CRITICAL COMMUNICATIONS TODAY

The global information resource for mission-critical communications

Middle East focus: a region at the cutting edge

May 2024
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MAY 2024

MAY 2024

A meeting place for the sector

Ahead of Critical Communications World 2024 in Dubai, editor **Philip Mason** discusses the new issue, and its focus on the Middle East

MISSION STATEMENT

Critical Communications Today provides the global mission-critical community with insight into the latest technology and best practice required to ensure that its members always have access to the instant, one-to-many wireless communications that can make all the difference in moments of crisis. We work to stimulate and focus debates on the topics that matter most and provide our readers with a means to raise their concerns.

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READ MORE ONLINE

Welcome to the latest edition of *Critical Communications Today*, the leading resource for those working in the mission-critical comms sector across the world.

As you will have noticed from our cover, this time around we are paying particular attention to work taking place across the Middle East. There are numerous reasons for this, not least that it's the location for this year's Critical Communications World.

More to the point, however is the level of innovation on display across the UAE, Saudi Arabia and so on. This is a region which has always prided itself in being at the cutting edge, and so it remains, as demonstrated by our dispatch from Dubai (page 16).

Speaking of Dubai, the city will also play host to this year's Critical Communications World, taking place in the middle of May. Head to the back of the issue for our exclusive 12-page show preview, giving you all the information you need ahead of this key event for the sector.

Critical Communications World has always been a place where our industry can meet to discuss the biggest issues of the day, and this year will be no different.

This too is reflected throughout the issue, for instance in relation to the ongoing adoption of mission-critical broadband. This is tackled head-on, not only in the aforementioned Middle East focus, but also in our Big Interview with former ETSI CTO Adrian Scrase, beginning on page 12.

Adrian has been integral in helping mission-critical organisations find their voice within the 3GPP standardisation process, something which he reflects upon over the course of my conversation with him. At the same time, he also has some strong opinions about how the sector needs to involve itself going forward, particular with the standardisation of 6G about to begin in earnest.

Another key issue for the sector is the way in which control room technology is required to evolve in parallel with the above. This is not just to account for new mobile communications standards but also innovations such as AI, as well as the increasing number of ways in which the public are able to provide information to the emergency services.

Turn to page 20 for a deep dive into the topic, featuring interviews with some of the major players operating within the sector.

Enjoy the issue, and the *CCT* team will look forward to meeting you in Dubai.

Philip Mason, editor

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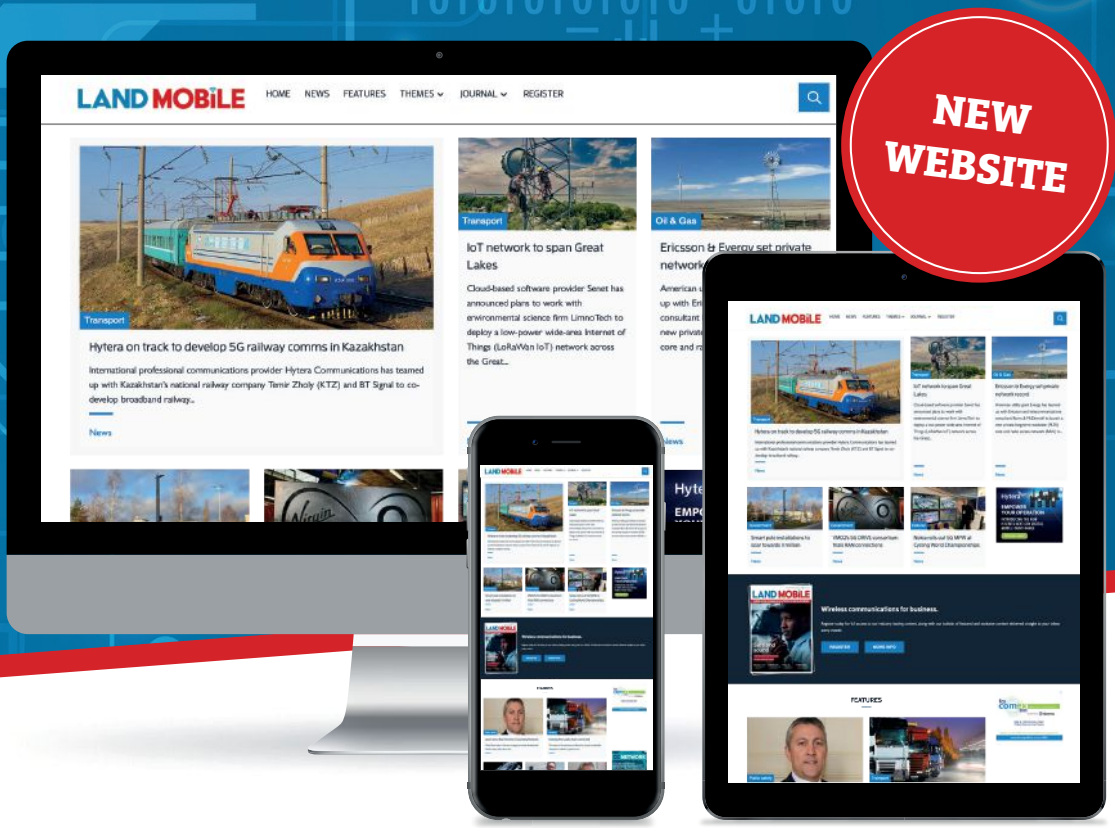

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LAND MOBILE
WIRELESS COMMUNICATIONS FOR BUSINESS

Who, what, where

EUROPE

Adobe Stock/Scanrail

Bittium's Finnish defence forces contract green-lit

Bittium Wireless is on the verge of signing a partnership agreement with Finnish defence forces, anticipated to last from next year until 2036. The deal was authorised by Finnish minister of defence Antti Häkkänen earlier this year.

According to a statement, the company will be "securing the availability, performance and usability of Bittium-supplied products and services critical for the Finnish Defence Forces in all conditions.

"The partnership agreement creates mechanisms for planning joint operations in emergency circumstances."

The statement continues that the partnership covers command and control systems, including Bittium's tactical communications system and related products.

Hybrid handheld device for English ambulances

Sepura has been awarded the contract to supply "next generation communications products" to paramedics in England. The contract was issued by the Department of Health and Social Care, as represented by the country's Ambulance Radio Programme.

A spokesperson for the company said: "The contract covers the supply of the new SCL3 broadband hand-portable device to ambulance services across England.

"[They] will maintain communications on the existing Airwave network, as well as encompassing the benefits of broadband data and a migration path to the Emergency Services Network. Designed for mission-critical use, the SCL3 addresses the need for optimum performance even in the harshest of environments."

Adobe Stock/Brian Jackson

Scottish rail operator's BWV deployment

ScotRail has rolled out over 1,000 of Motorola Solutions' VB400 body-worn cameras across its rail network. According to Motorola, this represents a tripling of the number of cameras available to staff, following ScotRail's initial deployment in 2017.

Discussing the product, a spokesperson for the company said: "The VB400 is an easy-to-use device with battery life extending beyond a full shift.

It reliably captures high-quality footage which is securely stored and organised with time, date and location details, maintaining the integrity of evidence to support incident investigations.

"The roll-out follows the launch of a campaign to combat abusive behaviour on the railways."

MIDDLE EAST

Adobe Stock/dimazel

Satellite specialists sign Saudi oil contract

Intelsat is collaborating with systems integrator Saudi Net Link to provide connectivity to one of Saudi Arabia's largest oil producers. Intelsat describes itself as an operator of integrated satellite and terrestrial networks.

Discussing the work, a spokesperson for Intelsat said: "Oil and gas sites are notoriously difficult to connect. They are often located in very remote areas, with challenging terrain and extreme weather conditions.

"However, access to reliable and always-on connectivity is critical to ensure production continuity, continuous monitoring and employees' safety. A GEO satellite is the best way to tackle this task. Teams at [a site] need to be able to quickly establish a temporary office, with enough bandwidth to facilitate basic communication."

MIDDLE EAST

Everbridge Dubai control room deployment

Dubai Civil Defense has rolled out Everbridge's incident management platform. According to a statement issued by the company, the platform will be deployed for "operational and crisis management, dispatching, and incident command."

Discussing the technology in more detail, a spokesperson for Everbridge said: "Working closely with Esharah Etisalat and Security Solutions, Everbridge [has provided] the software to coordinate the management of first responders via a single, modular, and multi-lingual user interface. [This] supports desktop and mobile workstations, smartphones, and tablets, as well as a range of alphabets including Latin, Greek, Cyrillic, Arabic, and Chinese."

Dubai is the location for this year's Critical Communications World.

NORTH AMERICA

Adobe Stock/Jennifer

Colorado fire department's radio upgrade

BK Technologies is rolling out over 300 of its BKR 9000 multiband radios to 26 fire agencies across the county of Boulder in Colorado. The deployment, which took place through the company's local authorised dealer, is part of a radio upgrade programme.

Discussing in a statement the rationale for the change, a spokesperson for the company said: "Currently, the fire agencies have several different manufacturers' radios, operating on Colorado's DTRS 7/800MHz P25 radio system for daily use.

"The BKR 9000 multiband radio was selected to standardise on a single radio platform that can operate on all P25 radio systems in any frequency band.

"Plus the VHF band for wildland fire operations."

News round-up

FirstNet budget approved

The US FirstNet Authority has approved investment to increase coverage and "accelerate FirstNet's transition to a full 5G network". The investment budget for 2024 has increased to $547m.

According to a statement, the investment follows completion of the five-year initial build-out of the network by core contractor AT&T. The decision was taken in light of 'Resolution 117', which directs the authority to "take all necessary actions to enable FirstNet's evolution for network subscribers".

Discussing the decision, FirstNet Authority board chair chief Richard Carrizzo said: "The [authority] is making a major investment in public safety and the next generation of their network. With the initial buildout now complete, we are focused on continuing the growth and evolution of the network, based on public safety's evolving needs."

FirstNet Authority executive director and CEO Joe Wassel said: "We are accelerating the evolution of FirstNet's 5G capabilities and making sure the network continues to deliver the innovation and reliability that first-responders need, now and in the future."

According to figures released by the FirstNet Authority, FirstNet is currently used by 27,500 public safety agencies.

In other FirstNet-related news, the organisation has released an 'economic impact study', stating that the project has created "an average of nearly 14,000 jobs per year" over a seven-year period. The study also estimates that network roll-out has generated around $5.6bn in wages to date.

According to a statement from the FirstNet Authority, it used market specialist consultant Fors Marsh to "evaluate the economic impact of FirstNet on public safety operations and the wireless communications market".

The statement continued: "To assess the FirstNet network's impact on economic growth, the firm examined how the deployment of Band 14 spectrum affected jobs, wages and salaries. The Fors Marsh study evaluated network deployment data between 2017 and 2023 and examined employment across several industry sectors. Fors Marsh considered FirstNet development to include installing Band 14 equipment on existing cell [sites] or the construction of a new cell site utilising Band 14 spectrum. [It] used an economic impact modelling system from the US Bureau of Economic Analysis and data to estimate the net economic output, jobs, and wages and salaries attributable to FirstNet development."

To quote Carrizzo again: "This study estimates the significant impact FirstNet is having on the nation's economy. [The network] is transforming the way first-responders communicate and creating a new marketplace for public safety and other industries."

Wassel said: "FirstNet is modernising public safety communications. Based on this economic study, it is also creating positive ripple effects for first-responders and their surrounding communities. We will continue to drive economic growth through our investments in network expansion and innovation for public safety."

UK policing launches crime reporting app

The UK's Police Digital Public Contact Programme has developed an app to enable members of the public to report crimes and incidents. Other functionality includes the ability to find information about local policing teams, as well as accessing "prevention advice" and support for victims and witnesses of crime.

According to a statement from the National Police Chiefs' Council (NPCC), the app "partners" with content available via police.uk, which is the UK national policing website for services and information. Functionality is linked to UK policing's Single Online Home web platform.

The app – which is called Police.UK – is available via the Google Play and iOS app stores. It has been delivered by the NPCC's Digital Public Contact Programme (DPC).

Discussing the platform, DPC's senior responsible officer, deputy chief constable Simon Megicks, said: "We want to make it easy

for the public to contact the police. [We also want them to] find what they need to know [and] understand what is happening with their local policing team. The Police.UK app puts the public in control to report what they want, when they want to."

He continued: "We know that having a digital choice opens a door for many, meaning where they wouldn't have reported information before, they now will. Crimes and incidents often go unreported because it's not always convenient to make a phone call or visit a police station.

"Having the option to report digitally puts the victim or witness in control and prevents them having to verbally relive the incident out loud to someone they have never spoken to before. They can take ultimate control by using the app in a way they want.

"Having an app to complement our growing digital offering allows us to give a wider audience a different choice. It must be stressed, however, that if it is an emergency, the public should always call 999, and the option to call 101 for routine issues absolutely still exists."

Services available via the app include the ability to report antisocial behaviour, domestic abuse, rape and sexual assault, spiking, missing persons, and road traffic incidents.

The NPCC's Digital Public Contact Programme is responsible for "transformational change in how the public can contact the police digitally".

Nokia drone tech certified by FCC

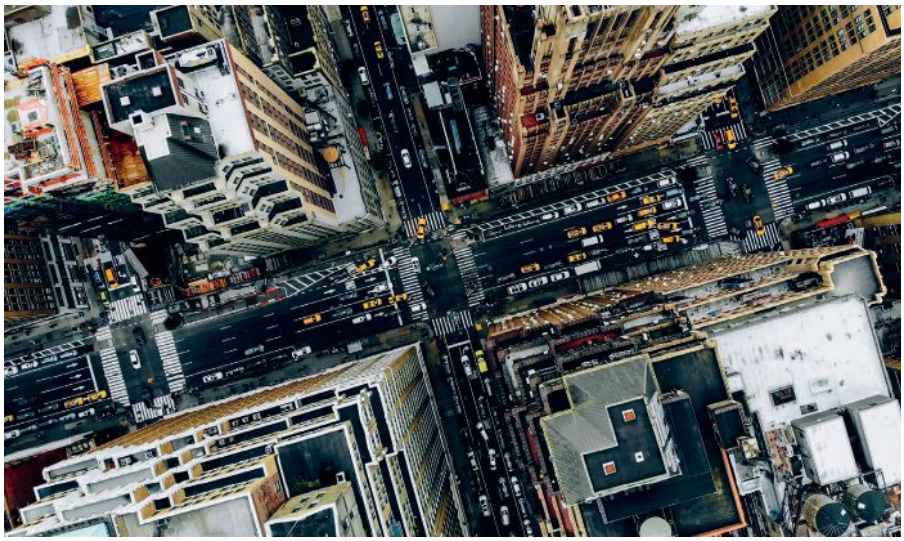
Nokia's Drone Networks solution has been certified by the Federal Communications Commission (FCC) in the United States.

According to a statement from Nokia and its partner Rohde & Schwarz, it is the FCC's "first full certification of a native 4G/5G drone-in-a-box solution". The statement continued that it is "a significant step in providing US customers with a proven, industrial grade 4G/5G drone solution built for reliable beyond visual line of sight [BVLOS] operations".

"Going forward," the statement continued, "Nokia will leverage its recently announced US partnerships for private LTE and 5G solutions to accelerate the market entry."

The company states that it "prioritised robust and reliable connectivity" in the design of its drone solution in order to accommodate real-time data streaming.

Discussing the certification, Nokia head of embedded wireless solutions Thomas Eder said: "This achievement highlights the vital role that collaboration and diligent testing play in the 5G era. By meeting the FCC's rigorous standards, we are shaping the path in the US for industrial and public sector use-cases, improved 5G spectrum monetisation, and the nationwide roll-out of drones for BVLOS operations on 3GPP spectrum."



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Ken Rehbehn, principal analyst at CritComm Insights, noted: "Nokia's approval for BVLOS operations is an important step forward for the company's drone ambitions that combine 4G/5G capabilities with advanced flight systems.

"Operating beyond traditional visual line-of-sight limitations expands opportunities in the public safety, utility and transport markets essential to Nokia's enterprise strategy."

TCCA News

TCCA has recently welcomed several new members.

These include New Zealand-based mission-critical comms provider Hourua, which joined the organisation towards the beginning of this year.

As described in a statement at the time, Hourua is a joint venture between Spark and One NZ, two of New Zealand's largest telecommunication and digital service companies. The organisation was formed to meet the needs of New Zealand's first-responders, via the new public safety network Te Kupenga Marutau.

The statement continued: "Hourua is contracted by Next Generation Critical Communications, a government entity, to deliver the public safety network's cellular services for Fire and Emergency New Zealand, New Zealand Police, Hato Hone St John and Wellington Free Ambulance.

"Hourua is delivering two key services for the public safety network. The first is public safety network roaming. This was activated in July 2023, and enables domestic cellular roaming across the Spark and One NZ networks.

"The second service is public safety network priority, which is planned to go live in late 2024."

Another new member, meanwhile, is Cybertel Bridge, which designs and produces MCX solutions. It was established in 2000 and is headquartered in Seoul, South Korea.

Describing the company in a statement, TCCA said: "An innovator in SIP-based mission-critical communications, Cybertel Bridge holds 13 patents in VoIP/Push-to-Talk services.

