Overview of ETS in Committee T1

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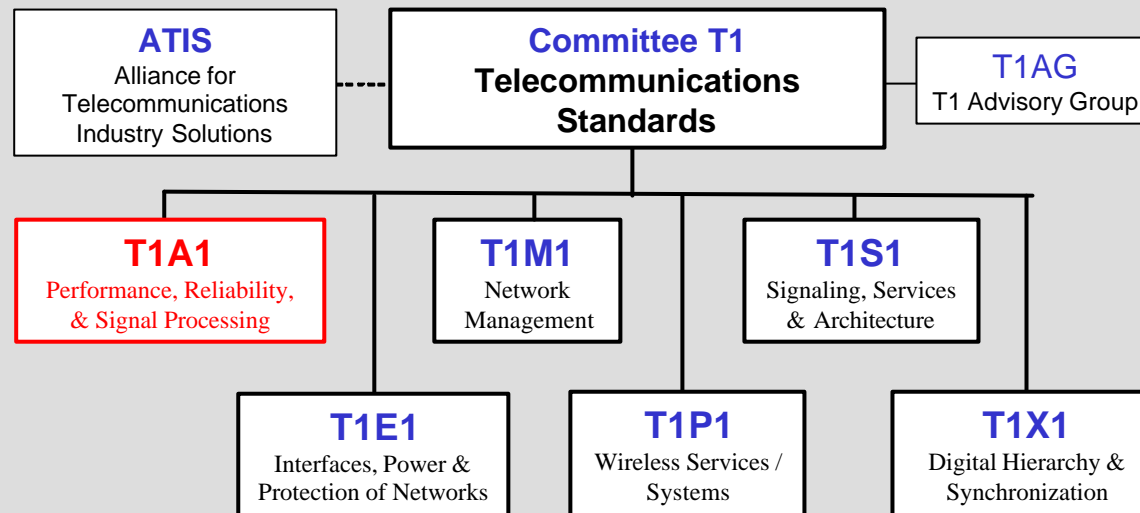
Emergency Telecommuncations in Committee T1

o   T1 and T1A1 Role

o   T1 Technical Report "Overview of Standards in Support of Emergency Telecommunications Service (ETS)"

o   T1A1 Priority Technical Report

o   Other Committee T1 ETS Work

Technical Subcommittee T1A1

Committee T1 and T1A1

ATIS Alliance for Telecommunications Industry Solutions	Committee T1 **Telecommunications Standards**	T1AG T1 Advisory Group

T1A1
Performance, Reliability,
& Signal Processing

T1M1
Network
Management

T1S1
Signaling, Services
& Architecture

T1E1
Interfaces, Power &
Protection of Networks

T1P1
Wireless Services /
Systems

T1X1
Digital Hierarchy &
Synchronization

Additional Information: www.t1.org

ATIS Security Summit
Washington, D.C. ~ February 4-5

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T1 Technical Report
Overview of Standards for ETS

o "Overview of Standards in Support of Emergency Telecommunications Service (ETS)"

1. Functional Requirements
2. Standards Work
3. Example Architecture

o ftp://ftp.t1.org/T1A1/T1A1.2/3a120041.doc

Functional Requirements 1

NS/EP Telecommunication Services Functional Requirements	Description
a. Enhanced Priority Treatment	Services supporting NS/EP missions must be provided priority treatment over other traffic.
b. Secure Networks	Networks must have protection against corruption of, or unauthorized access to, traffic and control, including expanded encryption techniques and user authentication, as appropriate.
c. Non-Traceability	Selected users must be able to use NS/EP services without risk of usage being traced (*i.e.,* without risk of user or location being identified).
d. Restorability	Should a disruption occur, services must be capable of being reprovisioned, repaired, or restored to required service levels on a priority basis.
e. International Connectivity	Services must provide access to and egress from international carriers.
f. Interoperability	Services must interconnect and interoperate with other selected government or private facilities, systems, and networks.
g. Mobility	The communications infrastructure must support transportable, re-deployable, or fully mobile communications (*e.g.,* personal communications service, cellular, satellite, high frequency radio).
h. Ubiquitous Coverage	Services must be readily accessible to support the national security leadership and inter- and intra-agency emergency operations, wherever they are located.

