CRITICAL COMMUNICATIONS: INTRODUCTION

chapter Critical Communications



Ken Rehbehn, principal analyst, CritComm Insights

A new era for African critical communications

Across Africa. the ever-evolving critical communications technology sector plays a vital role in helping keep citizens safe and industry efficient. In our challenging latepandemic times, the need for these narrowband and broadband wireless systems has never been greater. Unfortunately, the barriers to deployment have also never been higher. Evolving standards, nascent 5G deployments, supply chain disruption, and a turbulent global economic picture create a complicated landscape to navigate.

But signs of progress are visible as Africa's nations embrace 5G for advanced communications. New 5G networks are taking shape in major metropolitan areas of Botswana, Tanzania, Nigeria, South Africa, Kenya, and others. These networks complement existing LTE networks and offer high-speed internet that can enhance the delivery of emergency services. An excellent example of 5G benefits comes from Orange Botswana's partnership with MRI Bostwana. The joint Connected Ambulance project leverages 5G to deliver prehospital medical guidance to field paramedics.

For rural areas, high-power analog VHF radio systems remain unchallenged for reliable and ubiquitous coverage over the landscape. Limitations on LTE and 5G device transmission power make these areas very difficult to cover profitably. Though 5G holds tremendous promise for public safety enhancements and industrial growth, more straightforward narrowband push-to-talk technology remains Africa's mainstay of operational communications.

Professional Mobile Radio (PMR) solutions delivering DMR or TETRA radio technology in urban areas around Africa will remain a foundation for push-to-talk coverage for years to come. Network operators can select an approach matching the organization's requirements and budget with various DMR options, including simple unlicensed digital, licensed conventional, and sophisticated licensed trunked systems. Some nations embrace standardized radio technology for sensitive government network operations emphasizing security and confidentiality. The global TETRA standard holds particular appeal thanks to a rich interoperable network and device ecosystem. Even Project 25, a radio technology found mainly in North America, has gained traction in Africa with the recent deployment of Senegal's emergency services communications.

Governments, however, look forward to a future when they can retire dedicated public safety networks by moving to commercial LTE or 5G services that offer Quality of Service, Priority, and Pre-emption (QPP). For Africa's regions that enjoy robust LTE coverage, a move towards standardized push-to-talk over cellular with 3GPP Mission-critical Voice. Video, and Data (MCX) could serve as a path forward for enhanced secure communications serving public safety operations. And for the most optimistic believers, MCX is a foundation for an African technology leapfrog that could occur as legacy analog network transitions skip digital trunking technology and jump directly to broadband.

Yet the slow Public Safety Broadband Network (PSBN) progress across Europe suggests Africa will not be able to move quickly. Europe continues to await compelling MCX device form factors beyond the smartphone. Specifically, devices incorporating practical solutions for back-to-back direct mode operations are essential for emergency services when the LTE network is unavailable. The gap remains because LTE devices are subject to strict output power limitations that keep power at far lower levels than analog or digital trunked systems. For an isolated firefighting team in the lower levels of a large building, an LTE device lacks the power to transmit a signal to a nearby vehicle. The solution rests in hybrid devices that combine LTE MCX and legacy DMR/TETRA DMO radio technology in a single device. Unfortunately, those devices are tough to find on the market.

Beyond device availability, regulatory hurdles and network build-outs make rapid progress in Africa a tall order. Regulators across the region have yet to establish a regulatory framework supportive of higher classes of service for the emergency services. In many nations, mobile network operators cannot create service offers for the government without a legal basis for services incorporating QPP capabilities. In addition, a shift from legacy PMR systems to LTE MCX demands a dense LTE cell site grid that delivers consistent ubiquitous service to devices in all populated areas. Of course, that grid must be supported by high-performance backhaul over microwave and fiber links.

