

For communications professionals in north, west, east & central Africa

NORTHERN AFRICAN WIRELESS COMMUNICATIONS

JULY/AUGUST/SEPTEMBER 2020

Volume 19 Number 3

- Critical communications: being prepared for the worst
- Looking at how developing nations should approach 5G
- Growing online: remote learning for tomorrow's farmers

***‘North and West Africa –
the trends, the challenges,
and the opportunities’***

– Pierre Chaume, vice president, north and
west Africa market unit, Nokia

A portrait of Pierre Chaume, a middle-aged man with short grey hair, wearing a dark blue suit jacket over a light blue button-down shirt. He is looking directly at the camera with a slight smile. The background is a solid dark blue.

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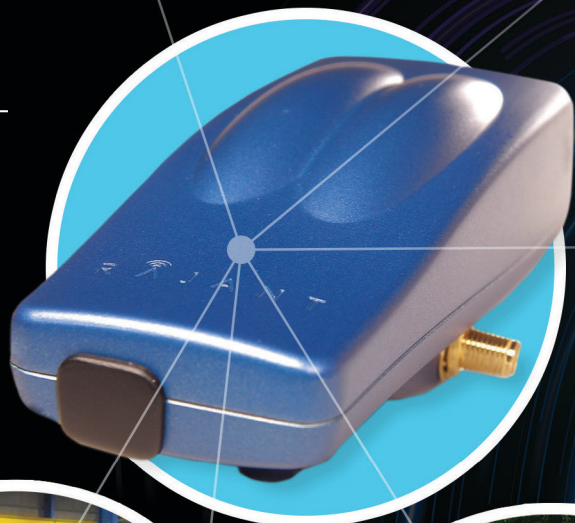
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Tunisian government pledges broadband connectivity in schools

Tunisia has committed to a memorandum of understanding (MoU) to deploy high-speed connectivity, via broadband, in schools across the nation.

The deal, signed by the country's minister of education Mohamed Hamdi and Mohamed Fadhel Kraiem, the minister of communication technologies and digital transformation, also includes the rehabilitation of the educational network. It is also designed to meet the Ministry of Education's vision to digitalise and develop its working methods to improve access to knowledge for young people.

Through digital technology, the ministry wants to give the different regions and their educational institutions the maximum opportunity to access quality educational content.

Kraiem said that the signing of this MoU is timely, given the development of training and distance learning platforms that offer new opportunities for access to more knowledge.

This partnership between the two ministries is also part of the "Digital Tunisia" strategic plan, whose objective is to achieve social integration and limit the digital divide through the popularisation of access to broadband digital services.



Through digital technology, the ministry wants to give the different regions and their educational institutions the maximum opportunity to access quality educational content

Burkina Faso deploys new IXPs and VLPs

The government of Burkina Faso has invested CFA 3.105 billion in the construction of an Internet exchange point (IXP) and a virtual landing point (VLP) in the city of Bobo-Dioulasso.

The two infrastructures, housed in the premises of the Transmitting Center in Sarfalao, were officially inaugurated on September 4, 2020, by prime minister Christophe Joseph Marie Dabiré. This investment is in line with Burkina Faso's digital transformation ambitions.

The internet exchange point will enable local interconnection between telecom operators and service providers. This operation is expected to improve

network latency (meaning the time it takes to connect to data servers on the internet) and will greatly improve traffic speed. The virtual landing point is a dry port for a submarine optical fibre cable and it will manage international bandwidth capacity for the benefit of local telecom players.

These components of the national high-speed telecommunications infrastructure project were carried out as part of the World Bank-financed West Africa Regional Communications Infrastructure Program Project. They will consolidate the quality of Internet connectivity, which has been significantly improved since July

2018 with the entry into service of the internet exchange point and the virtual landing point in Ouagadougou.

Dabiré said the commissioning of the two facilities at Bobo-Dioulasso will strengthen capacity with 15 new gigabits per second of international bandwidth, including five gigabits for the VLP of Bobo-Dioulasso and 10 gigabits for the VLP of Ouagadougou. According to Burkina Faso's minister of digital economy, Hadja Fatimata Sanon, the commissioning of the additional 15 gigabits will increase the overall international bandwidth available in the country to over 60 gigabits in 2020.

Telecom Egypt targets 2600MHz airwaves

Telecom Egypt (TE) has applied to the National Telecommunications Regulatory Authority (NTRA) to acquire a holding of 2600MHz TDD spectrum, according to local reports.

The country's primary operator will reportedly use the spectrum to improve network reliability and quality of service, adding that the frequency holding would help it to modernise its infrastructure. Telecom Egypt has requested a usage period of ten years for the spectrum.

It is understood that TE was not the only operator to apply for the new spectrum being issued by the regulator - Vodafone Egypt has also filed a bid, although Orange and Etisalat have not. An official from the NTRA was quoted as saying that results would be published "as soon as they are approved".

Furthermore, it has been reported that the regulator is offering 60MHz of 2600MHz spectrum with a reserve price of US\$150 million per 10MHz. Currently one 40MHz and one 20MHz will be made available, with another 20MHz slated for sale in the future.

Sierra Leone explains SALCAB plan

Sierra Leone's Ministry of Information and Communication has explained the details of the government's plan to unbundle the Sierra Leone Cable Network (SALCAB).

Speaking at a press conference, the minister of information and communication Mohamed Rahman Swaray said that the move is part of the broader reforms currently being carried out in the communications sector.

SALCAB's future has been the subject of much speculation of late following rumours that the entity that regulates internet access in Si-

erra Leone has been sold. However, the ministry released a statement in which it denied the claims.

Swaray said that the government will remove some of the functions afforded to SALCAB and give the management responsibility to the private sector to ensure growth and increase access to the internet long term.

"We want to inject private sector kind of initiative into SALCAB," Swaray told the media. "We are not selling it and this is not privatisation. We want the private sector to play a key role in it, that is why

we are bringing in a private sector operation and management."

This reform strategy will also see the government privatise the ACE (Africa Coast to Europe) cable operations and establish a clear regulatory framework for SALCAB since it is a monopoly operator, the ministry said.

The ACE cable, currently managed by SALCAB, is an optical fibre submarine cable that connects Sierra Leone to an internet source that is generated in Europe and passes through the sea across over 20 countries between Europe and Africa.

Cape Verde turns off analogue telly and switches to 4G

The Cape Verdean government gave the state-backed business company Cabo Verde Broadcast (CVB) the go-ahead to switch off all analogue terrestrial TV services from August, in a bid to kick-start 4G services.

This process is aimed at freeing up frequencies that can be used

for 4G as the country works on upgrading and expanding LTE network services. There will also be a continuing transition from analogue to digital terrestrial TV (DTT), something that has been underway for some years in Cape Verde and other African nations.

In Cape Verde the analogue TV switch-off will free up a chunk of 800MHz 4G spectrum. However, Cape Verde's incumbent mobile operators, CV Movel and Unitel T+, have already launched commercial 4G 1800MHz services.

The Cabo Verde Multisectorial

Regulatory Agency of the Economy (ARME) handed commercial 4G LTE mobile licences to the two operators in late last year. It followed about three months of network trials that began in June 2019 on the island of Sal, the fifth most populous of the 10 islands.

Ethiopia Telecom auction set for 2021

Ethiopia has set a new deadline of February 2021 to complete the partial privatisation of its telecom industry.

The government is keen to auction two new mobile-network licenses and sell a minority stake in the state-owned monopoly Ethio Telecom. A plan was set for earlier this year but was delayed by the Covid-19 pandemic, regulatory complexities and a thwarted attempt to hold national elections.

"We have a February, January timeline for both processes," said Eyob Tekalign, the state minister of finance. "The reform is fully on track."

Ethiopian prime minister Abiy Ahmed announced plans to liberalise the telecom industry back in 2018, in a bid to bring in much needed foreign exchange and boost the economy, while improving connectivity across the Horn of Africa nation.

Orange is understood to be a strong candidate to win one of the two new licences. South Africa's MTN and a consortium led by the UK's Vodafone are also said to be in the running. Both were on a list of companies that submitted expressions of interest released by the government in June this year.

"The Ethiopian authorities have said that 12 directives will be issued that will enable us to put together a business case and an investment case," a spokeswoman for MTN said in an emailed response to questions. "This is still work in progress and we have not yet made any decision on the opportunity."

Ghana readies towers overhaul

Ghana has initiated its one-month public consultation for input on revised guidelines for the deployment of telecom towers, the country's National Communications Authority (NCA) has announced.

The body said the review will include emerging industry standards and procedures for the installation of communication towers, facilitate the development of infrastructure to enhance the delivery of quality service and address environmental issues.

Aspects of the former guidelines to be revised include changes to the specified radius for the construction of a new tower from 400m of the proposed site to 300m (if in a built-up area) and 200m if not, as well as the waiting time to secure a permit from all coordinating agencies adjusted to 90-days.

Furthermore, there is a new clause that forbids any sanction being applied to a sited tower that is compliant with the stipulated location requirements of the guidelines but compromised by electricity providers.

As part of requirements for co-location, operators will now consult with the NCA and the Environmental Protection Agency (EPA), as well as collaborate with them to negotiate co-location-related issues such as site access, security access, rates and compensation.

In addition, tower owners will also have to provide information about towers that are available for co-location to the NCA, EPA and Metropolitan, Municipal and District Assemblies on an annual basis so as to maintain a database.

The rationale behind infrastructure sharing is to



The body said the review will include emerging industry standards and procedures for the installation of communication towers, facilitate the development of infrastructure to enhance the delivery of quality service and address environmental issues

prevent network tower investment duplication in single locations but it has not been effective in Ghana as the NCA had expected, according to a study presented in a telecom conference paper by Alexander Osei-Owusu and Anders Henten in 2017.

At the time, the authors claimed approximately 40% of tower sites in cities like Accra and Kumasi had one co-locator, despite more co-location arrangements expected of them.

They added that because of the nature of tower agreements and sales, MNOs involved were compelled to serve in the role of 'anchor

tenants on commercial terms' which created 'market misconduct' and a situation in which tower companies were not independent.

The authors pinpointed MTN's working relationship with the American Tower Company (prior to the January 2020 agreement to acquire MTN's 49% stake in Ghana and Uganda operations valued at about US\$523-million) as giving the operator an advantage with regards to decisions affecting competitors, including pricing of infrastructure that favoured MTN and helped the company maintain its dominance.

Nigeria: new hurdles face would-be money providers

Nigeria's telecom companies may be unable to enter the mobile money market after the decision by the country's central bank that new entrants must guarantee a significant capital base.

A report by Reuters said Nigeria's central bank plans to grant more licences for payment service banks – but will require a minimum capital base of US\$13m.

The bank also requires that applicants set up separate companies that can guarantee the minimum capital requirement before telecommunications firms, banking agents, retail chains and postal services can apply for licences to become payment banks. Each new group must be run as an entity that is independent from the controlling company's existing operations.

Mobile money has been successful in Africa – in Kenya and the east African region in particular. Such services help telecom companies to diversify their offering in a highly competitive



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market where prices for basic services are falling. They also benefit the unbanked. It's therefore hard to see why Nigeria's regulatory environment is so far making things difficult for new players to enter the market.

Indeed, when the central bank issued preliminary guidelines for payment banks in 2018 for discussion, telecom companies in particu-

lar argued that they were not banks and did not need a capital base.

However, reports have indicated that while new payment methods might prove popular with around 90 million Nigerians who do not have a bank account, lobbying from lenders who oppose this form of competition may have affected the regulatory approach to potential new entrants.

The central bank has granted three licences so far – to 9PSB, a unit of local telecom firm 9mobile, and two others. MTN, Nigeria's biggest telecommunications firm, already offers a mobile money transfer service but has yet to receive approval. Whether many other companies will apply for licences is an interesting question.

'Somalia has cheapest internet in Africa'

Somalia has the most affordable mobile internet in Africa and the seventh in the world this year, according to a new study.

The survey conducted by British technology research firm Cable found that the horn of Africa nation is benefiting from years of investment.

"Somalia has the cheapest data in Africa where 1GB of data costs Sh53 on average from Sh662 last year, it is

seventh in the world. In East Africa, Tanzania is the leading country with citizens paying Sh78 per GB for the service," said the report.

Abdiaziz Duwane Issak, the director-general at the Ministry of Posts, Telecommunication and Technology in Somalia highlighted that the low cost of mobile data is mostly attributed to the improved regulation of the country's

communication sector.

"The National Communications Act, which was passed in 2017 paved the way for further development and increase of investment for the telecom industry," he said in an interview. "A unified licensing framework was also developed which protects the competitiveness of the market and encourages more investment in the sector."

He added that another factor has been the reduction of taxes in order to attract more investment and innovation. These factors have been effective in establishing a more competitive market and a high certainty for more investment in the digital sector. Subsequently, the consumer's choice is increased to more efficient low-cost services provided by the operators.

Hormuud Telecom sees increased MoMo transactions

Somalia's Hormuud Telecom said it has been registering a monthly-on-monthly increase in mobile money payments across its EVC Plus platform, from April to August, despite the country being hard hit by the Covid-19 pandemic.

The total number of transactions during this period rose but the transaction value decreased indicating a rise in smaller value money

exchanges as economic activity is hard hit at home and abroad.

Mobile money is an essential pillar of most countries in sub-Saharan Africa, particularly in the east of the continent. A 2018 World Bank report reveals three-quarters of the Somali population aged over 16 years of age rely on mobile money. In stark contrast, less than 40% of the population in Nigeria had mobile

money accounts two-years-ago.

In a statement, Hormuud Telecom's CEO, Ahmed Mohamud Yuusuf pointed out mobile money as a "vital pieces of infrastructure for a functioning Somali economy". He added: "The digital adoption that we've seen within the country over the past 10 years has been incredibly important. It's facilitated enterprise and is the foundation

for remittances, which makes up some 23% of Somali GDP."

The pandemic and subsequent lock-downs have resulted in a drop in global remittance payments, which formed part of a report supported by the Anti-Tribalism Movement (ATM). The UN estimates there are 2.6 million internally displaced persons in Somalia, of whom many rely on aid sent through mobile money.

Data, broadband demand driving investment in Zambia, says report

The Zambia Information and Communications Technology Authority (ZICTA) has reported an increase in the number of mobile data users and mobile phone subscriptions, which industry said is a result of increased levels of investment in the sector.

A 2020 mid-year market report released by the body showed the total number of active mobile internet users increased from 9.1 million recorded

in the first half of 2019 to 9.5 million reported at the end of June 2020, reflecting a 3.6% increase.

The report also said the internet penetration rate increased from 52.6% to 52.9% between June 2019 and June 2020. Furthermore, Zambia also recorded significant growth in the number of mobile network subscriptions from 93.8% recorded at the end of June 2019 to 100.2% recorded at the end of June 2020.

