For communications professionals in southern Africa

SOUTHERN AFRICAN WIRELESS COMMUNICATIONS

JULY/AUGUST/SEPTEMBER 2021 Volume 26 Number 1

- 5G: the towers and the technology
- Connecting and protecting rural communities
- Opinion: Africa's journey to a digital future

Kurt Bagwell,
Executive Vice President and President - International

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Volume 25
Number 6

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Kurt Bagwell provides insight into the growing African telecom landscape at TowerXchange Meetup Africa, Dubai, Oct 5 to 13 2021.

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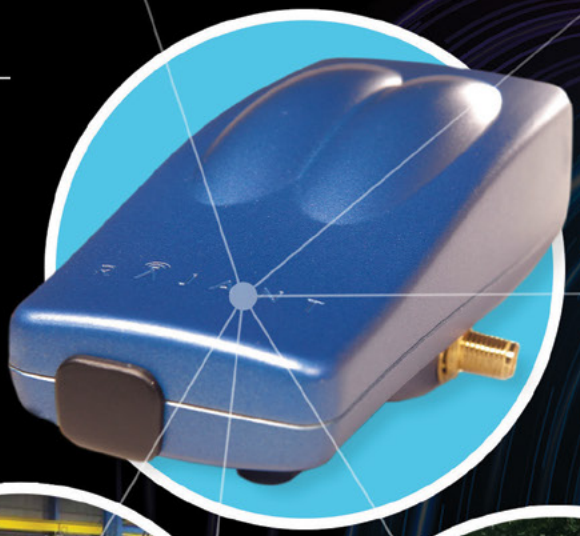

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ACE subsea cable is now live

The Africa Coast to Europe (ACE) submarine cable is live and available for interconnection at all three of Teraco's data centres across South Africa.

This comes after the ACE cable put the last segment of the cable linking Europe, West Africa and South Africa into commercial service at the start of June.

Teraco said that ACE spans approximately 17,000km along the West Coast of Africa and connects to 19 countries before backhauling via landing partner MTN South Africa to its data centres.

ACE is the eighth submarine cable system to connect at Teraco.

"Our POP-to-POP connection (Paris – Lisbon – Cape Town) gives access to major European and African cities, allowing better connectivity to the worldwide internet," ACE said.

Michelle McCann, the head of interconnection and peering at Teraco, added: "Data centres like ours act as the perfect neutral hub for interconnection and data exchange. It's here that onramps and switching points from many different cloud providers and network operators meet."

Mauritius Telecom launches 5G

Mauritius is now in the still restricted circle of African countries that are already experimenting with 5G, thanks to the official launch of the service by mobile operator Mauritius Telecom (MT).

The launch, via the operator's mobile network MyT Mobile, comes just one month after obtaining its 5G licence, sees the island nation join the likes of Togo, Senegal and Nigeria, which are all trialling the next generation technology.

Sherry Singh, chief executive officer at Mauritius Telecom, said that "with the launch of the four MyT 5G Experience Zones, Mauritius Telecom is the first operator to deploy the 5th generation mobile network in Mauritius and is also among the first in Africa to deploy 5G". He added that the transition will be gradual.

According to Singh, subscribers will receive a message inviting them to subscribe to the 5G network. For a start, 5G is deployed in the Cybercity areas of Ebene, Trianon, Bagatelle and Reduit. It will later be extended to other regions of the country.

Telkom introduces embedded eSIM support for customers

Telkom Mobile has become the latest operator in South Africa to introduce embedded subscriber identity module (eSIM) support for its customers.

A digital SIM that allows users to activate their tariff plan from a carrier without having to use a physical SIM, the eSIM uses a small chip to authenticate a user's identity with their carrier, as part of a global specification developed by telecoms trade body, the GSMA.

Embedded into the hardware of a smartphone device, the eSIM allows consumers to store multiple operator profiles on one mobile device simultaneously and switch between them remotely. However, only one profile can be used at a time.

"Historically, most of our customers have used traditional card SIMs," said Andrew Dawson, executive: product portfolio management at Telkom. "These enable mobile network operators (MNOs) to identify a user and then to authenticate that the user is serviced by that MNO.

Going forward, Telkom will support eSIM-enabled handsets. We will enable eSIM provisioning, a specification which allows consumers to activate the SIM embedded in their phone."

Embedded SIM cards have already been included in several iOS and Android devices around the world.

Locally, MTN launched its eSIM support capability in 2019 with the Samsung Galaxy Watch – and Vodacom introduced its eSIM capability for the same device at the beginning of 2020.

MTN later expanded the eSIM capability to some of its smartphone devices.

For the launch phase, Telkom says it will only support eSIM-enabled smartphones, which include devices from Apple (XS / XR / 11 / 12 and Apple iPad seventh generation and higher), Huawei (40 / 40 Pro / 40 Pro+ and P40 / P40 Pro / P40 Pro+) and Samsung (Galaxy Note 20, Galaxy S21 and Galaxy Z Fold2).

LIT creates direct access to USA internet resources via a new POP connection

Africans will now be able to benefit from a direct connection to the USA as Liquid Intelligent Technologies (LIT) opens an internet point of presence in Miami, connecting to the Liquid network via a South Atlantic subsea cable.

Part of Liquid's east-west route between the US and Asia via Africa, the new POP is connected to its 100,000km of fibre across 11 countries on the continent and another 14 countries via the Operators Alliance Programme and Liquid Satellite Services. Businesses and consumers should be able to leverage a better connection to the US, giving them access to cloud services, OTT resources, internet content and "high-quality voice and video calls" with family and business partners.

"The new POP in Miami will enable US-based operators, businesses, OTT, cloud service providers and CDN operators to access 40 data centres across Africa, including nine data centres operated by Africa Data Centres and six operated by Teraco," said David Eurin, chief executive officer, Liquid Sea. "We will be able to interconnect with all our partners in the USA and provide a direct connection to US Internet resources to our Africa customers."

Liquid (formerly Liquid Telecom) will connect to Miami via Fortaleza in Brazil and Luanda in Angola via the South Atlantic SACS and MONET subsea cables. The POP will be hosted at the Equinix data centre in Miami. To guarantee the best level of service, Liquid will peer at Equinix Miami Internet Exchange (MI3 in Boca Raton) with access to 116 potential peers, including most of the largest US companies. Liquid can already provide access to all data centres and millions of destinations in North America through its partnership with ZAYO.

With the Miami POP and new direct link across the South Atlantic, latency is expected to fall by 100ms to 163ms. Currently, Cape Town to Miami is sitting at 263ms via Europe. Video calls with family and business partners will be faster and of better quality thanks to a direct, lower latency route.

David Eurin, CEO, Liquid Sea added to the project

South Africa welcomes new satellite player

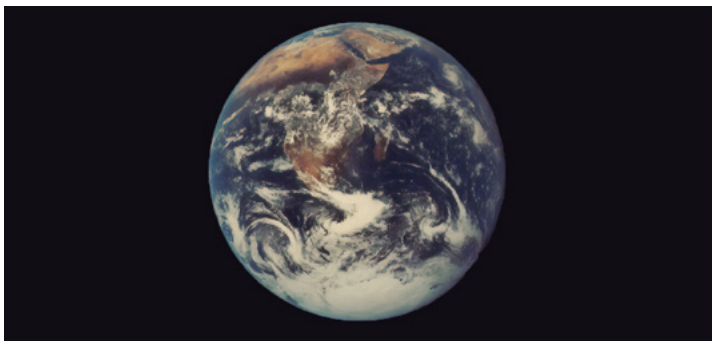
AAC Clyde Space, a self-proclaimed 'new space' company, has founded an African entity, which has been launched to capitalise on the growing market for satellite and space services across the continent.

Newly-formed AAC Space Africa will design, build and deliver space missions to the continent from its Cape Town base. It will also be the group's centre of competence for advanced radio communication.

Initially, the team will focus on radio communication systems, in addition to sales and marketing. Furthermore, the team is expected to grow at speed in the coming 12 months to meet demand from the African space economy – according to experts, it is set to grow to US$10bn by 2024.

"We see great potential for small satellites to provide timely, accurate and targeted data for sectors such as weather forecasting, ocean monitoring, agricultural planning and land management," said AAC Clyde Space chief executive officer, Luis Gomes.

The company had previously been active in Africa via its European companies' hubs. Most recently, it supported the island nation of Mauritius in its efforts to become a space nation and to track ocean currents with earth observation technologies.



Unitel Money goes live

Angolan operator Unitel's new mobile money offering, launched through its 100%-owned subsidiary Unitel Servicos de Pagamentos Moveis, has gone live.

Unitel Money is a mobile digital wallet platform, which gives users the option to send and receive money as well as make deposits and instant payments. At launch, the service will have a network of circa 1,000 agents to provide withdrawal and deposit services.

Unitel developed the service in partnership with Huawei, according to reports. The former is hoping to accrue five million users within four years – of which three million are expected in the near term.

However, Unitel Money does have significant competition in the market, with established services e-Kwanza and MCX Express offered respectively by BAI Bank and EMIS. Additionally, Kwattel is conducting a pilot launch of its new AkiPaga platform this month.

Earlier this year, the Angolan minister of economy and planning, Sérgio Santos, reportedly invited Kenyan mobile operator Safaricom to invest in the country. It is understood that Angola sees Safaricom's successful M-pesa mobile payment solution as potentially playing a key role in its strategy for financial inclusion.

Speedcast wins DRC mining firm contract

Speedcast, the US communications and IT services provider has been selected by Mining Company Katanga (MCK) of the Democratic Republic of Congo (DRC) for a three-year contract to deliver satellite connectivity services to its headquarters and a major mine complex.

Under the terms of the deal, Speedcast will serve MCK's Lubumbashi headquarters and the Ruashi open-pit copper and cobalt mine, delivering optimized wide-area networking (WAN) over high-throughput, very small aperture terminal (VSAT), C-band satellite connectivity service and content filtering.

The satellite connectivity solution will enable internet access, cloud-based applications, IoT and crew welfare applications across MCK's operations.

"We are thrilled that MCK has placed its trust in Speedcast to deliver critical, remote connectivity and network optimization to its headquarters and contracted mining site," James Trevelyan, senior vice president of enterprise and emerging markets at Speedcast said.

Hubert Nkonkosha, IT manager at MCK added: "Our Ruashi project is one of our largest refined copper and cobalt production sites with more than 2,000 people and suppliers employed. It's vital to our headquarters and operations to have seamless communications and network management as we prioritise efficiency and digital transformation."

Speedcast recently augmented its Tier 1 satellite network across the sub-Saharan African region with the addition of a new High-Throughput Satellite (HTS), offering ultra-high signal availability – even into 1.8m terminals.

The satellite's look angle across Africa is around 60 degrees elevation, making it ideal for steep-sided open pit mines and resilient to equatorial weather patterns. It also incorporates the latest VSAT technology and a selection of bandwidth packages, from high-speed to gigabyte-only plans.

Tanzania reduced tax on mobile money imposed in July by 30%

The Tanzanian government has lowered the amount of tax on mobile money imposed in July.

On August 31, it reduced it by 30% the tax which used to range from TSh10 to TSh10,000 (US$0.0043 to US$4.31). Depending on the amount of the transaction, it will now range from TSh7 to TSh7,000. In addition to the reduction in the amount of the fee, the government has also obtained a 10% reduction in mobile money rates from telecom operators.

In a statement, the Ministry of Finance and Planning said that "the government believes that the decision will bring relief to the people and enable them to raise funds" to implement various development projects. "These funds will be used to finance the construction of schools, social housing, and investments in health care, among other things," said Job Ndugai, speaker of the National Assembly, August 19, in Dodoma, during a conference of teachers with disabilities.

The government's downward revision of the tax on mobile money follows the concern it caused among the population after it came into force July 15.

Facebook adds three countries to undersea cable project

A consortium made up of US social networking giant Facebook and its telecommunications partners has added the Seychelles, the Comoros, and Angola as branches to the cable project, named 2Africa.

It brings to 26 the number of countries on or near Africa's coastline which will be touchpoints for the high-speed internet project.

The consortium also announced a new cable landing point—where an underwater cable makes landfall—in Nigeria, bringing the total number of such connections to 35.

Launched in 2020, the 2Africa project aims to enhance internet capacity and connectivity in the region. When it goes live in late 2023, the 22,000-mile cable will connect Africa, Europe, and the Middle East by allowing their internet service providers to join 2Africa at data centres or cable landing stations. With a capacity of up to 180 terabytes per second in some parts, the 2Africa project promises to deliver more than the total combined capacity of all subsea cables serving Africa at the moment.

"Communities that rely on the internet for services from education to healthcare, and business, will experience the economic and social benefits that come from this increased connectivity," the group said.

The consortium is also made up of China Mobile International, MTN GlobalConnect, Orange, stc, Telecom Egypt, the UK's Vodafone, and Mauritius' West Indian Ocean Cable Company. Alcatel Submarine Networks, part of the Finnish telecommunications company Nokia, is deploying the cable.

The Seychelles is one of three countries added to the project

GT invests in Gabon

Moov Africa – Gabon Telecom (GT) has unveiled plans for an investment programme of more than 10bn CFA francs (US$18m) to bring coverage to swathes of Gabon using 3G and 4G technology.

The operator's cash injection will cover 141 villages as well as main roads throughout the country. GT said it aims to bring broadband to everyone and to reduce the digital divide between urban and rural areas.

All the country's provinces should make it possible to offer voice and broadband internet services of up to 10 megabits per second per site to the populations involved. Some 600km of roads will also have the opportunity to benefit from voice and 4G internet services.