In the future, low Earth orbit (LEO) satellites may provide a workable foundation for an African leapfrog move. Several early LEO platforms already claim success in terminating mobile cellular connections from off-the-shelf LTE terminal equipment. The density of these LTE constellations can provide the rural reach MCX requires before legacy analog PMR technology can be retired. The technology is promising and may prove the optimal path forward. Non-Terrestrial Networks (NTN) Standards developed in 3GPP will extend satellitebased functionality to 5G New Radio (NR) technology, opening up powerful capabilities supporting moving platforms.

Regardless of technology choices, wireless communications remain a vital fabric of society. Advances in LTE, 5G, and satellite technology promise benefits that will make African communities safer and their industrial activities more efficient. In 2023, this future will come into focus.

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Ildefonso de la Cruz Morales, principal analyst, government & manufacturing critical communications, OMDIA

Critical communications in Africa

In recent years, we have witnessed the soaring number of emergency incidents across the globe. The increasing frequency and magnitude of these disasters not only have devastating effects for the safety of the population but also dire consequences for the nations' economic stability.

The main purpose of a critical communication system is to provide its users with robust, reliable, and secure mechanisms to exchange useful information in case of crisis to help resolve emergency incidents in the most efficient and effective way possible.

When dealing with a crisis, and even with routine troubleshooting, minimizing the response time is of the essence to avoid potentially catastrophic consequences. Critical communications are not strangers to transformation. To guarantee services under any circumstances, critical communication systems need to be constantly evolving and adapting to the threats that could compromise their operations.

The perfect example of this evolution is the digital transformation of the critical communications industry from analogue systems. Analogue radios provide affordable, long-distance voice services and have proven themselves effective in countless deployments around the world. However, analogue technology reached the limits of innovation and started experiencing slower growth in terms of end-user adoption from the late 1990s.

OMDIA forecasts that this slow migration to digital will continue, especially as newer cost-optimized digital technologies gain a competitive advantage through cost efficiencies and suitability for business-critical end users. OMDIA predicts that by 2025, more than 80% of the global critical communication radio installed base will be digital. In particular, the Middle East and Africa (MEA) region is expected to continue to adopt digital communications technology, and by 2024 it will be one of the most digitized regions in the world, with more than 95% of its land mobile radio (LMR) users converted to digital.

decades. critical For communications have relied on digital narrowband frequency spectrum and focused on providing reliable, secure services to support essential voice communication needs in case of emergency. Different LMR systems have been developed and implemented globally which has directly addressed the demanding voice communication requirements of mission critical user groups. Among these LMR protocols, different technology standards can be found, from highend terrestrial trunked radio (TETRA) and APCO Project 25 (P.25) to a group cost optimized digital



technologies (CODT) that include digital mobile radio (DMR), and police digital trunking (PDT) protocols among others. These have become indispensable tools for emergency responders to enable high quality voice communication even under extreme situations, where other commercial communication systems would fail.

The MEA region consists of a diverse range of countries with economies at different stages of development. This diverse range of very poor to extremely wealthy nations results in a similarly diverse range of LMR requirements and available budgets for such equipment. MEA has particularly favourable conditions for growth in the communications market because sub-regions rich in natural resources are faced with security concerns, making critical communications more important.

The increasing economic diversification of the region and the requirement for public safety and security provide strong market drivers for a robust communications infrastructure; the largest adopter of LMR technology in MEA is the PSS sector, which accounts for more than 60% of all critical communications users.

In particular, the African market has been historically divided between countries which are rich in natural resources and those that are relatively poorer. The wealthier nations have opted for TETRA, which offers public safety authorities a rigorous security feature set along with a competitive and interoperable device ecosystem. On the other hand, the cost efficiency of cost-optimized digital solutions like DMR has appealed to the cost-sensitive parts of Africa looking to replace their legacy analogue systems with a simple but effective digital solution. For example, DMR is well-suited to open geographic regions, making it an ideal communications solution for police forces in Uganda, Ethiopia, and Tanzania and for other PSS organizations such as port authorities in Kenya and Tanzania.

