Enjoy!

THE ETSI MAG

EMERGENCY COMMUNICATIONS: WATCH OUT!

ETSI

Editorial

"eCall could save hundreds of lives every year."

From April 2018, European regulation has required all new cars be equipped with eCall technology, giving automatic access to Europe's 112 single emergency number that's triggered in case of a serious accident. Once the system is fully implemented, the Commission estimates that eCall could save hundreds of lives every year and allow emergency services to assist injured people quicker.

This issue of Enjoy! is focused on emergency communications and features an exclusive interview with a member of the French Ministry of Interior who tells us about the next generation of the 112 number. This is further developed in our "Tech Highlights", while we put critical communications "in the spotlight" with our globally-used TETRA standard and its evolution. Elsewhere, two of our members explain how ETSI emergency communications standards are successfully implemented in Italy and in the Principality of Monaco. We also see how standards developed by our committee in charge of satellite communications have a key role to play in disaster relief, while the 3GPP SA6 Chair explores the role of 5G for broadband mission critical communications.

In this summer edition of Enjoy! we are delighted to recognize the outstanding contribution to our organization of three new ETSI Fellows.

Located in the famous French technology park of Sophia Antipolis, we celebrated its 50th anniversary this year by organizing a Neighbours' Day where we got acquainted with our peers from other companies around us. Meanwhile our online library offers new resources including our corporate brochure, brand new cybersecurity video and latest work programme. Do not hesitate to ask for any of them to spread the word when you attend conferences, to include in your presentations or simply to get more familiar with ETSI.

And now I will let you discover more about our new members, our European and global partners and much more…

Enjoy your summer!

Luis Jorge Romero,
ETSI's Director-General

New ETSI Group
on maritime information-sharing

The new ETSI Industry Specification Group on European Common Information Sharing Environment Service and Data Model (ISG CDM) held its first meeting in May 2019.
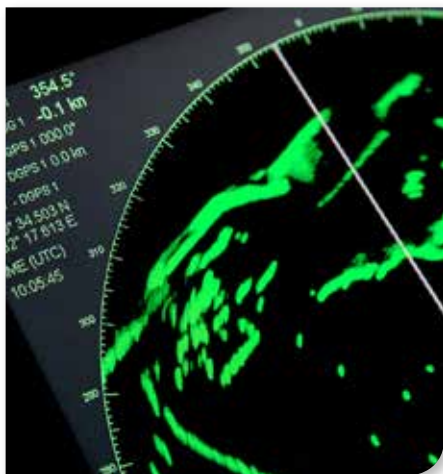
The group will develop specifications to allow data exchange between the existing systems in a cooperative network to enable a Common European Information Sharing Environment (CISE). CISE aims to improve maritime situational awareness by enhancing the maritime public authorities' abilities to monitor, detect, identify, track and understand occurrences at sea and provide reasoned grounds for relevant action. The work programme of the group and dates of the next meetings are available on the Committee's page of our website.

New Mission Critical
interoperability event

From 23 to 27 September, ETSI will organize the fourth MCx Plugtests™ event at the Savonia University of Applied Sciences in Kuopio, Finland. The event will test all components of the mission critical communication chain, Mission Critical Push To Talk, Mission Critical Data and Mission Critical Video, specified in 3GPP, with test cases based on the ETSI specification TS 103 564. These interoperability events are the first independent evaluations of public safety and mission critical Long Term Evolution (LTE) features testing the interoperability of MCx products and services. This year, sessions will focus on tests with radio equipment with Unicast and Multicast support and will also allow Over-The-Top testing of Mission Critical Servers and Clients.

IoT week
is coming!

This year's edition of the IoT week will be held from 21 to 25 October 2019.
It has become the must-attend event for anyone involved in IoT who understands the importance of standard technologies for the deployment of IoT services. With an expected participation of more than 200 experts, ETSI IoT Week is an excellent opportunity to meet and interact with other IoT stakeholders and to contribute directly to the development of the future of IoT standards. The event will focus on the IoT service layer interoperability, including both standard-based oneM2M

and industrial solutions, and also on the IoT standard-based communication technologies, NB-IoT, LTE-M and 5G developed by the 3GPP partnership project, and IoT security and privacy. Registration is now open, so join us!

ETSI MEC hackathon: the success story behind it

The ETSI MEC Hackathon has been the main entrance to MEC standardization for the recently founded company Edgegap. The company won the first ETSI MEC Hackathon prize in September 2018 in Berlin before being selected in March 2019 to join the team leading the Multi-Access Edge Computing Track at the upcoming NFV Plugtests® event, located in Sophia Antipolis, from 3 to 7 June 2019. Mobile World Congress 2019, Barcelona, was the place for the Canadian startup and its CEO, Mathieu Duperre, to demonstrate a new online gaming experience based on ETSI MEC specifications.

In September 2019, Edgegap will support and join the Edge Compute Congress thanks to the free entrance granted along with its ETSI prize one year before. The congress will host the next ETSI MEC Hackathon. Edgegap is a good example of ETSI's endeavour to attract and guide innovation while bringing startups, developers and its Membership closer together.

In our exclusive interview, Guillaume Lambert explains the importance of the next generation of the European 112 emergency call, NG**112**.

The emergency call in Europe is 112, so what is NG112?

The rapid pace of change in consumer technology creates intense pressures on public safety communications. Sending text messages, photos and video clips has become commonplace for users of mobile devices, yet the legacy circuit-switched system that is still used when dialling an emergency call does not support those features. The current 112 is not capable of handling text, video or data. Next-Generation 112 (NG112) developed in the ETSI Technical Committee EMTEL is addressing exactly this, making emergency communications fit for the new age of communications.

Interview
Guillaume Lambert,
Deputy Secretary General of the French Ministry of the Interior

Guillaume Lambert is a senior executive of the French Ministry of the Interior, with 15 years of operational experience at the highest level of State, alternating executive responsibilities and the conduct of strategic projects. Resolutely turned towards innovation, Mr Lambert has been involved in the development of the NexSIS digital emergency services platform, the Deployment of eCall National Infrastructure and the Definition of Artificial Intelligence strategy within the Ministry of the Interior, to name a few. Currently the Deputy Secretary General of the Ministry of the Interior, he graduated from the Paris Institute of Political Studies and the Naval Officer's college.

> **The rapid pace of change in consumer technology creates intense pressures on public safety communications.**

NG112 mainly relies on Emergency Services IP networks (ESInets) which will connect several Public Safety Answering Points (PSAPs), so when a call is made to the emergency service, it is routed through the ESInet with additional data. NG112 is this layer that unleashes the full potential of modern communication in today's emergency calls infrastructure. It's ultimately about synchronizing emergency calls to the IP era, hence the fact that we talk about "emergency communications" and no longer about "emergency calls".

This sharing of additional data (video, text, location data, threads from social networks, sensor data in a near future) will tremendously increase the efficiency of emergency services – and ultimately save lives.

For the record, the number to remember throughout the EU is and remains 112. The NG part is, if I may say so, "back office", even though thanks to this revolution, emergency services can be alerted directly from the internet as well as by phone.

What is the timeline of implementation of NG112 in France and in Europe?

We expect the operational deployment of NexSIS to start at the end of 2020. NexSIS is the "node" of the system, the nervous centre if you will, where emergency communications will be received, processed and dispatched. With NG112, not only calls will arrive but also text, images, data and video, which the NexSIS digital hub will then process to the appropriate PSAP, aggregate and dispatch to first responders.

In France, the ANSC (Agence du Numérique de la Sécurité Civile, created in October 2018) will operate NexSIS. The agency is currently drafting a call for tender for a system based on an ETSI standard. The standard is now stable; there have been three interoperability events so we are confident that the procurement should reference NG112.

As far as Europe is concerned, we believe a common approach with the ESInets design is necessary to ensure that all emergency communications are routed in the same manner, with the same functionalities in a seamless way across Europe. For that matter, regulators have a key role to play.

> **We expect the operational deployment of NexSIS to start at the end of 2020.**

In parallel to the standardization work taking place at ETSI, we are discussing with the European commission and the BEREC (the Body of European Regulators for Electronic Communications) the proactive role they must take in the transition to NG112 by promoting a common architecture of ESInets and taking the necessary regulatory steps to ensure EU-wide effective and reliable emergency communications.

