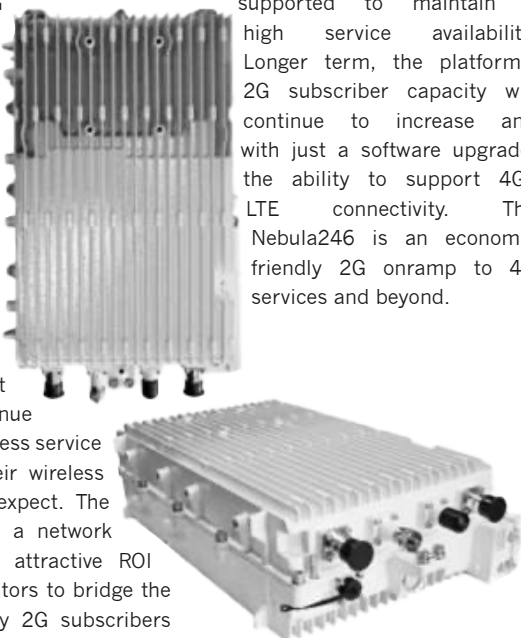
IoT multiband combination antennas for 4G/5G/WiFi/GPS

Fairview Microwave has launched an innovative series of IoT multiband combination antennas, setting a new industry standard for vehicle, fleet, and base station connectivity.

Designed to serve the crux of reliable mobile networks, these antennas come equipped with elements that cover 4G, 5G, WiFi and GPS bands, all unified under a single radome. This advancement is particularly crucial for critical service providers such as emergency teams, first responders and fleet management. By facilitating a steadfast link between moving vehicles and dispatch centres, Fairview Microwave ensures seamless communication even in the most challenging scenarios.

"Our aim has always been to ensure unhindered communication, especially for those on whom countless lives depend, such as first responders and emergency service providers," said Fairview Microwave product line manager Kevin Hietpas.

The antennas come with FAKRA and SMA connectors with 17ft cable leads, making installations and connectivity more efficient. An IP69K rating validates its indoor/outdoor compatibility, ensuring durability and resilience against challenging environmental conditions. Additionally, its MIMO capabilities signify a superior data transmission rate, and the UV stabilized ABS construction ensures longevity, available in both black and white to cater to diverse aesthetic preferences.

With dedicated ports for 4G/5G, WiFi and GPS (supporting up to 10 leads), network configurations become both versatile and robust. The inclusion of GPS/GNSS with an LNA, amplified by a 26dB gain, ensures optimal location tracking and precise navigational support. Moreover, the indoor/outdoor IP69K rating is a testimony to its durability and adaptability.

"These IoT combination antennas fortify our commitment to powering the next generation of mobile network solutions," said product line manager Kevin Hietpas. "Our aim has always been to ensure unhindered communication, especially for those on whom countless lives depend, such as first responders and emergency service providers. This product echoes that sentiment."

VSG supports HF wireless communications

Keysight Technologies has launched a new compact, four-channel vector signal generator (VSG) capable of signal generation up to 8.5GHz with 960MHz of modulation bandwidth per channel.

The N5186A MXG is the next-generation high-performance VSG in Keysight's X-Series signal generator portfolio, offering the multiple, individually complex signals needed for dense wideband multichannel applications.

Evolving technologies in wireless communications and radar applications demand higher frequency coverage using complex modulation schemes like MIMO, beamforming, and multiplexing to maximise data throughput. Testing these applications requires signal generation instruments that maintain excellent modulation quality when working with greater bandwidths. To achieve higher frequencies, greater bandwidths, and more complex modulation schemes, network and design engineers typically need more bench space for additional test equipment and fixtures.

The Keysight N5186A MXG addresses this challenge by simplifying complex setups with reduced external connections and up to four channels in a compact 2U form factor. As the world's first signal generator to feature an embedded reflectometer, the N5186A MXG delivers extremely accurate signals to the device under test (DUT).