With regards to sustainability, solar power and lithium battery technology is likely to be involved in the rollout, which will take place between 2021 and 2022 and will involve 1,230 solar panels, 166 batteries and 141 villages.

The president of the regulatory council, Lin Mombo, has suggested that other telecommunications companies might consider following GT's example. The company has apparently already begun a test phase between Bakoumba and Franceville via Moanda.

GT is the country's largest operator by subscribers, currently serving 94% of the Gabonese population.

Zamtel targets seven million subscribers by 2023

Zambia Telecommunications (Zamtel) is to target seven million subscribers by the end of 2023, almost double its current base of 3.7-million.

The company's chief exectuvie officer Sydney Mupeta said the target represents an increase of 20%, from the current 20% to 40%.

He added that the company has invested in network capacity to enable it to carry the anticipated increase in traffic.

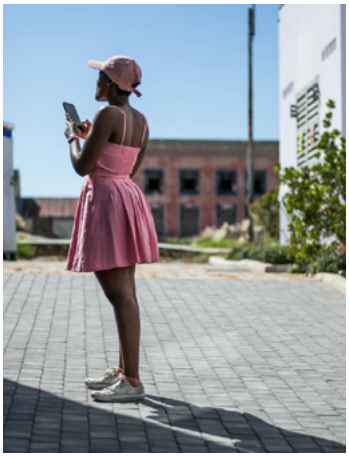
According to reports, Mupeta said Zamtel has been on a steady growth path over the past few years and this trajectory has exerted pressure on both its network and subscriber management capabilities.

He added that Zamtel has successfully completed the first phase of an overhaul of its core data network equipment to improve the internet service. This included an upgrade of the company's node capacity in the capital Lusaka from 12Gbps to 52Gbps.

The second phase, which is underway, will involve upgrading the 12Gbps node capacity to 52Gbps at Woodlands technical centre, also in Lusaka.

Zamtel said once customers migrate to the new core network in November, they will enjoy a vastly improved internet experience.

Mupeta said the company stands ready to partner with the government and the private sector to develop innovative digital solutions and services that will respond to some of Zambia's ongoing challenges.



SBA Communications underlines its commitment to the African Market

SBA South Africa is the market brand of SBA Communications following the acquisition of Atlas Towers SA's assets for US$140m. Northern/Southern African Wireless Communications spoke with Kurt Bagwell, executive vice president and president – international, to find out about the company's plans and Minara Tanzania

Why did SBA choose South Africa as its primary African market?

There were a few factors. These included our partner's research on the potential for new tower builds and our own research on the country level factors like macroeconomics, real estate rights and law, labour, taxes, population growth, economic maturity and carrier dynamics, amongst others. We felt that the market, at that time, was the most ripe for entry and growth, and so far, the number of our multi-tenant sites has proven that out.

How many towers does SBA have available for lease in Africa? Do rooftop and other building locations offer a significant number of additional sites?

Right now, we have over 1,200 sites in South Africa, most of which we built, not bought, and are headed to over 1,500 by end of 2022. Rooftops are part of our numbers, but not significant. Outside of the major urban and suburban areas, you really can't find the heights required to satisfy multiple customers at just the right location to provide them optimum coverage using the lower rooftops generally available in those areas. However, we look at every site individually, and we build out whatever we need to.

Which operators/service providers do you partner with in South Africa?

We work with all of the big broadband carriers in South Africa - Cell C, MTN, Telkom, Vodacom. We also work with many others who are national and/or regional, including data-only providers (fixed wireless) and providers of many other types of utility, public or safety services. Our main target long-term is to have the majority of our business with the big MNOs, but anyone who needs to hang an antenna in the air is a viable customer as well.

Is there increased demand for site acquisition from wireless service providers and operators?

We are seeing steady demand. It is typical that carriers over time go through cycles where some years they are busier than others. In a four-carrier market like South Africa, historically you tend to see two to three of them having busy schedules each year for network growth of all types – capacity sites, performance sites, geographic growth sites.

Any particular technologies driving this?

3G is still out there, 4G is out there too, but not everywhere, so the phenomena I described above is already happening, and with 5G coming, it will be more of the same. Carriers always tend to focus on the high population areas first with new technologies due to targeting the areas that offer the most bang for the buck. But they all want to provide ubiquitous service in all areas over time, to differentiate themselves as a high quality, well-rounded carrier with good coverage and performance in all areas.

How is SBA embracing 5G in Africa?

It is not completely different than the upgrades to 3G and 4G. We'll make sure our sites can physically and economically handle their needs. We will move quickly to help them complete rollouts. We will end up building more sites for densification purposes than ever before – whether you call them "small cells" or "mini macros" or another name.

Looking forward, which are your key target territories across Africa?

We are obviously making a big bet on Tanzania, purchasing over 1,400 sites from Airtel later this year with our partners at Paradigm Infrastructure. We like what the Tanzanian government is doing right now, and we feel confident we will be able to enter this market smoothly and grow our business profitably. Our business there is an SBA majority-owned partnership with Paradigm, called Minara Tanzania.

Which services are driving this interest?

Again, we are a macro site focused company – not just towers, but sites of different types. In South Africa the primary/supplemental/backup power issue is not the same as it is in Tanzania and other markets in sub-Saharan Africa that have electric utility challenges. In Tanzania, we will be entering into our first market where every site will have power responsibilities front and centre.

Why is Africa a key market for SBA?

Africa offers growth. We are a growth company. That's what we do. We've been growing for 32 years. I was a carrier at Sprint for 11 years and was the biggest SBA customer way back in the early 1990s. Back then it was site acquisition and construction, then build to suit offerings, then co-location on M&A sites they bought. I helped start our international division on day one about 12 years ago, and we have entered 15 new markets in those 12 years and have over 16,000 sites now (in addition to our 17,000 in the USA). The towerco model is the same worldwide.

Why is your branding in a bit different in Africa?

Yes, in South Africa we ran under the name 'Atlas Towers' until October 1, 2021, so for the last six years. Our partner had started the business before we joined together, and that was the company name. We are now moving to the name SBA South Africa in this market effective immediately. We feel our team has cemented themselves, and the international recognition of the SBA name is the way to go at this time. In Tanzania, we are starting there with a local name, Minara Tanzania, which in Swahili translates into 'towers'. It will launch in late Q4-2021.

Vodacom invests in new solar-powered sites across SA

Vodacom, one of South Africa's big four telcos, has invested R8m ($564K) in the installation of new solar-powered sites as part of its energy and carbon management strategy and commitment to reducing its impact on the environment.

These three sites in Polokwane, Vereeniging and Bloemfontein are in addition to a solar project installed at a base station controller site in Randburg, Gauteng in May last year. They will form part of the company's 1,088 solar-powered sites across all of Vodacom's markets.

The company also installed the largest single rooftop solar installation at its Century City offices in Cape Town in 2012,and Vodacom Lesotho's head office has been powered by solar energy since 2017.

Collectively, the three new sites will generate approximately 127 MWh of energy on an annual basis, which will help to reduce the telco's carbon emissions and lower its electricity consumption.

According to Vodacom, the solar panels will also ease the load on the sites' batteries in the event of load-shedding, ensuring network reliability, quality, and seamless connectivity for customers.

"As the demand for digital services grows, we will need more energy to keep these services running," said Takalani Netshitenzhe, executive director of external affairs at Vodacom South Africa. "In anticipation of this growth, and despite the current economic challenges, we are investing in strategies to decrease our energy consumption while reducing the use of carbon-intensive sources of energy."

The solar projects are aligned with Vodacom's commitment to improve the lives of 100-million people and reduce its environmental impact by half in 2025.

Tanzania state-owned operator drives new broadband penetration project

The Tanzanian government plans to use electricity infrastructure to deploy additional internet broadband connectivity and services across the nation – a project that will be by state-owned Tanzania Telecommunications Corporation Limited (TTCL).

The Ministry of Communications and Information Technology has joined forces with the country's power utility company, the Tanzania Electricity Supply Company (Tanesco) to extend broadband connectivity using Tanesco's infrastructure (electricity poles).

It is understood that the partnership will connect ten regions to the national fibre network and expand broadband to at least 4, 449km, more than double the planned 1, 880km in the 2021/2022 financial year.

Tanzania's minister of communications and information technology Faustine Ndugulile said the approach will "triple the pace" at which fibre optic internet connectivity is being implemented in the country.

The minister added that the government's plan is to ensure that at least 94% of Tanzanians have access to broadband coverage, and that national broadband is a must in the 4IR.

"We want every home with electricity connectivity to have internet access, television and mobile phones connected to the national broadband," said Ndugulile.

Energy minister Medard Kalemani said with the partnership, Tanesco will also use some of the infrastructure already installed by TTCL to supply power in the country.

"This is a more efficient way, simple and just to expand broadband connectivity," said Kalemani.

According to the Tanzania Communications Regulatory Authority (TCRA), there are over 29 million internet users in the country, with the majority of people accessing the internet through mobile phones.

Rwanda gets tough on SIM registration

Operators in Rwanda are to implement new directives for SIM card registration in a move the country's regulator said will curb fraud.

Rwanda Utilities Regulatory Authority (RURA) said that users who wish to get a new SIM card or swap one, must go to their service providers or authorised agent.

Charles Gahungu, general manager ICT regulation department, RURA said the new procedure is will enhance SIM security and also includes ID verifications, because it will include ID verifications and also request photographs of the those buying or swapping SIMS.

Service providers must confirm that the national ID presented mirrors that of the ID housed in the National Identification Agency's database.

"Literally, the SIM cards were being registered by only checking if the ID number exists, where the agents were able to activate the SIM card as long as they had an ID number," Gahungu said. "This resulted in people having SIM cards registered on their IDs without their knowledge.

Under the new process, RURA can now track SIM card owners in a bid to curb fraudulent acts, including mobile money scams.

The regulator also reminded subscribers to carry out a regular check of SIM cards registered on their IDs. This can be done by dialling *125# and deregistering unrecognised SIMs.

Talking satellite

Martin Jarrold, chief of international programme development, GVF

Bridging divides & disaster responses

Since I last wrote for this column referencing the GVF-SEG webinar production partnership, our global membership continues to be represented on various webinars featuring in both the main GVF-SEG online events series (live and on-demand) and in programmes featuring GVF-organised panel discussions as streamed embedded content within third-party conferences and exhibitions.

The digital divide, long characterised only as an issue for low and middle-income developing nations is, as a result of the impact of the Covid-19 pandemic, now recognised as being of wider concern even for developed nations. For developing nations the emphasis in bridging the divide must be on both the availability of connectivity and its affordability, whereas for developed countries the greater weight of concern relates to availability, less so on affordability. Developed nations have their remote region connectivity gaps too. Whilst satellite has long been correctly seen as a means of solving the connectivity problem as it can be deployed anywhere, and its coverage is ubiquitous, there are many fundamental questions directed towards understanding the principal barriers to serving those on the wrong side of any digital divide, and if you want answers to such questions as these...

- What are the unique requirements of businesses on the other side of the divide as compared to the requirements of individuals?
- The complaint about satellite communications has long been its cost. Is that still a valid complaint from the perspective of businesses? From that of individual consumers?
- Do universal service funds and the like help bridge the divide?
- What would you ask of regulators who are charged with bridging the divide in their country?
- Is there a role for satellites to provide solutions to businesses and communities on the other side of the divide in urban settings?
- What developments in terms of services, products, and costs will we see in the next five years that will help bridge the divide?
- Will the roll out of 5G networks help bridge or widen the divide?
- LEO and MEO systems offer lower latencies compared to GEO systems. Is that an issue when providing connectivity to businesses and communities on the other side of the divide?
- Community Wi-Fi is one way to bring affordable connectivity to remote and often relatively poor communities. Please comment on this and about other services that similarly address the needs of such communities.

Additionally, you can read a write-up of the panel discussion in Via Satellite's 'Satellite Today' entitled Satellite Players Say Government USOs Key to Bridge Digital Divide.

The role played by satellite communications networks following disasters and in preparing for disasters is crucial. Satellite's ground and space segment capabilities in providing quickly available, quickly deployable, rugged, self-contained, in-field, user-friendly global communications links for disaster-affected regions is an imperative driven by the needs of first responders when terrestrial telecommunications infrastructure is destroyed or compromised by increased demand and traffic. Disaster response has taken on a new connotation since Covid-19. The pandemic has brought into even finer focus the critical role of satellite following disasters, highlighting the tragedy of how disasters often disproportionately impact the most vulnerable. This webinar answers such questions as, "The satellite industry has signed an agreement with the UN's World Food Programme, the Crisis Connectivity Charter. What does this agreement provide?" Tune in to the video on-demand using the link above to find the answers to this and other questions, such as:

- If Satellite networks are so well equipped to respond to disasters, should they only be used in case of emergency?
- Studies have shown that the return on investment for disaster preparedness is at least four times greater than the ROI for disaster response. When it comes to restoring communications, what should governments do to better prepare for disaster in terms of training, purchasing, and maintaining equipment, and other forms of preparedness?
- When a disaster destroys cell towers and satellite antennas, and cables are cut, the need to quickly deploy satellite terminals becomes critical. Given the wide range of competencies, easy to transport, operate and maintain terminals are vital. What advice would you give disaster responders which are looking to purchase such terminals for future operations?
- There are man-made disasters that impact communications such as cyber-attacks. Are satellite networks something governments should be concerned about when planning for, or responding to, such man-made disasters or are satellite networks resilient to such man-made disasters?

Finally, until the next time, wherever you are whilst reading these words... Keep well, stay safe.

