



Next Generation 112 Explained

Riga
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european emergency number association

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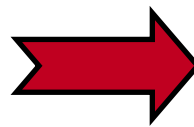
What is a Next Generation Network?

According to the ITU-T, a *Next Generation Network* (NGN) is "...a packet-based network which can provide services including Telecommunication Services and is able to make use of multiple broadband, Quality of Service-enabled transport technologies in which service-related functions are independent from underlying transport-related technologies."



Next Generation Emergency Services

The context



- Citizens use IP services daily (e.g. In the category age 15-25 y, 60 % uses a smartphone)
- More and more data shared on internet (fast increase)
- Citizens think that they can share data with PSAPs, not only voice
- In other words, internet services are largely deployed but not for PSAPs and public safety



Next Generation Emergency Services

EENA NG112 Technical Committee Overview



EENA 112 Operations Committee:

sets out the requirements for the emergency services and PSAPs; manages the education program (PSAPs, citizens)

EENA NG112 Technical Committee:

defines technical standards + interoperability testing and certification

EENA Legal Committee:

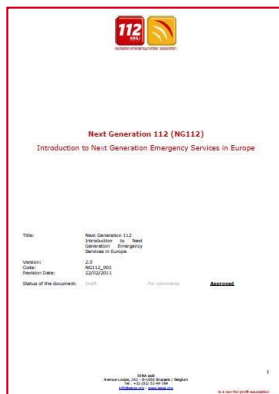
addresses policy issues, including NG112



Next Generation Emergency Services

Background

- In March 2011 we published the [Introduction to the European Next Generation 112](#)
- NG112 is defined by the use of next generation networks for two major aspects
 - Interoperability between emergency services
 - Communication between citizens and emergency services



- Documented challenges:
 - Emergency services organisation
 - Technological infrastructure
 - Telecommunication regulation
 - Legal aspects



Next Generation Emergency Services

Background

Document conclusions:

- Development of the communication methods used daily by citizens obliges emergency services to modernise.
- This transformation lies in opening emergency services access to the Internet.
- Access to emergency services is a highly sensitive critical infrastructure. Challenges have to be tackled.
- We have to concentrate our efforts to advance and create a standardised, common and valuable NG112 model in Europe.



Next Generation Emergency Services Requirements Analysis

- A [requirements analysis](#) for NG112 was conducted and matched against the service requirements developed by the operations committee.
- The survey was launched the 27th of June and closed the 15th of August 2011. It was addressed to the EENA Emergency Services Staff Network group.
- 40 completed surveys were received



Next Generation Emergency Services Requirements Analysis

EENA Next Generation 112: Emergency services operational requirements survey

- Q13: *Do you think that standards on NG112 are needed?:* **98% yes**
- Q8: *Should location for the call always be available?* **100% yes**
- Q9: *Do you require calls to be routed directly to the relevant local PSAPs?* **72% yes**
- Q4 : *Do you believe it is appropriate to receive data (e.g, pictures, location information, contact data) from 112 applications from smartphones?* **97% yes**

[Link to Results for Next Generation 112: Emergency services operational requirements survey](#)



Next Generation Emergency Services Requirements Analysis

NG112 LTD Scope

1. Standards based approach
 1. Geo-Location conveyance
 2. PSAP – interface
 3. Call Routing
2. Multi-Media communications with citizens
3. Emergency Services Interoperability

NG112: A standards-based SIP/IP Emergency Services Network (ESInet), with dynamic call routing of multi-media communications and advanced call processing functions



NG112 Long Definition Document

Start

- Mid 2011 we did a poll in the NG112 TC on the next steps for the work on the technical architecture.
 - Group reinforced the desire to progress the work on the NG112 LTD document.