By providing consistent and repeatable results, the N5186A MXG vector signal generator is an ideal solution for a broad range of applications. The MXG's custom DAC application-specific integrated circuits (ASICs) use DDS to deliver precise signals to minimise distortion and meet the evolving standards for component and module design. In addition, the embedded reflectometer expedites the setup process to correct for the match of the DUT, enabling a faster time-to-test.

World-first commercial release 17 5G RedCap modem-RF system

Qualcomm has launched the world's first commercial release 17 5G RedCap modem-RF system. The Snapdragon X35 5G Modem-RF System will enable the expansion of the 5G ecosystem by enabling global mobile network operators and OEMs

to enable new devices, form factors, and experiences.

The Snapdragon X35 brings a new class of 5G that bridges the complexity gap between high-speed mobile broadband devices and extremely low-bandwidth internet of things (IoT) devices. RedCap will enable smaller and more cost-efficient 5G devices and provide longer battery life, thanks to their reduced complexity.

"5G RedCap is one of the primary pillars of 5G Advanced and is key to the evolution of 5G. It bridges the capability and complexity gap between the extremes in 5G

today, and can enable a broader set of devices and services as well as enhance system performance and efficiency," said Gautam Sheoran, vice president and general manager, wireless and broadband communications, Qualcomm Technologies, Inc. "We're pleased to deepen our collaboration with global mobile operators and OEMs to advance the 5G ecosystem, enabling a new and wide range of premium- and entry-level use cases."

Commercial mobile devices powered by Snapdragon X35 are expected to launch by the first half of 2024.

Septentrio's smart antennas enable machine automation for heavy industry

Septentrio has launched new smart antenna for machine automation and control in construction, precision agriculture and logistics.

The AntaRx smart antenna is enclosed in a ruggedized housing, can handle high levels of shocks and vibrations and is ready for operation in harsh industrial environments. This multi-frequency receiver delivers high-accuracy RTK positioning down to the centimetre level. Equipment manufacturers and system integrators can benefit from the versatile offering including INS (Inertial Navigation

System) integration, dual antenna mode, and 4G cellular communication.

"AntaRx combines the renowned positioning quality of Septentrio with a high-quality antenna, in a rugged and compact housing for simplified installation. The product targets industrial applications such as construction and mining, offering a high degree of robustness validated through extensive testing against industry standards," said Silviu Taujan, product manager at Septentrio. "AntaRx is available in several configurations, either

as a GNSS smart antenna or as a GNSS/INS smart antenna system, integrating an industry leading IMU (Inertial Measurement Unit)."

Septentrio's full machine control GNSS receiver portfolio integrates Septentrio's GNSS+ algorithms, including advanced multipath mitigation, which allows uninterrupted operation in challenging conditions such as near high structures or machinery.

High update rate and low latency ensure accurate plan execution during fast movement or rotation.

Look out for...

5G drones - the future of critical communications

In the wake of a disaster – be it natural or manmade – restoring communications is critical to relief and recovery efforts. While terrestrial technologies are often damaged or overloaded during such times, satellite has long proven a reliable (if pricey) alternative.

Today, a new option is on the horizon. High speed communications delivered by unmanned aerial vehicles (UAVs) or drones are under development across the world for application in disaster recovery, defence, government & military, utilities, agriculture, etc. The 'drone in a box' architecture features self-deploying drones that can be operated remotely, fulfilling their mission, before returning to the box to recharge.

One such company making great strides in this area is Nokia Drone Networks, which at the end of 2023, achieved the first FCC-certified 5G-connected drone-in-a-box solution with Rohde & Schwarz in North America. This represents a significant step in providing a proven, industrial-grade 4G/5G drone solution built for reliable Beyond Visual Line of Sight (BVLOS) operations.

Highly resilient connectivity is critical to remote drone operation, real-time streaming of data collected during a drone mission, and BVLOS operation using a large set of 3GPP spectrum bands. Research and development efforts have pushed the boundaries in terms of RF design and connectivity performance. Innovative features such as full network connection redundancy, multi-operator support and hot failover also feature.

