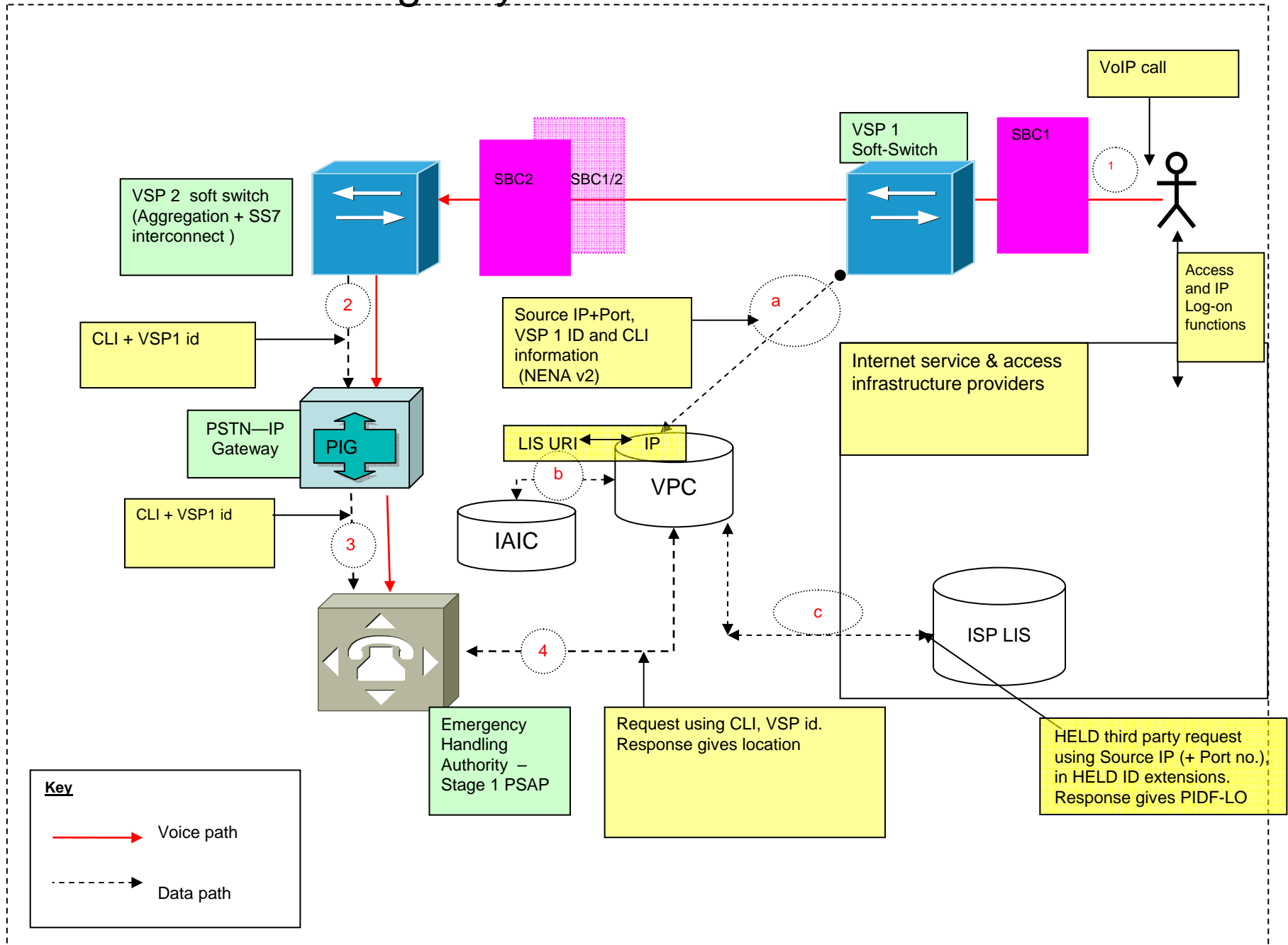


Emergency Services and Next Generation Networks

Hannes Tschofenig

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UK NICC Emergency Services Architecture



Properties

- Follows NENA i2 model
(for support with legacy PSAPs)
- Ability to support automatic location.
 - Most expensive part for network operator.
- Puts the interoperability challenge to the VSP.
 - Supports non-upgraded end devices

What's missing?