The French Ministry of the Interior recommended the inclusion in BEREC's work programme 2020 of an item on next generation emergency communications, with the objective of addressing the remaining issues of the ECC and making emergency access fit for the new age of communications.

This sounds like a sea change in the operation of emergency services…

Right, and in fact the most challenging issues are not technical; they relate to the digital transformation of the emergency communications and the impact it has on operations, jobs and skills. This is not specific to operating emergency services, but the nature of this job demands that we address this challenge swiftly and we are putting in place programmes of change management for all those involved. The experience of others such as NG 911 in the U.S. is a wealth of findings.

France is pioneering in Europe in how to envisage and design emergency communications and this "leap into the unknown" is exciting, challenging and full of expectations throughout the chain and among the public.

ETSI is proud that its standards-making platform was able to enable the development of NG112 standards, but is there in your opinion more ETSI could do to support the next steps?

My involvement in standards-making is rather recent but I am convinced that standards are essential to the transformation of the economy and society that digital technologies provide.

> **Standardizers must ensure that what is at stake and the value of standards is understood by all those who are involved.**

I think however that the benefit of standards is not well understood by "laymen". This is quite important as standardization for the digital world reaches out to new audiences, not necessarily specialists. Standardizers must ensure that what is at stake and the value of standards is understood by all those who are involved, be they requirement providers, implementers or users.

Welcome to our NEW members

🇮🇹 Aruba PEC, Italy

Aruba PEC is one of the companies of the Aruba group founded in 2006. It is an organization accredited by AgID (Agenzia per l'Italia Digitale) and it is also present in the public list of certified mail operators.

🇺🇸 Cambridge Blockchain SAS, United States

Present across three continents, Cambridge Blockchain makes digital identity enterprise software for financial institutions. The company allows financial institutions to better respect the new data privacy rules, eliminate redundant identity compliance controls and improve the customer experience.

🇳🇱 CNH Industrial, Netherlands

CNH Industrial is a global leader, providing products for agricultural equipment and construction equipment trucks, commercial vehicles, buses, and special vehicles in addition to powertrains for industrial and marine applications. The firm develops connectivity and improves digitization to offer better customer experience.

🇨🇭 Crypto International AB, Switzerland

Active in more than one hundred countries since 1910, Crypto helps keep societies and organizations around the globe more secure by safeguarding critical assets through top-level cybersecurity and encryption services. Crypto focuses exclusively on international operations.

🇩🇪 CTC advanced GmbH, Germany

CTC advanced provides tests and certification of electronic devices with most advanced telecommunication interfaces. The line-up of products tested is wide and ranges from e-marking for subassemblies of vehicles to contactless credit cards as well as hearing aids or magnetic resonance imaging scanners.

🇲🇨 Direction du Développement des Usages Numériques (DDUN), Monaco

DDUN, the Smart Country Division, aims at planning, managing, defining, maintaining and promoting all the Principality's resources related to the electronic communications sector. It aims at increasing "smart city" services and, more generally, promote the concept of "smart country".

🟡 Eurosmart AISBL, Belgium

Eurosmart is an international non-profit association. The association represents the digital security industry in the fields of digital identities, data protection, cybersecurity, Internet of Things, payments and border management. It is committed to continuously improving the quality of security applications.

🇮🇹 Mangrovia Solutions, Italy

Mangrovia Solutions is a systems integrator and software house specializing in applied cryptography technology. The company offers full-suite services comprising consulting services, smart contract development to tokenization models. A variety of industries are involved, such as energy, fintech, supply chain, food distribution and crypto gaming.

🇳🇴 Norwegian National Criminal Investigation Service, Norway

The NCIS assists the Norwegian police in investigations and further develops police cybercrime expertise. The service also provides help in digital forensics, operational crime analysis, interception of communications, covert surveillance, informant handling, witness protection, and investigation support with evidence on the internet.

🇭🇰 PCCW Global B.V., Hong Kong

PCCW Global is a telecommunications provider, offering the latest voice and data solutions to multinational companies and communication service providers. Covering more than 3,000 cities and 150 countries, it reaches the most remote and hard-to-reach places in growing markets.

🇮🇱 Satixfy, Israel

Established in 2012 by leading entrepreneurs in the satellite industry, SatixFy designs next-generation satellite communication systems based on in-house developed chipsets. It also develops a line of satellite communication modems with Satellite Digital Radio (SDR) and Electronically Steered Multi-Beam Array (ESMA) to support the most advanced standards.

🇯🇵 Trend Micro, Japan

Trend Micro's primary goal is to secure the exchange of digital information around the world. Based on the security strategy XGen™, their solutions for consumers, businesses and government organizations deploy multi-layered security for data centres, cloud environments, networks and endpoints.

US Bank, United States

The US Bank provides banking, investment, mortgage, trust, and payment services products to individuals, businesses, governmental entities, and other financial institutions. In 2018 the company was recognized by the Ethisphere Institute as one of the most ethical companies in the world.

Vayyar, Israel

Founded in 2011 Vayyar develops safe, mobile, low-cost 3D imaging sensors, enabling applications in the fields of cancer detection, people-tracking, vehicle automation, security, radiation-level testing and construction. Vayyar's mission is to help people around the world improve their health, safety and quality of life.

Verint Systems, United States

Verint Systems is a global leader in software and hardware products with a focus on customer engagement optimization, security intelligence, and fraud, risk and compliance. Nowadays, over 10,000 organizations in more than 180 countries count on intelligence from Verint solutions.

ZITiS, Germany

ZITiS is a service provider for security authorities in Germany. The tasks are based on the needs of security authorities and include the areas of digital forensics, telecommunications surveillance, cryptogram and large data analysis, as well as technical crime, security and counter-intelligence issues.

Nowina Solutions, Luxembourg

Created in April 2014, Nowina Solutions is an expert in eSignature in the European Union. The company offers solutions on eSignature and helps other companies to seize the opportunity of eIDAS.

Behr Technologies Inc., Canada

BehrTechis is a worldwide licensee of the MIOTY™ LPWAN technology for Industrial IoT. The company is focused on commercializing, licensing, supporting the MIOTY technology and the development of new MIOTY-based products and applications for the Industrial IoT marketplace.

Radboud University, Netherlands

Radboud University is a public university with a strong focus on research. The university has seven faculties and more than a hundred programmes: bachelor and master. It is focused on the challenges of tomorrow such as digitalization.

EUCOMREG, Belgium

EUCOMREG contributes to the evolution of the EU regulation and standardization in the areas of electronics, telecommunications and radio technology. It specifically focuses on radio communications for the Internet of Things.

Telecommunications User Interface e.V., Germany

Telecommunications User Interface e.V. is involved in human factors and user activities. It deals with issues relating to the ease of use and accessibility for all users and the users' requirements.

Peritum, United States

Experts in standard setting since the 1990s, Peritum provides engineering consulting services related to standards and communications systems.

Interview
Christophe Pierre,
DDUN Smart Country Division – Monaco

The Interdepartmental mission for Digital Transition of Monaco is helping the Principality move towards the new digital era. A member of this mission, Christophe Pierre, head of the Smart Country Division, gives us an exclusive insight into their vision for the future.

What is the role of the Smart Country Division within the Monaco Government?

The Smart Country Division is under the authority of the Minister of State and is in charge of the digital transformation of Monaco. In coordination with government departments, we develop various services relating to the "smart city", and, more generally, the "smart country". These enhanced services include the planning, allocation and management of all the Principality's resources relating to the electronic communications sector such as frequencies, satellite positions, public highways and traffic management.

Christophe Pierre is head of the Smart Country Division (Direction du Développement des Usages Numériques) for the Government of Monaco. Belonging to the Interministerial delegation for digital transition, he is in charge of two distinct missions, one to regulate operators, frequencies, numbering and domain names and the other to enable new digital Smart City and Smart Country services.

Holding an engineering diploma in telecommunications, he worked for 14 years at Monaco Telecom and became the head of Monaco's regulatory authority in 2010. In line with the Monaco Government Programme for a whole digital transition of the Principality, he co-leads thematics such as Smart Mobility and Smart Education with the backing of relevant ministers.

We also define the rules and eventual limitations of the use of electronic communications networks and services in application of the laws and regulations and environmental and public health issues. To do so, we certify electronic communications equipment, playing a consultative role and making proposals relating to such issues as urban planning and national security.

> ## We follow public health issues very closely and advise on urban planning and national security.