Nokia and Rohde & Schwarz originally joined forces in 2022 with an MoU to embed Rohde & Schwarz QualiPoc 4.9G/LTE and 5G network measurement capabilities into the Nokia Drone Networks platform. Extending the cooperation to device testing and certification, Nokia collaborated with Rohde & Schwarz to complete the FCC's rigorous requirements for R&D component testing. The R&S CMX500 radio communication tester from Rohde & Schwarz was utilised in the Nokia Bell Labs Global Product and Compliance Laboratory for extensive radiated and conducted emissions testing.

Entel brings 5G to the South Pole

Entel has activated the first 5G connection in Antarctica, benefiting 191 residents of Villa Las Estrellas, as well as visitors who travel to the settlement.

In addition to military and research personnel, the settlement, situated approximately 1,500km from Punta Arenas in Antarctica on the mainland, includes a bank, a post office, a library, a church, and a hospital.

"Bringing 5G to Antarctica was a huge challenge, especially in technical terms, and we are very proud to be able to affirm that we were pioneers in the world in delivering a public 5G network for our customers, especially in these times where connectivity and communication contribute tremendously to the quality of life of people, mainly in places so geographically isolated," said Entel in a statement. "We hope that this great milestone will allow significant improvements in the connectivity of the white continent and provide important support for the community that works in this area and for the scientific activity that has a great presence in Antarctica."

This milestone is part of its commitment to deliver the best technology available in the territory, where 315 communes from Putre to Antarctica, including Rapa Nui, already have 5G connectivity. The coverage also included modernisation with 3G and 4G technology, allowing a better experience and capacity in the base with an investment of around US$345,000.

Algeria to benefit from satellite services

Algérie Télécom signed a partnership agreement with Algérie Télécom Satellite (ATS) to improve connectivity services for citizens and businesses.

The partnership is part of Algérie Telecom's global strategy focused on technological innovation and continuous improvement of service quality. The company has already signed agreements with Djezzy and Ooredoo and is now turning to satellites, which offers a greater range, allowing it to reach even populations living in rural, remote areas and difficult to access for its terrestrial networks.

This initiative is expected to help improve the adoption of connectivity services in the country. This should also help accelerate the Algerian government's ambition to develop its information society through infrastructure, telecommunications means and the use of ICT.

Nokia and Siemens to enable Sydney's driverless metro network

Nokia is working with Siemens Mobility to deliver an IP/MPLS backbone communications network and cybersecurity solution for the new metro railway network in Sydney, Australia.

The Nokia mission-critical communication network, which includes an IP/MPLS backbone network and data centre fabric in conjunction with Nokia NetGuard Cybersecurity solution, will support robust secure applications such as CCTV for passenger safety, train-to-ground communications backhaul for in-station, on-board and trackside applications, along with the associated data centre and cloud networking.

"We are pleased to work again with Nokia as we deliver a safe, sustainable transport solution for residents and visitors to Sydney. The new data communications and cybersecurity solution will be vital to support both legacy and new digital passenger and rail communications services," said Vijay Singh, project director at Siemens.

"This exciting project further strengthens a longstanding partnership with Siemens in Australia and around the world. As the threat of cyberattacks on critical infrastructure continues to grow around the globe it is vital that communications networks benefit from the highest level of data security," said Stuart Hendry, head of enterprise and partner sales for Asia Pacific, network infrastructure at Nokia. "As such we are pleased to be able to apply both our local knowledge as well as our expertise in delivering secure mission-critical IP/MPLS and data centre fabric solutions to provide leading-edge mission-critical network for rail and NetGuard Cybersecurity package that will support reliable operations and the safety of passengers. Working with Siemens Mobility, we can replicate this for other metro rail programs."