Africa looks up for connectivity

Japanese telecommunications services and technology giant SoftBank has partnered with the Smart Africa Secretariat to use the skies to connect remote or underserved regions of the continent.

An alliance of 32 African countries, international organisations and global private sector players, the Smart Africa Secretariat is tasked with Africa's digital agenda.

A memorandum of understanding between the partners highlights plans for a collaboration on what are called innovative solutions towards achieving the vision of providing affordable broadband. The aim is to unite a number of existing approaches to satellite and high-altitude communications with an investment plan called the Bulk Capacity Purchase Project.

Smart Africa Scretariat's strategy is double broadband penetration to 51% across the continent by 2025. It is working to implement the Bulk Capacity Purchase Project, an initiative that aims to deliver affordable internet connectivity for African citizens through the large-scale joint procurement efforts of Smart Africa member countries.

To contribute to the project, SoftBank will deploy its non-terrestrial network (NTN) solutions to reduce internet costs and build affordable internet infrastructure.

It will utilise the connectivity services of satellite internet firm OneWeb, satellite IoT business Skylo and HAPSMobile, an operator of high altitude platform station (HAPS) networks to provide connectivity from space and the stratosphere. SoftBank will deploy NTN solutions in African markets by collaborating with Smart Africa and working closely with its member countries.

Five African countries have already expressed interest in the Bulk Capacity Purchase Project: Djibouti, Egypt, Kenya, Morocco and Rwanda.

Connectivity from high altitude could overcome the technical problem of traversing remote terrain and serving low population areas – if it can be done affordably.

However, one such initiative has already failed. Earlier this year, Alphabet pulled support from its internet-beaming balloon subsidiary Loon, after the company failed to find a financially stable business model.

GPE names Soussa MD

An international consortium named the Global Partnership for Ethiopia, comprising Safaricom, Vodacom Group, Vodafone Group, Sumitomo Corporation and CDC Group, has appointed Anwar Soussa as the managing director (MD) of the operating company in Ethiopia.

He currently serves as managing director of Vodacom DRC and the chairperson of Vodacash (M-PESA), Vodafone's African mobile money service.

The special-purpose acquisition company (SPAC) was formed to operate telecom services in Ethiopia and was awarded the licence to do so in May 2021.

Safaricom is the biggest shareholder in the company with a 55.7% share, followed by Sumitomo Corporation (27.2%), CDC Group (10.9%) and Vodacom (6.2%).

Effective as July 1, Soussa will report to the board of GPE as well as Safaricom's CEO, Peter Ndegwa.

During his tenure, Soussa has cemented Vodacom DRC as the largest Vodacom operation outside of South Africa by passing US$500m in service revenue in 2020.

As MD of the GPE Soussa will lead the Ethiopian operating company on behalf of the GPE consortium.

In the role he will be responsible for executing the consortium's vision of bringing about transformational economic and social changes in Ethiopia and to positively enhance the lives of its over 112 million population. Soussa will develop strategies and plans to ensure the delivery of quality and affordable mobile and internet connectivity for Ethiopians.

Prior to joining Vodacom, Soussa served as the chief executive officer of Airtel in Uganda and Chad. He has also worked in various senior leadership capacities at MTN and Digicel, among others.

LIT appoints new CEO for South Sudan

Liquid Intelligent Technologies (Liquid), a pan African technology group, has named Martin Mushambadope as the new chief executive officer for its operations in South Sudan. He brings over 20 years of experience, having worked for various industries such as telecommunications, health insurance, banking, and audit practice. He previously worked in Singapore and the UK, as well as Ghana, Kenya and Zimbabwe.

HE appointed president of Huawei northern Africa

Chinese tech giant Huawei has announced the appointment of Terry HE as president of Huawei northern Africa. In this role, he will be responsible for coordinating the group's overall operations in the 28 African countries in the region.

Prior to this role, HE had 15 years of experience in the Middle East, where he successively served as chief operating officer of Huawei Pakistan, chief executive officer (CEO) of Huawei Kuwait, president of Huawei Middle East Enterprise Business Group and CEO of Huawei Saudi Arabia.

"I am very grateful for the trust placed in me," HE said. "I am delighted to be able to help consolidate Huawei's commitment to the continent. Our priority will be to accompany governments, our customers, and our partners to accelerate their digital transformation and thus reduce the digital divide by applying the most advanced technologies and the experience of our group."

HE will now be responsible for strengthening Huawei's investment in digital infrastructure and training of young talent in Africa.

Djibouti approves draft law re transfer of Djibouti Telecom shares

The Republic of Djibouti has approved a draft law defining the terms and conditions for the total or partial transfers of shares in state-owned capital in public enterprises.

During the Council of Ministers meeting July 11, the government announced the share capital opening of the historical national operator to private investors.

The state will offer a minority and significant portion of its shareholding to a first-rate strategic partner.

This opening of Djibouti Telecom's share capital a sign of the government's determination to implement a proactive policy to modernise the country's economy, increase global competitiveness, and optimize the governance and management of state-owned enterprises (SOE), it said.

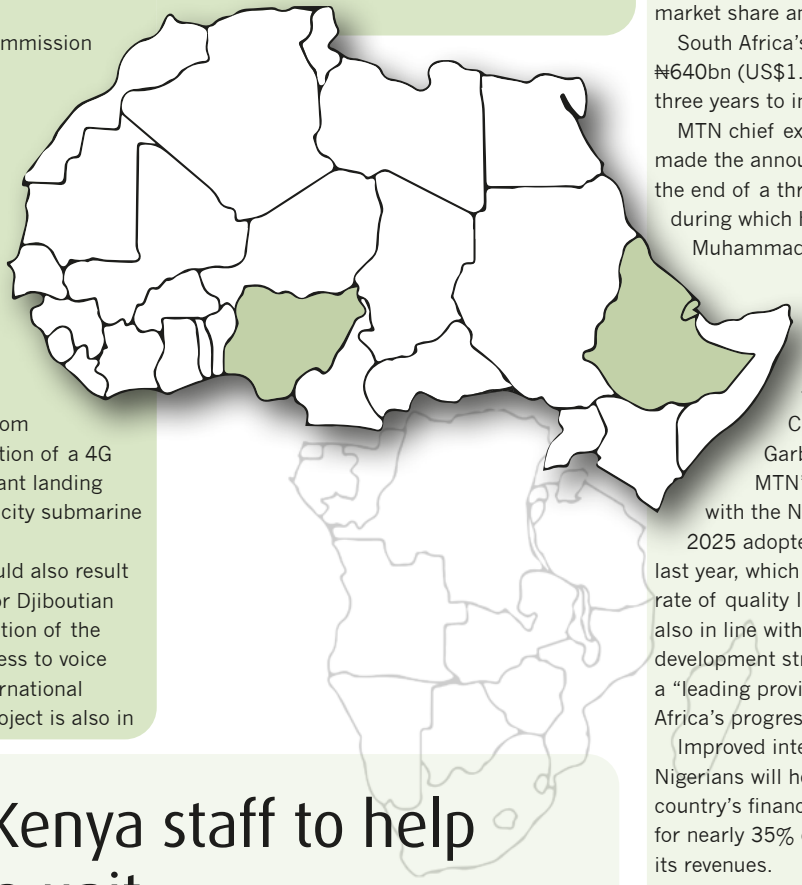
The Republic of Djibouti will commission international advisors to conduct the transaction.

For 20 years, the country has been implementing an ambitious development agenda and has established itself as a key logistics and services gateway between Asia, Africa and Europe. Djibouti Telecom is strategically positioned to connect the region, the continent and the rest of the world. It has state-of-the-art telecom assets (including the implementation of a 4G network) as well as a very important landing infrastructure of twelve high-capacity submarine cables (AAE-1, SMW5, Dare 1).

It is hoped the transaction should also result in direct positive consequences for Djiboutian citizens and businesses: optimisation of the operator's offer and services, access to voice and data services at the best international standards, among others. This project is also in line with Djibouti's desire to rapidly develop an entire ecosystem linked to the digital economy, of which Djibouti Telecom would be one of the major players.

During the Council of Ministers meeting, the country's president Ismaïl Omar Guelleh stressed the urgency "to accelerate the pace of reforms concerning public sector companies, to better cope with international and regional competition, and to ensure that these companies participate fully in the national effort of emergence and development financing".

The Djiboutian state will remain a majority shareholder, committed to the company. It will also propose clear and ambitious specifications to the private partner.



MTN plans three-year US$1.5bn investment to improve broadband connectivity in Nigeria

Nigeria wants to increase the internet penetration rate to 90% by 2025, the government said.

The announcement has led to a raft of mobile operators in the country battling to win more market share and solidify their customer base.

South Africa's MTN announced plans to invest ₦640bn (US$1.5bn) in Nigeria over the next three years to improve access to broadband.

MTN chief executive officer Ralph Mupita made the announcement June 21 following at the end of a three-day working visit to Nigeria during which he met with the president Muhammadu Buhari, vice president (VP) Oluyemi Oluleke Osinbajo, minister of communications and digital economy, Isa Ali Pantami and executive VP of the Nigerian Communications Commission (NCC), Umar Garba Danbatta.

MTN's investment in Nigeria is in line with the National Broadband Plan 2020-2025 adopted by the Federal Government last year, which aims to increase the penetration rate of quality Internet connectivity to 90%. It is also in line with the company's "Ambition 2025" development strategy, which is to become a "leading provider of digital solutions for Africa's progress."

Improved internet access for millions of Nigerians will help MTN to further increase the country's financial contribution - which accounts for nearly 35% of its annual performance - to its revenues.

Safaricom's Kenya staff to help with Ethiopia unit

Kenyan operator Safaricom will second its staff to run Ethiopia operations for products and network development that will help it gain market share currently enjoyed by state-owned Ethio Telecom.

The telco, which alongside other partners is seeking to start operations in 2022, will then gradually reduce Kenyan expertise and inject into the local workforce as the business grows.

Safaricom's operations in its native Kenya will be through an operating company that will have its own CEO, executive team and a full management team.

Safaricom CEO Peter Ndegwa said the operator wants to achieve a high network coverage in a market with more than 100 million people and a relatively lower uptake of mobile and internet services.

"We will need to second several people to be able to inject the level of expertise, both on the technology side, but also on the commercial side," he said. "But quickly (we will) start to embed local talent, to ensure that their flavour of the business will start being Ethiopian. We intend to make sure that long term that business is truly Ethiopian."

Safaricom said it will employ the strategies that saw it overtake Airtel Kenya (then Kencell) in the mobile phone market nearly 20 years ago.

Vodacom records 14% rise in Q1 revenue

South Africa's Vodacom Group posted a 14.2% rise in revenue for the quarter ended June 30 thanks to demand for more connectivity services across the continent.

Revenue rose to R24.78bn from R22.73bn year-on-year as the operator, along with rival MTN, benefitted from greater demand for connectivity as the Covid-19 pandemic continues to force people to work and study from home.

Vodacom said revenue for the quarter would have been higher but for an appreciation in the South African rand which rose by 20% during the reporting period.

Revenue from Vodacom's international business, which includes M-Pesa payments operations, was up more than 15%, it said.

M-Pesa, which allows customers to send money, save, borrow and make payments, is part owned by Vodacom and the UK's Vodafone.

Meanwhile, the operator said about 70 businesses had signed up or committed to its new digital financial services "super app" that promises to be a one-stop shop for online transactions.

Last year, Vodacom announced a partnership with digital payments provider Alipay to build an app that would allow consumers in South Africa to shop online, pay bills and send money to family members. Alipay is owned by Ant Financial, the financial affiliate of China's Alibaba Group Holdings.

Digital financial services have become a significant part of African telecom operators' businesses in recent years, after they expanded from traditional voice calls into providing data, mobile payments and other digital services.

The 70 businesses include Massmart's Makro, Game and Builders Warehouse stores, pharmacy group Clicks, department store chain Edgars, online flight booking firm TravelStart and the KFC fast food chain, according to chief officer of Vodacom financial and digital services, Mariam Cassim.

Econet increases data packages by 20%

Econet Wireless increased the cost of its data packages by 20%, causing a major public outcry in the process.

The company justified its decision by indicating that operating costs have escalated over the past few months.

According to the reviewed Econet data bundle prices, the daily data bundle now costs Z$25 for 20MB up from Z$20. Subscribers will now pay Z$375 for a weekly 370MB data bundle, up from Z$288.

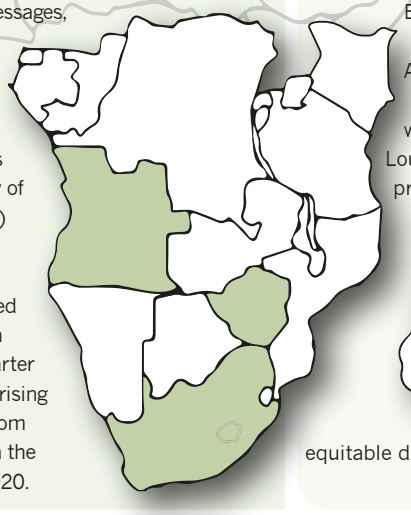
Several Zimbabweans took to social media to vent their frustration, but Econet defended the latest hikes which it said were prompted by rising operating costs of doing business.

"Econet Wireless has confirmed the review of its promotional bundle prices, saying the average 20% adjustment effective tomorrow was necessitated by rising costs," a company spokesman said. "The bundle price adjustment is an average 20 % uplift across the board and is essentially in response to rising input costs."

The service provider said the latest adjustments, which are still below the approved bundle tariffs by the regulator, will see a two-minute voice call bundle now going for Z$10, up from the Z$8.40, while a weekly 30-minute bundle will go from Z$166 to Z$180.

