key touch®

customer magazine
2/2017

Making radios fly

Working smarter with apps

Ecosystem is the key

Contents

TECHNOLOGY

PICTURE THIS

Innovation is the key

THE WORLD of professional mobile radio is constantly innovating. Where better to see these innovations than at PMRExpo? The Airbus theme this year is hybrid evolution: expo visitors will see how TETRA infrastructure is evolving and how smartphone users can communicate in TETRA groups. The newest ideas in paging and the newest solutions to help PMR operators deal with cybersecurity threats will also be presented.

The world of mission critical communications is undergoing more far-reaching changes than it has ever seen. IoT, 5G and Big Data are three major drivers. How will these new technologies affect the daily work of end users? They offer great possibilities, but we need to be aware of the associated risks.

While fostering change is vital, it is equally important to ensure that the promised benefits are achieved. One organisation focusing on this is the TCCA, and its new CEO, Tony Gray, explains us in this issue how he promotes a prosperous future for the industry.

'Innovation' and 'unique' go hand in hand. In the case of the future Mexican broadband network, 'unique' is definitely an appropriate word. Known as Red Compartida, the project aims to serve 90% of the population in the coming years. The goal is to offer progressively broadband services to end users without compromising the security and the reliability of communications.

Technologies like Virtual Reality (VR) and Augmented Reality (AR) can also expand the capabilities of secure communications. These new technologies will play an important role for rescue services, firefighters and other professionals. Both technologies can come to life already today through Airbus' Tactilon Secure MVNO (SMVNO) solution.

I hope that this issue will give you a useful insight into the future of mission critical communications.

Olivier Koczan
Vice-president
Head of Secure Land Communications

Go hybrid at PMREXPO

PMRExpo is a chance to see the latest innovations in the mission-critical market. The Airbus theme this year is hybrid evolution – the exhibition stand shows the future of radio communications, from the latest radios and the smartest networks to group video and messaging apps.

The 17th annual PMRExpo takes place at the Cologne Congress Center East in Germany from 28 to 30 November 2017. PMRExpo is the leading European trade fair for Professional Mobile Radio and Control Rooms and as ever, the Airbus stand has some exciting innovations to show you.

Next level public safety

Network modernization allows you to evolve to a hybrid network. This lets you continue with a TETRA network for mission-critical voice while introducing mobile broadband step-by-step.

The stand gives an overview of what network modernization at its best can mean. For example, there is the Taira Virtual Core, which runs the TETRA switch and other TETRA applications on virtualised infrastructure, on generic server equipment. Standard hardware means operational expenses are cut to the minimum. It is also easy to set up and maintain, and being very compact, it saves on floor space and energy. Taira Virtual Core is a key building block for Tactilon Suite and PMR evolution.

Tactilon Dabat and hybrid communication

Public safety professionals want the same capabilities and applications as regular smartphone users, but they must be secure. Tactilon Dabat – the world's first smartphone with a full TETRA radio - supports many applications for mission-critical use.

See Tactilon Dabat running a variety of public safety applications. For example, thanks to the Taranis mobile app, officers at the scene or in control rooms can monitor complex operations, securely transfer mission-critical data over broadband, and still have all the mission-critical features of a TETRA radio. It can also be used to train officers.

Then there's stashcat®, which combines the functions of applications like WhatsApp and Dropbox, as well as a hand-held contact database, real end-to-end encryption and georeferencing. All mobile and stationary devices are also supported, with identical data and information available on them all.

You could also develop your own app or accessory for Tactilon Dabat by joining SmarTWISP – the application developer programme for Tactilon Dabat. It's easy to get started by applying for the Basic level which is free of charge. New parts of SmarTWISP are revealed at PMR Expo 2017 in November.

February 2018 will also see a special **CRITICAL APP CHALLENGE** for mission-critical applications, run by Airbus. Do you want to be part of it? Subscribe to SmarTWISP emails and get all the information on the event here: www.securelandcommunications.com/smartwisp.

You can also get your hands on the TH1n slimline TETRA radio and our TH9 TETRA radio.

An image from PMRExpo 2016, www.pmrexpo.de

- **If you missed PMRExpo 2017, go to www.securelandcommunications.com/pmrexpo**
  And don't miss real-life success stories from industry customers like FRoSTA AG, Frankfurt-Hahn airport, Volkswagen and control centers in Germany.
- **Are you looking for new career opportunities?**
  Come and meet our HR representatives at our stand or visit www.securelandcommunications.com/pmrexpo. We are looking to hire new people to work in this exciting telecoms industry, particularly in Germany.

New ideas for paging

Be sure to see the P8GR active TETRA pager, which reports back on who has been reached by a paging message and who is available for duty.

You can also see two new solutions from our partner Alamos GmbH. The AlarmMonitor 4 (AM4) can interface with our P8GR pager, giving mission commanders a complete real-time picture of who is available.

Commanders can also assign staff different roles. With AM4, firefighters can receive information on vehicle status, see routes on a map and get voice announcements. This solution not only improves the operational efficiency of firefighters, thus saving lives, but also allows completed operations to be analysed to aid improvements. You can also see how the Alamos mobile app running on Tactilon Dabat and smart devices can reach people outside TETRA network coverage. The alert will reach volunteer firefighters, who can also let the control center know if they are available.

Cyber security solutions

Today, standard IT technologies such as IP networking are increasingly applied in critical communications, making them vulnerable to cyber threats. Countries around the world are reacting to this and the EU is bringing policies into force to answer these new challenges, including two new EU Directives on security.

Our new solutions include Tactilon Cyber Security which meets the stringent requirements of mission-critical users as well as the new EU regulations. Tactilon Cyber Security provides monthly vulnerability analyses, patch management, an even more secure system hardening option and an anti-malware tool to monitor anomalies and guard against security breaches.

Mexico set to build a **shared LTE network**

Mexico is set to build a world first in networks, one that will offer broadband services to both consumers and public safety organizations. When complete in 2024, the Shared Network project, known as Red Compartida, is planned to serve 100 million people, around 92.2% of the population.

Another unique aspect of the project will be that services will be offered through mobile virtual network operators (MVNOs). In other words, those who provide the communication services to the users will not own the wireless network infrastructure.

In the future, every service provider will have the same coverage – the coverage of the whole Red Compartida – and the project will open the market to new companies, bringing more investments to Mexico.

Over 120,000 professional users

Red Compartida's users will be consumers and also public safety professionals, such as the current users of the IRIS network. IRIS is the national network for the Mexican public safety and security forces, which Airbus delivered in 1999. IRIS users include the three levels of government: Federal, States and Municipalities - a total of over 120,000 users. They will

ISTOCKPHOTO / Phototreat

ISTOCKPHOTO / JorgeDuarteEstevao

New solutions will exponentially expand the secure communications.

continue using Tetrapol services for mission-critical voice and data and get mobile broadband services over the Red Compartida.

Agencies will pay for access on a rental basis, removing the need to make significant capital investments. Red Compartida will also provide for technology upgrades to 5G and other new technologies.

The new network is expected to begin operations in March 2018 covering around 30% of the Mexican population. The network will continue to grow over a five year span to provide services nationwide using all-IP network and 4G-LTE technology on the 700 MHz frequency band.

Airbus working with network vendors

The network will be built by Nokia, which will provide the entire Core and 40% of the Radio Access Network (RAN), and Huawei, which is providing 60% of the RAN.

Airbus as a future Secure MVNO Service Provider will provide some major components of the network. Airbus has selected Nokia as its technology partner to complement its service platform and is currently engaged in discussions with AXTEL about forming an alliance. Airbus will provide the Tactilon Secure MVNO solution and Tactilon Agnet apps. In addition, the long experience and solid understanding of the public safety business enables Airbus to provide the Critical Communications Service Layer which is the key for bringing mission-critical broadband to life.

All this will ultimately make it possible for IRIS users to adopt broadband based on commercial mobile operators' services without compromising the security of communications and subscribers. In addition, these enable the interoperation with the current Tetrapol users in the IRIS network and exponentially expand the secure communications coverage and capabilities.

Fred Gallart, CEO of Mexico & LATAM for Secure Land Communications at Airbus, says: "This strategic partnership will be very beneficial for public safety entities at all three levels of government which are already using Mexico's Red Nacional de Radiocomunicación de Misión Crítica Tetrapol." This ensures that the government's investments of more than $10,000 million pesos in Tetrapol over the past 17 years keep their value during the evolution towards LTE.

Airbus will also be an S-MVNO operator/service provider for the LTE services.

Raúl de Jesús Ortega Ibarra, Executive Director of Regulatory Law at AXTEL and Public Affairs, says that "AXTEL will be deploying infrastructure to provide services as an MVNE enabler for MVNO operators as well as the future S-MVNO; Public Safety and first-responder agencies will clearly benefit from a 4.5G LTE broadband network to enhance their effectiveness and performance, adding digital-enabled tools such as, encryption, multimedia, geo-location, face/voice recognition, IoT and Big Data."

What everyone must know about IoT, 5G and Big Data

Acronyms and new terms come up in all discussions, even when meeting mission-critical professionals. How will these new technologies affect the daily work of public safety and other professionals? What should you know about IoT, 5G and Big Data?

The opportunities and risks of IoT

The Internet of Things, or IoT, is a general term, meaning that all devices and vehicles and other objects in our home and professional lives are connected via the internet. For mission-critical users, it presents both great opportunities and alarming risks.