- Not supported:
 - VSP outside the UK
 - Visitor traveling to the UK
- Rich information sharing and multi-media support
 - Constraint by the need to interwork with legacy PSAP infrastructure.

Trends

- Emergency networks switch to IP
- Telco operators switch to IP as well
(even though end devices may still be CS based)
- Regulatory framework being updated
(see next slide)

EU Telecoms Reform 112

- Access to 112 through new technologies
- Better access to emergency services by disabled
- Strengthen obligation on caller location information
- Awareness specifically targeted for travellers

Vision

*Emergency help accessible
anytime,
anywhere,
from any device.*



Clients

Access Networks

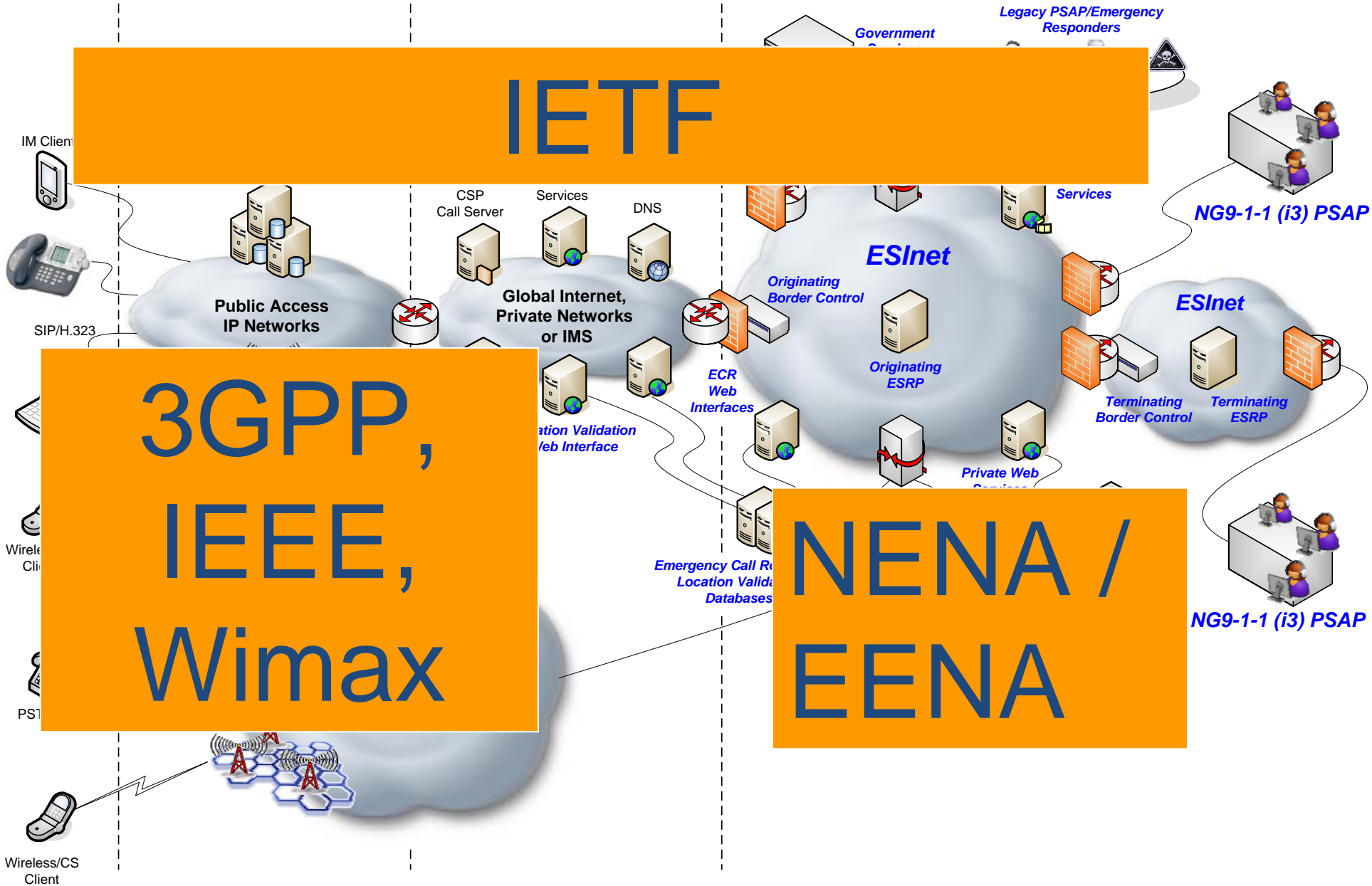
Origination Networks

Emergency Services IP Network (ESInet) Domains

IETF

3GPP, IEEE, Wimax

NENA / EENA



Emergency
Caller



dial 1-1-2



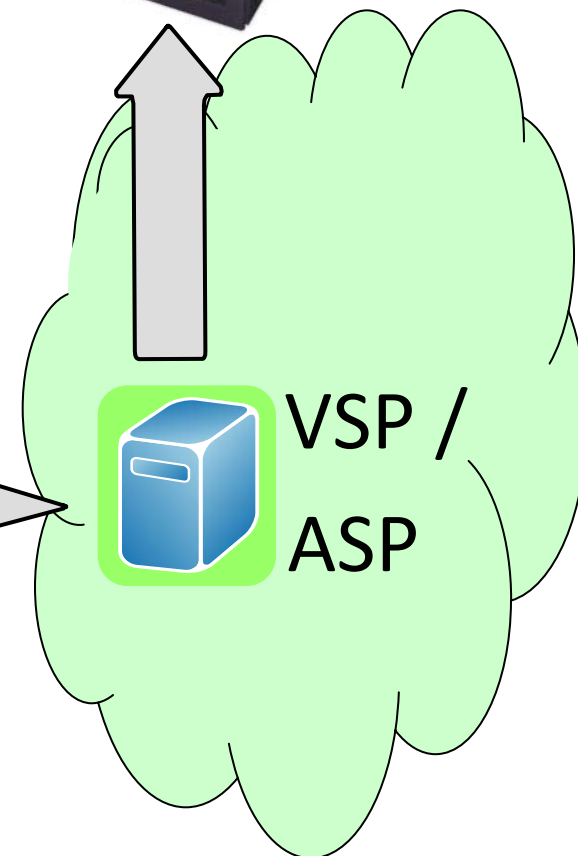
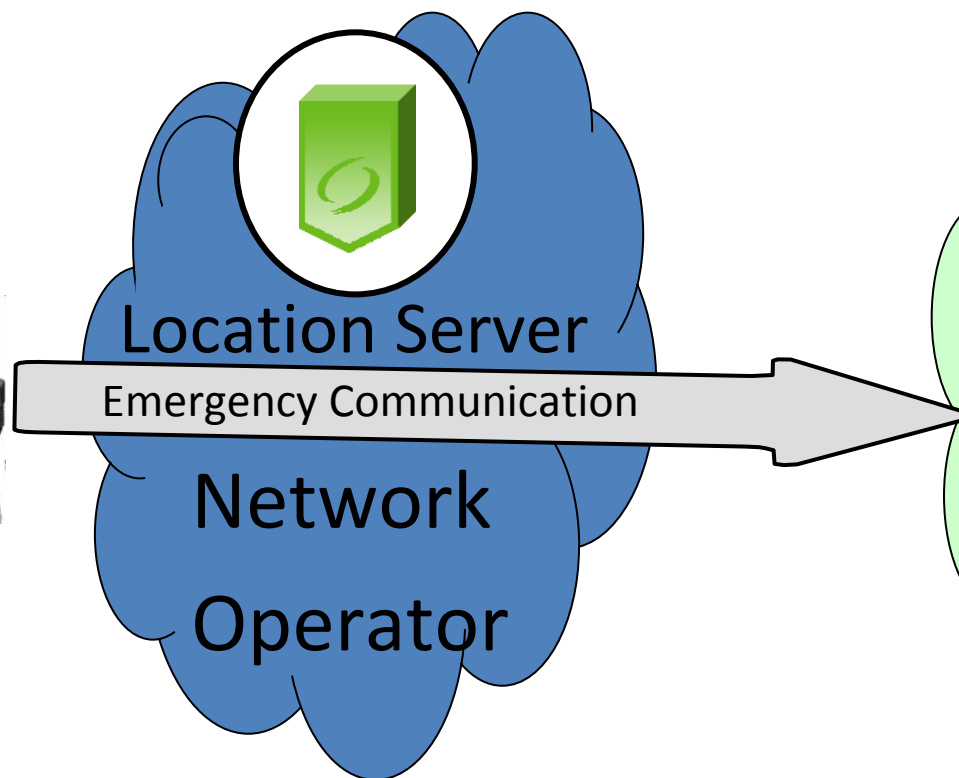
End Host