"The company commercially launched a push-to-video service for the Republic of Korea Air Force in 2012, and since 2016 – in partnership with a global network vendor – has developed and deployed MCX solutions to 3GPP open standards specifications."

TCCA CEO Kevin Graham said: "It is with much pleasure that we welcome Cybertel Bridge to TCCA's international member community. We wish the team much success with the 3GPP MCX solutions and services they are evolving for the benefit of critical communications end-users."

Finally, TCCA and the Global Certification Forum have announced that they will be working together to develop an industry certification programme for mission-critical products and solutions. According to a statement, the group will check and verify conformance to 3GPP standards "and thus ensure interoperability between different solution providers".

The statement continued that the work on establishing the certification programme will continue at a dedicated workshop on 17 May, immediately following Critical Communications World in Dubai. "This workshop – the third in the series – will aim to gather input to the future development of the MCX certification programme," the statement said.

"Due to its location and timing, it will provide an opportunity to hear from local stakeholders to understand regional requirements and ensure alignment with industry."

The workshop will be hosted by TCCA member Airbus, and is open to all GCF and TCCA members "and to non-members subject to approval".

ICCA

INTERNATIONAL CRITICAL COMMUNICATIONS AWARDS 2024

Shortlist Announced

Celebrating excellence in critical communications

The ICCAs, presented by TCCA, are the most prestigious awards in critical communications. Celebrating excellence in the sector, the 2024 ICCAs will once again recognise the success of products, organisations and individuals across 14 categories that have pushed boundaries and capabilities within the field.

ADVANCES IN SUSTAINABILITY

Airbus Defence and Space, Agnet TETRA - TETRA in your smartphone

FirstNet, Built with AT&T, FirstNet, Built with AT&T - Mission Critical Solutions

Kreios Space, Air-Breathing Electric Propulsion

WA Police, WA Police - Connectivity, Coverage and Convergence

BEST HYBRID DEVICE

Hoimyung ICT, LTE-R Cab Radio integrated with VHF, TRS

Hytera, Hytera PDM680

L3Harris Technologies, XL Converge™ 200P Full-Spectrum, Multiband Radio

L3Harris Technologies, XL Onboard™ 200M Full-Spectrum, Multiband Radio

Motorola Solutions, Inc., MXM7000 - secure mobile solution for mission-critical TETRA and 4G LTE broadband voice and data communications

Sepura Limited, SCL3 Hybrid TETRA + 4G/5G Rugged Handheld Device

Teltronic, RTP-800 - Hybrid cab radio

BEST MCX PRODUCT OR SOLUTION OF THE YEAR

Consort Digital Private Limited, MCX ONE - A MCX-based solution for mission-critical and business-critical industries

Consort Digital Private Limited, Advance solution for large control rooms - MCX ONE Dispatch Center

CROSSCALL CORE-X5 smartphone, CROSSCALL CORE-X5 smartphone

CROSSCALL CORE-Z5 smartphone, CROSSCALL CORE-Z5 smartphone

ENENSYS Technologies, MediaCast Mobile CC

FirstNet, Built with AT&T, FirstNet, Built with AT&T - Mission Critical Solutions

Hanswell, Co., Ltd., MCX Desktop Dispatcher

Hytera, Hytera PNC460U

L3Harris Technologies, XL Onboard™ 200M Full-Spectrum, Multiband Radio

Metricell Limited, Large-scale, testing and assurance software for the first-of-its-kind 4G mission-critical broadband network.

NSW Telco Authority / Etherstack (joint submission), 3GPP standards-based interworking between PSMB and P25

Tuesday 14th May 2024 at the Intercontinental Festival City, Dubai, UAE

BEST TETRA PRODUCT OR SOLUTION OF THE YEAR

Airbus Defence and Space, Agnet TETRA - TETRA in your smartphone

Airbus Defence and Space, Hybrid TB4, Mult technology base station

Hytera, Hytera PT890Ex IECEx/ATEX Intrinsically Safe TETRA Radio

Motorola Solutions, Inc., MXM600 - TETRA Mission-Critical Mobile Radio

Sepura Limited, SC23

Sepura Limited, RadioAsset

Teltronic, MCBS – Multi Carrier capabilities to improve efficiency

BEST USE OF ADVANCED TECHNOLOGY (ARTIFICIAL INTELLIGENCE, UNMANNED AERIAL VEHICLE, SITUATIONAL AWARENESS ETC)

Airbus Defence and Space, Guardian

Hong Kong Police Force, RescueAI

Hong Kong Police Force, Rescue Drone

Hytera, AI Voice Commands Empower TETRA Radios and Mission-critical Users

Leonardo, G4SAR: AI Based Search and Rescue support

Motorola Solutions, Inc., AdaptAI analytics from Avigilon Unity Video

Nokia, Nokia: World's first nationwide drone network for Belgium's emergency services

NSW Telco Authority, Broadband Connectivity Drone (Next Generation Digital Connectivity initiative)

Quadsat, Quadsat

BEST USE OF CRITICAL COMMUNICATIONS IN INDUSTRIAL, MANUFACTURING, MINING RESOURCES, OIL & GAS EXPLORATION

Blackline Safety, Personal Monitoring Devices to Save Lives

Hytera, Interconnected MCS and TETRA Systems for Leading Steel Manufacturer

Rajant, Sonim, Mutualink, and Crossover, NORCAT: Revolutionizing underground mining communications

Thuraya Telecommunications Company, Thuraya Push To Talk (PTT) for Oil & Gas Sector

BEST USE OF CRITICAL COMMUNICATIONS IN PUBLIC SAFETY

BYNE, Integrated Security Services in the Guayaquil's Emergency Operations Center

FirstNet, Built with AT&T, FirstNet - Interoperable Communications for the State of Arizona

CROSSCALL, NEO2 smartphone for French policemen

STREAMWIDE, Storm Project (French Ministry of Interior)

Hong Kong Police Force, HKSOS Mobile Application and Smart Rescue Ecosystem

Leonardo, "Multi technology hybrid network for Police and emergencies in Buenos Aires"

Motorola Solutions, Inc., Essex County Fire & Rescue Service implements Motorola Solutions' Command and Control Solution

Motorola Solutions, Inc., Tasmanian Government Radio Network (TasGRN)

Nokia, Nokia: World's first nationwide drone network for Belgium's emergency services

NSW Telco Authority, Critical Communication Enhancement Program

Teltronic, Bodycam + Private LTE solution in Ceara prisons

WA Police, WA Police - Connectivity, Coverage and Convergence

BEST USE OF CRITICAL COMMUNICATIONS IN TRANSPORT

HMF Smart Solutions, Seamless Integration: First Metro Line of Quito Unifies TETRA with P25, DMR, Wi-Fi, and Cellular Networks in a Digital Critical Communication Platform

Hoimyung ICT, LTE-R Cab Radio

Leonardo, Combination of terrestrial 5G and satellite connectivity for railway control within the FRMCS standard

Motorola Solutions, Inc., Narita International Airport

BEST USE OF CRITICAL COMMUNICATIONS IN UTILITIES

Blackline Safety, Connected Safety Technology

BYNE, Eletrosul - Integrated communications solution for legacy and new communication systems

Southern Linc, Softil Ltd., Southern Linc's CriticalLinc

CHAMPION FOR SOCIAL VALUE

FirstNet, Built with AT&T, FirstNet Health and Wellness Program

Motorola Solutions, Inc., Motorola Solutions Foundation

Ewa Wlodarczyk, Airbus Defence and Space

EMERGING TECHNOLOGY, PRODUCT OR SOLUTIONS (IN DEVELOPMENT BUT NOT BEING USED YET)

Airbus Defence and Space, Mission Critical IoT solution for field forces

Alea, a Leonardo company, Qualcomm Technologies, Inc., Softil Ltd., Direct Mode MCPTT Communication using 5G-Sidelink

CSL Group, rSIM

FirstNet, Built with AT&T and Archer First Response Systems (ArcherFRS), Medical Response Support from the Air - FirstNet & ArcherFRS

Hytera, Hytera Mesh Solution Based on 3GPP Technology

Motorola Solutions, Inc., CRS Call Assist

Motorola Solutions, Inc, DIMETRA™ Connect

NSW Telco Authority, Broadband Connectivity Drone (Next Generation Digital Connectivity initiative)

Panorama Antennas Ltd, Megalodon

Teltronic, TETRA+4G/5G tactical cell

GOVERNMENT AUTHORITY COLLABORATION

BDBOS, ALDB GmbH, Broadband Testbed for Next Generation Digitalfunk

Safe-Net Forum(Rep. of Korea, Communication networks in Korea

TCCA YOUNG ENGINEER OF THE YEAR

Merve Bayram, Frequentis AG

Xiaocui Long, Hytera

Veronica Pecchioli, Leonardo

Markus Säynevirta, Airbus Defence and Space

THE PHIL KIDNER AWARD FOR OUTSTANDING CONTRIBUTION TO CRITICAL COMMUNICATIONS

Alfredo Calderón, Teltronic

Ali Helenius, Airbus Defence and Space

Marilin Perez-Mazan, Motorola Solutions, Inc.

Don Scott, JPS Interoperability Solutions Inc.

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Places are available individually or as tables of 10 and the programme includes: drinks reception, three-course dinner, awards ceremony and a chance to network in a relaxed setting.

Book your tickets at www.critical-communications-world.com

What is past is prologue

Philip Mason talks to former ETSI CTO Adrian Scrase about his integral role in the development of mission-critical standards, and what learning from the last 10 years can be taken forward into the 6G era

What have you been doing since your formal retirement in July of last year?

Prior to retirement, I was appointed as a visiting professor at the university of Surrey, and I'm still actively engaged with that, particularly looking at the way from 5G to 6G. I'm on the steering board for the 6G innovation centre, trying to help make sure we know where we're heading and that research is aligned with standards and future needs.

In addition to that I have a small consultancy and do small pieces of work, spread between commercial companies and non-profit organisations. I have a particular affinity for non-profits because that's where I've been for the last 30-odd years of my career.

You have been heavily involved in the 3GPP broadband standardisation process. Can you talk about the evolution of that, and the increasing role being played by mission-critical organisations?

We've been working on mission-critical standards based on different mobile 'generations' for more than a decade now. Obviously prior to that, we had TETRA and other technologies.

Over 10 years ago, there was an 'aha!' moment, with the realisation that we had to move on. I then became involved in the very early discussions with TCCA members saying, "Well, what can we do? We want to use mobile generations of standards for our work, but a lot has to change."

Honestly, at that point, there was a lot of scepticism about whether that change would even be possible. So, one of my roles was to shepherd the work as a go-between for TCCA, 3GPP and ETSI.

We tried to promote the overall benefit of that approach, and make sure that all parties could find a middle ground. That's what standards is all about. Everyone has to give a bit.

How similar is the current environment to what was envisaged when the standardisation process started?

That's the interesting thing, because the whole timeline concept was entirely different from what actually happened. Here we are 10 years later, and having spent a decade writing the standards, we haven't actually seen mass deployment of this approach within the mission-critical community.

Of course, there are very good reasons for that, and to me that's one of the lessons that repeats itself in standardisation. Timing is everything, but you can never really predict the timing need.

> "Rather than writing standards to a specific user group, you have to take a much higher-level view"

What were the specific factors that caused the mission-critical timeline to change so drastically?

One of the reasons is that conditions keep changing. For instance, if we reflect on how the world looked in 2012, it's completely different from today.

At the time, the community I was working with was very clear that this was for blue light – police, fire, ambulance – and if we get the job right, we can then worry about other

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> **“I really want to congratulate the community on staying with it, because it was difficult to get their voice heard”**

*Former ETSI CTO **Adrian Scrase***

things. But now the world has changed significantly, and some major world events have occurred.

We've come full circle, realising that mission-critical has to be treated as a whole, and not just as a solution for blue-light services. Personally, I'm not disappointed by that.

There's an obvious lesson to learn here. Going forward, don't try to predict what's going to happen, because you're probably going to get it wrong.

What does this change in attitude and focus mean for the standardisation process in real terms?

It means that rather than writing standards that are specific to a user group, you have to take a much higher-level view. If we can describe them in a more generic way, and have a common solution that suits everyone, we're going to dramatically increase the market size as well as reducing costs.

The problem with that is it inevitably takes a little bit longer. You have to gather all the requirements from different communities, all of whom have a different language and terminology. In every case, you end up spending time trying to distil out of the communities exactly what it is they're trying to do.

Then you start writing standards that deliver that functionality.

What have been the other key challenges, other than the needs of individual verticals?

The size of the market is an obvious one. Most [commercial] handset vendors deal in hundreds of millions of devices, so they're not really interested in delivering just a couple of hundred thousand.

We need to make this a market that can be supplied at reasonable cost, and the more 'bespoke' it becomes, the less attractive it is from an economic point of view. Or else, we go back where we started when a handset cost two or three thousand pounds, which is not really where we want to be.

With that in mind, there have also been obvious challenges in terms of functionality, the big-ticket item being device-to-device. That's something which had already been discussed in relation to mobile systems and put to one side. We could never get agreement that it was a good idea.

Likewise, the idea of having nodes – base stations – that would continue to work when there was no core network attached to them. These were big changes to the architectural designs of mobile systems, and again, timing was crucial.

At the time that these ideas were being put forward, we had only just completed the set of standards called 4G. And in 4G, this had never been raised as something that was particularly needed.

Then suddenly, after that standard is completed, we get all these new [mission-critical] requirements necessitating a complete change of thinking. At which point, the community looks and says, what's in it for us?

That was the conceptual barrier that we had to overcome, and it took quite a lot of diplomacy. There were some key characters who were instrumental in evangelising the fact that there are things in life more important than making money. And keeping civilians safe is one of those.

Did the vendors buy that argument?

They did, and not just the manufacturers but the mobile operators as well. A lot of that was also to do with the appearance of governments in 3GPP, who started to realise that if they wanted things to change, they would have to be vocal in promoting that change.

From the manufacturer point of view, it's quite natural that if your government has a particular view, you as an industry within that nation pay attention to it. And we could see that happening. The classic case was FirstNet in the US, which was very government-led.

3GPP is quite a brutal place because it has such a massive work programme. The leaders have to carefully consider how much time they devote to each subject, otherwise there would be endless talk with no progress.

At what time did next-generation mission-critical communications become a real point of interest for governments?

There were a couple of major public safety incidents, for instance, the terrible ferry disaster that took place in Korea ▸

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in 2014. [One of the points of learning] of that was that the communications were a mess. The Korean government said to industry, "We don't care how you do it, but you're going to solve it."

The only sensible way to do that was by aligning to the new standard which was being developed in 3GPP. Sometimes it takes terrible events like that to make people realise that it's not all about profit and loss.

And, of course, the times we're in now – with the conflicts that are going on – place even greater stress on our mission-critical systems. This is why we're seeing more thinking about the use of drones and satellites.

They were always considered a just nice-to-have in the past, but not really part of the mainstream. Wind the clock forward and all of a sudden they're among the most important pieces of work on the programme. The focus has changed considerably over the past 10 years.

You mentioned that you're involved in the development of the standardisation for 6G. How far along is that, and in what ways is it likely to resemble what we've seen over the past decade with 4G and 5G?

Honestly, it's history repeating itself. There are certain things which need to be in place when you start a mobile 'generation'. And if you want to have standards available by 2030, you need to start that roughly six to eight years beforehand.

In the first instance, you need a framework characterising what it is you're trying to achieve, which has just been delivered by the ITU [International Telecommunication Union]. That sets out a very broad picture of what we're trying to do, and how we're going to get there. It's agreed by participating governments, so it has huge international support.

That was the trigger for 3GPP to define its own timeline about how the standards are going to be written. We've already scheduled May as the first hearing for market representatives, trying to get their input on what they might need. That's together with representatives from various R&D programmes. The first meeting within 3GPP itself will then take place in March of next year. That will take the form of a workshop where we actually start to gather 6G requirements and understand how they would fit into some sort of programme.

So, the work is already beginning. What we don't want to see, however, is a rush. We have the rest of this decade to complete the work – but history tells us that it takes several years to agree and write commercial standards that are fit for commercialisation.

> "If you want to have standards available by 2030, you need to start roughly six to eight years beforehand"

What has the ITU framework laid out?

Of course, there are the usual things like speed and performance. But there are other interesting metrics as well, such as energy efficiency and the sustainability of future systems. That has become a huge subject, and will continue to be.

6G also takes us away from 'communications' into a new world that you might call sensing. This is one of the big philosophical changes.

We envisage a system that is fundamentally designed for people or machines to communicate with each other, and one that will be designed for sensing. Location and obtaining information from devices will be crucial.

Also, devices that have no onboard power systems, but rather power themselves either by energy harvesting or some kind of mechanism. At worst, you'll have to change the battery every 10 years.

It will be interesting to have a study about what 6G could potentially do for mission critical. I would expect that to happen now.

Do you see parallels with the 4G/5G standardisation process in terms of verticals' involvement?

The community that we have currently will need to continue ad infinitum, because you don't want mission-critical systems getting old and out of date. They need to be as current as possible.

That means continually upgrading systems to make sure that they're leading edge, something which our mission-critical technologies should always be. That means constant involvement [on the part of mission-critical stakeholders] in the setting of requirements.

I would absolutely expect organisations such as TCCA to be in the discussion from the very beginning.

With that in mind, what do you see as being the key points of learning from the previous 10 years? Is there anything that the sector needs to do differently going forward?

