



Council of the European Union
General Secretariat

Brussels, 20 November 2017

WK 13454/2017 INIT

LIMITE

TELECOM

MEETING DOCUMENT

From:	General Secretariat of the Council
To:	Delegations
Subject:	CODE : Commission non-paper on public warning systems (PWS)

Delegations will find in annex a Commission non-paper on public warning systems (PWS).

Non-paper on public warning systems (PWS)

This non-paper has been prepared as technical assistance upon the co-legislators' request in the trilogue on 25 October and shall not be interpreted as representing the position of the Commission or the Commission services.

European Parliament proposal

The European Parliament (EP) proposes an amendment to the European Electronic Communications Code (EECC) to oblige Member States to establish public warning systems. The EP refers to this as a "Reverse 112 system".

EP proposed text: *"Member States shall ensure, through the use of electronic communications networks and services, the establishment of national efficient 'Reverse-112' communication systems for warning and alerting citizens, in case of imminent or developing natural and/or man-made major emergencies and disasters, taking into account existing national and regional systems and without hindering privacy and data protection rules."*

What is a public warning system

A public warning system (PWS) is a system that can alert as many people as possible within a given location about potential or concrete danger and provide them with advice and information on how to react.

A public warning system can be implemented through different technological solutions. Current widely used warning channels include sirens, radio and TV broadcasting but also websites of public authorities and media, and warning apps. Citizens increasingly rely on electronic communications networks (ECN) other than those used for radio and TV broadcasting (which are also electronic communications networks) and electronic communications services (ECS) to receive and retrieve critical, time-sensitive information on mobile devices.¹ As a consequence technologies based on such electronic communications networks and services are being developed and have to some degree already been implemented to supplement those other widely used channels.

It is important to keep in mind, that for public warning systems there is no single solution that fits all requirements to reach all citizens in case of a disaster.

Each technological solution has its own strengths and weaknesses, and the combination of several solutions could help to optimise the effectiveness of the warning system. At the same time the solutions should be economically viable and not too complex. Furthermore, when using several solutions it should be ensured that the same message is conveyed so that users are not confused by contradictory messages.

¹ As the European Parliament's proposal is understood as referring to electronic communications networks other than those used for radio and TV broadcasting, the term 'electronic communications network' or 'ECN' is used in that sense in this non-paper.

To that end, an ISO standard² is available and provides principles and generic guidelines for developing, managing and implementing PWS, before, during and after incidents.

Technologies

Technologies based on the use of ECN and ECS are being developed and some have already been implemented to supplement the current widely used warning channels such as sirens, radio and TV broadcasting.

Cell Broadcast

Cell Broadcast (CB)³ is a technology that has a user experience similar to SMS: text messages are displayed on the screen of the mobile device. Whereas SMS is a point-to-point service, CB is a point-to-multipoint service: a broadcast service in mobile networks. CB enables a message to be sent to millions of devices (i.e. mobile phones), based on subscribers' location within selected network cells – without the need to know the subscribers' phone numbers, and without the need to register or track devices.

A characteristic of CB compared to other technologies for PWS use is that either a dedicated broadcast channel is always available (in GSM) or CB technology has the highest priority over any other service (in UMTS and LTE), so CB messages can be broadcast even if a mobile network is congested, which is likely to happen in case of a disaster when many citizens are using the same network cell at the same time trying to make phone calls, send messages or access information via their mobile phones. CB supports most handsets using iPhone iOS and Android (from 2011/2012) together with BlackBerry and newer Windows phones. When implementing CB for PWS, public authorities can have the CB feature activated by default. Where the CB feature is not activated by default, the end-user can activate it through the settings of the operating system in those mobile phones supporting CB⁴.

EXAMPLES

EU-ALERT⁵ is a European emergency alerts system requirements standard developed by the European Telecommunications Standards Institute (ETSI) based on CB technology. EU-ALERT is a generic name which can be adapted to the country implementing it (e.g. NL-ALERT for the Netherlands). This allows each country to configure their own system to meet their specific requirements while incorporating it within a common core specification, thereby enabling pan-European interoperability. The Netherlands is the first and so far only Member State to implement EU-Alert. EU-Alert compatible mobile devices appeared on the market from 2011 onwards with a dedicated ring tone and vibration alert to distinguish warning

² ISO 22322: http://www.iso.org/iso/catalogue_detail.htm?csnumber=53335

³ CB is defined in [3GPP TS 23.041](#) for GSM, UMTS and LTE. CB includes the Earthquake and Tsunami Warning System (ETWS) which is in use in Japan and can deliver a notification within 4 seconds.

