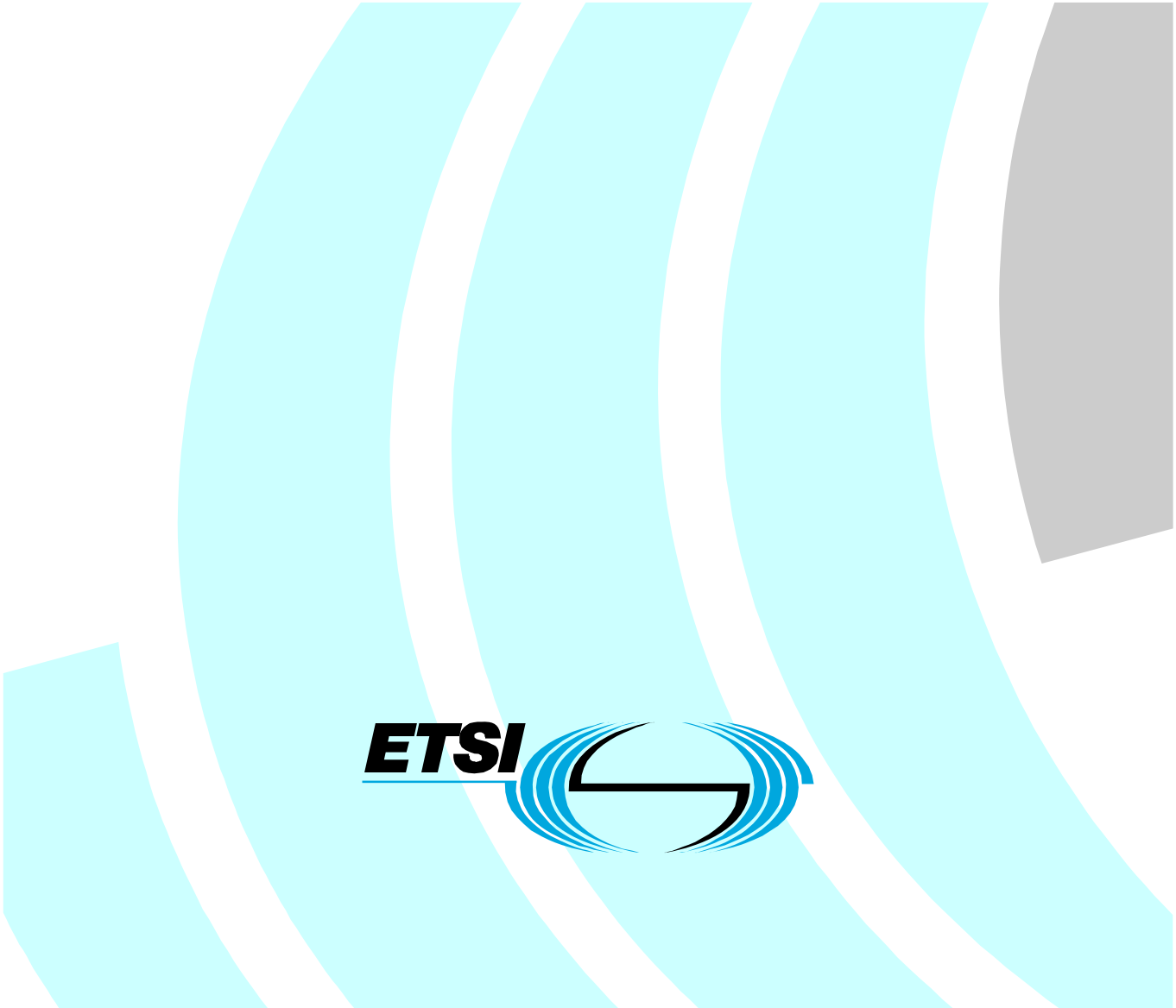
ETSI TR 102 476 V1.1.1 (2008-07)

Technical Report

Emergency Communications (EMTEL); Emergency calls and VoIP: possible short and long term solutions and standardization activities



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Contents

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Foreword

This Technical Report (TR) has been produced by ETSI Special Committee Emergency Communications(EMTEL).

The present document is one of several deliverables covering the communication needs of individuals and authorities in emergency situations, as identified below:

TR 102 180: "Basis of requirements for communication of individuals with authorities/organizations in case of distress (Emergency call handling)";

TS 102 181: "Requirements for communication between authorities/organizations during emergencies";

TS 102 182: "Requirements for communications from authorities/organizations to individuals, groups or the general public during emergencies";

TR 102 410: "Basis of requirements for communications between individuals and between individuals and authorities whilst emergencies are in progress".

1 Scope

The present document gives an overview of standardisation activities and summarises different methods for VoIP providers to deliver emergency communication services. VoIP is growing quickly, especially in countries with a high broadband penetration. Therefore the use of this technology for the provision of emergency communication services will be considered. For this, specific features can be introduced such as location and routing facilities.

The present document is applicable to ETSI technical bodies for the defining of services and specifying technical solutions.

2 References

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2.1 Normative references

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Not applicable.

2.2 Informative references

The following referenced documents are not essential to the use of the present document but they assist the user with regard to a particular subject area**.** For non-specific references, the latest version of the referenced document (including any amendments) applies.

[i.1] ETSI TR 102 180: "Basis of Requirements for communication of Individuals with authorities/organizations in case of distress (emergency call handling)".

[i.2] ETSI TS 102 424 (V1.1.1): "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Requirements on the NGN network to support Emergency Communication from Citizen to Authority".

[i.3] ETSI TS 123 167: "Universal Mobile Telecommunications System (UMTS); IP Multimedia Subsystem (IMS) emergency sessions (Release 7)".

