

For communications professionals in southern Africa

SOUTHERN AFRICAN WIRELESS COMMUNICATIONS

SEPTEMBER/OCTOBER 2025

Volume 29 Number 6

- G20: Keeping Africa's digital future open
- Security policy management for telcos
- Lasers and latency shape the future

**"In the digital age,
resilience isn't about
bouncing back—it's
about staying one
step ahead."**

A portrait of a middle-aged man with dark hair, wearing blue-rimmed glasses, a light blue button-down shirt, and a dark blue blazer. He is looking slightly off-camera with a thoughtful expression. The background is a blurred green, suggesting an outdoor setting with foliage.

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4 NEWS

- Angola establishes National Space Agency
- Yas Tanzania launches smartphone finance
- ICASA proposes free Wi-Fi at service centres
- Malawi launches mobile tower project



11 WIRELESS BUSINESS

- Senegal nears mobile subscriber verification end
- OPPO mobile factory opens in Egypt
- IHS Towers completes Rwanda tower sale
- Seacom and Sentech boost SME growth



16 FEATURE

G20: Keeping Africa's digital future open

18 ON THE NETWORK

Rethinking remote tower management



19 FEATURE

Navigating policy, regulation and risk in Africa's telecom sector



22 INDUSTRY VIEW

Shaping Africa's satellite-based digital future

26 WIRELESS USERS

- Transforming wildlife connectivity in South Africa
- Harnessing LoRaWAN for conservation

30 WIRELESS SOLUTIONS

- DIN-Rail Edge computer lineup
- Radio planning and optimisation
- Rugged modular BoxPC

32 WORLD NEWS

- Dialog Axiata expands 5G trial network
- Avante powers MVNO transformation
- Salam Telecom completes 5G mmWave trial
- Turkey's 5G spectrum auction exceeds expectations

SUBSCRIPTIONS:

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Angola establishes National Space Agency

Angolan President João Lourenço announced the formation of the Angolan Space Agency during his State of the Nation address. The new agency will oversee all space-related activities in the country, marking a significant step toward developing Angola's space capabilities.

This move is part of the broader National Space Programme, which aims to shift Angola from merely utilising space services and technologies to becoming an active operator and producer in the sector. The goal is to achieve technological independence in space.

President Lourenço highlighted

that Angola already has its telecommunications satellite, Angosat-2, which is scheduled to be operational in January 2023. This satellite will facilitate the 'Conecta Angola' project, designed to extend communication services to the country's most remote regions, with coverage already established in various localities across 13 provinces.

In an April 2025 interview, ICT Minister Mário Oliveira revealed plans for an Earth observation program to support environmental monitoring, precision agriculture, natural resource management, and

disaster prevention. Airbus has been contracted to build Angola's first Earth observation satellite, Angeo-1, with an estimated cost of €225 million.

The government is also working on establishing a space studies centre, developing a legal framework for the new agency, training local experts, and expanding communication, navigation, and meteorological infrastructure — all part of the 'ICT White Paper 2023–2027.'

Angola's efforts align with a continent-wide trend, as the African space sector received approximately \$465 million in investments in

2024. The continent's space market was valued at \$22.6 billion that year and is expected to grow significantly by 2026, driven by satellite manufacturing, infrastructure projects, and the rise of NewSpace companies.

While the exact timeline for the Angolan Space Agency's operational launch remains unspecified, the National Space Program Management Office (GGPEN) stated it is currently collaborating with major space agencies to define the legal and operational strategies necessary for the agency's establishment.

Yas Tanzania launches smartphone financing

Yas Tanzania is rolling out a new smartphone financing program in partnership with ZTE, according to local reports.

The initiative aims to enable customers to purchase smartphones through instalment payments, a move designed to strengthen Yas's position in the Tanzanian mobile market, particularly in expanding mobile internet access.

Chief Commercial Officer Jorge Soto stated at the launch of ZTE's latest phone models that Yas's mission extends beyond simply providing connectivity. The company seeks to empower Tanzanians with affordable smartphones and reliable internet, opening doors to education, business opportunities, and everyday life improvements. This approach aligns with efforts to address one of the main barriers to mobile internet adoption identified by the Global Mobile Phone Association (GSMA): the high cost of compatible devices.

The introduction of affordable smartphones could therefore allow Yas to attract new internet subscribers, previously held back by the high price of the devices. At the end of June 2025, the operator held a 28.8% market share in mobile internet, or 15.5 million subscribers.

Nokia and Fibertime to deliver fibre to 400,000 underserved homes in SA

Nokia has announced a strategic partnership with fibertime to extend fibre broadband connectivity to an additional 400,000 homes across underserved communities in South Africa.

This expansion is part of fibertime's broader vision to connect two million homes by 2028, aiming to bridge the digital divide in areas that traditionally lack reliable high-speed internet access. The rollout will leverage Nokia's advanced IP and fibre access technologies to establish semi-mobile networks in these communities, offering residents unlimited high-speed internet from anywhere within their homes, businesses, or community spaces.

Under this collaboration, fibertime will deploy Nokia's Lightspan access nodes and Wi-Fi 6 enabled fibre access points. The deployment will utilise Nokia's ONT Easy Start platform to automate and simplify fibre modem activations, making the installation process faster and more efficient. Additionally, Nokia's 7750 Wireless Access Gateway will enable the creation of a single SSID, allowing users to move freely within townships while maintaining a seamless connection.

fibertime's CEO, Danvig De Bruyn, highlighted that with Nokia's support, the company can accelerate its deployment of affordable, high-speed fibre internet services in South Africa's underserved township

areas. He shared that the company is currently connecting approximately 1,200 households daily, offering speeds of up to 950Mbps without requiring contracts or debit orders. Customers simply purchase vouchers at local retail outlets or via banking apps, enter the voucher number into the fibertime app, and instantly gain access to unlimited, unthrottled fibre internet at a cost of just R5 per day.

To further enhance network automation and scalability, fibertime will also implement Nokia's Altiplano and Network Services Platform solutions, along with its Altiplano Fiber Health Analyzer. These tools enable early detection of network anomalies and potential issues, allowing for proactive maintenance and improved reliability.

CEO Danvig De Bruyn emphasised that Nokia's automation and AI-

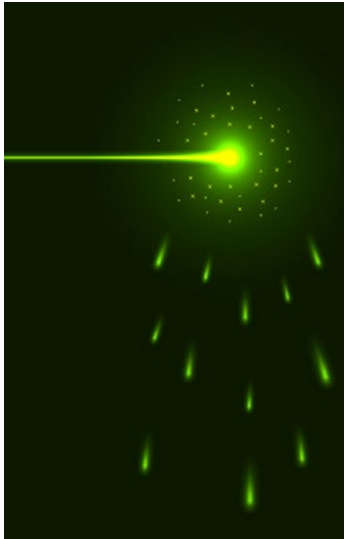
powered tools not only improve operational efficiency but also ensure a more reliable subscriber experience by detecting disruptions early and resolving incidents swiftly. Sandy Motley, President of Fixed Networks at Nokia, underscored the importance of reliable broadband for community development, stating that Nokia's fibre and IP solutions are transforming regions once considered too challenging to serve, powering education, healthcare, and local economies.

This new agreement builds on an existing partnership between Nokia and fibertime, which previously focused on deploying fibre-to-the-home (FTTH) networks in Cape Town, Johannesburg, Gqeberha, Mangaung, and Stellenbosch, further reinforcing Nokia's commitment to expanding broadband access across South Africa.



Raxio Group and Laser Light Africa to boost internet connectivity across sub-Saharan Africa

Raxio Group has announced a strategic partnership with digital network provider Laser Light Africa to enhance internet services across seven sub-Saharan markets, beginning with Angola.



The collaboration aims to localise data hosting and routing by integrating Raxio's Tier III carrier-neutral data centres with Laser Light's advanced digital network infrastructure.

Under this agreement, Laser Light will deploy its multi-domain optical mesh network — comprising terrestrial fibre, subsea cables, modular data systems, and medium-earth-orbit (MEO) satellite connectivity — across Raxio's facilities. This will enable data to be hosted and routed closer to end-users in Angola, the Democratic Republic of Congo (DRC), Ethiopia, Côte d'Ivoire, Mozambique, Tanzania, and Uganda. The partnership also involves establishing points of presence (PoPs) and interconnection hubs within Raxio's data centres to improve regional and international traffic flows.

Both companies plan to co-

develop edge data centre strategies to bring cloud, Internet of Things (IoT), artificial intelligence (AI), and enterprise services nearer to users. This initiative aims to address data sovereignty, energy efficiency, and ICT compliance requirements unique to each country. Raxio highlighted that this localised approach will significantly reduce the cost of internet connectivity by lowering international wholesale bandwidth expenses by up to 90%, while also decreasing latency from hundreds of milliseconds to just a few milliseconds. Such improvements will support real-time applications like cloud computing, gaming, fintech, telemedicine, and AI-driven services.

Raxio's Tier III facilities, which offer 99.982% availability, are designed to ensure high reliability for these emerging digital services. The initial phase of infrastructure

deployment will start in Angola next year, centred around Raxio's newest Luanda data centre, which will be integrated with the country's existing subsea cable landings and Angonix Internet Exchange Point. Future phases will expand this connectivity across all Raxio facilities across multiple markets.

CEO Robert Skjodt emphasised that the partnership will also generate employment opportunities in construction, operations, and advanced network management, alongside training programs to develop local expertise in Tier III data centre management, peering, and optical networking technologies.

"By combining Raxio's state-of-the-art facilities with Laser Light's global optical network, we are delivering a platform that will power innovation, investment, and job creation for decades to come," said Skjodt.

ICASA proposes free Wi-Fi at Thusong service centres

The Independent Communications Authority of South Africa (ICASA) has outlined plans to commission the semi-public operator Telkom to deliver free Wi-Fi internet connectivity at 171 Thusong service centres, which serve as integrated public access points providing citizens with essential government information and services.

The proposal specifies that these connections must meet certain standards, including a minimum speed of 30 Mbps. The initiative aims to offer unlimited internet access, with Telkom responsible for supplying and installing routers, firewalls, and cabling infrastructure. Users at each center will be limited to 300 MB of data per day, with a monthly cap of 2 GB per customer.

This move aligns with Telkom's obligations under the Public Switched Telecommunications Services Licence awarded in 1997, which included a range of Universal Service and Access Obligations (USAOs). These obligations traditionally mandated the provision of basic telecommunications services, deployment of public coin-

operated telephones, availability of emergency services, accessible facilities for users with special needs, and directory services. However, ICASA recognises that technological advancements, particularly the rise of mobile telephony, have rendered some of these historical obligations obsolete, prompting a review of these requirements.

Many Thusong service centres still lack reliable internet access, and the proposed Wi-Fi rollout is part of the government's broader efforts to expand connectivity as part of its digital transformation strategy. Recently, the government allocated 710 million rand to continue implementing SA Connect, the national broadband policy. The second phase of this initiative aims to ensure that 80% of government offices, communities, and households have access to broadband. The first phase, which served as a pilot, focused on delivering 10 Mbps internet connectivity to nearly 970 public institutions, setting the stage for broader expansion.

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Malawi launches mobile tower project

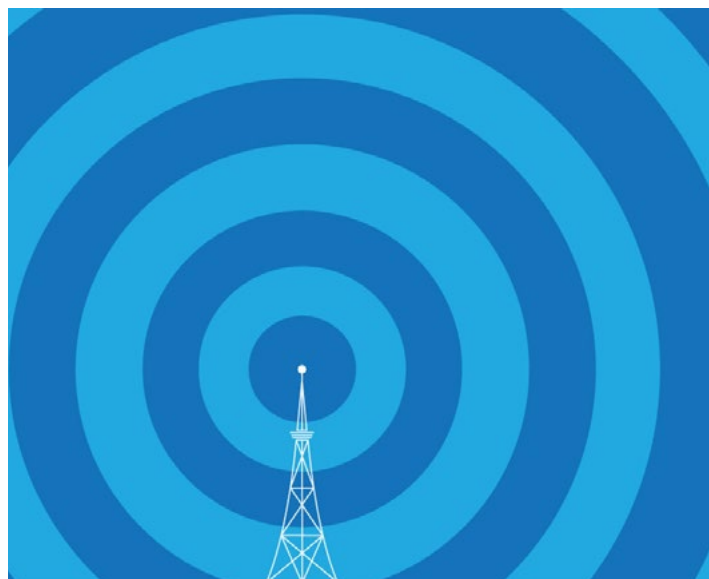
The Universal Service Fund (USF) has officially begun the Mobile Network Tower Development Project in Malawi, targeting areas in Mzimba, Nkhata Bay, and Mangochi.

This marks a significant move toward broadening mobile connectivity throughout the country. In the initial phase, assessment surveys are being conducted across 21 districts to identify the most strategic locations for new mobile towers, with the goal of improving signal coverage and network access in rural, unserved, and underserved regions.

The project is being carried out by the Malawi Communications Regulatory Authority (MACRA), in collaboration with the Ministry

of Information and Digitalisation (MoID) and the Public Private Partnership Commission (PPPC). It is a key component of the World Bank-funded Digital Malawi Acceleration Project (DMAP 2024–2030), which aims to foster digital inclusion and expand access to information and communication technology services across the nation.

Upon completion, the Mobile Network Tower Development Project is expected to significantly increase mobile coverage, help bridge the digital divide, and empower communities with greater access to the digital economy, ultimately promoting social and economic development throughout Malawi.



Zambia's rural communities welcome a new era with smart villages

Zambian rural communities are experiencing a transformative shift as the country's ambitious smart village initiative, launched through a partnership between Huawei Technologies and the Zambian government, begins to take shape.

Last year, officials signed an agreement to develop 100 smart villages across Zambia, starting with the unveiling of the country's first such community, Muchila in Namwala District, Southern Province. Recently, Collins Nzovu, a member of parliament, announced that Malende in central Zambia has also been upgraded to a smart village, marking a significant milestone for rural development.

Nzovu described the project as a "new dawn" for Malende, highlighting the collaborative efforts of the Ministry of Science and Technology and the Ministry of Education in bringing this vision to life. He emphasized that the initiative represents a monumental shift, moving away from years of neglect towards a future filled with opportunity; and stated that the project has already been completed, dispelling any doubts about its progress.

Central to Malende's transformation is a modern solar power plant featuring 96 solar

panels that generate 56 Kilowatts of electricity, providing a sustainable energy source to ensure vital community facilities have reliable power. Complementing this is the installation of a network tower, strategically erected to eliminate longstanding connectivity barriers that have hindered Malende since Zambia's independence. Nzovu noted that this tower heralds a new era of enhanced communication and internet access, positioning Malende at the forefront of Zambia's connectivity revolution.

The community also received two new smart classrooms, equipped with digital screens and internet-connected laptops. Nzovu explained that these facilities enable students to transcend geographical limitations, engaging in exchange programs with international and Lusaka-based schools. The introduction of digital textbooks and curriculum-loaded computers aims to enrich the learning experience, nurturing young minds with limitless potential and preparing them for a competitive global landscape. This comprehensive upgrade signifies a vital step towards bridging the rural-urban divide and fostering inclusive development across Zambia's rural heartlands.

Lyca Mobile secures license to operate telecom network in Burundi

Lyca Mobile has been granted a license to establish and operate a telecommunications network in Burundi, following a presidential decree issued in October.

This development marks a significant step in Lyca Mobile's strategic plans for expansion across Africa, where it already has a presence in Uganda and Tunisia. The license aligns with the country's broader efforts to accelerate digital transformation, enhance mobile coverage, and boost sector competitiveness. Lyca Mobile Burundi stated that the government views connectivity and innovation as key drivers for economic and social development.

Earlier this year, Lyca Group announced a strategic reorganisation aimed at fostering growth, streamlining operations, and strengthening its digital capabilities. Part of this plan involves launching new activities on the African continent later in 2024. This move comes amid ongoing challenges related to digital inequality, with the GSMA reporting that sub-Saharan Africa had 527 million mobile subscribers in 2023, representing a penetration rate of 44%. Many countries face issues with service quality, which often leads to consumer dissatisfaction.

In Nigeria, authorities see MVNOs as a means to bridge the gap between unserved and underserved populations, while also stimulating competition and increasing consumer choice — a strategy being mirrored in South Africa. In Burundi, Lyca Mobile will enter a market currently served by three network operators: Viettel, Econet Leo, and Onatel, along with seven Internet Service Providers including CBINET, Spidernet, Usan, LamiWireless, NT Global, BBS, and Starlink. Despite these providers, the country had approximately 8.5 million mobile subscribers at the end of 2024, with a penetration rate of around 65%. Internet subscriptions were estimated at 3.4 million, or roughly 26% of the population.

The exact timeline for Lyca Mobile's service launch remains uncertain, as the presidential decree indicates that technical and financial conditions will be detailed in the concession contract to be signed with the country's Telecommunications Regulation and Control Agency (ARCT). Additionally, Lyca Mobile will need to enter into an agreement with an existing mobile network operator, whose physical infrastructure it will utilise to deliver its telecom services.

Madagascar moves to lower mobile internet costs

Madagascar's Communication Technology Regulatory Authority (ARTEC) is actively urging telecom operators to explore options for reducing mobile internet prices, responding to widespread public concerns over high connection costs.