Burkina Faso calls for fourth MNO

The Consumers' League of Burkina Faso (LCB) is campaigning for the entry of a fourth mobile telephone operator into the market to strengthen competition and guarantee quality services to end users.

During the discussions, the LCB asked the Head of State to "whistle the end of recess so that consumers stop being the object of abuses by mobile telephone operators."

The government launched an international call for tenders for this purpose in 2013, with Viettel as the only candidate. The process was meant to be finalised in several months but has still not been completed.

Consumers are increasingly complaining about the quality and cost of services provided by operators active on the market. In mid-April 2023, users of Burkinabe mobile telephone services began a protest campaign against the high cost of mobile services called "Wind of Salvation."

Yahsat signs up etisalat by e& as first D2D strategy telco

etisalat by e& has become the first telecom operator to partner with Yahsat for its Direct-to-Device (D2D) strategy to enable satellite connections for standard smartphones.

Under a Memorandum of Understanding (MoU), Yahsat and e& UAE will collaborate to explore various initiatives and projects for Yahsat's planned D2D ecosystem, 'Project Sky.'

"We are discussing a whole host of areas where we aim to collaborate, which includes developing the ecosystem," said Yahsat group CEO Ali Al Hashemi in a joint statement, adding that the deal with e& UAE was "the first of many agreements we hope to reach with key industry players as part of our D2D strategy."

Yahsat revealed its two-phase plan for Project Sky – which is designed to provide seamless connectivity (including voice, texting, and data) for smartphones, as well as IoT devices – last month.

In phase one, Yahsat will offer voice and messaging capabilities this year before releasing texting and IoT capabilities for smartphones in 2025. That phase will use Yahsat's Thuraya geostationary satellites including Thuraya-2, Thuraya-3 and Thuraya-4, the latter of which is expected to be launched later this year and enter service in 2025. In Phase Two, called 'Project BlueStar,' the company aims to enable full direct-to-device connectivity through a scalable and sustainable satellite network.

Hughes' JUPITER 3 brings 100Mbps of new satellite capacity to the Americas

Hughes Network Systems, LLC's JUPITER 3 satellite is providing services to subscribers in the United States, Canada, Mexico, Brazil, Peru, Ecuador, Argentina, and Colombia.

JUPITER 3 entered commercial service on 19 December 2023 and in the 90 days since, Hughes has launched new Hughesnet services across the Americas for both consumer and business users.

"The feedback from users and dealers has been overwhelmingly positive," said Peter Gulla, senior vice president, Hughes. "The demand for connectivity is tremendous, including in rural areas that are unserved or underserved by other services. Our new Hughesnet plans are meeting the market expectations for speed and price. Our Fusion plans for home and business are giving users a low-latency service that has been unavailable to rural locations previously."

JUPITER 3 provides speeds up to 100Mbps. With more than 300 spot beams, the geostationary satellite uses the Ka-band spectrum plus Q-band and V-band for gateways. JUPITER 3 is supported by a state-of-the-art cloud-based ground system featuring a diverse private fibre backbone and network and traffic management utilizing artificial intelligence (AI) that monitors traffic and makes real-time changes to reduce latency and maximize throughput.

"Internet connection is vital today, and we forget that there are places where that connection is unavailable or unreliable. When we set up a new subscriber with the Hughesnet service, it is a game changer for them," said Tim Robinson, owner, 21st Century Communications. "After completing a recent installation, one of our technicians relayed how the homeowner cried tears of joy over the excitement of the new connection. This is why we do what we do, we are making a real difference in the lives of our customers, and the new JUPITER 3 powered Hughesnet is awesome."
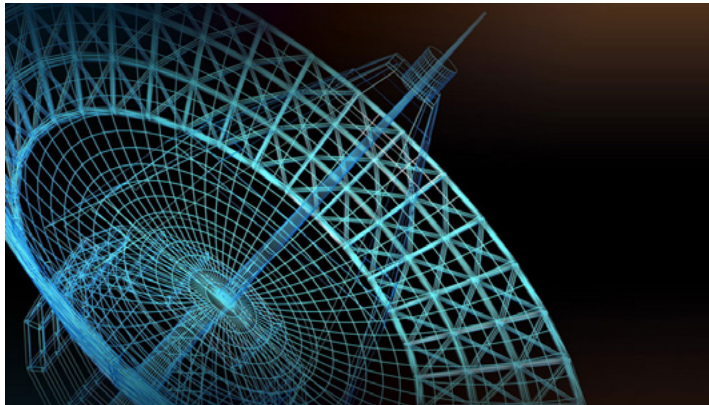
Motorola to provide P25 radios for Victoria's CFA