[i.4] IETF RFC 5012: "Requirements for Emergency Context Resolution with Internet Technologies".

[i.5] IETF RFC 5031: "A Uniform Resource Name (URN) for Emergency and Other Well-Known Services".

[i.6] IETF RFC 5069: "Security Threats and Requirements for Emergency Call Marking and Mapping".

[i.7] Draft-ietf-ecrit-mapping-arch-03: "Location-to-URL Mapping Architecture and Framework" by H. Schulzrinne.

NOTE: This reference can is available at http://www.ietf.org/internet-drafts/draft-ietf-ecrit-mapping-arch-03.txt.

[i.8] Draft-ietf-ecrit-lost-10: "LoST: A Location-to-Service Translation Protocol", by T. Hardie, A. Newton, H. Schulzrinne and H. Tschofenig.

NOTE: This reference can is available at http://www.ietf.org/internet-drafts/draft-ietf-ecrit-lost-10.txt.

[i.9] Draft-ietf-ecrit-phonebcp: "Best Current Practice for Communications Services in support of Emergency Calling", by B. Rosen and J. Polk.

NOTE: This reference can is available at http://www.ietf.org/internet-drafts/draft-ietf-ecrit-phonebcp-04.txt.

[i.10] Draft-ietf-ecrit-framework-05: "Framework for Emergency Calling using Internet Multimedia", by B. Rosen, H. Schulzrinne, A. Newton and J. Polk.

NOTE: This reference can is available at http://www.ietf.org/internet-drafts/draft-ietf-ecrit-framework-05.txt.

[i.11] Draft-ietf-ecrit-dhc-lost-discovery: "A Dynamic Host Configuration Protocol (DHCP) based Location-to-Service Translation Protocol (LoST) Discovery Procedure", by H. Schulzrinne, H. Tschofenig and J. Polk.

NOTE: This reference can is available at http://www.ietf.org/internet-drafts/draft-ietf-ecrit-dhc-lost-discovery-03.txt.

[i.12] ETSI TS 182 009: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); NGN Architecture to support emergency communication from citizen to authority; [Endorsed document 3GPP TS 23.167, Release 7]".

[i.13] ETSI TS 102 164 (V2.1.1): "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Emergency Location Protocols; [OMA-TS-MLP-V3_2-20051124-C]".

[i.14] ETSI EG 202 339: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Definition of requirements on the functional architecture for supporting Emergency and Priority user services".

[i.15] ITU Recommendation E.164: "List of ITU Recommendation E.164 assigned country codes".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

IP network: packet transport network deploying the IP protocol

Voice over Internet Protocol (VoIP): is the generic name, which defines the transportation of voice traffic by means of transmission in packets using Internet Protocol (IP)

NOTE: VoIP traffic can be routed on a controlled private network or the internet, which is a public network, or a combination of the two. Internet telephony and managed IP-based telephony are sub elements of VoIP.

IP-based telephony (or managed IP-based telephony): specific VoIP service, where the voice traffic is carried by data packets fully or partially on managed IP network, in which case the management of network means management of quality, reliability and security of calls

internet telephony (or Voice over Internet (VoIT)): a specific VoIP service using transmission in packets on the Internet public network which is by definition open and noncontrollable

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

3GPP	Third Generation Partnership Project
DNS	Domain Name System
EGEA	Expert Group on Emergency Access
ETSI	European Telecommunications Standards Institute
IETF	Internet Engineering Task Force
NTP	Network Termination Point
PATS	Publicly Available Telephony Services
PIDF-LO	Presence Information Data Format – Location Object
PSAP	Public Safety Answering Point
PSTN	Public Switched Telephone Network
RPC	Remote Procedure Call
SIM	Subscriber Identification Module for GSM
VoIP	Voice over Internet Protocol
URI	Uniform Resource Identifier
USIM	Subscriber Identification Module for UMTS

4 Purpose of the present document

4.1 The network evolution

New communications networks are IP-based. The number of broadband telephones is increasing quickly and more and more calls no longer reach a circuit switched network.

Emergency calls traditionally reach the PSAP through the PSTN. Actors offering VoIP services without a PSTN network, e.g. municipality networks, need to transfer emergency calls through a circuit switched network, typically the old PSTN. Since IP allows for transfer of more information related to the call and the caller, it could be beneficial to allow for direct IP-interconnect to PSAPs. It is also foreseeable that the days of the circuit switched networks are coming to an end. That means that the requirements for IP-interconnections of PSAPs are developed. It can also be argued why new IP-based public communications operators would not have the possibility to connect directly to PSAPs over IP.

Apart from the above mentioned reasons for EMTEL to work on IP-interconnection of PSAPs, it is likely to be an advantage to try and define a PSAP IP interface. It could lead to easier reaching common functionality meeting requirements on Emergency Services which in turn could lead to a possibility to utilize common platforms and easier exchange of experiences. This is done with the knowledge that other standardization bodies are working on different aspects of the problem.

4.1.1 Summary

- The circuit switched network era will end.
- The routing from IP networks to PSTN for reaching PSAPS is not necessary when PSAPs are connected directly to IP networks.
- A pure IP-interface for PSAPs should be defined.
- More information can be transferred through IP into the PSAPs compared to today's circuit switched signalling interfaces (trunk or access signalling).
- Common requirements are beneficial for meeting requirements on Emergency Services, cost for systems and exchange of experiences.

4.2 Broadband subscribers

The increasing penetration of broadband has opened the market for VoIP over broadband. From being a complement to the PSTN it is becoming a replacement. Driving factors are the possibility to reduce subscription and call costs and also other services, e.g. the possibility to log into the network and thus receive calls to your actual location.