A spokesman said the sector is expected to continue on its positive growth trajectory in the subsequent review periods. "Growth is expected to mainly be driven by increased demand for data services among consumers," he said. "The authority forecasts that the mobile subscriber base would close at over 18.2 million subscriptions by the end of 2020."

Zamtel's spokesman said the growing appetite for broadband

services among corporate and retail clients will continue to spur growth in data consumption in the short-to-medium term.

"What the report shows is that the positive trajectory is going to continue. We will continue to see increased investment across the sector which brings about a more stable network," he added. "For us at Zamtel, we have made significant strides in upgrading our network."

Algeria looks to address slow speeds

Algeria is handing its three mobile operators additional spectrum holdings in an effort to restore connectivity after extensive network outages.

The country's telecom minister Brahim Boumzar met with senior executives from Algeria Telecom Mobile (Mobilis), Djezzy and Ooredoo after a week of nationwide connectivity problems.

Boumzar confirmed that the ministry would work with regulator ARPCE (Authority for Regulation of Post & Electronic Communications) to issue extra spectrum to the operators, although he did not specify the frequencies that would be provided.

The meeting was arranged on the order of Algeria's President Abdelmadjid Tebboune, who called for a "definitive solution to the problem of low internet speed." Data speeds in Algeria have nosedived since August 19, although this was supposedly due to problems with international connections rather than local spectrum availability.

Algérie Télécom was subjected to most of the public backlash, as the operator is largely responsible for the country's terrestrial cross-border and submarine fibre cable connections.

"This disruption has nothing to do with Algeria's national telecommunications network or its basic facilities; it is rather a fluctuation of the international network," the company said in a statement.

Orange and Google introduce Sanza Touch smartphone to Africa

Orange has launched its Sanza Touch smartphone in Africa, designed to improve mobile internet access and supported by Google.

Building upon efforts since the launch of Android Go edition in 2018, the new device will retail at around

US\$30, which is intended to make it the most accessible on the market.

The Sanza Touch is available with Payjoy instalment payments, depending on availability in different countries. The 4G phone has a 4-inch screen, 8GB memory and a

1750mAh battery offering over four hours' life when streaming videos.

Customers can use the Orange app collection (My Orange, Orange Money and Livescreen for news) and access popular apps including YouTube Go, Google Go, Facebook and WhatsApp.

Tunisia launches contact tracing app

Tunisia launched a contact-tracing mobile phone app that identifies and alerts users who may have had contact with others infected with the coronavirus.

The E7mi application, available on Android and awaiting validation for Apple's iOS, was developed by a Tunisian start-up specialised in digital marketing tools for foreign companies, the health ministry said.

Similar to the French StopCovid application, E7mi - Arabic for "protect" - is not based on contact-tracing technology developed by Apple or Google.

If a user tests positive for Covid-19, Tunisia's Observatory of Emerging Diseases (ONME) contacts other users whose telephones have been detected close to the infected user's device.

"We started in March when we heard about the TraceTogether app in Singapore, but we wanted to do something suitable for Tunisia," said Akil Agati, head of the Wizz Labs start-up behind the app.

Users "will not report themselves



If a user tests positive for Covid-19, Tunisia's ONME contacts other users whose telephones have been detected close to the infected user's device

infected, to avoid false alarms, and users who have been notified of being in contact with a sick person will also receive a phone call from the ONME so there can be follow-up," he said.

"We have been faster than many other countries" in launching such an app, he added.

Tunisia's health ministry approved E7mi after three weeks of testing.

An awareness campaign will encourage people to install the

application, but "if download rates remain low, we may change our strategy," health ministry official Bassem Kchaou said.

This could include making downloading the application compulsory for people to enter large public spaces.

Personal data will be archived for 14 days under the control of the National Personal Data Protection Authority and will only be used by ONME for contacting people about coronavirus.

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Helios to acquire over 1,200 sites from FS

Helios Towers said it is acquiring the passive infrastructure assets of Senegal's number two mobile player Free Senegal for US\$188.2m.

Once completed, the deal will make Helios the largest independent tower infrastructure provider in Senegal with 1,220 sites.

Free Senegal is backed by a consortium of investors including Teyliom Group, Sofima and NJJ, a private holding company owned by Iliad SA founder Xavier Niel.

Helios and Free Senegal have entered into a 15-year service agreement for the provision of hosting and energy services on the acquired sites and the sites to be built in the future. Across the next five years, the companies expect to deploy 400 new sites, investing a total of US\$82m.

"This agreement is aligned perfectly with our 2025 strategic ambitions, broadening our footprint within the African towers infrastructure market," said Kash Pandya, chief executive of Helios Towers. "We are acquiring a market-leading independent position in Senegal with long-term contracted revenues and a clear path to value creation through additional organic tower development, uplifts in the tenancy ratio and improved operational effectiveness, all built on the foundation of 15-year contracts."

The deal is expected to close by Q1 2021, subject to customary completion conditions and regulatory approval.



Subject to completion conditions and regulatory approval, the deal is expected to close by Q1 2021

Infinet Wireless opens new Cameroon HQ

Fixed broadband specialist Infinet Wireless has opened a new regional office in Cameroon as the company expands its operations in one of the world's fastest growing economic regions.

This new presence will be initially managed by Ludovic Thierry Takam, a Yaounde native and Technical Engineer, who has been with Infinet Wireless since 2013.

He will oversee the establishment of a new platform to enable mutually beneficial exchanges of technology expertise between the Infinet Wireless management teams and their African counterparts. This will include setting up technological programs and qualifications in several universities as part of the Infinet Wireless Academy.

In addition, the presence will be used to deliver the firm's latest technological advances and support its customer base.

Specific focus will be given to verticals such as new infrastructures for service providers of all types, homeland security, mobile connectivity, energy and mining applications, as well as solutions for smart cities.

"Infinet Wireless' cost effective and market leading solutions can



Specific focus will be given to verticals such as new infrastructures for service providers of all types, homeland security, mobile connectivity, energy and mining applications, as well as solutions for smart cities

make a significant contribution to the economic development of the sub-Sahara region," said Kamal Mokrani, Infinet's global vice president. "Our presence much closer to the end users represents a win-win partnership for all stakeholders in the region, allowing us to react much quicker to market demands but also to make available our technological know-how and innovative solutions in the delivery

of wireless infrastructures. Africa is a rapidly developing continent, both economically and technologically, and we are committed and excited to be a part of a history in the making."

The new office launch comes just ahead of the Infinet Wireless Conference 2020, which will explore and showcase the latest and upcoming product innovations in the world of fixed broadband wireless connectivity.

Orange picks Parallel Wireless to deliver open RAN in Central African Republic

French mobile operator Orange has selected Parallel Wireless to extend its coverage across multiple African markets, beginning with the Central African Republic (CAR).

Orange is implementing a program called IDEAL – an anagram for Include Digital in Every African Life – that aims to provide digital services to customers who do not have any connectivity today.

Like a number of African nations, CAR is digitally divided, with only 48% unique mobile connections and limited network infrastructure. Hardware-based 2G, 3G or 4G networks require expensive and bulky equipment to deploy and

operate and are difficult to upgrade.

Parallel Wireless enables a shift to open, software-based, and virtualised OpenRAN network architectures to deliver scalable 2G, 3G, 4G and 5G software-based networks. These are cost-effective to deploy and maintain, and can deliver coverage and capacity to end users and businesses across the country.

The solution provides seamless mobility, local breakout, and low latency for the best subscriber experience for 2G voice and 3G/4G data. In addition, the software enables OpenRAN architecture and DU/CU split by using standards-based and open interfaces between

network components. It also simplifies network management and integration of new RAN products into the core of the network.

"Thanks to this technology, Orange RCA will provide to rural populations the full range of services (voice, data and Orange Money), already provided in urban areas," said Hervé Suquet, CTIO, Orange Middle East & Africa. "Being able to run 2G and 3G on the same system today and, as our customers upgrade their devices to 4G in the future, seamlessly upgrade to 4G will help us not only extend our initial investment, but also bring new services much faster."

Liberian operators Lonestar and Orange facing legal issues

Liberian operators Lonestar Cell-MTN and Orange Liberia are facing considerable legal problems after they found themselves at the wrong end of regulatory decisions.

According to news service Front Page Africa, Liberia's Financial Intelligence Unit (FIU) has 'with immediate effect' instructed Lonestar Cell-MTN to stop offering its new mobile money international remittance service.

A letter sent to the company in early September suggested that "the company lacks the capacity to detect and report incidence of money laundering and terrorist financing activities".

The FIU suggests that the new mobile money service "could provide easy means for criminals exploiting the financial system of Liberia using the international remittance service of the Lonestar MTN Mobile Money platform to continue unobserved".

Another ruling went against a competitor of Lonestar as Orange Liberia lost its challenge against an order dating back to February 2019 from the Liberia Telecommunication Authority (LTA), when it announced the planned introduction of floor prices on voice and data calls. Orange challenged



The FIU suggests that the new mobile money service "could provide easy means for criminals exploiting the financial system of Liberia using the international remittance service of the Lonestar MTN Mobile Money platform to continue unobserved"

the LTA in the Civil Law Court and then the Supreme Court.

In the wake of the September 3 ruling by Liberia's Supreme Court against Orange Liberia, the company said it takes note of the decision

and will now execute surcharges on mobile voice and data services.

Orange has said it believes that mobile and data price increases have a negative impact on its customers, as well as its

operations in Liberia, but, like its competitors, is now waiting for a date from the LTA to commence the imposition of the additional surcharges and increase the prices of voice and data services.

Sirius Telecom Africa agrees deal with Sonatel

Sirius Telecom Afrique (STA), a telecom engineering, IT, and digital services company, signed a hosting contract as a mobile virtual network operator (MVNO) with the National Telecom Company (Sonatel) of Senegal.

Under the terms of the deal, Sirius Telecom Afrique can launch its voice

and broadband internet services in Senegal via its brand Promobile, relying on the 4G+ mobile network of the incumbent operator.

STA described the agreement as a step forward in its ambition to bring "to Senegalese people quality digital services, accessible

and affordable for all segments of the population." The company also announced "innovative offers, responding to a community strategy adapted to the realities and needs of Senegalese populations."

Officially holder of an MVNO license granted by the Senegalese State since

March 2019, Sirius has finally reached a deal after several months of conflict with its initial partner Free.

The row, which began in April 2019 following a tariff dispute, led to Free being sanctioned by the Telecommunications and Postal Regulatory Authority on July 12.

ECOWAS reps meet to discuss regulation

Representatives of the 15 ECOWAS member states, responsible for regulating the activities of the telecom sector in their respective countries, held a virtual meeting to assess and agree a response to the regulation on roaming on public mobile communications networks in the bloc.

The rationale was to review the progress made in the implementation of the regulation by member states and develop a strategy that would speed up its introduction. It was also to validate the action plan for the effective rollout of the free-roaming project by March 31, 2021.

Zouli Bonkougou, the commissioner for telecommunication and information technologies at the ECOWAS commission, reminded members of expectations for a harmonised and roaming regime in the "ECOWAS space". He also called on the leadership of telecom director-generals to

ensure an efficient operation of the regulation for the benefit of citizens.

Currently, only Benin, Burkina Faso, Côte d'Ivoire, Guinea, Liberia, Mali, Senegal, Sierra Leone and Togo have launched the project to abolish roaming charges on mobile communications.

Sub-saharan Africa 5G connections to reach 18m

Mobile technologies and services are expected to significantly increase in sub-Saharan Africa, with over 137 million new mobile subscribers forecast to be added in the region by 2025, according to the latest "Mobile Economy sub-Saharan Africa 2020."

The research, released to coincide with the GSMA Thrive Africa virtual event, also found an estimated 27% (165 million) of total mobile connections will be made on 4G and 3% (18.4 million) on 5G, by this period.

It further found that mobile-enabled platforms and services will increasingly disrupt traditional value chains in sub-Saharan Africa, as it remains the fastest-growing mobile region globally, with 477 million mobile subscribers at the end of 2019.

The additional 137 million subscribers expected over the next five years will take the total mobile subscriber base to just over 614 million, representing around half the population in the region and a CAGR growth rate of 4.3%.

While spectrum availability will promote strong growth in 4G and 5G connectivity over the next few years, 3G mobile connections will continue to dominate the region, says the GSMA.

The report calculates the strong growth in mobile connectivity across sub-Saharan Africa will generate around \$184 billion in economic value contributed to the region's GDP by 2024.

"The findings from our Mobile Economy sub-Saharan Africa report clearly show the importance and value of digital connectivity," says Akinwale Goodluck, head of Africa, GSMA. "Realising the full potential of a progressive digital future requires an informed policy debate. Governments and policymakers should implement policies to enhance access to connectivity and drive investment in more resilient digital infrastructure for the future. This is crucial to reactivating the region's economy post-COVID-19 despite the sizable contribution mobile technologies and services generated in 2019, growing at 9% of regional GDP."

MFS Africa and inwi money enable digital finance in Morocco

MFS Africa has partnered with Moroccan mobile money provider inwi money to bring smooth and affordable international digital money transfers and payments to country.

It is the former's first significant partnership in north Africa, which is home to approximately 2.9 million migrants and whose emigrants account for approximately 4.4% of the global migrant population. For these people, international payments and money transfers often play a critical role in day-to-day life, and MFS Africa's digital payments hub can help them perform these financial transactions in a manner that suits them.

Remittances in Morocco represent a significant source of money, with inbound transfers amounting to over 6% of GDP in the last decade. This new partnership will provide inwi money with access to MFS Africa's interconnected payments platform of over 200 million mobile wallets in Africa.



Under the new arrangement, inwi money's 500,000 clients will be able to make use of digital payments beyond their domestic market

Under the new arrangement, inwi money's 500,000 clients will be able to make use of digital payments beyond their domestic market, receiving money from abroad. The person receiving the money receives an SMS notification of the transfer into his account when it is sent from abroad, and their inwi money balance immediately reflects the amount received.

"Through our partnership with inwi money, MFS Africa is finally expanding its network in Morocco," said Dare Okoudjou, CEO and founder

of MFS Africa. "Morocco plays a key role as a 'connector' in Africa, due to its geographical positioning, its economic and cultural influence and its stated willingness to participate in the development of the continent."

Nicolas Levi, CEO of inwi money, added: "The launch of this new service is a tangible realisation of our efforts to diversify payment methods in Morocco, to extend financial inclusion to the largest number of Moroccans and to digitise cash transactions."

MTN Ghana loses classification case

MTN Ghana has failed in its attempt to challenge its recent classification as a Significant Market Power by the regulator, the National Communication Authority (NCA).

In early June, the regulator deemed the operator's market dominance to be of a sufficient level that specific regulatory restrictions should be enforced on the operator. However, the sort of restrictions that could be

imposed remain unclear at this stage.

