



**Telecommunications
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Emergency Services in Future Wireless Communications

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What are we talking about?

- **Broader than E911, includes**
 - Priority access
 - Priority provisioning
 - And E911
- **Why these services?**
- **What this presentation is about**
 - Emergency communications and the associated functionality
- **What this presentation is NOT about**
 - Public safety spectrum and communications
 - Implementation requirements or mandates

Motivation

- Growing popularity of wireless communications
- Pervasiveness of wireless communications
 - Mobile/ubiquitous coverage
 - Increased opportunity
- Someone's life may depend on such services
- General topic is gaining interest among the standards bodies
 - IETF
 - ITU
 - ANSI
 - Various associations

Existing Services

- **GETS**
 - A means of increasing call completion probability during times of congestion
- **WPS**
 - A wireless complement to GETS
- **TSP**
 - A priority installation and restoration service
- **911/E911**
 - A means of requesting emergency services
 - ALI and ANI support
- **Note that these are voice centric (inelastic)**

Changes Underway

- Traditionally, emergency services were a PSTN issue
- Consider the fundamental changes in moving away from the PSTN (to IP)
 - Control
 - Centralized versus decentralized (?)
 - Endpoint
 - Dumb versus intelligent
 - Fallacy to rely on an “application”
 - Delay (network)
 - The dedicated circuit versus best-effort IP (?)
 - Mobility
 - Elasticity (applications)

Functionality

- **The traditional functions may no longer apply**
 - Different functions in a world of more diverse communications options
 - Traditional functions may be provided in new ways in future networks
- **Not all of these functions are required for any one service**
 - A small subset of functions operating on a service other than voice
 - Messaging may become a highly valued emergency service or an I-Am-Alive database

Functionality

- **Addressing and numbering**
 - Route universal identifiers (911 or SOS)
- **Location**
 - Locate parties (fixed, manual, GPS, triangulation...)
- **Querying**
 - Accurately query appropriate info
- **Mapping**
 - Mapping and associating various elements
- **Quality of Service**
 - Mechanisms for appropriate treatment

Functionality

- **Priority of Service (?)**
 - Per session preemption/queuing
- **Power**
 - Self-powered endpoints
- **Reliability**
 - Appropriate reliability
- **Security**
 - Broad range of issues (C/I/A/N)
- **Signaling**
 - Means to signal where appropriate
- **Order Processing**
 - Means to prioritize repairs and ordering



Some Considerations

- **Expectation**
 - Service support
- **Offering**
 - “For fee”
 - Contract
- **Diversity**
 - Access and coverage
- **Accessibility**
 - Access control
- **Interoperability**
 - Legacy and future systems

Some Other Considerations

- The development of the service specifications **SHOULD NOT** mandate its implementation
 - Rather should be viewed as common best practice
- Service level agreements and contracts will **dedicate expectation**
 - As is the case with GETS



Conclusions

- Expectation for such services exists
- Networks are changing
- Services **MAY** require a complex set of functions
- Services **MAY** require new/different functions
- We should think in terms grander than voice
 - Both elastic and inelastic applications
- The definition of future wireless services **SHOULD NOT** preclude support for emergency services.
- These services will provide an opportunity for increase connectivity and availability