Establishing and maintaining close relations with foreign administrations and bodies that specialize in the field of electronic communications, as well as with foreign public and private operators, is also an essential part of our role.

Monaco is highly involved in the smart country concept; can you tell us more about it?

Indeed, we have built up a dedicated smart country programme (Extended Monaco) which involves the government and the private sector. This important initiative aims to encompass and improve the entire Monaco ecosystem. The idea behind a smart country is to manage and enhance user experience on such topics

> ## For our smart education project, we introduced computer coding classes from kindergarten, as it is closely linked to grammar.

as mobility, environment, urban planning, e-government, smart education, smart healthcare, etc.

The smart education programme is one of the projects we nurture where we combine education and digital technology. We work in close partnership with the Ministry of Education in order to implement our actions. One key achievement was the introduction of computer coding courses from kindergarten up to junior high school; this coding skill can facilitate other subjects taught such as grammar and music. We therefore provided young students with digital devices such as tablets as well as digital assignments where teachers and alumni can interact with the students. This year we also decided to launch a pilot AI-based "chatbot" to exchange with students and guide them through their choices of studies, based on their skills and personal preferences. It will be more widespread at the beginning of the next school year.

As an ICT standards body ETSI also addresses smart cities-related areas; is this what triggered your wish to join us?

Yes, we wanted a neutral place where solutions would not be proprietary and for us, ETSI is the right place to develop

> ## We wanted a neutral place where solutions would not be proprietary; ETSI is the right body to develop ICT quality standards.

ICT quality standards. Standards are essential to us when making the right choices between IoT equipment manufacturers and are essential to provide interoperability. When we talk about smart cities, it means better monitoring and control of our city

resources, including all of the collected data from multiple departments and thousands of IoT sensors. It is therefore necessary to collect, qualify and analyse all of this 'city data' in order to make it relevant to users. The ETSI cross-cutting Context Information Management group (ISG CIM) addresses this challenge. Their goal is to enable applications to update, manage, and access context information from many different sources, as well as publishing that information through interoperable data publication platforms. We actually need business intelligence so that collected data offer alternative scenarios to the city operational management. IoT security and data privacy is also a key topic for us along with other important areas of emergency communications.

Speaking of emergency communications, is Monaco using an ETSI standard for its public safety services?

Yes, in Monaco many public services currently use the ETSI TETRA standard! The police, the fire brigade, hospital services, road authorities and even some utility companies such as gas, water and electricity suppliers. There is a significant TETRA deployment in Monaco that is managed by the police department in order to make sure that all public safety services can be reached in the event of an emergency even if the public mobile radio network fails. We also have cross-border interoperability with TETRAPOL, the other standard used in France. Interoperability between neighbouring countries is a big issue for Monaco, and ETSI's work on interoperability between various technologies has helped us manage emergency situations seamlessly.

The emergency call NG112, another important ETSI standard, is also currently being implemented in the Monaco area. We are working on data acquisition and interworking to process data in the correct format for our emergency centres. We also seek to enhance the overall user interface with a better positioning of mobile radio and data location of the fixed network.

Next Generation 112:
interoperability & conformity tested in Europe

ETSI Plugtests™ demonstrate maturity of technology which will change the way emergency calls are handled.

Thriving tech industries like the Internet of Things and 5G can have a lifesaving role in Next Generation emergency response. Embracing them can create more efficient, accessible and flexible emergency services. But despite being deployed in North America, Next Generation 112 is almost non-existent in Europe. This could all change as ETSI's recent NG112 Emergency Communications Plugtests™ event demonstrated that the conditions for procurement and deployment of the architecture have been reached. In parallel, the ETSI EMTEL Committee (Emergency Communications) is working on an upcoming standard:
ETSI TS 103 479.

Improved services for citizens

As we move increasingly to communications based on video and text, emergency services risk becoming isolated as one of the only services accessible exclusively by traditional phone call. This will only become more of an issue when the Public Switched Telephone Network is phased out. NG112 involves a network of full IP-based networks architecture. Emergency services will therefore be able to receive much more varied data than voice, including text, photos and video calls. The improvements will address difficulties faced by the public, including the needs of the millions of European citizens with disabilities. Various use cases will soon be trialled in EENA's (European Emergency Number Association) upcoming NG112 pilot project.

Interconnected emergency call centres

NG112 will also allow for the interconnection of emergency call centres. A range of new possibilities, such as routing based on overload of centres, will be created. Importantly, NG112 is based on IP network-based standard interfaces between all forms of communications components. Existing off-the-shelf hardware and software can be deployed, which means more technical commonalities between EU Member States and the fostering of the European public safety eco-system.

Interoperability and conformity testing

ETSI's recent NG112 Emergency Communications Plugtests™ 2019 event tested all components of the 112 communication chain. In this third edition, international organizations successfully validated the interoperability and conformity of their NG112 components. Themes tested included location- and policy-based routing and Next Generation media types. Outcomes demonstrated that the NG112 technology is mature and that the elements available on the equipment chain are interoperable. The validated standard ETSI TS 103 479 will be published in the following months. So stay tuned!

■ *Cristina Lumbreras, Vice Chair,
ETSI EMTEL Committee*

Satellite communications
for disaster relief

Since crises can occur anywhere and at any time, satellite networks are essential to provide high service availability through global coverage, an effective complement to terrestrial networks whose coverage may be limited or subject to damage.

Requirements

A set of "Reference scenario for the deployment of emergency communications" has been analysed in the specification ETSI TS 103 260 focusing on communication needs in the event of earthquakes and mass casualty incidents in public transportation.

In this context, Satellite Communications in combination with terrestrial communications are expected to support the assessment and handling of specific risks as well as enable an efficient coordination of rescue operations, fire-fighting and maintenance of public order (ETSI TS 102 181).

Key requirements are:
- Fast deployment of temporary communication networks. Lightweight and small-sized equipment for easy transport, self-set-up, autonomic operation and battery-activated devices are key to minimizing the operational constraints
- Broadband and secure communication facilities to support accurate assessment of situations in theatre and to activate the appropriate logistical support accordingly
- Flexibility and scalability to support any network topology and traffic demand
- Availability: as Public Safety officials say in the U.S., "It needs to work first time, every time".

Existing solutions

The following distinctions should be made:
- GEO-based solutions (ETSI TS 101 376 and 102 744) operating in bands below 3 GHz provide regional wideband services to nomadic and vehicle mounted devices and possibly narrowband services to specific handheld devices
- LEO-based proprietary solutions operating in bands below 3 GHz provide worldwide narrowband services to specific handheld devices
- GEO-based proprietary solutions operating in bands above 6 GHz provide regional broadband services to nomadic and vehicle mounted devices

While the wideband and broadband services are typically used to backhaul a deployed emergency cell, (ETSI TR 103 166), the handheld service is particularly used by responders before such cells are deployed.

What is next?

In order to drive cost down, public safety communications will be provided using 3GPP defined cellular technologies (LTE and 5G) benefitting from its economy of scale. Thanks to on-going efforts at 3GPP with TR 38.821, TR 23.737 and TR 28.808, future satellite communications will also use the 5G technology framework, allowing seamless integration with cellular network at service and possibly device level.

■ *Nicolas Chuberre, Vice Chair, ETSI TC SES*

Smart Secure Platform
for all sectors

Trust and privacy, along with cost and flexibility, are key to security solutions for many applications in today's digital world. To address this challenge, ETSI's Technical Committee Smart Card Platform, which standardizes the UICC, the underlying security platform of the SIM, released ETSI TS 103 465, a specification for a brand-new platform called Smart Secure Platform (SSP).
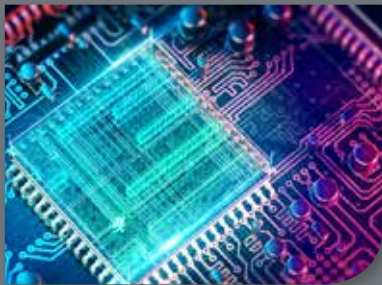
SSP offers an open platform for multiple applications with various physical interfaces and form factors. These include Serial Peripheral Interface (SPI), I2C, embedded, and integrated into a System on Chip (SoC). SSP supports, for example, a new flexible file system and capabilities to support various authentication methods, as well as features defined for a UICC such as Toolkit and the contactless interface. SSP is a highly secure, scalable, thus cost-efficient solution optimized to fit many requirements, from a system of sensors in an IoT application to complex solutions hosting several applications such as banking and payment, ID management and access to mobile networks.