In a statement issued on 23 October, ARTEC emphasised its role as a facilitator and mediator, encouraging operators to evaluate possible rate adjustments, although it clarified that it does not have the authority to directly set tariffs.

This initiative builds on measures introduced since late 2024, including an initial rate readjustment, but no specific timeline has been established for further reviews or adjustments. ARTEC stressed that its goal is to promote fair, sustainable solutions that benefit the entire digital ecosystem, aligning with the

government's broader aim of expanding internet access.

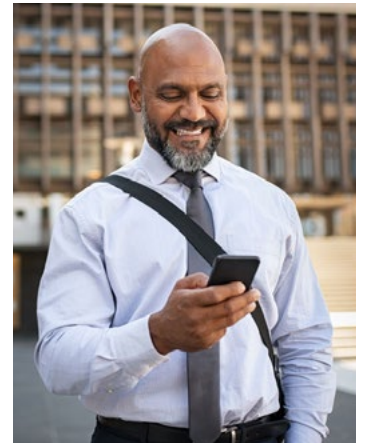
The government's commitment to lowering data costs was highlighted earlier in October 2024 by Minister of Digital Development, Posts and Telecommunications Stéphanie Delmotte. She announced a joint effort with telecom operators to bring internet prices down, emphasising the importance of aligning with international best practices and making digital services more accessible to the population.

Previously, in April 2024, authorities introduced a minimum price per gigabyte set at \$0.95 — up from \$0.45 — to rationalise the market and improve access distribution. However, this measure was revoked in May after the government recognised that operator prices remained artificially high and did not reflect

negotiated commitments.

These regulatory and policy actions are part of Madagascar's broader digital transformation strategy, which includes a \$24 million initiative to distribute 40,000 smartphones to citizens, aiming to boost mobile device accessibility. Despite these efforts, internet penetration remains relatively low — reported at 32.57% in 2023 by ARTEC, compared to the 20.4% estimate by the International Telecommunication Union (ITU) — highlighting ongoing barriers related to affordability and infrastructure.

According to GSMA, the high cost of mobile data remains among the main hurdles to widespread internet adoption across Africa. In Madagascar, monthly mobile internet expenditure was 6.28% of gross national income per capita in 2023, significantly above the ITU's



2% affordability threshold. Although this marks a considerable decrease from 52% in 2014, current prices are still three times higher than the recommended affordability level, underscoring the need for continued policy and market interventions to foster inclusive digital growth.

Eswatini government calls for action in Cybersecurity Awareness Month

The Eswatini government has issued a rallying cry for increased collaboration in combating cybercrime as the country observes Cybersecurity Awareness Month in October.

Prime Minister Russell Dlamini emphasised that cybersecurity is a shared responsibility that involves all sectors of society. Speaking at the opening of the month-long campaign, the Prime Minister highlighted the importance of collective effort under the theme 'Secure Eswatini, Be Safe Online.'

Dlamini underscored that in today's digital age, safeguarding cyberspace is crucial for national prosperity, security, and individual safety. He urged citizens, government institutions, and businesses to work together to enhance the country's digital resilience.

"Cybersecurity is a national priority because it touches on our security, our economy, and our personal lives," said Dlamini. "We must all commit — government, businesses, families, and individuals — to be responsible

and proactive in protecting our digital environment."

The Prime Minister advised citizens to take basic precautions, such as updating devices, protecting personal data, and exercising caution before clicking links or sharing information online. He emphasised that each responsible action contributes to strengthening the nation's cybersecurity defenses. Dlamini highlighted the importance of collaboration across different sectors, including educational institutions to

promote digital literacy, businesses to bolster defenses against cyberattacks, and communities to raise awareness and protect vulnerable populations.

He also announced that the government is spearheading the 'Your Hand' project, which aims to provide public sector services directly to citizens via digital platforms. While this initiative offers convenience and improved access to government services, Dlamini cautioned that it also increases the need for rigorous security measures.

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Madagascar launches Skills4Job programme

The Malagasy government has officially launched the first cohort of its Skills4Job initiative, a program aimed at equipping young people with vital digital skills to improve their employability.

The pilot phase began in the port city of Toamasina with 51 participants and is set to expand gradually across the country.

Minister of Digital Development, Posts and Telecommunications Stéphanie Delmotte highlighted that this free training initiative is designed to provide participants with essential tools to navigate and succeed in the evolving digital landscape. She emphasised that the program aligns with Madagascar's broader ambitions for digital transformation, as outlined in the five-year Digital Strategic Plan (PSN) 2023–2028. The government envisions positioning Madagascar as a key player in Africa's digital economy, focusing on expanding telecommunications, promoting e-government services, and fostering digital inclusion.

Madagascar's efforts are also supported by regional and international insights, with the World Bank projecting that around 230 million jobs across sub-Saharan Africa will require digital skills by 2030 to support the continent's digital transition. In line with this vision, the country's Minister of Technical Education and Vocational Training, Marie Marcelline Rasoloarisoa, announced in September a target to train 40,000 people in digital skills by 2028. Additionally, Madagascar signed a partnership agreement with the United Arab Emirates in February 2024 to train one million young people in new technologies, further emphasising its commitment to digital skills development.

Despite these initiatives, youth employment remains a significant challenge in Madagascar. According to Afrobarometer data from 2024, more than 40% of Malagasy aged 18 to 35 reported being unemployed and actively seeking work.

Talking critical

Harald Ludwig, Technical Forum Chair, TCCA; and Asif Hamidullah, Head of Certification IoT & Verticals, GCF



GCF certification as a key enabler for mission critical broadband services

Public Safety Agencies and Mission Critical Communication Operators (MCCOs) around the world are currently in various phases of migrating their existing Public Land Mobile Radio networks from voice-oriented narrowband technologies, such as TETRA and P25, to mobile broadband technologies, based on 3GPP's 4G-LTE and 5G-NR standards. Mission Critical Services (MCS) is a key component of these standards with services such as Push-To-Talk (MCPTT), Video (MCVideo), and Data (MCDData) – together also referred as MCX – being defined and planned to be globally adopted.

Certification of mission critical products and solutions, such as MCS Clients, devices and servers, are essential to ensure both compliance to industry standards, and interoperability with other 3GPP-compliant mission critical systems.

The Global Certification Forum (GCF) in collaboration with TCCA, has developed and deployed a Mission Critical Services Certification regime that demonstrates both compliance to the standards, and interoperability of mission critical products & services. GCF's certification allows MCCOs, Product Manufacturers and Service providers to have the confidence that products and services that are being deployed meet the stringent requirements of industry to ensure a successful service offering.

How GCF works with operators and TCCA

In many countries, public safety oriented networks are either government-built or contracted by governments to private network operators. Other critical networks are being developed privately, covering the needs of specific companies, alliances or sectors, such as mining, oil & gas, and defence. In all these cases, certification ensures interoperability and reliability, covering both products and mission critical services.

GCF has created a specific membership category for MCCOs, targeting the needs of public safety agencies and MCX service providers. Following the 2024 launch of GCF's certification program for mission critical services, operators are now

signing up – MCCOs from Sweden (MSB), Belgium (ASTRID), Finland (Erillisverkot) and Norway (DSB) have already joined GCF. Other organisations are in the final stages of joining. GCF is engaged with MCCOs globally to make sure a common certification regime is used to help facilitate international cooperation and engagement.

While MCS is heavily dependent on the MCX specific standards, it is not just the product's MCX capabilities that needs certifying – the underlying device functionality connecting to the cellular network needs to be certified as well. For all these MCX components and sub-dependencies, public safety agencies and MCCOs can – and should – rely on GCF certification programs to demonstrate compliance and interoperability of their mission critical services.

MCX communication takes place over an IP connection between the client and server, and can technically be executed over any wireless or wired connection. However, certain critical features such as Quality of Service, Priority, and Pre-emption (QPP), which are specific to cellular networks, require integration and support of the MCX systems with the underlying LTE and/or 5G network elements.

As such, the certification of MCX products not only checks the MCX-specific features and functionality that run over IP, but also those features and functionality that need to be supported by the radio access technology.

Product procurement

The MCCO, or the designated entity contracted by the MCCO, may procure devices, MCX clients and services from a single supplier, or may procure its MCX clients, servers and devices from a combination of multiple vendors. In each case, GCF has defined specific scenarios, so it is always 100% clear which entity is responsible for certification. This enables MCCOs to ensure they are always acquiring certified products.

In addition, TCCA maintains recommended best practices for the procurement of MCX products, including MCX broadband services and certification practices.

In all scenarios, GCF certification forms the baseline level of requirements needed to be achieved before MCCO network specific testing is conducted. This will minimise interoperability issues

and will ensure that any integration issues that are discovered can be easily isolated and are not related to compliance issues of the products. To ensure compliance, the MCCO's contract tenders must indicate that certification of products is mandatory.

To help MCCOs, GCF and TCCA have developed and maintained a model text that can be introduced into contract tenders, either 'as is', or customised by an MCCO to their requirements. This text describes the minimum certification requirements for procured products, and is available for download from TCCA's Legal and Regulatory Working Group (LRWG) library.

What's next?

The Mission Critical Services Work Stream (MCS-WS), managed by GCF in collaboration with TCCA, continues to evolve the MCX ecosystem. The workstream consists of key industry players and subject matter experts from GCF and TCCA member companies. Together, they are developing the key requirements for testing mission critical services, as well as defining the policies and procedures for the certification program.

GCF is also continuously expanding its support for MCX. For example, additional frequency bands can be added to GCF certification as needed by MCCOs. As well, Interoperability (IOP) and Field Trials testing is expected to become active by 2026. Additional capabilities such as MCX Server certification, Sidelink and IoT telematics over MCDData are already in scope and will be delivered in future phases of the programme.

GCF's goal is to certify the entire system of MCX products and solutions (devices, clients and servers). Different product types are being introduced in phases once external dependencies are met, such as standardisation requirements from 3GPP.

Conclusions

As mission critical services migrate to LTE and 5G networks, TCCA and GCF have created a certification programme that enables operators to build their networks with confidence.

The programme, based around 3GPP standards, guarantees the highest levels of compliance and interoperability – with the flexibility to support new technologies and capabilities as they are developed.

Telecom Cybersecurity in Sub-Saharan Africa: Securing the Backbone of the Digital Economy

A few months ago, a sophisticated cyberattack quietly rocked the telecom industry in East Asia. The breach infiltrated the core network of a major operator, compromising one of the most sensitive systems in telecom infrastructure: the Home Subscriber Server (HSS). Often called the digital brain of mobile networks, the HSS stores critical user data from Universal Subscriber Identity Modules (USIMs). Once breached, attackers

potentially gained access to IMSI numbers, authentication keys, SMS metadata, and contacts.

The fallout was severe. With that level of access, malicious actors could clone SIM cards, commit financial fraud, or launch identity theft campaigns. To contain the damage, the operator had to replace SIM cards for more than 23 million users.

While this incident occurred far from Africa, it should serve as a wake-up call for Sub-Saharan

Africa, where telecom is the foundation of financial inclusion, digital governance, and economic transformation.

The Urgent Need for a Security Surge

With over 650 million unique mobile subscribers and mobile money platforms processing over \$800 billion annually, Sub-Saharan Africa is the world's most mobile-first region. Telecom networks here do more than connect people—they connect economies. From sending remittances in Ghana to paying for healthcare in Kenya or accessing government services in Nigeria, the mobile phone has become the essential tool for daily life.

But this centrality also makes telecom a prime target for cybercriminals. As more services—from banking to education—are integrated into mobile networks, the volume of sensitive data traveling across these systems grows exponentially. That data is a goldmine for attackers who can exploit it for fraud, identity theft, and even large-scale disruption of essential services.

The Nokia Threat Intelligence Report highlights a steady rise in highly specialised telecom-targeted cyberattacks. In just the last 18 months:

- Salt Typhoon compromised telecom networks to harvest

sensitive user data.

- A major telecom breach exposed sensitive customer data, including financial identifiers, for millions.
- Ransomware campaigns targeted telecom operators, aiming to disrupt services and exfiltrate data.
- Multi-year espionage footholds in telecom infrastructure enabled covert data collection.

Why Generic Cybersecurity Tools Won't Protect Telecom

One of the strongest lessons from the East Asian breach is that traditional IT security tools are not enough. Telecom networks are complex, built on specialized systems that demand telco-specific protections.

Next-generation, telco-ready Endpoint Detection and Response (EDR) must include:

- AI-powered, real-time threat detection based on telecom traffic analysis.
- Automated patch and compliance management to minimize vulnerabilities.
- Lightweight, non-disruptive sensors that don't slow down critical services.

As cyberattacks become faster and more automated, often fuelled by AI, Sub-Saharan Africa must move from reactive defence to anticipatory security strategies.

Building Resilient Networks

To counter increasingly sophisticated attacks, African enterprises and telecom operators need to adopt networks



Rajiv Aggarwal, Head of Sub-Saharan Africa, Cloud and Network Services at Nokia

that can defend themselves. This involves embedding intelligence, automation, and continuous verification into the very core of network infrastructure. AI is already making an impact, especially in the realm of 5G security.

An example of this is Nokia's NetGuard Cybersecurity Dome, which incorporates generative AI built on Microsoft Azure OpenAI GPT. This solution showcases how large language models can enhance real-time threat detection and assist teams in making faster, more informed decisions during cyber incidents.

But identifying threats is just the beginning. True cybersecurity demands a 'Zero Trust' approach—where every user, device, and interaction is continuously verified. It also requires automated incident response systems capable of immediate, decisive action, reducing human error and response time. Real-time analytics play a crucial role in identifying vulnerabilities before they can be exploited.

These capabilities are no longer theoretical. They are already being deployed in Africa, helping businesses shift from reactive defence to proactive protection—anticipating and neutralizing threats before they escalate.

Four Priorities for Sub-Saharan Africa

To strengthen resilience, operators and regulators in the region should focus on four critical areas:

- 1. 24/7 Threat Monitoring with AI-Driven XDR**
Attackers often strike during weekends or high-traffic events. Always-on monitoring powered by AI/GenAI is now essential.
- 2. Protecting Network Functions**
Detect abnormal infrastructure activity and malware patterns early, before they compromise large portions of the network.
- 3. Adopting Zero Trust Principles**
Enforce strict verification for every user, device, and request. Use segmentation and limit privileged access to reduce insider and external risks.
- 4. Strengthening Regulation and SOC Capabilities**
Align with global standards while

developing regional frameworks. Invest in Security Operations Centres (SOCs) to fast-track cyber readiness for 4G and upcoming 5G rollouts.

The East Asian breach shows that the next major telecom cyberattack could come anywhere, anytime. For Sub-Saharan Africa—where mobile

connectivity is both a growth engine and a lifeline, the consequences of a large-scale breach would be devastating.

Now is the moment for governments, regulators, operators, and technology providers across the region to act decisively:

- Make cybersecurity a core pillar

of telecom strategy.

- Build capacity for regional and cross-border cooperation.
- Invest in telco-specific defences that match Africa's unique digital landscape.

Because in the digital age, resilience isn't just about bouncing back, it's about staying one step ahead. ■



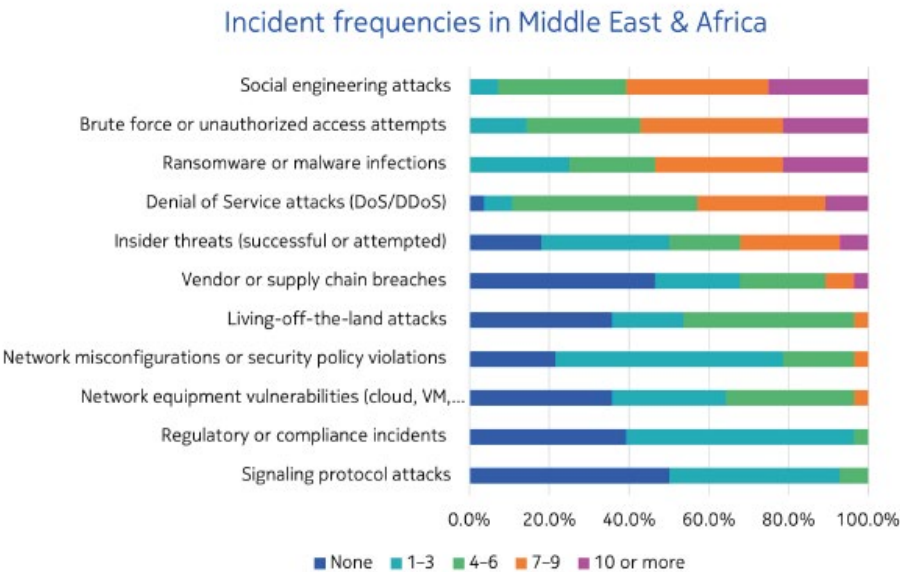
Inside the Nokia Threat Intelligence Report

Drawing on NetGuard and Deepfield insights, Managed Security Services data, Nokia Bell Labs research, and cybersecurity expertise—including quantum-safe networking—the Nokia Threat Intelligence Report offers a clear, evidence-based view of telecom risks.