An SMS daily bundle, consisting of five messages, has been reviewed upwards to Z$2.40, from Z$2.09, while the weekly bundle, made up of 75 messages, will now cost Z$30, up from Z$23.81.

A recent Postal and Telecommunications Regulatory Authority of Zimbabwe (POTRAZ) report said the telecommunications industry had recorded a 34.1 % increase in costs in the first quarter of 2021, with costs rising from Z$7.6bn, up from Z$5.7bn recorded in the fourth quarter of 2020.



Angola sanctions privatisation of Multitel through public tender

The president of Angola, João Lourenço, has authorised the privatisation by public tender of 90% of the capital of Multitel Serviços de Telecomunicações, which specialises in providing internet services for businesses.

The leader explained in a new presidential decree that he had taken this decision because Multitel "does not meet the necessary conditions" for its privatisation via the IPO procedure.

The state's share in Multitel amounts to 90%, via PT Ventures (40%), Angola Telecom (30%) and Banco de Comércio e Indústria (BCI) (20%).

Privatisation of Multitel falls within the framework of the 2018-2022 national development programme, which embraces the reform of the public finances of the executive. By 2022, the state plans to divest its stakes in the capital of 195 companies to restructure and resize the public sector of companies in Angola.

Angola's oil-driven economy has been in recession since 2016, causing its debt-to-GDP ratio to increase from 57.1% in 2015 to around 120.3% in 2020, according to the African Development Bank (AfDB) in its report "African Economic Outlook 2021: From Debt Resolution to Growth: The Road Ahead for Africa".

The Covid-19 pandemic has further weakened the country's economy. Lourenço said at the launch of the privatisation program in 2018 that the money from the sale of Multitel and several other actions of public enterprises would help "promote macroeconomic stability, increase the productivity of the national economy and achieve a more equitable distribution of national income ".

MTN ringfences R350m for SA network upgrade

MTN will pump R350m into its network in South Africa, specifically within the provinces of Limpopo, Mpumalanga and North West, to modernise, upgrade, build new sites and transmission links.

The operator said maintaining network quality remains the key objective despite challenges, like battery theft.

"We want to bridge the digital divide and create exciting opportunities for communities, businesses and individual users," said Kagiso Moncho, MTN general manager for northern region. "Our investment is therefore far more than achieving market share growth in the region – it is about bringing the benefits of the digital world to more people through a stable, secure and innovative network experience."

MTN said it is making progress with its 5G tech rollout strategy and activated this technology in greater Polokwane and Witbank, with the intention to expand coverage into areas such as Nelspruit and Middelburg.

"We are committed to ensuring our network coverage and quality is maintained and expanded so our customers stay connected," Moncho added. "This is even more critical in the face of the pandemic and subsequent lockdown, connectivity is essential for medical emergencies as well as for learners and individuals working from home."

Orange to use Huawei in Africa but not Europe

French telecommunications giant Orange will avoid using equipment from Chinese vendors when developing Europe's 5G networks but sees no issue in working with Huawei in Africa, where the Chinese company dominates as a supplier of equipment to many telecoms operators.

Speaking to newswire Reuters at Mobile World Congress in June, Orange chief executive officer.

Stéphane Richard explained the rationale behind the company's decision.

"We're working more and more with Chinese vendors in Africa, not because we like China, but we have an excellent business relationship with Huawei," he said. "They've invested in Africa while the European vendors have been hesitating."

A number of European governments have tightened controls on Chinese companies building 5G networks following diplomatic pressure from the US, which alleges Huawei equipment could be used by Beijing for spying.

Huawei has repeatedly denied being a national security risk.

However, countries such as Britain and Sweden have banned the Chinese vendors outright, while others have encouraged telecom operators to opt for European suppliers, particularly in the core parts of their networks.

Sweden's Ericsson and Finland's Nokia have steadily taken market share from Huawei. In late 2020, Orange's Belgian division decided to progressively replace Huawei equipment with kit from Nokia.

Talking critical

Chris Hogg
GCF head of 5G certification

Next generation mission critical services are being defined now – it's time to take part

An analysis by the Global Certification Forum (GCF) has revealed that the rate of adoption of 5G technology in mobile devices is significantly outpacing the rate at which 4G LTE was adopted in its early years. GCF is a non-profit, global, membership driven organisation. With more than 300 members from major operators, MVNOs, all major device and IoT manufacturers and the test industry, working together with key industry partners on certification programmes demanded by the market.

One of 5G's cornerstones will be ultra-reliable low-latency communications, significant for mission critical use cases including semi-autonomous driving, and many more benefits are promised. Much of this improvement, the increases in performance and efficiency, and greater flexibility and variety of offerings, will be built upon the virtualisation of services. Here, hardware and software will be separated and commercial off-the-shelf computer systems will replace dedicated equipment proprietary to specific vendors within the telecom infrastructure.

What effect will this have on the provision of and demand for, mission critical services (MCX)?

These new 5G services will take time to roll out but the established 4G networks already provide many functions that blue light services and other critical users value, such as broadband internet access and high-definition video. Currently, in order to access these functions, operatives must carry additional devices, which are connected to non-mission critical networks. This is clearly not ideal and consequently there is a demand for a mission critical broadband solution. Such a solution would require a hardened radio network (LTE or 5G – both standardised by 3GPP) that, as defined by The Critical Communications Association (TCCA), "is capable of a very high degree of availability, priority, pre-emption, trusted security and extensive coverage".

So, where are we on the path to MCX over LTE?

Working together, GCF and TCCA are on track to launch a certification programme for mission critical devices based on 3GPP wireless protocols during 2022. Ensuring mission critical devices and networks are interoperable is a key part of GCF's vision to enable the high quality, reliable and secure wireless communications demanded by users and industries across the globe, and of TCCA's mission to promote standardized critical communications solutions and the benefits of open and competitive markets in efficiently developing and delivering these solutions. GCF certification, developed in close cooperation with TCCA, is the way to ensure that broadband LTE devices are interoperable with mission critical networks and services. With lives sometimes depending on it, complete trust in this interoperability is crucial.

What are the next steps?

Having completed an extensive gap analysis, GCF's Mission Critical Services workgroup has defined the scope of a first phase of certification. GCF and TCCA are tracking the progress of deployments of mission critical LTE, currently ongoing in the USA, UK and South Korea, and gathering inputs from stakeholders to make sure that when mass scale deployments begin there is a fully proven certification process in place. A number of field trial test cases are being developed with the intention of submitting these to the GSM Association (GSMA)'s Field Trial Devices Group so that they may be included in a test specification. In the US, three National Institute of Standards and Technology (NIST) funded conformance test tool projects are underway, including one with TCCA as a participant, and GCF is monitoring the status of these and the expected availability of commercial MCX test tools.

The next generation of mission critical services, delivered over 3GPP based networks and devices, will be revolutionary and their shape and scope are being defined now. GCF and TCCA are keen to ensure that all parties interested in ensuring the seamless interoperability of devices and networks in this new MCX world have the opportunity to contribute to the discussion and, in doing so, help to fashion a certification programme that benefits all stakeholders.

To learn more or participate in the GCF Critical Communications certification programme, contact gcf@globalcertificationforum.org

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The 5G era: ushering in new models, new capabilities and new challenges, by Anil Krishnan, head of Africa region at Comviva

With advanced 5G deployments in the pipeline, people have many questions about 5G as a technology, its applications, and different use cases, and how is it going to impact the connected lives once it is rolled out. Well, one thing is for sure that 5G is going to be transformational. It is going to leverage the already present 4G to enable applications that are not practicable right now, especially in the cities and urban areas. Now, this sounds relevant as according to the latest report by the UN, by 2050, two thirds of the world's population will be living in the cities. Thus, it becomes crucial to understand the concept of 5G inside-out.

What is the present status of 5G in terms of global deployments, trials, and subscribers?

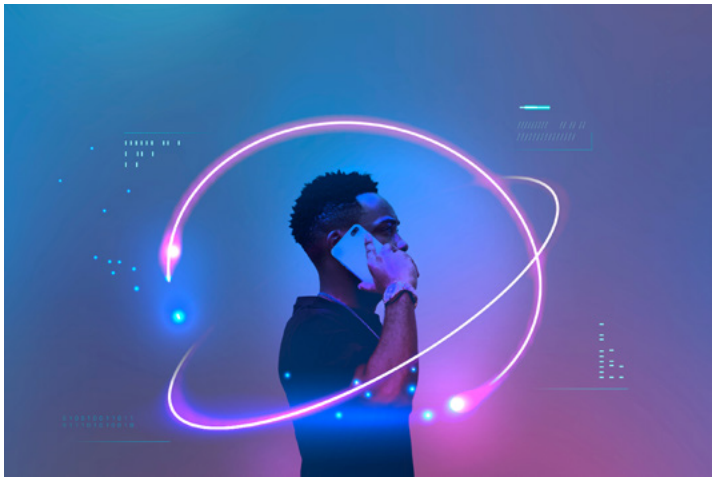
Keeping in mind the latest stats shared by GSMA and Omdia Research, by 2024, 5G is going to have a major chunk of 19.3 per cent of the global market. With countries like the United States of America, China, and South Korea as the major players, 5G is going to be the fastest deployed technology ever. According to global analysts, 5G has the potential to generate around $12.3 trillion sales activity across different industry verticals while supporting around 22 million jobs by the year 2035.

Mobile network operators are expected to rapidly scale up 5G-related investment across Africa, laying the ground for faster deployment rates in the future. While 5G currently accounts for less than 10% of capital expenditure for telcos, increased investment will see it grow to account for more than half of operators' capex by as early as 2024.

What are the key factors fueling the adoption of 5G?

With reports stating that the probability of the global 5G market to grow by 11 per cent between 2019 and 2025, it is intriguing to find out what is fueling the adoption of this technology. Some of the factors that we zeroed down go as follows:

- **Meeting customers' ever-increasing need:** Global consumers want a seamless experience and regular improvements in the network speed to be satisfied with the network performance. Driving networks toward 5G is vital to keep up with this expectation for quality user experience and higher speeds.
- **Better than usual Wi-Fi:** Currently, around 82 per cent of consumers prefer Wi-Fi over mobile broadband. The addition of 5G to the current mobile network will make offload mobile networks obsolete. It would be an 'always-on' mobile approach that would easily handle all the traffic and would make it convenient for users to stay on mobile networks.
- **Devices, services, and apps of the next era:** It is the 5G technology that is going to create the foundation of a smart world and technological innovations, including smart mobility, IoT devices, and apps, smart utility grids, etc.



What does 5G hold for businesses in terms of applications and use cases?

There is no doubting the fact that 5G and the associated applications are going to transform lives. Here are some of the most interesting use cases of 5G:

- **Autonomous Mobility:** Powered by the low latency of 5G, vehicles will be able to reach 10-100 times more quickly as compared to the efficiency on current networks. This will enable vehicles to respond to objects and react accordingly automatically and immediately, thus making the vision of autonomous mobility a reality.
- **Industrial Automation**: A well-established industrial automation set-up requires a complete synchronization between supply chain applications and robotics at work. Currently, these include cables as Wi-Fi is unable to provide mobility, range, and the quality of service required. With 5G, all these cords will be a thing of the past, giving way to smarter factories.
- **Wearable and Mobiles:** Connected IoT devices, including wearables, sensors, and trackers, are going to be a massive target for 5G. With 5G powering these devices, the experience is going to be seamless without any dropped signals or delays in any area.

What are the challenges that 5G players may face while optimal utilisation of 5G?

Deployment of 5G isn't going to be a cakewalk. There are certain challenges that CSPs need to address while ensuring the utilization of 5G.

- **Building denser and complex network:** As compared to 4G, 5G networks are going to be denser and more complex. In other words, it would need more 5G hardware and software, which would eventually increase as the traffic on 5G grows.
- **Keeping costs lower:** The addition of all the hardware and software will directly impact the OpEx or operating expenses. Other than that, these networks require configuration, testing, management, and regular updating that would further escalate the OpEx.
- **Meeting the low-latency needs:** 5G networks needs ultra-low latency to function in the best manner. Not for the telecom operators, this may pose a need for the device market that allows the delay of one millisecond in one-way communication.

What is the growth path of 5G?

Apart from the above-mentioned use cases, 5G is going to transform the way enterprises and organizations used to think about connectivity. The new industry verticals like robotics, aerospace, defense, and automotive are going to use 5G as the backbone to support the various intelligent edge applications and devices. ■

5G: towers and technology

The fifth generation technology for broadband cellular networks, or 5G, is now available in selected cities around the world. But how is Africa preparing for it? Robert Shepherd investigates

According to the GSMA, the 2020s will see wide-spread deployment of 5G worldwide, including sub-Saharan Africa.

That might sound obvious – after all, it's a natural progression from 4G and it's already being used in other, more advanced and affluent parts of the world. However, it's important to caveat that with the fact 5G arrival is unlikely to be imminent in most territories in the region, because the existing technologies are capable of supporting current use cases and overall demand for mobile internet connectivity.

When you think about it, the prospect of running a combined 2G/3G/4G in addition to a brand new 5G network is likely to pose an operational challenge to operators in the region. That's due, in part, to the fact that initial deployment of 5G will face the complexity of managing legacy networks, the need to integrate legacy networks with the new 5G network - and the resources and expertise required to address these challenges.

In fact, some two-thirds of respondents to the GSMA's 2019 report 5G in sub-Saharan Africa: laying the foundations, said they did not envisage commercial 5G services to be available before 2025.

Alessandro Ravagnolo, partner at TMT management consulting firm Analysys Mason

Time to be clear what "5G services" means in this context.