The opportunities are that there will be more data and information available for public safety organizations to help important decision-making. There will be sensor data, pictures, videos and other data from accident scenes, but also much historical data that can be analyzed to help prevent crimes.

The risks of IoT are related to security and privacy – how all this information from people's homes, their movements, their actions are kept safe and only used in an appropriate way. Other risks include society's dependence on networks and how power black-outs are handled when most things in buildings and cities are dependent on electricity and communication networks.

ISTOCKPHOTO / NIKOLAY100

Towards a new standard

Any 4G/5G network is essentially a wireless bit pipe that carries data and provides mobile IP services. In the case of 5G, the bit pipe is “bigger” and will be able to carry even more traffic.

5G, a future telecommunication networks defined by the 3GPP standardization organization, will change how people work, spend their free time and indeed live their lives. 4G was mostly designed for mobile devices, but 5G will answer the challenges set by IoT – the fact that networked devices can be anything. Great data speeds, but also efficiency and more cohesive networks are the building blocks of 5G.

For mission-critical users, this means the chance to have great new tools - sharing even very large amounts of information with colleagues. 5G technology offers at least one gigabit per second for connection speeds, shorter delays than 4G technology, and millimeter wave (mmW) bands for supporting applications requiring large capacity.

However, the networks that provide this juiced-up performance need to be resilient and reliable - on the “mission-critical” level.

Work is proceeding in 3GPP to do this. The objective is to make 5G standards, and eventually the actual networks, support mission-critical features like reliability and priorities.

Countries at the forefront of 5G implementation include the US, South Korea and Japan. Many observers will be watching to see when and how mission-critical users in those countries adopt new networks and of course how soon mission-critical features will be implemented. The FirstNet-project in the USA will be one pilot to follow.

Big Data means great insights

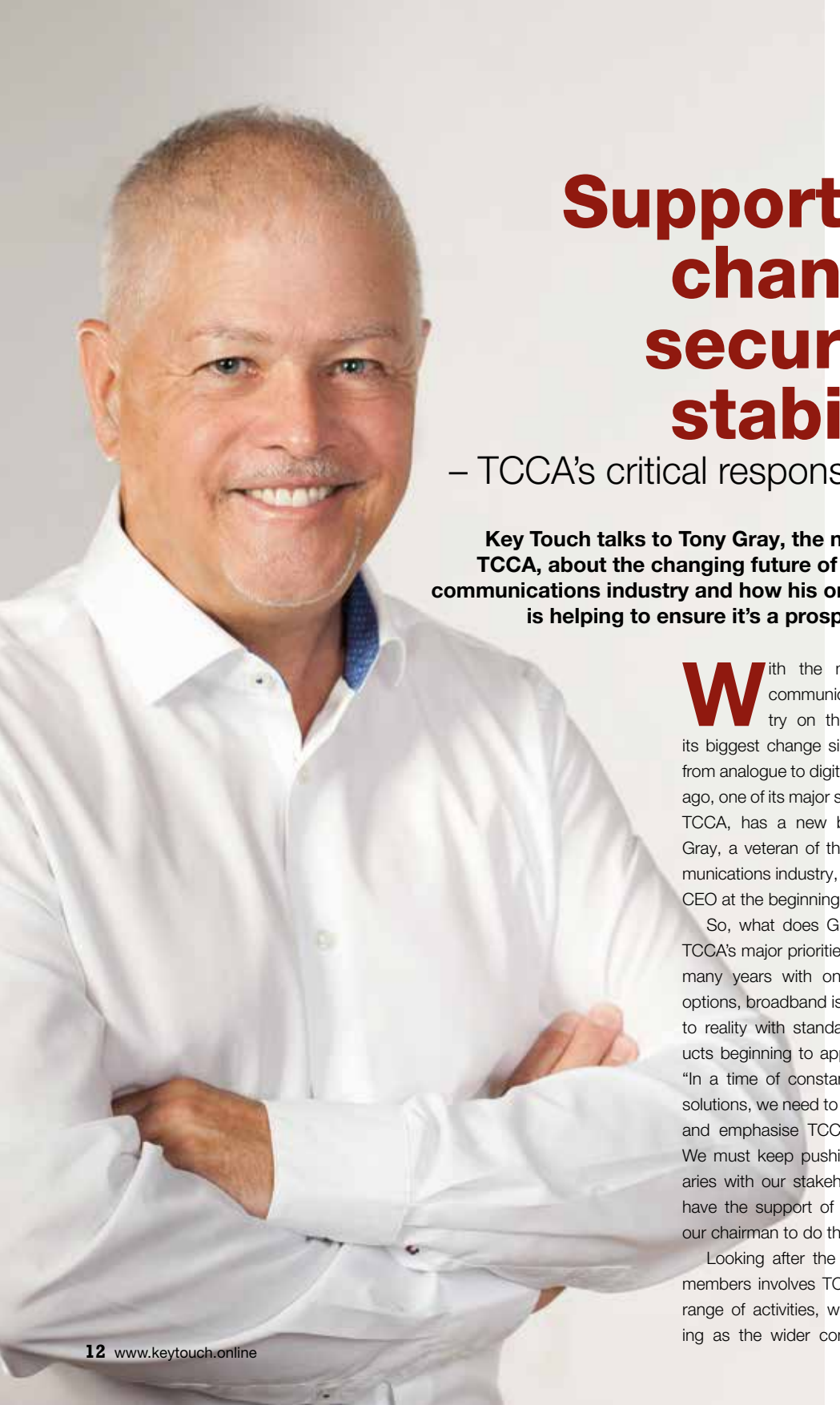
There is no doubt that large amounts of data will be generated by sensors, cameras, foot patrols, maps, databases, drones and more. But how can we make sense of all the data and use it profitably?

Integration of information from different sources is potentially a large task, yet with careful planning and the right tools, valuable insights can be drawn. To prioritize the intercepted information is crucial, as decision-makers can only digest a certain amount of information and draw insights based on it.

Clearly, there is a need for a critical communications service layer on top of 5G networks.

Find more information about this in "Critical Communications Service Layer – Bringing mission critical broadband on 4G/5G networks":

When new things emerge onto the market, mission-critical users are curious and want to see how their world – which is about keeping people and cities safe – will be affected. Although the effects can be very positive, careful planning is needed to achieve the greatest benefits.



Supporting change, securing stability

– TCCA's critical responsibilities

Key Touch talks to Tony Gray, the new CEO of TCCA, about the changing future of the critical communications industry and how his organisation is helping to ensure it's a prosperous one.

With the mission critical communications industry on the threshold of its biggest change since the switch from analogue to digital two decades ago, one of its major support groups, TCCA, has a new boss. Mr Tony Gray, a veteran of the mobile communications industry, was appointed CEO at the beginning of September.

So, what does Gray see as the TCCA's major priorities today? "After many years with only narrowband options, broadband is coming closer to reality with standards and products beginning to appear," he says. "In a time of constantly developing solutions, we need to ensure stability and emphasise TCCA's leadership. We must keep pushing the boundaries with our stakeholders and we have the support of the board and our chairman to do that."

Looking after the interests of its members involves TCCA in a broad range of activities, which are growing as the wider commercial com-

munications industry eyes up new opportunities in critical communications. The newly created Broadband Industry Group (BIG) is a TCCA working group that aims to encourage cooperation between broadband vendors to develop common global critical communications solutions. It's a good example of how TCCA puts into action its philosophy of supporting standards that help to ensure value, innovation and a wide choice of interchangeable equipment for users.

Managing expectations

Working with players new to critical communications is key says Gray. "The traditional critical communications operators recognise the need for broadband, as well as the reliability and comprehensive features that TETRA delivers. However, some commercial broadband operators do not fully understand the nature of the critical communications market and the importance of the critical grade of service that is needed. There is a significant education process and TCCA can be very active in that. We need to promote the features that are non-negotiable in securing users' health and safety.

"For example, we have been involved with the 3GPP. We brought a new focus to the development of broadband standards and are extremely successful in getting the needs of critical communications incorporated into 3GPP releases going forward."

While he is clearly optimistic about the path that the development of broadband for critical communications is talking, Gray does have concerns about the impact of overselling the capabilities of broadband. "We need to be wary of the potential overhyping of broadband that could raise users' expectations to such a high pitch that they cannot be met," he says.

TETRA for many more years

TCCA's task is challenging as it addresses the needs of existing TETRA user organisations. Gray sees a wide continuum of user needs: "TETRA has a long and healthy life ahead of it. Some markets, such as parts of Asia and the Americas, are only now taking up TETRA, whereas in other areas TETRA is long established and organisations are pushing hard for broadband, such as in the UK. In North America, TETRA is developing rapidly into the verticals, such as mining, utilities and transport. Even in mature European markets where TETRA is long-established, operators are renewing their TETRA networks."

TETRA has become the de facto standard, as Gray puts it, for critical public mobile radio because it is based on open standards that give users value, choice and advanced functionality. TCCA has been at the centre of developments, for example developing and running the industry's interoperability testing scheme.

Open standards create innovation

TETRA has changed the work of public safety users, claims Gray. "Users have a huge choice of features, they enjoy crystal clear speech and can communicate over long distances. Devices have become more like smartphones, compact, with colour screens and intuitive menu-driven functions. True cross-border operations, enabled by the TETRA Inter System Interface, are now a reality."