LoST
Database



PSAP /
Call
Taker



Emergency
Caller

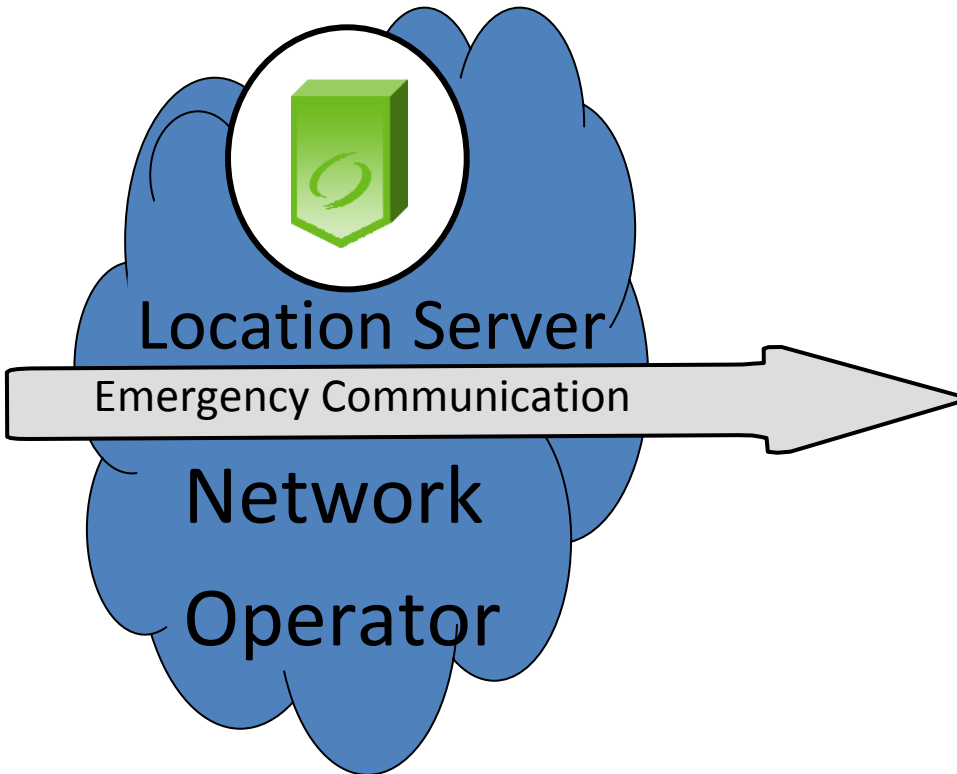


LoST
Database

dial 1-1-2



End Host



Location Server

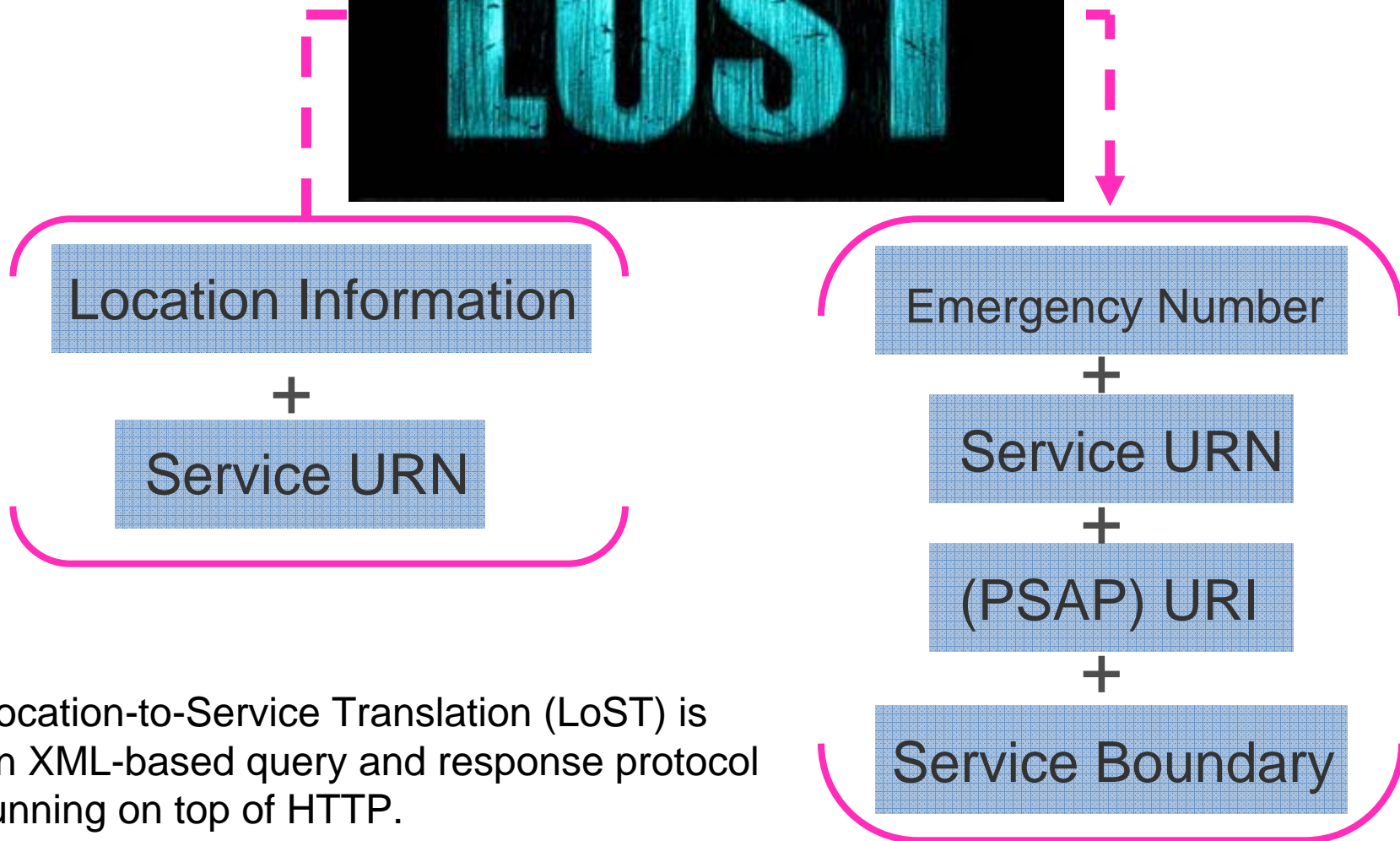
Emergency Communication

Network
Operator



PSAP /
Call
Taker

Where should I send my emergency call?



Location-to-Service Translation (LoST) is an XML-based query and response protocol running on top of HTTP.

Documents of interest

PIDF-LO: <http://www.ietf.org/rfc/rfc4119.txt>

Revised Civic: <http://www.ietf.org/rfc/rfc5139.txt>

Civic Address Recommendations:

<http://tools.ietf.org/html/draft-ietf-geopriv-civic-address-recommendations>

Location Shapes: <http://tools.ietf.org/html/rfc5491>

HELD: <http://tools.ietf.org/html/draft-ietf-geopriv-http-location-delivery>

HELD Identity Extensions: <http://tools.ietf.org/id/draft-ietf-geopriv-held-identity-extensions>

LoST: <http://tools.ietf.org/html/rfc5222>

Service URNs: <http://tools.ietf.org/html/rfc5031>

IETF Emergency Services Architecture

<http://tools.ietf.org/wg/ecrit/draft-ietf-ecrit-framework/>

<http://tools.ietf.org/wg/ecrit/draft-ietf-ecrit-phonebcp/>

SIP Location Conveyance: <http://tools.ietf.org/wg/sip/draft-ietf-sip-location-conveyance/>

European Emergency Number Association (EENA)

NG112 Technical Committee



- **Technical discussion group working on a European profile of the next generation emergency services architecture**
- Phone conference calls (every 2 weeks)
- Google Groups Mailing List and Document Storage.
- Document sharing agreement between NENA and EENA exists.
 - Maximum re-use of existing standards to avoid national variants and to keep implementation costs low.
- Two subgroups:
 - Civic Location Profiling Sub-Group
 - PSAP Integration Sub-Group

The EENA NG112 Project – Long Term View

Technical

Operations

Education

Partnership

Transition

- **Technical Committee:** Technical development with the NG112 TC.
- **Operations Committee:** Operations development including interoperability testing, certification, and registry maintenance.
- **Education Program:** Education for a broad spectrum of entities and people
- **Partner Program:** Addresses policy issues around NG112, coordinating with the EENA legal group.
- **Transition Committee:** Best current practice guidelines around transition & implementation

EENA NG112 TC: How can I participate?