Worth noting is the increase anticipated for PDT technology. Via foreign direct investment, PDT is being used sporadically across the region and is expected to continue in low volume but high growth across the forecast period. The African market for LMR terminals was particularly buoyant last year, with doubledigit growth rates seen in the technology deployments of cost optimized digital solutions and TETRA terminals, surpassing deployments in the Middle East.

With the increasing complexity of the world today, critical communication systems are forced to continuously adapt, evolve, and optimize their services to remain ahead of all potential threats. In addition to voice applications, which remain essential to critical communication users, there are growing requirements to enhance the current capabilities with data-centric features and multimedia services. Critical communication technology is looking to pivot on data and video to enhance the vital situational awareness of users with multimedia applications like location-based services, real-time video group communications, and critical data sharing.

As a result of the unprecedented advances of cellular connectivity unlocked in the last decade, critical communications systems are moving towards the adoption of mission critical broadband solutions. The evolution toward critical communication broadband systems has caught the attention of many governments for their national critical communication networks. Countries around the world find themselves at different stages of the LTE adoption process for their PPDR networks led by South Korea's SafeNet, the United States' FirstNet and other European initiatives in the UK, Finland, and France. It should be noted that MEA has also

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been an early adopter of LTE technologies with early deployments in Saudi Arabia, Qatar, UAE, Ghana, Kenya, and Nigeria.

However, the concept of broadband national critical communication networks has been met with caution and some reluctance by government decision-makers, who aim to reconcile the need for advanced critical communications with their challenging geographies, unique economic situations, spectrum, and regulatory limitations. In Africa, there is an uptake of private LTE networks beginning to gain pace, with network initiatives that started in Ghana, Kenya, and



Amy Saunders, editor, African Wireless Communications Yearbook

Satellite: enabling critical communications

Reliable, assured, always-on connectivity is essential for the provision of critical communications the world over. Many sectors – oil and gas, mining, transport, utilities, government, defence, emergency services, disaster recovery etc. – rely on wireless communications for their smooth operation every day.

The remote and rural locations that can typify these sectors mean that terrestrial solutions like cellular and fibre may well not deliver adequate speeds or any coverage at all at operation sites. Offshore wind farms, shipping, oil and gas production facilities and mining operations, to highlight just a few, perfectly exemplify remote and rural working environments where reliable communications are an absolute must for business continuity and staff safety. Meanwhile, first responders for natural disasters, Nigeria, and recently expanded in Egypt, Cote D'Ivoire, and Cameroon among others.

It is becoming clearer that the future of African critical communication systems is taking a hybrid shape. Critical communications will maintain LMR technology that offers reliability mechanisms and a wide variety failsafe options for critical of voice communications enhanced by the adoption of broadband bubbles will foster situation multimedia awareness. communication. interoperability, and collaboration within a hybrid critical ecosystem.

emergency healthcare and criminal activity also rely absolutely on wireless communications for exchanging real-time information.

Research And Markets reports that the Middle East and Africa (MEA) mission critical communications market is expected to expand from US\$1,175.96 million in 2022 to US\$1,876.11 million by 2028, a compound annual growth rate of 8.1%.

A wide range of enterprises have come on board with the progressive shift towards Industry 4.0 and IoT technologies for essential operations. Remote monitoring and maintenance of facilities, factories, networks, crops, and herds, for example, has brought about greater efficiencies and profit the world over, and has now become mission critical. This wave of digitisation has been a major driver for the critical communications market globally and especially in Africa, where the growth in wireless technology penetration – internet, smartphones, tablets, etc. – is advancing enormously.

The critical communications market has also received a boost from the COVID-19 pandemic. With non-essential businesses closing down intermittently for lockdowns across the globe, the only organisations operating were those delivering essential services i.e. utilities, food production, essential retail, goods shipping, healthcare, emergency services, public sector, and so on. To limit the spread of the virus. workforces were cut to the bare bones and social distancing instilled. The application of wireless connectivity for critical communications was hugely beneficial, helping drive demand and boosting the market. Moreover, with nonessential services halted and supply chains severely hindered, manufacturers within the critical communications sector saw R&D and new product lines stopped in their tracks. While congested trade routes and chip shortages remain a challenge, the market is bouncing back following the previous years of instability.