Functional Requirements 2

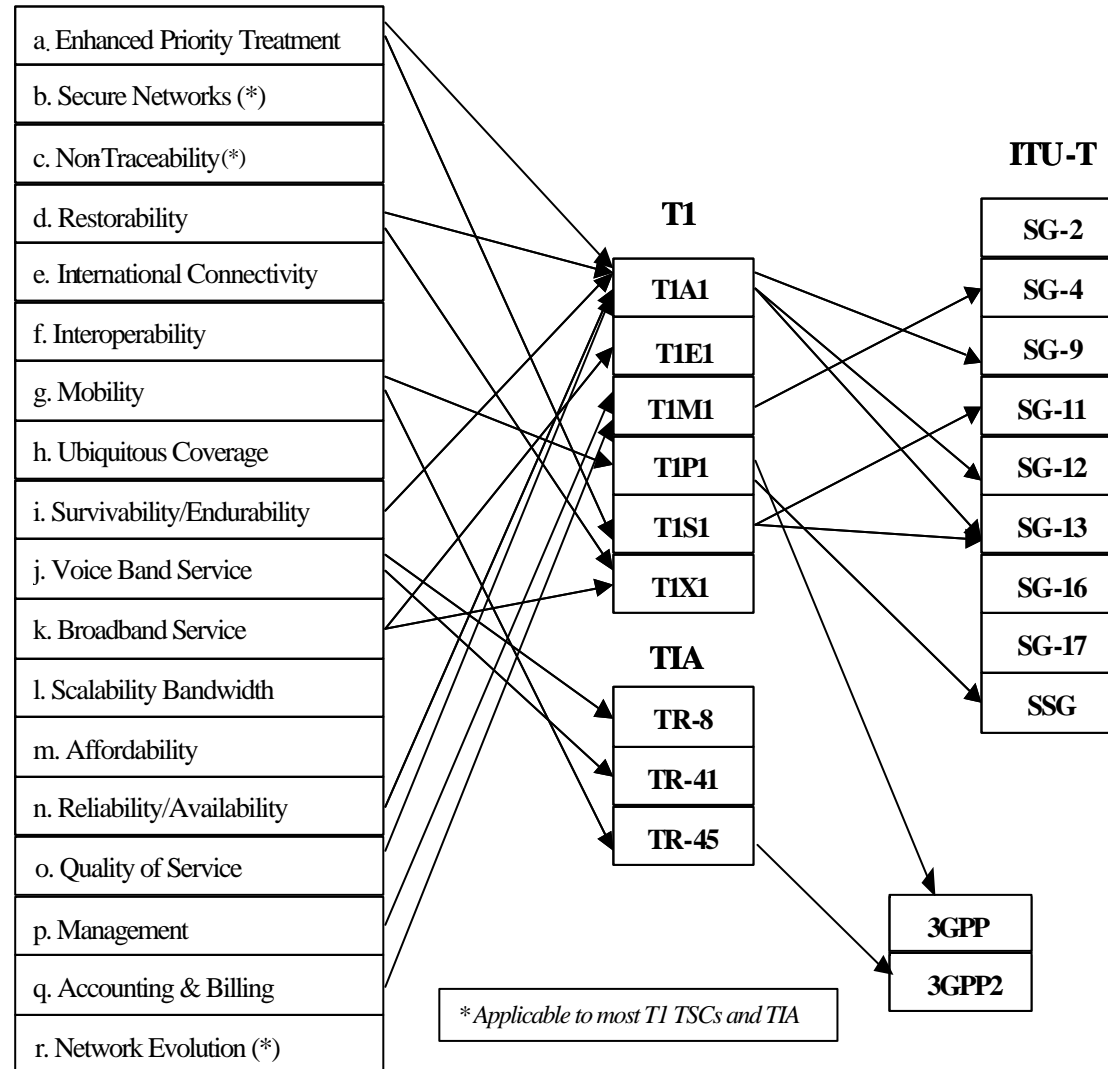|	
i. Survivability/Endurability	Services must be robust to support surviving users under a broad range of circumstances, from the widespread damage of a natural or man-made disaster up to and including nuclear war.
j. Voice-Band Service	The service must provide voice-band service in support of presidential and other communications.
k. Broadband Service	The service must provide broadband service in support of NS/EP missions (*e.g.,* video, imaging, Web access, multimedia).
l. Scaleable Bandwidth	NS/EP users must be able to manage the capacity of the communications services to support variable bandwidth requirements.
m. Affordability	Services must leverage network capabilities to minimize cost (*e.g.,* use of existing infrastructure, commercial off-the-shelf technologies, services).
n. Reliability/Availability	Services must perform consistently and precisely according to their design requirements and specifications, and must be usable with high confidence.