The lesson to learn is that you're there for the long term, so you need to think with a long-term view.

Honestly, I want to really congratulate the industry on staying with it, because it was very difficult to get their voice heard.

They've made a huge impact. And now mission critical has become so much more important than it was, say, 10 years ago. All credit to them.

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Future strategy

Ahead of this year's Critical Communications World in Dubai, **CCT** talks to two major critical communications players for the Middle East region

There are two good reasons for choosing this moment to publish an article focusing on critical communications in the Middle East.

The first is that this year's Critical Communications World is taking place in Dubai. As anyone who has attended the show in previous years will know, CCW is a key event for our sector, providing a meeting place for the global critical communications industry, while simultaniously driving the conversation forward.

The other reason for focussing on the Middle East is simply the amount of good and interesting work which is taking place there. As was the case this time last year with our equivalent Nordics piece, therefore, we are offering a glimpse of the evolution of critical communications within the region.

This includes both in the public safety/ emergency services sector, as well as other mission critical verticals operating in the industrial space.

With that in mind, in this piece we are going to talk to two key players in the region, in the form of Intelsat and Airbus Public Safety and Security.

The latter is heavily involved in the provision of both mission-critical coverage and devices, across the UAE and elsewhere.

Intelsat, meanwhile, is also becoming increasingly integral to the conversation, as demonstrated by its recently signed contract to provide satellite connectivity to one of the largest oil producers in Saudi Arabia.

Hybrid network

As with many other locations around the world, the Middle East is currently undergoing a major shift in philosophy when it comes to critical communications.

Like the UK, the US and elsewhere, this has come primarily from the realisation that while legacy narrowband is undeniably reliable and secure, it won't necessarily offer the functionality required by mission-critical organisations going forward. Instead, what is required is broadband, in order to facilitate the likes of live-streaming.

This is something which is apparent across the Middle East, with an example being provided by CCW 2024 host Dubai. Its public safety network is operated by Nedaa, with TETRA being provided by Airbus, and Nokia involved on the MC broadband side.

Discussing Airbus Public Safety and Security's presence in the wider


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territory, its vice-president, Selim Bouri, says: "We've been present in the Middle East for more than 50 years now, with a current staff of around 150.

"We're currently providing nationwide networks in the UAE, Saudi Arabia, Qatar, Kuwait, Bahrain and Lebanon. It is a very good and interesting region for us, and a very exciting part of the world."

Bouri continues his account of the company's recent work in Dubai by discussing its provision of what he calls "traditional networks", by which he means TETRA. Dubai's Airbus-provided TETRA network comprises 400 380-400MHz base stations, covering the entire country. It currently serves over 30,000 users from across the emergency and security services.

At the same time as utilising TETRA, meanwhile, Dubai is also in the process of evolving its public safety network via the introduction of mission-critical broadband, thereby offering the opportunity to create what Bouri refers to as "hybrid networks".

Nokia is involved in the supply of broadband, a relationship that was recently refreshed via the signing of a 5G-themed memorandum of understanding in 2022.

According to a statement released by Nokia at the time, the MoU would: "Explore opportunities to upgrade Nedaa's telecommunications network across Radio Access Networks [RAN] and core by leveraging 5G technology.

"[A] 5G network with end-to-end slicing functionality will help Nedaa deliver improved public safety and smart city services to concerned organisations and citizens, as well as lay the foundations for more advanced services such as metaverse."

Drilling down into the notion of 'hybrid' networks, Bouri continues: "In the UAE and Saudi, we now have not only TETRA but hybrid. [From our side], part of this includes the provision of our new generation of base station, the TB4, which provides both TETRA and LTE in one box."

Moving onto the devices piece, meanwhile, he also mentions the introduction of the company's hybrid Tactilon Dabat handheld, which Bouri says was actually developed in collaboration with UAE authorities. Its MXC Agnet handheld device, meanwhile, "supports 3GPP standards and satellite communication services to extend coverage in exceptional circumstances".

The latter was deployed in the most high-profile fashion during last year's COP 28, taking place in Dubai. According to a statement from Airbus at the time, this enabled security staff to access broadband-based functionality, leveraging a private LTE network provided by Nedaa.

Going back to the earlier comparison with other parts of the world, you can't help but notice various differences between the roll-out in Dubai and some other territories. The first is the speed with which broadband network/device deployment has taken place, something which can obviously be attributed to the ambition of the Dubai authorities themselves.

In Bouri's words: "In terms of things like funding, legislation and spectrum, it's probably a bit smoother to operate in this part of the world. There is a strong imperative when it comes to security and also growth within the region.

"That growth is always supported by investment in infrastructure, whether that's roads, energy or critical communications. I have to confess, it's always a pleasure to work with the authorities here.

"There have been a lot of recent events in the UAE and in particular Dubai [such as COP 28 and the recent Expo], so that's another reason for the advance."

Another difference – at least according to Bouri – is the willingness on the part of the Dubai authorities to continue to leverage TETRA as the primary carrier for voice.

Of course, his focus on hybrid networks is probably no surprise, given Airbus's ongoing role as the provider of TETRA, plus its investment in the Tactilon Dabat. At the same time, in an environment where money might conceivably be less of an object than elsewhere, why not have the best of both worlds?

He continues: "We have a specific approach, integrating all the different systems. We've set out to accomplish that with the development of a converged application platform, enabling the management of everything from push-to-talk to CCTV and drones.

"This is really the key component for a hybrid network, with the convergent application layer sitting on top of both TETRA and LTE access. This is certainly what we've seen in our work so far, integrating networks in Kuwait, Qatar and the UAE.

"The approach of the region is really not about replacing one technology with another, it's about complementing them. We're entering a new era which is not about the radio layer but the applications layer, and what we're going to do with it.

"Emergency services really don't care ▸

> **"In the UAE and Saudi, we now have not only TETRA but hybrid"**


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what bearer they're using, as long as they can do the job."

Challenging environment

As mentioned, last year at this time Critical Communications Today published an equivalent feature to this one, but focussing on the Nordic countries. This too is a region at the forefront of critical comms, with operators having to overcome a variety of geographical and environmental difficulties, such as extreme cold and the remoteness of the landscape.

Like northern Europe, the Middle East also presents its own geographical difficulties. These include in places, conditions as challenging as any to be found across the globe.

At the same time, the Middle East and North Africa have also had their share of recent environmental disasters, meanwhile, such as the catastrophic 2023 Morocco earthquake and Libyan floods. And towards the end of April this year, Dubai suffered unprecedented flooding caused by torrential rainfall in the city.

Going back to challenges represented by the landscape itself, nowhere is more difficult to operate in than the vast, deep desert with its combination of extreme heat and potentially violent sandstorms. The part of the Arabian Desert known as The Empty Quarter, for instance, is 250,000 square miles of mostly sand, with a top temperature in the hottest part of the year of somewhere around 51°C.

Furthermore, the desert is an environment where radio coverage is at an absolute premium, something which becomes increasingly relevant if you are involved in activities such as drilling for oil. With that in mind, satellite coverage provider Intelsat has recently signed a contract to work with what it describes as one of Saudi Arabia's largest oil producers.

Saher Abudaqar is Intelsat's managing sales director for the Middle East and North Africa.

Discussing the increasing relevance of connectivity-from-space to this kind of work, he says: "Saudi is a large country, which counts itself as among the top three oil producers in the world. This means that you have all these oil rigs and drilling sites dispersed all over the kingdom, deep in the desert and sometimes offshore."

He continues: "These guys need connectivity for their operations. They need to transfer information back to their data centres, and they need to video-stream. So as far as we're concerned, in that environment, satellite is the way to go.

"Sometimes these are permanent sites, and sometimes they are temporary, exploring to see [if a particular location] is usable. The company will set up camp and mobile crew there."

Going into the company's offer in more detail, he says that Intelsat operates 57 geostationary satellites in orbit at around 36,000 kilometres above the Earth.

He refers to this as a "proven technology," delivering "rock-solid connectivity" utilising Ku- bands.

He continues: "The combination of wide beams, and high-throughput satellites, whose increase in capacity is achieved by high level frequency re-use and spot beam technology enables fast, reliable bandwidth.

"At the same time, they also need to consider the welfare of the crew. They could be in the middle of nowhere for a month, away from their loved ones, so they need to have the means to communicate."

Remaining on the topic of operational data transfer, Abudaqar says this could include things such as temperature readings, as well as sending footage of operations to specialised engineers.

"Let's say you have a temporary office, which is unmanned," he says. "You need to take temperature readings using sensors."

> **"Our aim is to make satellite connectivity mainstream"**

Satellite provides coverage to remote regions, such as the deep desert

Set-up on the ground, meanwhile, says Abudaqar, couldn't be easier (or at least easy enough not to require a dedicated engineer).

Describing a typical uplink Earth station, he paints a picture of a relatively straightforward antenna, modem and transmitter arrangement, apparently light enough to transport to any location required.

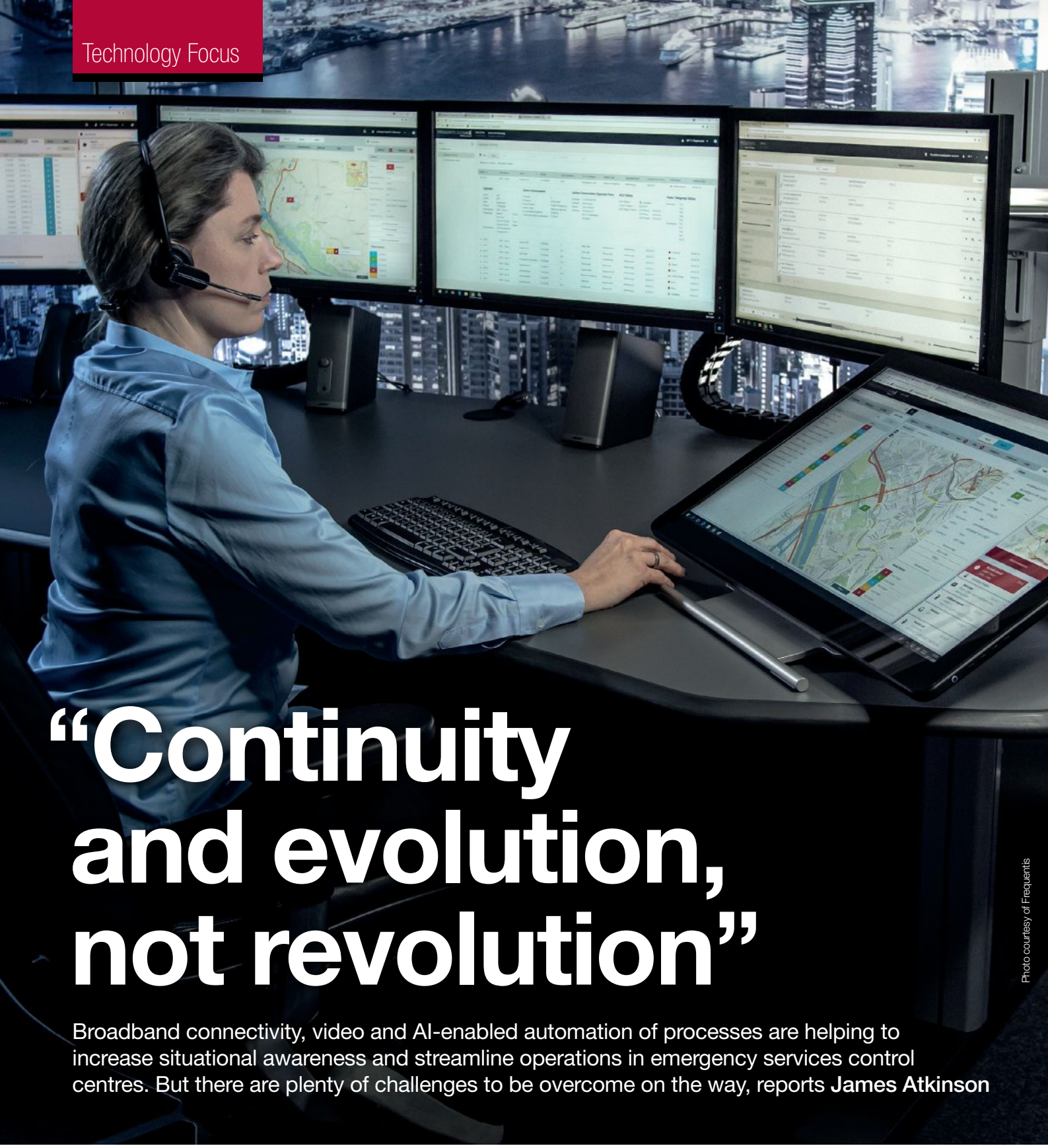
He says: "You would need technicians to set up the equipment, but with the technology now advancing in the way that it is, this is a much quicker process. We now also have things like auto-deployed antennas, auto-pointing and so on. So, essentially, you can just set it out there, and in an hour – tops – you've got your link up and running.

"At the same time, these terminals are now becoming smaller and lighter in weight, which is also making set-up far easier. Our aim is really to make satellite connectivity mainstream, just like any other connectivity method out there; fibre, microwave and so on."

The Middle East is a fascinating region, and these few pages are nowhere near adequate to even scratch the surface.

There has been no space, for instance, to cover the use of mission critical comms within the disaster zones mentioned earlier, or to describe the Gulf Cooperation Council (GCC)'s plan for cross-border communication between GCC nations.

But, hopefully, what we have done is provide an inkling of the uniqueness of the region – geographically, politically and in terms of its ambition – before the community decamps there in the middle of May.



“Continuity and evolution, not revolution”

Photo courtesy of Frequentis

Broadband connectivity, video and AI-enabled automation of processes are helping to increase situational awareness and streamline operations in emergency services control centres. But there are plenty of challenges to be overcome on the way, reports **James Atkinson**

Control room operators used to depend predominantly on voice, augmented by texts and status messaging to understand what was happening in the field. Now situational awareness is greatly enhanced thanks to broadband connectivity, which is capable of supporting video from fixed and mobile sources, along with information gleaned from webchats, IoT sensors and open sources such as social media.

More generally, control rooms are taking advantage of the wider trend of digitalisation, which is automating manual processes and streamlining operations. This is helping to speed up response times and enable better, more informed decision-making, all of which can increase efficiency, reduce costs and improve safety.

Nick Chorley, director EMEA public safety and security at Hexagon, points out that the move towards VoIP and SIP-based telephony systems is accelerating the digitalisation trend, as they use the same switching technology as computers. This makes video calls, for example, much easier as it cuts out proprietary telephony technology.

He adds that there are also a set of protocols around NG-112/911

standards like ESInet (Emergency Services IP Network), which provide an IP network managed for the emergency services in each country. Other protocols include EIDO (Emergency Incident Data Object) and i3 networks – an overlay network consisting of a set of servers across the internet.

"ESInet is multimedia, so it brings all the different forms of communication via a network service and distributes it to the whole ecosystem of PSAPs. That is something the NG standard is doing," says Manuel Hintermayr, director of solutions and sales and public safety at Frequentis. "NG also extends routing elements out of the control room, which allows the call to be redistributed into other control rooms and PSAPs."

These kinds of protocols not only support different ways of contacting the emergency services but also allow PSAPs with NG-112/911 technology to gather a lot more incident information before passing the call onto a fire, police or ambulance control room.

"This is a huge trend in control rooms," says Chorley, "but it is going to take years to play out completely before it is the standard in every country, as every country is going to have to change their national infrastructure. But that is made much easier by the introduction of ESInets and SIP networks."

Technological gains

These technological gains do not come without their challenges, however. The sheer amount of data flowing into control rooms threatens to overwhelm operators. "Initially, there was a hope that new channels of information would ease demand, but in fact, they have done the opposite," observes Ross Venhuizen, director, international control rooms, at Motorola Solutions.

"Call-handlers are juggling a number of independent tasks simultaneously, which can contribute to significant cognitive load," he continues. "So, as the emergency services look to expand the number of information channels, how do we manage this larger amount of data to avoid slowing down the response? We need to develop systems that are more human-designed by default."

For Motorola, that means delivering intuitively designed technology that helps to reduce the time it takes to complete the most common tasks across a call-handler's workflow. But with more data coming in, staff have to work harder to process and manage it. Unless all the technologies feeding data into the control room are made to work together, and quickly, it is very difficult to make the best use of it.

> **"Public safety customers have to have a standardised public cloud or invest in their own core technology"**

Hintermayr says the way to ease the load on control staff is to meld all these different inputs together into one seamless conversation, so operators are not having to constantly switch between different siloed technologies.

"You may start with a voice call, switch to text, and then push out some video to the first-responders. The thing is to streamline and unify the data and then make it accessible, so that the control room can bring the right resources together in the shortest possible time on site to respond to the incident and save lives," he argues.

Control room platforms use routing mechanisms based on predefined triggers to identify relevant information and bring it together in one place. "With one platform managing all the different communication paths, we are also routing them with the one routing engine and the same rules," says Hintermayr. "This is a big benefit for operative costs and reduces gaps between different routing agents."

These myriad data feeds, and the task of quickly identifying, extracting and presenting information relevant to the incident to operators, leads to the next step in control rooms: decision-making support systems. Ali Helenius, director of strategic marketing and technology at Airbus, explains that this involves the system intelligently proposing to control centre personnel what actions should, or could, be taken.