NG112 Long Definition Document Objectives

- Define a long term architecture for European Emergency Services based on NENA i3 architecture
- Compatible with NENA i3
- Compatible with European Emergency Services organisations – very different organisational structure
(See EENA's [PSAP in Europe](#) publication)

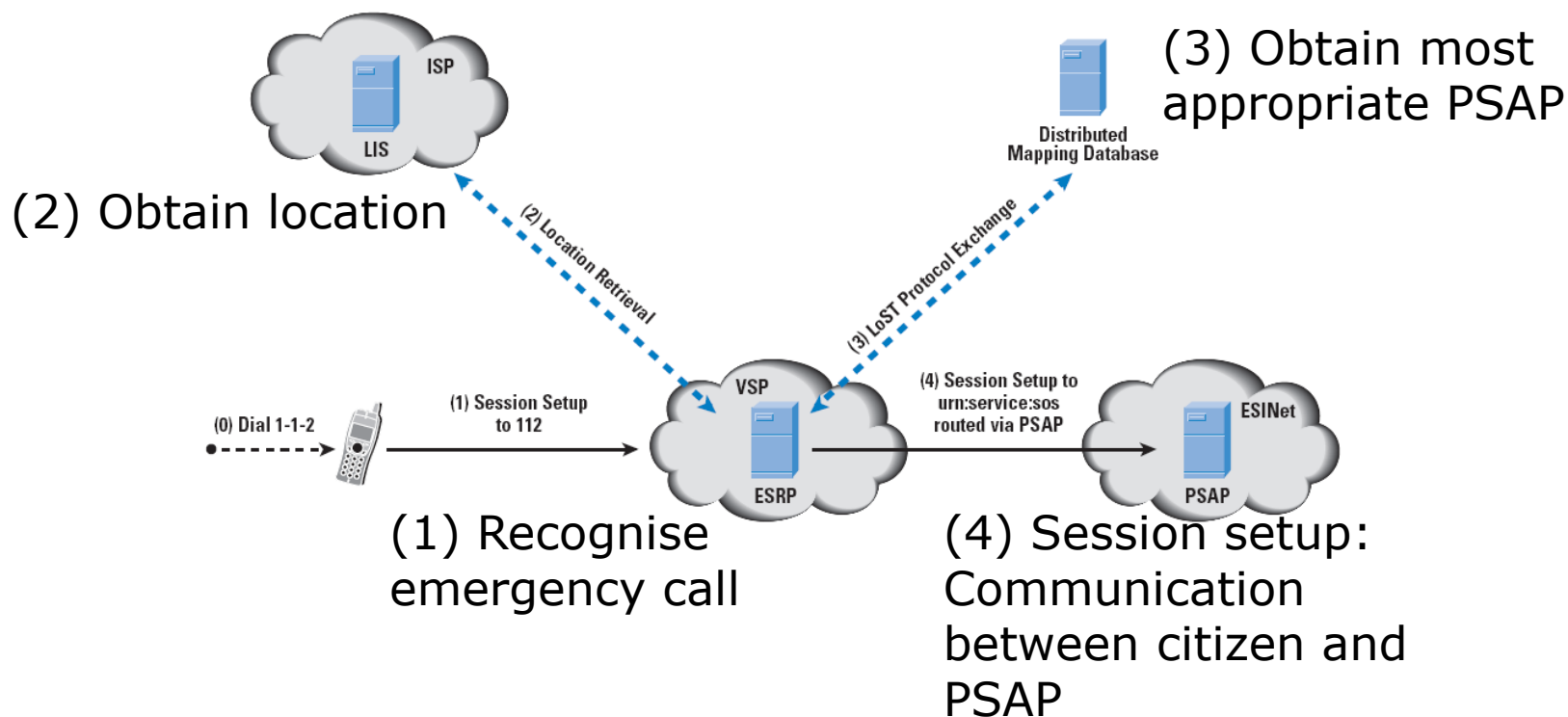


Figure in "Emergency services for internet media" with available standards



NG112 Long Definition Document

(1) Recognise emergency call

- More than 60 different emergency numbers are used worldwide : storing the list of numbers in all devices is not feasible.
- Separation of the concept of an emergency dial string, which remains the familiar and regionally defined emergency number, and a protocol identifier that is used for identifying emergency calls within the signaling system.
- The calling end system has to recognise the emergency (service) dial string (e.g. 112) and translate it into an emergency service identifier, which is an extensible set of *Uniform Resource Names* (URNs) (e.g. urn:service.sos)