Functional Requirements 3 (4 Additional)

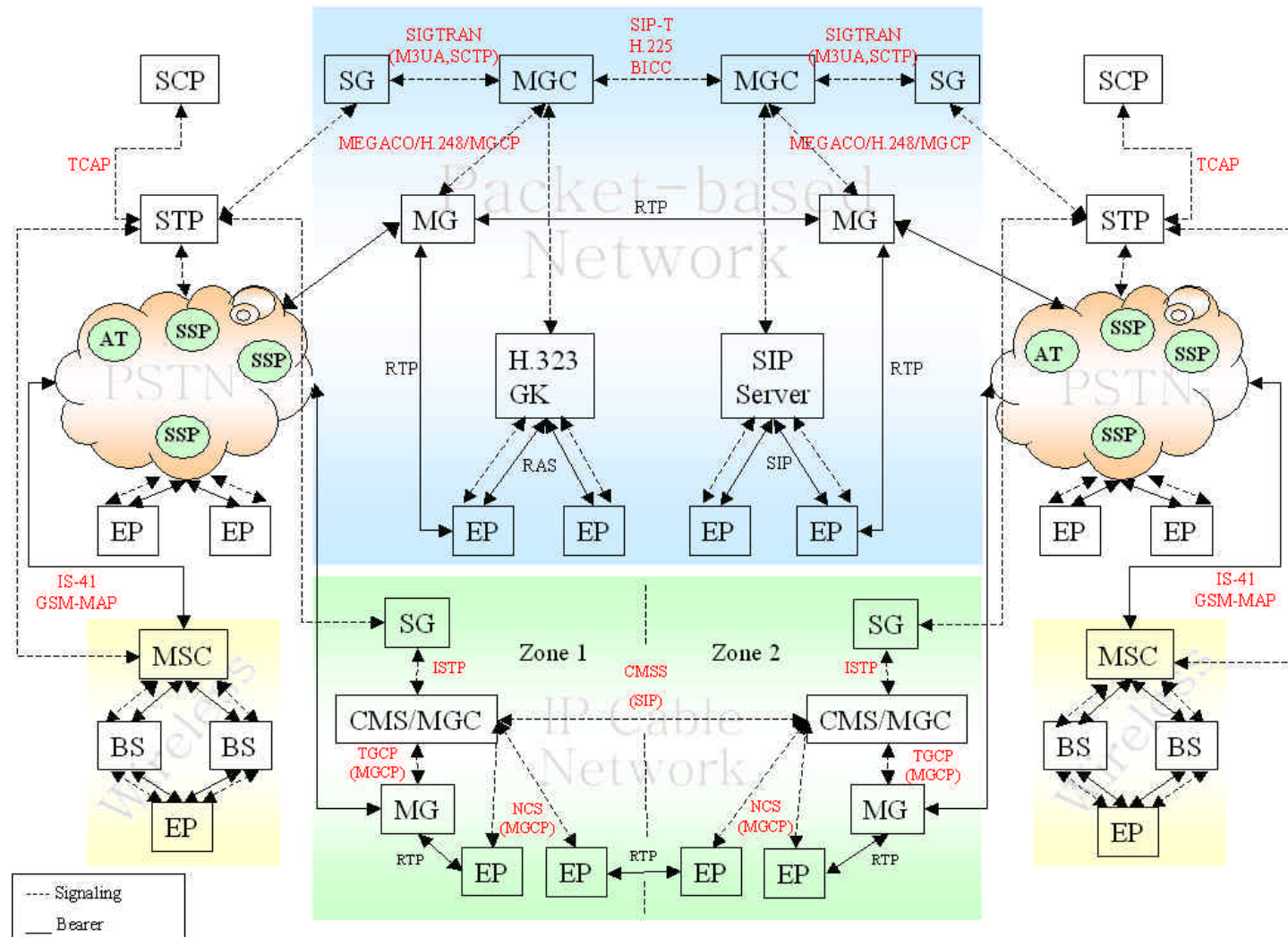|	
o. Quality of Service	End-to-end QoS should be provided based on internationally standardized QoS classes and parameters sufficient to meet user's expectations in inter-domain and inter-network (including wireline and wireless interoperation) contexts.
p. Management	Service/Network providers must have Operation Support Systems (OSSs) in place in order to provision and maintain critical network elements that are used for ETS. The OSSs need to have redundancy in the event a disaster/emergency eliminates the utilization of one or more central computer complexes.
q. Accounting & Billing	Service/Network providers must have a means of accumulating accounting and billing data to bill customers who utilize the capabilities of ETS. Accounting records will be accumulated automatically and any request for detailed billing statements must be authorized by the appropriate government agency.
r. Network Evolution	As more details are known about Next Generation Network (NGN) equipment, standards have to be developed to insure interoperability and reliability of any network element inserted into the mix of technologies that will be used for ETS. The NGN equipment must be designed to provide ETS requirements such as connectivity, priority service, security, QoS, etc.