"The system is not deciding the action itself," qualifies Helenius. "The action has to be finally done and acknowledged by human beings, but it can significantly help the work of control centres and improve efficiency."

However, Helenius sees something of a dilemma here for public safety. "There are many new technologies already existing, but it is hard to apply them in the public safety environment, because the security is not proven and the users are not sure whether they can use it."

Perhaps the best example of this is cloud technology, which is used by citizens every day, but it is not widely deployed within public safety yet. "We have discussed this a lot with our customers, and it has become quite clear that public safety organisations do not yet at least trust the public cloud," says Helenius. "They would like to have control and have the same technology that runs in the cloud in their own on-premise solutions."

On-premise cloud solutions are, of course, possible, but Helenius's impression is that providing a more bespoke service for public safety is not attractive to the giant hyperscalers such as AWS, Microsoft and Google. That means public safety customers either have to accept a standardised public cloud offering or invest in their own core technology.

Hexagon's Chorley adds that the public cloud does have some advantages, so long as the customer is prepared to take that more standardised offering. "The cloud offers the security aspect, a very fast ramp up, a change to new technology, and it also offers scalability," he says.

Artificial intelligence

One of these new technologies is AI, which is being cautiously introduced into control rooms. "We certainly see the potential of AI to improve efficiency and service-wide productivity, but it is still absolutely critical to have a human in the loop making the final decisions," says Motorola's Venhuizen.

"I expect AI to deliver benefits in areas where it can reduce the manual work and cognitive load on control room staff. That will be in areas like AI-assisted transcription or AI audio enhancement."

One example of AI in action is to monitor the stream of digital data coming in, or that operators are creating, and compare it with the historical record to recognise patterns and repetitions. "The idea is when things get really busy, you lose sight of all the peripheral stuff," says Chorley. "The agents recognise the similarities or repetitions and bring them to the operator's attention in a situation where they might otherwise have not realised their significance."

"Things are happening in AI for ▸

control rooms, but right now it is more positioned as a supportive element," notes Hintermayr. "For example, we have an integrated translation service when it comes to text and we have the possibility to integrate voice."

However, he too agrees that humans need to validate the information and decide what the final action should be. "There is still a long way to go before fully automating that process. There are not only technical challenges but also legal ones."

AI is critical when applying advanced video analytics for the detection of anomalies, facial recognition and the like. "As soon as the alarm pops up on the screen, the operator uses his video management software, selects the video feed and checks whether the alarm is really true and takes actions accordingly," says Airbus's Helenius.

"This is the way it should work. But this is not yet, at least in Europe, really implemented. Everyone knows this is the way to do it, but once again there is the challenge that the video analytics machinery/software which is needed here is often located in the cloud, so then we are back with that problem. But this is the vision," he says, adding that the USA is probably more advanced.

The US has seen a rise in real-time intelligence crime centres to enable more proactive policing methods, according to Motorola's Venhuizen. "Video analytics can be used in real or near-real time to look for anomalous movements or to detect someone entering or leaving a secure area. We have spent a lot of time on anomaly detection, so a lot of the work we are doing in AI is focused on that."

Another trend under way, at least in some countries, is decentralised control rooms, which require a reliable connectivity network and mobile control centres. "It's about moving control out into the field, as the real understanding and knowledge of the situation is there and not in the control centre," says Helenius. But the approach varies from country to country.

Helenius says that in Finland, there are only five physical control centres. "Operations are very much distributed to the field and mobile field commanders are taking care of nearly everything. But in Germany, it is very different.

"They have 600 to 700 different control rooms and they have a very centralised way of working. These are perhaps the two extremes and everyone else is somewhere in between."

Decentralisation trend

Another aspect of the decentralisation trend is remote working. Aside from the flexibility benefits, this can aid work-life balance and help control rooms retain skilled staff. "The big problem we see, especially in cities, is that the emergency services just cannot compete with the wages being offered by IT companies," says Chorley.

"So, any control room in the periphery or centre of cities struggles to attract staff, where you can have a 20 to 25 per cent staff turnover. But if you can arrange it so that they haven't got to commute, not only does that give them two or three hours back a day, but you can actually start employing people outside of your city or county.

"We have a customer in the USA on the West Coast, but they employ people on the East Coast too, as that allows them to more easily employ people to cover unsociable night-time hours, as they are awake earlier than people on the West Coast," says Chorley.

Venhuizen agrees that there is a trend, especially among Motorola's fire customers, to move away from the standalone control room. "Traditionally, there has been a slight disconnect between your three primary teams during a major incident. You have a team in the control room that handles citizen contact, radio and incident dispatch.

"Then during a major incident you might have a command room nearby with management that is co-ordinating and providing air cover for the incident team. And, finally, you have an incident command team in the field co-ordinating the tactical incident response. The focus we are seeing now from customers is building a common operational picture that is shared by both the control room and command centre, as well as incident commanders in the field," he says.

Another trend Venhuizen observes is increasing collaboration across multiple agencies through shared control room platforms, connecting them to the same infrastructure hub, with individually configured workflows. Agencies can automatically share incident data using protocols such as the UK's MAIT (Multi Agency Incident Transfer) or the EU's CAP (Common Alerting Protocol) standards.

This kind of approach is particularly beneficial in responding to major incidents where multiple agencies need to be involved, as it aids collaboration and mutual understanding of the situation.

The gradual introduction of NG-emergency calling standards, AI-enabled automation of processes and cloud services will see many changes for control centres in the years ahead.

But the process will take time. As Hintermayr says: "Change is not really welcome in the control room. It is really about continuity and evolution, not revolution; small steps and making sure each step works without risking the overall mission."

Photo courtesy of Hexagon's Safety, Infrastructure & Geospatial division

A new mission critical system for France

In 2017, French President Emmanuel Macron launched the Radio Network of the Future (RRF) project to address critical challenges, aiming for a national, secure, and high-speed (4G and 5G) mobile communications system. This initiative aims to ensure the continuity of security and emergency rescue missions, even during crises or major events. To implement this innovative network and establish a new standard for secure critical communications, Airbus, along with Capgemini, were selected by the French Ministry of the Interior and Overseas Territories on October 13rd, 2022. The RRF will serve a minimum of 300,000 users within the French security and emergency rescue forces, including the national gendarmerie, the national police force, firefighters, and other civil security forces.

Beyond its operational challenges of protecting the population, the RRF is a genuine industrial project that positions France, and Airbus, as a central player in the modernization of mission critical communications on both European and global scales. It presents a unique opportunity to strengthen the European industrial sector in critical communications with associated benefits in terms of positioning in the global competition and employment.

To deploy and operate the RRF, a French state administrative public establishment, ACMOSS – Operational Mobile Communications Agency for Security and Emergency, has been established in April 2023.

As leaders of the consortium, Airbus and Capgemini will collaborate with referential partners such as Streamwide, Prescom, Econocom, Ericsson, and Samsung Electronics France.

Samsung Electronics France supplies ruggedized devices (smartphones and tablets) designed to withstand the harshest environments. Streamwide is the reference partner for Agnet, Airbus' secure collaboration platform which is a core component of the RRF system. Econocom provides services related to the supply and maintenance of accessories and smartphones (fleet management...). Prescom provides gateways enabling interconnection and interoperability between the RRF and existing Tetrapol networks.

Airbus is delivering the Mission Critical Services (MCX) end-to-end solution called Syrius, based on Agnet, Airbus' secure collaboration platform. This innovative MCX solution provides multimedia communications capabilities adapted to on-the-field operations, allowing each RRF organization to manage its operations efficiently. Capgemini provides services in network design, solutions and infra deployment, integration of the various technologies brought by all the project partners, to deliver RRF's 4G LTE and future 5G telecommunications services.

The implementation of the RRF introduces significant benefits, enhancing communication and operational capabilities for first responders and emergency services. It ensures continuous operation and uninterrupted communication, even in challenging terrain or during network congestion. Terminals like smartphones and tablets are designed for durability and enhanced connectivity, meeting users' demanding needs. Interoperability facilitates seamless coordination across services, enabling communication between different groups and supporting multi-force operations. Thanks to Airbus MCX Agnet solution, multimedia functionalities enable comprehensive information sharing, including video, text, voice, and geolocation data. Additionally, it offers an integrated communications solution, combining critical networks, mobile networks, and internet access, IoT, AI for streamlined professional tasks. Airbus is ready to embed such evolutions in the future, enhancing mission safety and responsiveness, advancing communication capabilities significantly.

Today, the implementation of the Radio Network of the Future is well underway, with significant milestones achieved. The technical architecture of the RRF is now a reality, and end-to-end testing of RRF services has also started. Airbus is working closely with field users to tailor its MCX solution to the specific needs of different user communities of public safety forces. The design phase of the RRF architecture was concluded on June 30, 2023.

Airbus has leveraged user feedback collected on the beta version of the operational communication application, V0 which has been available to future RRF users since early 2023. 2024 will be the pivotal year preceding a deployment scheduled for the second quarter of 2025.

Pioneering work

Head of Airbus Public Safety and Security, Olivier Koczan, discusses the company's safety and security vision, followed by an interview with Prefect Guillaume Lambert, Director of ACMOSS

How do you anticipate critical communications evolving in the coming years, particularly with the integration of emerging technologies like 5G in conjunction with the RRF, and how is Airbus leveraging this opportunity?

France is poised to become one of the pioneering countries in deploying such advanced communications tools for security and emergency services. Alongside the US's FirstNet, Finland's Virve 2.0, and South Korea's SafeNet, the RRF will position France at the forefront of modernizing its security and emergency communications infrastructure. We firmly believe in innovation and are actively exploring emerging technologies like 5G Stand Alone and Non-Terrestrial Networks to address the evolving needs of our users, including standardized solutions for cross-border cooperation.

The RRF solution and its current deployment in cooperation with ACMOSS will undoubtedly set a new standard and opens promising possibilities to respond to the needs expressed by other countries through new operating methods and new tools. It demonstrates our dedication to assisting customers in their transition to high-speed technology/ broadband and facilitating the integration of such networks. Our unique technical background and our historic operational expertise with multiple end-user organisations gives us a differentiating perspective to shape the future of mission-critical communications. We are preparing and accompanying our customers in transitioning to high-speed broadband technologies with a proven solution : Agnet, the next generation secure communication and collaboration platform. It allows professional users to seamlessly share voice messages, data, videos and locations with any stakeholder on the move or in a command centre. Fully compliant with 4G/5G broadband and supporting the hybrid networking model, Agnet is interoperable with various existing narrow band systems.

Throughout these projects, and through our active engagement in 3rd Generation Partnership Project (3GPP), we are continuously pushing the boundaries of mission critical communications standards, with the RRF serving as a prime illustration of our commitment to excellence in this field.

Interoperability undoubtedly requires essential cooperation among stakeholders. How is this progressing and what are the challenges for Airbus regarding cross-border cooperation?

In 2013, Sweden and Norway embarked on a pioneering initiative to interconnect their security networks. Much of their shared border lacks clear demarcation, with no border guards present. Over the course of four years, they diligently worked on defining an operational model, establishing legal and operational frameworks. Technical integration became operational in 2017. Finland joined the collaboration, and today, this interconnected system is utilized daily by all three states. Looking ahead, these nations are exploring how to adapt the system to operate effectively in the era of 4G and 5G technologies, and they are considering the inclusion of Denmark and Iceland. To facilitate these discussions, a dedicated working group has been established.

Today, the RRF opens promising perspectives about interoperability beyond borders. The most advanced countries on these issues are now acting as true champions in this transition to broadband, particularly at the European level.


Olivier Koczan

For example, Airbus is supporting Spain to implement their pioneering broadband network : SIRDEE – Sistema de Radiocomunicaciones Digitales de Emergencia del Estado – in coordination with the national operator, Telefónica. This initiative aims to integrate broadband capabilities into the national network alongside existing narrowband infrastructure. Led by the Ministry of Interior, the project prioritizes maintaining mission-critical service availability and resilience while maximizing operational benefits for end users.

Airbus is at the forefront of this European transition and supports it, also, through the Broadway/ Broadnet project, which aims to define interoperability standards for secure communication networks on a European scale. One of the main objectives is to enable authorities from different countries to communicate seamlessly, regardless of the technologies used by their counterparts. In addition to voice services, authorities should be able to share high-speed data while ensuring proper sharing of this data with the right people at the right time, wherever they are. These high-speed capabilities

are intended to assist authorities in more effectively combating international crime and terrorism, ultimately saving more lives.

The next phase, Broadnet, focuses on building mission-critical test setups to experiment and assess concrete interoperability solutions. This encompasses legal, technical, and operational aspects, aiming to establish standardized protocols for cross-border communication. This dynamic effort reflects a commitment to fostering collaboration and enhancing security measures across Europe.

What about your activities in other geographic areas? In the Middle East, Asia, where do you stand in terms of needs and deployments for secure communications?

Airbus really acts as a facilitator through its client community around the world, providing on-the-ground support for the integration of broadband networks in countries. As end-to-end system integrator we develop and manage complex, long-term projects, partnering with a diverse ecosystem including leading industry players, major operators, and startups to deliver optimal solutions.

In the Middle East and Asia, Airbus provides secured information, intelligence and situational awareness to public users (police, fire brigades, medical and emergency services, counterterrorism...) to help save lives and enhance safety. We also facilitate the smooth running of communications within daily operations of -critical businesses (energy, utilities, transportation, etc.).

For instance, Abu Dhabi, the largest of the seven emirates and the capital of the UAE, has undergone rapid development, evolving into a sprawling, developed metropolis. As globalization progresses, the rise in international trade and other activities necessitates constant vigilance. In order to bolster its security endeavors, the Abu Dhabi Police (ADP) depend on the Airbus TETRA system. We assist them by providing broadband support and implementing hybrid TETRA+broadband solutions, such as Tactilon Agnet.

The expertise acquired by Airbus proves helpful to others through its organized user communities. During events like Critical Communications World (CCW), Airbus's client community shares insights into secure network implementations, inspiring other countries to transition to broadband due to its various benefits for users.

Work with ACMOSS

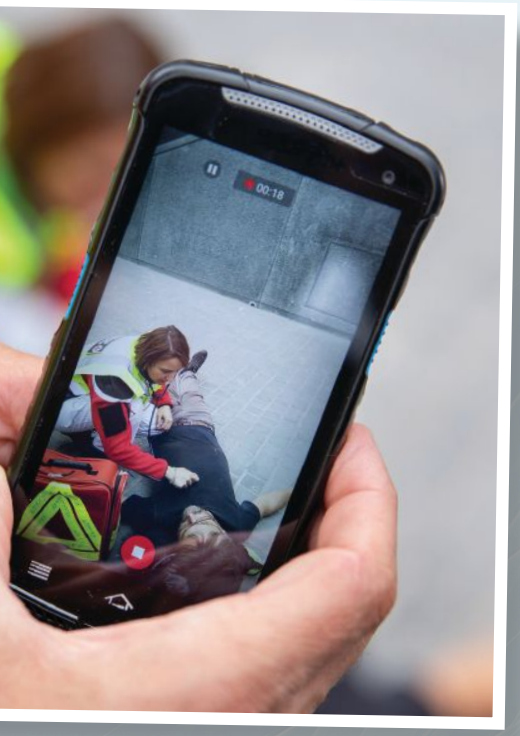
ACMOSS, the agency in charge of implementing and operating the Radio Network of the Future, has just celebrated its first year of existence. Can you tell us a little more about how the agency came into being, and the important role the RRF will play for critical communications in France?

In application of the orientation and programming law of the Ministry of the Interior and Overseas Territories of January 24, 2023, the Agency for Operational Mobile Communications for Security and Rescue (ACMOSS) was created to implement and operate the Radio Network of the Future (RRF).

By its legislative foundation, the scope of the missions entrusted to it and its status as a public administrative establishment of the State, ACMOSS is a full mobile virtual network operator (MVNO), placed under the supervision of the Ministry of the Interior, and responsible for to ensure the design, deployment, maintenance and operation of the RRF. Thanks to these legislative provisions, ACMOSS is able to provide its subscribers with measures to prioritize their communications in mobile networks and the implementation of national roaming (ability to connect to the radio relays of all mobile operators).

Since its creation, ACMOSS has been developing the Radio Network of the Future (RRF), in conjunction with the Airbus/Capgemini consortium, operators Orange and Bouygues Telecom, and Eviden, and preparing for its use by French security and emergency services.

The Réseau Radio du Futur (RFF) is the fruit of a modernization decision taken at the highest level of the State, since this national project was announced by the President of the Republic during his speech to homeland security forces on October 18, 2017. This is an unprecedented project in France, incredibly complex from every



perspective. To successfully carry out a project of this magnitude, it is essential to rely on industrial partners and involve end users in the process. These key points have been at the core of ACMOSS' approach.

The RRF will thus constitute the new resilient, secure, interoperable 4G and 5G very high-speed critical mobile telecommunications network for security and emergency services, as well as crisis and disaster management. It will replace the various existing low-speed radio networks that are reaching the end of their life cycle.

The RRF will provide users with a highly resilient network, guaranteeing the continuity and security of communications throughout the country. It will guarantee communications at all times, with priority and pre-emption available on two partner operators' networks, and will also benefit from national roaming capacity and network extension solutions to cover white zones where coverage is missing.