Standard to facilitate
Smart Body Area Networks

The ETSI Technical Committee SmartBAN has recently published ETSI TS 103 327, a standard for Smart Body Area Networks. It establishes standardized service and application interfaces and facilitators, APIs (Application Programming Interfaces) and infrastructure for interoperability management. It also enables secure interaction and access to any SmartBAN data or entities. The resulting SmartBAN reference architecture is a global and integrated IoT reference architecture, oneM2M and Multi-Agent based. The architecture is provided with cross-functional components for allowing non-SmartBAN-enabled environments to interoperate with SmartBAN.

SmartBAN uses a set of low-power embedded devices, mainly sensors, wearables or actuators, to collect and monitor vital data of a human being and their environment, but not exclusively. This ETSI specification will enable, for instance, each patient coming to an emergency room to have their medical history already available.

This is a first step towards horizontal management of Body Area Networks in multiple vertical application areas.

Open Source MANO Release SIX
Consolidates its end-to-end capabilities and Edge support

OSM Release SIX provides many more capabilities to enable end-to-end orchestration across heterogeneous networks and cloud technologies.

Release SIX makes the management of complex services much easier thanks to the extended capabilities to create Network Service primitives and the extension of its Service Assurance (SA) framework, which now can control, store and react to a much wider set of events and conditions in the context of running Network Services and Slices.

In addition, Release SIX now provides better support of underlying technologies. Thus, new connectors have been developed for FOG05 Edge clouds, TAPI-based transport networks, and public clouds such as Azure, in addition to the connectors available in previous releases, which have been extended to support additional EPA (enhanced platform attribute) attributes and improve the support of multi-segment networks.

All these enhancements come with a more flexible operator experience, improved control over orchestration roles, and better real-time feedback to the operator, along with improvements to ease VNF onboarding and testing phases.

EMERGENCY COMMUNICATIONS:

WATCH OUT!

Smartphones make a valuable contribution to public safety, allowing you to dial emergency numbers such as 112 or 911 – even when the keypad is locked or when the device does not have an active SIM card.

An important part of our public safety standardization work at ETSI addresses the need for emergency communications. This is illustrated by the ETSI TETRA standard that has been designed to support the needs of government agencies; emergency services (police, fire, ambulance) for public safety networks; rail transport personnel for train radios and transport services for the army.

Public safety demands fast and efficient communications, whether it's through professional mobile radio, public access mobile radio or secure, robust public communications networks.

In this section, you will find a highlight of David Chater-Lea who worked on the implementation of TETRA and its evolution – and you'll also find out how Italians manage their critical communications. Keep reading to discover more!

Emergency communications: watch out!

Electronic communications have been essential to the operation of the emergency services since the early days of telephone boxes on street corners, to mobile radio communications from the 1930s, to the advent of mass personal communications in the 1960s. See the whys and the hows…

Early radio communications used analogue modulation to provide speech and later simple status and short message capability, only requiring simple specifications to ensure compatibility between equipment. In the 1990s, consumer communications were transformed by the arrival of digital communications. The Professional Mobile Radio (PMR) industry similarly needed to adopt digital technology to integrate data with speech, and for improved spectrum efficiency. Therefore a new ETSI project was started which became TETRA, Terrestrial Trunked Radio.

At the same time, the Schengen agreement for a borderless environment between European countries created a need for pan-European interoperability for emergency services. Several European government organizations joined the TETRA standardization process to ensure that TETRA would have the facilities that the emergency services needed, including fast call set up (within 300msec) for all-informed group communications and security mechanisms that met governments' national security requirements.

Technology

TETRA uses TDMA technology to facilitate duplex communications and higher data rates, and provides individual call, duplex telephony, group call, status and data transfer combined with high security, and Direct Mode Operation for communications away from a network. The PMR market required co-existence with existing analogue and other digital technologies in the same spectrum, so TETRA specifications mandate low levels of noise and spurious emissions in adjacent channels (much lower than those levels found in consumer cellular technology).

Data capability

The explosion of data and growth of the Internet were parallel trends in the early years of TETRA, and an IP packet data service supplemented the Status and Short Data Services, to support users' growing data needs. Internal data capabilities of the radios are used in applications such as resource management, location and database enquiries. TETRA mobile and portable radios also have a standardized Peripheral Equipment Interface port which allows an ecosystem of third party solution providers to provide innovative data applications.
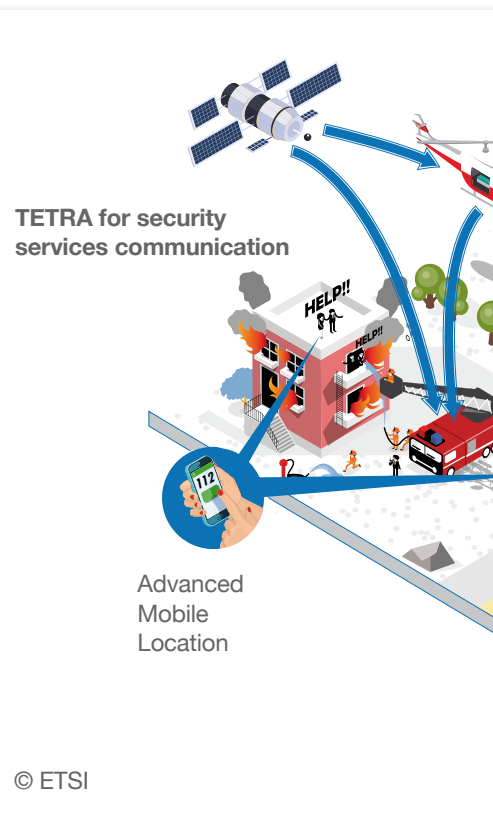
Take up

Emergency services were among the first users of TETRA, and nationwide TETRA networks were planned to revolutionize communications in many European countries. Pilot systems commenced in the late 1990s, and nationwide rollouts started from around the year 2000. The transport industry, including airport, metro, tram and bus operators, also saw the need for an efficient technology which provided good data capabilities as well comprehensive speech services – Gardermoen Airport near Oslo became the first operational TETRA network.

Success in Europe led emergency services in other parts of the world to look at TETRA. An industry association was formed, today The Critical Communications Association (TCCA), who promoted

TETRA mobile and portable radios allow third parties to provide innovative data applications.

TETRA for security services communication

Advanced Mobile Location

© ETSI

TETRA internationally, and championed a formal multi-manufacturer interoperability testing and certification programme. It is this industry led, third party validated formal certification process that has created confidence in the TETRA market that solutions truly are interoperable and multi-vendor competitive supply of networks and terminals is possible. Today TETRA is present in over 110 countries, and has put ETSI standards before government organizations in most of these. It is estimated that there will be over 5 million TETRA terminals in service worldwide in 2020 – a large number for a niche industry.
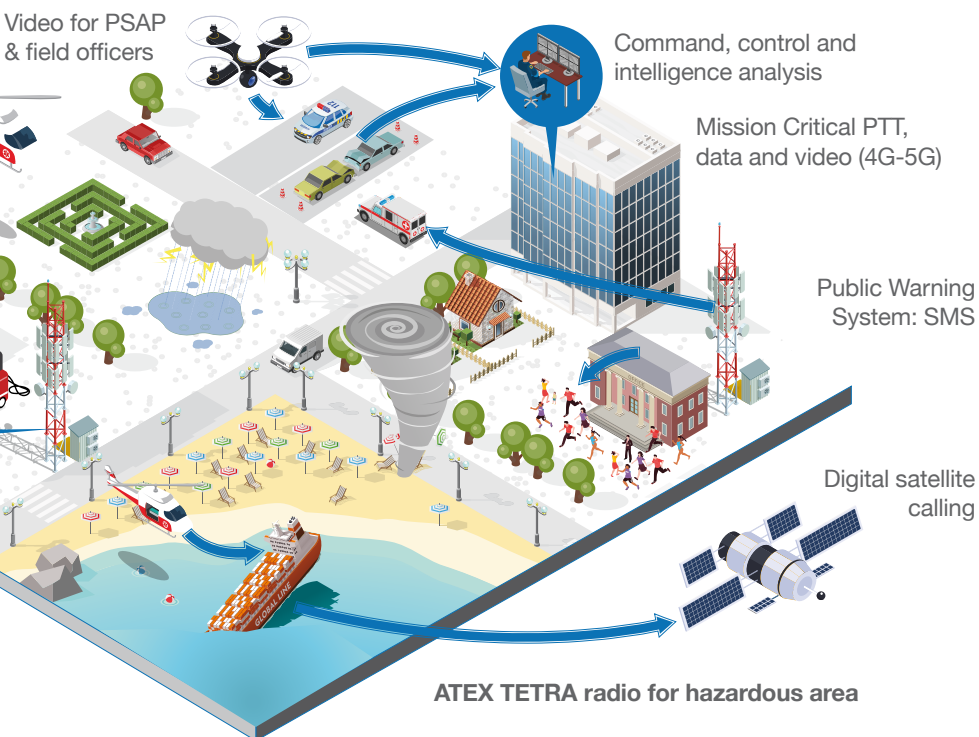
Critical Communications Evolution