When becoming a replacement subscribers would expect that the behaviour of the telephony service concerning Emergency Calls is the same as in the PSTN. Due to technical reasons this is not possible to guarantee when a call is set up from the Internet.

This problem is addressed in many international working groups in e.g. IETF, 3GPP, and ETSI. There is a need to coordinate the VoIP Emergency Call standardization activities and also to define the requirements on the PSAP IP interface.

For this reason EMTEL in this TR defines short and long term requirements for Emergency Calls from broadband connections with the aim to facilitate a harmonized European approach. The individual subscriber should not be forced to know technical details of the network he is connected to for making Emergency Calls.

4.2.1 Summary

- VoIP is going from being a complement to PSTN into becoming a replacement.
- The subscriber expects Emergency Calls to work "as usual".
- It is desirable to have a harmonized approach in Europe since the VoIP service is borderless.
- There are a lot of standardization activities going on in different groups.

5 General on Access to Emergency Services

The efficient operation of Emergency Services requires fulfilment of the following basic **functions**.

1) Routing to the appropriate PSAP (as defined by the relevant authority).
2) Identification of the caller (network identity through e.g. NTP and/or U/SIM).
3) Location of the caller.

These three basic **functional** requirements are valid independent of **what service type** the Emergency Call is set up from the Communications Network and to the PSAP and **which interface** is used. See figure 1.

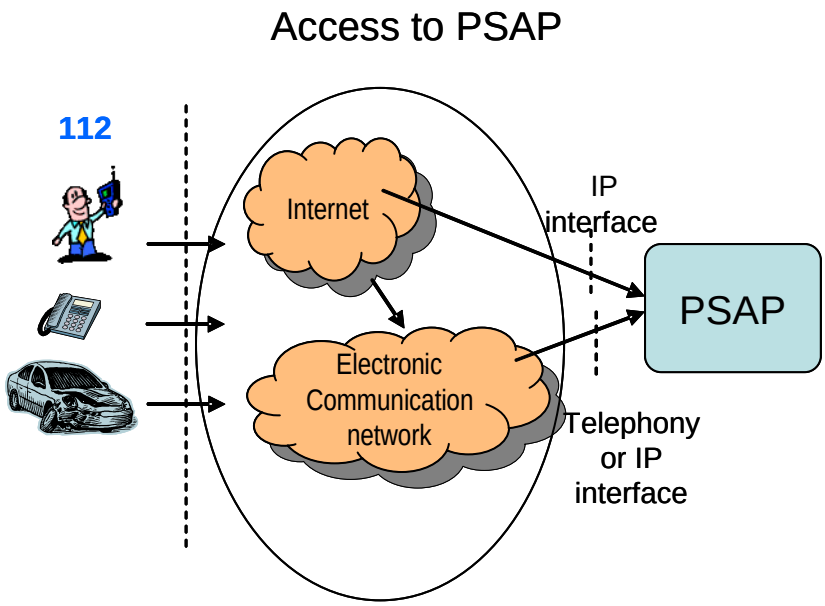

Figure 1: Network overview 2

5.1 Service types

All Emergency Communication have to originate over a Service Type. Below a list of possible Service Types is given:

Voice Services:

1) POTS (Plain Old Telephone Service);
2) Mobile telephony (circuit switched);
3) Satellite telephony;
4) Voice over IP:
   - Fixed (The subscriber cannot move the service to another Network Access Point);
   - Nomadic (The subscriber can move the service to another Network Access Point);
   - Mobile Communication Services on Packet Access;
   - Internet telephony.

Other Services:

1) Video calls (E.g. from 3G-telephone);
2) Data calls (E.g. alarm from a device);
3) E-mail;
4) SMS (Short Message Service);
5) MMS (Multimedia Messaging Service);
6) Real-time Instant-Messaging and Chat.

The present document deals with the Service Type for Voice over IP category 4.

5.2 The PSAP interface

The interface between the Communications Network (telecom or Internet) and the PSAP can be of two main types.

1) Circuit switched (PSTN-based).
   The content of the communication - voice - and the signaling information for call handling and transport of emergency related information will be done using the same interface.

2) IP-based.
   Only the content of the communication - voice - will be delivered from access network.

   a) IP-based telephony.
      The signalling information for call handling and the emergency related information will be delivered from VoIP session provider.

   b) Internet telephony.
      The signalling information for call handling and the emergency related information will be delivered from user equipment.

Other data can be communicated between the network and PSAP related to the emergency communication, including location. The interfaces used are not described in the present document.

5.3 Network capabilities

Independent of what interfaces are implemented, the **functional requirements** are the same. Therefore, information conveyed over any interface should facilitate **identification** and **location** of the caller. Furthermore the VoIP provider should be able to **route** the Emergency Call to the pre-defined PSAP.

The present document **does not** specify the actual protocols used for the interfaces between the Internet or Communications Network and the PSAP.

6 Emergency Calls and VoIP

In order to address problems associated with the implementation of VoIP emergency calls, various scenarios and the corresponding options for handling emergency calls are discussed.

6.1 Description of VoIP scenarios

Voice over IP can be subdivided in a number of scenarios depending on how the telephony service is offered technically, but no one is generally accepted yet.

From the point of view of emergency telecommunications one of these scenarios (worked out and used by the telecommunications regulation authorities in several European countries) categorizes the provided services on whether the PSTN network is available by the user through the VoIP network or not:

Type 1 — non PATS peer-to-peer services to make and receive voice calls over the Internet only, usually within the same application community. The terminal equipments do not have PSTN telephone numbers (according to the ITU Recommendation E.164 [i.15]), the service providers do not provide the normal "112" or "E112" services. The PSAP can receive emergency calls from these terminals only if it has Internet type VoIP interface and the users have retrieved the PSAP's IP ID number(s).