Key trends in Middle East & Africa:

- 6 in 10 operators faced seven or more brute-force or unauthorised access attempts in the past year
- SIM lifecycle abuse was observed by 36% of security professionals in the past year
- Zero-trust strategies are a priority, with 75% of operators investing in implementation

Insights are enriched with inputs from 160 telecom security professionals worldwide, delivering practical guidance on threat detection, AI integration, DDoS mitigation, regulatory compliance, and quantum readiness.



Graph 10: Security incident frequencies by type in Middle East & Africa (survey data)

African mobile industry urges governments to cut taxes on affordable smartphones

Representatives from Africa's mobile industry are calling on governments across the continent to swiftly eliminate taxes on entry-level smartphones priced below \$100, in an effort to promote greater digital inclusion.

The appeal was made during the ongoing Mobile World Congress Kigali in Rwanda, where industry leaders emphasised that reducing costs is essential for expanding mobile internet access to millions of unconnected Africans.

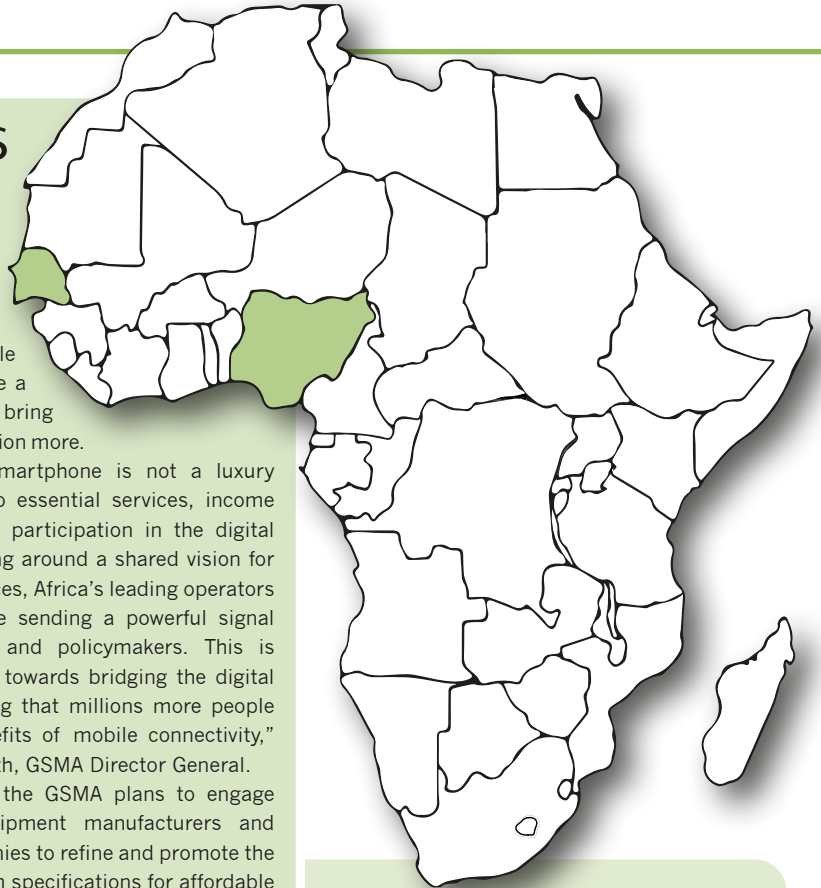
The GSMA, in partnership with six leading African operators — Airtel, Axian Telecom, Ethio Telecom, MTN, Orange, and Vodacom — has proposed a set of baseline specifications for affordable 4G smartphones. These specifications aim to ensure devices are capable of providing a reliable, long-lasting mobile internet experience at a substantially lower price point, including minimum requirements for memory, RAM, camera quality, display size, and battery life.

The industry body highlighted that affordability remains the biggest barrier to mobile internet adoption in sub-Saharan Africa. According to the 2025 State of Mobile Internet Connectivity Report, over 3 billion people worldwide live within mobile broadband coverage but do not use the internet, primarily because devices are too expensive. GSMA Intelligence estimates that a \$40 smartphone could connect an additional

20 million people in the region, while a \$30 device might bring online up to 50 million more.

"Access to a smartphone is not a luxury — it is a lifeline to essential services, income opportunities, and participation in the digital economy. By uniting around a shared vision for affordable 4G devices, Africa's leading operators and the GSMA are sending a powerful signal to manufacturers and policymakers. This is an important step towards bridging the digital divide and ensuring that millions more people can reap the benefits of mobile connectivity," said Vivek Badrinath, GSMA Director General.

Looking ahead, the GSMA plans to engage with original equipment manufacturers and technology companies to refine and promote the proposed minimum specifications for affordable 4G devices. The industry is also urging African governments to act quickly in removing taxes — such as VAT and import duties — that can inflate device prices by over 30%, thereby hindering efforts to increase digital access. The industry pointed to South Africa's recent tax reforms on entry-level smartphones as a positive example and called for similar policies across other nations to accelerate digital transformation and economic inclusion.



Senegal launches final phase of mobile subscriber verification drive

Senegal's Telecommunications and Postal Regulatory Authority (ARTP) has announced the culmination of its national mobile subscriber identification campaign, giving users until 31 October to update their registration details with their service providers.

This final phase of the operation, conducted in partnership with major telecom operators including Sonatel, Yas, Expresso, Hayo, and Promobile, is supported by the Directorate of File Automation (DAF). Its primary goal is to enhance public security and improve the accuracy of the subscriber database by ensuring each phone number is linked to a verified identity, in line with national regulations.

The campaign is part of a broader effort to combat fraud, phone scams, and other criminal activities that often exploit the anonymity provided by unregistered SIM cards. By enforcing stricter verification processes, ARTP aims to foster a more secure and transparent digital environment, enabling better traceability of communications across the country.

As of early 2025, Senegal had approximately 22.7 million active mobile connections, representing about 121% of its population, according to DataReportal, highlighting the importance of reliable and secure telecom infrastructure in the nation's digital growth.

NIGCOMSAT and NSCDC strengthen collaboration to enhance Nigeria's security

The Nigerian Communications Satellite Limited (NIGCOMSAT) recently welcomed a high-level delegation from the Nigeria Security and Civil Defence Corps (NSCDC), led by FCT Commandant Olusola Odumosu, to its headquarters in Abuja. The visit highlighted an increasing partnership aimed at harnessing satellite technology to bolster national security and improve public safety measures across Nigeria.

Led by Dr Nkechi Amadi, Managing Director and CEO of NIGCOMSAT, the engagement served as a crucial platform for strategic dialogue and knowledge sharing. Both organisations discussed innovative ways to utilise satellite communication systems to support security operations, improve surveillance capabilities, and facilitate better coordination during national emergencies.

During the discussions, both parties reaffirmed their commitment to leveraging technology for the public good. NIGCOMSAT

underscored the importance of a secure and resilient satellite infrastructure as a vital component of Nigeria's ongoing digital transformation and defense initiatives. The NSCDC pledged to continue supporting the safeguarding of satellite assets from potential threats to ensure uninterrupted service across various sectors.

As part of its broader mission, NIGCOMSAT expressed its readiness to collaborate with the NSCDC on initiatives that aim to connect, protect, and empower Nigerian communities through innovative satellite-based solutions. This partnership aligns with the federal government's vision to foster inter-agency cooperation and incorporate advanced technologies into the country's security framework.

The visit underscored the strategic significance of satellite technology in addressing emerging security challenges and reinforced NIGCOMSAT's role as a key driver of Nigeria's digital and technological progress.

Seacom and Sentech to boost small business growth

Seacom has announced a memorandum of understanding (MoU) with broadcast and digital services company Sentech, aimed at accelerating the development of small, medium, and micro enterprises (SMMEs) within South Africa's telecommunications landscape.

The collaborative effort will provide SMMEs with practical training in key digital technologies such as fibre optics, cloud computing, and broadcasting. It will also include internship exchanges and access to educational resources focused on increasing digital literacy, especially in township communities. Additionally, local content creators and small businesses will gain access to affordable hosting solutions, improved hybrid content delivery options, and targeted support for digital migration processes.

Anton Jooste, managing director for digital services in South Africa at Seacom, emphasised that the company's extensive fibre infrastructure, combined with Sentech's broader service footprint, will open new business opportunities for SMMEs in rural and underserved regions. He highlighted that this partnership aims to address common challenges faced by small businesses, enabling broader participation in South Africa's digital economy and positioning SMMEs at the core of national growth initiatives.



IHS Towers completes sale of Rwanda operations

IHS Towers has announced the successful completion of its sale of the Rwanda division, including approximately 1,467 sites, to Paradigm Tower Ventures.

The transaction, which was first disclosed in May 2025, involves Paradigm acquiring all shares of IHS Rwanda Limited through its Paradigm Infrastructure Holdings (PIH) vehicle. The deal was executed as part of a consortium that includes Convergence Partners Digital Infrastructure Fund (CPDIF), British International Investment (BII), and Société de Promotion et de Participation pour la Coopération S.A. (PROPARCO).

IHS Towers stated that its exit from Rwanda aligns with its broader strategic goal of creating value for shareholders through targeted divestments. The transaction was valued at around US\$274.5 million, translating to a multiple of approximately 8.3 times adjusted EBITDA after leases. At the time of the announcement, IHS highlighted that the Rwanda deal offered a significant premium over the group's current valuation multiple, reflecting the strategic importance of the sale.

This deal also marks Paradigm Tower Ventures' inaugural investment. Focused on expanding shared wireless infrastructure across sub-Saharan Africa, Paradigm Tower Ventures is a part of Paradigm Infrastructure, which was established in 2019 to develop shared wireless facilities in emerging and growing markets. JPMorgan served as the financial advisor to IHS Towers for the Rwanda transaction, facilitating the execution of this strategic divestment.

Egypt celebrates opening of OPPO mobile factory in Tenth of Ramadan City

Egypt has made a significant advance in its efforts to develop a self-sufficient electronics industry with the official launch of the OPPO mobile phone manufacturing plant in Tenth of Ramadan City.

The \$50 million investment marks a key milestone under the "Egypt Makes Electronics" presidential initiative, which aims to foster economic growth, create jobs, and position Egypt as a regional hub for high-tech manufacturing and exports.

The factory was inaugurated by Prime Minister Dr. Mostafa Madbouly, alongside Minister of Communications and Information Technology Dr. Amr Talaat, and senior officials from both the government and OPPO. Covering 24,000 square meters, the facility currently employs around 2,000 Egyptian workers — including engineers, quality specialists, and skilled technicians trained to international standards. Equipped with 17 production lines, with plans to expand to 20 lines by early 2026, the plant has a capacity of 500,000 units per month, amounting to roughly 5 million smartphones annually. Production models include popular series such as Reno12, Reno13, Reno14, A5 Pro, and A6 Pro, all manufactured under OPPO's global quality benchmarks.

This initiative exemplifies a successful public-private partnership, with the Egyptian government facilitating a transparent regulatory environment that has attracted international investors. To date, Egypt hosts 15 international mobile brands producing around 20 million units annually, with total investments reaching

approximately \$200 million. The factory's strategic location and capabilities are set to bolster Egypt's export capacity, with plans to begin shipping devices to Arab and African markets by late 2024, reinforcing the country's role as a regional electronics manufacturing hub.

OPPO also plans to diversify its product offerings, including the introduction of wearables such as smartwatches, fitness bands, and wireless earphones, aligning with its long-term growth strategy. The factory follows a Memorandum of Understanding signed in September 2022 between OPPO and the Information Technology Industry Development Authority (ITIDA), which underscores Egypt's commitment to building a sustainable electronics industry.

Beyond manufacturing, OPPO is investing in after-sales services and customer support to ensure high-quality local service delivery and foster long-term brand loyalty. While a small team of 15 Chinese experts oversee technical operations, the majority of management and production are handled by Egyptian professionals, reflecting the deepening of local human capital and industry expertise.

The establishment of the OPPO factory represents a transformative addition to Egypt's industrial landscape, symbolising the nation's commitment to innovation, technology, and economic diversification. It demonstrates how strategic collaboration between government and industry can drive sustainable growth, accelerate digital transformation, and enhance Egypt's position in the global electronics supply chain.



Wireless Solutions for Exploration, Mining, Fleet Tracking & Surveillance

Mobile Mark is a leading supplier of innovative, high performance antennas to wireless companies across the globe. We've been in the wireless industry for over 30 years and have our roots in the early Cellular trials. Today, we benefit from enhanced design capabilities and expanded production capacity – along with a greater understanding of new and emerging markets such as mining and exploration.

Modern mining operations rely on a battalion of vehicles, ranging from massive extraction vehicles to modest-sized material transport trucks. These vehicles operate in tough environments where high vibration is a frequent wear and tear challenge. Mining companies throughout Africa have relied on our rugged, foam-filled mobile antennas for consistent connections. Mobile Mark's infrastructure antennas have been used for rapid deployment and redundancy coverage for effective wireless coverage in isolated settings.

Ethio Telecom explores strategic partnership with TINNO to boost local manufacturing

Ethio Telecom is actively pursuing a strategic partnership with Chinese Android smartphone manufacturer TINNO, aiming to expand affordable device access across Ethiopia.

Ethio Telecom CEO Frehiwot Tamru and TINNO Vice President Andy Meng recently discussed plans to introduce low-cost smartphones through an ODM (Original Design Manufacturer) model and establish a local smartphone manufacturing facility — an initiative designed to strengthen Ethiopia's digital ecosystem by improving device availability and accessibility.

This move follows Ethio Telecom's recent 15 billion birr partnership agreement with Siinqee Bank in April. The partnership includes a 4 billion birr fund to facilitate smartphone purchases for low-income populations via instalment plans, with the goal of distributing around 2 million devices annually. These efforts aim to address one of the key barriers to telecom service adoption — smartphone affordability — which remains a challenge despite declining prices. A GSMA report from 2023 noted that although Africa has seen a significant drop in smartphone prices, many households still find devices priced under \$100 out of reach.

By fostering local manufacturing and expanding affordable device options, Ethio Telecom's initiatives aim to bridge the digital divide, increase smartphone adoption, and stimulate broader participation in Ethiopia's digital economy. The partnership with TINNO and the development of a local production hub could play a vital role in making mobile internet more accessible and integrated into everyday life for millions of Ethiopians.



Talking satellite

Jane Ielmini, Co-Founder/ Chief Operating Officer, Orbotic Systems Inc.



From ancient stars to satellite networks

For centuries, sailors voyaged by the stars. Navigators across oceans and deserts relied on clear skies and celestial constellations, unobstructed, reliable, and constant, to guide their journeys. Today, our guiding lights are very different: tens of thousands of satellites in low Earth orbit (LEO) power everything from communications to GPS, remote sensing to disaster response. But unlike the uncluttered heavens of old, Earth's orbital lanes are now crowded, dangerously so.

Rising traffic, rising risk

According to the European Space Agency's 2025 Space Environment Report, approximately 40,000 objects are now tracked in orbit, including about 11,000 active satellites. Yet, the real scale of the problem is much larger: ESA estimates there are over 1.2 million debris fragments larger than 1 cm, and more than 50,000 objects above 10 cm — each capable of inflicting catastrophic damage on operational spacecraft. Other sources note this could rise to 54,000 objects larger than 10 cm and over a million fragments between 1 cm and 10 cm, with hundreds of millions of smaller pieces in orbit as of mid 2024.

Each satellite, especially in commercial mega-constellations launched today, increases collision risk. In 2024 alone, over 2,500 objects were launched into LEO, many by commercial systems like Starlink or Amazon's Project Kuiper. Industry experts warn that if trends continue, orbits could support nearly 50,000 objects larger than 10 cm by 2050, putting critical infrastructure at risk.

Kessler syndrome: a hazard on the horizon

Named for NASA's Donald Kessler, the Kessler syndrome refers to a cascading scenario in which a single collision creates thousands of debris fragments that in turn collide with other objects — thus reproducing ever more debris. Simulations suggest we may already be entering this junction. If we fail to intervene, entire swaths of LEO could become effectively unusable for

decades or centuries.

The loss of space crafts is not theoretical. Even millimeter-sized fragments can puncture satellites or degrade sensitive components like solar panels or sensors. In 2016, a paint fleck caused a 7 mm chip in the International Space Station's window this incident illustrates just how destructive even small debris can be.

Operators today, including those providing wireless and satellite-based services, face tangible operational risk and financial consequences. Collision avoidance maneuvers (called Debris Avoidance Maneuvers or DAMs) are planned whenever predicted conjunction risk exceeds a threshold such as 1 in 10,000. These maneuvers consume fuel, command operations, and risk mission disruption. Analysts estimate that up to 5-10 % of a mission's budget may be tied to collision avoidance, especially in congested LEO bands.

Moreover, SSA (Space Situational Awareness) tracking — while improving — is still imperfect. Forecasting debris position even one day ahead has median errors of nearly 100 meters at 600 km altitude, limiting precise risk assessment. Many fragments under 10 cm remain untracked altogether, yet still pose major hazards.

Navigating the orbital commons: what to do

1. Design constellations for deorbit Operators should ensure satellites are engineered to deorbit within five years of mission end—far more aggressive than the previous 25-year guideline. This FCC 5 year rule reduces long-term fragment risk and limits hazardous drift in orbiting lanes.
2. Embed sustainability by design From the earliest architecture stages, mission planners should account for satellite density, fragmentation risk, and end-of-life disposal. Standards from UN COPUOS, the IADC, and ISO emphasize limiting debris release, passivation of fuel, and responsible operations.
3. Invest in active debris removal Controlled cleanup, such as Astroscale's or ClearSpace's missions, is essential. Current remediating technologies,

including nets, harpoons, tethers, drag sails, and lasers, show promise for clearing large defunct objects before collision cascades begin.