The TETRA Enhanced Data Service, TEDS, was created as a scalable data service allowing several hundred kbit/sec in channels up to 150kHz wide, with low spurious emission and noise levels for spectrum co-existence. However the explosive growth of 3G and 4G commercial networks raised users' expectations for improved capabilities, such as higher volumes of video, maps, telemetry, patient data and so on. Commercial networks are not usually designed for the same levels of availability and security as traditional emergency service networks, but the investment in technology and its rapid evolution is unmatchable.

New standards were needed to combine the strengths of commercial technology with the experience of the TETRA and public safety community, and so TC TETRA was transformed into TC TCCE (TETRA and Critical Communications Evolution) to provide mission critical services over broadband networks. Recognizing the parallel interest in North America and Asia, after some early work the standardization process moved into the global 3GPP organization. A new 3GPP working group, SA6, was set up to design Mission Critical architectures. The first Mission Critical Push To Talk (MCPTT) specifications were published in 3GPP Release 13 in 2016. Mission Critical Video and Data services were added in Release 14, and all are evolving to become more comprehensive as the standardization process continues.

TETRA systems are expected to be in operation until beyond 2030, and interoperability between TETRA and mission critical broadband will be key to emergency service operation over the next ten years. The ETSI TCCE committee is therefore working on standards for interworking between TETRA and MC services, in parallel with a similar activity in 3GPP, with a goal of having a first interworking standards published in 2020. The standards maintenance activity on

Video for PSAP & field officers

Command, control and intelligence analysis

Mission Critical PTT, data and video (4G-5G)

Public Warning System: SMS

Digital satellite calling

ATEX TETRA radio for hazardous area

TETRA also continues, to ensure that the needs of TETRA users continue to be met through the 2020s, and that the ETSI TETRA standard continues to be a global success story for many years to come.

■ *David Chater-Lea, Chair, ETSI TC TCCE*

Critical communications:
the Italian scenario

Critical communications have played and still play a fundamental role in supporting public safety and emergency management agencies. Radio communications have been the preferred communications media for well-known reasons.

Many agencies across Europe have developed regional or nationwide support infrastructures leveraging ETSI standards like TETRA and DMR (Digital Mobile Radio).

In Italy, for example, Police forces (National Police, Carabinieri, Financial Police and Penitentiary Police) teamed up in the late 90s to develop the Italian nation-wide TETRA project (PIT - Programma Interpolizie TETRA) that encompasses a nation-wide TETRA infrastructure shared among participants, which provides virtual private networks for various user groups, allowing privacy and independence. The project is still in progress and currently covers over 60% of the potential users. TETRA system is being developed, managed and operated by Leonardo as part of a full-service contract with the Ministry of the Interior. Previous regional networks (VHF or UHF) still in operation to serve police forces are going to be replaced as the TETRA PIT program develops. More specifically, the National Police have a legacy nationwide synchronous network at lower VHF (70MHz), the Carabinieri have a legacy analogue network at UHF, both organized at province level, and the Financial Police have a VHF national synchronous radio network for their aeronaval section (i.e. helicopters and patrol boats) covering the Italian coast.

DMR also plays an important role in the Italian national context: the Penitentiary Police (serving prisons and inmate transfer) has a nation-wide synchronous VHF network, covering the main regional roads and national highways, and plans to revamp it with a DMR system; Fire Brigades have region-wide VHF/UHF networks transitioning to DMR with a project aimed at implementing a nation-wide DMR backbone. Moreover, civil protection is based on regional and local VHF networks for institutional activities and various analogue radio networks for volunteer organizations and is in the process of adopting DMR.

In general, we can say all analogue regional networks are being replaced with different standard digital systems (either DMR or TETRA), most of them provided by Leonardo.

While TETRA and DMR represent well-established and reliable technologies, proven in the field for years, there is also growing interest for broadband as a complement to the narrowband networks to enhance operational capabilities of public safety agencies. Currently there are no private broadband networks in use by Mission Critical operators in Italy, nor harmonized spectrum available for First Responders: some agencies are thus relying on Public Telco services, but there is interest in models that allow greater security and control, such as Mobile Virtual Network Operator. Leonardo is active in development of standard broadband solutions leveraging 4G and 5G integrated with current narrowband networks in order to support their customers with solutions for today and tomorrow.

■ *TFederico Frosali, Leonardo, Broadband PMR Product Manager; Angelo Benvenuto, Leonardo, Homeland Security Marketing Manager.*

Emergency communications
the highest standards required

The people we rely on in a crisis – the police, the fire and rescue services, the medical teams – are in turn reliant on their communications systems as they work to protect and support our communities. The ETSI TETRA standard has been key for emergency communications.

When an emergency call is made, it sets in motion a chain of events that can succeed or fail based on the quality of the communications. The leading standard for critical communications is TETRA – Terrestrial Trunked Radio. TCCA specified the user requirements that underpinned the original development of the TETRA standard by ETSI. TCCA has evolved to represent all open standards in use by critical communications users, and is driving the evolution to broadband whilst remaining the guardian of the TETRA standard.

The key to TCCA's successful input into the standardization process is its long association with ETSI TC TCCE – the ETSI Technical Committee for TETRA and Critical Communications Evolution. Such partnerships reinforce the ongoing trust in the quality of critical communications services.

The role of the TCCE committee is to develop and maintain standards for both TETRA and critical communications broadband services. The relationship with TCCA is close and essential. TCCA provides input to TCCE on new work items, changes to existing specifications, and spectrum and regulatory matters through TCCA's spectrum liaison officer. The main sources are TCCA's Technical Forum and Security and Fraud Prevention Group (SFPG), with additional input coming directly from TCCA member organizations.

TCCA attends TCCE plenaries to report on market activities, direction and progress, and much joint work is carried out around the world to promote the importance of robust and open standards.

The future holds a mixture of TETRA updates and improvement along with broadband-related reports and specifications that will address standardization issues not covered by 3GPP. In particular, the TETRA items include enhancing security to ensure ongoing protection as the potential for cyber attacks increases, and improving TETRA packet data services. Work on broadband is becoming more and more focussed on the need for interworking between TETRA and 3GPP critical broadband systems, and this is underway.

The emergence of critical broadband communications standardization was catalysed by TCCA. The goal was to ensure that as 'consumer' standards evolved, the specific requirements of critical users were also taken into account. TCCA's efforts ensured that 3GPP Releases now incorporate critical communications features. TCCA also supports ETSI with the MCX (MCPTT, MCData and MCVideo) Plugtests™ - the fourth event is due to be held in September in Finland. The goal of these events is to validate the interoperability of a variety of implementations using scenarios based on 3GPP Mission Critical Services in Release 14, with tests based on 3GPP, ETSI and IETF standards.

As for TETRA, for critical broadband TCCA will continue to provide input and guidance, and work with ETSI and important stakeholder partners to achieve excellence in standardization for the benefit of all actors in critical communications.

■ *Tony Gray, Chief Executive, TCCA*

ETSI 2019 Fellows

The ETSI Fellowship programme rewards individuals who have made an outstanding personal contribution to ETSI, to building the work of ETSI, or to raising its reputation in specific sectors of standardization. Meet our 2019 new Fellows.

David Chater-Lea

David has spent over 35 years of his career in mission critical communications and has tirelessly supported the development of ETSI standards and needs of the industry in other standards bodies and industry fora. He is probably the person who has done the most to evolve the standards from TETRA into critical communications over broadband.