None of these benefits could have been achieved without global, open standards. To achieve such success in public safety with LTE requires the same effort in standardisation, points out Gray. "It's vital the industry doesn't jump in before the right standards are ready and fully tested. In this market, the safety of life is the main concern; we need technology that really delivers when a crisis hits. There can be no compromise."

Backing the hybrid approach

Gray says TCCA is strongly in favour of hybrid networks that combine the critical communications benefits of TETRA with the broadband capabilities of LTE.

"We will see the dual running of TETRA and broadband for a protracted period. We can expect more dual-mode devices, like the Airbus Dabat, being developed to meet users' needs. Eventually, highly advanced smartphone devices will appear and even new types of purely broadband-based devices that we cannot imagine."

"I am proud and privileged to take over from Phil Kidner as TCCA CEO at this time of change. He did a great job to get us where we are today and I am excited to build on his legacy," concludes Gray.

Tactilon Dabat and SmarTWISP **ready for action**

Tactilon Dabat – your questions answered

Tactilon Dabat has now been released to selected customers to test and explore how the device will help their organization.

They and other potential Tactilon Dabat users are bound to have questions, so here we have answered five of the most common ones we expect:

1. ***Can I install Android apps on Tactilon Dabat?***
   Yes, Android applications will run on Tactilon Dabat terminals, because they run Android Open Source Platform.

2. ***How would I develop or purchase a tailored app for our use?***
   SmarTWISP is a program for creating mission-critical apps, making it quick and efficient to create reliable, certified apps for the professional apps ecosystem. See www.securelandcommunications.com/smartwisp

3. ***Are there ready-made, mission-critical apps available and are they suitable for me? Can they be tailored to work exactly as I need them?***
   Airbus will list and market all mission critical apps that have been certified for use in Tactilon Dabat.

4. ***Where can I find companies ready to provide apps for me? Do I ask Airbus or do I search the Internet?***
   A list of Licenced and Certified application developers will soon be published on the SmarTWISP web pages.

5. ***Will apps run on this device without modifications?***
   This depends. Any app intended to run on Tactilon Dabat needs to be tested, certified and digitally signed by Airbus. If you use Google Mobile Services, you can expect to make changes in your app. SmarTWISP will help provide the necessary developer documentation.

Get creative with SmarTWISP

The commercial roll-out of Tactilon Dabat will happen in 2018, fuelling a demand for mission critical apps and helping propel them into the mainstream.

To supply these apps, Airbus has set up the SmarTWISP programme. SmarTWISP supports the creation of an application ecosystem, and helps application developers market their products. The programme offers tailored membership levels, with specific marketing opportunities for free, for all application developers.

User organizations can use SmarTWISP to get their own apps into Tactilon Dabat, too. It's easy to get started by applying for the Basic level which is free of charge.

New parts of SmarTWISP are revealed at PMR Expo 2017 in November.

February 2018 will see a special Hackathon for mission-critical applications, run by Airbus. Do you want to be part of it? Subscribe to SmarTWISP emails and get all the information on the event.

www.securelandcommunications.com/stay-up-to-date-on-smartwisp

CRITICAL APP CHALLENGE

FOR MISSION-CRITICAL APPLICATIONS FEBRUARY 2018

Airbus announces its first Critical App Challenge for creative designers who want to build mission-critical apps for Tactilon Dabat – the industry-first full TETRA radio built into a smartphone.

Do you want to be part of it? Get more info on this inspiring event.
www.securelandcommunications.com/smartwisp

YOU CAN MAKE A DIFFERENCE!

Virtual reality puts commanders in the hot seat

A fire brigade commander looks around at the devastating scene before him – a burning lorry is overturned on the highway, threatening to set fire to other vehicles. Injured people stagger from their cars, helped by paramedics and firefighters.

Yet, he has not left his control room. Wearing virtual reality (VR) goggles, and receiving 360 degree video from a firefighter's helmet cam, he can step into the accident scene and observe in real time what is happening. With augmented reality (AR), he receives data about the blaze's temperature, wind direction and the firefighter's heartbeat. Even though this situation is imagined, the technology exhibited at the Airbus stand at Critical Communications World 2017 shows the possibilities of secure hybrid networks for public safety.

ISTOCKPHOTO / baona

VR and AR will play an increasingly important role in the very near future for rescue services, firefighters, and others. These technologies enable control officers to put themselves into the shoes of a field agent such as a police or fire officer, allowing them to experience the same things. However, more importantly, the control room manager not only sees what the field agent at the scene sees, but actually senses more and knows more about what is happening.

Making it all possible in reality

With this new technology, a completely different way of working is possible - control room officers steer situations at the scene more appropriately, whereas officers at the incident can concentrate on other important things, such as rescuing people.

These technologies are made practical realities through Airbus' Tactilon Secure MVNO (SMVNO) solution, which makes it possible to introduce broadband services based on commercial mobile operators' services and to control the security of the communications and subscribers.

With its high security and support for data hungry applications, Tactilon SMVNO is the ideal platform for advanced services such as VR and AR or sensors that could one day play an important role in smart cities.

Operators of TETRA networks are asking how to cut costs while maintaining the same level of service. Could virtualization and data centres be the answer?

Virtualization of servers is an important trend in the mainstream telecom business.

In practice, the first reason to opt for these techniques is to save on operational expenditure (OPEX). Reducing the number of switching sites also reduces site rentals, electricity bills, and transmission fees. These can account to major OPEX savings, which is good news because OPEX typically accounts for a major share of the total cost of a network over its lifetime.

OPEX tends to grow in proportion to the number of elements in the network. Many TETRA operators are interested in cutting OPEX by using commercial off the shelf (COTS) equipment to perform the same functions as the big TETRA switches. Yet, could this be done in the TETRA infrastructure for mission critical users, maintaining the same availability, security and control?

The answer is, yes.

Putting things **into perspective**

Launched in 2012, the DXT3c switch is as small as a typical TETRA base station, yet is an all-in-one package combining a packet data gateway, base station controller, dispatcher controller, pstn/pabx gateway and a multitude of application connections.

Today, an even more compact, more powerful solution for the ulti-

Should you go for **TETRA virtualization?**

Switching goes virtual

Modern software and powerful server hardware have made it possible to adopt huge and complex switching features in COTS servers. Airbus has implemented TETRA switching and features in such equipment and virtualized DXT switches are already on the market. Further development will integrate other solutions. Examples include Tactilon subscriber management, CDD (Configuration and Data Distribution Server and other common applications such as positioning.

What's more, virtualization has been achieved without compromising high availability and reliability. These virtual solutions will have a unique capability to deliver telecom grade level service availability.

What's in it for the operator?

For existing systems, it can be a worthwhile investment to change the hardware and at the same time upgrade to the latest software release. As TETRA software releases always include valuable new features, operations can be made even more efficient and cheaper, while also improving availability, security and control.

Virtualization offers many benefits. With functions based on software, automated deployment, backup and restore are possible, as well as the ability to scale up services and install on them quickly on demand. Time to market is reduced and there is improved visibility, monitoring and fault management.

The road to the future

The virtual TETRA in the form of Taira Virtual Core shows the road to the future by combining the latest technology with all the requested mission critical requirements for features, availability, security and control. For upgrades and extensions of existing networks, this is a great opportunity to get new equipment based on latest COTS servers, saving OPEX, while for new networks, all these advantages are there from the start.

Why not take action now and get in touch with your contact at Airbus to discuss the opportunities for your existing or coming TETRA network?

mate backbone of a TETRA network is now available - the Taira TETRA Server.

The Taira lives inside modern, commercial off-the-shelf (COTS) server hardware. Advanced virtualization created by Airbus experts means the Taira is smaller and lighter, while offering higher redundancy and availability performance. The Taira provides the true hot standby redundancy that is so important for mission-critical service providers.

Since the Taira uses IT server technology, the network operator can integrate the TETRA system into an existing data centre. This simplifies TETRA system operation by using the same processes as other IT solutions run by the same IT-knowledgeable personnel.

For the operator, the Taira brings an excellent opportunity to further reduce operational expenses. Meanwhile, users still have access to familiar mission-critical services, for example fast call set-up, seamless group calls, the best-in-industry emergency call features, and hundreds of other capabilities developed into Airbus TETRA systems over the years.

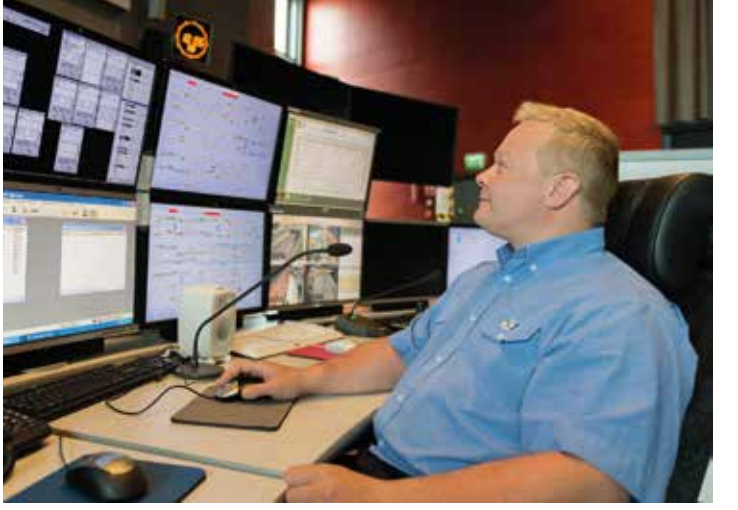
On the right track

In buzzing capitals such as Oslo and Helsinki, smooth public transportation makes all the rush hour difference. Adopting TETRA as their mission-critical communication system has helped these two cities to take care of the commuting business.