4. Coordinate via shared SSA networks Operators should share real-time positional data through SSA platforms (e.g. Leolabs, COMSPOC) and avoid ad hoc or siloed exchange. Coordinated maneuvers and shared catalogs reduce duplication and uncertainty.
5. Support regulatory and industry frameworks Leading operators should engage with frameworks like ESA's Zero Debris Charter (with goal of zero generation by 2030), the Space Sustainability Rating (a joint effort from WEF, ESA, MIT), and UN Long-Term Sustainability guidelines. Regulators now increasingly demand sustainability credentials as part of licensing — underlining the value of early engagement.

Why operators should care

- Continuity: Unplanned maneuvers and satellite loss hurt network reliability.
- Cost: Avoidance, replacement, and insurance escalate mission budgets.
- Reputation: Operators seen as irresponsible may lose access to launch licenses and sustainability ratings.
- Access: Without careful management, key orbital bands may become unsupportable, limiting future expansions or emergency deployments.

A Collective duty

No single operator can solve the space debris crisis alone. But operators hold a responsibility — to design space sustainable missions, to share situational awareness, and to adopt or support active removal initiatives.

Let's choose a different path. Let's honor the legacy of navigation by the stars by stewarding our own 'stars in orbit.' Smart design, cooperative coordination, and intentional deorbit planning can help protect global satcom infrastructure — for today's networks, and for future generations.

From Kigali to the continent: Ericsson's vision for a connected Africa

Ante Mihovilovic - Vice President and Head of Networks
Ericsson Europe Middle East and Africa

What are the main innovations and announcements Ericsson is presenting at MWC Kigali 2025; and how do these align with the company's vision for the future of connectivity?

At Mobile World Congress 2025 in Kigali, we had a joint booth with MTN Rwanda to showcase the power of 5G and what it can enable. MTN recently launched its 5G network, and we wanted to bring its capabilities to life through real-world use cases.

One of the highlights was our connected 5G robotic dog – equipped with multiple sensors – which demonstrated how low-latency, high-reliability connectivity can be used for real-time image recognition. For instance, the dog could identify a broken fence or check whether workers were wearing life jackets.

We also showcased cloud gaming to demonstrate the importance of ultra-low latency, and the Ray-Ban Meta smart glasses, which streamed high-quality video even in crowded environments. These examples illustrate how 5G enables mission-critical networks, differentiated connectivity and innovation built on open platforms.

In addition, we highlighted our network APIs, showing how

developers and partners can create new use cases directly on top of the 5G network – truly opening the door to the next wave of digital innovation.

In what ways is Ericsson advancing 5G innovation across Africa?

We work very closely with operators across the continent to push the boundaries of both performance and sustainability. Energy efficiency is a particularly important focus in Africa, where power supply can be limited.

Our newest generation of radio products significantly reduces power consumption, helping operators cut operational costs (OPEX) while maintaining performance. For example, our latest Massive MIMO radio, the AIR 3266, boosts spectral efficiency and uplink performance, while reducing energy consumption by up to 30 percent. It also has a 50 percent smaller carbon footprint.

With AI, we can also manage traffic patterns dynamically, optimizing both energy use and network performance. Our triple-band and dual-band Massive MIMO products, now being deployed across multiple African markets, combine multiple frequencies in one compact form factor, reducing tower load, improving efficiency and expanding coverage in congested areas.

How will the evolution of networks influence the future landscape of connectivity?

With 5G deployments accelerating in Africa, connectivity is no longer just about faster speeds: it's becoming an open platform for innovation. This is especially powerful for Africa's young, tech-savvy population, who are eager to create, collaborate and scale their ideas globally.

5G is helping bridge the digital divide, particularly

in financial inclusion. Through mobile money services, people can now access micro-lending, banking and insurance – financial tools that were previously out of reach.

We're also seeing major rollouts in countries like Morocco (in preparation for the African World Cup), Nigeria and South Africa. Globally, 5G is midway through its deployment cycle, but for Africa, this is just the beginning of a very exciting journey.

How is Ericsson incorporating sustainability into its strategic initiatives?

Sustainability runs through everything we do – from energy efficiency to reducing carbon emissions and supporting smarter, more efficient cities.

For instance, connected traffic management systems can dramatically reduce greenhouse gas emissions. These are examples that could have a huge impact in African cities as well.

We also see 5G enabling smart agriculture – helping farmers use connected sensors and data to improve productivity. In Rwanda, for example, drones are delivering blood supplies and medicine across the country, showcasing how connectivity can save lives and strengthen essential services. These services can further be improved by using mission critical solutions for digital airspace management.

What role will Ericsson assume in the development of AI, edge computing, and IoT technologies?

AI is already deeply embedded in our product portfolio, not only within individual network components but also across the entire network. We're moving toward intent-based networks, where AI interprets user

intent and dynamically optimizes network performance in real time.

We also see AI driving smarter cities, digital economies and e-government services – with billions of connected agentic AI devices expected to operate on networks in the near future. These will generate new types of traffic patterns, especially in the uplink, and will transform how networks behave.

Crucially, we see AI as a huge opportunity for Africa. It will create new, high-skilled jobs, particularly for young digital natives who understand technology intuitively. Combined with 5G as an open innovation platform, this presents an extraordinary chance for Africa's youth to lead in global digital innovation.

How do you envision connectivity transforming lives across Africa?

Connectivity has the power to transform lives across Africa. Sub-Saharan Africa is projected to record the fastest growth in mobile subscriptions globally – around 4 percent annually – adding more than 260 million new connections by 2030 compared to 2024.

As coverage and capacity expand, this growth will translate into wider access to financial services, healthcare, education and smarter tools for farming and business. In agriculture, connected technologies could help farmers improve efficiency and yields, while innovators continue developing digital solutions to address local challenges in energy, logistics, and commerce.

Africa's youth – especially entrepreneurs and creators – stand to benefit the most as greater connectivity opens global opportunities. 5G and Fixed Wireless Access can help level the playing field, empowering Africans to create, compete and connect on a global scale. ■





G20: Keeping Africa's digital future open

As Africa hosts the G20 for the first time, the continent faces a choice: build a unified digital future, or risk splintering into incompatible networks shaped by global rivalries. Spectrum harmonisation, open standards, and digital trust could determine whether Africa is a co-author of the 6G era — or just a late adopter.

When Africa hosts the G20 for the first time this year, the world's attention will rightly focus on infrastructure and finance. But industry leaders warn that another, quieter battle could determine whether Africa's digital future is inclusive or fragmented: the struggle over spectrum, standards, and trust.

As geopolitical rivalries spill into technology, countries are dividing

into competing blocs around 5G, cloud, AI, and even undersea cables. For Africa, which is still in the early stages of rolling out 4G, the risk is acute: adopting fragmented systems could leave the continent with islands of connectivity that never add up to a unified digital economy.

"Techno-nationalism risks fragmenting Africa's already uneven digital landscape," warns Daniel Mausoof, Vice President of Technology, Solutions and Services at Nokia in MEA. "At the G20, African nations should advocate for technology-neutral spectrum policies, shared spectrum frameworks for rural coverage, and harmonised data regulations. Africa must unite as a single digital voice."

The hidden cost of fragmentation

At first glance, Africa's telecom market is vibrant. Mobile

penetration is approaching 50%, smartphone adoption is rising, and operators are experimenting with 5G in capitals from Lagos to Johannesburg. But scratch deeper, and the risks of fragmentation are clear.

Each African country sets its own spectrum policies, often in isolation. Licensing terms vary widely, auctions are opaque, and cross-border coordination is rare. The result: operators face higher costs, devices are less compatible, and innovation slows.

"As techno-nationalism intensifies, African leaders must take a proactive stance," says Andy Dikobo, Public Sector Executive at NTT DATA in the Middle East and Africa. "Transparent spectrum auctions, regional harmonisation of frequency bands, and interoperable data governance models are essential to ensure seamless digital connectivity across borders."

The stakes go beyond efficiency.

If Africa's networks split into incompatible standards, the continent risks becoming a dumping ground for obsolete technology, or worse, locked into one bloc's ecosystem. That would not only drive up costs but also reduce Africa's bargaining power in the global digital economy.

"Techno-nationalism risks fragmenting the global digital ecosystem — and Africa has a strategic interest in keeping it open, fair and interoperable," asserts Majda Lahlou Kassi, Vice President and Head of Ericsson West and Southern Africa. "At the G20, African leaders can speak with a unified voice to promote policies that prioritise technology neutrality, harmonised spectrum allocation and secure cross-border data flows. It is also critical to protect the principles of openness — ensuring no region is left isolated by fragmented standards or restricted vendor choices. Ericsson believes in one global standard built on 3GPP specifications, so



Daniel Mausoof,
Nokia

that networks across Africa remain compatible, scalable and affordable. That is how we ensure seamless connectivity, regional integration and global competitiveness – not only for consumers but also for the businesses, startups and developers that power digital economies.”

Regional cooperation as a competitive advantage

Africa’s greatest strength is its scale. With 54 nations and a population of 1.5 billion, a coordinated digital market could rival those of India, the EU, or Southeast Asia. But fragmentation weakens that potential.

“Leaders should push for Pan-African Wireless Interoperability Frameworks aligned with ITU, 3GPP and AI-RAN principles,” argues Mausoo. “Platforms like the Smart Africa Alliance and the AU’s Digital Transformation Strategy can standardise RAN technologies, AI policy, and data governance.”

Some progress is visible. The African Telecommunications Union (ATU) has begun harmonising spectrum across regions. The Smart Africa Alliance, with more than 30 member states, is piloting cross-border digital corridors. The African Continental Free Trade Area (AfCFTA) is laying the groundwork for a single digital market.

As the G20 brings together the world’s major economies, multilateral development banks, and technology partners, it offers a powerful platform for Africa to accelerate its digital transformation. A unified regional approach to spectrum policy could fast-track equitable 4G and 5G expansion, while G20 engagement opens access to financing and technical expertise. Aligning regional standards and regulatory

frameworks would strengthen interoperability, support cross-border investment, and enable seamless roaming. Coordinated digital public infrastructure and API standards could help establish a single, attractive digital market that unlocks scale and efficiency across the continent.

Shaping the 6G era

While Africa is still scaling 4G and testing 5G, industry leaders are already looking ahead to 6G. The first technical specifications are expected by 2028, with commercial rollouts in the early 2030s. Decisions made now — in standards bodies and R&D alliances — will determine whether Africa’s needs are embedded in the next generation.

The G20’s global digital agenda will play a key role in shaping these developments. The policies and frameworks debated there will influence how next-generation wireless technologies evolve, where investment flows, and which regions lead innovation. For Africa, active participation means ensuring that the continent’s priorities — inclusion, affordability, and sustainability — are built into 6G’s foundations.

Now, with its inclusion in the G20, Africa has the opportunity to shape and steer 6G from inception, rather than retrofitting adoption post-design.

“Much of the 6G advancement will be driven through the Middle East, where Africa can take advantage of these leaders,” notes Mausoo, who adds that we’ll see integration and augmentation of non-terrestrial networks (NTN) for remote areas, as well as AI-driven spectrum use, energy optimisation, and service orchestration. “Africa must co-create these standards via stronger representation in 3GPP and AI-RAN Alliance working groups, ensuring African use cases (e.g. remote education, climate monitoring, precision agriculture) are embedded into the fabric of 6G policy and design.”

African policymakers and industry stakeholders are increasingly recognising that early involvement is essential. By embedding region-specific needs — from rural coverage and affordability to energy-efficient infrastructure — into global technical specifications, the continent can avoid being marginalised by competing technology blocs. Aligning national innovation agendas and regulatory priorities with the G20’s digital

frameworks will help Africa access multilateral financing, technology transfer, and R&D partnerships that accelerate local 6G pilots and commercial readiness. This alignment is key to overcoming the R&D investment gaps that have traditionally limited Africa’s ability to shape or quickly adopt new wireless standards.

When African nations implement G20-endorsed best practices — such as transparent, flexible spectrum management and open-access regulations — they create market conditions that drive competition, innovation, and inclusive connectivity at scale. By integrating universal design principles and digital inclusion into policy benchmarks, the continent can ensure that future wireless technologies close, rather than widen, the digital divide. Such strategies will not only expand access but also nurture local innovation, building ecosystems that allow 6G and beyond to serve both urban and rural communities.

“As the world begins shaping the future of 6G, Africa must have a seat at the table,” asserts Kassi. “The G20 offers a unique opportunity for African leaders to influence early decisions around R&D funding, global standards and regulatory frameworks that will define next-generation wireless technologies. These early choices will determine whether 6G is built to be inclusive, scalable and accessible — or whether it reinforces existing divides. We feel global alignment on 6G architecture and open interfaces is critical. Early standardisation ensures that all markets — including those in Africa — can benefit from economies of scale and avoid the cost of fragmented solutions. Now is the time to ensure Africa’s needs and use cases are reflected in the conversation.”

The G20 as Africa’s megaphone

The common theme across spectrum, standards, and trust is openness. Without it, costs rise, innovation slows, and Africa’s market fractures. With it, the continent can scale, attract investment, and compete globally.

“Building a unified digital Africa is entirely within reach — but it requires intention, coordination and the right partnerships. The G20 gives African leaders a platform to advance this vision, starting with one key

principle: interoperability,” notes Kassi. “When countries adopt shared wireless standards, everyone benefits. Networks become easier to scale, services work seamlessly across borders, and costs come down for both operators and end users. What African leaders can do at the G20 is elevate those efforts. They can make the case for greater international support — technical, financial and political — for cross-border collaboration on spectrum, licensing and network design. They can push for the inclusion of open standards and technology-neutral policies in global frameworks. Africa can lead by showing how cooperation makes networks stronger, not just within its borders, but across the global digital economy.”

“Africa’s opportunity is vast — but to unlock it, we must be co-authors of the wireless future, not just its consumers. Nokia believes in an inclusive, sustainable digital future where Africa’s voice shapes the architecture, policies, and partnerships of tomorrow’s networks,” says Mausoo. “Through smart regulation, targeted investment, local empowerment, and continental unity, Africa can lead — not follow — the global digital agenda. G20 2025 is our moment.”

Ultimately, the G20 is not where networks are built. Towers will rise from Dakar to Dar es Salaam through the work of operators, regulators, and communities. But the G20 is where global norms are set — where financing is mobilised, standards are negotiated, and rules of the digital game are agreed. For the first time, Africa will chair that table. And industry leaders are clear: the stakes are too high to waste the opportunity. ■



Majda Lahlou Kassi,
Ericsson



Andy Dikobo, NTT

Resilience by design: rethinking remote tower management



Tamir Piatecka, CEO Africa, Galooli

As Africa, tens of thousands of telecom towers are operating in environments where reliability cannot be taken for granted. Grid instability, fuel costs, theft, and limited site accessibility are daily realities that test the resilience of even the best-managed networks.

The continent's digital growth is undeniable. Mobile penetration, data consumption, and network expansion continue to rise at record pace. But for every new connection added, operators face the challenge of keeping existing towers online in conditions where power and maintenance resources are often stretched thin. Today, remote tower management is less about scaling fast and more about sustaining what we already have, with consistency, efficiency, and intelligence.

The uptime imperative

In mature markets, uptime is expected. In Africa, it is earned. Many rural or peri-urban sites are off-grid or experience prolonged grid outages. Operators rely on hybrid setups combining diesel generators, batteries, and solar systems, but managing that mix remotely and effectively is another matter. When a single power failure can interrupt connectivity for an entire community, resilience becomes the defining metric of operational success.

The financial cost of downtime goes far beyond lost airline revenue. Every truck dispatched to restart a generator, replace a battery, or refill a tank adds to operational expenditure and environmental impact. In some countries, logistics costs can rival the cost of energy itself. Reducing unnecessary site visits, predicting failures before they happen, and

optimizing the balance between energy sources are now central to maintaining uptime at scale.

By improving the way hybrid and renewable energy sources are monitored and managed, operators can make significant strides in both reliability and efficiency.

The reality on the ground

From the busy networks of Nigeria and Kenya to the challenging rural topographies of Tanzania and Guinea, tower operators face strikingly similar obstacles. The grid is often unreliable or unavailable, roads are long and difficult, and spare parts or qualified technicians may be hours away. Theft and vandalism remain major concerns, particularly for batteries and fuel. Meanwhile, data connectivity for remote monitoring is not always guaranteed, further complicating response times.

These conditions make traditional maintenance models unsustainable. Sending technicians on fixed schedules without data-driven prioritization wastes resources. Responding reactively to failures means sites stay down longer, customers lose service, and revenue declines. The African tower landscape demands a different approach, one where intelligence replaces routine and data replaces guesswork.

Technology as the enabler of resilience

Resilience today depends on visibility: knowing what is happening at every site in real time. Modern remote monitoring and management technologies allow operators to collect performance data from generators, batteries, solar arrays, and rectifiers continuously. When combined with automated control systems, these insights enable remote decision-making: adjusting load sharing,

managing battery charge cycles, and even restarting generators without human intervention.