Turning to space

Satellite has long been considered a leading technology for delivering mission critical communications. With fully global coverage on land, in the air, and at sea, and full resiliency to disruptions that negatively impact on terrestrial services (fibre and cell towers being affected by infrastructure damage from natural disaster, war, etc.), it's hard to argue against satellite for critical communications use cases.

The last two decades have been a golden era for satellite technology advancements, particularly in the communications segment. VSAT technology has become widely utilised for remote, rural, and mobile communications terrestrially, on ships, and on airplanes. Small satellites and CubeSats have lowered the cost of entry to space, opening up new applications, and enabling the testing of new technologies like space based IoT, at reduced expense. Conversely, high throughput satellites (HTS) are now able to offer massive onboard capacities some 100 times larger than conventional geostationary satellites by utilising beam forming and frequency re-use. Access to lower orbits – medium Earth orbit (MEO) and low Earth orbit (LEO) have enabled the advent of small satellite constellations, which promise to help bridge the digital divide and connect the unconnected, with the added bonus of lower latency than satellites in geostationary orbit.

As satellite numbers and capacity have increased and technology matured, cost per bit has fallen, allowing new industries that were previously priced out, notably agriculture, to start using satellite communications.

African critical communications - via satellite

According to the Union of Concerned Scientists (UCS), as of December 2020, there were 3,372 active satellites in orbit, with 1,283 new satellites launched that year. Most of those satellites, some 1,832, were for communications; 906 were for Earth observation; 350 were for technology development and demonstration; 150 for navigation and positioning; 104 for space science and observation; 20 for Earth science; and 10 for 'other purposes.'

Meanwhile, the latest Space in Africa report values the African space economy at US\$19.49 billion in 2021, expected to expand at a CAGR of 16.16% to US\$22.64 billion by 2026. The African space economy continues to grow at a faster rate than its GDP and is actively contributing towards the Sustainable Development Goals. African nations allocated \$534.9 million to national space programs in 2022, a 2.24% increase year on year. Government contributions increased by 80.83% year on year in 2021 to \$523.2

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million. The satellite communication market – comprising fixed satellite services, mobile satellite services and satellite TV – accounts for a major share of the market. However, remote sensing, particularly for agriculture applications, are booming.

Africa has historically had low involvement in the satellite industry as a developing continent. The country gained its first satellite. SunSat-1. back in 1999 via South Africa. Today, Egypt tops the African satellite sector with nine satellites in orbit, followed by South Africa with eight, Algeria with seven, Nigeria with six, Morocco with three, Angola with two; Ghana, Sudan, Ethiopia, Kenya, Rwanda and Mauritius each have one satellite. At the time of writing, Uganda and Zimbabwe were preparing to launch their first satellites PearlAfricaSat-1 and Zimbabwe's ZimSat-1. South Africa is also preparing to launch a new satellite to expand national broadband connectivity, connecting government sites, communities, and consumers. There are an additional three satellite multilateral projects, two launched under agreement with the Regional African Satellite Communication Organisation, which are the first African satellites covering the entire continent; the third multilateral project is NewDawn, built for Intelsat and Convergence Partners.

Of the 40+ African satellites currently in orbit, very few were designed, manufactured, and assembled in Africa and led by African states. However, Nigeria, South Africa, and Egypt are all developing infrastructure for assembly, integration, and testing of satellites, and Algeria has established its own Center for Satellite Design (CDS).

Looking to further advance the continent's longer term modernisation goals, the African Union's Agenda 2063 framework includes 15 flagship projects. Project 11 – Africa Outer Space Strategy – details the use of satellite technology for critical communications applications like banking and finance, defence and security, remote sensing, disaster management, agriculture, etc.

However, other projects among the 15 will also rely on Africa having a strong grounding in space: the Integrated High Speed Train Network, which will connect all African capitals and commercial centres, will require satellite communications. weather forecasting. for navigation and location services; as will the Single African Air Transport Market, which will connect major cities in Africa. The Pan-African e-Network, which aims to achieve transformative e-applications and services: the African Virtual and e-University; the African Commodities Strategy; and Cybersecurity projects will also be positively impacted by an expanded space presence on the continent.