A metro transport system is an essential element of any big city's infrastructure. Especially during morning and after-work rush hours, it can rightfully be described as the veins of the city. It delivers "the cells" to where they need to be at any given time so that "the body" can function to its best capabilities.

The metro also reflects strongly and immediately if something goes wrong. A city's commute infrastructure is, even during an ordinary workday, more or less like a house of cards. A little mishap is all it takes to cause big problems and massive delays, if not an outright chaos all around the city.

That is why reliable communications solution is absolutely essential. And that is why Oslo and Helsinki have adopted TETRA networks and radios – to make sure that under all circumstances, people can be reached and information spread efficiently.



Markku Kari, the Chief Operator at Helsinki City Transport's metro control center.

Wide use means wide benefits

"For us, safety was clearly the most significant driver for choosing TETRA", says Tor Ole Aasen, Preparedness Adviser, Safety and Security for Oslo Metro Control Center. "Stability is essential – we have to be able to count on getting in touch with train drivers, maintenance people, guards and so on, even if they are in the middle of a tunnel."

The metro train drivers use their TETRA devices "all the time", Tor Olav Hjelleset, Technical Manager, telecommunications and automation, emphasizes.

"They report to the dispatch center at the start of the day, then report any suspicious activity they see – forgotten stuff, holes in the fence, even people on the rail. It is amazing how much can fit into a perfectly normal day of driving a metro train."

Markku Kari, the Chief Operator at Helsinki City Transport's metro control center, agrees and adds:

"TETRA is extremely flexible and versatile way to communicate."

Going underground

With its 101 stations, the Oslo metro network is the largest in Scandinavia. The need for reliable, accurate communications is constant. To ensure that the Metro Control Center currently has more than 700 TETRA terminals in use. The network, set up by local operator TC Connect, is their own closed system. Jan-Erik Sandbaek, the ICT Coordinator, says that the metro professionals in Oslo are very pleased with the way the network is operating.

"From the safety point of view, when you go underground the network reliability is even more critical. Deep in the tunnels, network coverage typically weakens. Our previous network was able to cover only 70 per cent of the tunnels at best. TETRA's coverage is as close to perfect as it can get. Furthermore, maintenance has been greatly organized. Anything happens, we simply report it to TC Connect and they take care of it. All in all, TETRA network has

proven very reliable, and we are extremely satisfied with it."

Group calls improve communications

Besides safety and reliability, TETRA also stands out with special features – the group call function being one of them. Markku Kari says that the earlier radio system in Helsinki did not feature group calls, so also in that sense TETRA improves communications.

To make communication even more efficient, the metro drivers in Oslo have their own groups based on the direction they are driving. Group calls are an excellent way to deliver a message of any unexpected incident such as a holdup at a station. The following trains are notified before they approach, which makes travel safer and smoother.

"Thanks to their convenience and efficiency, group calls are the most common form of TETRA communication in the Metro Control Center", Tor Olav Hjelleset mentions.

Developing the opportunities

Now that Oslo Metro Control Center has successfully adapted to using TETRA network and radios, they intend to take full advantage of the opportunities.

As the network can conveniently be updated and upgraded, it is viewed as an investment for long term. The feedback has been positive and TETRA is becoming an integral part of metro's daily operations.

"I think we ended up with a system that is stable and secure, and user-friendly as well", Tor Olav Hjelleset says. "And we hope it will develop in the future as well."

In Helsinki, Markku Kari says TETRA was "a natural step forward" in mission-critical communications. Compared to previously used mobile phones, matters can be handled a lot more efficiently. Furthermore, TETRA provides a multi-authorities talking group to get in touch with other authorities such as rescue department and the police. That is not yet an opportunity in Norway – but definitely a direction the men at the Oslo Metro Control Center want to proceed.

TETRA can indeed provide a comprehensive communication system to build on. At the same time, it can help organizations such as Oslo Metro Control Center to assume new roles and responsibilities, should they so decide. The needs to ensure stable and safe commute for the city's inhabitants may evolve, but TETRA's role as the mission-critical system will remain as such. As the three TETRA musketeers from Oslo put it:

"If our communication system goes down, the metro simply stops."

You really can't get more mission-critical than that.

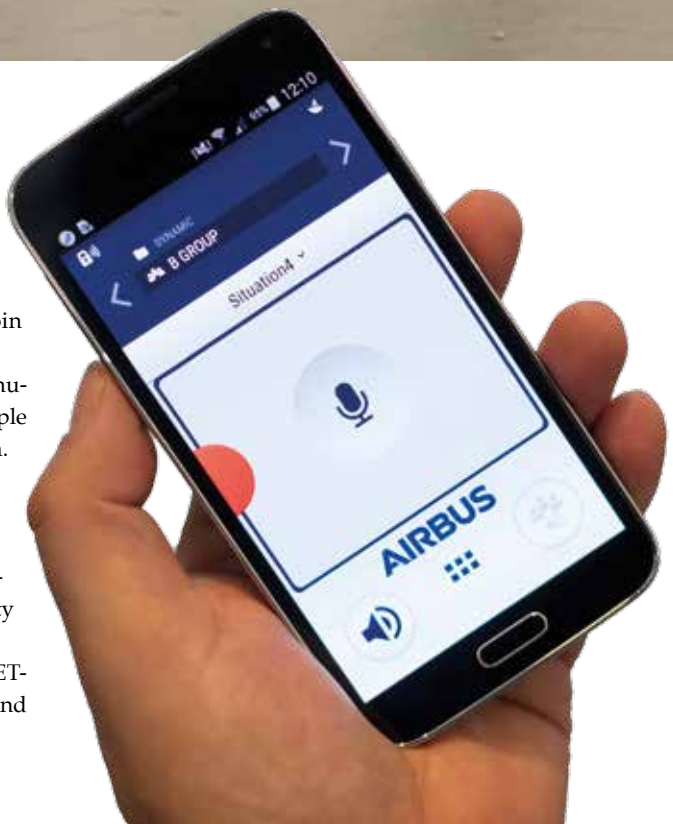
From left tor right: ICT-koordinator Metro Control Center Jan-Erik Sandbæk, Preparedness Adviser, Safety and Security Tor ole Aasen and Technical manager telecommunications and automation Tor Olav Hjelleset

Watch on video how Helsinki metro is using TETRA: vimeo.com/179432802

Make **smartphones** a part of your TETRA network

Professional radio users can talk to each other at the touch of a button. But what if they need to contact people who only have a regular smartphone? Carrying an extra device isn't convenient - so why not upgrade smartphones and allow them to join professional networks?

Tactilon Agnet brings professional group communications to smartphones, letting you talk to people who use a TETRA radio and with the control room.



Keep all transport staff in the loop

For some transportation companies, commercial mobile networks are part of their everyday operations, while their TETRA network's safety, reliability and availability also make it a crucial tool.

Metro companies, for example, tend to enjoy TETRA coverage only at metro stations and tunnels and

along the route. Sometimes staff need to use a TETRA network, even when they are beyond the coverage area or do not have a TETRA radio. These special circumstances could be due to weather conditions (when additional personnel are needed to handle flooding and security) or when maintenance work needs to be done close to stations or in the tunnels. These temporary needs can be met by using the Tactilon Agnet app.

In other words, a smartphone user connected via broadband can use TETRA voice and messaging services, while TETRA and smartphone users can use the same talk groups. Smart device users can talk to the group by pressing the PTT key on their screens - they hear the other members and all members can exchange messages within the group. And because Tactilon Agnet is a smartphone app, it can work outside TETRA network coverage area.

Airport workers make the right connections with Agnet

Busy airports manage hundreds of flights a day, each requiring dozens of employees to communicate with each other. Agnet is a great help when, for example, a person is missing or late for their flight.

Some employees, like load masters, work on one flight at a time. Others, like ramp agents, serve several flights. Tactilon Agnet helps them talk with the right people using just their smartphones.

In the future, Agnet will also offer video communication and location mapping features.

To learn more about Agnet, please visit: www.securelandcommunications.com/tactilon-agnet

A smarter way to live

– how smart cities will transform urban life

Cities are continuing to grow rapidly – today, over 50% of the world's population lives in urban areas and by 2045, the world's urban population will increase by 1.5 times to 6 billion.[1]

People are drawn to cities for the employment opportunities and lifestyle they offer, among many other reasons. This means that city leaders must move quickly to plan for growth and provide the basic services, infrastructure and affordable housing their expanding populations need.

Continuing urbanization also means cities must become more efficient to keep up with their surging populations. And that means smart cities will start to become the norm across the world.

What makes a city smart?

Quite simply, smart cities collect large amounts of data from devices such as connected sensors, lights, and meters. The cities then analyze this data, combining it with information about the daily actions of its inhabitants to improve infrastructure, public utilities and services, and find the most efficient way to run systems.[2]

A smart city sounds attractive but it is also a necessity. According to study in 2015 by Black and Veatch, the two most important reasons for developing smart cities are in the US are cost reduction and environmental sustainability. Other reasons cited include better city management, infrastructure resilience and to attract businesses.

There are four ways a smart city can provide a more efficient and higher quality lifestyle.

Smart cities will start to become the norm.

Hold the doors please

Internet of Things (IoT) devices are increasingly being incorporated into buildings to cut costs and improve the way they operate.