Motorola Solutions has announced that it will provide Victoria's Country Fire Authority (CFA) with 16,000 new APX series P25 radios in a significant upgrade to firefighting communications technology, marking a new era in critical comms.

Included within the package will be approximately 9,000 of Motorola Solutions' APX NEXT all-band smart radios, which provide mission-critical voice communications and productivity-enhancing data applications to enhance safety and incident awareness for firefighters.

"APX radios enable the reliable communication that's critical for fire and emergency agencies to collaborate, particularly in the face of more frequent and severe natural disasters and other complex events," said Con Balaskas, managing director for Australia and New Zealand, Motorola Solutions. "And our APX NEXT radios bring additional capabilities that maximise the use of data in the field, delivering rich insights to further strengthen workflow efficiency and safety."

APX NEXT data applications include SmartConnect to automatically switch voice communications from land mobile radio (LMR) to broadband networks when users travel outside of radio coverage areas, SmartMapping to pinpoint the location of firefighters and vehicles in the field, and ViQi voice control to enable first responders to quickly manage radio controls through simple and intuitive voice commands.

In line with the new deal, Motorola Solutions will upgrade and support CFA's radio equipment relied upon for frontline firefighting communication, strengthening emergency response from brigades as part of a 10-year services contract. The modernisation program will replace CFA's radios used in the field, on fire trucks, in command vehicles and within fire stations.

The new devices will be used on the Victorian Government's Regional Mobile Radio (RMR) and Metropolitan Mobile Radio (MMR) networks, which provide secure radio communications across regional, rural, and metropolitan Victoria.

stc Bahrain launches AI-powered facial recognition eSIM activation service

stc Bahrain has launched 'the first instant mobile eSIM activation service that uses AI-powered facial recognition to authorise users,' one month after Bahrain's telecoms regulator issued guidelines for facial recognition usage in telecoms services.

Subscribers can use the My stc BH app to buy a new eSIM and download it instantly. The app enables users to choose their favourite number and preferred mobile plan.

After that, stc subscribers can activate the eSIM instantly by capturing a live photo using their smartphone's camera for identity verification. Once facial recognition software on the backend verifies the customer's ID, the eSIM is activated and ready to use.

This makes the remote activation process easier and more secure, and eliminates the need for users to present or upload documents, visit a physical branch or wait for a delivery agent to come and authenticate and/or register their fingerprint.

"By leveraging AI face recognition technology and eSIM capabilities, our existing and new subscribers can get an eSIM number online and activate it without visiting any stc outlet," said stc Bahrain CEO Eng. Nezar Banabeela. "Our aim is to empower customers by offering a seamless digital experience that enhances convenience and efficiency."

Movistar Chile surpasses 1.5 million 5G users, 5G SA trials ongoing

Movistar Chile (Telefonica) has crossed the milestone of 1.5 million 5G customers.

The company's 5G Standalone (SA) Technology pilots are ongoing, as is a renewal plan for migrating all home broadband customers to fibre optics by the end of 2024. As part of its Technological Renewal Plan, the company also plans to end public telephone booths.

Movistar Chile reported that 70% of mobile customers are on free 5G plans at no additional cost and users are consuming 40% more Gigabytes than 4G users.