⁴ <http://www.crisis.nl/nl-alert/instelhulp/>

⁵ [ETSI TS 102 900](#) is produced by ETSI Special Committee Emergency Telecommunications (EMTEL) and defines system requirements for a European Public Warning Service using Cell Broadcast. It is produced to enable 3GPP to develop a specification for terminals which can be purchased and sold anywhere in Europe.

messages from regular messages. Standard specification for terminals which can be purchased and sold anywhere in Europe is being developed by 3GPP⁶.

In the US, the emergency alerts system (CMAS/WEA)⁷ went live in 2012. CMAS/WEA allows authorised federal, state, local or territorial officials to use the Federal Emergency Management Agency (FEMA) IPAWS system⁸ to send geographically targeted, text-like alerts to the public free of charge. The system is used for extreme weather warnings, AMBER alerts (i.e. child abduction cases) and presidential alerts during a national emergency. The alerts are sent to participating mobile operators who then broadcast them to their customers with compatible devices, using Cell Broadcast. All major mobile carriers are participating in CMAS on a voluntary basis.

Location-based SMS (LB SMS)

One of the characteristics of SMS is that it works on any handset that can receive traditional SMS. No handset configurations are required. Alerts can be sent by local, regional or national authorities. Furthermore, technical solutions have been developed to address the problem that SMS was not traditionally location-based and that the service could not be prioritised, two essential requirements for an effective public warning system.

In the case of the Belgian BE-Alert⁹ which uses location-based SMS, citizens have to register in advance in order to receive alerts. It is also possible to register and receive alerts for different locations and phone numbers, e.g. a second phone number or address of a summer residence. In case of major emergencies the BE-Alert system allows to alert citizens physically present at the place of the event even if they have not registered in advance.

Social media, apps and satellite-based systems

Emergency services use also major social networking platforms to send alerts and warnings. Some social media platforms even provide dedicated alert services to their users, e.g. Twitter Alerts. Twitter Alerts are tweets, published by selected public authorities and emergency organisations during a crisis or emergency, which contain up-to-date information relevant to an unfolding event, such as public safety warnings and evacuation instructions. To receive these types of warnings citizens have to register a profile (sign up for an account) with the social media platform and sign up for alert messages from specific users.

112-apps often include a public warning feature. This allows the app provider (e.g. the emergency management authority) to send location-based alert messages to the app. Citizens have to install a 112-app on their mobile phone first for this to work while also allowing the app to use location information on the mobile phone, e.g. GPS data.

⁶ 3GPP TS 22.268

⁷ The Commercial Mobile Alert System (CMAS) also known as Wireless Emergency Alerts (WEA) is a partnership between the Federal Communications Commission (FCC), the Federal Emergency Management Agency (FEMA), and wireless carriers, whose purpose is to enhance public safety.

⁸ Integrated Public Alert and Warning System (IPAWS) is the alert and warning infrastructure which provides public safety officials with an effective way to alert and warn the public about serious emergencies using different public alerting systems from a single interface.

⁹ <http://be-alert.be/>

Satellite-based networks are ideally suited for distributing alert information due to their broadcast capability and resiliency in situations where terrestrial communications infrastructure is compromised. An ETSI task force has defined a protocol for alert messages over a Galileo/EGNOS satellite link.¹⁰ PWS based on satellite could potentially be able to send alerts to all GNSS¹¹ enabled mobile devices. Currently GNSS is standard in all smartphones marketed in Europe. GNSS functionality can be enabled or disabled by the end-user in the settings and for specific applications.

Another solution is Hybrid Broadband Broadcasting TV (HbbTV)¹² – a pan-European initiative aimed at harmonising the broadcast and broadband delivery of entertainment to the consumer through connected TVs and set-top boxes. As it is not possible to "wake up" a terminal from sleep-mode with an alert message in HbbTV, warnings via this platform only reach users who have their TV turned on.

What is the state of play in EU Member States

Currently either Cell Broadcast or location-based SMS PWS have been implemented or are being tested in only a few Member States (according to information available those are BE, LT, NL, RO and SE).

Furthermore, the French President recently¹³ announced that France should have a modern and resilient system of warning the population, including a dedicated digital vector.

Possible introduction of PWS in the context of the EECC

The Commission understands that the intention of the EP proposal is to impose an obligation on Member States to establish national public warning systems for alerting citizens through the use of ECN and ECS, in case of disasters.

Already today Member States may put in place national public warning systems, and most, if not all, have done so, as part of their civil protection regime. Member States are also free to adopt PWS using ECN or ECS like the Netherlands have done with NL-Alert.