A recent survey by Daintree Networks revealed that almost 60% of building managers in the US have a good knowledge of IoT, while 43% stated that IoT would influence their building's operations in the coming years.

The operation of elevators is another area where smart technologies could improve efficiency, with people in New York City waiting a total of 22.5 years for elevators in 2010. Allied Market Research expects a doubling in the smart elevator market from $12 billion in 2015 to $23 billion in 2020.

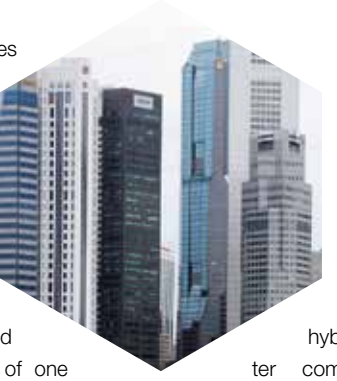
Moving energy around and moving people around

Smart grids are often quoted as an example of what smart technologies could achieve. They help manage demand and supply and ensure that energy is both produced and

consumed in the most efficient and cost-effective ways. The European Commission expects 72% of consumers in the European Union to have smart electricity meters in their homes by 2020, while 40% will have a smart gas meter.

Just as smart cities deliver municipal services to residents more efficiently, public transportation systems must do the same. Smart public transportation would see train and metro stations, bus stops, airports, and car- and bike-sharing stations integrated into a single, connected communications network.

This would bring benefits by allowing city agencies, transportation providers and local businesses to share information in real time, not only with each other, but with city residents as well.



One of the obstacles to achieving smart public transportation can be the current communication networks. Some of these may have been built many years ago and were tailored to serve the needs of one traffic provider. As such, they cannot support communications and information sharing with people outside the organization they were built for.

Smart ways to stay safe

A key aspect of a smart city is the safety of its inhabitants. As cities grow in size, they lead to communities becoming less cohesive, giving a higher potential for threats and more widespread effects when serious incidents occur. At the same time, rising manpower costs force urban leaders to look for smarter ways of keeping their cities safe.

One way is to provide real-time communication for authorities using TETRA/Tetrapol networks, complemented by broadband solutions – in other words, hybrid networks. Better communications can help improve community policing, as well as achieve tighter cooperation between the authorities and city residents. In addtion, the authority networks can be integrated with the IoT system of the smart city.

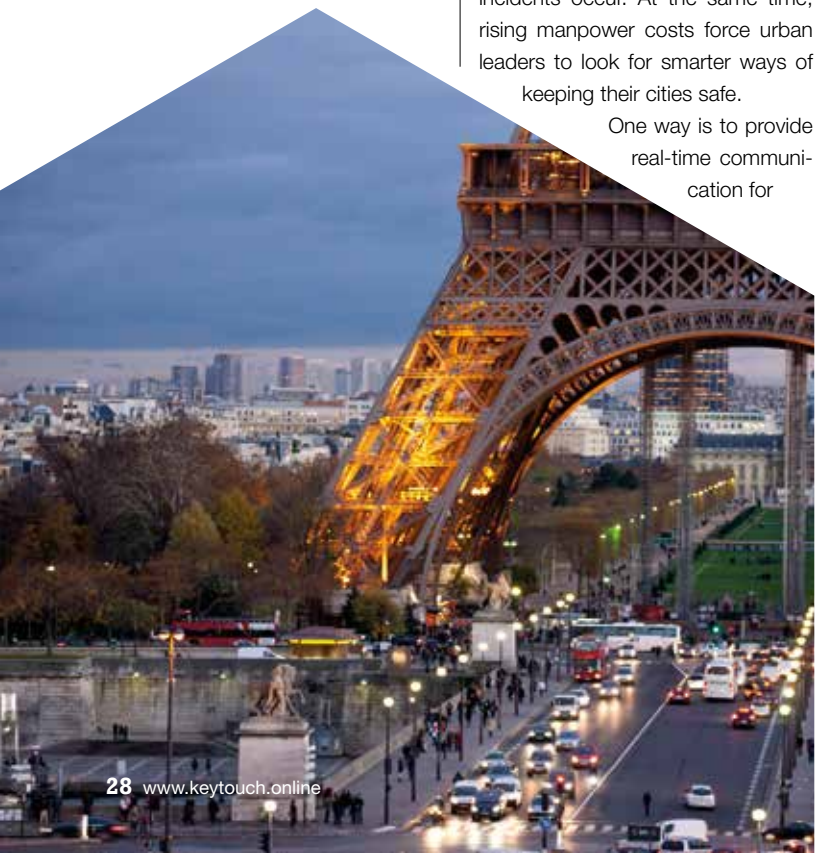
A step towards better community policing is the introduction of a new way of communicating, which allows people to inform authorities of emergencies, crimes and safety problems using special apps.

Effective communications solutions for authorities are vital for fighting social unrest, crime and terrorism and system integration is the key to the success of this program. Radio and data communications complemented by public safety apps, command and control solutions, emergency response systems and public warning systems all have roles to play.

Where in the world are they?

Some of the world's most famous cities are now using technology to transform into smart cities. Several projects focus on transport to reduce pollution and congestion and make it easier and quicker for people to move about.

Barcelona, declared "World's Smartest City" by British market research firm Juniper Research in 2015, has developed a program that supports public transport and



the use of electric vehicles. With a population of more than 1.6 million, Barcelona now has 500 hybrid taxis, nearly 300 public electric vehicles and around 400 private electric cars. The program also calls for the intelligent networking of energy and water supplies and lighting and mobility systems as well as improving the transparency and openness of city administration.

Another city looking at smart transport is Paris, which has developed a system of shared electric cars that has grown since 2011 into a fleet of 3,000 vehicles. Cars are tracked via GPS and parking spaces can be booked from the dashboard.

A similar system is being tested in London, where a smart parking project could cut congestion by allowing drivers to quickly locate parking spaces. London also has plans to test electric car and bike-sharing programs.

Singapore is recognized as a world leader in applying smart mobility policies and technology, a status that saw it take the number one spot in Juniper Research's 2016 Smart City Rankings. Singapore is monitoring traffic congestion and crowd density via hundreds of cameras and sensors, allowing buses to be rerouted at rush hour, cutting the number of traffic jams.

The sovereign city state has ambitions beyond traffic control and intends to cement its position as the world's first Smart Nation. Sensors across much of the city provide huge amounts of data, allowing authorities to find the best way to manage this densely populated metropolis. Parking, waste disposal, lighting and healthcare are just some of the areas benefitting from the smart city approach.

A key aspect of a smart city is the safety of its inhabitants.

How do you get smart?

But how will cities become smarter? The experience of the cities quoted above points the way. They are exploring new methods and technologies through pilot programs and small-scale developments, gradually extending the reach of sensors and data collection and working towards linking it all up to an overall system.

Instead of one big bang, with one overarching system transforming the city overnight, the development of the smart city will be one of incremental improvement. This is analogous to the way racing cars have progressed from an assemblage of mechanical systems to almost become computers themselves, with all their systems monitored and telemetry sending back data to the team's control room.

In a similar way, cities will gradually transform themselves to become more connected, more monitored and more aware. Although the buildings and architecture will remain the same, the future city will feel like a very different place to live.

Reference:
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Additional level of security to Bordeaux

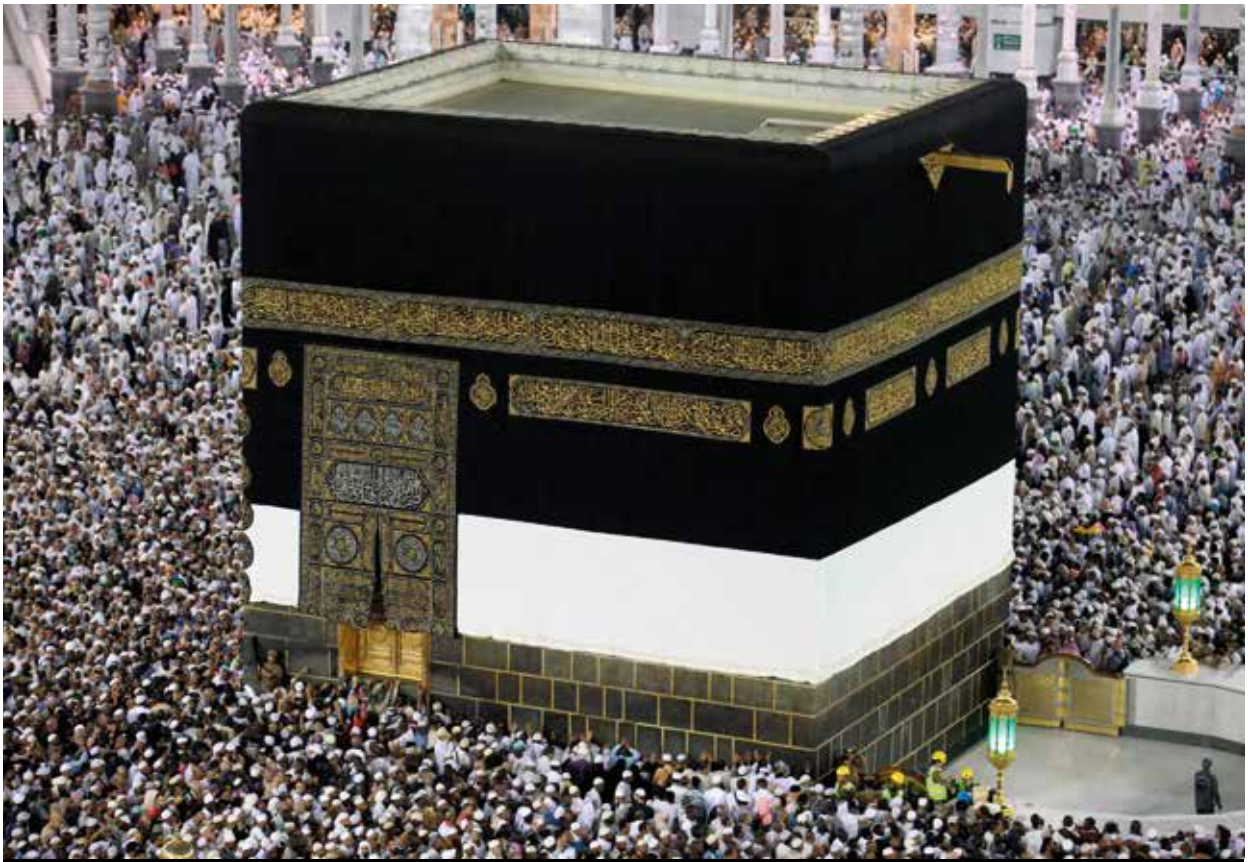
Bordeaux is upping the security of its TETRA radio network with the addition of Airbus DXT3 switches.