Agenda 2063 and other digitisation initiatives promise to deliver home-grown advancements across the economy and satellite has a huge role to play. Moreover, advancing national satellite capabilities will help ensure independent, secure access to continent-wide critical communications services, as well as promoting digital advancement and economic growth.

The world is at an unstable point right now, amidst rising geopolitical tensions, climate change, increased natural disasters, the ongoing COVID-19 pandemic, antibiotic resistance, rising cost of living, global shortages of food and manufacturing materials, and so on. It's essential that all countries future proof themselves technologically to safeguard their citizens, economies, and businesses from potential turmoil. Critical communications are vital for a huge range of government, business and consumer applications, and satellite remains at the forefront of enabling them.



Bryan Raath, sales & business development -Southern and East Africa, secure land communications, Airbus

irbus Secure Land Communications teams have been preparing our development strategy for emerging markets throughout the Middle East and Africa markets for over 12 months now.

The initial step is in place with the placement of a local representative who understands the complexity of the market as well as the potential it holds. I am pleased to say that we are now positioned to better understand customers' needs and react in a more efficient manner.

Several key issues can be identified within both the private and public sectors. Budget availability within the public safety sector slows the progression and adoption of technology within mission critical environments and maintenance on legacy systems which are fast becoming outdated can no longer be supported.

Another caution we have raised within the market is the requirement for training and/ or workshops, enabling end-users with the knowledge base and expertise to select the fit-for-purpose technology suited to their operational policies and user requirements. "Budget availability within the public safety sector slows the progression and adoption of technology within mission critical environments and maintenance on legacy systems which are fast becoming outdated can no longer be supported. "

End-users within both public and private sectors are looking to enhance their operational environments through the adoption of data driven applications. These applications are designed to drive operational efficiency, improve security and enhance realtime situational awareness in promoting multiagency collaboration between networks, third party applications and users in first responder situations. Our Tactilon Agnet collaboration platform answers these needs perfectly.

Our core focus has always been on the development and deployment of critical communication infrastructure and solutions to our end-users. We will continue this trend in developing user specific applications and services as broadband networks become more available and spectrum availability in the region for private or public entities is segregated.

Looking ahead: My view of the previous two years is that the market was given time to identify the challenges, which has afforded sufficient time to research newer technologies to address current challenges as well as future requirements. Key discussions are progressing from research to planning to budget allocation and we may well see an influx of opportunities being released by the public sector within the next year. It's an exciting time - the mission-critical communications industry is evolving, and the user requirements are becoming more complex and interesting!



Mandla Booi, sales, Africa Radio Distributors

ver the last twelve months, we have seen an increase in the spending by businesses throughout Africa. It seems that there has been a lot of pent-up demand due to the COVID-19 pandemic and businesses have released some funds to meet that demand. This has been especially true for private sector customers.

The biggest challenge faced in meeting the increased demand has been the lack of stock. The components required for manufacturing electronic products have been very scarce and therefore have created a situation where we can't meet the existing demand for equipment.

In some areas, government spending has decreased significantly due to budgets being reallocated to other pressing public health needs brought on by the pandemic. Some projects have been delayed and others cancelled due to the reallocation of funds, and we now must wait for new budget allocations for the delayed or cancelled projects.

With the world exiting the pandemic and more budgets being allocated, there are good opportunities in the public sector, which is the biggest spender in most countries, and increases economic activity with spending on big infrastructure projects. The public sector will allocate and spend funds in big infrastructure projects and there are opportunities that will come with that spending.

The most common trend over the last year has unfortunately been the shortage of semiconductors used for electronics equipment. This shortage is mainly due to the big demand of electric vehicles around the world. Typically, an electronic piece of equipment uses between 300-500 semiconductor-based chipsets. A typical electric vehicle uses around 3,000 of the same or similar chipsets. Most electronic goods manufactures are now competing with vehicle manufacturers for these chipsets in the open market in bidding wars. The vehicle manufacturers are in most instances the winner in such bidding wars due to their larger wallets.