- Send a mail to Gary (gm@eena.org), Roger (rhixson@nena.org) or myself (Hannes.Tschofenig@gmx.net).
 - We will add you to the mailing list and configure the access control lists.
- Share your thoughts about technical aspects with others in the group.
- Tell us about implementation, pilots, and deployment work: What worked? What didn't?
- Volunteer to move work forward as a member or chair of a sub-group.



- The Emergency Services Workshop is not a membership organization, but rather an ad-hoc forum for discussions about emergency services. There are no entrance requirements and no fees (other than a small amount to cover meeting costs). To get involved:
 - *Join the e-mail list:* Subscribe to the mailing list (<https://lists.cs.columbia.edu/cucslists/listinfo/es-coordination>) for information sharing in the context of emergency services
 - *Come to a workshop*
- More information can be found at the main workshop page: <http://www.emergency-services-coordination.info>

Conclusion

- Standardizing protocols for emergency services means
 - facing technical challenges
 - learning to deal with an unclear regulatory framework
 - balancing conflicting interests of the stakeholders along the entire value chain
 - working with a large number of players and institutions.
- Cost/benefit tradeoff difficult
- The reward?
 - Cheaper and better emergency services system
- Interested in code? Talk to me after the session!

Backup

Universal service directive

(Summary prepared by Gary Machado <gm@eena.org>)

Universal Service Directive: caller-location

2002

Article 26.3

*Member States shall ensure that undertakings which operate public telephone networks make caller location information available to authorities handling emergencies, **to the extent technically feasible**, for all calls to the single European emergency call number 112*

2009

Article 26.5

*Member States shall ensure that undertakings concerned make caller location information available **free of charge** to the authority handling emergency calls **as soon as the call reaches that authority**. This shall apply to all calls to the single European emergency call number "112". Member States may extend this obligation to cover calls to national emergency numbers. **Competent regulatory authorities shall lay down criteria for the accuracy and reliability of the location information provided.***

Article 26.7

*In order to ensure the effective access to "112" services in the Member States, **the Commission, having consulted BEREC, may adopt technical implementing measures**. However, these technical implementing measures shall be adopted without prejudice to, and shall have no impact on, the organisation of emergency services, which remains of the exclusive competence of Member States.*

Universal Service Directive: Accessibility

2002

No provisions

2009

Article 26.4

*Member States shall ensure that **access for disabled end-users to emergency services is equivalent to that enjoyed by other end-users**. Measures taken to ensure that disabled end-users are able to access emergency services whilst travelling in other Member States shall be based to the greatest extent possible on **European standards** or specifications published in accordance with the provisions of Article 17 of Directive 2002/21/EC (Framework Directive), and they shall not prevent Member States from adopting additional requirements in order to pursue the objectives set out in this Article.*

Universal Service Directive: Information on 112

2002

Article 26.4

Member States shall ensure that citizens are adequately informed about the existence and use of the single European emergency call number 112

2009

Article 26.6

*Member States shall ensure that citizens are adequately informed about the existence and use of the single European emergency call number "112", **in particular through initiatives specifically targeting persons travelling between Member States.***

Universal Service Directive:

VoIP

2002

No provisions

2009

Recital 32

Network-independent undertakings** may not have control over networks and may not be able to ensure that emergency calls made through their service are routed with the same reliability as they may not be able to guarantee service availability, given that problems related to infrastructure are not under their control. For network-independent undertakings, caller location information may not always be technically feasible. **Once internationally-recognised standards ensuring accurate and reliable routing and connection to the emergency services are in place, network-independent service providers should also fulfil the obligations related to caller location information at a level comparable to that required of other undertakings.