Working with its partner Telpass, Airbus has begun upgrading the network in a project that will add an additional level of security. As well as having greater geo-redundancy, the improvements will also reduce maintenance costs.

In operation for more than ten years, the network consists of 15 base stations and routes a total of around five million messages per day.

Most of the network's applications are used for the exchange of data. Among other things, they update the displays of available spaces in car parks or support the performance of the transport system, which serves 28 municipalities.

ISTOCKPHOTO / photooiasson



LEHTIKUVA / AFP PHOTO

A safer Hajj

with Airbus TETRA

An Airbus TETRA network helped to protect more than two million pilgrims at this year's Hajj event in Mecca.

Using proven TETRA infrastructure technology, such as DXTs switches and base stations, and TETRA devices, Airbus and its partner Bravo supported a government client in western Saudi Arabia from 30 August to 4 September 2017.

Bravo's client and other government entities used the Airbus network, while engineers and experts supported Bravo to monitor and operate the secure radio infrastructure and the applications successfully.

As well as its support to Bravo, Airbus has aided the smooth running of this year's Hajj pilgrimage with resilient radio communications technology.

Attracting growing numbers of pilgrims, the Hajj poses increasing logistical challenges, leading the Saudi government to arrange new security measures to protect believers.

Bravo, a public telecommunications company is the only licensed operator in the Kingdom of Saudi Arabia providing governmental, industrial and commercial sectors with services and solutions addressing instant collective wireless communications.

MAKING RADIOS FLY

In-flight experiments with Tetrapol radios

Many Tetrapol users have a need for air-ground-air (AGA) communications, leading Airbus to conduct a series of tests with customers. Using relayed mode and with radio terminals both on the ground and in aircraft, the tests looked at various radio configurations and assessed communications at an altitude of 1,000 feet.

You cannot just take a radio into the helicopter and expect it to work in the network.

How should airborne radios work?

Airborne radios should provide specific functions that promote cooperation between airborne and ground-based personnel.

Forces on the ground and in the air should share a common group communication. Airborne communications should also increase the security of ground teams while ensuring the pilot of an aircraft knows where they are to avoid any collateral damage.

The pilot should also have a map showing all vehicles handling an incident such as a fire. Both air and ground teams should also be informed immediately of any distress signals.

Where's the challenge?

Designed and optimized for people operating at ground level, standard PMR networks are unsuited to air-ground-air communications.

If some radios need to be airborne during group communication, they, as well as the parts of the network they use, will need to have their parameters altered.

It's not enough to take a radio into the helicopter and expect it to work in the network – if the network has not been adapted, the radio in the helicopter will create radio disturbance between people operating on the ground.

What are the options?

The Airbus tests looked at several options to allow airborne radios to work with the ground PMR network.

- The level of transmission of the airborne radio was reduced and tuned
- Modifications were made to the ground-level antenna system
- The handover parameters of the radio terminals were tuned.

In all cases it was found that, without changes in its design, the ground optimized network just cannot support airborne radios.

Based on this assessment, two viable solutions are possible - a dedicated AGA layer, or a shared AGA layer.

OPTION 1

– A dedicated AGA layer

The most feasible solution is a dedicated AGA layer for the PMR system. Recommended by ETSI, the layer eliminates the risk of airborne radios interfering with ground communications.

The drawback is that this solution requires additional dedicated base stations or chained Independent Digital Repeaters (IDRs) as well as dedicated frequencies for AGA communications. The economical way to adopt this solution would be to set up the dedicated AGA base stations on the same sites with the ground communications serving base stations.

OPTION 2

– A shared AGA layer

The other solution is based on a shared AGA layer. This would allow certain base stations to support AGA communications in addition to ground communications. These base stations would be chosen to cover typical flight paths while keeping interference to an acceptable level. The frequency plan might also be re-worked.

In practice, the ideal base stations for this would be low-traffic ones sited on hill tops.

Certain Tetrapol system features could be used to direct airborne radios to the shared AGA layer. This would involve creating a specific talk group for airborne radios and configuring only this talk group into the special AGA-supporting base stations. This talk group would be merged with the regular talk groups which would need to include airborne radios. In effect, air and ground users would be able to communicate together seamlessly.

The main advantage of this approach is that it eliminates the need for dedicated equipment, although interference risks are higher than with a dedicated AGA layer.

In both cases, the equipment used to establish dedicated radio coverage allows voice and data transmission to share group or distress communications and data such as geolocation of terminals and operational status.

While the operational needs of different organizations are quite similar, the approach and the choice of suitable solution for air coverage mostly depend on the available budgets and frequencies.

French Customs casts its net nationwide

Despite its name, French Customs is not restricted to working on the borders of the country, and in fact some operations take officers a considerable distance inland.

The problem this used to cause was the limited functionality of their communications – they could either use group communication over a limited range, using a DMR system, or over a long distance but talking with a limited number of people, using a commercial network.

LEHTIKUVA / AFP PHOTO

In this photograph taken on July 27, 2017, French Customs officials search vehicles returning from Andorra as they cross the border between Andorra and France near the town of El Pas de La Casa.

Thankfully, these gaps are now a thing of the past since the organization decided to keep pace with other Public Safety groups and join the Tetrapol based national INPT network.

Keeping track

With customs vehicles equipped with Tetrapol radios, the service now has secure communication as well as regional and national coverage. All vehicles' positions and availabilities are now tracked on the same map, making it easy to assign them to field operations.

With the Tetrapol solution, the operational state of a vehicle - available, on mission, at an incident - is sent to the control center with one key, while its location is sent automatically at programmed intervals. This removes the need to use the audio channel for status and location reports, leaving it free for more vital communications.

It also simplifies the tasks of the control center coordinator. With all the vehicles involved in a mission shown on a single map, the operator can see how effective the operation is and can call on other vehicles for reinforcements, even supervising a pursuit from the other end of the country.

Help at the press of a button

As well as the new services provided by the network, the security of customs agents has improved thanks to convenient emergency communications. By simply pressing the emergency key of the Tetrapol radio, the agent can be immediately in contact with colleagues or the operations center.

Better group communication allows customs agents to work more easily with the public safety or healthcare forces, as they are now all on the same national radio network.

Following a year-long trial, six customs areas are being equipped to use INPT. Several hundred Tetrapol devices, mobile equipment in vehicles, mobile repeaters and fixed radio stations will be deployed and added to the INPT radio network.

Swiss Police working smarter with mobile apps

Standing in the rain at a road accident site filling out reams of forms is no-one's idea of fun. This is why Swiss Police jumped at the chance in 2012 to adopt a mobile Car Accident app that allowed them to quickly complete all the details at the road side.

With Switzerland being very much 'iPhone country', it was natural to go with the Apple product to run the apps on, especially as the Swiss government also uses them extensively – the Police force also got good deals from mobile network providers in Switzerland.

The speed and convenience of mobile apps fits with the police force's philosophy of doing more with less – with only 20,000 officers in the whole of Switzerland, compared to 18,000 in Paris alone, efficient use of resources is the name of the game.

Daniel Rupp, Chairman of the Swiss broadband communication working group , says: "Improving the way to work has helped save

ISTOCKPHOTO / anouchka

up to 30% of the time police officers spend on a task."

When reporting a car accident, for example, the police can draw on a tablet to record very quickly where each vehicle was and in which direction they were moving. They snap a picture of the licence plates, and the smart device will tell them about the owner, including a photo.

In addition, with the app, two officers can work on the same case at the same time, impossible when papers were filled in by hand. And eventually, the drivers will be able to sign the report right there on site, on the tablet.

Green light for new apps

The cantonal police forces are keen to develop new apps and are greatly aided in this ambition by their skilled IT departments, many of whose members have a background from mobile operators.

Apps are developed together with special partners. The process begins with gathering field requirements and discussing possible uses with officers. Teams of developers and officers are formed to verify that apps can be used in practice. The truth is, if the operational process does not include the use of apps, apps will not be used.