Can you tell us about the first concrete results? What have been the major milestones since the launch of the program and the creation of ACMOSS?

Since the launch of the RRF construction project by the French Minister of the Interior and Overseas Territories, the program has made a great deal of progress over the past year. Indeed, in its first year of existence, ACMOSS has simultaneously built the entire infrastructure of the RRF architecture, started to prepare the deployment of its communications services to its first users and built up its operational, human, budgetary and legal capacities.

In addition to the RRF building phase, ACMOSS is implementing national roaming for the benefit of RRF subscribers on all major mobile network operators in France.

At the same time, ACMOSS teams have capitalized on the extensive user feedback received on the beta test version of the mission critical communications application, known as "SYRIUS", which has been available to future RRF users since early 2023.

Can you describe the next steps leading up to the opening of the service?

2024 is a pivotal year before deployment scheduled for the second quarter of 2025. Once completed, the RRF will become the backbone of operational communications for security, rescue and emergency medical services, as well as for all those involved in crisis and disaster management in France.

Starting in June 2024, several milestones will be organized to demonstrate the new operational functionalities on the RRF's infrastructure in the field with future users. These milestones will enable the various facets of the RRF's service offerings to be tested in the final version of its architecture:

- Our end users will be able to test MCX multimedia services in the field and in the command room using several communication equipment and accessories.
- Direct mode is a mandatory feature that has been requested from the start for the extreme case where mobile coverage is not available and our users will be able to experiment this feature in real life conditions.
- On top of Mission Critical Communications, they will be able to test common telephony services (VOLTE, SMS, MMS) and national roaming on all major mobile network operators.
- Another aspect of importance is to validate the correct behaviour of our gateways between MCX services and aeronautical VHF, and between MCX services and legacy Tetrapol networks.
- We'll also have the opportunity to test the application store and the mobile terminal fleet management (EMM) tool.
- Inter-service MCX conferences between SYRIUS and STORM applications is critical and we'll be able to demonstrate the benefits of interconnecting our two mission critical services.
- Finally we'll put to the test the RRF supervision center (NOC) and our portal and customer support services.

These aspects are just examples of the multiple services that will be provided to our end users once the RRF is launched in 2025.

The RRF is entering its operational phase, with the first challenge being to secure the schedule for completion of its technical construction. Its launch is scheduled for April 2025, marking the official opening of services. This stage involves an intense mobilization essential to guarantee the successful launch of the RRF service.

Guillaume Lambert

Driving the agenda, delivering the results

Ahead of CCW 2024 in Dubai, TCCA's **Tero Pesonen** and **Jason Johur** provide an overview of the work of its Critical Communications Broadband Group and Broadband Industry Group

Last year was truly busy for TCCA and the global critical communications community. Critical Communications World (CCW) in Helsinki was an incredibly well-attended event, with the highest turnout for many years. The heightened interest in mission-critical mobile broadband communications was palpable, and is only increasing.

TCCA Working Groups drive the work of the association, and the key meetings for 2023 were the Critical Communications Broadband Group (CCBG), chaired by TCCA Board vice-chair Tero Pesonen, and the Broadband Industry Group (BIG), chaired by TCCA Board member Jason Johur. The meetings took place in November 2023 in Krakow, hosted by TCCA member Motorola Solutions. Many active initiatives were discussed, and further progress will be presented at Critical Communications World 2024 on 14-16 May in Dubai, UAE.

CCBG is TCCA's Working Group in charge of co-ordinating all the critical broadband-related activities. It operates internally via taskforces, and externally represents TCCA in 3GPP standardisation as well as at various other meetings and events.

The baseline is a common open standard that continues to evolve to meet current and future mission-critical communication requirements. Connectivity everywhere is the fundamental need as it forms the lifeline for first-responders in the field. But, of course, this can only be achieved if appropriate capacity and robustness of the service are available at all times – even, or especially, during disasters. TCCA is advocating in 3GPP Release 19 network-to-device and device-to-device (D2D) connectivity over multiple hops to extend network coverage, for instance underground.

Another priority topic to improve coverage and resilience is non-terrestrial networks, that is satellite connection to enable connection wherever the sky is visible. For both features, CCBG has a specific taskforce in place.

NTN is on the brink of finalising its work to provide mission-critical communications requirements for NTN services in order to help the satellite industry to work on solutions that will also serve public safety. For D2D, the taskforce was founded in February this year, together with Qualcomm. This is to specify and prioritise the use-cases, and define as far as possible common global markets and items such as spectrum need and

potential frequency bands. Once the NTN and D2D requirements translate into products, these previously foreseen key functional services should be available.

Looking to the future, CCBG and BIG are in the process of forming TCCA's 6G common position around the theme of 'trust' – seen through the lens of availability, robustness, recovery, integrity and security, all these being aspects that our communications-dependent society and economy are heavily reliant upon to stay functioning under all conditions.

Information security

In parallel to the aforementioned initiatives, other 3GPP-related topics being worked on by CCBG include the Mission Critical Broadband Callout service. This should be thought of as a rich paging experience, providing alerts – for instance – to standby first-responders in a call to duty; plus the interworking function (IWF) that defines the mission-critical services (MCX) connection between TETRA and 3GPP broadband networks.

In addition to the standard, there are plenty of other actions also required to ensure MC broadband services. The need for information security is paramount considering the often-delicate nature of the content that is being shared via critical communication systems. The Cybersecurity Task Force is preparing guidelines to raise stakeholders' awareness of international organisations contributing to security standards. It is also raising awareness of established cybersecurity frameworks, as well as identifying assets of the new critical communication broadband networks to ease the verification from an end-to-end service point of view.

There is a need for such guidance, as the value chain becomes more complex and the number of stakeholders – and correspondingly the threat vectors – increases.

CCBG's MC Applications Task Force is looking into issues related to mobile operating systems to ensure they support field operations, and that, for instance, updates can be made available in a controlled fashion, and first-responders' equipment upgraded when it is safe to do so.

The taskforce on massive MC video, in turn, addresses the community's key challenges regarding the widespread use of video by first-responders during high-intensity events, through examining network and application solutions as well as operational aspects.

TCCA's Critical Communications Broadband Group gathered in Krakow for the plenary. Many more members joined online

New spectrum actions

In the US, FirstNet users have the possibility to utilise high-power user equipment (HPUE), providing significant and highly improved coverage and throughput extension at the cell edge when there is otherwise a risk of losing connectivity.

CCBG's HPUE Task Force seeks solutions as to what form and shape HPUE could be realised in other parts of the world, especially in Europe and Australasia. This may require new spectrum-related actions on the agenda of the Spectrum Task Force.

The Spectrum Task Force's goal is to promote the importance of spectrum for critical communications. For the past couple of years, this has been most of all establishing TCCA's joint position for the WRC2023 (World Radio Conference), which took place at the end of last year.

The key interest was in the allocation of 600MHz for mobile broadband communication as the primary service to enable more spectrum to be allocated for mobile services and to critical communications as a dedicated or shared resource. This demand was heard, but only partially implemented, thus the work on this needs to continue in subsequent WRCs.

The Spectrum Task Force is also preparing TCCA's position for the future of the 380MHz band that had been harmonised decades ago in Europe for PPDR narrowband services. Eventually, when European nations have moved from narrowband networks to MC broadband, this frequency band becomes available for new services. It is an opportunity that needs to be managed carefully for the benefit of critical communications users.

The Spectrum Task Force is also committed to address questions concerning air-ground-air (AGA or A2G), D2D sidelink and HPUE.

The ability to operate across borders to provide support during incidents has been a desire for many years. In TETRA, this has been operationally established between Finland, Norway and Sweden.

To enable broadband MCX services across networks, both nationally and internationally, TCCA has a taskforce on 4G/5G mission-critical roaming, jointly with the GSMA and the European Commission's BroadEU.net project, managed with PSC-E.

Multinational co-operation is also at the core of the decision to establish a new taskforce to define common requirements for MC broadband devices. It has been decided to take the benefit of the Nordic Rugged Device Requirements specification published at Critical Communications World 2023. The baseline specification has been created as a joint effort between the Danish, Finnish, Icelandic, Norwegian and Swedish public safety operators and users.

Co-operation in certification

Similarly, a decision has been made to establish a new taskforce for addressing control rooms and the certification of the control room MCX connection. This will complement the work being done in the joint Global Certification Forum (GCF)–TCCA Mission Critical Services (MCX) workstream for MCX 3GPP conformance certification and, in due course, for MCX interoperability certification.

Furthermore, many public safety operators are gaining practical experience, either from operational broadband services like Virve 2 in Finland or from test networks. To address the need to exchange findings in a confidential environment, a Broadband Practical Problems Evaluation Task Force has been newly established for TCCA's public safety members.

Members of TCCA's Broadband Industry Group

The objective of this taskforce, in addition to facilitating information exchange between those responsible for MC broadband networks and services testing, is to formulate TCCA guidance for the critical communications community to enable others to avoid or solve similar issues.

An important part of CCBG's work, and in particular its plenary agendas, are the updates from different nations on their critical broadband implementation status and any issues identified. Also, briefings from other TCCA working groups such as the Legal and Regulatory Working Group (LRWG), and updates from TCCA's partners EUTC on the utilities sector, the 450MHz Alliance on 450MHz broadband worldwide ecosystem development, and BroadEU.net on its progress. This is to mention just a few.

Plenty has happened, plenty is happening and plenty will happen. The success is in co-operation.

Vendor community

Complementing the role of CCBG is TCCA's BIG, which represents the common voice of the 3GPP broadband industry vendor community within TCCA. It addresses key topics of interest from user, operator and industry perspectives.

On the agenda for the BIG meeting in Krakow were a range of topics that included QPP (quality of service, priority and pre-emption) and evaluating the merits of creating an associated implementation guide. QPP is particularly important when deploying MC communication services over commercial mobile networks.

In addition, we discussed the latest findings from the Massive MC Video Task Force, updates from a host of other CCBG-led taskforces and general market updates on broadband spectrum trends. Another key topic of interest revolved around news emanating from the latest ETSI MCX Plugtests, where Qualcomm, Softil and Leonardo – in partnership with Texas A&M University – showcased an early prototype of 5G sidelink capability (D2D communications). This created significant interest and fervent questioning in both the BIG and CCBG meetings.

Since the beginning of this year, in addition to work continuing in existing taskforces, work has also begun in earnest on several new topics, some driven by BIG, with others requiring the active contribution of all CCBG members. These include:

- Supporting the creation of a new taskforce to co-ordinate widespread user and industry efforts to reach consensus on D2D sidelink market requirements. This taskforce is led by Thibault Holley.
- Similarly, another kick-off session was held to scope the creation of a QPP implementation guide. This follows in the footsteps of the work previously done by TCCA in 2023 defining the QPP term more strictly – the latter being referred to by the LRWG's QPP white paper. This taskforce is led by Jason Johur.
- A kick-off session was held to begin the process of forming the TCCA 6G common position referred to earlier. This will outline the high-level themes that TCCA membership would like conveyed as input to this summer's 3GPP SA plenary discussion on scoping 6G standardisation priorities. This taskforce is being led by Ricardo Blasco and Jason Johur.
- BIG/CCBG members continue to contribute to the valuable work of various ongoing taskforces. These include mission-critical roaming (led by Renaud Mellies), PPDR B68/28 enhancements (Jason Johur), broadband spectrum (Luz Fernandez del Rosal, Noel Kirkaldy), non-terrestrial networks (Renaud Mellies), cybersecurity (Filippo Gaggioli), MC broadband apps and devices (Tim Clark), high-power user equipment (Tim Clark) and massive MC video (Sami Honkaniemi, Sanne Stijve). The latter aims to conclude its findings and recommendations for publication at CCW24.

In addition to the above, there is also an intention to update TCCA's Mission Critical 5G white paper, originally published in 2021. This is to bring it in line with the latest changes agreed in 3GPP, and also incorporate more details in the area of MCX services migration from 4G to 5G Non-Standalone and eventually 5G Standalone architectures.

CCW 2024

For those familiar with the wider telecommunications industry, CCW can be thought of as the Mobile World Congress of the global critical communications sector. For this community, it is the pinnacle event of the year, bringing together most regions of the world to discuss matters affecting current and future mission-critical mobile communications.

At CCW this year, BIG, in co-operation with CCBG, is organising Focus Forum sessions covering themes and topics around 3GPP standards, technology and implementation aspects related to MC broadband solutions.

The intention behind these sessions is to provide interactive presentations with leading experts in the field. The audience is encouraged to participate, speak up and challenge these experts with pertinent questions related to the topic at hand. Specific topics outlined so far include:

- Executive briefing regarding ongoing broadband-related task force
- What is QPP and why it matters?
- Key findings and recommendations from the massive MC video study
- Developments in the field of MC devices and applications.

Attendees at previous Focus Forum sessions have said they leave with a greater connection to the major topics of interest. They also leave with a better understanding of the key issues currently facing industry and the user community, and how these are being addressed primarily through TCCA.

As the leading critical communications association, forum and platform, our members and partners collaborate and co-operate to drive change and enhance critical communications for the benefit of all.

Pesonen is TCCA's Board member representing Erillisverkot. Johur is TCCA's Board member representing Ericsson.

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CONTENTS

VISITOR INFORMATION

TIME AND LOCATION

Dubai World Trade Centre
Sheikh Rashid Hall and Sheikh Maktoum Hall

Tuesday 14th May 2024	**11:30 - 18:00**
Wednesday 15th May 2024	**10:00 - 18:00**
Thursday 16th May 2024	**10:00 - 16:00**

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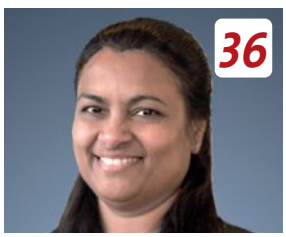

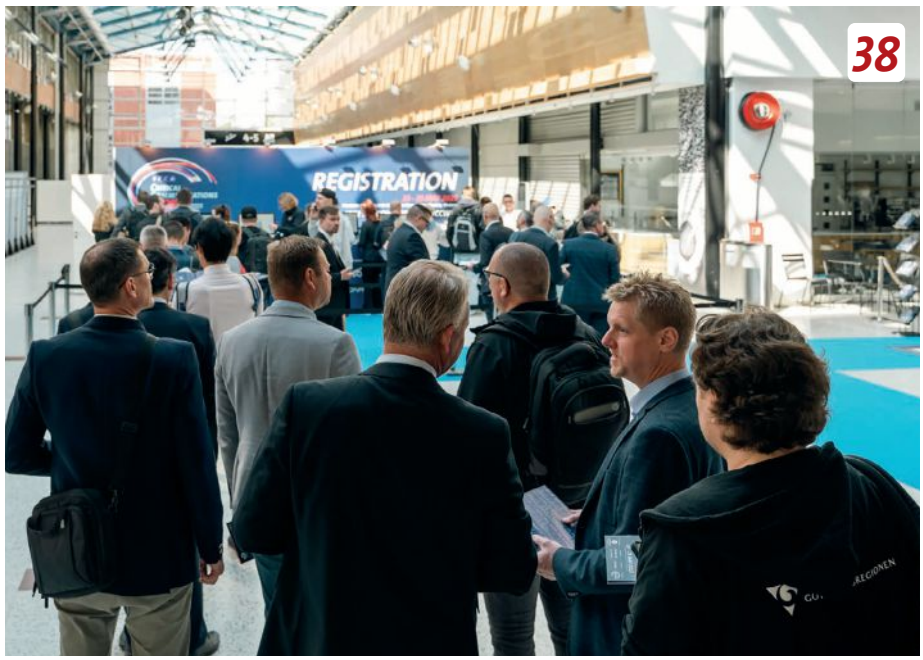

WHY VISIT CCW

Join the Global Networking Hub. Serving the sector for more than 20 years, CCW unites mission-critical and business-critical end-users with manufacturers and suppliers for three days of inspiration, knowledge and connections. At its heart CCW is a global networking hub, allowing visitors to view the latest technology and forge new business relationships with partners from across the globe.

With an exhibition of leading international brands, a conference programme led by experts at the forefront of critical communications, in-depth focus forums and Government Authorities fostering collaboration across international borders, CCW is the global event of the year.

WELCOME FROM TCCA BOARD CHAIR MLADEN VRATONJIĆ

TCCA chair Mladen Vratonjić outlines the many reasons for attending Critical Communications World 2024

CCW OFFERS THE MOST CONCENTRATED CONFERENCE ON CRITICAL COMMUNICATIONS

REGISTER NOW

'Securing society and industry - connection is the lifeline' is the key theme for TCCA's Critical Communications World 2024. Just how apposite a theme this is will be evident as our sector comes together for three days of inspiration and innovation in Dubai.

Our exhibitors, our sponsors, our speakers. All play a role in connecting and enabling a safer and more protected world, and their expertise, influence and work will be showcased across the event.

This year's exhibition has more than 130 organisations. These are specialists in their field, promoting a range of products and services that are helping to ensure that the quality of critical communications continues to advance. If you have a specific area of interest, please sign up to the Tech Tours, which provide the opportunity to meet relevant exhibitors, watch live product demonstrations, ask questions, and explore new technologies.

Also within the exhibition is our unique Global Village. This is a dedicated space where government representatives of national critical communications projects come together to discuss ideas, challenges, progress and best practice.