However, MTN Ghana asserted that "the manner of the recent declaration of MTN as a dominant/SMP player raises concerns about clear procedural breaches and substantive issues". It also insisted that it had never "engaged in an anti-competitive behaviour".

It has been reported that the Commercial High Court in Accra

dismissed MTN Ghana's case.

According to local press, MTN Ghana says its concerns regarding the NCA declaring it as a significant market power remain unresolved and that it will "explore all available options and next steps in this process".

Ghana has the highest mobile penetration in west Africa, according to GSMA. The country's operators include a number of major regional players.

Algérie Télécom to reimburse customers

Algérie Télécom has promised to reimburse its customers who were victims of internet connection cuts during the five days of Baccalaureate exams.

The Algerian Federation of Consumers (FAC) asked the operator to reimburse Algerian consumers in one way or another, who suffered the intentional cuts to their Internet con-

nection during the IBC exam period.

Algérie Télécom made a commitment to address the concerns of its customers, following a meeting that was held with the president of the FAC, Hariz Zaki and Mohamed Toumi, its executive director.

Other points that were discussed at the meeting, included the


problem of delays in repairing

breakdowns affecting fixed telephone lines throughout the country. FAC therefore asked the operator to ensure that it listens attentively to all customer complaints. Algérie Télécom said it intends to strengthen its internet speed from October 2020.

Ghana to build 2,000

 Ghana is accelerating the coverage of rural areas with telecom services, after its Ministry of Communications signed a partnership with Exim Bank of China for the construction of 2,000 telecom sites. The site entrusted to Huawei Technologies is to be delivered in September 2021. Although mobile communication in Ghana has experienced rapid development in recent years, the development of rural telecommunications is still relatively lagging behind.

Liberia launches

 TipMe, an electronic payment service provider, has been launched in Liberia to provide individuals and businesses access to useful and affordable financial products and services that meet their needs. Speaking at the launch, the CEO of TipMe Liberia Laureine Guilao, said: "Our app-based mobile money wallet allows customers to send money and receive money in the US and Liberian dollars." Customers can top up or withdrawal from their wallet by visiting the website with a visa or MasterCard.

Kenyan banks ink Huawei deal

 The Kenya Bankers Association (KBA) has penned an agreement with Huawei Kenya that seeks to deepen financial inclusion in the banking sector through further deployment of technology and building fintech capacity. KBA will work closely with Huawei Kenya to spearhead industrywide capacity-building initiatives aimed at promoting knowledge on financial technology innovation, digital transformation and other ICT-related programmes in the banking industry. Launched last year, the plan seeks to promote access to affordable financial services.



Talking satellite

Serving underserved communities

"The Digital Divide remains despite years of debate about solutions to bridge it." This was the opening statement of the pre-event description for the latest in the GVF Webinar Series, organised in association with the Satellite Evolution Group (<https://www.satellite-evolution.com>), and held on the Zoom platform every two weeks. The 'Serving Underserved Communities' (<https://gvf.org/webinar/serving-underserved-communities>) webinar took place on 27 August and featured panellists representing Kacific Broadband Satellites, Gilat Satellite Networks, ViaSat, and SES. If you missed the discussion you can still access the recording by clicking on the above link.

This webinar addressed the fundamental question of 'How exactly is satellite now fulfilling the urgent need to bridge the digital divide?' Satellite solutions can be deployed anywhere. Satellite coverage is ubiquitous. Satellite's capacity continues to expand with more high throughput satellite systems being launched to geostationary orbit (HTS GEO), with deployment of enhanced additions to existing medium Earth orbit (MEO) infrastructure, and ongoing expansion of the new low Earth orbit (LEO) constellations. The webinar dialogue focused on such questions as:

- Is the biggest barrier to serving the underserved connectivity or affordability?
- Will there be a role for satellites in connecting underserved communities in five years? Ten years?
- Is community Wi-Fi the best way to bring the internet to remote communities in low-income countries?
- Are universal service funds a significant source of support to bring satellite delivered internet services?
- What advantages do GEO have over NGSO systems in bringing services to underserved communities? Conversely, what advantages do NGSO systems have over GEO systems?
- What is the role of satellite in emergency response and business continuity?

These questions from the webinar moderator were augmented with additional questions raised by the audience in real-time over the Zoom platform's Q&A function. Those



Martin Jarrold, chief of international programme development, GVF



audience questions which remained unanswered at the conclusion of the webinar are answered in writing and feature on the GVF's website webinar pages along with the webinar video recording. The geographic origin of the audience questions reflected the global appeal of the webinar, and of the series as a whole. Participants from some 69 countries featured during the discussion on the digital divide.

'Serving Underserved Communities' was the eighth webinar in the GVF Series. The video recordings of all seven previous webinar discussions are also available via the GVF website (<https://gvf.org/webinars/>), covering:

- The Satellite Industry's Response to the COVID-19 Pandemic
- WRC-23: Spectrum Dialogues in a Post-pandemic World
- Space Segment Disruptive Evolution: GEO, MEO & LEO – Does a Global Crisis Make a Difference?
- The Satellite Integral Factor II: Will Working from Home Render the Cloud a Different Animal?
- 5G & Satellite: Driving Forward the 'Network of Networks'
- Ground Segment: Transformational Antennas/End of the Parabolic Paradigm?
- Ground Segment: Transformational Antennas II – Will terminals realise the promised LEO Connectivity Revolution?

The Webinar Series is the product of GVF's strategy of taking its digital presence into new areas, responding to the period of lockdown, social distancing and working from home brought about by the COVID-19 global pandemic. The Series is scheduled to continue for the remainder of 2020, with a schedule of

discussion themes which will include:

- GEO/MEO/LEO – Satellite in the Finance Markets
- Global Transitions: Digital Economy, Digital Infrastructure, Connected Communities, Digital Planet
- A Regional Perspective on C-Band – The Next Battleground?
- The Regional Satellite Operators' Voice
- Humanitarian Assistance & Disaster Response: The Evolving Role of Satellites in Disaster Response

In my previous column for this publication I focused on the subject of humanitarian assistance & disaster response, referencing that the global pandemic has, of course, led to a widespread cancellation of actual events and a general shift to digital/virtual events, including Pacific Endeavor 2020 and Satcom Endeavor 2020. Since this last column another actual event, a major one for the Middle East, northern Africa and south Asia regions, has also been affected by COVID-19. The CABSAT 2020 exhibition, already previously postponed from its usual March calendar slot to October, has now again been postponed. GVF continues to examine the practicalities for adapting the example of the virtualised Pacific Endeavor 2020/Satcom Endeavor 2020 model to CABSAT, thereby providing the GVF SATEXPO Summit @ CABSAT as an online event.

When confirmed, the further definition of the programme for the GVF SATEXPO Summit @ CABSAT will be announced through a GVF press release and will be posted at <https://gvf.org>

Kenya and Ghana behind only China in mobile payments

Kenya and Ghana have the second and third highest mobile payment usage in the world after China, according to new research.

The report, *Five Strategies for Mobile-Payment Banking in Africa*, by American research firm Boston Consulting Group (BCG) estimates that the total value of global mobile financial services transactions in 2020 is between Sh1.6 quadrillion and Sh2.1 quadrillion yearly.

Though constrained by a lower smartphone penetration rate compared to China, by far the world's most populous nation, the east and west African countries are playing a substantial role in underscoring the relevance of mobile money payments as the world moves to cashless systems.

In Kenya, according to the study, transactions via mobile wallets and phones represent 87 percent of the country's Gross Domestic Product (GDP), while in Ghana they account for 82 percent of GDP.

"Kenya and Ghana, with their relatively mature mobile payments sectors, account for much of the business in Africa. In most other countries in the region, less than 50% of financial transactions occur through mobile payments," according to the report.

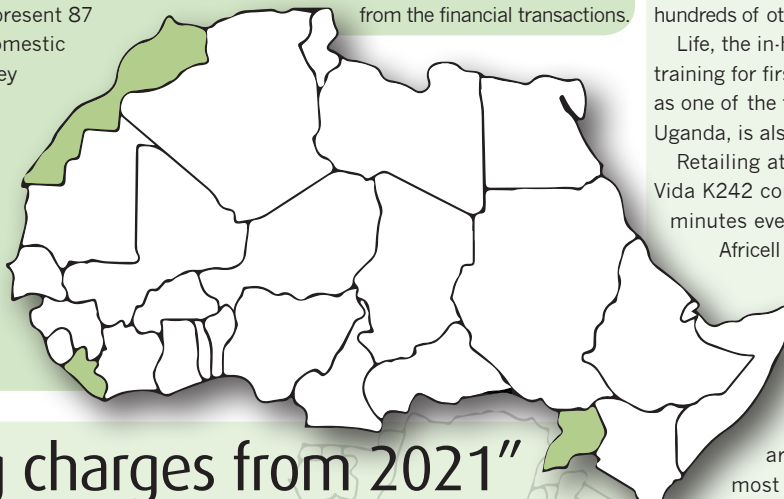
Already, 400 million consumers

in sub-Saharan Africa use mobile payment banking systems to handle Sh32.5 trillion worth of mobile money transactions, generating Sh21.6 trillion in mobile banking fee charges to customers.

The survey projects that by 2025, the mobile payment market in the continent could reach 650 million to 750 million customers.

"If that were to happen, mobile payments revenue, which tends to average about 1.1 percent of overall transaction volume, would rise from Sh379 billion today to between Sh1.5 trillion and Sh2.2 trillion," according to the report.

The size of the market across Africa could rise to as high as 850 million customers, supporting about Sh270 trillion to Sh325 trillion in transaction volume and Sh2.7 trillion to Sh3.2 trillion in yearly revenue from the financial transactions.



"No roaming charges from 2021"

The Central African Economic and Monetary Community (CEMAC) has scrapped roaming fees from January 1st 2021.

Originally agreed in February 2020, the six countries of the CEMAC have confirmed that they will abolish roaming charges between their territories, beginning at the start of 2021.

Cameroon, Central African Republic, Chad, Congo, Equatorial Guinea and Gabon have been in discussions on this topic for many years. An agreement by western African countries, the Economic Community of West African States (ECOWAS), had agreed to remove roaming fees

for its 15 members back in 2017.

The central Africa roaming agreement will allow nationals of any of the CEMAC countries to visit these other selected nations without fear of expensive calls and texts.

"The Council welcomes this decision, which contributes to the densification of the integration of peoples within CEMAC, in that it aims to facilitate the mobility of populations through Information and Communication Technologies, reducing communication costs," said a statement from the Union économique de l'Afrique centrale.

Africell unveils the 4G Vida K242

KaiOS Technologies and Africell said that a new KaiOS-enabled smart feature phone, the 4G Vida K242, is now available in Uganda and will facilitate mobile internet adoption across the country.

According to the Digital 2020 report for Uganda, there were 26.83 million mobile connections in January, equivalent to 60% of the population. However, internet penetration was only 24%, with just 2.5 million social media users.

The 4G Vida K242 has been specifically designed for people who are unable to afford a smartphone and want to go online. It has a user-friendly interface optimized for first-time internet users.

It comes with the world's most popular apps, such as WhatsApp, YouTube, Google Assistant, Google Maps, and Facebook, and provides access to hundreds of other applications through the KaiStore.

Life, the in-house app that offers life skills training for first-time internet users and ranks as one of the top 10 most downloaded apps in Uganda, is also available via the KaiStore.

Retailing at USh120,000 (US\$32.40), 4G Vida K242 comes with 1.5GB and 850 on-net minutes every month for six months.

Africell operates nationwide 2G, 3G, and 4G networks and is investing heavily to achieve extensive growth in both urban and rural areas.

"On top of being the first 4G feature plus phone to be launched in Uganda, we are also making the 4G Vida the most affordable for only 120,000 ugx, inclusive of 1.5 GB and 850 minutes of talk-time on Africell network," Additionally, and as a cherry on top we are offering the customer 1.5 GB and 850 minutes of Africell talk-time for free for 6 months."

Sebastien Codeville, CEO of KaiOS Technologies added: "For millions of people across the world, a KaiOS-enabled device is their entry point into the online services that can transform lives. Africell is a trusted partner that shares the same mission of reducing the gap between digital haves and have-nots, by bringing smart feature phones with life-enhancing services to first-time internet users across Uganda."

Tunisie Telecom renews media tech deal

Tunisie Telecom and The National Union of Tunisian Journalists (SNJT)

have renewed a partnership, which strengthens the former's role in supporting media capacity to keep pace with the profound changes in the communication and information technology sector.

Samir Saied and Néji Bghouri, respectively chairman and chief executive officer (CEO) of

Tunisie Telecom and secretary general of the SNJT proceeded to sign the deal to renew the partnership between the two parties.

Saied stressed that this new contract will strengthen the partnership between Tunisie Telecom and the SNJT and would enable journalists to benefit from the technologies offered by digital communication networks and high-speed internet

services and to further facilitate their work.

Bghouri recalled the effort made by the incumbent operator in the development of communication means and tools, as well as the strengthening of quality journalism.

Tunisie Telecom is 65%-owned by the Tunisian state has more than six million subscribers in the fixed and mobile telephony, in Tunisia and abroad.

Nigeria's 9mobile names Stjepan Udovicic as new CCO

Nigeria's 9mobile has named Stjepan Udovicic as its new chief commercial officer.

A statement issued by the company said he was appointed by the Board of Directors of Emerging Markets Telecommunication Services, trading as 9mobile.

The company further added that Udovicic had a profound understanding of telecom, content and media industries and embedded and surrounding technology environments and business models.

He has previously worked in the telecom, technology and service sectors in Asia, Europe, and the USA. It said Udovicic was experienced in driving growth across all market segments and was bringing onboard his competence and grasp of general businesses across industries.

Part of his responsibilities at 9mobile will be to lead the marketing, products, sales, distribution, customer services and digital front-ends. He will also be responsible for brand evolution

and development as the company continues to expand and retool for growth.

Commenting on Udovicic's appointment, Chief Executive Officer of 9mobile, Alan Sinfield, said the company was happy to welcome him into its fold, especially with his wealth of experience.

"Stjepan is a thoroughbred professional with a can-do spirit which is at the core of who we are at 9mobile," he said.

Sinfield expressed his confidence that Udovicic would play a significant role in further strengthening 9mobile's market position in Nigeria's competitive telecom sector.

Udovicic said he was delighted to join 9mobile and was looking forward to accelerating further access to quality products and services for telecoms subscribers in Nigeria.



Tizeti partners with Nokia

Internet service provider Tizeti has partnered with Finnish gear-maker Nokia to upgrade its telecom network in Nigeria and provide new offers to customers.