Type 2 — VoIP Out services to make voice calls over the Internet to the PSTN (Public Switched Telephony Network, the standard public network), but not to receive calls from the PSTN. Though the terminal equipments do not have ITU Recommendation E.164 [i.15] type telephone numbers, the service providers can provide the normal "112" or "E112" services. At present roughly half of European countries do not require the service providers of Type 2 services to ensure the "112" or "E112" services.

Type 3 VoIP In services to receive voice calls over the Internet from the PSTN, but not to make calls to the PSTN. Customers can be allocated an ordinary geographic number or a VoIP number. Though the terminal equipments have ITU Recommendation E.164 [i.15] type telephone numbers, these services do not support the "112" or "E112" services. The PSAP can receive emergency calls from these terminals only if it has Internet type VoIP interface and the users have retrieved the PSAP's IP ID number(s).

Type 4 VoIP In and Out services to receive voice calls over the Internet from the PSTN and to make voice calls over the Internet to the PSTN. Customers can be allocated an ordinary geographic number or a VoIP number. The terminal equipments have ITU Recommendation E.164 [i.15] type telephone numbers, and the networks can be made able to support the "112" and "E112" services. N.b. today in the telecommunications regulating practice of the European countries there is slight difference whether all service providers are obliged to provide these services or only those, who declared their services as PATS (Publicly Available Telephone Services).

This category is under discussion and might alter after change of the Universal Service Directive.

From the point of view of the users the following scenarios have been identified.

6.1.1 IP-based telephony from fixed terminal

An IP-telephony service offered and controlled by the operator who owns the infrastructure for the physical access and at the same time acts as Internet Service Provider.

- The subscription may not be associated with a specific fixed network termination point.
- The use of the subscription **cannot** be moved to another Network Termination Point by the subscriber.
- A telephone number from ITU Recommendation E.164 [i.15] is assigned.

EXAMPLE: Cable-TV-networks offering telephony, separate fibre network and classical cupper based broadband networks where the service provider/network operator for some reason only offers non-nomadic services.

6.1.2 Internet telephony from fixed terminal

A telephony service offered over an Internet access, not with the ITU Recommendation E.164 [i.15] numbering plan.

- The subscription may not be associated with a specific fixed network termination point.
- The subscription **can** be moved to another Network Termination Point by the subscriber.
- A telephone number from ITU Recommendation E.164 [i.15] is **not** assigned to the terminal and hence the E112 service is not guaranteed.

EXAMPLE: Any Internet connection.

6.1.3 IP-based telephony from nomadic terminal

An IP-telephony service offered by a service provider over any network operator's network.

The subscription **can** be moved to another Network Termination Point by the subscriber.

- A telephone number from ITU Recommendation E.164 [i.15] or the SIP URI from the operator's addressing plan, is assigned

EXAMPLE: Any broadband network that has not barred access to VoIP-servers (SIP-servers).

6.1.4 Internet telephony from nomadic terminal

A telephony service offered over an Internet access, not associated with the ITU Recommendation E.164 [i.15] numbering plan.

- The subscriber can activate the subscription from any Network Termination Point.
- A telephone number from ITU Recommendation E.164 [i.15] is **not** assigned to the terminal and hence the E112 service is not guaranteed.

EXAMPLE: Any Internet connection.

6.1.5 IP-based telephony from mobile terminal

An IP-telephony service offered to mobile terminals.

- The VoIP-subscription is related to the mobile subscription
- A telephone number from ITU Recommendation E.164 [i.15] or the SIP URI from the operator's addressing plan, is assigned.

EXAMPLE: Any PLMN-operator.

6.1.6 Internet telephony from mobile terminal

A telephony service offered over an Internet access without a possibility to use telephone numbers.

- The Internet telephony service is **not** related to the mobile subscription.
- A telephone number from ITU Recommendation E.164 [i.15] is **not** assigned.

EXAMPLE 1: Any PLMN-operator that has not barred access to VoIP-servers (SIP-servers).

EXAMPLE 2: Note that clauses 6.1.2, 6.1.4 and 6.1.6 are different concerning the type of terminal used.

6.2 Emergency Calls

The short term solutions focus on a PSTN-interconnection and the long term solutions focus on IP-interconnection between any IP-network and the PSAP. In the case a proposed method is considered to be Long Term that is remarked.

6.2.1 IP-based telephony from fixed terminal

Normally this type of VoIP-service is treated in the same way as POTS. See figure 2.