This shortage has forced manufacturers to redesign existing products and remove the problematic components. The manufacturers that have been quick to redesign their products are the ones who are gaining market share in the electronics space.

Our focus going forward is to keep close to customers to make sure that we are still relevant when the situation normalises. The fact that most original equipment manufacturers are facing the same challenge means that alternatives are difficult to come by. Strong customer relationships will stand us in good stead for when the industry returns to normal.

Looking ahead: The belief in the electronics industry is that the supply constraints will persist until the demand for electric vehicles tapers down or there is an increase in semiconductor production capacity.

The current forecasts are that the semiconductor

shortages will persist until the end of 2023 and hopefully start to normalise beginning of 2024. The business environment will be impacted by this and as things stand supply will continue to be a challenge.



Mark O'Connell, general manager for EMEA & APAC, Globalstar

he last 12 months have seen continued growth in Africa.

We've seen satcoms adoption from groups in wildlife preservation, as well as lone worker and site safety. There is now a major requirement for satcoms and asset protection in a range of contexts. Globalstar technology (SPOT Trace) is being deployed in African National Parks to monitor operational vehicles, while SPOT devices are safeguarding conservation workers.

Alongside our value-added reseller in Africa, Wintec Solutions, we've seen our technology deployed for animal tracking. Super lightweight Globalstar solar-powered tracking tags are being used to monitor wildebeests, cheetahs, elephants, and vultures to monitor their migration. Meanwhile, Globalstar satellites are enabling reliable safety and vehicle tracking during wildlife-tagging operations.

Awareness of satcoms to support critical communications continues to see strong growth. Globalstar is helping governments track and protect people, equipment, and vehicles, even across remote areas with little or no alternative telecoms infrastructure. Humanitarian organisations providing relief in Africa continue to trust SPOT to ensure the safety of personnel. Governments also trust Globalstar to help optimise their military vehicle fleets. SOS functionality and satellite pushbutton operation are increasingly becoming staff welfare policy within both governmental and NGOs.

Satellite IoT has become a buzzword. Companies across Africa have recognised how satellite-IoT data, delivered via satellites and advanced ground stations, can improve business operations, and manage costs. New low-cost highly capable satellite enabled tracking solutions are helping African businesses with a range of applications from fleet management, asset optimisation to worker protection.

Globalstar is involved in a deployment in the mining industry in which SPOT devices are providing safety to workers as they carry out hazardous roles. Meanwhile, ambulances fitted with SPOT Trace are helping ensure that on-site medics can rapidly provide emergency help to where it is needed. In oil and gas, in addition to vehicle management, Globalstar satellite IoT technology is helping providers and partners to monitor pipelines across vast, barren areas, delivering critical data on oil or gas flow, pressure, etc.

Looking ahead: Satellite IoT will continue to drive development forward everywhere, including in Africa.

With fuel prices increasing, air costs remaining unstable post-pandemic, amid general economic challenges, companies are keen to employ technology to help improve operations and reduce costs. There will continue to be greater understanding that reliable, always-on satellite connectivity is required for data networks to operate without interruption.

Across sectors, data enabled by satellite-powered

communications will increasingly aid business decision-making and projects leveraging satellite IoT will proliferate. We believe that more OEM manufacturers will recognise the value of reliable satcoms and integrate it into their platforms.

Importantly, with the creativity and abiding customer focus of Globalstar's specialist technology partners, we'll see continued innovation as they invent new solutions that meet the needs of organisations and people in Africa.



Mark Zheng, director, Hytera Southern Africa

ytera's ever-growing team across Africa has continued to work hard to help our customers and partners to achieve their goals.

As a key player in the professional communications market, Hytera offers one of the most comprehensive product portfolios consisting of digital mobile radio (DMR), push-to-talk over cellular (PoC), and terrestrial trunked radio (TETRA) series radios, body cameras, and accessories.