The former will deploy the latter's AirScale Base Station TDD-LTE and Fastmile fixed wireless access (FWA) gateways to deliver premium internet and virtual private network (VPN) services to residences and small and medium enterprises (SMEs). The solution will also enable Tizeti to provide a more robust high-speed Internet service to subscribers and give them the flexibility to seamlessly upgrade to 5G fixed wireless access.

"We are committed to providing the best-in-class network experience to our subscribers," said Kendall

Ananyi, CEO of Tizeti. "We are confident that Nokia's proven technology and expertise will help us differentiate our services based on quality. This is a crucial project for us as it introduces LTE in our networks and allows us to bring new and innovative services to our subscribers."

In July this year, Tizeti improved its network by upgrading the capacity of its core network infrastructure to 100 Gbps. The upgrade involved upgrading the current gigabit fibre connection of its points of presence (POPs) in Lagos to 10 Gbps and relocating its data centre and operations to a world-class tier III data centre.

Pandemic forces operators to look at banking

Africa's mobile phone operators are ramping up plans to bring banking to millions of Africans, after the coronavirus crisis caused a surge in use of digital financial services.

Orange, MTN, Telkom and Vodacom are lowering fees, rolling out new lending services ahead of schedule, and expanding mobile payment networks with the aim of finally taking on cash, which has continued to dominate.

"It's one of those industries that we consider to be ripe for disruption," Sibusiso Ngwenya, financial services managing executive at South Africa's Telkom, told Reuters.

Revenue is under threat as governments cap data prices and customers abandon voice phone services for free messaging apps, so operators have sought to leverage their reach into remote villages and urban shanty towns in a pivot to banking. In many cases, people now have access to banking for the first time.

The global health crisis has been an unexpected catalyst, with some African governments releasing Covid-19 stimulus grants via mobile money platforms and central banks easing regulations, including limits on mobile transactions.

Tunisian VAS startup raises six-figure investment

Tunisian startup Galactech, a telecom VAS content aggregator, has raised a six-figure funding round to help it further develop its product and expand outside of the country.

Launched in 2016, Galactech offers content creators and startups the opportunity to sell their products in gaming, VoD, and utility to mobile network operator (MNO) clients.

The company, which recently took part in the Orange Fab Tunisia accelerator and previously raised US\$200,000 in seed funding, has now raised a six-figure investment from the Oman Technology Fund (OTF) and other business angels.

Galactech, which allows content creators and startups to provide value added services (VAS) to African and Middle Eastern MNOs, will use the funding to enter new international markets while proposing innovative solutions. It has already partnered with 30 international operators.

Orange Niger secures cash injection

Orange Niger is ready to build out and modernise its network after being granted a loan of CFA31bn (US\$56.3m) by Coris Bank Niger.

"This important financing agreement with Coris Bank International once again reflects the strength of our recovery plan put in place since the takeover of Orange Niger by Zamani Com in November 2019 and which is already reflected in significant growth in all of our indicators," said the company CEO Souleymane Diallo in

a recent statement. "Our objective is clear, we want to be the digital operator of reference in Niger, and that means upgrading your network with the very latest technologies. We will now get down to modernising the network in the next three months, before proceeding with the launch of our new brand."

The operator has also confirmed its intention of obtaining a 4G licence in order to launch an LTE and LTE-A offering before the end of 2020.

North and West Africa – the trends, the challenges, and the opportunities

The Nokia North and West Africa (NWA) region spans from Morocco to Egypt and from Senegal to North Sudan, encompassing 21 countries. Out of these countries, Nokia operates in 19 of them with a presence of Nokia's entire portfolio of solutions ranging from mobile and fixed access through IP MPLS, Optical and Microwave transport to software solutions. Our local teams across NWA play an essential role in ensuring the care and quality of the networks we deliver to our customers. We have also implemented expertise hubs (Radio design, IP design, network architecture, level 3 tech support) in Abidjan, Cairo, Tunis and Rabat that focus not only on serving our customers in NWA but also elsewhere within Middle-East, Africa and Europe.

While the sub-regions share several similarities, we have observed difference in the pace of technology generation adoption. 3G remains the dominant technology everywhere, but we have seen increased adoption of 4G and FTTX in the Northern parts. This growth is fuelled by young consumers owning mobile phones for the first time, especially in West Africa, where more than 40% of the sub-region's population are under 18 years old. This younger generation is also driving the shift from voice-centric services to data-centric ones and the adoption of new services such as video streaming and online gaming. In North Africa, we see strong momentum for cloudification

and digitalization initiatives, while in West Africa mobile financial services and rural connectivity are priorities.

The impact of COVID-19

Similarly to the rest of the world, the COVID-19 pandemic has changed market dynamics in NWA significantly over the past six months. Throughout this period, Nokia has been supporting service providers in delivering communications services that are not only mission-critical, but also essential to the functioning of society and supporting nations' health measures. During March and April this year, we saw a significant surge in data traffic of between 15 and 50%, depending on the service provider. This was driven largely by the shift to Working-Learning-Entertaining from home, with the usage of video conferencing and online video. Certain video streaming and VoIP traffic have increased by 500%.

We have also seen a geographical shift of the load of the networks, from city and business centres, towards residential areas which has required Nokia teams to support in performing immediate capacity rebalancing within the networks. We also saw traffic shift towards higher technology generations: for voice from 2G/ 3G toward 4G "VoLTE" and for data from 3G to 4G but at the same time a reduced mobility in the networks.

These network shifts and the limited movement due to curfews, has led to a growing interest in Nokia's network operations automation including incident detection, automated troubleshooting, and issues resolutions, as well as remote and digital site acceptances.

We believe a radical change is happening with networks moving towards advanced software and digital services, and increased demand for cloud and zero-touch operations. Those advanced services are now becoming more critical than ever, making Nokia's mission to "create the technology to connect the world," more important than ever before. Nokia's EdenNet Self Optimized Network solution, for example, helps service providers when traffic patterns are changing, making original coverage and capacity planning insufficient. EdenNet SON automatically detects if there is not enough coverage or capacity and can automatically increase antenna tilt and power to achieve optimum capacity and coverage.

The benefits include a 90% reduction in manual and onsite operational efforts, 30% reduction in call drop rates (improved voice quality) and improved throughput. Other solutions include automated and analytics-driven care which we foresee will grow in popularity based on recent events.

Connecting our remote communities

Rural connectivity remains a fundamental challenge that must be addressed by service providers in NWA. While urban centres continue to grow, most inhabitants in Africa live in rural areas. These communities deserve to be connected to universal and affordable broadband and to get the benefits of the information and communications technology. We are seeing governments across the region prioritizing fast-tracking broadband and connectivity rollout in rural areas given the importance for growth and social economic development.

While in the past connectivity infrastructure funding has predominantly come from the private sector, the public sector including governments and multilateral players, such as development banks, and sovereign wealth funds, are playing an increasing role in fostering long-term economic development, and reducing the connectivity gap. Public private partnerships will be key in tackling rural coverage and driving economic development.

Realising the opportunity of 5G in the region

Everybody is eyeing the 5G opportunity due to the impact it will have on individual lives and industries. While there are currently no commercial 5G launches in the North and West Africa region yet, we see service providers getting their networks ready for the 5G evolution. Regulators are also studying the best scenarios to speed up the introduction of 5G. They are seeking to pave the road for the best 5G use cases that would fit their markets, enhance people lives and push forward the economic growth.

As of September 2020, Nokia has 89 5G commercial contracts of which 34 are in commercial operations.

In North and West Africa, Nokia is working with service providers to

// We believe a radical change is happening with networks moving towards advanced software and digital services, and increased demand for cloud and zero-touch operations. Those advanced services are now becoming more critical than ever, making Nokia's mission to 'create the technology to connect the world' more important than ever before //

ensure the previous generation of radio access technologies are already 5G ready, and we have been working with many of our customers trialling, testing and piloting 5G clusters over the past year. Critical to the ongoing preparation for 5G in the region is the modernization of core networks into cloud-based virtual architecture to prepare for network slicing and ensuring that the optical transport and IP networks have the capacity to cope with high demand.

5G is an important leap in technology that will impact our lives, our way of working and our industries across the region. It will contribute in bringing high speed internet to low density rural areas as well as big cities and will play a key role in developing the connected industry. As telecom network providers progress on their transformation path towards 5G, we will see more use cases emerge to drive improved services and economic growth in the region with a focus on use cases bringing critical services to remote areas such as AR/VR driven remote education or e-health services. ■



Pierre Chaume, VP north and west Africa market unit, Nokia



Keeping connected in the toughest environments

Africa has its challenges when it comes to disasters, be they natural or man-made. Robert Shepherd takes a look at the critical comms network in place ready to help out when things take a turn for the worse

Africa, like many other parts of the world, is susceptible to natural hazards. The diversity with regards to climate, terrain, demographics and wealth, epidemics, endemic diseases, drought, floods and earthquakes are just some of the disasters to hit different parts of the continent at any time.

According to new analysis by the charity Save the Children, 2019 alone will be remembered as the year the climate crisis devastated parts of east and southern Africa, with floods, landslides, drought and cyclones leaving at least 33 million people at emergency levels of food insecurity or worse.

Then, there are manmade hazards such as warzones and armed conflicts. Furthermore, this is compounded by the fact Africa doesn't have the wherewithal and infrastructure to bounce back as quickly as more advanced parts of the world.

It's clear then that this continent needs a solid critical comms back bone more than most others.

Given the region could be hit by something anywhere, at any time and likely with little or no warning, its paramount that the emergency services and local communities are able to maintain connectivity to save lives. So just how prepared is the critical communications set-up in relation to each country and indeed Africa as a whole?

Mladen Vratonjic, chair of TCCA, a membership organisation which represents all standard mobile critical communications technologies and complementary applications, says every business, organisation and government should have a business continuity plan to protect operations should they be affected by an unplanned event. The event could be a natural disaster such as an earthquake or flood, or unnatural such as a terrorist or cyberattack.

"It is often said that there are three 'Rs' of the greatest importance for any critical telecommunications network: resilience, reliability and recovery," he says. "These are achieved through some more 'Rs' - redundancy and robustness. There is no overall standard classification for a mission or business critical network - however mission critical networks are those essential for some mission accomplishment (mostly public safety), and business critical networks serve businesses that cannot operate without reliable communications. To meet those requirements, there are technology standards that have been designed specifically with resilience at their core - these include TETRA, P25, Tetrapol and DMR - all well-established narrowband systems leveraged for both mission and business critical networks around the world.

Sepura the UK-based business that supplies TETRA technology to emergency services around the world and a firm official explains the benefits of radio over other methods of communication during a critical situation. "Radio works on an independent infrastructure, so not susceptible to call overload, system failure, etc," says a company spokesman. "It is a robust system, designed to withstand extreme weather. It can also be supported by temporary network infrastructure to support if needed, particularly

in remote areas that are often the epicentre of a natural disaster. Critical comms radios are robust and will keep working in hot, wet or dirty environments, and can suffer rough treatment much more than other communication systems. They also use encrypted voice comms to ensure comms are kept confidential." He adds that data applications can be developed to work over the system to integrate with back office systems. TETRA radio systems also enable co-operation between agencies using that platform - "often police, fire, ambulance, rescue and other emergency response organisations".

Traditionally and unsurprisingly, the largest users have been public safety organisation - police, fire, ambulance, rescue organisations. After all, they need it more than any other group, business or sector.

The Sepura spokesman says the specific requirement for a critical communications platform are where there is a risk to critical national infrastructure, a risk to life, or a risk to business operations. "Where these conditions/risks exist, there is a need for a communications system with greater functionality that can be provided by standard cellular phones or low level radios," he adds.

As much of the developing world transitions from analogue to digital radios, it is important to understand that digital networks require more precise alignment than analogue networks to achieve optimum performance.

Motorola Solutions is another key player on this space, kitting out much of the continent. Patrick Fitting, the company's vice president for Middle East and Africa argues that land mobile (LMR) radio "has long been the ultimate communication method" in disaster-stricken or conflict zones.

"It enables instant, reliable communications with high capacity in areas where cell phone towers are down or none existent. And though this method of communication has been around for a while, it is still evolving, bringing more innovation to the front line in the form of software applications," he says.

Barry Hack, solutions engineer at Viavi Solutions, argues that poor alignment causes degraded digital modulation accuracy in the transmitter, which impacts the receiver's ability to recover the digital data, leading to poor coverage and range.

"For example, a 20% calibration error can affect range to the same extent as a 75% reduction in power," he says. "A quick back-to-back radio check will not show this problem. An understanding of digital radio operation and alignment, proper setting of filter parameters and an accurate FM deviation meter will significantly improve the performance of digital radios. This is important as most digital FSK based systems, such as DMR, P25 and NXDN, use CW and FM modulation for tuning of the radio transmitter."

Hack says FM deviation meters are peak reading. Any other signals or noise will add to the measurement. "AF and IF filters impact the measurements, too narrow they attenuate the wanted signal, too wide and they add noise to the measurement," he continues. "Using DMR as an example, a low tone (eg 100 Hz) is measured



Martin Jarrold,
chief of international
programme
development,
GVF

"Terrestrial communications can never be a total solution, illustrated, to use just a single example, by the critical role of satellite for backhaul ever since the earliest days of 2G mobile network deployment"

and the corresponding high tone (eg 3 kHz to 6 kHz) is set to exactly match the level of the low tone. FM deviation meters must have no change in accuracy from one frequency to the next. In other words, there should be no 'tilt'. This is a critical parameter, for example 0.05 dB flatness is specified by one major OEM."

Due to Asia's size, richness of different cultures, landscapes, climates and contrast of wealth, are some nations more advanced in this space compared to others?

Another company that has played and continues to play an integral part in the critical communications space is US industrial wireless mesh networks specialist, Rajant. According to Michael Van Rassen, its president, military & government markets says military, defence and other mission-critical agencies continually grapple with the complexities of establishing and maintaining internet connectivity in remote and often hostile environments. "In particular regions, such as those in Africa and south Asia, where pre-existing communication infrastructure may be lacking, the challenge is exacerbated," he says. "As this capability is extremely critical for situational awareness, tactical strategies, convoy communications, and more, these teams must be supported by a ruggedised networking solution that is tailored to their needs, seamless to set up, and proven to perform in challenging environments."

Nevertheless, the Sepura spokesman says there are landscapes/terrains/regions where critical comms are more difficult to deploy than others, regardless of economic circumstances. "Every system deployment is unique," he adds. "Systems have been installed across nations (and indeed allowing interoperability across national borders), on offshore oil rigs, in underground mines, on super-fast train systems, in ski resorts and in locations where buildings are designed to protect from natural disasters. Part of the process of designing a system is to understand where potential problem areas may exist and to mitigate any potential issues with them."