The company has also announced the inauguration of two new 5G Movistar Experience Laboratories - a project by Movistar Empresas - at the Catholic University of the Santisima Concepcion and at the University of La Serena, both featuring the new Standalone technology.

In 2024, Movistar Chile will execute more than 800 4G and 5G modernization projects and over 260 5G coverage expansions throughout Chile. This will allow coverage expansion to new areas such as Easter Island, Cape Horn,

Primavera, and Timaukel, bringing high-speed connectivity to rural areas in the country.

Digicel Samoa gains 5G launch approval

Digicel Samoa has been granted conditional approval from the Government of Samoa to launch 5G technology and is now working with Nokia to upgrade its towers.

The upgrades will start with cell tower sites in Apia's CBD. The telco will be deploying Nokia's AirScale non-standalone (NSA) 5G to overlay the technology on its existing 4G network.

"Nokia's state-of-the-art equipment will enable us to not only sustain but also improve coverage across the country, boosting mobile internet speeds and embracing transformative technologies like 5G," said Digicel Samoa CEO Anthony Seuseu.

The upgraded tower sites in Apia and across the island will be consistent with cybersecurity standards defined for 5G to ensure the security and resilience of critical national infrastructure.

"This collaboration underscores our commitment to maintaining the integrity of telecommunications infrastructure while advancing 5G technology," said Seuseu.

Marlink completes hybrid network install for Exploris One vessel

Marlink has installed a complete hybrid network solution for French expedition cruise company, Exploris, onboard Exploris One during the vessel's refit in Valparaiso, Chile.

The solution is designed to deliver complete coverage and connectivity to the expedition cruise ship, including LEO from Eutelsat OneWeb, Starlink and Iridium, Marlink GEO VSAT, TV-RO and 5G GSM services. The network solution powers the onboard ethernet/WiFi network and a customer portal. Whether guests are exploring remote islands or venturing into uncharted territories, they can now enjoy seamless, secure connectivity and unparalleled digital experiences onboard.

The remote and sometimes harsh locations that the ship will be travelling to require a hybrid network able to keep the vessel and

its guests connected regardless of conditions. Marlink's technical team organised the installation of the antennas, below decks equipment and integration to the ship's network during an extensive refit which saw the ice-capable vessel prepared for sailing to remote and polar regions.

"Exploris has a mission dedicated to bringing new and exciting locations to life for our guests and enabling them to share their experiences with friends and family in real time," said Philippe Videau, president, Exploris. "Marlink shares our vision of providing excellence to our guests and keeping the vessel safe and connected wherever it is sailing."

Odido opts for Netcracker for digital transformation

Odido (formerly T-Mobile Netherlands) will consolidate several critical processes across various brands and legacy environments onto Netcracker Digital BSS, including professional and support and maintenance services, as part of a large-scale digital transformation project.

Odido, which recently underwent a major rebranding that brought together multiple brands (Ben, Simpel and Tele2) and introduced its new name, aims to streamline its operational workflows. The operator

is already using Netcracker Digital BSS for Configure, Price, Quote (CPQ) and Order Management. In the transformation project, this will be expanded to Product Management (Product Catalogue and Product Lifecycle Management), which will result in several business benefits, including faster time to market for new services; a more robust, scalable and unified platform; and an overall reduction in operational expenses due to the consolidation.

Netcracker will lead the BSS platform consolidation project, which will positively impact Odido's

B2C customers through a reduction of complexity and legacy systems, modernization of the entire technology stack, cloudification of its BSS platform and enhancement of the end user experience.

"As an established customer of Netcracker's that has experienced a lot of success through our multi-year partnership, we are thrilled to continue our engagement as we launch a new brand and create the best experience for our customers," said Lotta Gunnarsson, CIO at Odido. "While we make the journey towards becoming a techco, having

a trusted partner at our side will make all the difference to our future success."