There is also an application that acts as a journal - police officers can easily see what is going on in their area. The police also use standard apps, such as Calendar and email within the iPhone, synchronized with the standard Microsoft Outlook Application.

One drawback of the Car Accident app is the way data is stored - although there are built in databases with registers of cars, each canton today has its own database. The drivers' licences are also recorded at canton level.

Plans to develop a weapons register app faced a similar situation, with no centralized depository of data. The information has now been centralized, making the idea more practical.

The issue of separate databases making the development of professional apps more complex has led to the realization that it is important to harmonize the police information on which the apps are built. In addition, it's important to build standard police apps.

"The current number one app on the wish list is a situation plan showing every unit's location on a map, as well as their status," says Daniel Rupp. "Ideal for civil protection purposes, it would find uses in everyday tasks, as well during unplanned events."

Open yet secure

Security of course is a major concern for the Swiss police. Although the apps use the open Internet, it is possible to secure the applications themselves. The secure parts in their solution are access to data and application download. In addition, the applications on the mobile devices need to be sandboxed.

One issue for the force that remains is the reliability of the broadband network that supports the app, which is far from mission-critical. A particular concern is the lack of backup power for the base stations, meaning if there is a blackout, most base stations will be out of service after 20 to 30 minutes.

By contrast, the secure Polycom radio communications network based on Tetrapol, used for mission-critical voice services, can withstand 72-hour power outages without a break in service operation.

The data apps of the Swiss police have proven their usefulness and will continue to play an increasing role in police operations in the years to come.

3 Which requirements must mission-critical communications meet?

When called out on an emergency, public safety vehicles don't hang around – police cars, ambulances and fire engines race to the scene and everybody gets out of the way to help them do their job.

But it's not only public safety that nowadays is time-critical. Metro companies, mines, airports, and energy companies also need to have the ability to respond quickly.

All these professionals need mission-critical communications, which have to meet the following three requirements:

1 Efficient group communications

Group calls are the backbone for professional communications. Group communication is how teams keep each other on top of the situation.

Different organisations have different needs for their group communications. For a system to be considered mission-critical, it has to recognize different kinds of groups. For example:

- ***Geographic talk groups.*** These groups are based on location. They allow people within a certain area to communicate.

- ***Functional talk groups.*** These are created for a specific purpose, and they should be available anywhere in the network – wherever the team members are.

- ***Fit-to-purpose talk groups.*** Applying both principles results in talk groups that are for a specific task within a certain area.

During years of development together with users, many crucial features have been developed into truly mission-critical systems. These features might be missing in new standards and systems.

2 A fast and reliable connection

The people communicating with their team need a group call, and it has to be fast and reliable. For example, everyone needs to get connected into the group call faster than the blink of an eye.

Communications must also be reliable – available also when other systems fail or when parts of the network damaged. For example, radio-to-radio communications (or Direct Mode) must be possible.

3 The right priorities

Versatile priorities help make sure that the right people can always get through quickly when they need to. For example, an emergency call has to have the highest priority – it must not go unheeded, so as soon as the emergency call button is pressed, it has to get through.

A mission-critical communication system must also let you prioritize talk groups. After all, some teams are more critical than others so their communications should be prioritized.

What's more, the system must make sure that its users will hear the higher priority calls first - even when there's traffic on a lower priority group.

TIP! This is called ***active priority scanning*** in TETRA systems, and if you aren't using it, you're missing a key benefit.

These are not the only requirements

Without efficient group communications that are fast and reliable, and without versatile priorisation schemes, a system just is not mission-critical. Meeting these three basic requirements is a must. In addition, many special features and functions are needed, so that time-critical teams can get to their tasks quickly and complete them rapidly.

Time is critical for police, fire and rescue, and emergency medical teams, but also for mining teams, metro drivers, airport personnel, and teams responsible for oil pipelines or electricity grids. They all need to communicate within the team and with their colleagues on a mission-critical level.

They will also need the communications to be reliable and available – even in extreme circumstances. They will need shock-proof networks such as the ones described in a recent whitepaper:

www. securelandcommunications.com/shock-proof-networks-white-paper

The world's safest rally relies on VIRVE

When a rally competition combines high-speed cars with 300,000 visitors, smooth communication and co-operation between the event organization and public authorities is essential. As a world class rally, the Neste Rally Finland requires world class communication to keep things running safely.

For this grand prix event in the World Rally Championship, the organizers once again used Finland's national TETRA radio network (VIRVE) and Airbus terminals for efficient, reliable communications.

VIRVE – trust and flexibility

The rally's security personnel have relied on VIRVE since 2001. Enormous crowds, heavy traffic and a strict timetable call for the kind of trustworthy yet flexible communications that only TETRA can provide. Neste Rally Finland has been named rally of the year by FIA (Fédération Internationale de l'Automobile) for several years, and safety and good communications played a significant role in this success.

"This year was excellent again – no serious incidents and that satisfies our security organization," says Jari Wilén, Head of Security for the rally. He really knows what this means as he has been head of security since the rally first started using TETRA in 2001. "Skillful staff, good event organization and well working communication tools makes the rally real safe," states Jari.

The rally becomes the country's most important annual sporting event on the first day, when over 16,000 visitors arrive at the Jyväskylä to watch the Harju City Special Stage. "This year, we designed a more comprehensive security plan due the latest global developments and the high number of spectators in this tight city area," Jari explains.

Hundreds of TETRA radios were employed across the event, with the rally organization itself using about 150 Airbus SLC terminals. Users included rally management, the rally security team, safety cars, helicopters, ambulances, medical rescue

teams and special stage leaders. TETRA radios were mostly used for voice communication but also were also effective in delivering a medical team's status as a quick message as situations changed.

Each special stage has a dedicated crew operating its own talk group and concentrating solely on that special stage while sharing rally's security talk group. The Emergency Response Centre also had a dedicated workstation acting as a special rally point, constantly scanning the security talk group.

"We use the same nationwide TETRA network as public authorities to secure co-operation and communication between the rally organization and public services. This makes for smooth and seamless cooperation and it operated well," Jari continues.

Better and faster help through apps

Even if things are done well, there is always room for improvement. "We are handling the event well with the TETRA radios we have, but more radios would be useful on the stages and with the security managers," Jari says. "The new communication features with data services such as pictures, video clips, and applications would give emergency and security staff a better understanding of how situations are developing and ensure they can provide better help more quickly."

As the head of rally security, Jari is looking to the future with a positive, safety-based approach, supported by the highly capable VIRVE TETRA network.

Jari Wilén, Head of Security for Neste Rally Finland

DID YOU KNOW...

The output power of TETRA radios is rated in power classes, for example hand-held radios are typically in Class 3L, with a power of 1.8W, or in Class 3, with a power of 3W.

But what difference do these classes make in real field conditions? And how big a difference does it really make in Direct Mode (DMO) where radios communicate directly with each other and not through the network?

It is not only watts that count

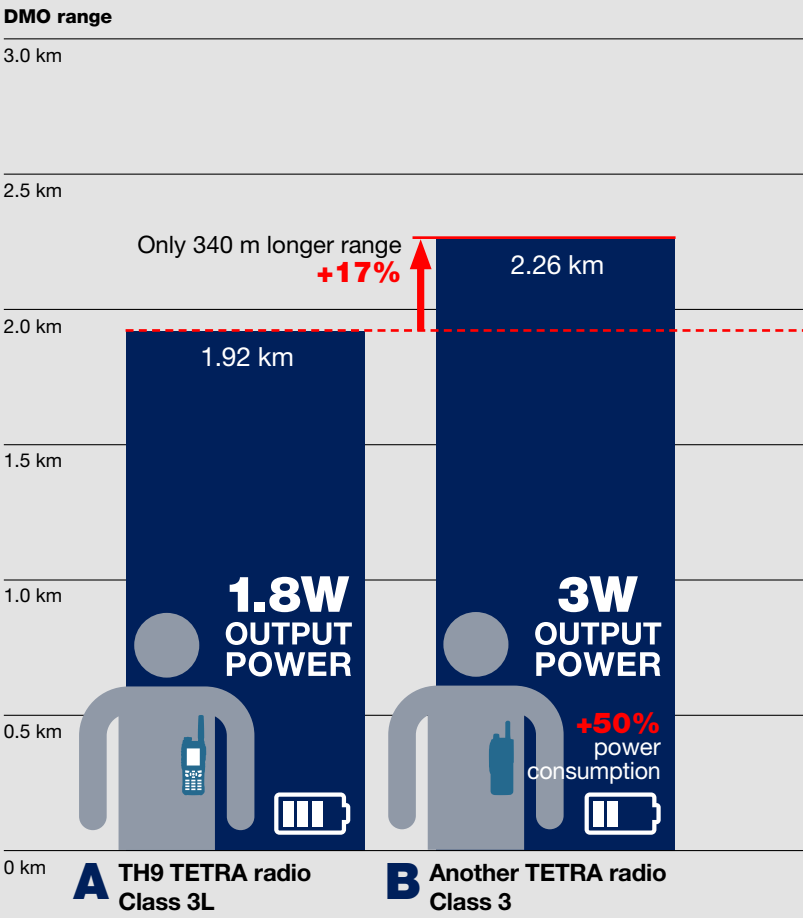
A widely believed myth is that the transmitting distance of the radio increases in proportion to greater output power. But this is simply not true. There are other factors that need to be considered: the body loss, where the power is reduced by being blocked by the wearer's own body and the sensitivity of the radio, as well as signal propagation loss.