However, we have moved on from our roots as a device provider and are now providing complete network solutions.

We have customers in Africa across multiple vertical markets including public safety, utilities,

"More and more African

organisations concerned with public safety are either building and renovating their networks or migrating to new technologies. Instead of simple networks, they want their network to be integrated and converged consisting of multiple technologies, which is exactly where Hytera excels. " mining, oil and gas, emergency response, hospitality, private security, facility management and transportation, among others.

We have a proactive programme of exhibitions and conferences, seminars, and forums to demonstrate our capabilities to current and potential new customers and partners across the African continent.

This year the region experienced a lot of challenges including pandemic recovery, national load shedding in South Africa, high oil prices and inflation, currency depreciation, as well as supply chain issues. This resulted in a shortage of funds, delayed projects, longer delivery times and slower technology adoption. All these challenges add up for most companies regardless of their sector in Africa. For Hytera, our biggest challenge is exceeding the expectations and requirements of our customers.

More and more African organisations concerned with public safety are either building and renovating their networks or migrating to new technologies. Instead of simple networks, they want their network to be integrated and converged consisting of multiple technologies, which is exactly where Hytera excels. They are looking to improve efficiency, boost productivity and reduce costs by digitizing their operations, especially communications systems.

Hytera can do this. For example, we implemented a state-of-the-art command and control center for one municipality to help them fight crime and improve efficiency. There are similar projects across Africa where we are working with public safety officials to improve the way they do things.

A few years ago, broadband seemed to be the buzz word for critical communications and many people believed that broadband technologies like LTE would ultimately replace narrowband. However, we can see that this is not happening in Africa on a large scale. Commercial customers in

the urban areas where MNOs have good coverage are attracted more and more to PoC (push to talk over cellular).

Meanwhile, mission-critical customers like public safety and utilities are continuing their investments on narrowband like TETRA or DMR, but also have a growing need for video capturing and transmission, data applications and other value-added features.

Considering this, we at Hytera are seeing more and more customers embracing a converged solution that includes TETRA or DMR radio, converging MCS, body worn camera, computer aided dispatch (Hytera Integrated Command and Control Solutions), CCTV, analytics, etc.

MCS stands for mission critical service, a 3GPP standard application based on an MNO's broadband network. This offers quality of service (QoS) for customers, similar to what the UK and US has been doing with Firstnet, an emergency service network which is the first nationwide public safety broadband network, services and solutions dedicated to first responders and those who support them.

This converged ability is what customers in Africa have been dreaming of - and will be in high demand.

Our focus in the region will be on how to help more and more customers benefit from the technologies that Hytera has been promoting and their integration, which makes our life and security in Africa even better. We will listen more carefully to our customers' requirements and develop the "A few years ago, broadband seemed to be the buzz word for critical communications and many people believed that broadband technologies like LTE would ultimately replace narrowband. However, we can see that this is not happening in Africa on a large scale. "

products and solutions that they need in this region, which sometimes is quite challenging.

We have launched a new partner programme to recruit more distributors, resellers, and system integrators across the African region, and empower them to scale up profitability in existing markets as well as expand into new ones.

The program includes benefits in sales incentives, financing terms, joint marketing, aftersales services, and manufacturer-assigned leads. In addition, the Hytera Partner Enabling Plan aims to give businesses an additional competitive edge by ensuring each partner meets a global quality standard. High standards matter for professional communication users, as they must be able to rely on their communication equipment to help them conduct their daily operations more efficiently, productively, and safely.

Looking ahead: In my eyes, Africa has always been full of opportunities and challenges.

I see more hope and opportunities than difficulties here regardless of the circumstances.

We live in a world of competition. My belief is that we should keep providing the most competitive products to benefit the African continent. Continuous innovation, cost-effectiveness, faster delivery, intelligent convergence, etc. is what Hytera will continue to offer.

We are confident Hytera will continue to grow, and invest, across Africa.