REACH-112 Pilot Project

(Prepared by Gary Machado <gm@eena.org>)

REACH112 Contract

Project Acronym: REACH112
Project Reference: CIP-ICT-PSP-238940
Contract Type: CIP Pilot Action B
Start Date: 01/07/2009
Duration: 36 months
End Date: 30/06/2012
Project Cost: 8,800,000 €
Project Funding: 4,4000,000 €
Project website: www.reach112.eu

PROJECT CO-FUNDED BY THE EUROPEAN COMMISSION

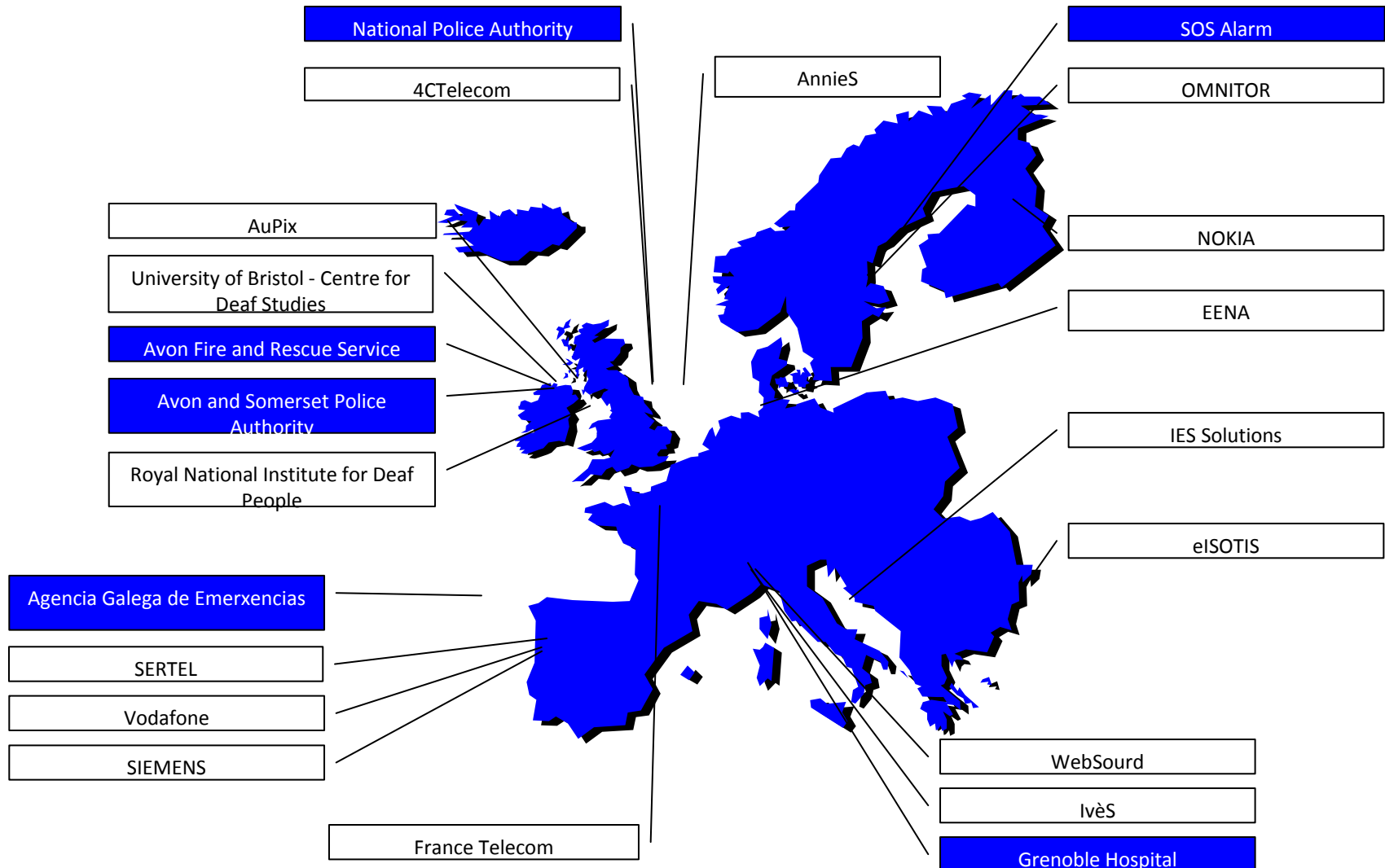
Pilot Countries

5 pilots countries

6 Emergency Services



Project partners



Deployment

1. Improve person to person communication
2. **Improve accessibility of 112**
 - **IP devices** to be used by citizens
 - **Total Conversation:** simultaneous voice, real-time text and video (for sign language for instance)
 - Use of **relay services** (e.g. sign language to voice)
 - **12-month** with real emergency calls (if any)