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Infrastructure such as masts, towers, ducting/pipelines are all variously vulnerable when disaster takes the form of cyclone, earthquake, flood, military action, and typhoon, and networks' traffic capacity limits are compromised when the connectivity needs of displaced persons/refugees/victims of the effects of pandemic combine with those of 'first responders'

ployed in pretty much any situation, is there a question mark surrounding the technology itself? Do the handsets/radios need to be updated regularly and just how much of an investment is that? The Sepura spokesman says "it really depends" on how and where the radios are used. "On a less busy site the radios might rarely be upgraded, whereas police users might look to set up a radio much more frequently, based on operations taking place at that time," he says. New innovations are always being brought in to support users in these cases – for example over the air programming, enabling radios to be updated whilst connected to a secure, approved Wi-Fi network, reducing the time radios are out of use."

As far as Fitting is concerned, one of the biggest advantages of a modern LMR network is the ability to operate in the most difficult terrain. "That being said, it is extremely important to choose the right kind of technology and form of deployment to fit different kinds of geographies and use cases," he says. "For example, a dense urban area with large amount of users is quite different from remote rural areas. We like to see ourselves as technology partners, helping our customers find the best communication solution to fit their exact needs."

We've managed to get this far without mentioning 5G. Prior to the introduction of Covid-19 and possibly Brexit, you'd be hard-pressed to find a topic more often talked about than the next generation technology. Of course,

the UK has taken one step forward and two steps back with the way the government has handled the Huawei row. However, it's still slated to be with us in the not too distant future and once it is, Ken Gold, director of test, monitoring and analytics at Exfo, which develops test, monitoring and analytics solutions for operators says the new technology brings the promises of more resilience. "5G network slicing would be used to ensure the performance of mission critical services," he says. "Virtualised 5G core and edge networks will accelerate the implementation of required changes. Remote orchestration of new virtual resources as well as changes in traffic routing and moving critical services to the edge will improve service availability and reduce the need for truck rolls—keeping personnel out of the danger zone. Continuous monitoring and orchestration of the services and network will ensure critical services are maintained and the customer's essential communications needs are met."

The good news is we definitely have, or will have, technologies able to handle the very worst situations, but in the words of James Trevelyan, SVP global sales – enterprise at communications solutions provider Speedcast says disasters of any kind are impossible to predict, making short-term communications that connect emergency services throughout every stage of the response efforts critical. "High-speed, uninterrupted connectivity that enables voice, video, data

and IoT solutions can be the difference between the success or failure of a disaster situation," he says. "With rapid response times necessary, communication networks that are quick and easy-to-deploy are imperative."

For many critical communications, satellite remains the method of choice – particularly in areas where the internet access and cell towers have been knocked out as a result of a disaster. Trevelyan adds that as satellite communications become faster, more reliable, cheaper and are able to offer lower latency, disaster recovery operations and critical communications will become more streamlined and tactical than ever before. After all, teams that are better prepared, better equipped and that can work well together in challenging circumstances have a better chance of saving lives than those that are not.

"Low Earth Orbit (LEO) and High Throughput Satellite (HTS) offer first responders a way to establish short-term, easy-to-deploy communications anywhere at any time. "Due to the speed in which emergency services need to react and take control of the situation, solutions that can be brought online within five to 10 minutes and allow them to gain coverage immediately are vital," he continues. "When a disaster strikes, the first action of the emergency services is to create a local hub to re-establish critical communications and ensure they can stay connected through the entire recovery process. Once the disaster response team has established



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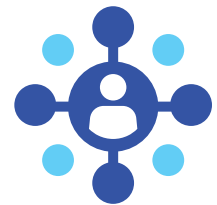
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an on-site base, resilient trucks – similar to those used in broadcast – will be driven to the disaster area to create an emergency services network. A quick-deploy antenna mounted to the roof of the truck will be used to provide a satellite link to connect to the nearest cell tower to provide phone services and internet services so responders can better communicate at the scene.”

Let's, for a moment, imagine the worst has happened. There's a warzone or disaster-struck area: what are the best options?

For Martin Jarrold, VP international programme development at GVF, the global trade association for the satellite industry, says the developing world has long looked to a range of varied communications solutions to support their connectivity agendas for the facilitation of socio-economic growth, in attempting to meet the sustainable development goals of the global development agenda, to attract inward investment, to enable the creation of knowledge based economies, and other strategic objectives. “Such solutions are also mission-critical for governments, and their partnering organisations, working in humanitarian assistance and disaster response (HADR) environments,” adds Jarrold. “Just as governments and regulatory authorities search for ideal solutions to the challenge of connecting people in remote and under-served regions, NGOs and United Nations agencies need reliable communications to be available to support supply logistics and coordinate ‘first responder’ relief efforts anywhere and at any time.”

Gilat Telecom, is an Israel-based firm, which offers satellite and fibre-based connectivity solutions across Africa. Ami Schneider, the company's VP defence & HLS, says it can ship everywhere phones that are ready to use to anywhere in the world. “So, for example, for teams who are leaving their base to go and help in a disaster, they can be sent phones to their homes, offices, somewhere en-route or their final destination,” she says. “Our phones seamlessly move between cellular, wifi and satellite networks and include: encrypted text messaging, group messaging, tracking, globalSOS with 24/7 monitoring, emergency alerts, maps, compass, as well as geocoded videos clips, audio notes and photos.”



Mladen Vratonjic,
chair,
TCCA

“It is often said that there are three ‘Rs’ of the greatest importance for any critical telecommunications network: resilience, reliability and recovery”

“In particular regions, such as those in Africa and south Asia, where pre-existing communication infrastructure may be lacking, the challenge is exacerbated”

Jarrold is complementary about terrestrial communications networks – cellular/mobile networks, microwave networks, fibre – in that they play a very visible and vital role in both day-to-day connectivity and in circumstances of disaster response and humanitarian relief. However, he warns that infrastructure such as masts, towers, ducting/pipelines are all variously vulnerable when disaster takes the form of cyclone, earthquake, flood, military action, and typhoon, and networks’ traffic capacity limits are compromised when the connectivity needs of displaced persons/ refugees/victims of the effects of pandemic combine with those of ‘first responders’.

“Terrestrial communications can never be a total solution, illustrated, to use just a single example, by the critical role of satellite for backhaul ever since the earliest days of 2G mobile network deployment,” he continues.

“The role of satellite communications in economy and society is broad, goes very deep, and is ever increasing. This role is not necessarily as obvious as it is for terrestrial, and yet satellite serves both every day needs and not-so-every day critical situations: from consumer to corporate/ enterprise broadband data, from government closed user groups to multinational networks, from multicast VSAT services to distance learning, rural telecommunications, e-Health/telemedicine, and news distribution; and aeronautical, land mobile and, maritime services.”

Of course, a great deal of the necessary infrastructure behind these applications and services is in Earth orbit – hundreds of geostationary (GEO) satellites above the equator, thousands (soon to be tens of thousands, according to Jarrold) of medium-Earth (MEO) and low-Earth (LEO) orbiting satellites encircling the globe – and so, he says, this ‘space segment’ is not obvious to most. “A GEO can provide coverage over an entire continent. GEO high-throughput satellites (HTS) provide ever-increasing broadband capacity, with early HTS satellites having 45 gigabits per second (Gbps) of capacity, while more recently launched satellites offer roughly 130-145 Gbps and upcoming satellites around 1 terabit per second (Tbps),” Jarrold adds. “The ‘Ground Segment’ is a little more obviously visible – particularly the big satellite antennas at teleports/hubs – though even then the everyday very small aperture satellite terminal (VSAT) does not dominate the skyline like a cellular/mobile mast or microwave tower.”

While satellite may have had its detractors over the years, Kyle Whitehill, CEO of Avanti Communications provides examples of where his



Michael Van Rassen,
president,
military &
government markets,
Rajant

company has and continues to make a difference.

“East African countries, such as Kenya, are prone to disasters, like droughts, floods or disease outbreaks,” he says. “The recurrent nature of these disasters inherently affects the capacity of communities to recover, which lowers economic output and holds back development year on year. Working with the National Disaster Operations Centre (NDOC) and Red Cross Society in Kenya, we along with our partners implemented a Disaster Risk Reduction (DRR) capacity development programme to improve Kenyan capacity to effectively plan for and respond to disasters using satellite technology. The SatDRR project was implemented to enhance at a regional and local level the coordination, command and control of disaster response of first responders and local agencies.”

Whitehill points to the fact Avanti's steerable beams, available on HYLAS 2, HYLAS 3 and HYLAS 4, provide immediate ka-band capacity wherever it is needed, across Africa. “Our beams operate in civilian and government frequencies and can be moved with initial or full steering rights,” he continues. “This means that our satellite systems provide a secure, resilient, always-on infrastructure in disaster situations – providing critical tools for emergency communications and situation assessment. For example, we were able to move one of our beams over Mozambique to provide vital connectivity for rescuers when Cyclone Idai hit the country in March 2019.”

Currently, Avanti is involved in a number of on-going projects, with some rather august bodies and organisations. “We work directly with UNHCR, the UN Refugee Agency, to provide refugees and host communities in Uganda with solar powered satellite broadband connectivity which directly supports access to information, humanitarian and livelihood services within refugee settlements,” he continues. “The collaboration will see high-speed internet access introduced across some of the most remote areas of east Africa. Seven UNHCR sites in refugee settlements in northern Uganda, predominantly hosting displaced populations from conflicts in South Sudan and the Democratic Republic of Congo, will receive satellite broadband connectivity, laptops and maintenance of all equipment.”

As Fitting puts it, “a mission-critical network is purpose-built to withstand multiple failures” before communications are affected and is specially designed for multiple levels of active redundancy.

Although preparedness for any given situation is invaluable, one never knows how things will pan out in the worst possible situation. Luckily, the best people and their technology are ready to act. ■

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One size does not fit all

Jiashun Tu, chief scientist of NFV and SDN at ZTE takes a look at how developing countries should approach 5G

There is a global race to implement 5G as quickly as possible and reap the benefits that it will bring to consumers and businesses alike. We hear a lot about progress being made in China and Europe, the latest partnerships, spectrum auctions and what successful trials have been completed. In all this noise, it can often feel like many areas of the world are left aside. In Africa and Asia there is also progress being made in 5G. However, their

socio-economic contexts and lack of mobile infrastructure means that there are other complex considerations that affect their 5G strategies.

Paths to 5G

Firstly, it is important to understand the approaches that can be taken to realising 5G. The first is Non-standalone 5G (NSA). NSA is all about providing higher data bandwidth and

Jiashun Tu,
chief scientist,
NFV/SDN,
ZTE



reliable connectivity. NSA networks use existing 4G infrastructure, allowing dual connectivity with 4G and 5G simultaneously. Traffic is carried over both spectrums and then aggregated at device level. This consumer-first approach allows service providers to use existing resources to establish 5G. Once the 5G coverage has been established, the operator can then implement standalone 5G.

The second – and less common – path is to jump straight to Standalone (SA) 5G. The rapid digitisation of industry has opened huge opportunities for a host of new 5G use cases and – by extension – revenue streams. 5G SA is needed to make the most of this transformative new technology, especially in industry where network slicing and virtualization will be a game-changer.

While these two approaches to 5G are not mutually exclusive, which one you prioritise is an important decision. Moving first to 5G NSA is the path of least resistance. However, it is not nearly so simple. Which of these two routes to take is a balanced and considered process, taking into account many different technical, regional and socio-economic issues. For developing countries especially, in areas such as Asia and Africa, these considerations are more complex than other countries.

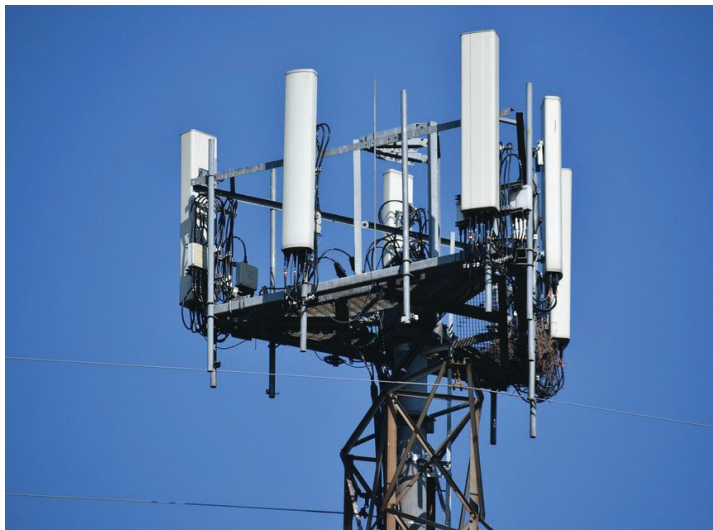
Connectivity in developing countries

According to the GSMA's 2019 Mobile Internet Connectivity Index (MCI), mobile internet adoption in Sub-Saharan Africa stands at 24%, while the region also accounts for 40% of the global population not covered by a mobile broadband network. In south Asia, only 33% of the population are connected to mobile internet.

Despite these regions being two of the most left behind in terms of mobile connectivity, there has been some progress. In 2014 only 18% of the population of South Asia was connected to mobile internet. The dramatic rise of connectivity to its present figures has been driven by significant investment from operators to expand 4G coverage. Additionally, with some of the most affordable mobile broadband, the region has done well to make mobile internet accessible to large swathes of the population. The same is not true of sub-Saharan Africa. Here, the progress since 2014 is not so impressive – it has been driven mostly by upgrading 2G sites to 3G and 4G. However, mobile internet remains above the 2% of monthly income threshold for more than 75% of countries in the region.

While looking at the situation from a regional perspective, we can see that different trajectories of mobile internet penetration have implications for the state of national infrastructures as well as consumer readiness. These trends are important to acknowledge, as they illustrate why it can be more challenging for developing countries to decide on strategy. In order to look at this in more detail, we must examine specific examples of how individual countries are approaching 5G.

Whilst the regional outlook for Sub-Saharan Africa shows that it is one of the least con-



The dramatic rise of connectivity to its present figures has been driven by significant investment from operators to expand 4G coverage. Additionally, with some of the most affordable mobile broadband, the region has done well to make mobile internet accessible to large swathes of the population

nected regions in the world, there are dramatic differences between individual countries which effect their choice between NSA or SA 5G. South Africa has a well-established network infrastructure compared with many of its neighbours. It is in the top five highest performers for the region as a whole. In terms of network coverage, the proportion of the population covered by 4G scores 90 out of 100 on the MCI while 100% of the population have 3G coverage.

Compare this with Uganda, another country with 5G ambitions. Only 81% of people have access to 3G and it scores only 17 on the MCI when it comes to 4G. This lays bare the differences in the maturity of each country's network infrastructure and has significant implications on their approaches to 5G.