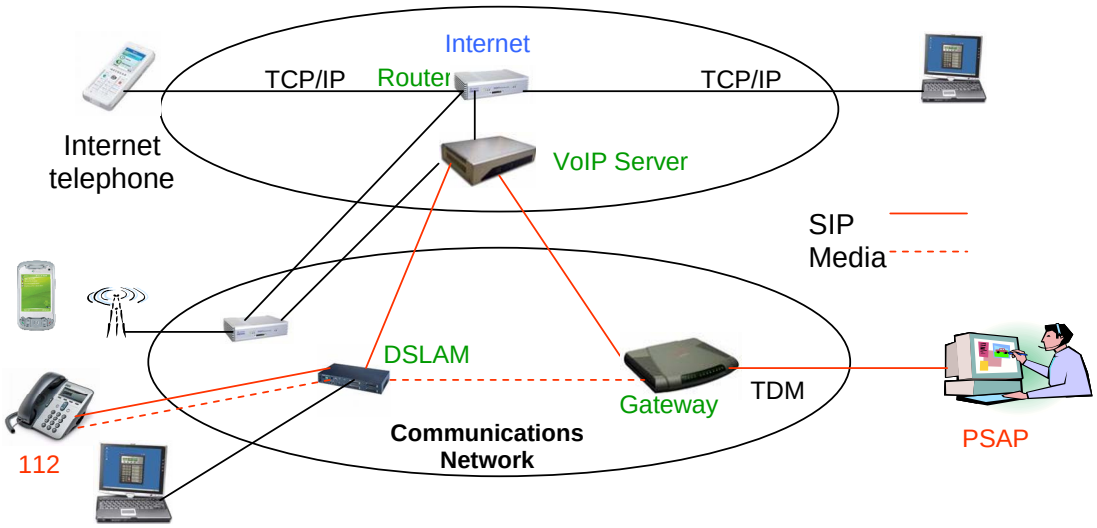

Figure 2: Emergency call from IP-based fixed telephony

6.2.1.1 Routing

Routing to the correct PSAP is achieved through knowledge of Network Access Point.

6.2.1.2 Identification

The identification of the subscriber is done in the same way as for ordinary POTS-subscribers where the telephone number is used as identifier.

6.2.1.3 Location

The location of a Network Termination Point is known.

6.2.2 Internet telephony from fixed terminal

This category is not discussed here since it is not required to support Emergency Calls, at the time of the edition of the present version of this document. See figure 3.

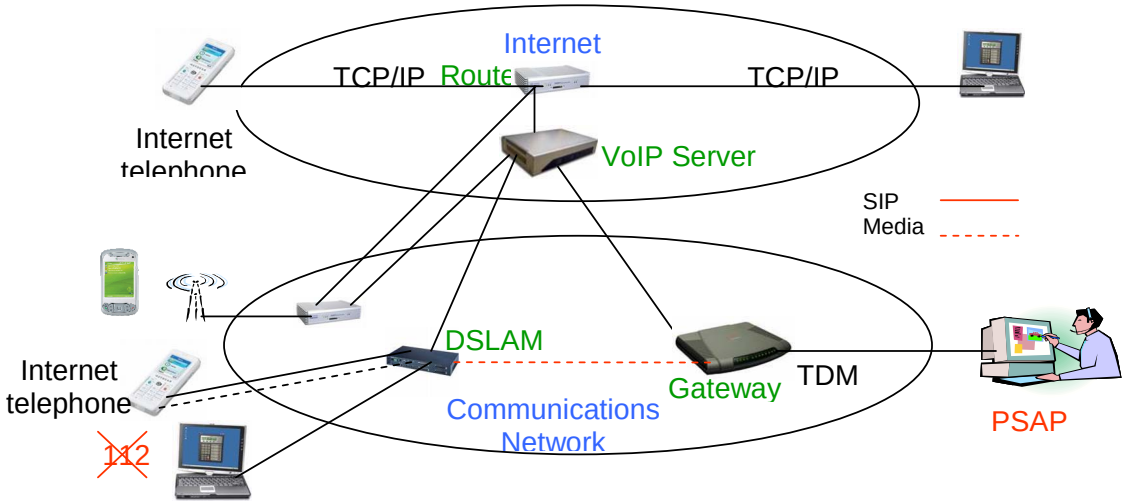

Figure 3: Internet telephony using fixed terminal

6.2.3 IP-based telephony from nomadic terminal

Work on standardized procedures for Emergency Calls from Nomadic IP-based terminals is not finalized at the time of the editing of this document. See figure 4.

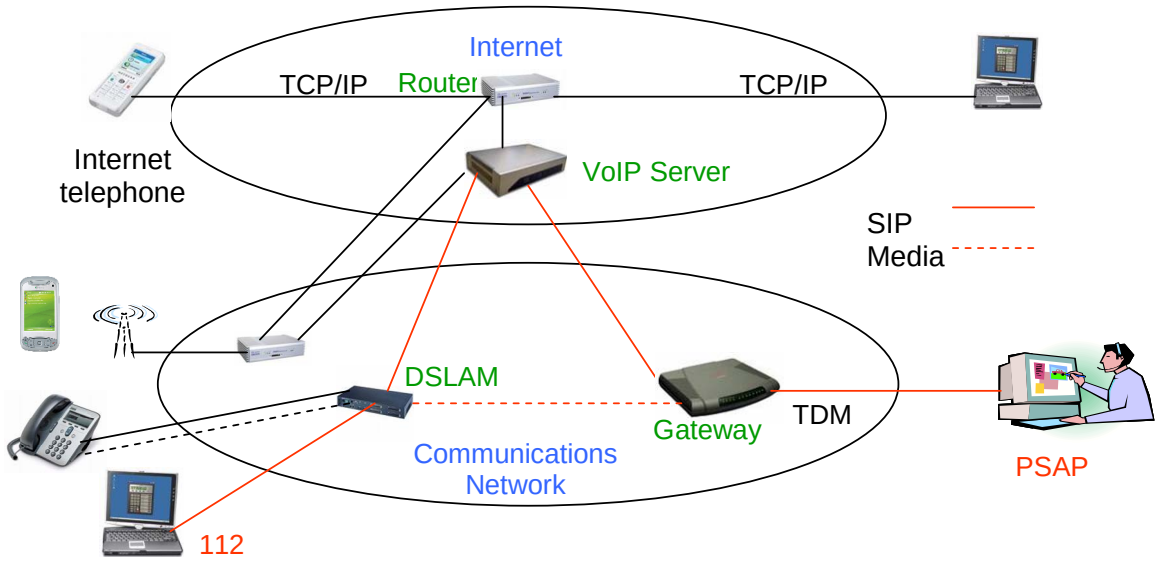

Figure 4: Emergency call from IP-based nomadic telephony.