Good radio performance in the field in DMO needs these key factors to be optimized. Simply increasing output power is not enough to get the coverage needed.

If we compare a Class 3L and a Class 3 radio, we can show that the increase of output power from 1.8W to 3W extends coverage by only 15%, about 300 meters* when other factors are the same.

However, higher transmission power may consume up to 50% more battery power.

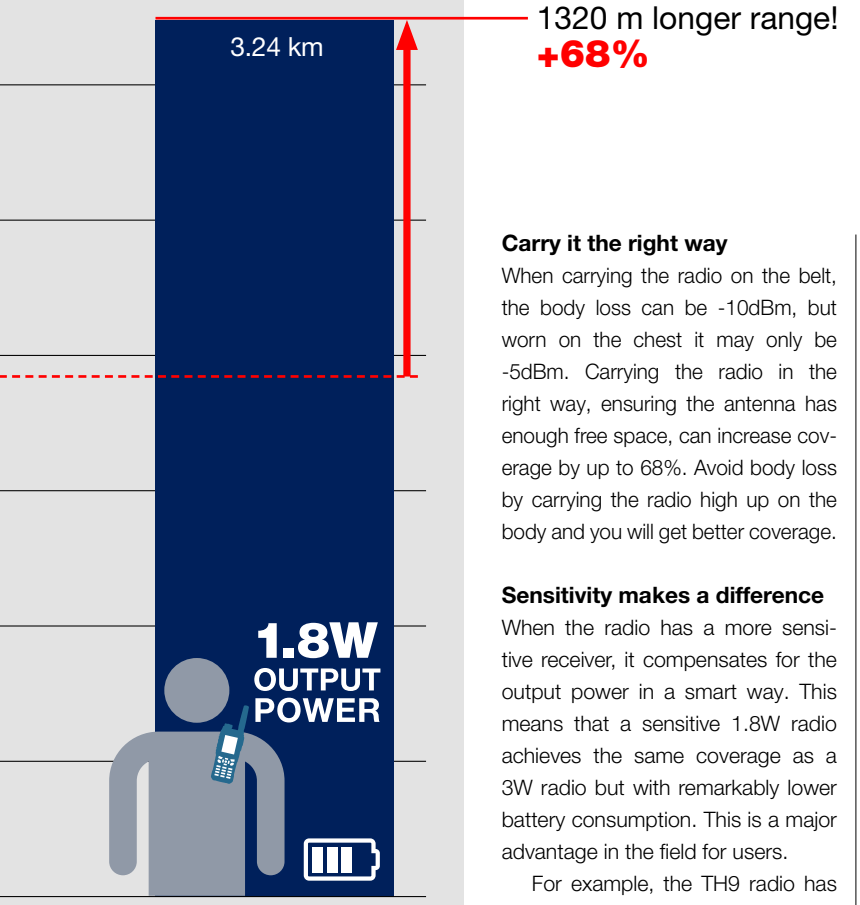
The best way to **boost Direct Mode (DMO) range**



A and B: Radios carried on the chest, similar antenna gain, same body loss.

C: Same output power as in A. Radio carried 25 cm higher, at shoulder height, antenna away from the head.

more radio power doesn't mean (much) better Direct Mode?



C **TH9 TETRA radio**
Class 3L
2dB better Rx sensitivity

Carry it the right way

When carrying the radio on the belt, the body loss can be -10dBm, but worn on the chest it may only be -5dBm. Carrying the radio in the right way, ensuring the antenna has enough free space, can increase coverage by up to 68%. Avoid body loss by carrying the radio high up on the body and you will get better coverage.

Sensitivity makes a difference

When the radio has a more sensitive receiver, it compensates for the output power in a smart way. This means that a sensitive 1.8W radio achieves the same coverage as a 3W radio but with remarkably lower battery consumption. This is a major advantage in the field for users.

For example, the TH9 radio has a sensitive -109 dBm receiver. When the radio is carried on the belt, the coverage area is about 1.9 kilometers. But when carried on top of the shoulder, with the antenna away from the head, the DMO coverage increases to 3.2 kilometers. This is actually 850 meters better than with a 3W radio carried on the belt.

So, don't believe the myth of higher power. Choose a radio with a sensitive receiver to get optimized performance in DMO and lower battery consumption. And carry your radio as high as possible.

Download the printable infographic from www.securelandcommunications.com

* These values are based on a theoretical simulation in open terrain with 390 MHz frequency. These values are theorethical and are indicative results based on the Okumura Hata RF propagation model. In practice, typical DMO range at 390MHz is 1-5km depending on various parameters and on the terrain and other environmental factors.

THREE SIGNS YOU NEED TETRA PAGING

Paging is ideal for alerting first responders to an incident. Yet, most paging systems do not perform as well as they could. Analog systems are becoming obsolete and digital systems may suffer from other problems. Ask yourself three simple questions - if you answer yes to even one of them, it's time to look at TETRA paging.

FRUSTRATED BY YOUR PAGING?

1 Is your paging a one-way street?

Does your paging system work only one way? Are your dispatchers frustrated by not knowing if the alert has gone through? Do the alerted people still have to phone back?

2 Do dispatchers use two different systems?

Your dispatchers may complain that it's cumbersome to use one dispatching system for communicating with staff and a second system for sending out alerts.

3 Do dispatchers have to send different alerts?

Some people may carry a standard TETRA radio, others may carry pagers. Does the dispatcher have to send out two alerts to reach all these people?

Follow the P8GR in Facebook

Did you know? You can stay up-to-date on radio communications and related topics by following the "BOS Alarmierung – P8GR" on Facebook."

NO MORE PAGING PROBLEMS

Adopt P8GR active TETRA pagers instead and your frustrations will be a thing of the past.

Paging works in two directions

When the P8GR receives an alert, the user can accept or reject it with a simple key press. The dispatcher knows at once who is available and whether to call in more people.

What's more, the dispatcher knows which expertise the incoming people have. For example, if a person with hazmat training is needed, the dispatcher will know whether a suitable expert is coming.

One system, two uses

The dispatcher can send alerts on their regular workstation – the same that they use for communicating with the teams. It only takes a single click, no matter how many people need to be alerted . And with TETRA, the alert will go to everyone in less than half a second.

One click will reach all

People will get the alert, regardless of the device they carry. The regular crew gets the full call-out on their TETRA radio, while volunteers are alerted on their P8GR active pager.

Do you have questions about TETRA paging? Reach out to our experts via marketing@securelandcommunications

The "BOS Alarmierung – P8GR" page, opened on 2nd of April 2017 concentrates on topics related to paging in general and to the P8GR TETRA pager in particular.

At the time of writing this, the "BOS Alarmierung – P8GR" page had 971 followers.

The community around this specific Facebook page has been very active. We get ideas for contributions directly from the followers. They write to us not only their opinions on the product but also their improvement suggestions, technical questions related to the product and questions related to accessories.

It's been rewarding to interact directly with the users through Facebook. We've learned a lot and gotten new ideas, but the most important thing is that we can help the users and answer their questions very quickly.

New TETRA modem is ideal for IoT

If you are transferring crucial data that needs to remain secure or you need to be confident your public announcement systems work in exceptional circumstances, then the new TW1m TETRA modem from Airbus could be just what you need.

Designed for solutions that require high availability, extreme security and low energy consumption, the TW1m TETRA modem is ideal for mission and business critical Internet of Things (IoT) applications.

Small and energy efficient, yet big on performance, the Airbus TETRA TW1m modem offers standard connectors such as data RS232 or USB interfaces. This enables the modem to be integrated into many different solutions, such as supervisory systems, voice applications, SCADA, custom telemetry, position tracking and many more.

Fully secure

TW1m provides dependable information transfer where 'best effort' is just not good enough. Advanced security features, including an end-to-end encryption option and GPS positioning extend the usability and uses of the TW1m modem in real-time monitoring, alerting and the transfer of crucial information. As well as data, the TW1m can transmit voice safely, both in trunked and direct modes, for example in civil alerting systems. With full TETRA radio functionality, messaging and packet data can also be used.

Monitoring ships at sea

The first practical use of the new product will be in the United Arab Emirates, where the TW1m modem will be integrated into a vessel tracking device built by Airbus local partner Atlas Telecom. This device communicates over TETRA to the E-Passport monitoring system to transmit the location of vessels off the coast. Atlas Telecom delivered the first generation of E-Passport ten years ago and will soon establish the new generation solution based on TW1m.

The compact TETRA modem TW1m will complement the current TDM880i module in the Airbus TETRA portfolio and it will be available in 380-430 MHz and 800 MHz frequency bands.

ISTOCKPHOTO / GUNNAR HAUG

The **cover star**

Earlier in 2017, you voted on 20 covers for the title of the best Key Touch magazine cover.

Finally, we can reveal the winner: the Brazilian Portuguese issue in 2011 was voted best cover of all time.

Perhaps it was the authenticity of the image that made it stand out? The police officer also looks very stylish in her shades.

The runner-up cover was from issue 3/2011, with a security guard posing in front of dynamically receding lines. The cover also promises "Data does more". A positive message!

The prize of a book and a box of chocolates was awarded through a draw amongst the voters and the winner is Roger Morton from Venezuela.

Key Touch 2/2017
November 2017

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Palko Design / Petri Bergman

PRINTED BY:
Libris Oy

The printed version of Key Touch magazine will be closing after this issue 2/2017 – Key Touch continues at www.keytouch.online

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