As we have already established, if the infrastructure exists to take an NSA approach, this seems like the most logical avenue. This is certainly the case in South Africa where MTN and ZTE have already jointly demonstrated multiple 5G use cases based on MTN's existing 4G network. The applications supported include gigabit mobile connection, virtual reality, ultra-HD broadcasting and more.

In Uganda there is the possibility of a different approach. The network infrastructure in Uganda is not quite as mature or extensive as that in South Africa, and the expense of building out the 4G network to then make the move to 5G, potentially makes less economic sense. Because of this, operators in Uganda could opt for SA 5G as an alternative approach to NSA. Although there is no correct path to take to achieve SA 5G, different contexts can sway decisions one way or the other."

The GSMA has held up Indonesia as a shining example of how a country can improve its mobile internet connectivity – being one of the top 10 most improved countries since 2014. This emerging digital giant has an estimated internet penetration rate of 69% by 2025, mostly due to infrastructure growth and affordability of data plans. Despite this improvement in infrastructure and mobile internet usage, many of the indications suggest Indonesia will jump straight to SA 5G. It is not just Indonesia in this region who are exploring the possibility of bypassing NSA 5G. Other countries like Singa-

pore and Thailand are doing the same.

To understand why this is the case we need to simply look at the broader socio-economic makeup of the countries. Indonesia, like many countries in the region has an established industrial makeup. Industry, including manufacturing, construction and mining account for 40% of the country's total GDP. It is widely known that in vertical industries such as these is where 5G has the highest capacity to transform the market, with use cases are abundant; smart factories, IoT, intelligent supply chain and more. The same is true of other countries in the region such as Thailand where industry accounts for 35% of GDP.

Additionally, the GSMA found that the greatest barriers to mobile internet penetration in South Asia are a lack of digital skills and a lack of relevance of mobile internet in people's everyday lives. This exposes a lack of consumer readiness not just for 5G but for mobile internet more broadly. It is predicted that in most parts of Asia, 4G will account for 70% of connections until 2025.

It is therefore not surprising that we are seeing an emphasis on the move straight to SA. This is by far the more industry-driven approach and it illustrates an acknowledgement that it is in the enterprise that 5G will make the greatest financial impact. In Thailand, operators are already moving to 2.6G and 2.5G spectrum in the belief that SA networks will be used widely in industrial scenarios and will generate new revenues.

Which path to choose

For every country, deciding which strategy to choose must take into account myriad factors. What is the current state of your network infrastructure? Where will 5G make the greatest impact on your economy and the everyday lives of your population? Is the cost of taking one approach prohibitive? There is no single answer to these questions, and countries in regions such as Africa and South Asia often have more to consider than others. However, if these questions are approached with the right degree of care and attention, there is no reason why developing countries cannot make 5G work for them and their people. ■

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C-Com's new Drive-Way antenna

The iNetVu Ka-75V Drive-Away Antenna is a 75 cm auto-acquire satellite antenna system, which can be mounted on the roof of a vehicle for broadband internet access over any configured satellite, according to C-Com Satellite Systems. It reckons the system works seamlessly with the iNetVu 7024C Controller, providing fast satellite acquisition within minutes, anytime anywhere. The company also says that "if you operate in Ka-band, the Ka-75V system is easily configured to provide instant access to satellite communications for any application that requires reliable and/or remote connectivity in a rugged environment". C-Com also says that this next generation mobile Ka terminal delivers affordable broadband internet services (high-speed access, video and voice

over IP, file transfer, e-mail or web browsing). It is suited for industries such as oil & gas exploration, Military Communications, Disaster Management, SNG, Emergency Communications backup, cellular backhaul and many others.



Peplink's Puma antennas

Peplink has garnered attention for its variety of antennas, certified for use with its LTE router series.

The new line, known as "Puma", is targeted at mobile users. First up is the Puma-401, an omnidirectional antenna, with four integrated cellular antennas that support all sub-6GHz 5G frequencies for 4X4 MIMO reception, along with GPS.

This particular model looks very similar to the older ANT-107 offering from Peplink, which has now been discontinued. However, there is a key technical difference - the latter did not have support for 600 MHz LTE Band 71. With four cellular channels in its arsenal, the Puma 401 is described as a "powerhouse, capable of providing high bandwidth and



solid reliability even under heavy usage". Equipped with high gain LNA, the GPS receiver, Peplink says, also has improved location tracking.

Next up is the Puma-221 5-in-1, with two cellular channels, two Wi-Fi channels and a high gain LNA GPS. It is described as a versatile all-in-one cellular antenna solution. There

is also 2x2 MIMO and dual-band Wi-Fi for high bandwidth and solid reliability, according to Peplink.

Last, but by no means least, the Puma-020. This model is a low-cost, dual-band Wi-Fi antenna built for mobile applications, coming with 2x2 MIMO that provides a high bandwidth for users.

Huawei's AirEngine 8760-X1-PRO 'redefining the Wi-Fi industry benchmark'

AirEngine 8760-X1-PRO — Huawei's flagship Wi-Fi 6 (802.11ax) indoor Access Point (AP) — comes with 16 Smart Antennas and is equipped to handle high-density and bandwidth-hungry scenarios, the company says.

Derived from innovations made in 5G technologies and apparently "unique to Huawei", the 16 built-in, dual-band smart antennas achieve a device rate of up to 10.75 Gbit/s, "delivering a fibre-like wireless experience". Smart anten-

nas also effectively improve signal gain, with signals following users to achieve complete coverage with zero blind spots.

Equipped with software-defined radios (SDRs) by default and with the ability to flexibly switch between three modes — dual-radio, triple-ra-

dio, and dual-radio + one scanning radio — AirEngine 8760-X1-PRO is

designed for challenging high-density environments where interference is heavy. Such strengths make the AP a good fit for enterprise office, government and higher education use, plus primary and secondary education.



Intellian launches latest addition to GX antennas

Intellian says it is "proud to launch the latest addition to its next generation GX range of antennas". The firm claims the GX60NX is designed specifically and now type approved for

use with Inmarsat's Global Xpress Ka-band VSAT network. This 65cm terminal, the smallest in the range, completes Intellian's GX portfolio and brings the benefits of its market leading NX antennas to all vessels using Inmarsat's Fleet Xpress service for reliable, fast connectivity at sea.

It is also thanks to its compact size and light weight, the GX60NX is ideally suited to smaller commercial vessels, where space is at a premium "but the benefits offered by the latest technology are still required".

The new form factor supports customers across all markets, including leisure and fishing.

The Below Deck Terminal (BDT), single cable antenna connection and AptusNX control software are identical to those used for the larger GX100NX, which is already approved. This allows ship management companies and ship owners to benefit from the ability to work with a standard platform across diverse fleets.

"We are delighted that the GX60NX has been type approved and is ready for use for our channel partners with Fleet Xpress," says Ronald Spithout, president, Inmarsat Maritime. "This reinforces our close and innovative partnership with Intellian. We now have more than 9,000 vessels using the service and

we are seeing an increase in demand for digital and crew services, which is why we are launching a further seven satellites in the next three years."

Intellian's NX antennas come with pre-slung lifting straps in compact shipping crates, have no shipping brackets requiring removal and are terminated externally using a single coaxial cable to carry power, Tx and Rx signals, avoiding the need for the installer to remove the dome. Intellian reckons its AptusNX software "makes commissioning straightforward" via a built-in wizard and facilitates both remote and local diagnostics with health reports for the antenna systems and sensors.



Radwin delivers new MultiSector PtMP base station

Radwin brings to market its new MultiSector PtMP dual-carrier base station series. It delivers 1.5Gbps throughput and supports up to 4 sectors per base station with integrated or external antennas to achieve 360° coverage. It reckons the solution enables service providers and network operators to increase network capacity and coverage while reducing site complexity and TCO. What's more, Radwin's new series supposedly reduces the amount of glue components and cable wiring per site to a minimum. The self-contained base station incorporates dual radios, a built-in GPS antenna, and Layer-2 Switch. MultiSector also enables self-backhaul, eliminating the need for an additional PtP radio.

Radwin offers two base station solutions. The MultiSector Integrated is a base station that includes 180° (dual 90°) sector MIMO antennas and connectors to attach an additional 180° RADWIN antenna unit, or other third party antennas to cover a full 360°. Each of the radio carrier resources are split between two antennas in the time domain, avoiding signal power loss when using an RF splitter. This solution was designed for MicroPoP coverage supporting short-range connectivity of up to 2-3km including small or isolated rural villages, industrial parks on the outskirts of town, video surveillance, and remote automation for digital oil & gas fields.

The other solution

is the MultiSector Connectorized, a self-contained base station, connecting up to 4 external MIMO antennas to enable ultra-high flexibility in antenna selection per deployment scenario. Radwin reckons the base station is ideal for the deployment of multiple sites and sectors, each site addressing different coverage requirements (i.e. sector width and distance), such as long-range rural connectivity, video surveillance applications, and more. After being successfully deployed on a project only basis,

Radwin MultiSector Connectorized is now available for purchase through its global channel partners.



Viavi releases Auto-Test for XG radios

Viavi Solutions has released Auto-Test for L3Harris Technologies XG-25M, XG-25P and XG-15P two-way radios on the Viavi 3920B radio test platform



and 8800SX digital radio test set.

The vendor's radio test products support all L3Harris public safety radios, along with some of the industry's most comprehensive automated test solutions for the L3Harris XL-200P, XL-185P, TP9400, TP9300, TP9100, XG-75P, XG-75Pe, XG-25P, XG-15P, P7300, P5500, TM9400, TM9300, TM9100, XG-75M, XG-25M, M7300, and M5300 radio families.

"The Viavi and L3Harris relationship spans over a decade to provide the land mobile radio industry with high-quality, easy-to-use lab, bench and field test equipment for network infrastructure and subscriber radios," says Edward Latimer, director of product Management, radio test, Viavi. "This new capability further highlights the commitment by L3Harris and VIAVI to provide solutions for the public safety community."

ZTE's new 5G energy saving solution

ZTE Corporation introduces a 5G energy saving solution, PowerPilot, in a bid to "help operators realise higher energy efficiency, lower carbon footprint and achieve more sustainable growth".

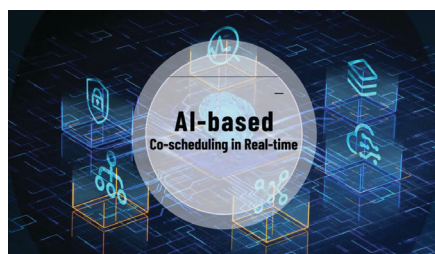
Taking advantage of the energy efficiency differences of various types of services, ZTE reckons PowerPilot can deliver services to the most energy-efficient networks in real time, by intelligently evaluating service requirements.

What's more, PowerPilot can, apparently, save up to twice as

much energy as the existing energy saving solutions, thereby greatly reducing the opex for operators.

In addition to employing existing multi-layer energy saving technologies, which introduce AI

and big data to save network O&M labour, ZTE claims PowerPilot has coordinated multiple frequency bands and radio access technologies, to further reduce the energy consumption.



By virtue of more than 500 green patents, in-house chipsets, new-generation high-efficiency power amplifiers and cutting-edge product designs, ZTE says it can continuously facilitate the development of energy saving in 5G networks.

Look out for...

Finland get first standalone 5G connection, powered by Ericsson and Elisa

Ericsson and Elisa have established the first end-to-end 5G standalone connection in Finland, a milestone that will mean more advanced 5G use cases for both consumer and corporate customers worldwide.

Standalone 5G connections can allow the use of applications requiring ultra-low latency, including virtual and augmented reality, connected vehicles and smart factories.

Elisa CTO Kalle Lehtinen said the company began testing 5G technology years before it was launched in 2019 and is now taking steps to be ready for the future of 5G together with Ericsson. Even though this is a pilot, it represents a big step in the direction of a more reliable, faster and more efficient 5G network to benefit customers in the coming years, Lehtinen noted.

A standalone 5G device, using super-fast response time, is able to connect to a standalone 5G network up to six times faster as compared to a device operating in a non-standalone mode. Users can enjoy a far better experience and look to provide many new opportunities for innovations at an industry level.

Elisa's fully commercial 5G launch took place in Finland in June 2019. After the Finnish government decided to allocate frequency bands for 5G, Elisa is paving the way for 5G roll out and use in Europe, through the 5G portfolio of Ericsson.

Ericsson's head of northern and central Europe, Jenny Lindqvist, added that Ericsson and Elisa have been united in their dedication towards a sustainable and connected future. The companies have together provided superior connectivity to all 2.8 million of their customers and are now seeking innovations with leading 5G portfolio, she noted.

Lindqvist also said that 5G's low latency benefits would be multiplied with the use of 5G standalone connectivity and working with Elisa the company can unlock more solutions for transforming the industry as well as society.



Growing online: remote learning for tomorrow's farmers

Learning from the ground up: inspired to set up an agricultural college, two farmers are now training students in 14 countries online and at low cost

Two lifelong farmers in South Africa defied the odds to set up online training for agricultural students.

The idea began when Howard Blight and Wynand Espach, long-term colleagues in Limpopo province, attended a conference in Peru where Mr Espach spoke about his work in establishing avocado farms in Mozambique, lifting a whole village out of poverty.

It was during this trip, while chatting with other

farmers from across the globe that the pair were inspired to start their own agricultural college.

When they returned to South Africa, however, they soon realised that the venture would have to be very different to a traditional bricks-and-mortar college in the country.

Agricultural colleges in South Africa could not expand past a certain size, due to limits in availability of electricity, water supplies and the capital cost of investing in bricks and mortar.

Mr Espach said: "If we followed the same model as these colleges, we would come up against similar problems that agricultural colleges are facing across the world."

The challenge they faced was how to keep fees low for students from poorer backgrounds yet still have the money to maintain facilities and expand without hitting the limits imposed by a lack of infrastructure.

The answer was cloud-based online learning and led to the birth of AgriColleges International.

However, the two farmers had no experience with online learning platforms, so they began investigating technology providers.

Mr Espach said: "We were not happy with what we could do with the various platforms we had spoken to thus far. We felt we needed a platform that could facilitate the practical elements we envisioned (it being agri-based) and a company willing to work with us to develop those practical elements."

A friend introduced them to D2L, a Canadian company which had recently worked with Visions Consulting, based in Johannesburg, to extend its services in Africa.

With computer literacy low among the student base, ease of use was important; they felt that the other solutions they had enquired about were too complicated.

For the demographic they were targeting, only five per cent have access to a laptop or PC, while 70 per cent have access to a smartphone. The Brightspace platform from D2L features mobile functionality.

Mr Espach said AgriColleges would never have achieved its goals so early without D2L and Brightspace. AgriColleges now runs eight courses on the Brightspace platform, which are split into short courses and one-year certificates. The first one-year course was the National Certificate in General Agriculture, comprising six modules of either six or eight units.

