

# ETSI STF321 - Questions on Emergency Caller Location

## 1. Background

ETSI STF321 has been set up under TISPAN WG3 to study standards development of location information and protocol support for emergency communications. The initial work was funded by the ETSI STF programme but more latterly we have received EC funding to continue the process. The STF study to date has been based on an analysis of material identified and acquired from a variety of sources, including ATIS/NENA/IETF, 3GPP, OMA and various ETSI bodies. For the most part, these documents are now available in a Library folder in the STF workspace. STF321 has recently submitted its second Progress Report for approval by WG3 during its current TISPAN#14bis sessions.

The report expresses some concern over the lack of available information from certain areas of the world and expresses the intention of further exploring this deficiency. With this in mind, the following questions have been drafted to facilitate the gathering of information by STF321 on the current situation regarding the origination and routing of emergency calls made by callers wishing to communicate with public emergency assistance services (fire, police, ambulance ...) in various countries. The questions are intended to give an indication of the information we believe will be useful to us but any other details that can be provided will be appreciated. Although STF321 is primarily concerned with the handling of emergency calls in the NGN, outline details of existing PSTN based systems will be useful in formulating our views on migration of these services.

In considering your response to the following questions, please do not feel constrained to providing a simple answer; any elaboration of your response will make it all the more useful – too much information is better than too little! Equally, do not be concerned if some of the answers are not immediately available to you; send us what you can and follow up later with any additional information.

Note that in this document, the word **location** is used to mean either the actual geographical position of the caller or the process of establishing the caller's position against some defined set of co-ordinates, as the context requires. **Localisation** could have been used in this second context but this word is more commonly used to indicate customisation of a product for a particular market (for example, putting steering wheels on the right hand side of cars for the UK and Japan!).

## 2. Existing PSTN/GSM Networks

The answers to these questions are not intended to form part of the main deliberations of the STF but simply to establish a 'starting point' in defining the capabilities of existing networks by providing some background information on current systems and processes. This will enable us to form a view on the likely direction of future developments in NGN emergency call handling.

2.1 Are the existing PSTN PSAP (Public Service Answering Point – the first point of contact for an emergency caller) facilities operated on a local (village, town, city ...) basis or is it a more centralised service with each answering point covering a much larger area (county, region, national ...)? If you have centralised services in your country, how many independent systems are there and from how many physical locations is each system operated?

2.2 How many PSAPs are there in your country and approximately what is the population of the area covered? Are the PSAPs operated by individual telephone companies, a national monopoly operator or by some third party agency?

2.3 Are the centres that actually control the despatch of people and equipment to the location of a reported emergency (the control centres for fire, police, ambulance ... ) at the same location as the PSAPs or elsewhere. If they are not co-located, approximately how many emergency despatching centres are there in your country and how do PSAPs determine to which despatch centre any particular emergency call should be passed?

2.4 Approximately what proportion of the population of your country is covered by a single dedicated emergency telephone number (112, 911, 999 ...)?

2.5 How is the caller location for emergency calls from the fixed telephone network (PSTN) established? Is there a central (national) database of numbers and addresses or is the information held on a local basis, either by individual telephone companies or over a limited geographical area? How often are the databases updated and who is responsible for their maintenance?

2.6 How are emergency calls originating from corporate networks handled? We have particular interest in those presenting DDI/DID numbers and/or egressing from a corporate network to the public network at a point remote from the physical location of the caller.

2.7 How are emergency calls originating from cellular telephones handled? How is the caller's location determined and verified? Is 'roaming' between operator networks supported for emergency calls? If so, how are calls originating from cellular telephones roaming other mobile networks dealt with? How are calls originating from foreign cellular telephones roaming on to your country's mobile networks dealt with?

2.8 Are emergency calls possible from cellular telephones not registered to any network or those not fitted with a SIM card? If so, how are such calls handled and how is the caller's location established?

2.9 Do your national mobile networks support telephones having GPS location capabilities and to what standards? If so, can these networks locate foreign telephones having GPS capabilities?

2.10 Do the emergency call answering systems in your country support calls made via non-voice services (SMS, TDD, TTY, e-mail ...)? How are such calls passed to the emergency services despatch centres?