The Global Village provides a forum to share experiences and showcase success. That's whether countries are transitioning from narrowband to critical broadband, implementing critical broadband to complement their existing networks, have decided to continue to base their critical communications on contemporary narrowband radio networks, or are rolling out dedicated greenfield networks. At the time of writing, we have 20+ countries represented, from America to Australia. Truly a global gathering!

Acknowledged as the most concentrated conference on critical communications, across the three days of CCW there is a huge selection of diverse content. This ranges from regional views and updates on the critical communications landscape, to practical information about the delivery and integration of new services.

Smart cities, digital twins, AI, cybersecurity, MCX, 5G, case studies, horizon technologies. These are just a selection of the topics that will be covered. With keynote sessions, debates and panel discussions, there is something for everyone, with all underpinned by the need for critical connectivity.

Our expert-led Focus Forums meanwhile are in-depth sessions for those wishing to delve deeper into specific topic areas. Led by the chairs of TCCA's various Working Groups, the Focus Forums deliver a wealth of knowledge, together with the opportunity for attendees to engage with subject matter experts.

This year's Focus Forums cover TETRA, its systems, security and applications, as well as interworking MCX broadband with narrowband networks. Other topics include legal and regulatory issues; critical broadband roadmaps; testing and certification; and for users moving to mission critical broadband: what do you need to know? Come along and tell us!

As in previous years, the International Critical Communications Awards evening will be held alongside CCW, where the achievements of organisations and individuals are recognised. Join us for the ICCAs celebration on Tuesday 14 May at the Intercontinental Festival City in Dubai, when the winners will be announced. Congratulations to all the shortlisted entrants, and good luck!

We are highly appreciative of the support for CCW 24 from our host operator, the Dubai Government's secure network provider Nedaa, and the Dubai Department of Economy and Tourism. We also extend our thanks to all exhibitors, sponsors, speakers and support staff. We're looking forward to an exceptional event!

MLADEN VRATONJIĆ,
BOARD CHAIR, TCCA

WHAT'S ON

EXHIBITION – MEET 130+ LEADING MANUFACTURERS AND SUPPLIERS

CCW unites our global sector and provides the best opportunity for you to discover cutting-edge technology, watch first-hand demonstrations, try out equipment, and discuss the needs of your business with leading experts.

At CCW you will meet 130+ international suppliers, involved in a range of technologies. This includes everything from AI, command and control, cyber security, DMR, facial recognition, IoT, mission critical broadband, network services, ruggedised devices, satellite communications, TETRA applications and much more.

Visitors will have the opportunity to connect with brands such as our Platinum Sponsor, Motorola Solutions, and Gold Sponsors Ericsson and Leonardo. With thousands of innovative products and solutions on show, CCW is the best place see the technology at the forefront of critical communications.

TECH TOURS – A DETAILED LOOK AT SPECIFIC AREAS OF INTEREST

Escorted by a member of the event team, these free of charge tours take a detailed look at specific areas of technology. They provide the opportunity to meet carefully-selected exhibitors, watch live product demonstrations, ask questions, and explore new and innovative solutions.

Themes include emerging technology, narrowband devices, next generation mission critical services, cybersecurity, safe cities, and command and control centres.

CONFERENCE – SUCCESS IN COOPERATION

The theme for 2024 is 'Securing society and industry - Connection is the lifeline', enabling and protecting with resilient and failsafe critical communications.

Across three days, over 150 speakers will present in three theatres. They will offer a huge range of cutting edge sessions, specifically curated to expand your knowledge.

Hosted by some of the most respected thought leaders in the sector, the packed programme consists of keynote addresses, presentations and panel discussions. These will cover three key themes: 'Connecting Securely Internationally'; 'Connecting Securely with all players – Network Providers, Industry, End-users and Vertical Sectors'; and 'Connecting Securely Through Innovation'.

FOCUS FORUMS – KNOWLEDGE SHARING AND COMPREHENSIVE UPDATES

Running alongside the main conference programme, the Focus Forums are in-depth, deep-dive

sessions providing knowledge-sharing and comprehensive updates in each topic area. The sessions will comprise multiple presentations, interactive discussions and roundtables, allowing specialists to come together to learn about developments and share their own challenges, experiences and skills.

THE GLOBAL VILLAGE

A dedicated space for representatives of national critical communications projects from around the world to come together to discuss ideas, challenges and best practice.

Fostering a spirit of collaboration across international borders, it facilitates knowledge sharing and benchmarking, while at the same time, enabling organisations to share the great work that they are undertaking.

We are once again looking forward to welcoming government agencies from around the world. These include:

Australia: NSWTA | Belgium: Astrid | Brazil: Federal Police, Anatel, EAF and Telebras| Canada: PSBN Alliance |Finland: Erillisverkot | France: RRF | Germany: BDBOS | Hong Kong: Hong Kong Police | Netherlands: Ministry of Justice and Security | Norway: DSB | Romania: STS Romania | South Korea: Safe-Net Forum | Spain: Ministry of Interior | Turkish Consulate General Dubai | United Arab Emirates: Dubai Civil Defence, Dubai Police, Ministry of Interior, SIRA | UK: ESN | USA: FirstNet , NIST/PSCR.

INTERNATIONAL CRITICAL COMMUNICATIONS AWARDS

Taking place on Tuesday 14th May at the Intercontinental Festival City, Dubai, the ICCAs, are the most prestigious awards in critical communications. Celebrating excellence in the sector, they recognise the success of products, organisations and individuals that have pushed boundaries and capabilities within the field.

An expert panel of independent judges take all aspects of entries into consideration. They are looking to reward the best and most innovative work, both in terms of the technology itself, and how it is being rolled out and used on the frontline.

The individuals behind these innovations are what fuels the sector. The ICCAs acknowledge the most influential personalities, with categories including TCCA Young Engineer of the Year, and the Phil Kidner Outstanding Contribution to Critical Communications award.

SPEAKER HIGHLIGHTS

BRAD MORELL, *DIRECTOR, NETWORK AND TECHNOLOGY OPERATIONS AND INTERNATIONAL ENGAGEMENT, FIRSTNET AUTHORITY*

Brad leads FirstNet's international engagement. He is a global leader in public safety broadband communications, building collaboration among nations. He has worked in public safety since 1985 and with FirstNet since 2015. His activities have aided in the speed of network deployment and helped to ensure national projects learn from one another.

APPROACH AND BENEFITS TO GLOBAL COLLABORATION AMONG PUBLIC SAFETY AND MISSION CRITICAL USERS
15:15-15:45, MAY 14TH, THEATRE A

JOSÉ ISIDRO TORREBLANCA, *OPERATION CHIEF, SPANISH MINISTRY OF INTERIOR*

José is currently the Operation Chief of the Spanish nationwide PPDR network in the Spanish Ministry of Interior. He has previously held positions as electronic forensic analyst in Guardia Civil, and lecturer in the Rey Juan Carlos University of Madrid, and CEU San Pablo University.

THE CURRENT STATUS OF OUR EVOLUTION TOWARDS BROADBAND CAPACITIES FOR PPDR
17:15-17:30, MAY 14TH, THEATRE A

MARTA FONTECHA, *PRODUCT MARKETING DIRECTOR, TELTRONIC*

Educated as a telecommunications engineer, Marta has been working for Teltronic since 1998. She is a widely experienced TETRA design manager and has headed several R&D teams in relation to the standard. She is currently responsible for strategy and product management for Teltronic, and for marketing and communication.

MULTI-TECHNOLOGY TACTICAL SOLUTIONS AND INNOVATIVE USE CASES
15.45-16.15, MAY 15TH, THEATRE B

VIJI RAVEENDRAN, *SENIOR DIRECTOR OF TECHNOLOGY, QUALCOMM GOVERNMENT TECHNOLOGIES*

Viji is the Chief Architect for the QGOV division of Qualcomm. She is focused on solving mission-critical problems through secure and resilient communications, distributed processing/AI, edge intelligence, and predictive analytics for real-time incident response. Prior to QGOV, she led the advanced wireless video group in Qualcomm's R&D organisation.

DEVICE-TO-DEVICE COMMUNICATION OVER 3GPP SIDELINK
16.15-16.45, MAY 15TH, THEATRE B

PETEVEIKKO LYLY, *MOBILE NETWORKS EXPERT, VÄYLÄ*

Peteveikko is a communications expert, working for the Finnish Transport Infrastructure Agency. 5G FRMCS deployment planning for railway is his main area of responsibility. He has worked on the nationwide public safety TETRA project. As special advisor in the Ministry of the Interior, he was responsible for the technical content of the deployment.

RAILWAY MIGRATION FROM TETRA TO BROADBAND
11:30-12:00, MAY 16TH, THEATRE B

IONEL-SORINEL VASILCA, *FIRST DEPUTY DIRECTOR, ROMANIAN SPECIAL TELECOMMUNICATIONS SERVICE*

Ionel-Sorinel has over three decades of experience in the field of emergency telecommunications and information technology for public safety. This includes fixed, nomadic and mobile services, HF/VHF comms, UHF conventional PMR and TETRA, SCADA and more. He graduated the Military Technical Academy and the Faculty of Law in Bucharest.

EARLY WARNING CELL BROADCAST SYSTEM IN ROMANIA
12:15-12:30, MAY 16TH, THEATRE A

FOCUS FORUMS

14-16 MAY 2024

Focus Forums are in-depth, deep-dive sessions providing knowledge sharing and comprehensive updates in each topic area. The focused sessions will comprise multiple presentations, interactive discussions and roundtables, allowing specialists to come together to learn about developments and share their own challenges, experiences and skills.

TUESDAY - 14TH MAY

ROOM: SHARJAH -D

13.45-16.15 DYNAMIC TETRA: MARKET-ALIGNED, FUTURE DEFINED

Led by: FRANCESCO PASQUALI, Chair, TETRA Industry Group (TIG)
Speakers: TIM CLARK, STUART WILL, ADEL ZOUHEIRI, BRAIN MURGATROYD, PETER HUDSON, MARKUS SAYNEVIRTA, ROBERT HUDSON, VERONICA PECCHIOLI, MARCIN DYRDOL, ILDEFONSO DE LA CRUZ and HAUKE HOLM.
Resilient connectivity: TETRA's time-tested superiority and enduring excellence when critical communications matters

- Intro: market overview, forecast and updates
- Growth in Public Safety TETRA
- TETRA's Rising Influence Across Sectors
- Navigating the evolution of mission critical networks
- TETRA security strengthened
- TETRA: What's on the horizon?
- The benefits of using TETRA apps

16.30 -17.40 TETRA SECURITY GOING FORWARD

Led by: TREVOR EVANS, Chair, Security and Fraud prevention (SFPG)
Speakers: MIKA K LAITINEN and BRAIN MURGATROYD.
TETRA Security - recent developments:

- Threat assessment of TETRA systems and vulnerabilities
- SFPG Recommendation 16: Secure Implementation of Mission Critical Systems. How to implement and use a 3GPP TS 33.180 compliant Mission Critical system.

ROOM: SHARJAH -A

14.00-15.30 INTERWORKING MCX BROADBAND WITH NARROWBAND (TETRA, P25, GSM- R) SYSTEMS

Led by: HARALD LUDWIG, Chair, Technical Forum
Speakers: DAVID DEACON, MATT WALSH, LEONARD MOLHOEK, FABIO PROVIDENTE and SEBASTIAN LARCO.
The Interworking (IWF) Focus Forum will look into the standardized connection of Narrowband systems like P25, TETRA or GSM-R with the MCX Broadband Systems. After collection of the user requirements and expectations for the IWF in last year's focus forums, we will this year have a look at the first projects and implementations of the Interworking Function.
What are the (real) use cases for the IWF?

- What is the motivation of implementing a IWF?
- How is the IWF implemented in different projects?
- What call types and services can be brought across the IWF?
- How does the provisioning work for the IWF?
- What are the key issues and challenges with implementing the IWF?
- Is a test platform needed for IWF?
- What can be learned for future projects and RFPs?
- How should end users be engaged in IWF deployment projects?
- What are the opportunities with the IWF?

15.30-17.30 LEGAL AND REGULATORY ASPECTS RELATED TO MISSION CRITICAL NETWORKS AND SERVICES

Led by: NINA MYREN, Chair, Legal and Regulatory Working Group (LRWG)
Speakers: MICHAEL RUEHLEMANN, KARI JUNTTILA, LASANTHA DE ALWIS and ASIF HAMIDULLAH.
How do you get what you need?

- The need for a harmonized regulatory framework when implementing Quality, Priority and Preemption (QPP) in commercial networks. How do you get what you need when your PPDR users are sharing resources with commercial users?
- Security requirements and needs in physical infrastructure. How do you know what you get when your services are based on someone else's infrastructure? What are the best tools: Service level agreements, regulation or both? Presentation of ongoing work on the TCCA whitepaper and invitation to discuss and comment on preliminary findings.
- MCX services need standardized, interoperable and future proof products. The procurement has to ensure that the products are tested and certified. Which process can you expect, and what can you do if the certification process is not yet available?

WEDNESDAY - 15TH MAY

ROOM: SHARJAH -D

11.15 - 13.15 CRITICAL BROADBAND ROADMAPS - STANDARDS, TECHNOLOGY & IMPLEMENTATION CHALLENGES

Led by: JASON JOHUR, Chair, Broadband Industry Group (BIG)
Speakers: JASON JOHUR, ZEINEB MAKNI, GUILHERME PIZZATO, SANNE STIJVE, SAMI HONKANIEMI, TIM CLARK, PETER HUDSON, FILIPPO GAGGIOLI and PATRIK WIKBERG.
Discussing the latest developments across a range of TCCA broadband-related initiatives, including topics such as Quality of Service, Priority and Pre-emption (QPP), Massive Mission Critical Video (MMCV), Mission-Critical Broadband Devices and Applications (MBDA), Broadband Cybersecurity as well as an overview of other task force dealing with Mission Critical 4G/5G Roaming, Broadband Callout, 5G Device-to-Device Sidelink and themes driving Mission-Critical 6G 3GPP standardisation.

13.45-15.45 MOVING TO MISSION CRITICAL BROADBAND: USERS – WHAT DO YOU NEED TO KNOW?

Led by: TERO PESONEN, Chair, Critical Communications Broadband Group (CCBG)
Speakers: NINA MYREN, FREDRIK RYBERG, KEN RENBEHN, EDDIE REYES, HENNING FJELLET, JOSHUA JOHNSON and TIMO VIHERVAARA.
Mission Critical Broadband is on the horizon for many critical communications organisations. This workshop-style focus forum offers peer-to-peer support and discussion to openly share how user organisations/agencies can identify what needs to be done to launch Mission Critical Broadband services and all the benefits they will provide

ROOM: SHARJAH -A

11.30 - 13.00 TESTING AND CERTIFICATION OF BROADBAND DEVICES AND MCX CLIENTS

Led by: HARALD LUDWIG, Chair, Technical Forum
Speakers: ASIF HAMIDULLAH, GREGOR TOMIC, GOCE TALAGANOV, PETER GUNDERSEN and FIDEL LIBERAL.
The Testing and Certification Focus Forum will this year look into what has been achieved so far in terms of testing and certification of mission critical products. What do we have in place and what are the missing pieces until formal certification can be done. It will also give an outlook on the next steps towards a fully tested and certified mission critical eco-system.

- What are the benefits of testing and certification for the individual stakeholders?
- What is testing? What is certification? Why do we need it?
- How do the Global Certification Form (GCF) and TCCA work together?
- What is the status of the work in the GCF Mission Critical Services workstream?
- What can be certified now and in the near and far future?

THURSDAY - 16TH MAY

ROOM: SHARJAH -D

11.30-13.00 TETRA DATA AND APPS: PRACTICAL WAYS TO GET MORE OUT OF TETRA

Led By: HANNU ARONSSON, Chair TCCA Applications Working Group
Speakers: LUKE STANLEY, MACIEJ NOWAKOWSKI and MARCIN DYRODOL.
How to get more out of TETRA with data and apps including:

- Introduction to using TETRA data efficiently,
- Example apps from many verticals,
- TETRA radio cool data and apps features,
- Situational awareness,
- Indoor and outdoor location tracking, and
- Automation and industrial control
- … and how you can do this on your TETRA network!

FOLLOW SIGNS TO THE FOCUS FORUMS, JUST A SHORT WALK FROM THE EXHIBITION HALL

SESSIONS ARE FREE TO ATTEND BUT SPACES ARE LIMITED. YOU MUST BE REGISTERED AS A VISITOR TO ATTEND. YOU CAN BOOK YOUR PLACE TO ATTEND BY REGISTERING FOR THE EVENT: WWW.CRITICAL-COMMUNICATIONS-WORLD.COM/FOCUS-FORUMS.