In order to overcome the infrastructure and funding limitations that have dogged traditional agricultural colleges, key practical elements of the course are performed remotely.

Mr Espach said: "Students are given the theory and a task on the platform, like taking a soil sample. They then have to perform the task within the area around them. This can be in their own back garden. They do not need to go to a farm or a practical destination.

"They then record a video or take photos of the steps they took in performing the task which they upload to Brightspace. This is called a Remote Practical."

This remote practical is complemented by a two-week on-site practical, in which students travel to one of AgriColleges' practical destinations to learn skills such as servicing farming machinery, working with animals and visiting nurseries. They see everything they have learned in theory, translated into practice.

The short courses offered by AgriColleges are in three bands: introductory covering the basics of agribusiness, animal production, and crop production; fundamental, which are crop or product-specific, such as dairy production or avocado farming; and applications, where students attend a farm for a week-long practical course.

When AgriColleges rolled out its first short course it ran into issues common with engaging students through online learning. Mr Espach said: "To begin with there were challenges. At first, we did not really have anything to cover engagement metrics. We saw students log in and read materials, but very quickly disappear for a week or two. We realised that this had to change and we would have to engage them all the time."

Now, all students are linked to a course

consultant online who speaks with them daily.

This has proved to be a lot of work for these consultants, and very recently D2L has helped AgriColleges deploy intelligent agents to automate many of the student engagement tasks.

These intelligent agents are automated emails that seemingly come from the course consultant, reminding students of deadlines. It saves course consultants a great deal of time and allows them to focus on helping students who are struggling.

AgriColleges also increased engagement by using Brightspace's discussion forums and rolling these into the course grading criteria.

Mr Espach said: "What we are achieving here is important because every year in Africa there are 50 million school leavers and only 5 million university or college places. That is 45 million people who cannot get tertiary education. As we expand, we are hoping to provide even more people with the skills needed to thrive in the farming industry."

AgriColleges is in the process of being officially accredited as a higher education institute so it can widen its offer to more students.

AgriColleges has widened its student base outside South Africa: students from 16 countries have completed its short courses. And the two men are looking outside the African continent, with India as one of the first targets.

Mr Espach said: "It is amazing how far we have come in just a few years. We were just farmers who knew nothing about educational technology, but now we are teaching farming, not only to students across South Africa, but across Africa. It has been a very exciting few years for us." ■

WiFi helps big schools group to save on textbooks

More than 62,000 pupils study at Curro's 175 schools. And it all started 21 years ago in a church vestry in Durbanville, a suburb of Cape Town.

Chris van der Merwe, now a non-executive director of Curro Holdings, and his wife Stephanie began the school with just 28 pupils.

All of the schools – apart from one each in Botswana and Namibia – are in South Africa and educate students to the age of 18. They were set up to provide low cost private schooling.

In a move to replace textbooks, Curro made the decision to go for e-learning.

In a continuing project, WiFi has now been installed in about 90 of Curro's sites, using a total of 4,000 access points. And there is expansion at existing sites as demand exceeds supply.

The equipment is from Xirrus, Acquired by Cambium Networks from Riverbed Technology in August last year.

The individual networks are designed and supplied by ISE (Information Systems Engineering) which has offices in Johannesburg and Cape Town, and installed by integrators.

Sean Vollmer is the managing director of ISE. He said that the high-density access points typically installed at Curro sites are the models XD4 and XD2, which have respectively four and two 802.11ac radios. And the com-

plete network is managed by the Xirrus Cloud and integrated EasyPass guest onboarding.

In another move, the schools group has launched Curro Online – said to offer flexible yet structured education -- with classes taught by current Curro teachers.

Curro's online business manager, Jay Paul, said: "We've been developing our digital education offering for some time now, which is evident with our recently launched DigiEd model.

"As part of the design process, we decided to rethink how home-schooling and distance learning is currently being offered. We set out to understand the frustrations of parents, and the learner, and how best to serve them and came up with a different proposition."

"One such concern is that most home-schooling solutions do not prepare the learners for the technology-heavy 21st Century and hence we focused our curriculum on maths, science, coding and robotics.

"As Covid-19 continues to impact our country, we also identified a need among parents who are struggling to juggle home-schooling with their own work, or are looking for an online programme that will still give their children access to class-time with qualified teachers."

He stressed that Curro Online is not a home-schooling model, where parents need to take on the responsibility of teaching and continuous supervision. It is a learn-from-home online model and



In a continuing project, WiFi has now been installed in about 90 of Curro's sites, using a total of 4,000 access points

the material is created and taught by Curro teachers.

Unlike other online schooling options that rely on a rotation schedule of tutors, Curro Online will be taught by a dedicated Curro teacher per subject per grade for the whole year. The learners will not study in isolation, but rather in small classes. They will also have group projects assigned to them, where projects will be done in small groups of four.

"We believe this model is ideal for families who wish to provide a high-quality independent school education for their child, and have the flexibility to return them to a physical school with little disruption to their academic career at any point in the future.

"Our model ensures that parents can continue to focus on their work commitments and all other responsibilities, and take off the pressure to teach their children." ■

'Aerkomm needs a telecom licence first'

 Aerkomm, the US provider of in-flight solutions, must register as a telecom service provider if it wants to provide a low-Earth-orbit satellite service in Taiwan, said the Asian territory's National Communications Commission (NCC).

The Nevada-based firm was also told it must comply with national laws on applying for a frequency spectrum and managing foreign investors.

Aerkomm, which recently announced that it had chosen Taiwan as a research and development and service base in the Asia-Pacific region,

filed an application to offer a low-Earth-orbit satellite service in Taiwan — which some call a "6G service."

The service would transmit data faster than 5G service and greatly facilitate communication for residents of remote areas and frequent air travellers, the company said, adding that the travellers would not need international roaming services when overseas.

While confirming that the commission had received Aerkomm's application, NCC vice chairman Wong Po-tsung said that the firm should first register as a telecom

service provider, as required by the Telecommunication Management Act, which took effect on July 1 this year.

"So far, its business plan is vague, and we are not sure if it needs to secure a landing right for its service here," Wong said. "But if it does, we need to review several factors, including the percentage of its shares owned by foreign investors and whether the frequency spectrum that the company intends to use to build its service network is being used by others or might cause interference on surrounding networks."


TIM offering 'unlimited data via FWA prepay plan

 Telecom Italia (TIM) has developed the conditions of the prepay offer for Fixed Wireless Access (FWA) customers it launched in early September.

The 'TIM FWA Ricaricabile' plan now comes with "unlimited data" every month, up from the 200GB a month initially offered, at download speeds of up to 30Mbps and upload speeds of 3 Mbps. However, TIM said the data offered is subject to reasonable use conditions and should not exceed 930GB every 30 days.

In addition, the service includes a self-installing indoor FWA modem and uses TIM's fibre-optic network up to the nearest base station, with a final stretch on the company's LTE or LTE-A network. Subscribers will have to pay an initial €99 for the modem and first 90 days of service, up from the 30 initially offered, followed by bundles costing €27.90 a month or €78.90 for 3 months or €240.90 for a year.

UFO turns out to be internet balloon

 An unidentified flying object (UFO) parachuted into dense Congo jungle to the confusion of local authorities, until a subsidiary of Google parent company Alphabet identified the device as an internet balloon.

Images shared on social media showed people inspecting a large silver-coloured contraption fitted

with solar panels and wires, which had landed in the tropical forest of Bas-Uele province in the northern Democratic Republic of Congo (DRC), trailing a large deflated balloon.

Locals told security after the object fell to earth around 1pm local time on Monday 24 August, Bas-Uele Governor Valentin Senga told Reuters after vis-

iting the site around 10 km (6 miles) south of the provincial capital Buta.

"I'm not able to say exactly what kind of device I observed," he said. "What intrigues us is that neither the intelligence services nor the local aviation authorities claim to have any information on the overflight of Congolese air space by this aircraft."

Israel greenlights fibre-optics network rollout

 The Israeli government has approved a plan by the country's telecom regulator to speed up deployment of a long-delayed nationwide fibre optics network.

In July, a government committee recommended to communications minister Yoaz Hendel a plan that would allow for a fibre network in much of Israel in the next few years. At the time, he said he would seek approval of the plan, which will boost surfing speeds to 1,000 megabits (1 gigabit) per second.

"After a decade in which Israel has been stuck behind the rest of the world, the cork has popped," Hendel posted on Twitter and Facebook.

He added that in places with advanced communications networks, the jobs market grows by 3% and the economy by 1%.

The rollout of a fibre network had been held up due to a battle between Bezeq - Israel's main telecom group

— and the ministry, which demanded Bezeq deploy in all of Israel. Bezeq argued it was not financially viable to do so in some rural areas.

However, the regulator has eased its demand to deploy everywhere. Bezeq's smaller rivals, Cellcom and Partner Communications, have begun to establish their own fibre networks.

A fund would be created from revenues from Bezeq and its rivals to finance fibre deployment in areas where Bezeq will not deploy. Smaller firms could bid for the business.


Hendel said the fund would invest initially along the country's borders at the same time as more lucrative areas such as city centres.

Bezeq has said it has invested tens of millions of shekels in the past two years to upgrade its network to double internet surfing speeds, while also investing in a fibre network that it said can reach 1.5 million households.



A fund would be created from revenues from Bezeq and its rivals to finance fibre deployment in areas where Bezeq will not deploy

Madagascar tops Africa's net speeds

 Madagascar has the fastest internet in Africa, according to new research, with its improved average speed of 32.07Mbps placing it 33rd globally and ahead of developed countries like the UK and Australia.

The improvement is due to the underwater Eastern Africa Submarine Cable System that supplies the island's urban centres with fibre broadband speeds, according to Cable.co.uk.

Madagascar also had Africa's fastest internet in 2018, when it took the title from east African nation, Kenya.

Fellow Indian Island nation the Seychelles, with a population of 98,347 people at mid-year, according to UN data, came third with an internet speed of 26.76Mbps. As one of the most sought after tourists' destinations in Africa, the country has invested massively in internet connectivity.

Most resorts, hotels, and guesthouses in Seychelles have free WiFi. Internet cafés are also available on the three main islands of Mahé, Praslin, and La Digue to give internet access to locals.

Surprisingly, after improving from third to second in 2019, South Africa fell down the ranks to fifth in 2020 after services in other African countries were developed. It has an average download speed of 23.17Mbps and the time it takes to download a typical 5GB high-definition movie is one hour and 21 minutes.

Nearby Mauritius has made significant improvements over the past year, doubling the average broadband speeds available in the country.


In 2018, the country responsible for Africa's current ninth-fastest internet speeds was only ranked 139th globally with speeds of 2.39Mbps.

Mauritius is now much improved in the world ranking thanks to infrastructure improvements providing increased speeds of around 19.24Mbps.

Cape Verde in second place, along with Ghana, Gabon, Liberia, Togo and Senegal made up the top 10.

Countries like Uganda, Rwanda, Namibia, Tunisia, Morocco and Kenya, all of which appeared in the 2019 ranking, were knocked off in the 2020 ranking.

TPG Telecom signs network deal with NAB

 Australian ISP TPG Telecom has signed a deal with the National Australia Bank (NAB) that will see it provide fixed and mobile network services for the institution.

Under the terms of the deal, TPG will deliver fixed network services across NAB's corporate offices, business banking centres, and branches using both on-net and NBN networks, while Vodafone will provide mobile connectivity to the majority of the NAB workforce.

Vodafone will deliver the solution to more than 80% of NAB's mobile fleet across corporate offices and branches in metro and major regional areas. The bank said Vodafone, alongside Google, will also provide those who opt for a company phone with the Pixel 4a.

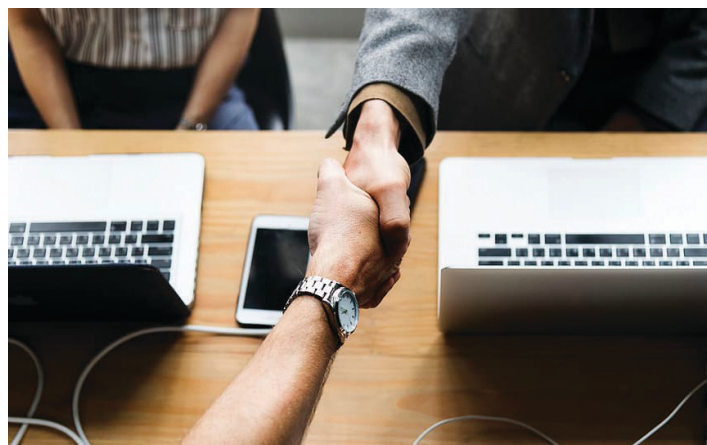
NAB executive of enterprise technology Steve Day said the deal was an "important step" in the bank's "insourcing journey", which is centred

on increasing control and flexibility.

"We're extremely pleased we'll be able to bring our services together with one company," he added.


Using the announcement as an opportunity to discuss the benefits of the TPG-VHA merger, TPG

Telecom chief operating officer Craig Levy said the Vodafone mobile network and the TPG fibre network, augmented by the NBN, would "deliver NAB's requirements and provide reliable and cost-effective connectivity".



Vodafone will deliver the solution to more than 80% of NAB's mobile fleet across corporate offices and branches in metro and major regional areas

Durban residents fight against 5G towers being built on their property

 Community leaders in Berea, a ridge above the city of Durban, have rallied against a proposed government law that would allow network service providers to build 5G towers and other electronic communication devices on any private and public land.

The draft proposal, which was gazetted by Stella Ndabeni-Abarams, minister of communications

and digital technologies, is part of the government's expansion into the 5G network.

Heather Roos, chairperson of Umbilo Community Policing Forum, said the policy would represent an infringement on people's rights. "This is taking away people's rights to privacy on their property," she said. "This is so unfair. What about health risks as this has

been a huge issue in the past with cell towers etc. It seems that as citizens in South Africa, we do not have any rights anymore."

The World Health Organisation (WHO), which established the International Electromagnetic Fields (EMF) Project in 1996 looking at potential health risks from cell phone towers, found no health risks associated with 5G.

TDC launches 5G in Denmark

 Danish operator TDC NET launched its commercial 5G network in large parts of Denmark on September 7, with population coverage starting at 80%, rising to 90% by the end of 2020, the company said.


It began deploying 5G infrastructure in Zealand in October 2019 and now has 2,650 mast positions throughout Denmark.

"I am happy and proud that we have so quickly fulfilled our ambitions to open up for 5G coverage at a wide national level and provide access to particularly fast speeds in the centre of Copenhagen, Odense, Aarhus and Elsinore," said TDC NET's CEO Andreas Pfisterer. "The opening is important at a time when we more than ever need a

strong infrastructure to handle the consumption of mobile data growing by up to 40% per year. The upcoming opening means that the largest service provider on the network, Nuuday, will soon be able to offer their customers access to the network of the future."