Uwe Niske, sales director, SSA, Motorola Solutions

e have seen growing demand for our highly secure and robust mission critical communications systems and technology across many parts of SSA over the past 12 months. Public safety agencies and government organisations are responding to safety and security challenges by modernising these critical networks.

Beyond providing secure and resilient communications, these upgrades are also supporting the growing need for emergency services to communicate and interoperate together in response to major emergencies. Whether responding to natural disasters, cross-border crime and other major events, agencies including police, fire, ambulance services all benefit from communicating together to deliver a safer and better

"It's clear that public safety and emergency service organisations are grappling with some big challenges. From doing more with constrained budgets and resources, responding to complex and unpredictable events and the continuing need to modernise technology." coordinated response.

The past 12 months has shown that cybersecurity continues to be a major challenge all over the world and SSA is no exception. Public safety and government organisations have always needed access to highly secure and trusted mission critical communications and that demand will continue. Now, the complex nature of public safety is driving the adoption of a broader mix of broadband and software technologies.

Agencies need to be able to extend the reach of their mission critical communications across jurisdictions and to other agencies and individuals, they need video security, analytics, and Al technologies to help identify potential threats and they need advanced software to work more safely and efficiently in the field and the control room.

To work more effectively, public safety agencies not only need all of these technologies to integrate and work together seamlessly, but they also need their entire technology ecosystem to provide the same level of safety and security as their dependable mission critical communications solutions have always delivered.

I think video security and analytics technologies will play a major role in helping SSA reach its future ambitions for public safety. We are already seeing some local agencies invest in body worn video cameras to protect their frontline personnel while helping to increase transparency in all their interactions with the public.

Mobile video cameras in police cars and other operational vehicles are also helping to keep officers and citizens safe while helping control room workers to maintain eyes on the scene by broadcasting live footage.

Fixed video security systems powered by

Al are also helping the public safety and security sectors to do things that we humans just aren't suited to doing on our own. For example, finding a missing child among a sea of people in a bustling city. For a human to identify a lost child in a crowded scene can be like finding a needle in a haystack, but Al makes that task much simpler and frees up more time for people to engage in more meaningful work.

The case for video security solutions has never been stronger and the experience of the global pandemic has also helped to make people more aware of the benefits of video to reduce the risk of viruses spreading in public places and to protect remote frontline workers.

That said, video security is still an emerging technology, and we acknowledge that privacy, data protection and compliance are important issues. We help our customers to navigate those challenges and we advise and help them to deploy solutions that comply with public policy while still delivering the best possible outcomes.

It's clear that public safety and emergency

service organisations are grappling with some big challenges. From doing more with constrained budgets and resources, responding to complex and unpredictable events and the continuing need to modernise technology. To remain focused on their mission, these organisations increasingly need strong technology partners to help them to manage their mission critical solutions, networks, and services. This includes providing 24/7 technical support, maintenance and keeping their technology up-to-date and fully supported.

Motorola Solutions has made a number of strategic acquisitions in recent years, especially in the video security and analytics space. This year, that has included Ava Security and Calipsa, two leading global providers of cloud-native video security and analytics solutions. As we continue to build our portfolio of mission critical solutions, we will be introducing more cloud-based capabilities to our customers and supporting them with the integration and deployment of these technologies.

Looking ahead: The past two years have certainly delivered unprecedented challenges for the public safety sector. From the global pandemic to civil unrest and the emergence of new physical and virtual threats.

In this environment, our public safety and emergency service organisations need to be ready to respond to anything. Increasingly, they need reliable and highly secure tools that enable them to protect sensitive information while keeping citizens' data private. They also need access to more data sources and predictive analytics to get ahead of what's next and place their finite resources where they can have the greatest effect.

The experience of the global pandemic has also caused many public safety and enterprise organisations to re-evaluate their risks, their security posture and in many cases, accelerate the deployment of technologies they had been planning to introduce for some years.

With this in mind, I think we'll see even greater technology adoption over the next 12 months, including new use cases for those technologies that were deployed specifically for public safety and protection during the pandemic.

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