AI-based analytics take this further. By learning from historical performance and environmental patterns, predictive algorithms can forecast when a site's fuel will run out, when a battery is nearing end-of-life, or when weather conditions might affect solar generation. Instead of reacting to alarms, operators can plan, scheduling maintenance before failure, optimizing generator runtime, and ensuring the right resources reach the right site at the right time.

The human dimension: workforce optimisation

Even as technology evolves, people remain central to Africa's tower ecosystem. Remote management does not eliminate the need for field teams; it redefines their purpose. Technicians are no longer primarily troubleshooters; they are implementers of data-driven decisions. With clearer insights, they can prioritize urgent issues, carry the right parts, and complete multiple tasks per trip.

For operators, this means fewer unnecessary dispatches and better allocation of skilled labor. For technicians, it means safer, more efficient work, spending less time on preventable site visits and more time on strategic maintenance. The result is not only cost savings but also greater job satisfaction and professional growth.

Training and upskilling local workforces in digital tools, remote diagnostics, and hybrid energy management will be essential.

Bridging the rural gap

The next wave of connectivity growth will come from rural and peri-rural regions, areas least served by stable grid power and infrastructure. To reach them

sustainably, tower companies must operate with greater autonomy at site level.

This means designing towers that can self-manage their energy systems for extended periods, using AI-driven controllers, real-time diagnostics, and remote repair capabilities. It also requires close collaboration between Mobile Network Operators (MNOs), tower companies, and energy service providers to share data, align maintenance standards, and leverage common monitoring platforms.

Hybrid power models that combine solar, batteries, and limited generator use will remain central to this effort. The challenge is not deployment, but management: ensuring that each energy source is used optimally to achieve the longest possible uptime at the lowest possible cost.

A forward look: optimizing what we already have

The conversation around Africa's telecom future often focuses on the next wave of towers or technologies. But the real opportunity lies in optimizing what already exists. Thousands of sites are already built, already consuming energy, and already serving millions. By harnessing data, automation, and AI, we can make these assets more reliable, efficient, and sustainable.

The future of remote tower management in Africa will be defined not by the number of new installations, but by the intelligence applied to current ones. Every kilowatt saved, every avoided truck roll, and every extra hour of uptime contributes directly to economic growth and digital inclusion.

Resilience, in this context, is both a strategy and a responsibility: to ensure that Africa's expanding digital infrastructure remains strong, efficient, and ready for the future. ■



Navigating policy, regulation and risk in Africa's telecom sector

As Africa's telecom industry races ahead with 5G, mobile money, and digital transformation, security policy management has become both a regulatory necessity and a business enabler...

Telecommunications networks in Africa are expanding at an unprecedented pace. With 5G rollouts underway, mobile money services flourishing, and new subsea cables landing on both coasts, the continent is experiencing one of the most significant digital transformations globally. Yet this rapid progress comes with equally rapid challenges: cyberattacks targeting mobile networks, complex regulatory demands across dozens of jurisdictions, and infrastructure gaps that expose operators to unique vulnerabilities.

Against this backdrop, security policy management (SPM) has

become a strategic necessity. African operators are no longer asking if they need robust frameworks; the question is *how to implement them across dispersed, diverse, and fast-moving markets*.

The regulatory balancing act

African telecom operators must juggle an ever-growing list of local data protection and cybersecurity laws. Countries like South Africa have introduced the Protection of Personal Information Act (POPIA), while Nigeria's NCC has published detailed cybersecurity guidelines.

Kenya's Data Protection Act, meanwhile, requires telecoms to ensure data localisation and strict customer consent management. For pan-African operators, each of these adds a layer of complexity.

Erez Tadmor, Field CTO of Tufin, asserts that operators need a harmonised approach that blends international frameworks with national overlays: "telecom operators in Africa must navigate a complex mix of regulatory requirements and diverse network infrastructures. The most effective approach is to build a baseline security policy framework aligned with standards such as ISO 27001

or NIST and then adapt it for each country's regulatory environment."



Shayimamba Conco, Check Point Software Technologies

In practice, this means that while a group-level policy might enforce baseline segmentation and encryption, local teams can apply additional layers for issues like lawful intercept, SIM card registration requirements, or data residency restrictions.

"In the African countries where requirements have not been explicitly defined, there is a tendency to defer to regulatory requirements that are internationally well known (like GDPR)," adds AdaptIT's Head of IT, Jaco Smit.

This reliance on global standards not only ensures a higher bar for security but also gives operators a head start in meeting local requirements once they are formalised.

Indeed, Check Point's Workspace Solutions Architect / Security Evangelist - EEMEA, Africa, Shayimamba Conco underlines the importance of blending global and local: "we tailor security policies by aligning global frameworks like ISO 27001 and NIST with local regulations such as POPIA or NDPR. Using our unified management platform, operators can enforce a consistent security baseline while applying localised rules for each country."

Ruby Khaira, Vice President of META Business at FireMon, emphasises the role of flexible tooling: "while we don't ship pre-built reports for regulations such as the Nigerian NCC, Kenya's Data Protection Act or South Africa's POPIA, our policy-authoring engine lets operators codify each country's requirements into reusable control libraries. Once validated, changes can be pushed automatically to thousands of devices, ensuring that each country's custom control sets are applied automatically and without service disruption."

This ability to translate law into machine-enforceable rules is particularly valuable in regions where regulations may be evolving faster than operators can manually update their environments.

The overall message is clear: compliance in Africa isn't about choosing between local or international standards — it's about making them work together.

Building policies that work across borders

Designing security policies for Africa's telecom sector is not a 'copy-paste' exercise. The diversity of infrastructure, from urban 5G cores to rural 3G base stations, requires a flexible but disciplined framework. Operators must adopt principles that scale globally while adapting locally.

Tadmor explains why a layered approach works best: "in developing markets, operators often face pressure to modernise quickly, sometimes rolling out new mobile and broadband services faster than regulations can evolve. The best practice is to adopt internationally recognised security architectures as the foundation — such as zero trust principles, least-privilege access, and encryption standards — and then extend them with local compliance controls."

This layered model provides resilience, ensuring that while baseline protections are universal, country-specific controls — like data localisation mandates or lawful intercept monitoring — can be added without breaking the overall framework.

"For example, in South Africa we supported POPIA compliance, and in West Africa we ensured data sovereignty through localised controls. With Check Point Multi-Domain Management, providers can apply global best practices while customising rules per country to simplify compliance without sacrificing security," says Conco.

Khaira emphasises simulation-driven validation as a way to avoid unintended consequences: "using our policy-authoring engine, we codify each requirement, whether it's encryption standards from ISO 27011 or data-retention limits under Kenya's Data Protection Act, into tagged controls that can be assembled into jurisdiction-specific

rule bundles. These bundles are then validated in our change-simulation environment against live device configurations to ensure compliance, reachability and performance before any changes are pushed."

For telecom operators handling thousands of devices across borders, this capability can mean the difference between smooth compliance and costly outages.

People as the first line of defense

Even the best-written policies can fail without buy-in from the people who enforce them daily. Telecom operators often manage teams that are dispersed across vast geographies, sometimes working in remote areas with limited oversight.

"Networks are only as secure as the people managing them. In telecom, this often means network engineers and operations teams spread across multiple countries. To keep policies effective, organisations need to embed awareness into daily network operations," suggests Tadmor, who highlights practical methods like simulation exercises, localised training in native languages, and empowering 'security champions' within teams who act as policy advocates.

Smit describes a mix of digital training and testing: "through the distribution of online training programs, video content can be provided which assists users in understanding the risks and also tests their knowledge as relevant to the communicated risks. We also conduct phishing simulation exercises with staff to ensure that they are able to identify these risks."

Khaira highlighted how policy accountability can be built into everyday workflows: "using FireMon's policy recertification module, you can assign regional or role-specific policy bundles to individual or group 'policy owners' who must review and electronically sign off on compliance at regular intervals. Automated reminders and overdue-notice alerts ensure no one falls behind, and you get a full audit trail showing who reviewed what, when, and in which language or locale.

Together, these strategies reinforce a key point: security is cultural as much as it is technical. Embedding

compliance into staff behaviour transforms policies from checklists into living practices.

Keeping pace with emerging threats

Africa's telecom landscape faces a blend of global and local threats. While ransomware, phishing, and DDoS are universal, the region has its own challenges such as SIM box fraud, mobile money scams, and vulnerabilities in subsea cables that connect the continent to global internet backbones.

"As African telcos navigate a rapidly evolving digital landscape, they face a unique convergence of regulatory complexity, infrastructure gaps, and emerging cyber threats. The proliferation of AI, IoT, and 5G technologies has expanded the attack surface, making telecom networks increasingly attractive to threat actors," says Trend Micro's Technical Lead, African Cluster, Emmanuel Tzingakis. "From phishing, which accounts for 34% of cyber incidents in Africa, to SIM swap fraud and ransomware attacks like the Telecom Namibia breach, the stakes have never been higher. These challenges demand more than reactive security measures; they call for a proactive, risk-based approach that offers real-time visibility into every asset, vulnerability, and threat vector."

"To stay ahead, operators need to continuously assess network exposure and update policies in real time. That means embedding threat intelligence feeds into firewall, router, and segmentation policies, and automating updates across the network," says Tadmor. "Centralised policy management platforms are essential - they allow operators to push consistent network security controls across thousands of sites, even in remote or bandwidth-



Ruby Khaira,
FireMon



Emmanuel Tzingakis,
Trend Micro

constrained regions.”

Smit describes how AdaptIT keeps policies responsive: “we receive regular updates from security tools deployed as well as industry specialists, partners and suppliers that assist us in identifying areas of concentrated risk. If a change in policy would decrease the identified risk, those would then be applied.”

Khaira describes FireMon’s risk-driven approach: “when a high-risk vulnerability is identified, you model and validate the necessary policy changes in FireMon’s simulation environment to ensure there’s no unintended service impact. Once approved, updates can be pushed at scale across thousands of devices, and scheduled compliance scans will immediately flag any drift or residual exposures. Regular policy-review workflows, triggered by feed-based risk thresholds or calendar milestones, keep your baselines adaptive and focused on the vulnerabilities most likely to affect your environment.”

With the stakes this high, the ability to update and enforce security policies dynamically is not optional — it’s existential.

What makes a strong policy management framework?

When asked to define the key components of an effective framework, experts converged on several recurring themes: visibility, automation, adaptability, and continuous improvement.

According to Tufin, looking from a network security standpoint, an effective policy management framework for telecoms in Africa includes centralised policy visibility - a single source of truth for all firewall, router, and segmentation rules; automation at scale - the ability to roll out changes securely



across diverse and geographically dispersed infrastructures; risk-based enforcement - policies aligned with critical network assets such as mobile core, data centres, and cloud interconnects; and audit and compliance monitoring - continuous verification that network policies comply with both international standards and local telecom regulations.

“This combination ensures networks remain resilient, compliant, and adaptable in Africa’s fast-changing digital ecosystem,” asserts Tufin.

“An effective telecom policy framework requires centralised visibility with local adaptability,” agrees Conco. “This includes unified management across fixed, mobile, and cloud, segmentation by geography, and identity-aware rules. Continuous compliance monitoring and adaptive intelligence ensure alignment with both Global Systems for Mobile Communications (GSMA) and local requirements, while high availability ensures consistent enforcement across large networks.”

Meanwhile, Khaira calls for six core components for the effective delivery of Network Security Policy Management (NSPM) for Africa’s operators:

- 1. Custom control libraries & metadata tagging**
Define and group controls to reflect both international best practices (ISO 27011, PCI-DSS, GSMA-SCC) and local mandates (e.g., POPIA, NCC cybersecurity guidelines). Tag each control with jurisdictional metadata so policy bundles can be assembled and applied by country or region.
- 2. Risk-driven policy analysis**
Ingest vulnerability and

configuration-risk feeds. Map those risk scores directly to firewall and router policies, prioritise high-impact rules for remediation, and track residual risk across your device estate.

3. Change automation & simulation

Model policy updates to validate reachability, compliance and performance before roll-out. Push approved changes automatically to thousands of devices, minimising manual effort and human error.

4. Continuous compliance monitoring & drift detection

Schedule automated compliance checks and real-time drift alerts to detect deviations from approved baselines. Integrate with your ITSM (e.g., ServiceNow) or ticketing tool so that every exception is triaged and remediated promptly.

5. Policy certification & audit reporting

Embed regular attestation workflows, by role, team or geography, to ensure policy owners review and sign off on their rule sets. Generate executive- and auditor-ready reports that map each rule back to its governing control or regulation.

6. Scalable, multi-vendor & multi-site support

Manage heterogeneous environments (firewalls, routers, cloud gateways) across core, edge and roaming networks. Scale horizontally as you add POPs or partners, with consistent governance and visibility from a single pane of glass.

“Together, these components ensure that telcos can adapt rapidly to new regulations, evolving threat landscapes and infrastructure growth while maintaining a lean, audit-ready security posture

across thousands of globally dispersed devices,” shares Khaira.

Policy as a strategic asset

African telecoms are at the frontline of digital transformation. Their networks underpin mobile banking, digital identity services, and national security systems — making robust security policy management more than just a compliance requirement. It’s about safeguarding trust, enabling innovation, and ensuring continuity in an environment where both opportunities and threats are multiplying.

As Tzingakis sums up: “by aligning security policy management with business outcomes like operational continuity and regulatory compliance, we help telecom operators across Africa build resilient, future-ready infrastructures that protect both customer trust and operational continuity.”

The consensus from industry leaders is clear: successful telecoms will treat security policy management not as a burden, but as a strategic asset — one that allows them to expand confidently, adapt to new regulations, and withstand the threats of an increasingly connected continent. ■



Erez Tadmor,
Tufin



Jaco Smit,
AdaptIT

Eyes on the skies: how lasers and latency will shape Africa's satellite-based digital future

Across Africa, demand for reliable connectivity is firmly on the rise. Digital tools underpin everything from mobile banking to agricultural forecasting, from virtual classrooms to telemedicine in rural clinics.

It's the global leader in mobile money, accounting for 65% of the world's \$1.1 trillion worth of transactions, with services like M-Pesa thriving in areas like Kenya and Tanzania. Tools like Digital Green are providing farmers in Ethiopia with climate and soil data for improved crop planning. And platforms such as Hello Doctor and mPharma are revolutionizing telehealth in countries like Nigeria and beyond.

Yet, despite the rapid growth of Africa's digital economy, a significant portion of the continent still remains offline. According to the International Telecommunication

Union (ITU), only around 37% of the population in Africa have reliable internet access, almost half the global average. That leaves hundreds of millions without access to these pioneering digital services – as ever, the bottleneck is not innovation, but connectivity. The digital divide used to be a matter of inconvenience, but now it's a question of economic opportunity, social participation, and national resilience.

Satellites – particularly the new generation of low Earth orbit (LEO) constellations – are emerging as one of the most promising ways to close this divide. Unlike terrestrial fiber or mobile networks, which require extensive infrastructure buildouts, satellites can deliver coverage to deserts, rainforests, islands, and remote communities with equal ease. They can complement undersea cables and terrestrial backbones, ensuring that connectivity is not limited to major urban centers. For Africa, where vast distances and limited infrastructure have historically slowed progress toward universal access, the ability to beam high-speed, low-latency internet directly from the skies represents a transformative leap forward. We've mastered getting satellites into orbit – the question now is how quickly these satellites can be used to

secure Africa's digital future, and how quickly – and intelligently – they can be

integrated into the continent's broader connectivity ecosystem.

Africa's rising space footprint

Africa's space ambitions are already reshaping the continent's digital trajectory. More than 21 African nations now operate space programs, with at least 65 satellites in orbit serving everything from Earth observation to communications. Leaders such as Nigeria, South Africa, Egypt, Algeria, and Morocco have steadily expanded their fleets, while emerging players like Ghana and Tunisia have shown what's possible with homegrown innovation. Ghana's first satellite, GhanaSat-1, was built and launched by university students in partnership with the Kyushu Institute of Technology in Japan, while Tunisia's Challenge-1 marked the country's first domestically manufactured satellite. These milestones demonstrate that space is not merely the preserve of the world's largest economies – it is becoming a field where all nations can contribute directly to solving their own challenges.