NG112 Long Definition Document

(2) Obtain Location

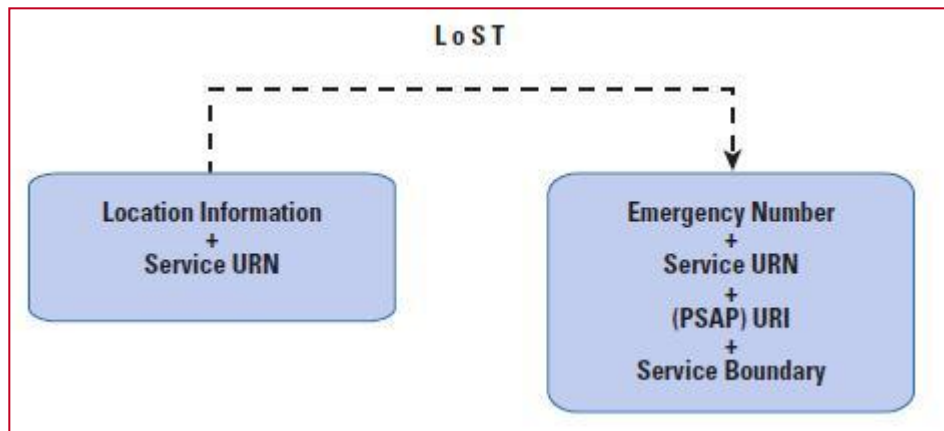
- Location information:
 - geo(detic): longitude and latitude
 - civic: street addresses similar to postal addresses
- Needed for routing and for emergency situation location
- The Internet Service Provider is the source of the most accurate and dependable location information, except for cases where the calling device has built-in location capabilities, such as GPS, when it may have more accurate location information.
- It has to be provided in a common format



NG112 Long Definition Document

(3) Obtain most appropriate PSAP

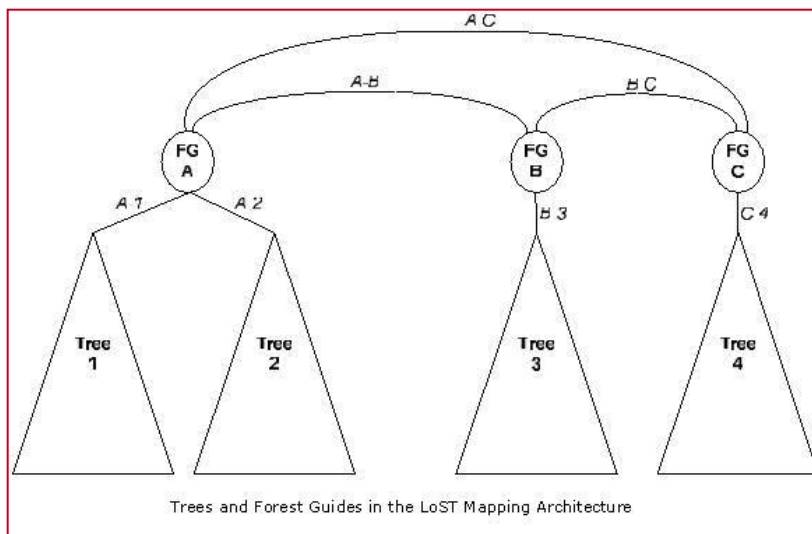
- When an emergency call is recognised, the call needs to be routed to the appropriate PSAP. Each PSAP is responsible for only a limited geographic region, its service region, and some set of emergency services.
- LoST (Location to Service Translation) mapping protocol maps a location and service URN to a specific PSAP *Uniform Resource Identifier* (URI) and a service region.



NG112 Long Definition Document

(3) Obtain most appropriate PSAP

- A single LoST server does not store the mapping elements for all PSAPs worldwide, for both technical and administrative reasons. Thus, there is a need to let LoST servers interact with other LoST servers, each covering a specific geographical region. Working together, LoST servers form a distributed mapping database, with each server carrying mapping elements





NG112 Long Definition Document

(4) Session setup: Communication between citizen and PSAP's operator

- SIP (Session Initiation Protocol):
 - SIP is an application-layer control protocol
 - establish, modify, and terminate multimedia sessions (conferences) such as Internet telephony calls.
 - Media can be added to (and removed from) an existing session.
 - SIP transparently supports name mapping and redirection services, which supports personal mobility - users can maintain a single externally visible identifier regardless of their network location.