"We are extremely proud to continue our long-standing relationship with Odido during such a pivotal time that includes rebranding, BSS consolidation and digital transformation," said Benedetto Spaziani, GM, Netcracker. "Our accomplishments in the past will lead to more achievements going forward as Odido reinvents itself as a techco and enjoys the results of this hard work."

Q&A

Manu Krishna, CEO, Tarantula

Who was your hero when you were growing up?

Growing up, my hero was undoubtedly my father. During my school years, he toiled away in the Middle East, miles apart from us. Reflecting on those days now, I'm in awe of how he effortlessly balanced his demanding job with his duties at home, never once letting us feel neglected. As a father myself, I now understand and deeply appreciate all the sacrifices he made for our family.

What was your big career break?

Without a doubt - Tarantula. Coming from a quality engineer background with experience of more than a decade, today I am proud to be leading a company providing tower management software to towercos. This shift represented a significant leap, demanding adaptability and strategic thinking. Through dedication and seizing opportunities, I've made meaningful contributions

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to Tarantula's mission. Today, I'm grateful for the platform Tarantula has provided, empowering me to lead and inspire others in the dynamic realm of tower infrastructure.

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

I always wanted to be a drummer. Whenever and wherever I could, I'd transform any surface into a makeshift drum set, my hands eagerly tapping out beats.

For me, drums aren't just an instrument but a gateway to expressing my emotions.

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

If I had the opportunity to share a meal with any notable figure, past or present, my top choice would undoubtedly be the renowned chef - Suresh Pillai. Celebrated for bringing the rich and flavourful cuisine of Kerala to the world stage, dining with him would be an extraordinary culinary experience filled with vibrant flavours and fascinating insights into the art of cooking.

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

I visited Vivekananda Memorial at Kanyakumari, India almost a decade and half ago. I was inspired by the quote of Swami Vivekananda - Take up one idea. Make that one idea your life – think of it, dream of it, live on that idea. Let the brain, muscles, nerves, every part of your body, be full of that idea, and just leave every other idea alone. This is the way to success.

These words struck a chord deep within me, resonating with the essence of focused dedication and unwavering determination.

They reminded me of the power of singular purpose, urging me to channel my energy and passion into a singular pursuit. I single-mindedly used this philosophy to win over my lady love who is my wife now.

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

If I had to move out of the IT world, I would love to move into a world of aromas and be a chef. I would also love to be a drummer as I am very passionate about music.

What's captivating to me is Chef Suresh Pillai's kitchen, where drums blend with cooking. I envision my kitchen similarly—pots and pans alongside percussion instruments. Just as Chef Pillai crafts culinary masterpieces, I imagine orchestrating a symphony of flavours.

The Rolling Stones or the Beatles?

Rolling Stones because I love the infectious rhythm of the band! I think their music is timeless and cuts across generations.

What would you do with £1 million?

I am a very practical guy. I would invest it wisely, aiming to multiply my wealth and secure a financially sound future.

But on second thoughts, real estate costs have gone up astronomically in the place where I currently live. This £1 million would just vanish if I purchased a property and I would need more to get the interiors done up.

Where would you live if money was no object?

Without a doubt, my heart would lead me straight back to my hometown in Kerala. I love the lush greenery there and serene temples all around. Kerala is nicknamed as God's own country and once you live there, you will know why.

I think everyone must visit Kerala at least once in their lifetime to experience the beauty of God's own country.

What's the greatest technological advancement in your lifetime?