6.2.3.1 Routing

Routing to the correct PSAP can be achieved using different solutions.

EXAMPLE 1: Subscriber updates routing information on log-in to the service (see note).

EXAMPLE 2: Network updates routing information on log in to the service.

EXAMPLE 3: IP-calls are marked and a specific PSAP is assigned.

EXAMPLE 4: The VoIP server requests the address of the PSAP using DNS and uses that for routing (Long term, see clause 7).

EXAMPLE 5: Geographical area of IP-address is known (Long-term).

NOTE: The purpose and consequences of subscriber settable location information is debated. Further, in conjunction with such information, a time stamp should be provided indicating when the location information was changed most recently.

6.2.3.2 Identification

The identification of the subscriber is done in a similar way as for ordinary POTS-subscribers where the telephone number (ITU Recommendation E.164 [i.15] and/or URI) is used as identifier.

6.2.3.3 Location

Since location of the subscriber based on the received telephone number is depending on how up to date the latest location information is, procedures for verification and updates have to be established.

EXAMPLE 1: Subscriber updates location information on log-in to the service (see note):

- Validated by the network and contractual relationship;
- Not validated, user provided to the network.

EXAMPLE 2: VoIP service provider updates location information when subscriber registers for emergency service.

EXAMPLE 3: Location information is provided by the VoIP service provider to the PSAP on a database data look-up interface.

EXAMPLE 4: Coordinate information is provided by the terminal through the signalling (Long-term):

- Validated by the VoIP service provider and contractual relationship;
- Not validated, transparent to the network.

EXAMPLE 5: Coordinate information is provided by the VoIP service provider through the signalling (Long-term).

EXAMPLE 6: Geographical area of IP-address is known (Long-term).

NOTE: The purpose and consequences of subscriber settable location information is debated. Further, in conjunction with such information, a time stamp should be provided indicating when the location information was changed most recently.

6.2.4 Internet telephony from nomadic terminal

This category is not discussed here since it is not required to support Emergency Calls. See figure 5.

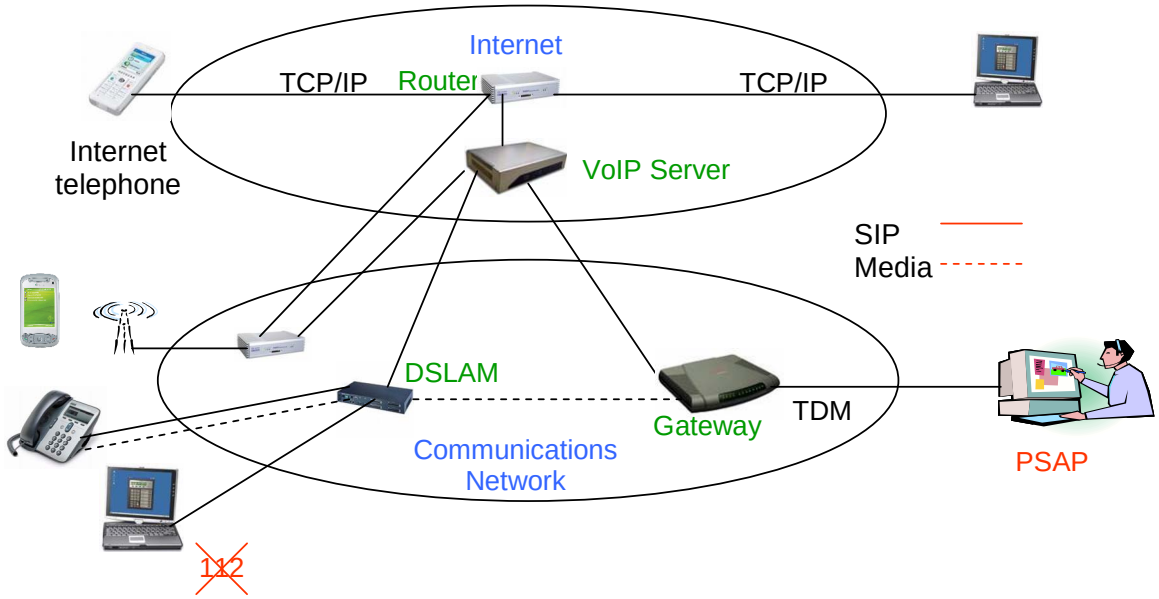

Figure 5: Internet telephony using nomadic terminal

6.2.5 IP-based telephony from mobile terminal

IP-based telephony from mobile terminal. See figure 6.