Can you tell us a bit more about your background? How did you get into critical communications?

Actually, I've always been interested in radio so I naturally ended up working in mobile radio and joined what would become Motorola in the UK. Police forces were major customers, and it was especially important to understand how they were using their equipment.

How did you career evolve to standardization?

My first experience in ETSI standards was in the late 1980s, with a binary technology working over analogue radio. However, by the 1990s, when digital radio started to arrive, we realized that digital communication needs a great deal more standardization than analogue technology to achieve full interoperability.

TETRA is one of ETSI's biggest success stories. What's the impact today?

From a European standard, it has become a global standard, now used in more than 110 countries, so actually used by millions of users. The emergency services are the biggest market for TETRA, and right from the start they saw that this could be the technology that they needed for cooperation between countries, and became involved in its standardization.

With 5G coming up, is the technology going to change?

TETRA provides speech and data but it can't give you the speed of a 4G or 5G network, and these higher data speeds will obviously bring new capabilities to jobs in emergency services. So, as ETSI is part of 3GPP, four years ago we started the 3GPP working group SA6 to provide new capabilities and define critical communications over mobile networks. They won't replace TETRA for now, as TETRA has been designed for ultra-reliability and ultimate security. We'll see things evolve then…

Roberto Macchi

Involved in ETSI for more than 20 years, as a participant then as a Chairman from 1997, his globally recognized expertise allowed ETSI Harmonised Standards for fixed radio services and microwave point-to-point and point-to-multipoint systems to be considered as THE worldwide reference by non-European telecommunication authorities and microwave equipment manufacturers.

Can you tell us a bit more about your background, how you got into Fixed Service (FS) radio communications?

It was actually due to several events. At secondary school, where I learnt mechanics, I was employed by GTE. After one year, restless for professional life, I joined Polytechnic university to

Fred Hillebrand

study electronics. Then I took a chemistry examination, the only exam I failed in my life, which confirmed that electronics was my way forward.

How did standardization start in the radio industry?

In the late 70s, CEPT established TM4, which produced some recommendations. TM4 became the TM4 working group of ETSI TC ATTM, which I attended and became the Chairman of in 1997.

And what was the role of ETSI in this area?

The ETSI TM4 group turned 25 pre-RTTED ENs into globally accepted standards with the EN 302 217 series. And the Harmonized Standard EN 302 217-2 has become a reference for point-to-point equipment for any application and any Fixed Service allocated band.

What is the status of Fixed Service radio today?

Today an average of 70% of base stations are connected to a fibre optic network through one or more Fixed Service links, which the media tends to forget, being more focused on "xG Access" and "Fibre Optic" as leading technologies improving global communication and citizens' welfare.

With 5G coming up, how will fixed radio evolve and contribute to network evolution?

From a FS perspective, solving challenges such as larger payload, improved performance and easier deployment should be within the reach of the industry. FS will also benefit from new FS frequency bands within the 92/174.8 GHz range.

Therefore, even if Fibre Optic increases its penetration rate in first backhauling levels, the absolute number of fixed services should remain equivalent and is likely to increase. And 6G is just around the corner...

Successful Chairman Fred has enabled the development of many standards: he contributed to the development of the GSM standard and led the implementation of Deutsche Telekom's GSM network, and also initiated the creation of 3GPP as the future global standards body for mobile communication. Since 2004, Fred has been providing patent consulting services in mobile communication.

Fred, what was your main involvement with ETSI?

I was appointed Chairman of ETSI Technical Committee SMG (Special Mobile Group) from 1996 to 2000. SMG was responsible for GSM and UMTS standardization.

How successful was GSM in the world market?

GSM was the leading 2G mobile communication system. The number of countries that implemented GSM networks grew from 70 to 140 from 1996 to 2000.

Was the GSM evolution programme sufficient for the future success?

In 1995 it became clear that a satisfying mobile Internet access required much higher data rates than the GSM evolution called Phase 2+ could provide. Fortunately, a European research programme called UMTS had achieved some useful results.

How was this integrated into the standardization process?

TC SMG and all the relevant stakeholders agreed to add a 3G evolution to the GSM platform, based on the UMTS research results. This would be based on a new UMTS Terrestrial Radio Access (UTRA) and on an evolution of the GSM core network.

Was working with other continents difficult?

I realized that it was impossible to develop a consistent set of technical specifications through decentralized work in different organizations. In order to remedy this situation, I initiated a single global working structure for the future, which eventually became 3GPP. 3GPP applied the model of an "ETSI Partnership Project", as defined in the ETSI reform of 1996.

How successful was 3GPP?

The new organization started successfully at the end of 1998. Nowadays, 3GPP is undoubtedly the worldwide centre of excellence in mobile communications. ETSI took a leading role in 3GPP and gained broad global influence on future mobile communication standardization.

A 3GPP initiative
Broadband Mission Critical Communications

Mission Critical Communications, primarily used by law enforcement and public safety and security agencies – such as police, fire, ambulance and military – are essential for Public Protection and Disaster Relief (PPDR) operations, to protect lives every single day and in every corner of the world.

Over the years, Land Mobile Radio (LMR) technologies such as TETRA and P25 have been central to the public safety agencies due to their reliability and ease of use. However, these agencies' needs are evolving and they now demand an evolutionary approach towards broadband functionality.

3GPP has responded by specifying for Mission Critical Services (MCX) – initially by making Push-to-Talk services available over LTE networks – a move strongly supported by the global public safety community, including the likes of FirstNet in the USA, the UK Home Office, the Government of South Korea and the Police Force of the Netherlands.

The 3GPP work on Mission Critical Services in Release 13 brought together over 600 strong user requirements (Stage 1) from public safety agencies. In a coordinated and driven way the architecture and the detailed protocol specifications were developed for Mission Critical Push-to-Talk (MCPTT) within 12 months of the start of the work, to allow early adopter public safety communities to move voice services over as early as 2019.

Now the features developed for the Mission Critical users have also become sought after by many new [to 3GPP] industries, such as railways, transportation, utilities, and others that are governed by mission critical operations. These users have been attracted by highly reliable MC Push-to-Talk based voice communication, but increasingly data and video capabilities are beginning to play a vital role in future plans that they have.

Building on this strong LTE foundation, the MC standards development is evolving further with MCX enhancements that introduce Mission Critical Video (MCVideo) and Mission Critical Data (MCData) and provide for interworking with legacy LMR systems.
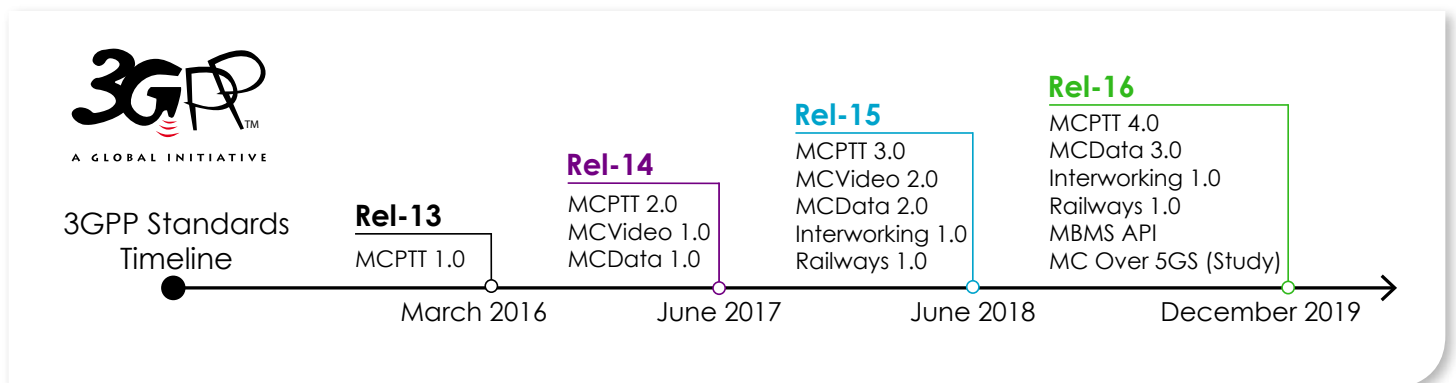
3GPP SA6 Working Group is now actively engaged with the development of standards for Future Railway Mobile Communication System (FRMCS), which are built on the same foundation of MCX standards, in order to enable a single set of standards serving both the public safety and the railway communication needs. This will lead to a coherent set of capabilities across different mission critical vertical industries. The full set of FRMCS standards is scheduled to be completed within Release 17.

