Emergency call positioning

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- Impact the industry players
Definitions

- **emergency call** means a service, recognised as such by the Member State, that provides immediate and rapid assistance in situations where there is a direct risk to life or limb, individual or public health or safety, to private or public property, or the environment but not necessarily limited to these situations.

- **location information** means in a public mobile network the data processed indicating the geographic position of a user’s mobile terminal and in a public fixed network the data about the physical address of the termination point.

- **Emergency call positioning** here means a mechanism to deliver user’s location information to an emergence centre.

Note: First two definitions are inherited from EU's recommendation.
Regulatory status in European Union

- In July 2003 European Union released commission’s recommendation on the processing of caller location in case of emergency call.
- Wireless operators are requested to forward (push) the best available location of the caller to public safety answering point.
- For the intermediate period, it is acceptable that wireless operators make location information available on request only (pull).
- This should apply to roaming users as well.
- Fixed public telephone network operators should make available the installation address of the line from which the emergency call is made.
- Location information should identify the originating network as well.
- Public safety answering points should be able to retrieve an updated location information during the call or after the call.
- European Union member states are requested to submit their implementation status by end of 2004.
Regulatory status in the United States

- Federal Communications Commission (FCC), requested already 1994 that mobile radio service providers have to provide caller’s location information for emergency service providers.
  - In the **phase I** the location of the cell site or base station receiving a 911 call is requested to be delivered to the designated 911 Public Safety Answering Point.
  - In the **phase II**, more accurate automatic location information of a caller is required. The accuracy of the required location information depends on whether a handset-based location technology or Network-based Location Technology is used.
    - For *network-based technologies*: 100 meters for 67 percent of calls, 300 meters for 95 percent of calls
    - For *handset-based technologies*: 50 meters for 67 percent of calls, 150 meters for 95 percent of calls
Emergency call positioning in CS network

Legend
- Red: Positioning request
- Blue: Session setup

1. Pull model
- RAN
- GMLC
- Emergency centre

2. Push model
- RAN
- MSC
- GMLC
- Emergency centre
When a PDP context for media is activated SGSN initiates location procedures.
IMS emergency call positioning – pull model
Emergency call positioning in the fixed network

**Push model**

1. Emergency call
2. Database look-up
3. Emergency call with location information

**Pull model**

1. Emergency call
2. Emergency call
3. Database look-up
## Main impacts to different players

<table>
<thead>
<tr>
<th>End-user</th>
<th>Operator</th>
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| • technology not visible  
• overall safety increases  
• may have impact to device price  
• may boost location services in general | • No choice to avoid this requirement  
• None revenue generating service  
• increases costs in terms of  
  • Investment  
  • Network usage |

<table>
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<tr>
<th>Vendor</th>
<th>Emergency centre</th>
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| • Additional implementation efforts  
• Country specific implementations may be required  
• May boost introduction of GPS enabled terminals | • Upgrades to emergency centres may in several steps… (pull, push, introduction of IP based technology) |