REGISTER NOW

CONFERENCE TIMETABLE

14 – 16 MAY
DUBAI WORLD TRADE CENTRE, DUBAI, UAE

Theatre A
CONNECTING SECURELY INTERNATIONALLY
Day1 | 14 May 2024 | Tuesday

KEYNOTE -SECURING SOCIETY AND INDUSTRY -CONNECTION IS THE LIFELINE
Chair: Mladen Vratonjic, Chairman, TCCA

11:30 TCCA WELCOME AND INTRODUCTION: UPDATE OF CRITICAL COMMUNICATIONS TODAY AND THE PATHWAY TO THE FUTURE
Mladen Vratonjic, Chairman of the Board, TCCA
Kevin Graham, CEO, TCCA
Tero Pesonen, Vice Chair, TCCA

12:00 KEYNOTE - CRITICAL COMMUNICATION IN MIDDLE EAST
Suhail Mohammad Abualmaleh, Head of the Command-and-Control Room Section, Dubai Civil Defence

12:30 CRITICAL COMMUNICATIONS OUTLOOK NEDAA
Mansoor Buosaiba, CEO, Nedaa

13:00 FUTURE TECHNOLOGIES DISCUSSION
Moderator: Robin Davis & Iain Ivory, Co-Chairs, Future Technologies Group, TCCA
Panellists:
Eric Davalo, VP Strategic Development, Airbus
Jeremy Smith, Senior Director of international Sales Strategy, Motorola Solutions
Jolly Wong, Hong Kong Professor and Future Tech Journalist
Sami Honkaniemi, Managing Director, Mentura Group
LJ Rich, AI Expert and BBC Tech Journalist
Thomas Eder, Head of Embedded Wireless Solutions, Nokia Enterprise Solutions
Hans Similon, General Manager, Citymesh
Chris Lucas, Chair, British APCO

SESSION: CRITICAL COMMUNICATIONS IN MIDDLE EAST, USA & EUROPE
Chair: Paul Bremner, Principal Research Analyst, Public Safety & Critical Communications, Omdia

13:45 – 14:05 DUBAI POLICE CRITICAL COMMUNICATIONS CASE STUDY
Brigadier Turki bin Fares, Deputy Director of the General Department of Operations, Dubai Police

14:05 – 14:25 DUBAI AMBULANCE CRITICAL COMMUNICATIONS CASE STUDY

14:25 – 14:50 INSIGHTS ON THE SUCCESSFUL DEPLOYMENT OF BROADBAND CRITICAL COMMUNICATION SERVICES BY SPECIALIZED BY STC
Naif Almutairi, Acting Networks General Manager, Specialised by STC

14:50 – 15:15 A CASE STUDY HOW CRITICAL COMMUNICATIONS CAN BE INTEGRATED INTO OPERATIONAL PRACTICE TO ENHANCE EFFICIENCY FOR THE USER ORGANISATION AND SAFETY FOR THE USERS OF THE TECHNOLOGY
Peter Hudson, Chief Technology Officer, Sepura &
Chris Lucas, Senior User & Assurance Manager, NHS Ambulance Radio Programme

15:15 – 15:45 APPROACH AND BENEFITS TO GLOBAL COLLABORATION AMONG PUBLIC SAFETY AND MISSION CRITICAL USER
Brad Morell, Director, Network and Technology Operations and International Engagement, FirstNet Authority and Fredrik Ryberg, Inspector, Swedish National Police

15.45-16.15 EVOLUTION TOWARDS BROADBAND OF THE SPANISH SECURITY AND EMERGENCY NATIONAL NETWORK
Carlos Sanchez Fernandez, Senior Business Analyst, Airbus Public Safety and Security Spain
Francisco Javier Toribio, Senior Manager, Telefonica
Jose Antonio Cebrián, Head of National Network Program Office, Spanish Nationwide Public Safety & Disaster Relief Network (SIRDEE

GLOBAL VILLAGE SESSION
Chair: Ken Rehbehn, Principal Analyst, CritComms Insights

16:15 – 16:30 EMERGENCY SERVICES COMMUNICATIONS IN A RAPIDLY EVOLVING WORLD – ESN A NETWORK FOR THE FUTURE
John Black, ESMCP Programme Director, ESMCP

16.30-16.45 CRITICAL COMMUNICATIONS UPDATE FROM SWEDEN
Ronny Harpe, Director of Rakel and Command Operating Systems, Swedish Civil Contingencies Agency (MSB)

16.45-17.00 UTILIZATION KEY POINT AND FUTURE INNOVATION SERVICE TASKS ON KOREA SAFE-NET
Dong Chan Kim, VP, Korea SafeNet Forum/KAPST

17.00- 17.15 CRITICAL COMMUNICATIONS UPDATE FROM UAE
Eddie Reyes, UAE Ministry of Interior

17.15-17.30 THE CURRENT STATUS OF OUR EVOLUTION TOWARDS BROADBAND CAPACITIES FOR PPDR
José Isidro Torreblanca, Secretary of State of Security, Ministry of Interior, Spanish Nationwide Public Safety & Disaster Relief Network (SIRDEE)

17:30 – 18.00 Q&A

18:00 END OF DAY 1

Theatre B
CONNECTING SECURELY WITH ALL INDUSTRY PLAYERS
Day1 | 14 May 2024 | Tuesday

SESSION: STANDARDS, REGULATION AND SPECTRUM
Chair and Panel Moderator: Ken Rehbehn, Principal Analyst, CritComms Insights

13:00 – 13:30 3GPP & ETSI STANDARDIZATION UPDATE
Issam Toufik, CTO, ETSI

13:30 – 14:15 QUALITY OF SERVICE, PRIORITY & PRE-EMPTION (QPP) PANEL
Panellists: Jason Johur, Chair, Broadband Industry Group
Cody Postier, Principal Consultant, AT&T Firstnet
Nina Myren, Strategy Director, DSB & Chair, Legal and Regulatory Working Group, TCCA and Board Member
Antti Kauppinen, CTO/CSO, Erillisverkot
Cate Walton, Chief Engineer, ESN, UK Home Office & TCCA Board Member

14:15 – 14:45 SPECTRUM, A CRITICAL ASSET FOR THE EVOLUTION TO BROADBAND: WHAT ARE THE LATEST DEVELOPMENTS?
Noel Kirkaldy, Head of Critical Networks Business Development, Nokia & Co-Chair of the Spectrum Task Force, TCCA

SESSION: MCX - THE EVOLUTION TO NEXT GENERATION MISSSION CRITICAL SERVICES
Chair: Lars Nielsen, CEO & GM, GCF

14:45 – 15:15 CRITICAL CONNECTIVITY - PAST, PRESENT AND FUTURE
Magnus Packendorff, Head of Mission Critical, Ericsson

15:15 – 15:45 DEPLOYING 3GPP MCX SERVICES OVER A PUBLIC NETWORK - AN INSIGHT FROM KPN'S EXPERIENCE
Edwin Bron, CTO, KPN

15:45 – 16:15 INTERWORKING BETWEEN TETRA AND CRITICAL BROADBAND SYSTEMS
Brian Murgatroyd, Chair, ETSI TC TCCE

SESSION: MANAGING THE MIGRATION TO CRITICAL BROADBAND TOGETHER AS AN INDUSTRY
Chair and Panel Moderator: Jarmo Vinkvist, COO/ Virve Operator, Erillisverkot

16:15 – 17:00 PANEL DISCUSSION: MIGRATION TO BROADBAND - SUCCESS IN COOPERATION THROUGHOUT THE VALUE CHAIN
Panellists: Taito Vainio, Director General, Emergency Response Centre Agency
Janne Hartikainen, MoI, Finland

17:00 – 17:20 RELIABILITY IN MISSION-CRITICAL NETWORKS
Patricia Campos, Director, Mission Critical Private Networks Business Development and Business Readiness & Zeineb Makni, E2E Solution Developer, Ericsson

17:20 – 17:40 ENHANCING NEXT-GENERATION USABILITY IN CRITICAL SERVICES: NAVIGATING IMPLEMENTATION CHALLENGES USING A THREE-DIMENSIONAL APPROACH
Chloé Maréchal, Business Analyst, Airbus Public Safety and Security

17:40 – 18:00 BROADBAND MIGRATION CASE STUDIES FROM AROUND THE WORLD
Jamie Bishop, Director Business Solutions, Tait Communications

18:00 END OF DAY 1

Theatre C
CONNECTING SECURELY THROUGH INNOVATION
Day1 | 14 May 2024 | Tuesday

SESSION: DYNAMIC TETRA: MARKET-ALIGNED, FUTURE DEFINED
13:00 – 13:30 RESILIENT CONNECTIVITY: TETRA'S TIME-TESTED SUPERIORITY AND ENDURING EXCELLENCE WHEN CRITICAL COMMUNICATIONS MATTERS - FOCUS FORUM INTRODUCTION
Francesco Pasquali, Tetra Industry Group, TCCA

SESSION: UPDATE OF CRITICAL COMMUNICATION TODAY AND THE PATHWAY TO THE FUTURE
Chair: Faz Moradi, Director, Australasian Critical Comms Forum

13:30 – 14:00 EUROPEAN COMMISSION'S VISION TO INCREASE MISSION CRITICAL COMMUNICATION CAPABILITIES
Max Brandt, DG Home, European Commission

14:00 – 14:30 EXPERIENCE OF RESPONDING TO THE MAUI WILDFIRES
Ryan Burchnell, Director, Chief Strategist - FirstNet and Public Safety, AT&T

14:30 – 15:00 NEXT GENERATION DIGITALFUNK
Thomas Scholle, Head of Directorate Strategy/ Management and CTO, BDBOS

15:00 – 15:30 NIST PSCR DISCUSSION: UNLOCKING THE POWER OF OPEN INNOVATION TO ADVANCE MCX FOR PUBLIC SAFETY
Dereck Orr, Division Chief, NIST PSCR
Ellen Ryan, Deputy Division Chief, NIST PSCR
Brianna Huettel, Strategy and Operations Lead, NIST PSCR

SESSION: DISCUSSING IOT FOR CRITICAL COMMUNICATIONS - USE CASES AND APPLICATIONS
Chair: Ildefonso de la Cruz, Principal Analyst, Omdia

15:30 – 15.55 THE DATA-CENTRIC FUTURE FOR CRITICAL COMMUNICATIONS: THE ROLE OF CELLULAR IOT IN PUBLIC SAFETY
Ildefonso de la Cruz, Principal Analyst, Omdia

15.55-16.20 CHALLENGES INVOLVED IN SECURING TETRA COMMUNICATION FOR MISSION-CRITICAL SERVICES IN THE POWER UTILITIES INDUSTRY
Terrance Lai, Principal Manager, Telecommunications, CLP Power Hong Kong Ltd

16:20 – 16:45 MIOTY - A NEW IOT TECHNOLOGY FOR CRITICAL COMMUNICATIONS?
Dr. Nils Grupe, Vertical Innovation Manager, HMF Smart Solutions GmbH

16:45 – 17.30 PANEL: DISCUSSING IOT FOR CRITICAL COMMUNICATIONS - USE CASES AND APPLICATIONS
Panel Moderator: Nick Smye, Principal Consultant, Mason Advisory Ltd
Panellists: Patrice Crutel, Technology & Platform Strategy Senior Director, Capgemini
Ranjit Pradhan, Head, Offer Management and Business Development for Mission Critical Telecom Solutions, Motorola Solutions
Dr. Juergen Tusch, CTO, EUTC
Aref Muhammad Al-Janahi, Director of Security Engineering, SIRA

17.30-18.00 THE CRUCIAL ROLE OF TESTING NEW FEATURES IN THE MCX AND FRMCS PLUGTESTS
Harald Ludwig, Chair, Technical Forum, TCCA & Fidel Liberal, Professor, University of the Basque Country

18:00 END OF THE DAY

CONFERENCE TIMETABLE

14 – 16 MAY
DUBAI WORLD TRADE CENTRE, DUBAI, UAE

THEATRE A
CONNECTING SECURELY INTERNATIONALLY
DAY2 | 15 MAY 2024 | WEDNESDAY

CHAIR: KEVIN GRAHAM, CEO, TCCA

10:00 – 10:15 **WELCOME TO DAY TWO**

10:15 – 10:45 **KEYNOTE - THE FIRSTNET INVESTMENT FOR EVOLVING THE WORLD'S LARGEST PUBLIC SAFETY BROADBAND NETWORK**
JOE WASSEL, CEO, FirstNet

10:45 – 11:15 **KEYNOTE -INSIGHTS ON GEOSPATIAL DATA AND DIGITAL TWIN IN EMERGENCIES AND CRISIS**
MS. SAFA ALKASMI, GIS analyst, GIS Center, Dubai Municipality

11:15 – 11:45 **NORDIC STATUS - WHERE ARE WE SINCE CCW23 AND OUTLOOK TO 2024**
JARMO VINKVIST, Erillisverkot; Finland
NINA NYREN, DSB; Norway
RONNY HARPE, MSB; Sweden

SESSION: HOW TO ENSURE THE SECURITY OF CRITICAL COMMUNICATIONS
CHAIR & PANEL MODERATOR: IAIN IVORY, Co-Chair, Future Technologies Group, TCCA

11.45-12.15 **RELIABLE, SECURE, AND RESILIENT INTEROPERABLE EMERGENCY COMMUNICATIONS**
VINCENT DELAURENTIS, Deputy Executive Assistant Director for Emergency Communications, Cybersecurity Infrastructure and Security Agency

12.15-12.45 **MANAGING CYBERSECURITY IN THE SUPPLY CHAIN - LEGAL ASPECTS BASED ON NORWEGIAN BEST PRACTICES**
Oyvind Akerholt, Associate Partner, Simonsen Vogt Wiig AS

12.45-13.00 **DEPLOYABLE INTEGRATED CYBER SECURITY FOR PROFESSIONAL COMMUNICATIONS**
Angelo Benvenuto, Head of Solutions and Product Marketing, Cyber & Security Solutions Division, Leonardo

13.00-13.45 **PANEL: HOW TO ENSURE THE SECURITY OF CRITICAL COMMUNICATIONS?**
PANELLISTS: KARI-PEKKA PERTTULA, Strategic Product Manager, Ericsson Security Solutions
CHRIS JANSON, Market Advisor, Nokia
IAN CARPENTER, President CEO, Valid8
NAZIRALI RAJVANI, Group Portfolio 5G & Public Safety Senior Director, Capgemini

SESSION: HOW CAN AI BE USED EFFECTIVELY IN CRITICAL COMMUNICATIONS?
CHAIR & PANEL MODERATOR: FILIPPO GAGGIOLI, CCBG Task Force Leader on Cybersecurity, TCCA

13.45-14.15 **AI SMART POLICING AND SAFE CITIES**
LT COLONEL DR HAMAD KHALIFA AL NUAIMI, Head of Telecommunication, Abu Dhabi Police

14.15-14.45 **HOW AI IS CHANGING THE WAY EMERGENCY SERVICES COMMUNICATE RIGHT ACROSS THE PUBLIC SAFETY ECOSYSTEM**
STUART LONGLEY, Senior Product Manager TETRA Devices
IAN WILLIAMS, Software Consultant for Europe, Motorola Solutions

14.45-15.15 **HUMAN FACTOR CHALLENGES WHEN ADOPTING AI IN EMERGENCY RESPONSE**
BART VAN LEEUWEN, Situational Awareness Expert, Netage B.V.

15.15-16.00 **PANEL DISCUSSION: HOW CAN AI BE USED EFFECTIVELY ON CRITICAL COMMUNICATIONS?**
PANELLISTS: MOHAMAD KHAYAT, Lead Architect, Airbus Public Safety & Security
LT COLONEL DR HAMAD KHALIFA AL NUAIMI, Head of Telecommunication, Abu Dhabi Police
BART VAN LEEUWEN, Situational Awareness Expert, Netage B.V.