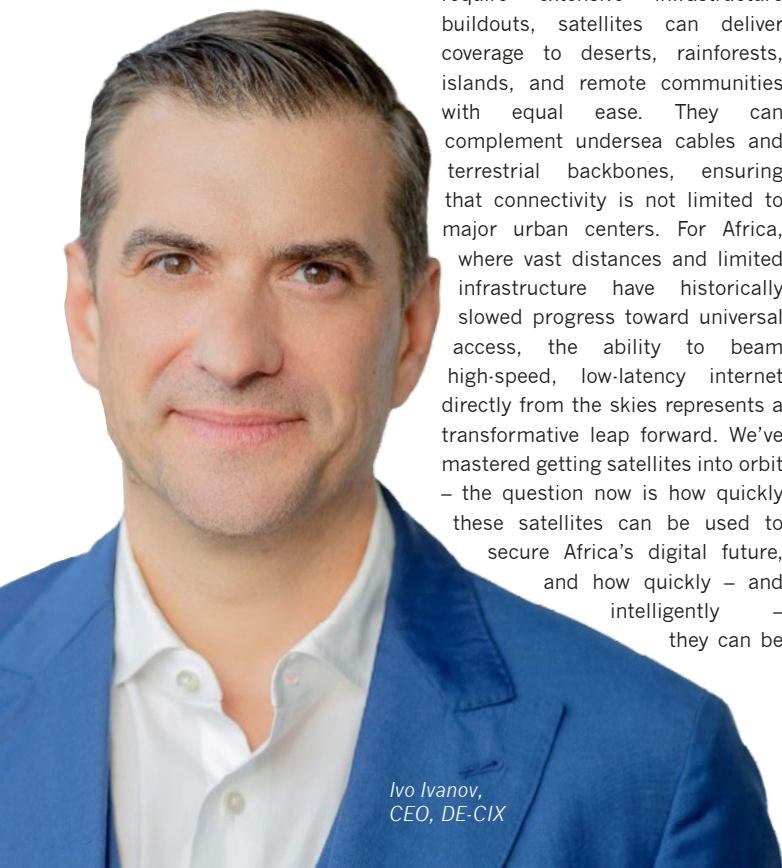
But this isn't about prestige. Across the continent, Earth observation missions are helping farmers track rainfall patterns, manage crop yields, and adapt to shifting climates. Governments are leveraging satellite imagery to monitor deforestation, track urban growth, and respond to natural disasters. In countries vulnerable to drought and flooding, satellites provide early-warning systems that can save lives and livelihoods. These technologies are also providing the groundwork for

greater digital inclusion, enabling previously underserved regions to connect into the global economy. With Africa's population projected to double by 2050, the ability to harness space for smarter agriculture, climate resilience, and connectivity is essential for sustainable growth.

Latency matters (more than you think)

Whatever ambitions propel humanity beyond the stratosphere, everything depends on connectivity. And these days, connectivity is measured not just in coverage, but in latency: the fraction of a second it takes for information to make a round trip across the network. Naturally, this is a difficult thing to overcome with satellites and terrestrial nodes being so far apart. Low latency is the difference between a smooth video call and a broken one, between a reliable cloud application and a frustrating delay. By orbiting just a few hundred kilometers above the planet, rather than 36,000km like their geostationary (GEO) counterparts, low Earth orbit (LEO) satellites can reduce transmission times from 400–700ms down to 20–50ms. But is that good enough?

Fiber connections, particularly those that use local Internet Exchanges (IXs), can achieve transmission times of 1–5ms for a round trip, so while 20–50ms might sound impressive, it's not yet on a par with fiber-based connectivity. We cannot bring satellites any closer, so instead we need to look at optimizing how data traffic is managed between orbit and Earth. This is the focus



Ivo Ivanov,
CEO, DE-CIX



of the European Space Agency's OFELIAS project, which is developing new protocols, algorithms, and procedures to intelligently control network utilization and overcome the limitations of today's systems. Unlike traditional radio links, OFELIAS is experimenting with laser-based communications, capable of far higher bandwidths and faster information flows. The real challenge is that optical transmissions are more susceptible to atmospheric disturbances – fog, clouds, and rain can slow or disrupt signals. By 2026, OFELIAS aims to deliver a blueprint for how next-generation satellite networks can mitigate these effects and bring truly resilient, high-performance connectivity to Earth – and areas like Africa where universal terrestrial connectivity remains

costly and impractical, will stand to gain the most.

The next frontier

The bottom line is that tomorrow's satellite ecosystems will need to behave much more like the terrestrial Internet: traffic exchanged at neutral meet-points, smart routing across multiple operators, and automatic failover when any single path degrades. That means interconnection – in orbit and on the ground – will become a key design principle. As LEO constellations scale, the bottleneck will be how efficiently traffic is handed off between satellites, ground stations, cloud edges, and national networks so users experience consistent low-latency and reliability across borders.

Africa has a head start on this logic from its terrestrial Internet journey. A 2024 study by the Coalition for Digital Africa reports that the number of operational IXs in Africa had grown from 36 in 26 countries in 2016 to 63 in 38 countries by 2023. Today, there are a total of 68 IXs in Africa connecting a minimum of three independent networks. Building and using these IXs has already shown how local traffic exchange lowers costs and improves performance – an approach the region can eventually extend to space-enabled connectivity as satellite traffic grows.

This global staging is important because connectivity is ultimately a collaborative pursuit, and it's how the region will eventually unlock cross-border applications that demand predictable performance in key areas

like telemedicine, fintech, remote learning, and cloud workloads. Policy momentum is lining up: the African Telecommunications Union highlights the role of satellites in health, education, agriculture, and disaster response, while Europe's Africa-EU Space Partnership Program explicitly seeks Africa-Europe partnerships on digital connectivity infrastructure, creating the right conditions to co-develop interconnection models and shared standards.

Taken together, these steps sketch a near-term pathway: regional satellite-to-ground interconnection hubs, weather-aware optical routing, and common peering frameworks that let African networks exchange space-borne traffic locally and efficiently, just as they do today on land – but with much greater potential coverage. ■

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Financing the future: How safe BNPL is unlocking Africa's smartphone revolution

In Africa, a smartphone is far more than a sleek device — it's a passport to education, healthcare, banking, and economic opportunity. From students in Ghana who boost their grades by using smartphones for homework, to farmers leveraging apps like Esoko to command better crop prices, the impact of connectivity is undeniable. Mobile health platforms such as HelloDoctor and Vula Mobile are bringing medical advice and diagnostics to rural areas once considered unreachable.

The ripple effects extend beyond individuals. In 2022 alone, mobile technologies contributed roughly 8.1% of sub-Saharan Africa's GDP — around

\$170 billion. Each new smartphone user doesn't just join the digital world; they stimulate demand for services, spur job creation, and boost financial inclusion. Kenya

offers perhaps the most powerful example: the spread of mobile money services like M-PESA helped increase financial inclusion from just 27% in 2006 to an astonishing 84% today.

Looking forward, the continent is on track for transformation. Smartphone adoption is forecast to rise from 51% in 2022 to 87% by 2030. That growth promises to close the digital divide and open new frontiers for innovation. Yet the journey isn't without obstacles. The greatest barrier is simple but formidable: affordability.

The power of paying later

For many Africans, smartphones remain out of reach because of cost. An entry-level device can cost the 30-120% of a person's monthly income. This is where Buy Now, Pay Later (BNPL) financing is changing the game.

By allowing users to pay a deposit and spread the cost in daily, weekly, or monthly instalments, BNPL puts smartphones within reach of millions. For some, it's the first taste of digital access and empowerment: 40% of

WATU SIMU customers reported an increase in income after getting

a smartphone, while 30% of customers got new jobs (<https://www.dealfish.co.ke/2025/09/watu-africa-issues-146-million.html>). Meanwhile, Safaricom's Lipa Mdogo Mdogo programme, which lets users pay as little as KSh 20 (around £0.12) per day, has already helped more than 2 million Kenyans upgrade to 4G devices.

Young Africans are especially driving this shift. Among 18-24-year-olds, smartphone ownership surged from 44% in 2023 to 56% in 2024 — a 27% increase, largely fuelled by financing options. Financing has also lifted the quality of devices within reach. Average selling prices for entry-level phones jumped from \$70 in 2023 to \$110 in 2024, reflecting the shift toward better devices enabled by credit.

Crucially, BNPL doesn't just empower consumers. It de-risks lending for operators and retailers. Platforms such as Trustonic's device-locking system reduce bad debt by more than 70%, making it possible to extend credit to users with no formal banking history.

Success stories already shaping the market

Across the continent, BNPL programmes are proving their value at scale.



Carmen van Heerden, Commercial Director MEA, Trustonic

In South Africa, Pepkor's FoneYam service has enabled over 1.5 million customers to access smartphones, now accounting for eight out of every ten prepaid handsets sold. MTN Nigeria, in partnership with Intelligra, went from financing 20,000 smartphones in a pilot phase to delivering 1,000 devices a day. Meanwhile, Safaricom's Lipa Mdogo Mdogo has expanded beyond Kenya into Ethiopia, and M-KOPA has sold more than 6.4 million devices across Kenya, Uganda, and Nigeria — 90% of customers reporting an improved quality of life, with 70% actively using their phones to generate income.

These examples highlight a broader truth: BNPL is not a fringe solution; it is becoming the backbone of Africa's digital expansion.

The business case for operators is equally compelling. Smartphone adoption translates directly

into higher revenue per user, as customers consume more data and digital services. Migrating a subscriber from 2G to 4G is not just an upgrade in technology — it's a revenue multiplier.

Financing also fuels loyalty and brand equity. Pepkor's FoneYam, for instance, has earned glowing reviews from customers grateful for access they couldn't get elsewhere. Some describe it as life-changing, proof that providing affordable pathways builds not only markets but also trust.

Operators are also bundling additional services — from insurance to content subscriptions — into financing plans, generating new revenue streams. Pepkor alone added insurance to 840,000 devices in 2024. Combined with secure enforcement tools like automated device-locking and payment reminders, BNPL improves operational efficiency while growing market share.

Overcoming the trust barrier

The biggest hurdle is trust. Traditional lenders rely on credit scores, payslips, and bank statements — metrics that simply don't exist for large segments of Africa's population. Many earn daily wages, lack bank accounts, and operate entirely outside formal credit systems.

To solve this, BNPL models are innovating. Device locking technologies, with their systems of messages, reminders and if needed, locking if payments stop, making the device itself secure collateral. Alternative credit scoring looks at behavioural patterns — like airtime top-ups, SIM card activity, or mobile money transactions — as proxies for creditworthiness. Requiring small deposits upfront and aligning instalments with informal income cycles further increase repayment rates. And by partnering with fintechs such as M-KOPA and Intelligra, operators gain access to purpose-

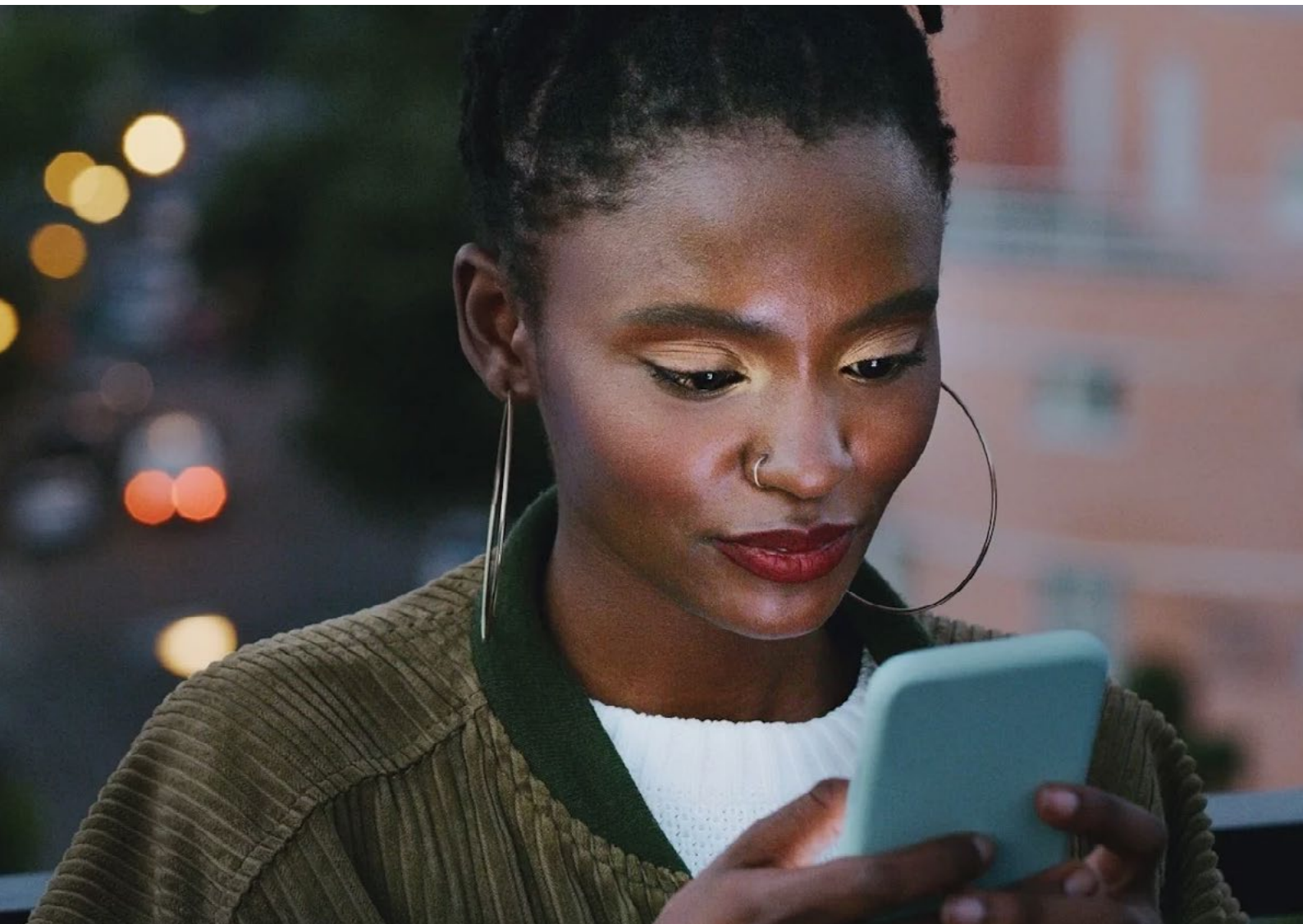
built tools for onboarding, repayment tracking, and risk reduction.

The best answer, for now

BNPL is not the only solution to Africa's smartphone affordability crisis. Smartphones cannot get much more affordable since they're already being produced by the billion and economies of scale have already been reached; however, refurbished devices, subsidies, and public access programmes all play their part.

Yet BNPL stands out as the most scalable, sustainable, and market-driven approach available today. It balances access with accountability, enabling users to join the digital economy while giving operators and retailers confidence in repayment.

The opportunity is clear. With continued innovation, supportive regulation, and deeper partnerships across the ecosystem, BNPL could well be the bridge that connects the next billion Africans to the digital world. ■



Transforming wildlife connectivity in South Africa

Nestled within the sprawling 11,500 hectares of the Waterberg UNESCO Biosphere Reserve in Limpopo, South Africa, Qwabi Private Game Reserve offers an authentic safari adventure amid breathtaking landscapes. Guests enjoy daily game drives to encounter the 'Big Five' and other wildlife in their natural habitat, all while indulging in world-class, luxurious lodges that blend seamlessly into the environment.

Central to delivering this exceptional experience is a dependable and seamless communication network that ensures safety, security, and operational efficiency across the vast reserve.

A robust and integrated communication system

While the reserve's existing digital radio system was functional, it presented several limitations:

- Manual channel switching across unlinked zones hampered natural communication flow.
- Lack of integration with

modern technologies and specialised applications.

- Absence of private call capabilities for management and staff.
- Coverage shadows in mountainous and remote areas, risking safety and operational delays.

When the opportunity arose to upgrade, reserve management prioritised a failsafe, easy-to-use system that could support daily operations and emergency responses, from animal encounters to poacher threats.

Moreover, positioned at the foot of the Waterberg Plateau, the reserve's mountainous terrain, especially along the northern boundaries with high hilltops, created significant shadow zones where radio coverage was unreliable. Collaborating with Brad Algar, Reserve Manager, the teams at Global Communications and its sister company Elvey analysed coverage maps to identify optimal locations for repeaters and plan future expansion, ensuring comprehensive coverage.

Implementing a cutting-edge communication network

Algar's familiarity with KENWOOD radios, gained over years of previous experience, coupled with a strong relationship with Global Communications, influenced his choice. Other manufacturers could meet most specifications, but none matched the combination of coverage, flexibility, compatibility, and cost efficiency offered by the KENWOOD/Global team.

"The Kenwood radios are suited to operate in nature reserves which are harsh and tuff environments where rain, dust and hot temperatures are present. Kenwood radios are well known for ruggedness and durability and as a result, it adds to the success of the

entire radio network," notes Sean Mervitz, Sales Manager for Global Communications.

The new KENWOOD Digital Mobile Radio (DMR) system provided superior quality, reliability, and support at a more competitive cost — delivering exceptional value.

The upgraded system comprises two solar-powered sites, each anchored by a 20m mast fitted with three KENWOOD NXR-1700 repeaters. These sites are interconnected via existing IP links, ensuring seamless communication across the entire reserve.