### **3. NGN Based Systems**

The answers to the following questions are intended to inform the main deliberations of the STF, thus establishing an idea of any progress to date in the development of processes for the handling of emergency calls from nomadic terminals and to enable the STF to be informed of future developments in this regard. This will, in turn, enable us to form a view on future requirements in NGN emergency call handling, particularly with the likely increased international nomadism (both wired and wireless) necessitating the handling of increasing numbers of calls from 'foreign' terminals. At the present time, the majority of the issues raised are likely to be under consideration by national regulatory authorities; hence responses from these organisations would be very much appreciated.

#### **Existing facilities**

3.1.1 Are there any existing PSAP facilities dedicated to responding only to emergency calls originating from mobile or nomadic terminals? This question refers to both 'old' generation equipment and IP-based systems. If so, are the PSAPs operated by individual network operators or on a local, regional or national basis (see also questions 2.1 and 2.2 above)? Approximately how many independent systems are there and from how many physical locations is each system operated?

3.1.2 How is the caller location for emergency calls from mobile and nomadic callers established? How are emergency calls originating from corporate networks handled, where the caller may be extremely remote (in another country, even) from the network's dedicated answering point?

3.1.3 Do these PSAPs support terminal devices having GPS location capabilities and to what standards? If so, can these networks locate foreign terminals having GPS capabilities?

3.1.4 Do these PSAPs support calls made via non-voice media (SMS, TDD, TTY, e-mail ...)? If so, to what extent and how are the relevant data passed to the emergency services despatch centres?

### **Planned facilities**

3.2.1 Are you aware of any consideration being given by the regulatory authorities in your country to the problems which may be encountered in handling NGN-originated emergency calls? We are especially interested in the issues of caller location and of how the associated data is derived, transmitted and verified prior to its being used for despatching emergency assistance. Provision of relevant documents (preferably in English) or web links to them would be especially appreciated.

3.2.2 Are you aware of any work being done in your country towards the establishment of NGN-based PSAP facilities? In this context, we refer both to facilities intended to be used to respond to NGN-originated calls and for NGN-based forwarding of such calls to emergency despatch centres. If so, please provide as much detail as you can.

3.2.3 Are you aware of any work being done in any other standards organisation towards the establishment of NGN based PSAP facilities? Again, provision of relevant documents (preferably in English) or web links to them would be especially appreciated.

3.2.4 So far as you are aware, is any preference being shown by the regulatory authorities, network operators or equipment vendors in your country towards any of the 'solutions' being considered by any standards body to the issues around the location of emergency callers? If so, please provide as much detail as you can.

3.2.5 Are you aware of any network operator or equipment manufacturer in your country who is proposing any proprietary solution for the issues relating to emergency caller location or the establishment of protocols for transmission of caller location data? If so, please provide as much detail as you can.

3.2.6 Please describe any other facilities either existing or under development in your country for handling emergency calls originating from NGN terminals.

### **General**

3.3.1 Existing PSAP arrangements are largely based on 'old technology' networks, what progress is there towards a fully NGN solution and how will legacy networks then be accommodated?

3.3.2 Members of the STF will appreciate your responses to the above questions and also any further, relevant information you are able to provide. More information on STF321 can be found on the ETSI Portal, at the following address [http://portal.etsi.org/stfs/STF\\_HomePages/STF321/STF321.asp](http://portal.etsi.org/stfs/STF_HomePages/STF321/STF321.asp).

3.3.3 Any questions you may have about the STF or its work should be addressed in the first instance to the STF Leader, Jim Price at [jim.price@etsi.org](mailto:jim.price@etsi.org) or [jnprice@btinternet.com](mailto:jnprice@btinternet.com)

## **Annex – Abbreviations used in this document**

3GPP	3 <sup>rd</sup> Generation Partnership Project
ATIS	Alliance for Telecommunications Industry Solutions
DDI	Direct Dialling Inwards
DID	Direct Inward Dialling
EC	European Community
ETSI	European Telecommunications Standards Institute
GPS	Global positioning System
GSM	Global Service for Mobile communication
IETF	Internet Engineering Task Force
IP	Internet Protocol
NENA	National Emergency Number Association
NGN	Next Generation Networks
OMA	Open Mobile Alliance
PSAP	Public Service Answering Point
PSTN	Public Switched telephone Network
SMS	Short Message Service
STF	Specialist Task Force
TDD	Telecommunications Devices for the Deaf
TISPAN	Telecommunication and Internet converged Services and Protocols for Advanced Networking
TTY	Teletype or Text Telephone
WG3	(TISPAN) Working Group 3 – TISPAN Protocols