16.00-16.30 **SPONSORED SESSION: CRITICAL COMMUNICATIONS FINLAND: ECOSYSTEM FOR MISSION CRITICAL BROADBAND MIGRATION**
- KARI TUISKU, CEO, Aina PTT
- MINNA PAAVOLA, Head of Sales, Airbus Defence and Space
- CLAUS STILL, CEO, Creanord
- PETTERI SUOMALAINEN, Co-Founder & CEO, Goodmill Systems
- TOMI PAATSILA, CEO, Netradar
- TEPPO PARVIAINEN, Sales Director, Savox Communications

GLOBAL VILLAGE SESSION
CHAIR: PETER CLEMONS, Global Head, Critical Communications, Enensys

16:30 – 16.45 **ASTRID'S NEW 4G/5G RADIO NETWORK IN 2027**
CHRISTOPHE GRÉGOIRE, Director T&O, ASTRID

16.45-17.00 **PSBN INNOVATION IN CANADA**
JAMES FELTON, Director of Operations, PIA Association and Manager, Radio Systems, Peel Regional Police Service

THEATRE B
CONNECTING SECURELY WITH ALL INDUSTRY PLAYERS
DAY2 | 15 MAY 2024 | WEDNESDAY

SESSION: STATUS OF NEXT GEN 4G/5G
CHAIR: GHADA EL NIKHELI, Market leadership team leader, Mission Critical Networks, Ericsson

11:15 – 11:45 **5G TO 6G, WHAT DOES THE EVOLUTION REALLY MEAN TO THE NEEDS OF PUBLIC SAFETY AND MISSION CRITICAL COMMUNICATIONS**
JEFF BRATCHER, CTO, FirstNet

11:45 – 12:15 **5G EVOLUTION IN CRITICAL COMMUNICATIONS: MIGRATING FROM 4G**
PRAKASH SADAGOPAN, Global Head of Enterprise, Cloud and Network Services, Nokia

12:15 – 12:45 **RETURN ON EXPERIENCE ON FRANCE RRF PROGRAM: ACHIEVEMENTS, CHALLENGES & SUCCESS FACTORS**
PIERRE FORTIER, Vice President 5G, Capgemini
DAVID VERRIER, CTO, ACMOSS
OLIVIER PATEROUR, Senior Solutions Architect, RRF program CTO, Airbus
ANTOINE MERCIER, Principal Enterprise Architect, RRF program CTO, Capgemini

12:45 – 13:05 **NETWORK ON WHEELS IN TEMPORARY NETWORK SET-UPS FOR GROUP COMMUNICATION USING IMS AND CELL BROADCAST FEATURES IN 5G SA ENVIRONMENT**
MIKA SKARP, Senior Product Manager, Cumucore Oy

13:05 – 13:25 **HAVING A 'MISSION MINDSET' - WHAT IT TAKES TO DELIVER MISSION CRITICAL MOBILE OVER NATIONAL INFRASTRUCTURE**
RICHARD HARRAP, Managing Director, Emergency Services Network, BT

13:30 – 13:55 **OPERATOR PARTNERSHIP: THE COOPERATION TO BUILD A CRITICAL COMMUNICATION NETWORK RELYING ON MNOS COVERAGE**
CLAIRE RAYNAL, Project Manager, MNOs Partnerships, ACMOSS

13.55-14.15 **OPERATIONAL MOBILITY: THE IMPORTANCE OF MISSION CRITICAL ROAMING**
RENAUD MELLIES, Head of International Collaboration, Standardisation & Innovation, ACMOSS

SESSION: DIGITAL TRANSFORMATION OF TACTICAL COMMUNICATIONS AND THE USER PERSPECTIVE
14:15 – 14:45 **VISION FOR INFORMATION-CENTRIC FIELD OFFICER**
TIMO VIHERVAARA, Senior Advisor, Police Operation, National Police Board Finland

14:45 – 15:15 **COLLECTING AND ANALYSING USER REQUIREMENTS TO CREATE ROADMAPS TO NETWORK GROWTH AND INVESTMENT**
BRIAN HOBSON, Director of Investment and Innovation, FirstNet

15:15 – 15:45 **UNIFYING COMMUNICATIONS IN PUBLIC SAFETY: INTERAGENCY INTEROPERABILITY BETWEEN FOREIGN ANALOGUE, DMR, AND P25 NETWORKS**
CHRIS STEVENS, Managing Director, CartGiS Pty Ltd

15:45 – 16:15 **MULTI-TECHNOLOGY TACTICAL SOLUTIONS AND INNOVATIVE USE CASES**
MARTA FONTECHA, Strategy and Product Management, Teltronic

16:15 – 16:45 **DEVICE-TO-DEVICE COMMUNICATION OVER 3GPP SIDELINK**
VIJI RAVEENDRAN, Senior Director, Qualcomm

16:45 – 17:30 **DEVICES PANEL: THE FUTURE OF DEVICES**
Panel Moderator: VIJI RAVEENDRAN, Senior Director, Qualcomm
PANELLISTS: PHIL WOODLEY, Head of Products - Devices, Sepura
WALTER MAGNUSSEN, Director, TAMU Internet 2 Technology
CHRISTOPHE MARTIN, Director of Product, Crosscall

17:30 **END OF DAY 2**

17.00-17.15 **LEADING A WHOLE OF GOVERNMENT APPROACH TO DIGITAL CONNECTIVITY**
JAMES PICKENS, Chief Digital and Technology Officer, NSW Telco Authority

17.15-17.30 **COUNTRY PROGRAMME OVERVIEW**
JOE WASSEL, CEO, FirstNet

17.30 – 17.45 **RRF : BUILDING A MISSION CRITICAL SERVICE IN FRANCE**
Guillaume Lambert, Director, ACMOSS

17.45-18.15 **SESSION Q &A**

18:15 **END OF DAY 2**

THEATRE C
CONNECTING SECURELY THROUGH INNOVATION
DAY2 | 15 MAY 2024 | WEDNESDAY

SESSION: DELIVERING SATELLITE BASED CRITICAL COMMUNICATION SOLUTIONS
SESSION CHAIR: BARBARA HELD, Journalist and Moderator, Behörden Spiegel

11:25 – 12:10 **5G NTN CRITICAL COMMUNICATIONS PANEL DISCUSSION**
PANEL MODERATOR: ANTTI KAUPPINEN, CTO, Erillisverkot
PANELLISTS: JEROEN WIGARD, Principal Research Lead, Nokia
DR. AMINA BOUBENDIR, Head of Research and Standardisation, Airbus Defense and Space
PEDRO TERCERO LOZANO, Business Development, Mission Critical Network, Ericsson
RENAUD MELLIES, Head of International Cooperation, Standardisation and Innovation, ACMOS

12.10 – 12:20 **STANDARDISING SECURITY REQUIREMENTS FOR SATELLITE COMMUNICATIONS**
FRANK CHRISTOPHORI, Head of Unit, German Federal Office for Information Security

12.20 – 12:30 **THE FUTURE OF TACTICAL NETWORKS AND CONTROL CENTER: LEVERAGING SATELLITE-BASED SOLUTIONS FOR CRITICAL COMMUNICATIONS**
ELIAS SILVOLA, CEO, Modirum Security Technologies

12.30 – 13:15 **MULTI-LAYERED CONSTELLATION PANEL DISCUSSION**
PANEL MODERATOR: BARBARA HELD, Journalist and Moderator, Behörden Spiegel
PANELLISTS: Antti Kauppinen, CTO, Erillisverkot
Zoltán Wirth, Head 5G & 6G, Airbus
FOTIS KARONIS, EVP, Group Leader Next Gen Connectivity, Cap Gemini
CODY POSTIER, Principal Consultant, AT&T Firstnet

SESSION: TETRA: SECURING THE NEXT DECADE AND BEYOND
CHAIR: BRIAN MURGATROYD, Chair, ETSI TC TCCE

13:15 – 13:35 **THE CONVERGENCE OF TETRA AND 5G: BUILDING A RESILIENT FRAMEWORK FOR TOMORROW'S CRITICAL COMMUNICATIONS**
SAMI HONKANIEMI, Managing Director, Mentura Group Oy

13:35 – 13:55 **RUNNING AI DRIVEN TETRA NETWORKS - FROM FICTION TO REALITY**
AMINA AYADI-MIESSEN, Broadband Solution Expert,HMF Smart Solutions GmbH

13:55 – 14:15 **DEVELOPMENTS IN THE TETRA MARKET - MISSION CRITICAL MIGRATION TO LTE**
JOHN DREWNICKI, Head of Product (Accessories) & Marketing, Sepura

SOLUTION SPOTLIGHT SESSION
CHAIR: ROBIN DAVIS, Co-Chair, Future Technologies Group, TCCA

With IAIN IVORY Future Technologies Group, TCCA, TONY GRAY, TCCA (retired), DR AARON PAGE, Senior Consultant, Actica Consulting, JEREMY CARR, Actica

14:15 – 14:25 **GATEWAY INTERFACES FOR MIGRATION TO WIDEBAND**
VICENTE PASTOR, Sales Director Amper Sistemas S.A.U.

14:25 – 14:35 **PLANNING TECHNOLOGY MIGRATION FROM FLEET MAPPING TO OPERATIONAL COMMUNICATION**
ELINA AVELA, CEO, Beaconsim

14:35 – 14:45 **BRIDGING THE GAP BETWEEN PUBLIC AND PRIVATE 5G FOR MISSION CRITICAL COMMUNICATIONS DURING THE 2023 RUGBY WORLD CUP**
FLORIAN VALTER, Head of eSIM & Private Cellular Networks at Transatel | NTT

14:45 – 14:55 **5G BROADCAST/MULTICAST DEMONSTRATION- A KEY COMPONENT OF 3GPP LTE/5G-BASED MISSION CRITICAL NETWORKS**
PETER CLEMONS, Global Head, Critical Communications, Enensys

14:55 – 15:05 **USE OF LOCATION DATA FOR SITUATIONAL AWARENESS**
AHMED HAMZA, VP Sales, Intersec - Location Intelligence

15:05 – 15:15 **A COLLABORATIVE APPROACH TO DELIVER CRITICAL COMMUNICATIONS**
RAJEEV NAIR, Senior Vice President, neXat

15.15-15.45 **DISCUSSION**

SESSION: DELIVERING WIRELESS NETWORKS IN CHALLENGING LOCATIONS
CHAIR:BARBARA HELD, Journalist and Moderator, Behörden Spiegel

16.15-16.45 **AUSTRALIAN PUBLIC SAFETY MOBILE BROADBAND PROGRAM**
BRAD CREEVEY, Assistant Coordinator General, National Emergency Management Agency (NEMA) & JAMES PICKENS, Chief Digital and Technology Officer. NSWTA

16.45-17.15 **NATIONWIDE MIGRATION - RFF PROGRAM**
GUILLAUME LAMBERT, Director, ACMOSS
PIERRE FORTIER, Vice President 5G & Public Safety Group Offer, Capgemini
ERIC DAVALO, Vice President Europe, Airbus

17:15 – 17.45 **ME CASE STUDIES OF SEAMLESS WIRELESS COVERAGE FOR CRITICAL COMMUNICATIONS ACROSS VERTICAL INDUSTRIES**
MUHAMMAD HASAN, Sales Director MEAT, Maven Wireless

18:00 **END OF THE DAY**

CONFERENCE TIMETABLE

14 – 16 MAY
DUBAI WORLD TRADE CENTRE, DUBAI, UAE

Theatre A
CONNECTING SECURELY INTERNATIONALLY
Day3 | 16 May 2024 | Thursday

Chair: Robin Davis, Co-Chair, Future Technologies Group, TCCA

10:00 – 10:30 **CCW 2025 HANDOVER**

10:30 – 11:00 **KEYNOTE ADDRESS – SHARING THE ITU'S WORK IN EMERGENCY CRITICAL TELECOMMUNICATIONS**
Bharat B Bhatia, President, ITU-APT Foundation of India (IAFI) & Vice Chairman, Asia Pacific, World Wireless Research Forum (WWRF)

11:00 – 11:30 **KEYNOTE ADDRESS - AI & IT'S IMPACT ON CYBERSECURITY**
Ayad Ed Sleiman, Head of Special Projects, KAUST

GLOBAL VILLAGE SESSION

Chair: Tony Gray, TCCA (retired)

11:30 – 11:45 **SAFE-NET OPERATIONS STATUS WITH USE CASE AT KNPA**
Yongtaek Park, Public Official (Wireless Communication Network), National Police Agency

11:45 – 12:00 **OVERVIEW OF THE PSCR PROGRAM**
Brianna Huettel, Strategy and Operations Lead, NIST PSCR

12:00 – 12:15 **SHAPING MISSION-CRITICAL COMMUNICATIONS IN GERMANY**
Thomas Scholle, Head of Directorate Strategy/ Management and CTO, BDBOS

12:15 – 12:30 **EARLY WARNING CELL BROADCAST SYSTEM IN ROMANIA**
Dr Ionel-Sorinel Vasilca, First Deputy Director, Special Telecommunications Service (STS) Romania

12:30 – 13:00 **Q&A**

SESSION: 6G FOR PUBLIC SAFETY

Chair and Panel Moderator: Adrian Scrase, Visiting Professor, 6G Innovation Centre (6GIC), Surrey University

13:00 – 13:30 **6G ENABLED SATELLITE-BASED CONNECTIVITY FOR DEMANDING APPLICATIONS IN REMOTE REGIONS**
Prof Marko Hoyhtya, Satellite Communications and Situational Awareness, VTT

13:30 – 14:00 **6G FOR PUBLIC SAFETY - THE FUTURE OF MISSION CRITICAL COMMUNICATIONS DISCUSSION**
Ryan Poltermann, NPSTC
Tuomo Hanninen, Research Director at the Centre for Wireless Communications (CWC), Oulu University
Prof Marko Hoyhtya, Satellite Communications and Situational Awareness, VTT
Volker Ziegler, Senior Advisor, Nokia Bell Labs

14:00-14:30 **SPONSORED SESSION: CRITICAL COMMUNICATIONS FINLAND: NEXT LEVEL VALUE FROM CRITICAL COMMUNICATIONS**
Moderator: Hannu Aronsson, CTO, Portalify
Pete Peltola, CEO, Bandercom
Mladen Penev, Project Manager, Net Technologies
Niclas Broman, Director, Portalify
Simo Ruoko, Partner, Roger-GPS
Dr. Kari Aho, CEO, Secapp
Heikki Suutari, Head of Sales and Marketing, Sunit

14:30 – 15:00 **CRITICAL COMMUNICATIONS NETWORK "UNWRAPPED" DISCUSSION**
Phil Mason, Managing Editor, Critical Communications Portfolio, MA Exhibitions

15:00 **END OF THE CONFERENCE**

REGISTER NOW

Theatre B
CONNECTING SECURELY WITH ALL INDUSTRY PLAYERS
Day3 | 16 May 2024 | Thursday

SESSION: SHARING CRITICAL COMMUNICATIONS AND VERTICAL CASE STUDIES - PUBLIC SAFETY, UTILITIES, TRANSPORTATION, HEALTHCARE ETC

Chair: Tim Clark, Board Member, TCCA

11:30 – 12:00 **RAILWAY MIGRATION FROM TETRA TO BROADBAND**
Pete-Veikko Lyly, Expert Mobile Networks, Väylä - The Finnish Transport Infrastructure Agency

12:00 – 12:45 **CASE STUDIES - WHY ARE MORE AND MORE AIRPORTS AND SEAPORTS DEPLOYING PRIVATE MOBILE NETWORKS ON THEIR SITES FOR MISSION CRITICAL WIRELESS?**
Koen Mioulet, Communications Manager, EUWENA
Christian Regnier, Co-Founder & Chairman, EUWENA
Stefano Baioni, General Manager EMEA & Asia, Airspan Networks
Fergal Concannon, Vertical Business Development, Druid Software

12:45 – 13:15 **REAL CASES OF LMR AND BROADBAND COEXISTENCE: WHAT ARE THE LESSONS LEARNT?**
Ricardo Gonzalez, MSSSI VP International Core Strategy, Motorola Solutions

13:15 – 13:45 **REVOLUTIONIZING CRITICAL COMMUNICATIONS IN AIRPORT MANAGEMENT: THE INTEGRATION OF 16 AIRPORTS WITH A CENTRALISED CONTROL HUB**
Emerson Soares Cruz, Electrical Engineer, CCR Airport Group

Chair: Bidar Homsey, Director, ACCF

13:45 – 14:15 **CRITICAL COMMUNICATION'S ROLE ON AIRPORT TURNAROUND EFFICIENCY**
Verena Zell, Business Development Manager, Airbus Public Safety and Security

14:15 – 14:45 **BRIDGING GAPS IN UNIVERSAL HEALTHCARE: THE IMPERATIVE ROLE OF CRITICAL COMMUNICATIONS**
Dr. Martin Balaba, Health Tech Business Development Specialist, Academy for Health Innovations, Uganda

14:45 – 15:15 **PANEL: CYBER SECURING UTILITY TELECOMMUNICATIONS CRITICAL INFRASTRUCTURES**
Panel Moderator: Dr. Juergen Tusch, CTO, EUTC
Panellists: Bidar Homsey, Director, ACCF
Kari Junttila, Development Manager, Erillisverkot

15:15 **END OF DAY 3**

Theatre C
CONNECTING SECURELY THROUGH INNOVATION
Day3 | 16 May 2024 | Thursday

SESSION: INNOVATING COMMAND AND CONTROL CENTRE COMMUNICATION

Chair: Monica Million, Past President, NENA

11:30 – 12.00 **NTEGRATED END TO END PUBLIC SAFETY COMMUNICATIONS FROM CITIZEN TO CONTROL CENTER TO FIRST RESPONDER**
Matt Walsh, AVP Product Management, Development and Sales- Firstnet & NG9-1-1, AT&T

12.00-12.30 **NG9-1-1 IN NORTH AMERICA: THE NEXT GENERATION OF LIFE-SAVING EMERGENCY CALLING SERVICES**
Brandon Abley, Director of Technology, NENA: The 9-1-1 Association

12.30-13.00 **THE ADVENT OF NEXT GENERATION 112 COMMUNICATIONS IN PUBLIC SAFETY ANSWERING POINTS**
Luca Roberto Bergonzi, Sales executive in Beta 80 Group and Chairman of Tech/ops committee in EENA

13.00-13.30 **HIGH QUALITY, RELIABLE AND EQUAL EMERGENCY RESPONSE CENTRE SERVICES**
Minna Ylinen, System Designer Virve, Emergency Response Centre Agency, Finland & Salla Levonen, Application Specialist, Emergency Response Centre Agency, Finland

13.45 – 15:00 **RISING STAR PANEL**
Panel Moderator: Dr Aaron Page, Senior Consultant, Actica Consulting
Panellists: Markus Säynevirta, Strategic Marketing Expert; Airbus Public Safety & Security
Leena Adele, Technical Pre-Sales Manager, Motorola Solutions
Veronica Pecchioli, Systems Engineer, Leonardo
Robert Hudson, RF Engineer, Sepura
Georgie Green, Programme Management Office Analyst, Ambulance Radio Programme
Merve Bayram, Product Manager, Network and Infrastructure Solutions & Products, Mission Critical, Frequentis

15.00 **END OF DAY**

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EXHIBITORS

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