"5G is one of the series of what are called; 'transformative technologies'," says Bulent Unsal, head of telco, EMEA south, SAP Middle East, the cloud business software company. "The others include 'artificial intelligence', 'the cloud', and 'the internet of things'. These are said to be shaping tomorrow's world, singly

"The only difference with 5G is that energy and backhauling requirements may increase and operators/towercos need to make investments to support this. Apart from that, a mast continues being a mast"

or together. In the simplest terms, 5G is a collection of tools that should allow 'higher speed' internet to be available by 'wireless' rather than by cables and phone lines brought into the home or office."

Nevertheless, 5G will arrive in the next few years and that means the relevant technology needs to be in place. While the focus tends to be more on the speed of 5G, the cost and how it will benefit society as a whole – there has been much less talk on the technology supporting it and what the cellular towers need to make it a successful reality.

First and foremost, there's cost. Introducing 5G in Africa, as well as the first phases of the rollouts - like anywhere else on Earth – will require hefty investment from mobile operators.

French giant Orange has long been a major player in Africa, with a solid presence in key Francophone nations. The company says 5G is very much a priority in terms of its African strategy and it explains why.

"We are starting to integrate 5G in the agenda," says a spokesperson for Orange Middle East and Africa. "We think that in Africa, 5G could help relieve congestion on saturated mobile networks, particularly in densely populated capitals. We want to be able to launch this technology in our African markets by the end of 2022 and we are already trialing the technology. In 2020, we have demonstrated it in Egypt, Morocco and Senegal. And so far in 2021, we have conducted pilot operations in Egypt, Tunisia, Morocco, Côte d'Ivoire, Madagascar and more recently, Mali.

Orange says that while it is under no illusions as to the work involved. "Of course, such a technological change will require upgrades to our network, new investments and training for our people," the spokesperson adds. "Above all, 5G will come very soon after 4G. It will be even more necessary that authorities implement a favourable framework and make frequencies, spectral resources and authorizations available. This is critical to a rapid roll out of 5G."

While Orange did not comment on the cost it will have to swallow to make a success of 5G – perhaps it's too early to say – the GSMA predicts operators continent-wide will need to pump US$60bn to boost their networks between 2018 and 2025 – a fifth of which will be on 5G infrastructure.

It's no secret that the industry landscape to date has generally been shaped by infrastructure-based competition between operators, but the 5G era

will likely see the introduction of new models of network ownership, with private 5G networks likely to proliferate in some regions. Passive infrastructure sharing and the use of tower companies is already a feature in sub-Saharan Africa but will become more widespread, particularly to address some of the specific coverage challenges in the region.

Active network sharing has been shown to deliver much higher levels of both capex and opex savings compared to passive, resulting in the best outcomes for operators and society at large. Beyond the regulatory considerations, vendors and tower companies can

look to facilitate active sharing; for example, ensuring robust operating models are in place to support the relevant operators and network operations, as well as standardising equipment to facilitate interoperability.

However, it may surprise some to learn that "technically, there is no such thing like a 5G tower" – that's according to Ravagnolo. "A tower (either be a rooftop or ground-based mast) is a passive element that can support anything that goes on top of it (e.g. antennas, transmission, FWA antennas, IoT, etc.)," he argues. "The only difference with 5G is that energy and backhauling requirements may increase and operators/towercos need to make investments to support this. Apart from that, a mast continues being a mast."

Helios Towers, which has a presence all over Africa (Congo, Democratic Republic of the Congo, Ghana, Madagascar Malawi, Senegal, South Africa and Tanzania), says its markets "are quite far from 5G" as 3G connections only overtook 2G connections for the first time in 2019. "To-date we have not worked with many vendors on 5G, given its relative infancy in our markets," says a company spokesman. "Even by 2025 <10% connections of our markets are expected to be

Bulent Unsal, SAP

"It will play a key role in transforming cities into smart cities, allowing citizens and communities to realise and participate in the socio-economic benefits delivered by an advanced, data- intensive digital economy"

5G," says a company spokesperson. However, Helios explains how it is working towards facilitating its arrival.

"Operators tend to add additional antenna for 5G, so in some instances, we may need to strengthen the tower," says the spokesperson. "Additionally, there tends to be a higher power requirement, which may alter how we configure our site power infrastructure."

The Covid-19 pandemic has caused logistical and manufacturing delays in most industries, but Helios said it hasn't suffered as a result. "In 2020, we delivered >1,000 new tenancies in our markets, in-line with our guidance provided at the beginning of the year before the Covid impact," adds the spokesperson. "In fact, we've seen a few operators call out they will be investing further in improving infrastructure, given data demand has accelerated significantly due to elevated home working."

Ericsson, the Swedish gear-maker currently has 144 commercial 5G agreements, 82 publicly announced 5G contracts, and 94 live 5G networks, across Africa. Zoran Lazarevic, chief technology officer, Ericsson Middle East and Africa, says that while 2020 was touted as the year 5G deployments would go mainstream,Covid-19 did "upend" this. "However, the pandemic highlighted the importance of 5G as seen with the spike in demand for increased data speeds and network support," he adds. "During the pandemic, we continued to help CSPs all evolve their networks to 5G and meet network deployment challenges through its Intelligent Site Engineering services. The services, which include several capabilities enabled by artificial intelligence (AI) and machine learning (ML) have made the delivery of networks more efficient and shortened the time to market."

What's more, Lazarevic argues that technologies like high-resolution cameras carried by drones and laser-scanning (used at places where drones cannot go, such as in no-fly zones and interiors) have helped make deployment more productive while also lowering the environmental impact of deployment. "They have also enabled the effective creation of digital twins, which

provides technicians and engineers with highly accurate site data, allowing them to prepare and design the site for the new equipment installations," he adds.

"Through our range of intelligent site engineering services and smart solutions, we are on track to help CSPs' all around the world roll out 5G extensively in the coming years."

Fellow Nordic giant Nokia of Finland also has a strong presence in the region Jan Liebenberg, customer chief technology officer for southern Africa at Nokia, says telcos must get ready for the future of Radio Access Networks (RAN) to be prepared to take advantage of a surge in demand for new services and more services.

"Our customers will be looking at higher capacity and connectivity, scalability and future-proofness along with wider radio spectrum support, more intelligence with Artificial Intelligence (AI) and Machine Learning (ML), shared infrastructure and lower energy consumption," says Liebenberg.

Alessandro Ravagnolo, partner at TMT management consulting firm Analysys Mason, argues that 5G is not expected to change the role of towercos in the value chain and they are expected to be an important element of it by offering colocation space and power.

"As such, their offering is not really changing," he says. "However, there is a trend towards towercos expanding their asset perimeter and offering to become all-around digital infrastructure service providers. This trend was not kickstarted by 5G, but you can tell that 5G has accelerated in many ways this process. This is true for both developed and emerging economies. Actually, there are elements to suggest that we have seen more innovation in emerging economies where operators faced a challenging environment and capex shortage that led to more innovative solutions like more extensive adoption of coverage and power as service solutions."

"Our customers will be looking at higher capacity and connectivity, scalability and future-proofness along with wider radio spectrum support, more intelligence with Artificial Intelligence (AI) and Machine Learning (ML), shared infrastructure and lower energy consumption"

Still, there is a common thought or belief that the tower sector will change as a result of 5G, in terms of the number, positioning and technology on the towers themselves.

However, this is not a view shared by Ravagnolo who says "there is a pre-concept" that 5G will implicitly mean more space on the tower, which is not necessarily true.

"The RAN technology has evolved and continues evolving," he continues. "Vendors are making great effort towards reducing the wind-loading of their equipment (i.e. RF antennas and RRUs), which often balances out many additional space requirements from upgrading the site with new carriers / frequencies."

For example, Ravagnolo says multi-band antennas are becoming increasingly available and cost effective, also in emerging markets. What can make the difference is the adoption of 'so called' massive MIMO antennas. "These are active antennas – nowadays most units are passive with the RRU functionalities being delivered through a separate box – and are typically deployed as separate units from the passive antennas delivering 2G-4G services," he adds. "Although they are not large in size – in fact they are smaller than traditional antennas – they are thick and heavy, thus increasing the wind-loading and – depending on the contract - triggering revenue amendment opportunities for towercos. These antennas offer significant gains in terms of capacity and performance to operators."

Nevertheless, Ravagnolo says "they are still expensive and we are seeing operators using them carefully" by deploying them in the most affluent and capacity-constrained areas. This means that not all sites will see this sort of equipment being deployed.

Ericsson delivers 5G RAN portfolio that consists of antennas, radios, baseband (RAN Compute) and RAN software to enable incredible speeds and mobility. It also offers a purpose-built portfolio and a Cloud RAN portfolio for 5G that offers CSPs flexibility when rolling out networks worldwide.

Zoran Lazarevic, chief technology officer, Ericsson Middle East and Africa, explains how the antenna system is in fact one of the most crucial areas in a radio access network. "As 5G sites add complexity with new frequencies (2G-5G) and multiple technologies (FDD-TDD), it increases the need for site optimisation," he says. "Ericsson Antenna System is an integral part of Ericsson Radio System and provides a full range of high-quality products in the following areas: passive antennas, active antennas, filters and combiners, tower mounted amplifiers, feeder system, and accessories."

Lazarevic adds that as the new performance demands on networks require new levels of spectral efficiency and flexibility, Ericsson, through its massive MIMO portfolio, offers a wide range of Antenna Integrated Radios for a maximum 5G experience and capacity. "The portfolio includes lightweight and energy-efficient

"As 5G sites add complexity with new frequencies (2G-5G) and multiple technologies (FDD-TDD), it increases the need for site optimisation"

options, combined with real-time beamforming capabilities supporting both TDD mid-bands and FDD bands."

As Africa continues to invest in 5G, Unsal says it's important to focus on what the "general impact of 5G on society could be going forward. He says 5G networks will bring three important capabilities which are enhanced mobile broadband (eMBB), massive machine-type communications (mMTC) and ultra-reliable and low-latency communications (URLLC).

"5G is an opportunity to empower citizens and businesses," he says. "It will play a key role in transforming cities into smart cities, allowing citizens and communities to realise and participate in the socio-economic benefits delivered by an advanced, data- intensive digital economy."

He adds that 5G promises to deliver improved end-user experience by offering new applications and services through gigabit speeds, and significantly improved performance and reliability. "5G will build on the successes of 2G, 3G and 4G mobile networks, which have transformed societies, supporting new services and new business models," Unsal adds. "5G provides an opportunity for wireless operators to move beyond providing connectivity services, to developing rich solutions and services for consumers and industry across a range of sectors – and at affordable cost."

Now, we might be jumping the gun a bit, but 6G has entered the modern technology lexicon.

While 5G is the technology of the moment, some parts of the world, namely the US and South Korea are already testing its successor. Although the launch of the technology is still some time off, the relevant technology will need to be in place. Or does it? "6G standard is still being developed, the expectation is that the bodies developing the standards will build 6G on the 5G base so that the investment in 5G is not wasted," says the Helios spokesperson.

For Ravagnolo, RAN equipment typically has a useful lifetime of six-eight years – or a maximum of 10. "As such, it will need to be swapped before 6G comes," he says. ■

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Orange submarine cable ship

Journey to a digital Africa

Jean-Luc Vuillemin, executive vice president, international networks, Orange examines the role of submarine cables in bringing connectivity to Africa

The global need for connectivity is continually increasing. Beyond the ability to communicate with one another, connectivity is now relied upon as the means to access education, employment, healthcare and even democracy.

This trend, accelerated by the Covid-19 pandemic, has only served to highlight the disparities between developed nations and those with less comprehensive digital infrastructure. Despite marked improvements over the last decade, development and access to digital technology remains a key challenge for Africa. There is a growing need for the ongoing investment from operators for improved reliable, secure and high-quality connectivity to contribute to the populations' digital inclusion and help stimulate the countries' digital economy. And it all drills down to the infrastructure which makes this transformation possible.

The evolution of infrastructure

When the first transatlantic telegraph wire was laid between Ireland and the North American continent in 1858, there is little chance that these early pioneers would know of the precedent that they were setting. Although much

has changed from a technological standpoint, the fact remains that physical cables laid on the ocean's floor between continents are still the most widely used solution to global connectivity. Today, African connectivity is reliant on a huge network of fibre optic cables buried deep beneath the ocean linking coastal African hubs to data centres in Europe and the Americas.

This is not to say that submarine cables are the only means to provide connectivity across the region. Satellite technology for example was for a very long time the preferred method and was widely seen to be the successor to outdated cable infrastructure. And satellite continues to provide valuable connectivity in particular to regions that are otherwise hard to reach, such as remote and rural areas, for which the African continent is well known. However, while satellites remain an integral aspect of global internet infrastructure, following the advent of fibre optic in the 1980s, subsea cables have taken a firm place as the dominant force in intercontinental connectivity.

There are a number of reasons for this, both in terms of cost and capacity. When fibre optic first appeared on the market it had 100x the capacity of the most advanced satellite at the time. Since then, satellite technology has also seen a period of progress and there are exciting developments still happening in this arena. For example, work is currently being done by SpaceX to improve satellite's ability to connect polar and other remote regions where it has historically been difficult to erect base stations using advanced laser links. While these developments sound promising and any technological progress facilitating connectivity in remote locations should be welcomed, it remains the case that fibre optic cables are the most cost-effective connectivity solution. This is why now 99% of intercontinental internet traffic passes through the hundreds of thousands of kilometers of submarine fibre optic cables. The cost-effectiveness of this technology is especially important in the context of connecting Africa, where much of the population would not be able to afford additional costs that could potentially be passed down the chain to the consumers.