Later this year, customers of TDC subsidiary Relatel are also expected to gain access to the 5G network.

MasMovil launches 5G services trial in Spain

 Telecom group MasMovil has launched a trial of next-generation 5G Internet services in 15 Spanish cities, following rivals Telefónica and Orange.

Operators are activating networks that can offer super-fast download speeds and eventually connect billions of devices to help run homes, offices, factories and cities.

MasMovil said in a statement it will offer the new services to clients of its low-cost Yoigo brand partly using its

own network of 5G antennas. It will be achieved partly through its access to French peer Orange's infrastructure.

Initially, Masmovil will offer 5G connectivity in Alicante, Alcobendas, Almería, Ávila, Barcelona, Hospitalet de Llobregat, Huesca, Jaén, Madrid, Málaga, Melilla, Orense, Salamanca, Sevilla and Valencia.


"We are very happy to allow our Yoigo customers to test the technology 5G at no additional cost," said the company's CEO Meinrad

Spenger. "In addition, we put at our customers' disposal the most competitive offer of 5G terminals so that they can enjoy this service."

In a future phase, MasMovil said it will launch its own 5G SA network with 80 megahertz of spectrum in the 3.4-3.8 GHz band.

The company has grown by acquisitions to compete in the highly competitive Spanish market and is currently the target of a takeover bid by three US buyout funds.

Cellular looting in SA by 'WASPS'

 Investigations have uncovered widespread theft of airtime by unscrupulous wireless application service providers (WASPs), enabled by network operators like Vodacom, MTN and Cell C in South Africa.

According to My Broadband, these WASPs sign cell phone users up to subscription services without their permission, and siphon off small amounts of airtime each day from each person.


They fraudulently subscribe South Africans to content subscription services without their knowledge or consent. Furthermore, through these fraudulent subscriptions, they steal millions in airtime from mobile subscribers every day.

Although the exact scale of this fraud has never officially been reported, conservative estimates by industry players suggest it amounts to billions of rands.

Mobile operators can block WASP billing by default, but despite a decade of fraud and billions in airtime stolen, they refuse to implement this solution.

The problem goes even deeper. In some of the cases where airtime was stolen, the mobile operators themselves acted as the WASP.

Vodacom to enhance telecom services

 Vodacom Tanzania has introduced 'build your own bundle service' that gives customers the freedom and convenience to create their bundle mix at own cost and preference.

The company's director for consumer business unit, Linda Riwa said the firm is once again bringing cost efficient innovative product into the market to enhance usage of communication services and contribute to economic growth.

"Realising that customer needs are different yet all customers want more value for what they pay for, we decided to create this service giving

them the freedom to get exactly what they want and at a cost, they are willing to pay," she said.


The company provides a wide range of communication services to consumers and enterprises namely voice, data and messaging, video, cloud and hosting, mobile solutions and financial services to over 14.1 million customers.

The use of mobile money services, in particular M-Pesa has provided both individuals and businesses with an effective and reliable method to save and invest money, as well as access to a range of other financial services, including digital payments.



The company provides a wide range of communication services to consumers and enterprises namely voice, data and messaging, video, cloud and hosting, mobile solutions and financial services

TNM launches the first KaiOS-enabled phone in Malawi

 Integrated mobile network and ICT services provider TNM has partnered with KaiOS Technologies to launch "the most affordable" 4G KaiOS-enabled smart feature phone in Malawi.

Priced at MK 24,999, the TNM Smart 4G will come with a value of MK28,000 worth of bonuses comprising 500 MBs, 150 SMSs and free Caller Tune every month for six months. This offer, apparently, makes it the most affordable 4G device in the history of mobile internet in Malawi.

The phone will offer customers access to essential and popular apps such as WhatsApp, Google Assistant, Google Maps, YouTube, Facebook, and many other applica-

tions unique to KaiOS.

TNM chief executive officer (CEO) Michiel Buitelaar said this device has been designed to suit the communication needs of first-time users and people in rural areas.

"These devices will help people to entertain and educate themselves or have broadband internet," he added.

The CEO said the 4G phone would help disseminate timely and accurate information on Covid-19 at a time when cases are escalating and the United Nations has warned of disastrous effects on the least developed countries, which include Malawi.

To address low digital literacy issues, Buitelaar said the KaiOS phone comes with an easy-to-use

interface, an in-house app called Life which features training and lessons related to digital literacy and other educational content. It also provides access to Google Assistant that allows first-time internet users to use voice to easily navigate and connect with the digital world.

Sebastien Codeville, CEO of KaiOS Technologies, added: "As the first company to make KaiOS smart feature phones available in Malawi, the launch cements TNM's reputation as a pioneer in offering new services that help improve the lives of the country's people and increases economic prosperity. We will work with TNM to ensure that our devices carry content that is relevant and


useful to the people of Malawi".

New Information Minister Gospel Kazako commended TNM for its unflinching efforts towards Malawi's economic development through investments in mobile internet technology and ICT.

"TNM takes a long view," he said. "They have invested significantly in a 4G mobile internet network that has transformed the TNM network into one of the most reliable Internet service providers in Malawi."

KaiOS Technologies was founded in 2016 and launched in 2017, with a focus on feature phones. Its flagship product, KaiOS, sees more than 135 million devices shipped in over 150 countries.

HAPSMobile and Rwanda's Ministry of ICT and Innovation sign MoU

 Rwanda's Ministry of ICT and Innovation and HAPSMobile, a subsidiary of SoftBank Corp., have signed a memorandum of understanding which both parties will conduct a joint research project (JRP) that studies the use of high altitude platform stations (HAPS) to provide mobile internet connectivity in Rwanda.

As part of the JRP, the parties plan to conduct demonstration flights using HAPSMobile's solar powered unmanned aircraft system (UAS) in Rwanda to provide 4G/5G Internet connectivity. The results of the JRP will be used to guide discussions between HAPSMobile and MINICT on potential commercial services in Rwanda and other African countries.

"Our mission at HAPSMobile is to bridge the digital divide and revolutionize mobile networks by leveraging HAPS," said Junichi Miyakawa, representative director & CTO of SoftBank Corp., and also president and chief executive officer of HAPSMobile. "So, we are very pleased and encouraged that we can work with the Rwandan government, a leading technological power in Africa, to study how our HAPS solution can be used to reach remote communities and enable better access to information. We look forward to working with the Ministry of ICT and



As part of the JRP, the parties plan to conduct demonstration flights using HAPSMobile's solar powered unmanned aircraft system (UAS) in Rwanda to provide 4G/5G Internet connectivity

Innovation on this research project so we can study potential commercial applications in Rwanda, and beyond."

Paula Ingabire, minister of ICT and innovation of the Republic of Rwanda, added: "We enthusiastically welcome HAPSMobile, a SoftBank Corp. subsidiary, to do business in Rwanda. This joint R&D

project is well aligned with our government's vision of becoming a Proof of Concept Nation and we commit to supporting it towards fruition. This project will contribute to Rwanda's utmost goal to bridge the digital divide and increase digital inclusion, not only in Rwanda but also across our region."

Paratus invests in satellite tech for enhanced internet access

 Paratus South Africa, part of pan-African telecom service provider, Paratus Africa, is investing in the country's satellite market to offer quality connections to the region and the rest of Africa.

Satellite technology provides internet service providers (ISPs) and businesses flexible, universal, reliable and cost-effective technology to address a wide range of communication needs.

Over the past year, Paratus South

Africa has invested in hub acquisitions to improve the quality of their connection and service offering to ISPs who lease VSAT capacity or multinational organisations that require reliable, secure and end-to-end control. VSAT forms an integral part of the communications solution as it enables both internet service providers and businesses to enjoy an easily accessible, secure and cost-effective connection anywhere in South Africa and Africa.

"To amplify our support for growth in Africa, we have upgraded our DVB-S2 hub to the DVB-S2x hub, allowing us to sustain exceptional performance and improve end-user expectations," said Paratus South Africa MD, Kallie Carlsen.

The firm has also invested in additional capacity to expand communications needs in Africa via powerful satellite – the AMOS-17, through a partnership with Spacecom.

TPG boosts 5G rollout



Australian operator TPG Telecom said it will accelerate its 5G rollout over the next 12 months, with over 85% of the population in the country's six largest cities expected to be served by the end of next year. The company said in its full-year results that more than 1,200 5G sites had now entered the planning phase. TPG Telecom said the six cities where 5G will be initially available are Sydney, Melbourne, Brisbane, Adelaide, Perth and Canberra.

Azerbaijan and Nokia sign deal



Nokia has expanded the 4G footprint of the Azerbaijan-based mobile operator AzerCell Telecom with the installation of its AirScale 4G base stations at more than 1,400 sites across the country. The Finnish gear-maker said its AirScale Radio Access solutions will provide the operator with high-speed mobile connectivity to cater for increased demand as well as providing a clear migration path in the future. Nokia is the sole supplier in this deal and will replace the former 4G provider.

Cook Islands agreement



Avaroa Cable and Vodafone Cook Islands have signed a multi-year partnership for use of the Manatua Cable. The deal will see Vodafone place connectivity at the heart of their ambitious plans to transform connectivity in the South Pacific. The companies announced that Aitutaki would be the first to benefit with services already transferred to the cable. This announcement coincides with Avaroa Cable Ltd becoming the first company to be awarded a telecommunications operating license under the new Cook Islands Competition and Regulatory Authority Act 2019.

Q&A

Jon Lederman vice president of AI Rajant



What was your big career break?

I'm a very independent person and prefer charting my own path, so founding and launching two start-ups - SonicCloud and Spinor - was a break for me. The experience you gain starting a company is immeasurable, and it is impossible to achieve in a classroom or working at a large company. Being an entrepreneur pays back incalculable dividends in leadership, creativity, self-actualization, dealing with success and failure, ethics, and working with people.

Who did you most admire growing up?

Being a musician, I admired John Lennon for his brilliance as a songwriter, lyricist and artist as well as his sense of humour and wordplay - probably above all his honesty and acerbic wit. When I was a kid listening to his songs, I thought all the lyrics had special meaning. It was only later that I realized much of it was just wordplay. But, it's your personal interpretation that matters.

I also admired visionary entrepreneurs, such as Steve Jobs and technical gurus like Steve Wozniak. The computer industry has long since saturated, and there are few places where truly interesting things are happening. If you look hard, they exist.

Also, I admired world-class scientists, like Richard Feynman, for his brilliance as a physicist and person and zany sense of humor.

If you had to work in a different industry, which one would it be?

Most likely, I'd have been a physics professor. By nature, I love learning, and the physical world is endlessly fascinating. Much of life can be rather boring and mundane, but science is an endless source of intellectual gems. Physics is like storytelling. You start with a hypothesis or *ansatz* and then develop a story in the language of nature - mathematics - to flesh out the story. Then you test your story through experiment. If it coincides

with experiment, it's right. Otherwise, no matter how elegant, it is dead wrong and you have to abandon it.

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

Feynman said, "Study hard what interests you the most in the most undisciplined, irreverent and original manner possible." I try to follow that advice, and I think to achieve progress, that is an absolute requirement. As far as we know, we have one life, and we have our duty to work hard to make it meaningful. Too many people I know chase money as an end in and of itself and face a daily existential crisis. If you're going to do something, it better be great or don't bother.

Also, when working on a project or company, surround yourself with A+ players. There is a massive gap between good and great. Working with the latter type will determine what you can achieve. It's not just a matter of raw talent. Equally important is drive and out of the box thinking. As an entrepreneur, you have to be in it for one reason - to build something great. If you're lucky, you have an opportunity to do something that can make some impact on the world to change things for the better. That's the best you can hope for.

Who do you most admire?

I admire qualities in people rather than people themselves. Generally, I admire people who are brilliant and creative and make some positive change in the world through those attributes. But, I think most importantly, I admire people with the courage and perseverance to achieve their goals in the face of adversity. It could be an entrepreneur, scientist, artist, or social engineer or anyone else really.

The environmental crisis facing this planet is, in my opinion, at the top of the list as it threatens not only the richness of the natural world that we often sadly take for granted but fundamentally human existence.

Elon Musk is a person who is an entrepreneur for the right reasons, and the beautiful technology his companies are building truly has a chance to enact social and environmental reform. I admire him primarily because he risked his entire fortune from PayPal on his vision. Who would do that? Almost nobody. He's driven by creating impact, not his bottom line.

What law would you most like to change?

There are many. The uneasy tension between the democratic ideal and our form of capitalism underlies much of the dystopian culture we live in. The extreme form of wealth disparity that has arisen in the last 30 years is highly problematic but, most importantly, deleterious to culture and our democratic idea. We have to ask ourselves what kind of world we want to live in. Small business is an integral part of the diversity in American culture,

Maybe New Zealand.

I still love Cambridge, Massachusetts, because it is one of the last bastions of bohemian intellectualism - and the best street music in the world. Any place with great book stores and great music. So, maybe in Cambridge.

What would you do with US \$1m/ £1m?

I'd invest it all in the startups I am working on. Other than that, the main things I spend money on are education, music, and books. Those things pay the best returns in life. Perhaps, I'd set aside some for a '63 ES 335. And, for sure, I'd donate a portion to help animals.

What's been the best technological innovation in your lifetime?

There are so many - and so many that have not lived up to their promise because they've been applied for nefarious purposes. I'd say GPS is one that doesn't get the recognition it deserves. To me, GPS is on par with the printing

"Being a musician, I admired John Lennon for his brilliance as a songwriter, lyricist and artist as well as his sense of humour and wordplay - probably above all his honesty and acerbic wit"

and right now, it is being ravaged. There is a need for legislation to protect our representative form of government from unraveling.

Laws protecting animals and the environment should be paramount.

Also, the tax system is completely broken. We need more laws guaranteeing the ability of anyone to achieve a higher education regardless of means. That's a win-win for individuals and society as a whole.

Finally, the patent system was broken by the America Invents Act eroding protections for small companies and individuals. That legislation should be overturned.

If you could live anywhere in the world, where would it be?

I love swimming and being near the water, so anywhere close to the ocean that is simultaneously close to cultural meccas is ideal.

press for it offered humanity the ability to navigate anywhere on this planet for the first time. In that sense, it led humanity out of the darkness in the same way the printing press did. Plus, it's the only invention that I'm aware of that relies on both Einstein's theories of Special and General Relativity as an essential component of its operation.

What will you do when you retire?

Honestly, retirement seems boring to me, and I would never be interested in conventional notions of retirement. You are lucky if you love what you do. For me, that means working on interesting and hard problems in creative ways. I feel fortunate that I get to learn new things every day. I'll always be doing that, so retirement is not an option. Plus, golf just doesn't do it for me. ■

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