Both the current European telecoms legislation¹⁴ and the proposed EECC¹⁵ give Member States the additional possibility to attach to the general authorisation of providers of ECN and ECS conditions on *"terms of use for communication from public authorities to the general public for warning the public of imminent threats and for mitigating the consequences of major catastrophes."* By attaching such a condition to the general authorisation, Member States have an additional leverage for enforcing those terms of use.

¹⁰ [ETSI TR 103 338](#) MAMES Deployment Guidelines and [ETSI TR 103 337](#) Technical Specifications for the MAMES protocol by ETSI Specialist Task Force

¹¹ Global Navigation Satellite System is the standard generic term for satellite navigation systems that provide positioning information for e.g. smartphones. The GNSS term includes different regional systems e.g. Galileo (Europe), GPS (USA), GLONASS (Russia), and Beidou (China).

¹² The EU-funded Alert4All project briefly describes [alerting messages in HbbTV \(sec. 7.4\)](#).

¹³ <http://www.elysee.fr/r-ception-en-l-honneur-des-forces-ayant-combattu-les-incendies-cet-t/view> and [Sorbonne speech](#) (in English).

¹⁴ Authorisation Directive 2009/140/EC, Annex A, N°. 11a.

¹⁵ Annex I, Part A, Nr.5.

Regarding possible substantive PWS obligations imposed by Union law, the European Parliament, the Council and the Commission would have to agree on the appropriate legal basis. The EECC, as well as the current Regulatory Framework, is based on Art. 114 TFEU. However, Art. 114 TFEU provides for harmonisation measures which have as their object the establishment and functioning of the internal market. It appears that to the extent that PWS would put in place obligations applicable to providers of ECN and ECS, it could be argued that they could be seen as related to the internal market of electronic communications, and they could therefore possibly be based on Art. 114 TFEU.

In this context, it is noteworthy that provisions related to communications for PWS purposes could possibly be seen as having some similarity with the provisions on emergency communications. As in the case of emergency communications which are governed by Art. 26 USD (and the future Art. 102 EECC), the communication itself by means of an ECN or ECS between public authorities and end-users could potentially be covered by EU legislation based on Art. 114 TFEU. By contrast, the national organisation and internal processes within the public authorities would probably be outside the scope of Art. 114 TFEU.

Regarding those civil protection elements of PWS which are considered as a Member State competence, Art. 196 TFEU could potentially be considered as an appropriate legal basis.

Art. 196 TFEU provides for the Union to *"encourage cooperation between Member States in order to improve the effectiveness of systems for preventing and protecting against natural or man-made disasters"* and to *"support and complement Member States' action at national, regional and local level in risk prevention, in preparing their civil-protection personnel and in responding to natural or man-made disasters"*.

Art. 196 TFEU provides that European legislation shall establish the measures necessary to help achieve the objectives identified in this Article. As Article 196 TFEU excludes any harmonisation of the laws and regulations of Member States in the area of civil protection, the scope of the provision is limited to support and complementation of Member States' actions in this area, leaving aspects as the choice of organisational structures of public warning systems to the Member States.

Overall, it appears that Art. 114 TFEU could potentially be an appropriate legal basis for some elements of PWS, namely those having an impact on the internal market for ECS. In other words, the technical arrangements allowing the transmission of public warnings from the organisation initiating the warning to the end-user devices through electronic communications networks or services could possibly be covered by Art. 114.

If the co-legislators and the Commission were to agree on having provisions related to the communications aspects of PWS in the EECC, it may also be discussed whether the obligation would be put on Member States or on providers of ECN and ECS. An obligation imposed on Member States to ensure that communications for PWS purposes are put in place might offer Member States more flexibility as to how to establish such communications for PWS purposes and therefore, how they would organise such systems in order to achieve the objectives set out in a possible provision in the EECC.

If there were a preference for Member States to ensure that providers take such measures, it could further be considered whether such an obligation should complement the obligation in Art. 101 second sentence of the EEC Directive. The Council proposal on this provision – which follows the scope of the Commission's proposal – provides that Member States shall ensure that providers of voice communications take all necessary measures to ensure uninterrupted access to emergency services. The EP proposes to include, in addition, providers of internet access services in the scope of this provision. An EEC Directive provision concerning communications for PWS purposes could foresee an obligation on providers of ECN and ECS to ensure the availability of their networks and services to transmit public warnings from competent public authorities to end-users in case of disasters in those Member States where a PWS making use of ECN and ECS is established.

Furthermore, it could be considered to discuss what categories of ECN and ECS (interpersonal communications services and/or internet access services) should be subject to such obligations related to communications for PWS purposes. It appears that such obligations could possibly focus on interpersonal communications services (ICS). In that case, it would have to be debated whether all types of ICS should be covered or only some (e.g. number-based ICS like SMS and/or number-independent ICS like messenger services).