How is Africa connected today?

Currently, Africa is served by a complex ecosystem of fibre optic cables, linking the continent to internet infrastructure in Europe and the US. Every day, these cables serve as the arteries powering African connectivity and are already providing millions of people with internet access and all of the inherent benefits that come with it. Of the 54 countries on the continent, 38 of these have a seashore and 37 of these have at least one submarine cable landing. This submarine cable network is vital for African connectivity, with routes such as ACE (African coast to Europe), SAT 3 and MainOne providing collectively around 32,000kms of fibre optic cables connecting Africa to Europe and beyond, where the vast majority of internet content is created and housed.

Over the years, as the benefits provided by internet access have become clearer, and uptake in broadband services has increased, so too has demand. Additionally, a burgeoning digital economy in Africa means that there is far more domestic content being produced than was the case when this initial ecosystem of cables was laid. As such, we have to look to ways to provide the increased bandwidth and capacity needed to satisfy the rise in demand, as well as building a domestic infrastructure that will enable traffic to flow between African countries as opposed to being rerouted to further afield as is the case today.

Fortunately, continued progress in the development of fibre optic means that we have seen a spectacular increase in the capacity that these cables can provide – from a few hundred megabits per second in the 80s to 20 terabits per second or more today. This is expanding with the help of GAFAM (Google, Amazon, Facebook and Microsoft) who are now the origin of 70% of the increase in global internet traffic.

What lies ahead?

There are now a number of recently completed and ongoing projects that are looking to take African connectivity to the next stage; increasingly the availability of internet access to more substantial parts of the African population and building a resilient network infrastructure that will last for decades to come.

2Africa is one of the largest submarine cable projects in the world and promises to connect 23 countries across Africa, the Middle East and Europe. This new generation of cable will deliver more than the total combined capacity of all subsea cables currently serving Africa today. With the backing of a host of different operators and partners such as China Mobile, Facebook, MTN, Orange and others, it is set to be the most comprehensive cable network serving the MEA region.

The cable will have 21 landings in 16 countries in Africa and is expected to go live in 2023, with a design capacity of up to 180 Tbps, underpinning the growth of not only fixed broadband access but also 4G and 5G capabilities for hundreds of millions of people. New technological advancements will allow for the deployment of up to 16 fibre pairs instead of the 6 supported in older generation fibre optic cables, bringing much greater, and perhaps more importantly, much more cost-effective capacity.

In addition to increasing capacity and bandwidth entering Africa, we also need a means to allow traffic to flow freely inside the continent without it being re-routed back to Europe. This is where the Djoliba network will play a key role. Focused on connecting the landlocked countries of west Africa, who are otherwise underserved by the submarine network, Djoliba is the first fibre optic backbone in Africa, bringing together 10,000kms of terrestrial and 10,000kms of submarine cable infrastructure.

The Djoliba network promises to dramatically improve the quality of service offered to the African population with its Very High Broadband service of up to 100Gbps and 99.9% availability because of its high-redundancy mesh network. Until now, telecommunications networks in west Africa were built inside each country, up to its borders: there was no cross-border network. To provide a service between two capitals, operators had to integrate the offers of several providers and join several different networks which were interconnected at the borders. This new network is a true innovation that simplifies the interconnection processes between countries. With a grid of nearly 155 technical sites, that connects 300 points of presence across Europe, America and Asia, through Djoliba, the telecommunications industry is meeting the needs of companies and telecom players in Africa serving a potential 330 million inhabitants. This promises to take connectivity in Africa to the next level, hugely increasing the reach and quality of internet services to some of the most underserved communities in the world.

A truly digital continent

By investing in the future arteries of African connectivity we are laying the foundation for a truly digital continent. It is increasingly clear that internet connectivity is no longer an optional resource, but the facilitator of much of our day to day needs and wants. Beyond the benefits that connectivity brings to individuals, national and global economies are also increasingly built upon digital foundations. With the ongoing updates to Africa's fibre optic infrastructure represented by 2Africa and Djoliba, the continent is another step closer towards achieving seamless connectivity that is open to the whole world. ■

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Tigo Tchad required a partner to quickly refurbish 40 of its cell sites

Serving the people of Chad

With customers relying on their mobile network for their very livelihood, Tigo Tchad required a partner to quickly refurbish 40 of its cell sites and establish an in-country teleport with limited downtime. SES completed the upgrades and teleport construction in less than four months, despite the physical challenges involved.

As a landlocked, developing nation, Chad poses several unique challenges to deploying mobile networks. Tigo Tchad has nonetheless remained committed to connecting Chadians across the rough geography and identified more than 40 sites that needed updates. Several of these sites were located away from Chad's transportation and communications infrastructures, so careful planning would be required. A number of sites shared a location with a competing MNO and required a temporary solution while the old equipment was removed since new pad construction or disruption of the competition's service were not permitted. Long outages were also not tolerable, as Tigo's customers rely on their connection to conduct business, access weather reports, and communicate with family and friends.

Tigo Tchad determined the following requirements:

- Integration of satellite capacity and hardware, mobile network hardware, installation, maintenance, and logistics, covered by a single service level agreement (SLA)
- Replacement of both satellite and mobile network components across more than 40 sites within four months
- In-region technical expertise and readily available satellite-based network capacity and facilities
- Replacing single carrier per channel (SCPC) satellite network with a dynamic SCPC
- Migration from TDM to IP-based technology to upgrade sites from 2G to 3G

SES was selected to provide satellite capacity and orchestrate this upgrade because of its proven track record of delivering highly reliable, managed satellite communications in Africa. Tigo Tchad was already a user of the O3b MEO network and was familiar with SES's ability to provide end-to-end management.

This solution utilises SES's GEO capacity for ease of deployment and broad coverage of all locations.

To supply in-country uplink and downlink services, SES managed the construction and continues to operate a new teleport near Tigo Tchad's headquarters in N'Djamena. It was completed within three months in order to bring all sites on-net within the following month.

SES and Tigo Tchad partnered with local engineers and technicians in order to import, warehouse, deploy, and install all sites within the deadline. Local experts were effective in navigating the difficult terrain and lack of infrastructure at the install locations.

By utilising future-proof, IP-based solutions, all sites were brought to 3G-readiness, although a few are still operating 2G technology, depending on the current demand. The deployed hardware can be switched to 2G or 3G remotely to respond to changes in user demand, as well as updated, diagnosed, and sometimes repaired over-the-air.

SES's Network Operations Centre (NOC) monitors the load, traffic, and uptime of the network 24/7. The multilingual team serves as a single point-of-contact for any issue in the network. An automated ticket generator is included, which can discover outages even before Tigo's customers can report them.

Certain upgraded sites were designated "critical" by Tigo, and at those, SES deployed parallel, redundant satellite terminal hardware in both Ku-band and C-band to ensure the highest possible availability. Developing a network of local technicians provides for a rapid response if issues do arise requiring a physical presence.

SES and Tigo Tchad agreed upon a single SLA to cover all elements of the satellite and mobile network, providing for 99.5% network availability. While SES manages the network, Tigo Tchad may access its network statistics through a network management system (NMS) and via daily reports provided by SES's NOC. ■

Connecting and protecting Uganda's rural communities

Launched in 1994, a mobile network operator (MNO), that is a part of a multinational telecommunications group, operates in 21 countries across Africa, Asia and the Middle East. It offers vital voice, data and digital services to retail customers, as well as enterprise solutions to the corporate and public sectors. In Africa, they partner with the Uganda Communications Commission, which was established with the principal goal of developing a modern communications infrastructure.

More than 80% of Uganda's population lives in isolated rural areas, with poor or non-existent broadband connectivity. Motivated by a desire to bring the social and economic benefits of reliable connectivity to these communities, the government of Uganda launched an ambitious strategy: to facilitate access at speeds of at least 3 Mbps to 100% of rural areas by 2020.

In the past, operators have been unable to provide connectivity in these scattered settlements. The long distances between sites and the lack of adequate power infrastructure made terrestrial backhaul too costly to sustain.

Intelsat worked with the MNO on a turnkey solution and commercial model that would bring resilient, high-performance connectivity to Uganda while minimising implementation and operating costs.

With a business plan in place, Intelsat implemented a satellite-based low-cost, turnkey, solar-powered solution for expanding 2G and 3G, providing data and voice services to thousands in Bufundi and Kibuku.

Intelsat implemented a solution for thousands in Bufundi and Kibuku

The fully outdoor, small-cell system – implemented with satellite equipment, small-cell RAN and solar power and batteries – delivered fast, affordable internet services and reduced the need for maintenance and management.

A quickly deployed pilot program (using a cost-effective solution reaching rural areas) gave the MNO a competitive advantage in a new market. Dynamic bandwidth sharing between sites combined with high-throughput satellite delivered profitability and a quality user experience for voice and data.

A scalable business model without capex constraints enabled the MNO to adapt bandwidth on demand. As a result people of the two isolated communities in Uganda where the connectivity were deployed were able to make phone calls for the first time, giving them access to the outside world and enhancing health and well-being across the region. ■

Aiding learning and development opportunities at the cornerstone of a Maasai community

Kanzai Primary School is located in the arid remote setting of Etalal in rural Kenya. The land contains important resources for the local community and is also home to habitat reserves, forests that are carbon sinks and rivers and springs that supply fresh water to more than seven million people living in and around the port city of Mobasa, Kenya's second largest city.

The local community relies on education to sustain itself and to ensure students are able to gain opportunities for future employment. However, access to quality education is a major challenge in rural parts of Kenya due to a poor infrastructure and an acute shortage of teachers.

Kanzai Primary School is supported by the Maasai Wildlife Conservation Trust (MWCT) and the Ministry of Education. These organisations are committed to ensuring the improvement of enrolment, retention, completion and transition rates, while maintaining aspects of Maasai culture. This purpose-built school teaches a combination of the Kenyan and British curricula and is attended by some of the best pupils in the area. It prepares students for enrolment in leading national and international schools and consequently enables them to become future community leaders.

A shortage of teachers combined with the school's remote location means that resources are stretched. To abate these challenges, the school is utilising e-learning, which is only possible through a secure, high-speed connection. YahClick joined forces with the MWCT to provide reliable satellite broadband services to Kanzai Primary School. The community school now benefits from fast, uninterrupted connectivity – something that was not possible with a traditional telecommunications infrastructure.

The benefits of the YahClick service are far-reaching, according to head teacher, Ronald Kana Aguso, who says that connectivity not only expands the classroom learning environment, but incentivises children to attend school, who may otherwise have stayed at home with their families. ■


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Squire Technologies launches Sigla

As 5G adds to the complex mix of global communication networks, Squire Technologies says its Sigla Platform meets the increasing demand from CSP's to seamlessly manage signalling over 5G, 4G, 3G and 2G networks.

While the promise of a superfast 5G future is tantalising for all, the industry recognises that it's not suddenly going to replace years of previous network infrastructure overnight.

Having worked in many 'hard to reach' parts of the globe and been involved in 4G / VoLTE deployments on the African continent, Squire Technologies appreciates that connectivity remains top priority over gigabit speeds in the region. While 5G offers greater speed LTE remains optimal for greater coverage.

The Sigla Platform is focused on network coalition, providing a bridge between technologies and enabling signalling traffic to seamlessly traverse between new and old network infrastructure. Managing all aspects of signalling from routing and interworking, mediation, security and monitoring over a unified platform, Sigla ensures that any investment in 5G doesn't simply add further complexity and cost but works in harmony with existing network generations so the User Experience right from Provisioning, Charging to Billing and Self Care remains seamless.

With most 5G rollouts across the globe being on NSA networks (Non-Stand Alone) where the core remains on existing 4G networks Sigla provides CSP's "with a cost-effective roadmap" to

network evolution while enabling them to maintain products and services that continue to depend upon 3G and 2G connectivity in the region. *squire-technologies.com*

A tracking and monitoring service for maritime customers

Thuraya, the mobile satellite services (MSS) subsidiary of the UAE-based Al Yah Satellite Communications Company (Yahsat), has launched its web-based SatTrack maritime tracking and monitoring service in partnership with FrontM, an international developer of software applications. Developed for vessels and fleets serviced by the Thuraya MarineStar Solution (supporting voice, tracking and monitoring), SatTrack, it is claimed, facilitates sustainable fishing practices, improved crew welfare and safety, better fleet visibility and management, plus onboard real time condition monitoring.

The transition to digitisation is changing the maritime sector globally, yet the pace of change is slow, because the overall costs of integrating and maintaining third-party services are still high.

Described as "a low-cost turnkey subscription-based service", Thuraya's SatTrack helps MarineStar users "stay in command and gain vital market advantage", while ensuring compliance with national and international fishing laws and regulations. Subscribers do not have to delve into multiple layers of data for comprehensive insights. The online system displays

the information reported from onboard MarineStar terminals on a user-friendly dashboard. Moreover, it can create and monitor geo-fences, produce detailed maps, customized alerts, weather and position reports at preset intervals based on user requirements. *thuraya.com*

Nokia's all-in-one solution 'for premium 5G mobile indoor coverage'

The Nokia Smart Node is an indoor mobile module solution delivering 4G and 5G indoor mobile coverage for residential and small-medium enterprise use. The compact, 'plug and play' modular design can be deployed readily in any environment to support evolving consumer applications. It is future-proofed to support 4G now and 5G networks when required and both non-stand-alone and stand-alone 5G applications through a software upgrade.