Device-wise, staff utilise NX-3000 Series radios with built-in GPS for mobile and base operations, and NX3220E hand-portable radios with keypads for field personnel. The integration of KENWOOD's KAS-20 AVL/Dispatch software



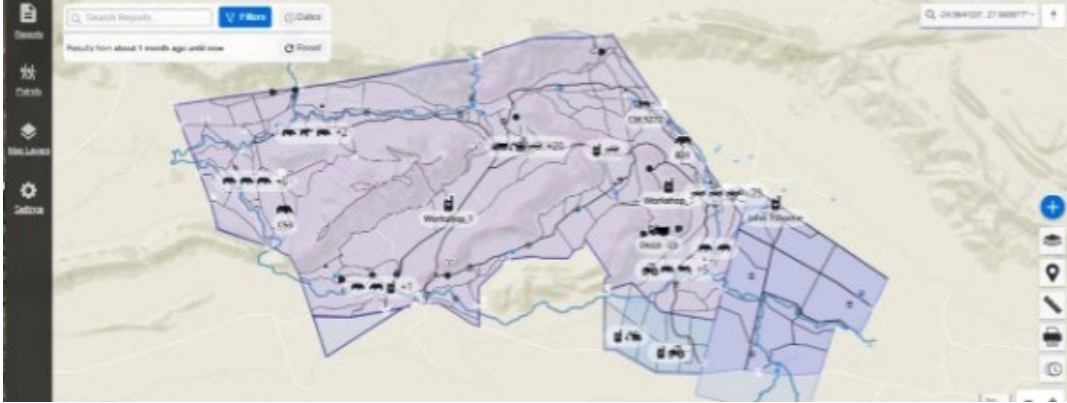




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with EarthRanger offers real-time tracking and management of vehicles, personnel, and wildlife — displayed on an intuitive map interface.

One of the key innovations was the development of a rugged, solar-powered vehicle-mounted ‘Tracker Box,’ enabled by KENWOOD radios. This device, magnetically attachable to any vehicle, allows unaccompanied visitors and contractors to be tracked remotely. Integrated with EarthRanger, it provides real-time location data, drastically reducing response times during incidents and improving safety protocols.

“Our goal was to develop a reliable, flexible tracking solution to enhance safety and operational efficiency. The Tracker Boxes are cost-effective and significantly improve our ability to respond swiftly to emergencies or lost visitors,” says Algar.

Planning for future expansion

While current coverage meets operational needs, Algar is proactively working with Global Communications and Elvey to evaluate additional sites that could extend coverage into shadow zones and support future growth. The modular design of the system allows for seamless expansion, ensuring the reserve remains adaptable to changing needs.

“The upgrade to the KENWOOD DMR system with KAS-20 and EarthRanger integration is transformative. It facilitates free, instant communication across teams, which has greatly enhanced safety, security, and the guest experience. The support from Global Communications and Elvey has exceeded expectations, enabling us to realise our vision for a connected, safe, and efficient

reserve,” says Algar.

By investing in advanced, reliable radio technology, Qwabi Private Game Reserve has set a new standard in wilderness safety and operational excellence. The innovative integration of KENWOOD radios, AVL software, and custom vehicle trackers demonstrates how technology can elevate conservation efforts, improve guest experiences, and ensure the long-term sustainability of this pristine wilderness. ■

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Harnessing LoRaWAN for conservation

The Maasai Mara National Reserve, a jewel of Kenya's rich natural heritage, faces mounting pressures from tourism, poaching, and human-wildlife conflicts. In response, The Safari Collection Footprint Trust (TSCFT), in collaboration with the Narok County Government and key technology partners, embarked on an ambitious project to revolutionise conservation through innovative technology solutions — most notably, the deployment of a state-of-the-art LoRaWAN network.

Addressing over-tourism and its ecological toll

In October 2024, a groundbreaking Maasai Mara Conservation Centre was inaugurated, symbolising a new era in ecological stewardship. Developed through a strategic partnership involving TSCFT, 51 Degrees Ltd., Cisco, Actility, and the Connected Conservation Foundation, this facility integrates advanced EarthRanger software with a robust LoRaWAN network — delivering real-time insights into wildlife and tourism activities. This holistic approach empowers authorities to make data-driven decisions, ensuring the long-term sustainability of one of Africa's most treasured ecosystems.

The Maasai Mara attracts over 300,000 visitors annually, with peak seasons witnessing more than 100 safari vehicles crowding key wildlife hotspots. Such overcrowding disrupts natural behaviours, particularly among sensitive species like cheetahs and predators, leading to decreased reproductive success and altered migration patterns. For instance, research indicates that high vehicle density reduces cheetah cub survival rates dramatically, threatening their long-term viability.

Using LoRa vehicle sensors and live data streams, authorities can monitor vehicle speed, congestion levels, and hotspot activity in real time. These insights facilitate better regulation



of tourist flow, deployment of anti-harassment rangers, and promotion of ethical tourism practices — balancing the economic benefits of tourism with ecological preservation.

Innovative wildlife monitoring for vulnerable species

Traditional Maasai pastoralist practices, such as rotational grazing, are vital for sustainable land use and community livelihoods. The conservation centre supports these initiatives by providing ecosystem data that guides community access to grazing areas outside the Reserve. This collaborative approach promotes harmonious coexistence between humans and wildlife, ensuring resource sustainability and reducing conflicts.

The conservation of endangered species like the Eastern black rhino is a top priority. In partnership with Kenya Wildlife Service and local research institutes, TSCFT has equipped 13 rhinos with LoRa sensors — offering a durable, cost-effective alternative to satellite tags. These devices generate detailed movement heat maps,

tracking rhino migrations across borders into Tanzania and the Serengeti. Such real-time data enhances anti-poaching efforts and informs transboundary conservation strategies.

A shared vision for the future

The Maasai Mara's sustainable future hinges on continuous innovation, community engagement, and collaborative stewardship. Supported by a coalition of organisations — including the Connected Conservation Foundation, Fondation Segré, The Mara Conservancy, and the American Rhino Foundation — this initiative exemplifies the transformative power of collective action.

The deployment of the LoRaWAN network at the Maasai Mara Conservation Centre marks a significant stride toward addressing overtourism, safeguarding endangered species, and fostering responsible tourism. By providing actionable data and fostering community involvement, this project sets a precedent for conservation efforts across Africa and beyond — ensuring that the Maasai Mara remains a vibrant sanctuary for generations to come. ■

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New DIN-Rail Edge computer lineup for smart city gateways

Advantech has launched two innovative DIN-rail edge computer series: the ARK-1251 and ARK-1222.

These ultra-compact, fanless systems are specifically engineered for space-constrained and rugged industrial environments, delivering dependable edge intelligence with flexible expansion options and versatile I/O interfaces. Despite their compact design, both models provide powerful functionality. They come integrated with Advantech's DeviceOn software and SUSI API, enabling real-time system monitoring, remote diagnostics, and automated recovery processes. Equipped with built-in TPM 2.0 and advanced hardware management features such as multi-level watchdog timers and comprehensive hardware health monitoring, these systems significantly enhance cybersecurity and ensure long-term reliability.

Housed within a rugged IP4X-rated chassis, the ARK-1251 and ARK-1222 support a wide 12 to 28 VDC input range and feature space-saving DIN-rail mounting, making them ideal

for smart automation and smart city edge computing applications. These systems are built to provide the intelligence, efficiency, and durability necessary for demanding industrial edge deployments.

The AI-accelerated ARK-1251 model is powered by Intel® Core™ Ultra Processors 125U and 155U, featuring a hybrid SoC architecture that combines CPU, GPU, and NPU cores. This setup enables high-performance AI computing with low power consumption. The ARK-1251 supports up to 96GB of DDR5 5600 MHz SODIMM memory and includes multiple M.2 slots for 5G/LTE modules, Wi-Fi, and NVMe SSD storage. Connectivity options are extensive, featuring multiple USB ports, dual RS-232/422/485, RS-422/485 ports, dual 2.5GbE, a 1GbE port, and dual display outputs. It's also the first in the ARK series to support EdgeBMC management, allowing both in-band and out-of-band management via Advantech's DeviceOn platform. Its compact form factor and advanced capabilities make

it suitable for a variety of applications, including machine automation, AI-based inspection, cobot integration, and real-time quality control in manufacturing environments.

Meanwhile, the ARK-1222 functions as an industrial intelligent gateway, powered by Intel® Atom® x7433RE and Intel® Celeron® N97 quad-core processors. It comes pre-installed with 16GB of DDR5 memory, ensuring reliable computing performance with high energy efficiency. Its versatile I/O connectivity includes 2 x 2.5GbE, 4 x RS-232/422/485, multiple USB

ports, and dual HDMI outputs for display flexibility.

Expansion options include mPCIe and M.2 slots, supporting Wi-Fi, 5G, and the EAI-1200 Hailo AI accelerator. Built for harsh industrial environments, the ARK-1222 offers long-term reliability for mission-critical applications. It is ideal for industrial automation, IoT gateway solutions, and edge AI deployments in demanding conditions, supporting smart city initiatives such as intelligent traffic management, environmental monitoring, and public safety systems.



Safeguarding profitability across CSP networks

TEOCO's latest SmartCircuit release features an innovative suite of modules designed to optimise the entire lifecycle management of transport network circuits for Communications Service Providers (CSPs). This comprehensive solution aims to enhance financial stability, streamline operational processes, and safeguard profitability across complex transport networks.

SmartCircuit features six interoperable modules that continuously analyse wholesale circuits — from contract inception through to revenue realisation — empowering CSPs with the tools necessary to govern and optimise their transport infrastructure effectively. Key capabilities include contract abstraction and validation, which centralises all wholesale service agreements, extracts key terms and conditions, and cross-references them with actual services delivered and associated costs. This ensures compliance and accuracy while providing a holistic view of contract families, including amendments, addenda, and schedules related to financial, location, and service aspects.

The solution enables CSPs to generate

precise ordering instructions based on the latest contract amendments, significantly improving operational accuracy and efficiency. It also facilitates detailed calculations of contracted financial commitments at any given point, supporting precise budgeting and forecasting. Additionally, SmartCircuit helps identify overcharges and unused services, unlocking cost recovery and optimisation opportunities.

"SmartCircuit supports the governance of the complex lifecycle of every transport network circuit. It streamlines and orchestrates the entire process, protecting profitability. Its contract management capabilities — especially the consolidated view of entire contract families — are truly a game changer," said Faye Henris, EVP of Business Analytics at TEOCO.

Integrated within TEOCO's flagship SmartSuite portfolio, SmartCircuit is built on a flexible, carrier-grade platform capable of handling data-intensive workloads and advanced analytics. This scalable, future-proof solution is designed to meet the evolving cost management needs of CSPs.

Managed satellite services for uninterrupted airport connectivity

In an industry where even seconds of downtime can cause significant disruptions, SITA has introduced Managed Satellites, a fully managed satellite service designed to keep airports and airlines connected at all times — regardless of outages, natural disasters, or remote locations.

Available in over 130 countries, this service offers primary, secondary, and emergency connectivity options tailored for the air transport sector. Leveraging low earth orbit (LEO) satellites, it provides secure, high-bandwidth, low-latency communications that ensure critical systems remain operational during network failures or congestion.

The solution directly addresses vulnerabilities of traditional fibre and terrestrial networks, which are susceptible to earthquakes, weather events, fibre cuts, and peak congestion. It is ideal for off-airport sites, aircraft maintenance hangars, cargo hubs, and emergency deployments, enabling

continuous operations even in challenging circumstances.

Martin Smillie, SVP at SITA, emphasized that this technology is vital for maintaining high availability in airports by offering a flexible, cost-effective way to enhance network resilience and optimize digital operations. The service includes 24/7 monitoring, installation, support, and seamless integration with other SITA connectivity solutions.

Key features include industry-regulated, secure satellite connectivity; full lifecycle management and support worldwide; proactive monitoring to prevent disruptions; bundling options with other airport connectivity services; and expert on-site support for deployment and maintenance.

As airports become increasingly dependent on uninterrupted digital systems, SITA Managed Satellites provides the reliable, resilient connectivity needed to operate smoothly in any situation.

Radio planning and optimisation for telcos

Forsk has introduced Atoll One, a state-of-the-art radio planning and optimisation platform designed to revolutionise how telecom operators deploy, manage, and optimise their wireless networks.

Developed with a modern, cloud-native architecture, Atoll One offers a comprehensive suite of tools that streamline the entire network planning lifecycle — from initial coverage assessment to ongoing performance optimisation — helping operators deliver reliable, high-quality connectivity while reducing costs and accelerating deployment timelines.

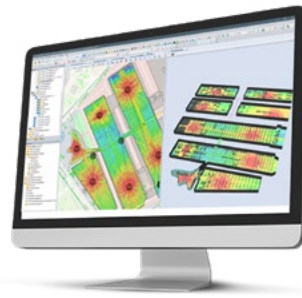
Atoll One boasts an intuitive and user-friendly interface combined with powerful automation features, enabling network engineers and planners to perform detailed radio coverage studies, site selection, interference analysis, and capacity planning with greater precision and efficiency. Its advanced 3D propagation modelling algorithms support accurate simulations of real-world environments, including urban, suburban, and rural terrains, ensuring optimal placement of cell sites and frequency allocations. This enables operators to maximise network

coverage, improve signal quality, and enhance user experience across diverse geographic regions.

One of the platform's key strengths lies in its flexibility and seamless integration capabilities. Atoll One is designed to connect effortlessly with existing OSS/BSS systems, enabling real-time data exchange, automatic updates, and streamlined operational workflows. This interoperability facilitates more dynamic planning processes, reduces manual work, and helps teams respond swiftly to network changes or new deployment requirements.

The platform also includes sophisticated capacity analysis tools that allow operators to forecast future demand and optimise resource allocation accordingly. Built-in analytics and comprehensive reporting features provide deep insights into network performance, enabling data-driven decision-making and continuous optimisation. Whether planning for 4G, 5G, or future network generations, Atoll One is scalable and adaptable, supporting the evolving needs of modern wireless networks through its modular design.

Designed for both new network



rollouts and the ongoing optimisation of existing infrastructure, Atoll One empowers telecom operators to enhance network quality, reduce operational costs, and shorten time-to-market for new services. Its robust architecture ensures high performance and reliability, even when handling large-scale, data-intensive planning tasks, making it an essential tool for operators aiming to stay competitive in the rapidly evolving wireless landscape.

Forsk's Atoll One stands out as a future-proof, comprehensive solution that combines innovative features, ease of use, and scalable architecture — empowering telecom providers to meet the demands of today's dynamic connectivity environment and prepare for the networks of tomorrow.

Look out for...

Beyond Earth: the future of space-based data centres

Future technology is rapidly evolving, with ambitious plans to revolutionise data storage and processing beyond Earth's atmosphere.

One company leading the charge is Lonestar Data Holdings, which envisions establishing a data centre on the Moon. President Stephen Eisele asserts that placing data centres in space offers unmatched security, shielding data from terrestrial threats and hacking attempts. Recently, Lonestar successfully tested a tiny, hardback-sized data centre that travelled to the Moon aboard the Athena Lunar Lander, launched by SpaceX.

The growing demand for data processing, driven by artificial intelligence and digital expansion, has strained Earth's existing infrastructure. Finding suitable locations on Earth is increasingly difficult due to environmental concerns, land availability, and local opposition. Space-based data centres could circumvent these issues, leveraging the limitless solar energy available in space and eliminating local environmental impacts.

Recent research, including a European Commission-backed study by Thales Alenia Space, explores the feasibility of orbiting data centres. The proposed constellation of satellites would provide a data processing capacity comparable to large terrestrial centres, with plans for modular, expandable systems built in orbit. However, experts warn of significant hurdles, such as the high costs of launching equipment, challenges in cooling without gravity, and vulnerability to space weather and debris.

Despite these challenges, companies like Lonestar remain optimistic. They plan to launch a Moon orbiting data centre by 2027 and anticipate broader adoption within the next decade. These space-based solutions promise enhanced security and compliance with data sovereignty laws, as data stored in space would be governed by the laws of the country that launched the hardware. As interest and investment grow, the future of data centres may very well be beyond our planet, marking a new frontier in digital infrastructure.

Rugged modular BoxPC for demanding industrial applications

Westermo recently unveiled the Hyrax-1000, a rugged, modular BoxPC engineered for demanding railway and industrial environments. Built in line with the open ModBlox7 standard developed by PICMG, this platform offers scalable performance options through various CPU configurations and supports extensive customization for diverse applications.

Despite its compact size, the Hyrax-1000 comes equipped with a comprehensive array of interfaces — including Gigabit Ethernet, RS232/422/485, DisplayPort, and USB 3.0 — in its base configuration. Its modular architecture allows users to add up to seven communication or interface modules, enabling tailored hardware setups. The housing supports multiple mounting options such as DIN rail, wall, and 19-inch rack, facilitating seamless integration into control cabinets, vehicles, or space-constrained environments.

Designed to meet the rigorous EN 50155 railway standard, the

Hyrax-1000 operates reliably across temperatures from -40°C to +70°C, and is maintenance-free, making it ideal for long-term deployment in critical applications. It provides a versatile, future-proof platform for train manufacturers, railway operators, and system integrators seeking reliable alternatives to proprietary embedded systems.

Addressing industry challenges related to inflexible, proprietary solutions, the Hyrax-1000 leverages the open ModBlox7 standard — a scalable, modular platform architecture developed by PICMG with input from over 130 industry members. Westermo has been a key contributor to shaping this standard through collaboration with 18 industry partners, promoting interoperability and cross-vendor compatibility. The Hyrax-1000 is the first commercial embodiment of this vision, combining scalability, configurability, and integrated GNSS support for advanced edge computing applications such as telematics,

diagnostics, passenger infotainment, IoT gateways, and cloud data services.