Looking to the future and the availability of 5G, the 3GPP SA6 Working Group has begun work on its first study on MCX services over 5G – with publication expected in 2020. Now is the time for newcomers to bring their expertise and their use cases to help us in the effort to create the future of critical communications!

For more information on 3GPP mission critical standards, please refer to the pages of 3GPP SA6 WG.

■ *Suresh Chitturi, 3GPP SA6 Chair, Samsung*

3GPP Standards Timeline

Rel-13
MCPTT 1.0
— March 2016

Rel-14
MCPTT 2.0
MCVideo 1.0
MCData 1.0
— June 2017

Rel-15
MCPTT 3.0
MCVideo 2.0
MCData 2.0
Interworking 1.0
Railways 1.0
— June 2018

Rel-16
MCPTT 4.0
MCData 3.0
Interworking 1.0
Railways 1.0
MBMS API
MC Over 5GS (Study)
— December 2019

oneM2M
for emergency communications

Systems that enable communication in emergency situations such as accidents, natural catastrophes or terror attacks save lives by ensuring secure and timely distribution of essential information. The oneM2M service layer can play an important role.

In emergency situations, people and things need to communicate with each other and trigger actions accordingly. The integration of different types of devices, sensors and actuators, with a variety of vertical systems is a critical aspect of an emergency communication system.

oneM2M defines a set of common services that enable standardized communication and interaction between IoT applications on various types of endpoint devices, gateways/edge nodes and servers from different developers and manufacturers in a multi-network environment. The following are some examples of oneM2M features that are well-aligned for use in emergency situations.

A distributed architecture

The oneM2M architecture and its services are distributed in nature and can be quickly deployed in an ad-hoc/local proximity such as the site of an emergency.

For example, oneM2M can be hosted on a local device (e.g. emergency vehicle) and provide local communication services to other devices at the scene, as well as communicate back to the command center (i.e. a oneM2M MN/ASN-CSE can be deployed locally).

Access control mechanisms

oneM2M supports access control mechanisms to ensure access to devices and data is only granted to authorized entities (e.g. police, fire and rescue teams) based on profile information.

Prioritized messages

oneM2M supports the capability to prioritize messages. Messages of lower priority can be buffered and scheduled around higher priority messages. oneM2M also supports the capability to interwork with underlying networks to prioritize communication flows which is well-suited for emergency situations especially when underlying network resources become congested. (i.e. the oneM2M CMDH functionality supports prioritization and store-and-forwarding of messages).

Helping alleviate network congestion

oneM2M supports the capability to interwork with underlying networks (e.g. 3GPP) and receive notifications from the network if/when areas of the network become congested. Based on these notifications, the system can take actions (e.g. buffer lower priority messages targeting devices located in congested areas of the network) to help alleviate network congestion.

Managing communicating with groups

oneM2M supports the capability to manage communicating with groups of devices and individuals such as emergency responders (e.g. the formation, disbandment and fanout of messages to groups).

Subscribing to events of interest

oneM2M supports the capability to subscribe to events of interest based on specified criteria and push notifications out if/when these events occur (e.g. "let me know when the power to a particular house has been restored").

Monitoring and tracking locations

oneM2M supports the capability to monitor and track the locations of individuals, via clothing equipped with sensors for instance, as well as devices and report when they enter/exit a particular area.

■ *Roland Hechwartner, Deutsche Telekom, oneM2M TP Chairman; Dale Seed, Convida Wireless, Chairman SDS WG and James Hu, AT&T.*

Upcoming events where oneM2M will be at:

MarketsandMarkets Industry 4.0 Conference
23-24 September 2019,
Chicago, USA

●

Industry of Things World Asia
11-12 July 2019, Singapore

●

Industry of Things World
16-17 September 2019,
Berlin, Germany

More on: http://onem2m.org

Pan-European mobile broadband
for Public Safety

PSCEurope
Public Safety Communication Europe

Crime and disasters are not limited to fixed geographical borders, and there is a necessity for European first-responders to be able to communicate, share and access information regardless of the country where they will respond. This is the challenge tackled by the BroadWay project.

A team consisting of 11 government/agency procurers from 11 European countries have come together to procure innovation activity to enable a pan-European mobile broadband system for Public Protection and Disaster Relief (PPDR). Europe is naturally geopolitically fragmented, with no harmonized spectrum for PPDR mobile broadband and no single mobile carrier covering the whole of Europe.

On 19 February 2019, a Request for Tenders was published by the BroadWay project to procure solutions to enable a Pan-European mobile broadband system for Public Safety.

The focus is to enable 'Operational Mobility'; the ability for public safety responders to carry out their operations wherever they are in Europe, whenever they need to, and in collaboration with responders located and from anywhere else in Europe.

A 10 year history

PSCE was formed 10 years ago as a membership forum becoming a sustainable organisation achieved through the involvement in many European level initiatives including research projects and policy activities. PSCE runs a conference twice per year, each one held in a different country with the aim to bring the discussion close to the public safety practitioner end users. The aim is to foster the dialogue between
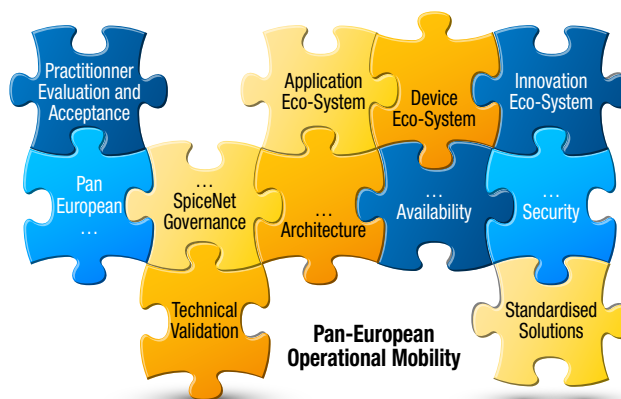
end users, industry and research towards the improvement of communication systems for public safety.

In Autumn 2014, several members of PSCE end user committee approached PSCE to ask for help to begin the process towards development of a pan-European broadband mobile network. The process began to form the original team of 17 partners to carry out project BroadMap (www.broadmap.eu). BroadMap ran for 12 months and prepared the ground for BroadWay.

The BroadWay contract was subsequently agreed with the European Commission to begin on 1st May 2019.

BroadWay Pre-Commercial Procurement

BroadWay procurers share a 'common challenge' to find innovative solutions

that enable 'Operational Mobility', currently limited by fragmented mobile networks. BroadWay will spend 9 million euros following a Pre-Commercial Procurement (PCP) process comprising 3 phases: Design, Prototype, Pilot. The process remains competitive throughout with pilot systems expected to be live to Technology Readiness Level 8 (TRL8) within 2022. The BroadWay group of procurers is represented by France, Belgium, Italy, Spain, Estonia, The Netherlands, Ireland, Czech Republic, Finland, Greece, Romania with Astrid, Belgium acting as Lead Procurer.

Standards are Crucial

PSCE are a Market Representation Partner (MRP) of 3GPP with the primary goal to support the procurement activity, especially with respect to new Mission Critical Standards. Two new CEN Workshop Agreements are in progress with representatives of PSCE as co-chair.

These CWAs looking at semantic and syntactic informational interoperability, and guidance to assist practitioners to effectively evaluate new technologies. Both CWAs complement 3GPP standards looking at interoperability layers that sit above the technical 3GPP mobile standards.

■ *David Lund, Project Coordinator: BroadWay*

Pan-European Operational Mobility

The **CORPORATE BROCHURE**

is out!

In its corporate brochure, ETSI gives an overview of the Institute to those who are not familiar with the organization and an update to stakeholders involved in our activities. Discover our standardization process, how we prepare future generations to work on ICT technologies and how we can help your company accelerate time to market. How can you get our corporate brochure? Visit our website for the online version or ask ETSI's Secretariat for a hard copy.