Described by the company as "stylish, durable and smart", Nokia Smart Node is a dedicated indoor mobile solution with apparently "superior coverage and capacity" – and it can be easily scaled from single to multiple units to meet total indoor coverage requirements. Its coverage, latency and reliability delivers ubiquitous 5G connectivity for specific use cases such as immersive entertainment. The 'plug and play' capabilities also make it easy to set up, which keeps installation costs to a minimum. It can be wall, ceiling or desktop mounted.

Nokia Smart Node supports traffic management by reducing core network load and optimising macro resource allocation. It will be available from Q4 2021. *nokia.com*

Sierra Wireless introduces 5G modules

Sierra Wireless has introduced its next generation of 5G mobile broadband embedded modules, the EM92 Series. These new 5G modules feature 3GPP Release 16 standard capabilities and provide secure connectivity worldwide at the highest possible speeds and with low latency for mobile computing, routers, gateways, industrial automation, and new IoT applications.

Adding to the company's existing portfolio of EM Series modules, Sierra says "the new and advanced" 5G EM92 series is based on the latest Qualcomm Snapdragon X65 and X62 5G Modem-RF Systems. With an apparently faster speed, positioning technology for a wide range of indoor and outdoor use case requirements, and enhanced 5G NR Sub-6 carrier aggregation, the EM92 Series of modules enable next generation IoT applications such as live media streaming, video security, extended reality (XR), robotics and private networks.

"Qualcomm Technologies and Sierra Wireless have a long history of collaboration in delivering new, cutting edge wireless technologies, says Gautam Sheoran, senior director, product management, Qualcomm Technologies. "Combined, Qualcomm Technologies' modem-to-antenna solution and the new EM92 Series modules from Sierra Wireless enable customers to make the

most of 5G's capacity, data speeds, wider coverage, and lower latency, enabling the expansion of the mobile ecosystem to new industries such as precision agriculture, smart manufacturing, connected healthcare and smart cities, and transforming the IoT industry by enabling next-generation computing and edge-to-cloud applications." *sierrawireless.com*

CommScope unveils Heliax to speed up FTTA deployments

CommScope's Heliax SkyBlox has been specifically designed to facilitate network operators to speed up their fibre-to-the-antenna (FTTA) deployments on the back of optimal network performance. With the growing prevalence of 5G deployments, service providers are facing the pressure of installing complex antenna-radio connections across crowded 5G-enabled networks.

Weighing one kilogram, this new piece of kit helps to minimise the impact on tower loads, as well as reducing typical total installation time by more than 50%. This includes mounting the box to the tower, configuring the fibre and securing all power cables.

"Mobile connectivity is critical for economic renewal," said Farid Firouzbakht, senior vice president of outdoor wireless networks, CommScope. "Network operators can expedite 5G network rollouts by selecting technology which will help them address challenges and simplify the installation. The new Heliax SkyBlox innovation marks another milestone in faster deployments and reduced carbon footprint."

The Heliax Skyblox is purpose-built to streamline, simplify and support optimal network performance for new

or expanding fibre-to-the-antenna (FTTA) deployments. Made of 100% recyclable materials, CommScope claims the new system will support operators tackling the burden of time-to-market delays - with complex fibre and power architectures, as well as weight limitations on tower deployments, limiting how much load can be added to existing cell sites. *commscope.com*

Directional coupler offering 30 dB coupling over 10 to 50 GHz

Krytar, the designer and producer of of ultra-broadband microwave components and test equipment announces the continued expansion of its line of dual-directional couplers. It brings to market a new model offering 30 dB of coupling over the broadband frequency range of 10 to 50 GHz (X through Q-Bands), in a single, compact and lightweight package.

The new directional coupler, Model 110050030, is designed for systems applications where external levelling, "precise monitoring", signal mixing or swept transmission and reflection measurements are required. It also lends itself, Krytar says, to wireless designs and many test and measurement applications from X through Q-Band including electronic warfare (EW), commercial wireless, 5G communications, SATCOM, radar, signal monitoring and measurement, antenna beam forming, and EMC testing environments.

Krytar further claims the Model 110050030 "offers superior performance ratings" including nominal coupling (with respect to output) of 30 dB, ±2.0 dB, and Frequency Sensitivity of ±2.0 dB. It comes with industry-standard 2.4mm SMA female connectors. *krytar.com*

'The Android device series for professionals'

MiTAC Digital Technology Corporation (MDT) brings to market its new MioWORK A500s series 5" handheld Android™ 10.0 devices for enterprises. The rugged A500s series models replace the A500 series released in 2018 and complement the already available 7" F740s tablets and the larger 10.1" L1000 series tablets.

All devices of the A500s product line are GMS certified for enterprise use, allowing for straightforward implementation of enterprise mobility management solutions. The series contains three models, the standard A500s, the A505s with a Honeywell 1D/2D LED aimer, and an 8 megapixels camera on the back. The A545s model features a Honeywell Laser Aimer instead of the LED aimer, with GPS/AGPS + GLONASS for navigation, and LTE Cat.6 connectivity. There's more:

MioWORK™ A500s handhelds provide businesses the option to integrate a small and light device for frontline staff in warehousing, logistics, hospitality. With IP67 water and dust protection, the devices apparently withstand exposure to the elements by logistic delivery staff and endure up to 1.8m drops with the optional protective caps following

military standards. The integrated NFC / HF RFID readers allow for payment processing by delivery services and restaurant order management. *enterprise.mio.com*

Look out for...

6G network in SK 'might commercialise in 2028'

The South Korean government has unveiled the five-year plan to invest nearly US$193 million deploying the first-ever 6G network by the end of 2028.

Even though 5G is still in its infancy in many parts of the world, the east Asian nation is already targeting 6G technology. Korea will also structure a program to curate the core standards and technologies in the period of five years.

Lim Hye-sook, the country's science and ICT minister, said that since the next generation of mobile networks will be the pillar for digital transformation, South Korea intends to lead the international market in the 6G era based on the field experiences.

To accelerate the development of 6G technologies, multiple collaboration and agreements are being signed in the region.

The Institute for Information communication Technology Planning and Evaluation (IITP), the state body of the Korean Ministry of Science and ICT, has inked an agreement with the US-based agency National Science Foundation (NSF) to carry out joint researches in 6G technologies.

Meanwhile, Korean tech giant LG signed two deals with the US-based firm Keysight Technologies and Korea Advanced Institute of Science and Technology (KAIST) to carry out research on future 6G technologies.

The introduction of 6G is something the tech space had been reluctant to pursue, owing to the slower than hoped roll-out of 5G in certain parts of the world. However, nations like China, the US and those in the European Union have already launched various programs and partnerships to shape the 6G framework.

In February this year, a 6G research program was announced with the presence of several major European vendors. Elsewhere, US operators have already committed to the next G alliance - established with the primary goal of defining 6G technology.

Tower Xchange

5 – 7 October 2021 | Virtual Event
12 – 13 October 2021 | Dubai, UAE

Meetup Africa 2021

Connecting the African passive telecom infrastructure industry since 2013

Oman issues tender for first satellite

Omani Space Communication Technologies (SCT) has launched a tender for the design, manufacture and launch of the country's first satellite dedicated to telecommunications.

The Sultanate plans to launch "OmanSat-1" 2024.

"The company's operational plan depends on the launch of an artificial satellite for High Throughput Satellite (HTS) named 'OmanSat-1' and related services, which provide coverage for the entire territory of the Sultanate, its economic waters, and the associated external markets, which is expected to be launched by 2024," read a statement. "SCT, therefore, invites satellite vendors to submit technical and commercial proposals for the provision of the above services in accordance with the terms and conditions set out in the tender documents."

The contract covers both the space-based and ground-control aspects of the programme. Structured into three segments, the first focuses on the space component. It also includes the procurement of the satellite itself, launch services, orbit raising support, in-orbit testing, provision of satellite simulators, insurance support, and technical training services.

Furthermore, the project is expected to provide national and regional coverage, with the primary TT&C (telemetry, tracking, and command centre) located in Oman.

SCT, part of the Oman Investment Authority (OIA), is one of the Omani Telecom and Information Technology Group companies.

Meanwhile, in neighbouring Saudi Arabia, The Red Sea Development Company has partnered with the King Abdulaziz City for Science and Technology to provide high resolution satellite data of key locations at the Red Sea Project. Satellite imagery helps to monitor the project, covering 28,000km^2.

Oman is ready for its first telecoms satellite

Vodafone Greece deal with Grid Telecom

Vodafone Greece and Grid Telecom have signed a 20-year framework agreement for the exchange and mutual concession of their fibre-optic networks.

Under the terms of the deal, both parties can utilise further sections of their core networks to provide their customers with more choices and to support new investment in digital infrastructure.

For Grid Telecom - a 100% subsidiary of the Independent Power Transmission Operator (ADMIE) - this new cooperation is another step toward the optimum use of the broadband infrastructure it is developing via its transmission network.

This year it will be able to offer super high-speed capacity services in major cities through the dense wavelength division multiplexing (DWDM) network it is developing. Its fibre optic network currently runs to 4,000 kilometres and will double in the coming years.

Furthermore, access to Grid Telecom's network will offer Vodafone the chance to speed up its new €600m investment program for the creation of modern digital services and infrastructure across Greece with new-generation networks such as 5G and FTTH and underwater cables in the Aegean and Ionian seas.

Telekom Austria 'may consider Huawei, ZTE for 5G networks'

A1 Telekom Austria, a unit of Mexican business magnate Carlos Slim's América Móvil, is open to considering Chinese vendors such as Huawei and ZTE for upcoming 5G networks in several countries, a senior official said.

The news comes as European governments continue to tighten controls on Chinese companies building 5G networks following diplomatic pressure from the US.

Washington has accused Huawei of facilitating Chinese spying - a claim the company and Beijing deny.

"For us it is very important to have markets where we have Chinese vendors to test the performance of the different networks in real time," A1 Telekom Austria's chief operating officer Alejandro Plater told Reuters.

Not only is Chinese technology cheaper, but it offers features that are better than their European counterpart, making it competitive, he added.

Last year, A1 América Móvil called Huawei an excellent telecoms equipment provider.

Telekom Austria has 25 million customers across Austria, Bulgaria, Croatia, Belarus, Slovenia, Republic of Serbia and the Republic of North Macedonia.

It already uses radio access networks from Chinese vendors in Bulgaria and North Macedonia for 4G networks, as well as equipment from European vendors like Ericsson and Nokia in countries such as Austria.

A Swedish court recently upheld a ban against Huawei selling 5G equipment in the country.

Rock Mobile becomes Jamaica's third player

Jamaica has given approval for a third telecommunications service provider, Rock Mobile, to be granted a licence to operate locally.

Minister of technology, Daryl Vaz, said the government sees competition "as the best way to achieve quality service at affordable prices for the consumer".

In his sectoral presentation to the House of Representatives, Vaz noted that the appointment of the new provider is in keeping with the government's policy objectives to increase broadband access to unserved and underserved areas; promote competition, innovation and diversity in the telecoms industry; and ensure optimum return in the shortest possible time for the spectrum assigned.

He added that Rock Mobile will be required to deploy its network in keeping with the coverage, quality of service and implementation timing in the bid.

This includes the provision of 95% population coverage at a specified minimum download data rate and 95% population coverage of communities classified as unserved or underserved at a specified minimum download data rate.

Rock Mobile, which is entirely Jamaican-owned, is expected to achieve full rollout of the service within two years, with the service launch date to be no more than 12 months after the granting of the licence.

The onset of the Covid-19 pandemic has highlighted the inadequacies in the access to broadband connection island-wide. Jamaicans living in rural areas continue to experience challenges with accessing quality telecoms and internet services.

Ufinet moves into Brazil following acquisition of NB Telecom

Ufinet has agreed to acquire a majority stake in NB Telecom, a Rio de Janeiro-based carrier, for an undisclosed sum.

The move is Ufinet's second acquisition in Brazil following its purchase of São Paulo-based Netell, in 2019.

This NB Telecom deal solidifies the company's footprint into Brazil's second-largest market and one of Latin America's major business hubs.

"We believe this is a very important step both for us and our customers," said Stefano Lorenzi, executive chairman at Ufinet.

Once the deal is completed, contingent on meeting the standard conditions of this type of transaction in Brazil, this agreement will mean the acquisition of a majority stake in NB Telecom and controlling interest by Ufinet. The closing of the transaction is expected to become effective in the coming weeks.

"This acquisition creates a major platform for our customers. We can now offer an international footprint connecting Rio de Janeiro to the Americas at an unprecedented level," said Edgard Sanchez Leal and Pedro Augusto Oliveira Alves, co-founders of NB Telecom. "It has always been a dream to see our firm join efforts with such a globally respected organization as Ufinet."

NB Telecom currently operates a fibre network of more than 500km connecting all major data centres, PoPs and business centres in the city of Rio de Janeiro.

According to the company, the transaction is due to close in the "coming weeks"'.

NB Telecom is based in Rio de Janeiro

PPF Group raises O2 Czechia stake and plans de-listing

PPF Telecom Group, a PPF Group vehicle used to consolidate investments in telecommunications, has increased its stake in O2 Czech Republic and wants to take the firm private.

The group said in a press release that it had lifted its stake in the group to 90.01%, from 83.58%, in a reverse accelerated book building. PPF has controlled the O2 Czech Republic since 2014.

"As the more than 90% holder in the share capital of O2 CR, PPF announces its intention to initiate a squeeze-out procedure of the remaining holders in O2 CR through a mandatory tender offer for the shares in the telecommunications operator held by these remaining minority shareholders," PPF said:

Now, with a stake rising above the regulatory 90% level, PPF said it would initiate a squeeze-out procedure of the remaining shareholders in the O2 Czech Republic. It is the country's fourth-largest company with a market cap of US$3.81bn.