NG112 Long Definition Document

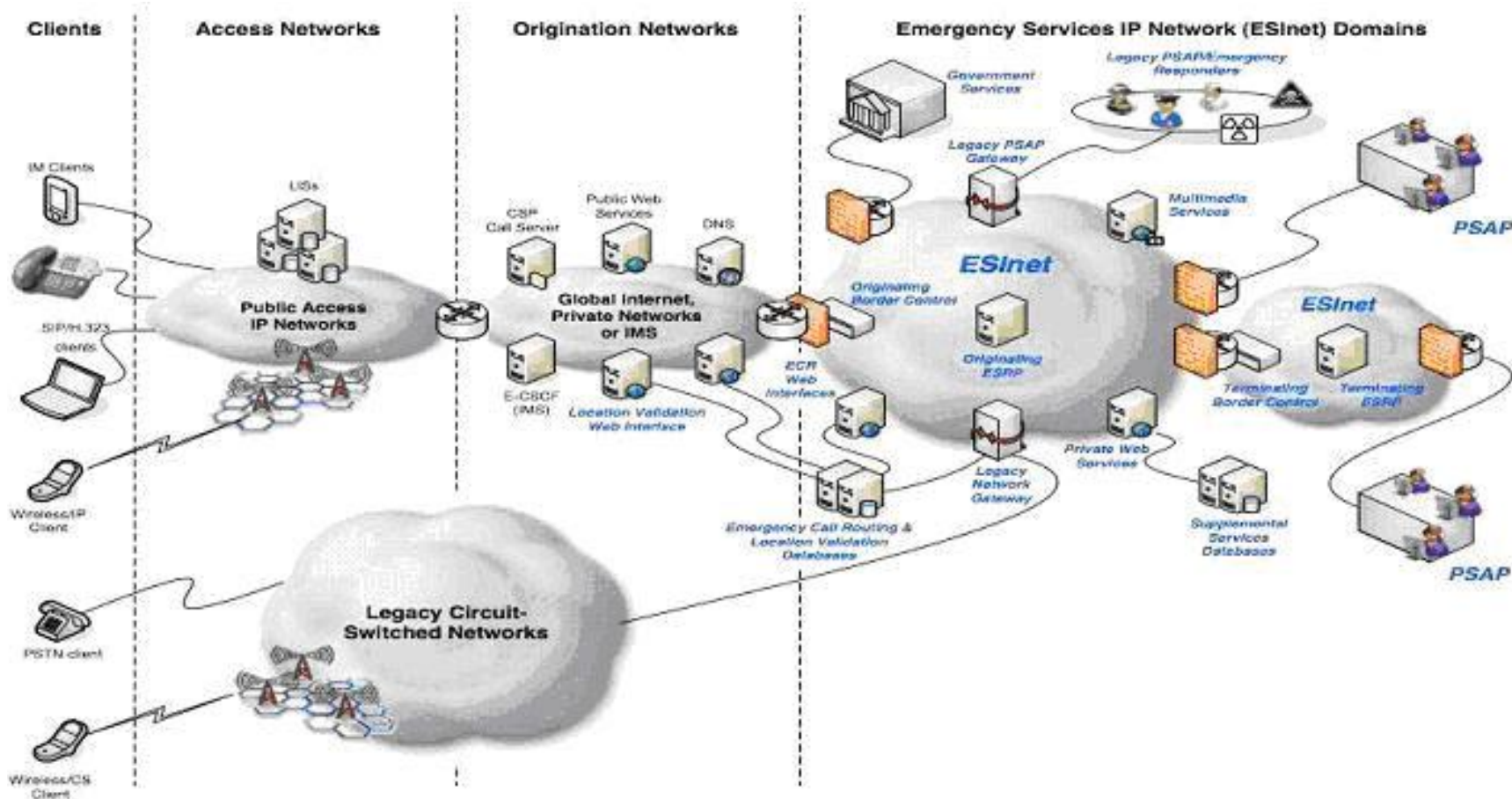
ESInet

- The ESInet is an emergency services network of networks that utilises IP technology.
- ESInets are private managed and routed IP networks.
- An ESInet can serve a set of PSAPs, a region, a state, or a set of states.
- ESInets may be interconnected and have to be built upon common functions and interfaces making ESInets interoperable.



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NG112 Long Definition Document Document Overview





NG112 Long Definition Document Document Overview

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**EENA NG112
Standards
presentation**

**tomorrow at
14:00 in the
*Beta Room***



Objectives

Next Steps

Timeframe	Item
May - June 2012	Work on open issues
June - December 2012	Architecture/transition documents
Beginning 2013	Guidelines for Interoperability test (to be discussed and approved by EENA members)
2nd half 2013	Interoperability tests (to be discussed and approved by EENA members)



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Thank you!!

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