New video **CYBERSECURITY: JOIN THE PLAYERS**
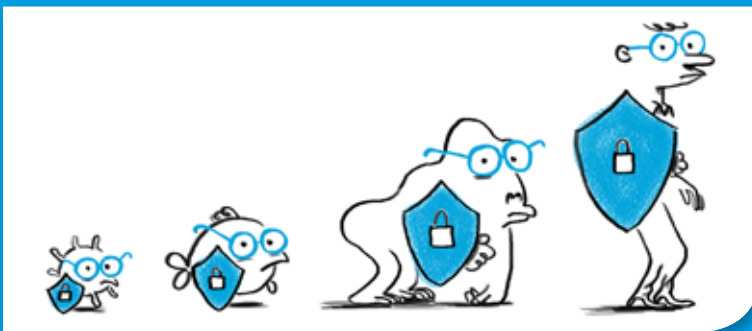
As announced in the April issue of Enjoy!, the video on cybersecurity is now out. Cybersecurity is one of the most complex technological issues for our future world and it is therefore essential to understand its challenges. The video aims to show how ETSI brings together all stakeholders in the connected world to produce robust and globally applicable cybersecurity standards. Watch our video on our website and on our social networks!

The ETSI **WORK PROGRAMME**

is now available!

The ETSI Work Programme 2019-2020 provides an overview of our current standardization projects. These include the development of technologies which have had a major global impact. At the same time, we are exploring the latest emerging areas to keep pace with market demand and even anticipate it. This year, as with the annual report, we have decided to change the design to make it more attractive. Download our new-look Work Programme today, or pick up your hard copy from the ETSI Secretariat.

Read the ETSI **ANNUAL REPORT**

Available now, the latest ETSI Annual Report highlights just some of our achievements during 2018. You'll get a flavour of our standardization activities through the work of our Technical Committees and Industry Specification Groups, prefaced by a personal view of the year from our Officers. Alongside updates on publications, events and co-operation with other bodies worldwide, there's also a comprehensive financial summary and detailed information on membership trends. Download our new-look Annual Report for 2018 today, or pick up your hard copy from the ETSI Secretariat.

Latest news
in the Secretariat

Luis Jorge
Romero re-elected

During their 73rd General Assembly, 2-3 April 2019, ETSI members re-elected the current ETSI Director-General, Mr. Luis Jorge Romero, with an overwhelming majority on the first ballot.

Originally elected as ETSI's Director-General eight years ago, Luis Jorge Romero outlined his achievements over this period. "These years provided ETSI with a valid and solid foundation. We embraced many innovative areas, including Artificial Intelligence, network virtualization and blockchain to name a few, thanks to a team who keeps updated on new technologies and trends". He pointed out the governance, financial stability and new working methods of ETSI over the years, reminding members that ETSI addresses both European and global needs, is versatile and inclusive in its membership and culture.

Organized a few weeks after in the same amphitheatre, the ETSI staff meeting was the occasion of an uplifting speech to the 120 Secretariat staff members. Mr. Romero conveyed key messages such as the need to be a catalyst on new topics, to keep up to date with new working methods and to use flexible tools.

But if there was only one statement to remember it would definitely be this: "This journey would not have been possible without you all: I'm merely the visible representative of the Secretariat in the outside world, but our members wouldn't keep enjoying ETSI without you. We are The Standards People – so let's keep it this way and accept changes as they come along."

Mr. Romero has 30 years' experience in the telecommunications sector. Previously he has held diverse Director positions in Spain, Morocco and Mexico, predominantly with Telefónica. As Global Director for International Roaming and Standards, and Director of Innovation and Standards, he oversaw Telefónica's participation in global standardization activities, and participated directly in the work of the Next Generation Mobile Networks (NGMN) Alliance and in the GSM Association (GSMA). Before joining ETSI, he also held the position of Director General of Innosoft and was also a partner and board member of the Madrid-based Innology Ventures.

ETSI Neighbours' Day

Looking back at a very nice event that took place on 28 May, the first edition of ETSI Neighbours' Day was held in a friendly and cheerful atmosphere. It was an excellent opportunity to explain ETSI's role and its activities and to mingle with our offices' neighbours, both ETSI members and non-members. On our ETSI information stands, experts introduced 5G, radio, cybersecurity, IoT technologies and much more. And of course local food, cold drinks and a band made the event even more enjoyable!

Welcome to our new staff member

Mrunal Landouer - Editor

After graduating with a degree in English literature, Mrunal, a French language enthusiast, decided to leave her native India at the age of 21 for France.

She first pursued a Master's degree in French Didactics in Nice with the aim of becoming a French teacher in India. She then went to Brest, the port city in Brittany, to join one of the most prestigious Master's degrees in technical writing and translation to acquire other skills.
With experience in translation, localization and marketing in France, and as she enjoys the Côte d'Azur, she applied for a position in ETSI's EditHelp! department where she is now an editor.

Today, she still gives French lessons to the Indian community on a voluntary basis and is living out her French dream.

Hear from us in conferences
and meet with us at exhibitions.

Find more information and register on our website at: www.etsi.org/news-events

August 2019

5th National Summit on 100 Smart Cities India 2019
22 Aug., New Delhi, IN

This forum endorsed by ETSI will highlight the importance of the various aspects of infrastructure that must be planned, designed, built and operated in order to provide the «Smart» attribute to urban development.

September 2019

Network Virtualization & SDN Asia
10-12 Sept., Singapore, SG

This event endorsed by ETSI will attempt to set the Network industry's direction for the next decade and beyond and more specifically in Asia.

IBC 2019
13-17 Sept., Amsterdam, NL

Endorsed by ETSI, IBC is one of the most influential media, entertainment and technology exhibitions. It attracts more than 55,000 participants from 150 countries around the world and exhibits more than 1,700 of the world's leading technology providers.

MEC Hackathon 2019
17-18 Sept., London, UK

The 2019 Hackathon, endorsed by ETSI, is a cutting edge competition designed to test your skills and abilities as a Multi-access Edge Application developer!

NFV & Carrier SDN
17-19 Sept., Dallas, US

This event endorsed by ETSI will focus on current topics such as automating service assurance for security application, the rapid development of innovative services and the successful monetization of the cloud by CSPs.

5G Core Summit
24-25 Sept., Madrid, SP
This event endorsed by ETSI invites all professionals to participate in discussions and get an idea of how industry leaders are preparing for the 5G transition and to understand what they need to change to take advantage of the 5G opportunity.

4th MCX Plugtests
23-27 Sept., Kuopio, FI
ETSI, in partnership with ERILLISVERKOT and the support of TTCA, will organize the fourth MCX Plugtests event which will take place at the Savonia University of Applied Sciences.

October 2019

SDN & NFV World Congress
14-17 Oct., The Hague, NL
Endorsed by ETSI, this congress has established itself as one of the main conferences on network innovation in Europe for the global telecommunications industry. The programme has been judiciously expanded to encompass all areas of network innovation.

e-SIM Connect
15-16 Oct., London UK
This event endorsed by ETSI provides updates on industry standards, outlines the client's journey step by step and will facilitate the necessary discussion on the benefits and support required for eSIM.

Broadband World Forum
15-17 Oct., Amsterdam, NL
The Forum is a platform to innovate, collaborate and learn about future trends and technologies, unifying the leaders of telecom operators and solution providers to improve, sustain and monetize next-generation networks. It is supported by ETSI.

ETSI IoT Week 2019
21-25 Oct., Sophia Antipolis, FR
Once again we will hold the must-attend event for all those who understand the importance of standard technologies for IoT. More than 200 experts are expected to attend this event. The ETSI IoT Week will include a oneM2M Developers' Tutorial, the IoT Workshop and the IoT Standard Showcases.

UCAAT
22-24 Oct., Bordeaux, FR
The Conference is dedicated to application aspects of automated testing including artificial intelligence techniques, cloud testing, mobile testing, test methodologies, test management and standardized test specification by focusing on the practical challenges that are often faced in industry.

ETSI SNAPSHOT

March - May 2019

898 members *end of May*

26% SMEs

99 technical groups

202 standards *over the period*

+738 standards under development *over the period*

9M standards' downloads *over the period*

245 face-to-face meetings

987 eMeetings

1441 participants to face-to-face meetings
8488 eParticipants

108 partnerships *end of May*

19 conferences & Plugtests over the period

@ETSI Secretariat

122 people

15 nationalities

ETSI
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06560 Valbonne France
Tel: +33 (0)4 92 94 42 00
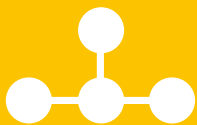
65 countries

About ETSI

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