PPF has assets of almost €40bn across Eurasia and has grown its telecom business in central and eastern Europe.

The O2 Czech Republic provides voice, internet, and data services to customers ranging from households to SMEs and large corporations. O2's internet is available in 99% of the Czech Republic's inhabited territory, making it the country's largest internet provider by some distance.

Deutsche Telekom switches on O-RAN Town deployment in Germany

Deutsche Telekom (DT) switched on its multi-vendor O-RAN Town network deployment in Neubrandenburg, Germany, the operator said.

It will deliver open RAN based 4G and 5G services across up to 25 sites, with the first ones now deployed and integrated into the live network of Telekom Germany. This includes Europe's first integration of massive MIMO (mMIMO) radio units using O-RAN open fronthaul interfaces to connect to the virtualized RAN software.

"Switching on our O-RAN Town including massive MIMO is a pivotal moment on our journey to drive the development of open RAN as a competitive solution for macro deployment at scale," Claudia Nemat, board member, technology and Innovation, Deutsche Telekom.

DT has pioneered open RAN since it co-founded the xRAN Forum in 2016, which led to the formation of the telco-led O-RAN ALLIANCE in 2018. Open RAN introduces supplier diversity to drive innovation and it is expected to lead to an even more flexible, secure, energy efficient and customer-centric network of the future.

The first live sites at O-RAN Town are built on a multi-vendor open RAN architecture with equipment from vendor partners Dell, Fujitsu, Intel, Mavenir, NEC and Supermicro. Remote radio units (O-RU) are provided by Fujitsu and NEC, including Fujitsu's LTE and 5G NR O-RUs and NEC's 32T32R 5G massive MIMO (mMIMO) radio units (RU) conforming to O-RAN Alliance fronthaul specifications, embedded with advanced beamforming technologies.

Mavenir provides the Cloud-Native baseband software for the 4G and 5G distributed units (O-DU) and central units (O-CU), including for the mMIMO radio units. The virtualised baseband software is running on standard server hardware provided by Dell and Supermicro. Moreover, the entire O-RAN Cloud architecture is built on top of the Intel FlexRAN software architecture.

Deutsche Telekom's offices

DT said it plans to expand O-RAN Town in phases across 2021 and 2022, working with different sets of vendors. These solutions are currently being tested in the lab to ensure interoperability across all components. The vendor-independent SMO is designed and developed to support a flexible integration and operation of these components with higher efficiency and with faster time-to-market.

Telefónica hands Nokia and Ericsson equal use of its Spanish 5G bands

Telefónica awarded a contract for its Spanish 5G radio network to Nordic duo Nokia and Ericsson for the frequency bands 3.5GHz and 700MHz.

The Madrid-headquartered mobile and broadband operator said that Finnish giant Nokia and Sweden's Ericsson would share usage of the frequency bands equally until 2026. However, there will be no changes to each network's geographical distribution.

Spain's Telefónica said the move would allow it to focus on improving its standalone 5G offering.

"It's a long-term contract, which is the most appropriate scenario for Telefonica as it maintains 4G providers in place and gives us stability to roll out and develop 5G," Telefónica's head of operations and network Joaquin Mata said in a statement.

"In 5G, all the providers have demonstrated they're supremely prepared... and we feel very comfortable having the best technological partners."

The 700MHz band will be up for grabs before the 21st July, in a twice-delayed auction in which operators Orange, Telefonica, and Vodafone have all expressed interest.

The contracts include the possibility of the Scandinavian operators expanding current 4G services or migrating to 5G depending on their needs.

Meanwhile, Telefónica is spinning off its fibre business in Colombia and has agreed to sell a majority stake to KKR, shedding US$200 million off its debt pile in the process.

Earlier this year, the operator sold off fibre assets in Brazil and Chile via similar co-investment models.

KT fined for slow internet

South Korea's telecommunications regulator fined telecom giant KT ₩500m for providing internet services that were slower than what users had been promised.

A joint investigation by the Korea Communications Commission and the Ministry of Science and ICT, found that KT erroneously set speeds for 24 of its high-speed internet service users, leading to slower-than-expected speeds.

The operator also frequently did not conduct speed tests when opening new internet services. Where it did, there were numerous cases in which speeds did not meet the minimum limit.

KT was the biggest offender with 24,221 cases, compared with LG Uplus. at 1,401 and SK Telecom and its subsidiary at a combined 155.

Local internet service providers are required to notify users of such matters prior to opening services.

Moreover, the regulator said it would fine KT a combined ₩500m for the violations, while others were ordered to take corrective measures.

The move comes after a South Korean tech YouTuber accused KT earlier this year of providing slow internet service speeds, prompting the government investigation.

Australia's Telstra to sell 49% of tower business for A$2.1bn

Australian telco Telstra said it will sell a 49% stake in its mobile tower business for A$2.1bn and return half the sale proceeds to investors, sending its shares to their highest level in over a year.

A consortium of Australia's sovereign wealth Future Fund and pension funds Commonwealth Superannuation Corp and Sunsuper would buy the stake in InfraCo Towers, Telstra said, in a deal valuing the entire business at A$5.9bn.

The deal would allow Telstra to focus afresh on its retail business after years of costly competition in infrastructure with its ageing poles and wires pitted against the state-owned broadband network, analysts said.

Telstra shares jumped 5% to A$3.78 after the announcement, their highest since February 2020, while the broader market was up 0.6%.

The operator has been looking for a buyer for InfraCo, the largest mobile tower infrastructure provider in Oz, since November last year when it split the business from other operations.

Telstra will retain majority ownership and continue to own the active parts of the network, including the radio access equipment and spectrum assets. It has entered into a 15-year agreement with InfraCo to secure ongoing access to existing and new towers.

Telstra chief executive officer (CEO) Andrew Penn said the details on how 50% of the proceeds would be returned to shareholders would be disclosed at a later date and flagged a potential buyback with the company's annual results in August.

The remaining proceeds would be used for debt reduction and enhancing connectivity in regional Australia, Penn said.

Future Fund CEO Raphael Arndt said the investment would strengthen the fund's exposure to digital infrastructure as Australia increasingly moves towards 5G.

Saudi Arabia gives licences to expand mobile telecom services

Saudi Arabia awarded licences to two new mobile virtual network operators (MVNOs), bringing the total number of mobile telecom companies operating in the kingdom to seven.

The new companies to be given the licences, after winning a competition announced by the Communications and Information Technology Commission (CITC) in February are Integrated Telecom Mobile Company (ITC Mobile) and Future Networks Communications Company.

In 2014, CITC awarded the MVNO licences to Virgin Mobile KSA and Etihad Jawraa.

CITC governor Mohammed Al-Tamimi said that licensing MVNOs comes in line with the plan to stimulate the investment environment for Saudi Arabia's telecom sector.

"At CITC, we aim to enhance the level of competitiveness in the sector, and improve user experience, by facilitating additional service providers," he said in a statement published by Saudi Press Agency.

Al-Tamimi also said telecom service providers are important partners in transforming Saudi Arabia into a digital society, which is a key component of Vision 2030.

Companies awarded MVNO licences can provide users with services, including voice calls, internet, SMS, voicemail, media services and more, without owning any towers or frequencies.

The provision of these services depends on the MVNOs renting or purchasing capacities from service providers with infrastructure and then providing services to subscribers.

Starlink secures 10-year operating permit in Mexico

Starlink, entrepreneur Elon Musk's wireless satellite internet service, finally received authorisation to operate in Mexico for 10 years.

It will run from October 28, 2021, when users in the north American country will be able to start using the service.

Starlink Satellite Systems Mexico lodged its request with the Federal Telecommunications Institute (Instituto Federal de Telecomunicaciones, IFT) April 2 this year and received its licence May 28. As per the terms of its licence, Starlink must be operational within 180 days.

The 10-year concession is extendable for a further ten years, said the Low Earth Orbit (LEO) satellite broadband provider. Mexico will offer a 1 Gbps browsing speed, which Starlink said is an ideal service to be used in rural areas, where there is little or no telecommunications infrastructure.

The company already offers service plans in the US, for a US$99 monthly fee and with browsing speeds of 1 Gbps.

However, the company guarantees that in the future the quality of its service will improve drastically so that its connection speed will increase up to 1Gb.

According to reports, Musk's satellite internet company could offer global coverage starting in September.

Centro Histórico, Mexico City

Q&A

David Lotfi
CEO
Evina

What was your big career break?

In 2015, the rise of Bitcoin was all everyone was talking about. What was less apparent at first was the upsurge in cybercrime that came with Bitcoin. Before the dawn of this new digital currency, cybercriminals couldn't easily obtain money from the crimes they committed. They had few places where to safely launder the stolen money and oftentimes their crimes could easily be traced back to their bank accounts. Via Bitcoin, cybercriminals were able to create a real business model and profession out of cyber fraud. The digital ecosystem wasn't dealing with individual fraudsters anymore, but with organized groups of professional hackers. To confront this new reality, the good guys had to act fast and create solid cybersecurity teams that knew how to deal with this malignant generation of hackers. Bitcoin was at the same time a blessing, for the growth opportunities it offered, and a curse for the horde of fraudsters lured by the prospect of easy profits.

At the time I was providing my expertise in mobile payment to market players, and I knew that I wanted to be part of the new cybersecurity scene and join the fight against fraudsters. My wish was that these new growth opportunities created thanks to the Internet could benefit everyone and not be hindered by fraud.

This is how I entered the world of cybersecurity and why I became a cybersecurity expert.

Who was your hero when you were growing up?

I loved the manga Berserk, whose main character and hero is Guts, a human. He constantly has to fight off hordes of demons who are growingly vicious. A bit like fraudsters themselves, might I say. Guts lives in a world where there aren't enough rules that protect citizens and where the strong prey on the weak. He refuses to accept this kind of world and the destiny that is given to him, which is why he does everything in his power to grow as strong as he can so that he can protect what matters most to him and change his destiny. I admire his tenaciousness and his strength of character to fight for what he believes in.

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

That every crisis is an opportunity in disguise. I've found this to always be true. In particular, when a company is affected by fraud it's not all bad news. It's an opportunity for the affected company to grow technologically and change the way it operates, and therefore gain a competitive advantage over its competitors.

If money was no object, where would you live?

Mars! I love everything that has to do with space and technology. The conquest of space is a daring challenge for humanity. I'm a firm believer that human ingenuity can overcome all the greatest problems and challenges humankind will face, including this one. This belief is what drives me every day. Mars makes me dream big and the fact that humans will have to do the impossible to one day live on Mars is mind-blowing.

Yet our quest for Mars is also a reminder that the planet Earth on which we currently live is fragile and unique and for as long as possible, it is our duty to protect it. Just as it is my duty to protect the vulnerable mobile ecosystem from fraud.

What would you do with US$1m?

I would use the money to create a fund for mobile fraud awareness. The first step to fight fraud is to educate: educate users and companies on how to recognize and overcome fraudulent attacks.

I believe that today there aren't enough organizations that tend to this matter, while fraud is everywhere and it's merciless. In fact, companies often underestimate the impact fraud can have on a business, due to a lack of time, budget and/or information, which explains the growing cybersecurity debt.

This debt is shared with all companies that have not addressed the security question and results in increasingly high fraud rates, complaint rates and churn rates. These are the figures that will pop out to the companies at first sight, yet the damage is much deeper for it affects the overall revenue and brand image of the company.

It's important to be proactive in fighting against fraud. The big players are those that need to educate themselves and apply the best practices against fraud so as to set an example. By implementing the right anti-fraud solution they will secure their traffic flows and consequently secure the users.

Even if users are very careful about when they download and where they click, there will always be fraudsters who are capable of deceiving them because they are professional cybercriminals. That's exactly why it is the responsibility of other professionals, be it payment operators, merchants or aggregators, to protect their users. And for that to take place, the first step is to understand what fraud is and how it works.

Which law would you change?

In this same realm, I would instate a global legislative system to fight cybercrime. This would mean stronger international coordination and harmonized regulations between countries to be sure that fraudsters don't slip through the cracks.

This is extremely important as I mentioned before, we are now dealing with organized criminals that are betting on mobile payment and are investing in hackers to do the dirty work. Cybercriminals worldwide have a lot of tricks up their sleeves and they have the resources to make their wishes come true. This is why we need the best cybersecurity solutions along with foolproof laws that fight mobile fraud.

What advice would you give to someone who wants to enter this industry?

That entering the cybersecurity industry is a great choice. We need more ambitious people to tackle all that there is to do to make cyberspace healthy and prosperous for all the market players involved. It's also crucial to remind them that cybersecurity is key to the prosperity of the internet, which means that each and every of their action towards fighting fraud will have an impact on all online players.

So stay motivated and determined through all the challenges that are bound to come your way by keeping the main goal in mind: to make things shift for telcos and mobile payments. Step-by-step we'll be able to change things together.

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

Without a doubt, I'd be a Judo teacher. I'm a black belt and I highly encourage my children to practice Judo. This art has taught me a lot about how to face life and has contributed to making me who I am today.

When you teach kids how to properly defend themselves, they naturally become more confident when encountering life's challenges and generally become happier human beings. It's exactly like giving players the right tools to fight fraud. They want to grow and need the right tools to do so confidently so that they can develop a strong business and concentrate on increasing their revenue, instead of constantly trying to fend off fraudsters with the wrong weapons.

What do you want to do when you retire?

I would like to provide my years of experience and knowledge in this industry to the new generation of ambitious entrepreneurs that want to create a better and safer world. Human ingenuity will be our savior in all future challenges we'll encounter. We just need to inspire the new generation to stay focused and motivated to continuously find new solutions. ■

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