The system's fanless and maintenance-free design, along with its flexible mounting options, allows for integration into vehicles and control cabinets, even in space-limited setups. Its modular design supports additional extension modules, including wireless options like Wi-Fi 3x3 MIMO (802.11ac) and LTE, with support for up to four SIM cards per module to enhance network coverage and operational flexibility. Wi-Fi modules support both client mode — enabling train-to-ground communication — and access point mode for onboard device connectivity.

Future plans include expanding the module ecosystem to further extend capabilities while maintaining an open-platform approach. The Hyrax-1000 features dedicated internal M.2 SSD mounting space, connected via the CPU's SATA 3.0 port, supporting applications such as multimedia streaming, operational logging, and sensor data analytics.

Digicel Fiji and SPBD Microfinance to empower rural women with mobile money

 Digicel Fiji has partnered with SPBD Microfinance Fiji, a microfinance institution dedicated to supporting women in rural villages, to enhance financial inclusion through the MyCash mobile money platform. The collaboration aims to simplify access to microfinance services for women entrepreneurs living in remote communities.

Under the agreement, SPBD members can receive their microloans directly into their MyCash wallets, eliminating the need for long trips to collect funds. They will also be able to use the MyCash app for loan repayments, money transfers, and managing their finances conveniently from their mobile devices.

Additionally, Digicel Fiji will equip SPBD members with QR

Pay solutions, including co-branded collateral and stands, with transaction fees waived. This initiative enables members to become formal micro-merchants, transacting using personalised QR codes similar to small grocery shops, thus increasing their visibility and business opportunities — an effort highlighted by SPBD founder and CEO Gregory Casagrande.

Casagrande emphasised that the partnership aims to empower Fijian women to grow and sustain their small enterprises by making financial services more accessible and convenient: “this digital transition saves our members time and money, allowing them to focus more on their businesses and families.”

Farid Mohammed, CEO of Digicel Fiji, added that combining MyCash with SPBD’s microfinance model

delivers vital financial tools to women who are key drivers of their communities. He stressed that the partnership is not just about transactions but about fostering economic growth and resilience in Fiji’s most remote areas.

To support this mission, both organisations will provide digital training and technical support to help women entrepreneurs improve their financial literacy and technological skills, further strengthening their capacity to succeed.



Salam Telecom completes 5G mmWave trial

 Salam Telecom, in collaboration with Huawei, has successfully completed a groundbreaking trial of multisenario 5G millimeter wave (mmWave) technology.

The trial showcased Huawei’s state-of-the-art equipment delivering remarkable speeds and coverage across diverse settings, highlighting the transformative potential of 5G mmWave technology for the kingdom’s digital future.

The trial achieved several notable milestones, including reaching peak data speeds of 6.9Gbps at short distances and maintaining a steady 5Gbps over a span of 6km, demonstrating the ultra-fast data capabilities suitable for dense urban environments. Additionally, the technology sustained high-speed connectivity of 4Gbps over an extended range of 10km, illustrating mmWave’s ability to deliver both high capacity and broad coverage in suburban and rural areas.

Dialog Axiata expands 5G trial network across Sri Lanka ahead of spectrum auction

 Dialog Axiata has announced the expansion of its 5G trial network into 15 districts nationwide, as the company prepares for the country’s highly anticipated 5G spectrum auction scheduled for early December.

The trial network now covers major urban centres including Colombo, Gampaha, Kalutara, Kandy, Kurunegala, Puttalam, Anuradhapura, Nuwara Eliya, Galle, Matara, Batticaloa, Ampara, Trincomalee, Jaffna, and Kilinochchi, with plans to extend further into additional urban and rural areas.

Dialog’s CTO, Ranga Kariyawasam, emphasised the importance of this milestone, stating that expanding the trial network represents a significant step in shaping Sri Lanka’s digital future. The company has been testing 5G since 2018, alongside rival SLT-Mobitel, which is also conducting trial services, as both await the Telecommunications Regulatory Commission of Sri Lanka’s (TRCSL) allocation of spectrum.

The spectrum auction process officially commenced on October 3 when the Ministry of Digital

Economy issued the Notice of Assignment, nearly a year after the TRCSL announced plans to auction the 3.5-GHz and 27-GHz bands for 5G services, with a scheduled auction date in December 2024. Bidders have until November 10 to submit their bids for 100 MHz of spectrum in the 3.5-GHz band and 200 MHz in the 27-GHz band. The list of approved bidders will be announced on November 24, with the auction itself set for

3 December. The process will conclude by December 15, when the first payments are due.

Earlier this year, Dialog claimed to have conducted Sri Lanka’s first successful Voice over New Radio (VoNR) trial on a live standalone 5G network. In August, the company launched a low-cost 5G smartphone in partnership with ZTE, priced at LKR35,999, aiming to boost consumer adoption ahead of the commercial rollout of 5G services.



Avante powers VENTAmobile's MVNO transformation with advanced BSS/OSS platform

 Avante, a prominent provider of comprehensive software solutions for the telecommunications and fintech industries, has successfully deployed its complete MVNO platform for VENTAmobile, a Latvian telecom operator.

This strategic implementation equips VENTAmobile with a robust IT infrastructure that encompasses all essential Business Support Systems (BSS) and Operations Support Systems (OSS), enabling the operator to establish a fully functional MVNO. The integrated solution ensures seamless connectivity with third-party

systems, empowering VENTAmobile to launch innovative, cost-effective services and strengthen its position in the competitive global roaming and traffic transit markets.

Based in Paralimni, Cyprus, and Riga, Latvia, Avante's MVNO Suite provides VENTAmobile with a comprehensive IT and network enablement platform that covers critical BSS/OSS functions and guarantees smooth integration with external systems. This upgrade allows VENTAmobile to accelerate service launches, optimise operational efficiency, and expand its portfolio of offerings, including sponsored roaming, multi-IMS

solutions, M2M services, eSIMs, and wholesale voice and SMS transit.

Founded in 2015, VENTAmobile leverages its own communication platform to deliver instant SMS worldwide, flexible voice routing, and reliable roaming services without entry barriers or monthly commitments. The partnership with Avante provides the operator with a future-ready foundation to innovate faster, adapt to evolving market demands, and deliver greater value to partners and enterprise clients globally.

Viktors Topors, Member of the Board and spokesperson for VENTAmobile, expressed

enthusiasm about the project, emphasising that it represents more than an infrastructure upgrade. He highlighted that the new platform is a vital step toward shaping the future of telecommunications by enabling faster innovation, greater flexibility, and enhanced service delivery. Issa Chini, VP Strategy & Growth at Avante, noted that the collaboration underscores the increasing demand for MVNO enablement platforms that combine speed, reliability, and adaptability. He affirmed that Avante's BSS/OSS suite is designed to support operators worldwide in transforming their business models and offering innovative services.

Kyivstar expands testing of Starlink across Ukraine

 Kyivstar has announced plans to broaden the testing of Starlink's Direct-to-Cell (D2C) satellite service across most regions of Ukraine, excluding border zones, temporarily occupied territories, and areas experiencing active hostilities amid the ongoing Russian invasion.

This move signifies a second phase in Kyivstar's evaluation of Starlink's low Earth orbit (LEO) satellite-based D2C technology, which initially began in July. The company has secured regulatory approval from Ukraine's National Commission for the State Regulation of Electronic Communications, Radio Frequency Spectrum, and Postal Services (NCEC) to conduct tests on the same frequency bands under its existing license.

Kyivstar views D2C, also known as direct-to-device (D2D) technology, as a vital tool for maintaining reliable communication channels and supporting sustainable business operations in challenging conditions, ranging from remote mountainous regions to conflict-affected zones. The company highlighted that this technology could prove especially beneficial during prolonged blackouts and in frontline or recently liberated territories. It is also anticipated to aid humanitarian de-mining efforts and support emergency services during crises.

The company's engineers will

conduct real-world tests to evaluate how effectively the technology performs in various scenarios, including emergencies and everyday use.

"Starlink Direct to Cell testing is an important step towards creating an additional communication system that complements our ground-based mobile infrastructure. The technology will allow businesses to serve customers where communication is limited, and users to stay connected even in the most difficult moments," said Ilya Polshakov, Kyivstar's director of new business development.

Kyivstar assured that all safety standards will be observed throughout the testing process and that the trials will not compromise the quality of its existing terrestrial mobile services. The Ukrainian regulator, NPEC, plans to monitor the testing closely to ensure that D2C operations do not interfere with current networks or violate technical and regulatory standards.

The company intends to roll out D2C services enabling messaging through platforms like SMS, WhatsApp, and Signal to all subscribers by the end of this year, with full voice and data services expected to be available by the second quarter of 2026. Additionally, Kyivstar aims to leverage Starlink's D2C capabilities to bolster Ukraine's financial services and digital payments infrastructure through a partnership with Mastercard, announced last month.

Nubicom plans \$200 million investment to launch 5G network in Paraguay

 Nubicom, a newcomer to the Paraguayan telecommunications market, has announced plans to invest around US\$200 million over the coming years to establish a standalone 5G network in Paraguay, aiming to build the country's largest 5G infrastructure.

The Argentine operator revealed this intention shortly after being awarded a license to provide 5G services in Paraguay and establishing a local entity, Nubicom Paraguay.

The company primarily offers fixed internet and telecommunications services across several Argentine provinces, including Salta, Jujuy, and Catamarca, and provides video surveillance systems for the region. Nubicom's move into Paraguay marks its first expansion outside Argentina, driven by the country's regulatory environment, which offers more affordable licenses with flexible deadlines, enabling cost savings that can be allocated to network deployment.

Nubicom and Claro, the other license winner, secured 200MHz of spectrum in the 3.5GHz band after a tender held in August. The auction did not include Tigo and Personal, as reports indicate that these operators opted out due to restrictive rules on

vendor participation, which excluded Chinese equipment manufacturers. However, there are indications that Tigo is engaged in discussions with Paraguay's regulator, Conatel, to gain access to spectrum allocated for 5G services.

Nubicom states that it has already met most of the technical and operational requirements for the spectrum auction, including expertise in tower design, fibre deployment, radio links, and hybrid energy solutions. The company plans to partner with Ericsson and Nokia for the more specialized aspects of its 5G rollout, with funding likely coming from one or more undisclosed financial backers.

According to the auction rules, Nubicom and Claro are required to deploy at least 100 radio base stations across Paraguay for every 100MHz of spectrum awarded. Furthermore, 10% of these stations must serve facilities of government agencies and entities designated by Conatel and the Ministry of ICT. Nubicom's entry into the market has faced some challenges, as local telecom operator Personal's subsidiary, Nucleo, suggested that Nubicom did not meet the auction requirement of having at least 100,000 customers, a criterion set by Conatel. Nubicom, however, asserts that it fulfilled all the eligibility conditions.

Turkey's 5G spectrum auction surpasses expectations, raising nearly \$3 billion

Turkey's recent 5G spectrum tender, confirmed in August, has concluded successfully, exceeding the initial financial target of US\$2.125 billion.

According to Transport and Infrastructure Minister Abdulkadir Uraloglu, the auction garnered a total of US\$2.95 billion, or approximately US\$3.534 billion including VAT, highlighting strong investor interest and bidding activity.

The auction saw Turkey's three major telecom operators — Turkcell, Vodafone, and Türk Telekom — secure key spectrum blocks across the 700MHz and 3.5GHz frequency bands. Turkcell emerged as the



top bidder in several categories, with a US\$429 million bid for the A1 package in the 700MHz band, and securing four blocks in the 3.5GHz range. Its total winning bids amounted to US\$1.22 billion. Türk Telekom secured the A3 package for US\$425 million along with three other packages, with total bids reaching approximately US\$1.1 billion. Vodafone paid US\$426 million for the A2 package and acquired one 3.5GHz block, with overall bids totalling US\$627 million.

The government plans to initiate the rollout of 5G services starting in April next year, initially targeting major urban centres. Minister Uraloglu specified that the first 5G signals are expected to be available on 1 April, with coverage gradually expanding across the country over the following year, focusing on

densely populated areas before reaching nationwide coverage.

In addition to the spectrum sale, the tender extended the license periods for existing 2G and 3G services, allowing operators to continue their operations until the end of 2042, well beyond the original expiry date of 2029. Companies will contribute 5% of their annual sales from these legacy services to the Turkish Treasury.

This auction marks a significant milestone, being the first frequency auction since 2015, when three operators paid approximately US\$4.66 billion, including VAT, for 4.5G spectrum licenses covering roughly 15 years. The successful bidding and spectrum allocation signal Turkey's commitment to advancing its 5G infrastructure and digital economy.

ETB to deploy alloptical networks across Colombia

ZTE has announced a strategic partnership with Colombian telecommunications provider ETB (Empresa de Telecomunicaciones de Bogotá) to deploy comprehensive all-optical networks across key regions in Colombia, including Bogotá, over the next three years.

Under the agreement, ETB will implement ZTE's end-to-end all-optical solutions, alongside Wi-Fi 7 home broadband technology, aiming to significantly enhance

digital connectivity for residential, educational, healthcare, and SME sectors nationwide. ZTE highlighted that its optical access solutions are both cost-effective and quick to deploy, reducing infrastructure barriers especially in rural and less urbanised areas, thus enabling faster network expansion.

ETB CEO Diego Molano Vega emphasised that the project seeks to transform broadband into a catalyst for opportunities, improving access to education, work, healthcare, and transportation services for Colombian users.

"Through the partnership, Colombian users will enjoy a significantly enhanced digital experience across education, work, healthcare, and transportation," said Vega.

Song Shijie, ZTE's Vice President and General Manager of fixed and multimedia products for international markets, added that the collaboration aims to deepen local cooperation, foster continuous innovation, and explore new models for network development — driving a more connected and digitally inclusive Colombia.



Globe Teleservices partners with Cambodia's Cellcard to enhance A2P SMS Security

Globe Teleservices has announced a new partnership with Cambodian telecom operator CamGSM, better known as Cellcard, to deploy an advanced A2P (Application-to-Person) SMS firewall solution.

The fully integrated platform aims to secure A2P messaging channels and safeguard the network and its customers against the rising threat of SMS fraud, including spoofing, SIM farming, grey routes, and artificial inflation of traffic.

Cellcard CEO Yap Kok Leong emphasized the importance of protecting subscribers amid increasing complexities in network fraud. He stated that the collaboration with Globe Teleservices would strengthen the company's ability to deliver a secure and trustworthy messaging experience for its customers over the long term.

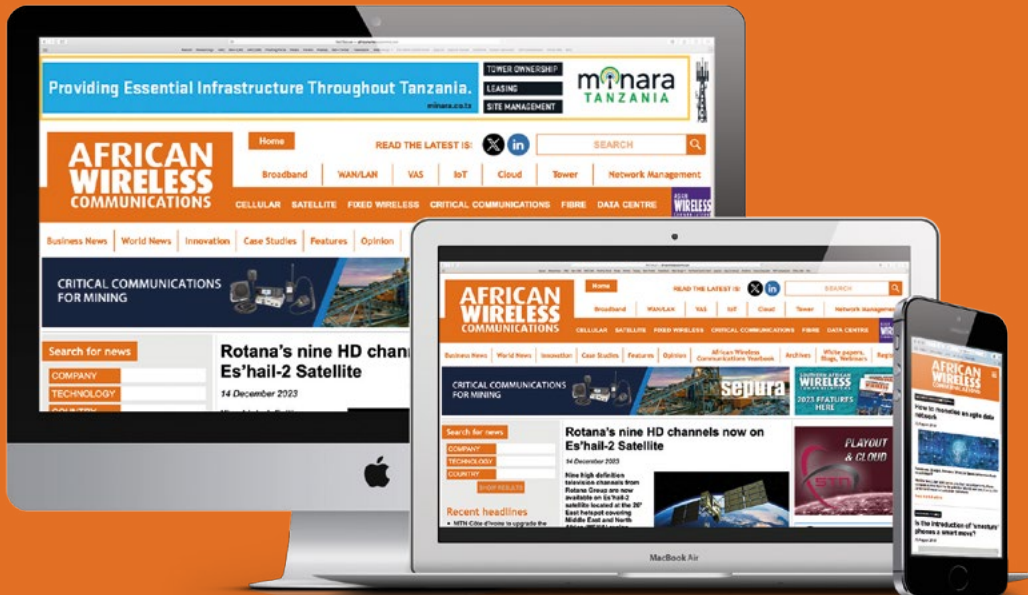
Globe Teleservices Group CEO Ashutosh Agrawal noted that

the deployment of the A2P SMS firewall, which was completed within 60 days, plays a crucial role in helping Cellcard defend legitimate enterprise traffic. He highlighted that this protection could convert potential revenue losses into sustainable income streams.

Agrawal also underscored the significance of the partnership as a strategic step toward fostering innovation within secure and scalable telecom ecosystems across Southeast Asia, reinforcing the region's growing focus on combating fraud and enhancing network integrity.



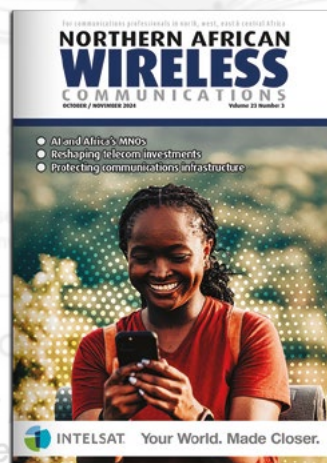
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