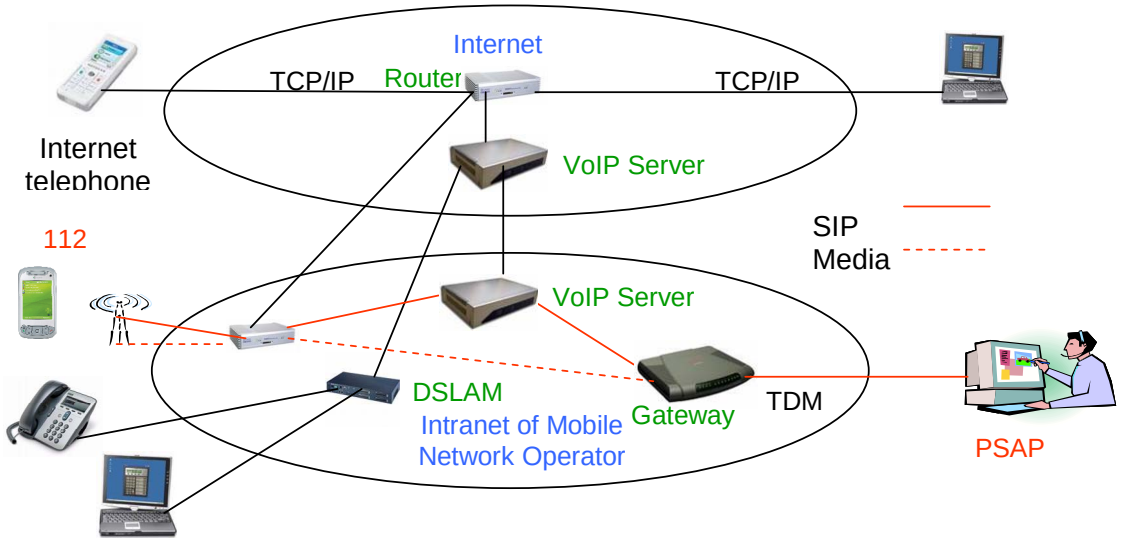

Figure 6: Emergency call from IP-based mobile terminal.

6.2.5.1 Routing

Routing to the correct PSAP can be achieved using different solutions.

EXAMPLE 1: Location of Base Station is known by the VoIP Server and used for routing.

EXAMPLE 2: Location information is known by the VoIP Server (database data look-up) and used for routing.

EXAMPLE 3: Network updates routing information on attach to the network and when roaming.

EXAMPLE 4: IP-emergency-calls are marked and a specific PSAP is assigned.

EXAMPLE 5: The VoIP Server (E-CSCF for mobile networks) will request the location of the terminal using. Location Based Services or other mechanisms and requests the correct PSAP address (from internal or external resources).

EXAMPLE 5: Terminal requests its location; when an emergency call is set up it sends this location information to the VoIP server who will request the correct PSAP address (from internal or external resources).

6.2.5.2 Identification

The identification of the subscriber is done in the similar way as for ordinary POTS-subscribers where the telephone number (ITU Recommendation E.164 [i.15] or URI) is used as identifier.

6.2.5.3 Location

Location of the subscriber can basically be done in two ways that also can be complements to each other.

The mobile network (VoIP server, E-CSCF) can provide location based on base station or using location based services.

The terminal sends the location information when it places an emergency call.

The received telephone number can be used. Depending on how updated the latest location information related to the telephone number is, procedures for verification and updates should be established.

Examples related to telephone number:

- Network (VoIP server, E-CSCF) updates location information on registration to the emergency service.
- Coordinate information is provided by the terminal through the signalling (Long term).
- Coordinate information is provided by the network (VoIP server, E-CSCF) through the signalling (Long term).

NOTE: The purpose and consequences of subscriber settable location information is debated. Further, in conjunction with such information, a time stamp should be provided indicating when the location information was changed most recently.

Examples related to mobile network:

- Location of Base Station is known and used for determination of Location.

6.2.6 Internet telephony from mobile terminal

This category is not discussed here since it is not required to support Emergency Calls. See figure 7.

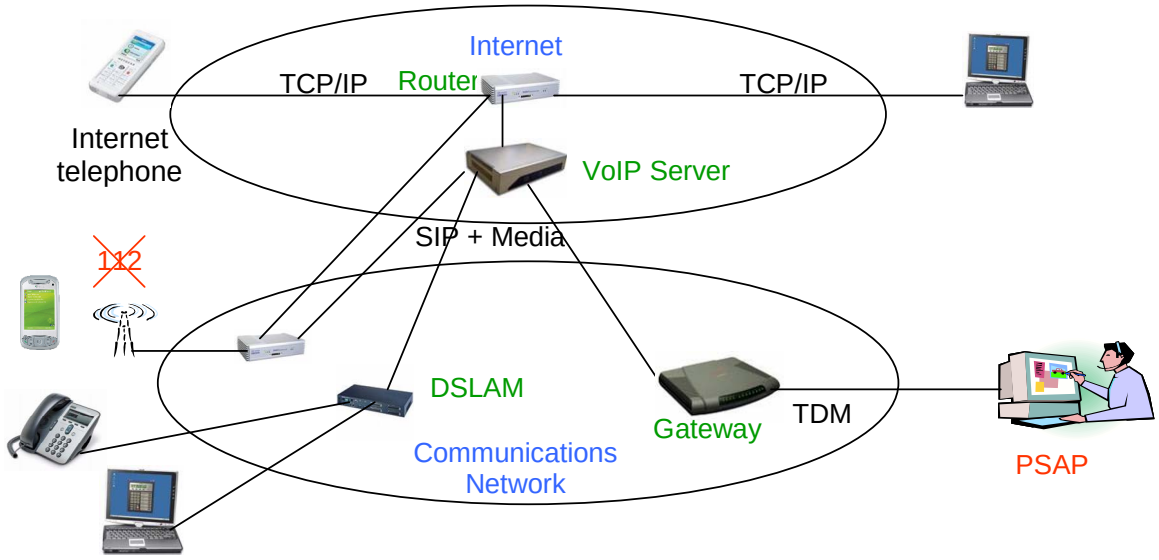

Figure 7: Internet telephony from mobile terminal

7 Standardization activities

7.1 IETF/ECRIT

Internet Drafts delivered by ECRIT.

7.1.1 Requirements for Emergency Context Resolution with Internet Technologies

Request for Comments: RFC 5012 [i.4].

This document defines terminology and enumerates requirements for the context resolution of emergency calls placed by the public using voice-over-IP (VoIP) and general Internet multimedia systems, where Internet protocols are used end-to-end.