The mobile phone is undoubtedly the biggest technological advancement I can say.
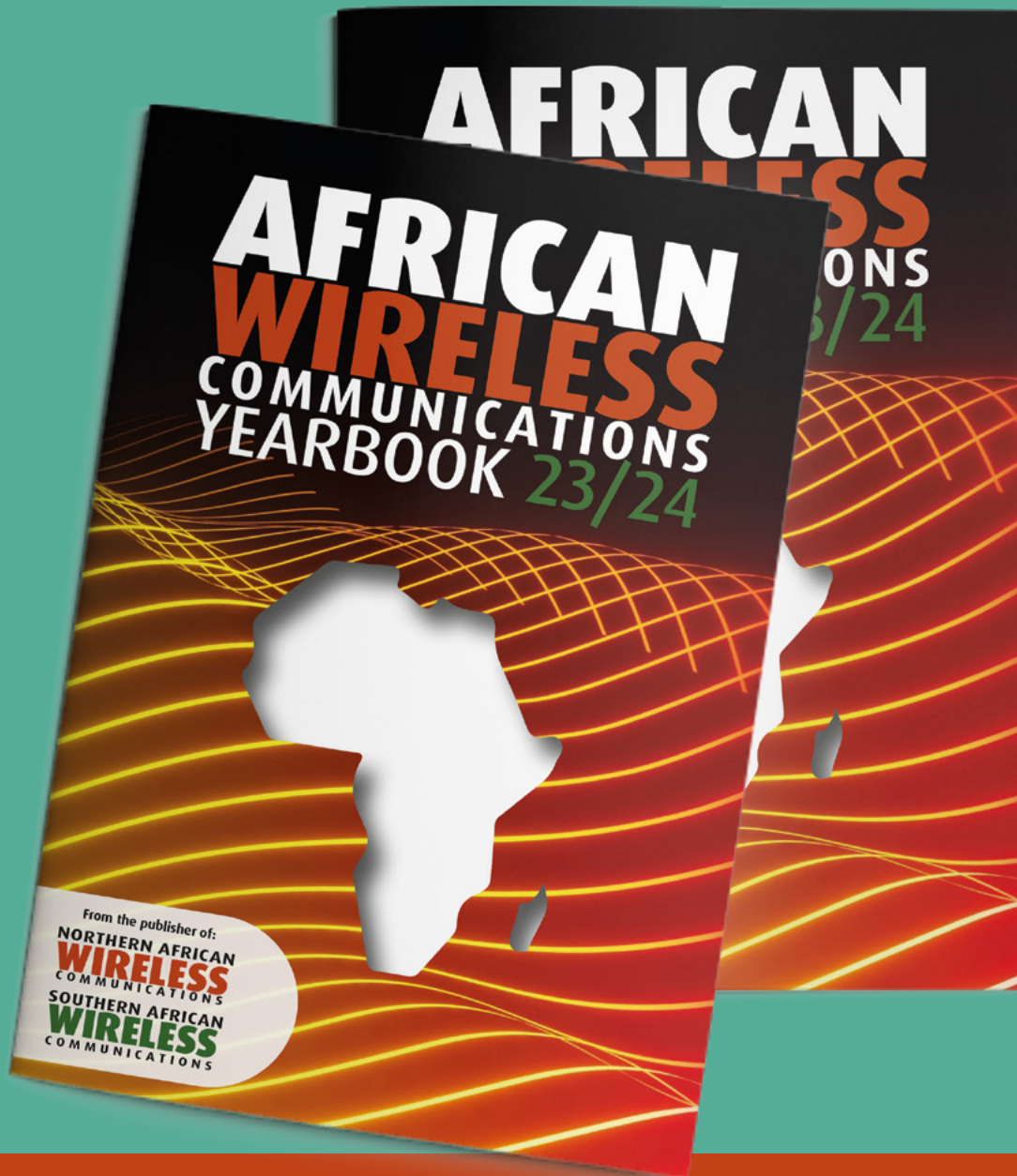
Back when I was a kid, the landline was the lifeline. The excitement of hearing the ringtone used to echo throughout the house and sometimes a minor argument used to start to sprint and pick the receiver to answer the call. While mobile phones offer convenience and connectivity beyond our wildest childhood dreams, there's a charm to the simplicity and experience of the humble landline that's worth remembering.

I think today's kids have no clue about the excitement of picking a landline as they are born in the mobile era. While I love the mobile, I would never trade it for the nostalgic experience of the landline. ■