7.1.2 A Uniform Resource Name (URN) for Emergency and Other Well-Known Services

Request for Comments: RFC 5031 [i.5].

The content of many communication services depends on the context such as the user's location. We describe a "service" URN that allows identifying well-known context-dependent services that can be resolved in a distributed manner. Examples include emergency services, directory assistance and call-before-you-dig hot lines.

7.1.3 Security Threats and Requirements for Emergency Call Marking and Mapping

Request for Comments: RFC 5069 [i.6].

This document reviews the security threats associated with the marking of signalling messages to indicate that they are related to an emergency, and the process of mapping from locations to Universal Resource Identifiers (URIs) pointing to Public Safety Answering Points (PSAPs). This mapping occurs as part of the process of routing emergency calls through the IP network.

Based on the identified threats, this document establishes a set of security requirements for the mapping protocol and for the handling of emergency-marked calls.

7.1.4 LoST: A Location-to-Service Translation Protocol

draft-ietf-ecrit-lost [i.8].

This document describes an XML-based protocol for mapping service identifiers and geodetic or civic location information to service contact URIs. In particular, it can be used to determine the location-appropriate PSAP for emergency services.

7.1.5 Location-to-URL Mapping Architecture and Framework

draft-ietf-ecrit-mapping-arch [i.7].

This document describes an architecture for a global, scalable, resilient and administratively distributed system for mapping geographic location information to URLs, using the Location-to-Service (LoST) protocol. The architecture generalizes well-known approaches found in hierarchical lookup systems such as DNS.

7.1.6 Best Current Practice for Communications Services in support of Emergency Calling

draft-ietf-ecrit-phonebcp [i.9]

The IETF has several efforts targeted at standardizing various aspects of placing emergency calls. This memo describes best current practice on how devices, networks and services should use such standards to make emergency calls.

7.1.7 Framework for Emergency Calling using Internet Multimedia

draft-ietf-ecrit-framework [i.10].

The IETF has several efforts targeted at standardizing various aspects of placing emergency calls. This document describes how all of those component parts are used to support emergency calls from citizens and visitors to authorities.

7.1.8 A Dynamic Host Configuration Protocol (DHCP) based Location-to-Service Translation Protocol (LoST) Discovery Procedure

draft-ietf-ecrit-dhc-lost-discovery [i.11].

The Location-to-Service Translation Protocol (LoST) describes an XML-based protocol for mapping service identifiers and geospatial or civic location information to service contact Uniform Resource Locators (URLs). LoST servers can be located anywhere but a placement closer to the end host, e.g., in the access network, is desirable. Such a LoST server placement provides benefits in disaster situations with intermittent network connectivity regarding the resiliency of emergency service communication.

This document describes how a LoST client can discover a LoST server using the Dynamic Host Configuration Protocol (DHCP).

7.2 ETSI

7.2.1 Requirements of the NGN network to support Emergency Communication from Citizen to Authority (TISPAN)

TS 102 424 [i.2].

This document contains the requirements of NGN to support emergency communications (EMTEL) from the citizen to the authority. The requirements are independent of the NGN subsystem and transport layer unless specifically referred to.

7.2.2 NGN Architecture to support emergency communication from citizen to authority

TS 182 009 [i.12].

This document defines the architectural description for emergency services in the IP Multimedia Core Network Subsystem (IMS), including the elements necessary to support IP Multimedia (IM) emergency services

The document also covers the Access Network aspects that are crucial for the provisioning of IMS emergency services.

7.2.3 Emergency Location Protocol

TS 102 164 [i.13].

This document specifies the protocol that is used by the local emergency operator to obtain the location information that is registered on the operator location server, see figure 1.

7.2.4 Requirements in Emergency Communications in NGN

TS 102 424 [i.2].

The present document contains the requirements of a NGN to support emergency communications (EMTEL) from the citizen to the authority. The requirements are independent of the NGN subsystem and transport layer unless specifically referred to.

7.2.5 Architecture to support of Emergency Communications

ETSI EG 202 339 [i.14].

The present document defines requirements and proposes a functional architecture of an Emergency Telecommunication Service for international cooperation in Europe.

7.2.6 Revision of TS 102 164 on the Endorsement of the OMA MLP v 3.2.0.

TS 102 164 [i.13].

The present document specifies the protocol that is used by the local emergency operator to obtain the location information that is registered on the operator location server.

7.3 3GPP

7.3.1 IP Multimedia Subsystems (IMS) emergency sessions

TS 123 167 [i.3].

This document defines the stage-2 service description for emergency services in the IP Multimedia Core Network Subsystem (IMS), including the elements necessary to support IP Multimedia (IM) emergency services.

The document also covers the Access Network aspects that are crucial for the provisioning of IMS emergency services.

GPRS functions for support of IMS emergency services are not defined in this version of the specification.

7.3.2 Other organizations working with Emergency Call Standardization

- Cable-labs: www.cablelabs.com.
- DSL Forum: www.dslforum.org.
- IEEE: www.ieee.org.
- WiMAX Forum: www.wimaxforum.org.
- OMA: www.openmobilealliance.org.

Annex A: Bibliography

- Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services (Framework Directive).
- Directive 2002/22/EC of the European Parliament and of the Council of 7 March 2002 on universal service and users' rights relating to electronic communications networks and services (Universal Service Directive).
- Directive 2002/58/EC of the European Parliament and of the Council of 12 July 2002 concerning the processing of personal data and the protection of privacy in the electronic communications sector (Directive on privacy and electronic communications).
- EGEA 07-02 "High Level Operational Requirements for Access to Emergency Services".

History

Document history		
V1.1.1	July 2008	Publication