Partial Mapping of ETS Functional Requirements

ETS Functional Requirements

a. Enhanced Priority Treatment
b. Secure Networks (*)
c. Non Traceability (*)
d. Restorability
e. International Connectivity
f. Interoperability
g. Mobility
h. Ubiquitous Coverage
i. Survivability/Endurability
j. Voice Band Service
k. Broadband Service
l. Scalability Bandwidth
m. Affordability
n. Reliability/Availability
o. Quality of Service
p. Management
q. Accounting & Billing
r. Network Evolution (*)

T1

T1A1
T1E1
T1M1
T1P1
T1S1
T1X1

TIA

TR-8
TR-41
TR-45

ITU-T

SG-2
SG-4
SG-9
SG-11
SG-12
SG-13
SG-16
SG-17
SSG

3GPP
3GPP2

Applicable to most T1 TSCs and TIA

Example Signaling and Transport Protocols

Traffic Priorities in Emergency Telecommunications Services (Draft Technical Report)

o Five Connection Admission Control priority levels are proposed:

1. Reserved exclusively for ETS services during national/international emergency conditions.
2. Reserved exclusively for local E911 emergency services.
3. Suggested level for critical customers (e.g., Virtual Private Network services).
4. Suggested level for real-time interactive services not related to critical customers.
5. Best Effort services (e.g., normal Internet Service Provider services).

o ftp://ftp.t1.org/T1A1/T1A1.2/3a120020.doc

Other Current ETS Work in T1 T1M1

o T1M1

- **Providing inputs to Q9/4 on M.ets , "Network and Service Management Requirements for Information Interchange across the TMN X-interface for the International Emergency Telecommunications Service (ETS)."**

- **Revising American National Standard T1.202, "Guidelines for Network Management of the Public Switched Networks Under Disaster Conditions, as required, to meet the needs of next generation networks."**

- **Revising American National Standard T1.211, "National Security Emergency Preparedness – Telecommunications Service Priority," as required, to meet the needs of next generation networks.**

Other Current ETS Work in T1 T1S1

o T1S1

- **T1.ETS "Signalling System No. 7 (SS7) –Emergency Telecommunications Service (ETS)" This draft Standard builds upon the High Probability of Completion (HPC) Network Capability as described in T1.631. The ETS service is expanded to address bearer networks and the ITU-T E.106 International Emergency Preference Scheme for Disaster Recovery.**

- **Developing Technical Report on Emergency Telecommunication Service (ETS) for Emergency Telecommunications in evolving networks.**

Security in T1
Holistic Approach

o T1A1: Security related to Reliability, Availability, and Performance.

o T1M1: Security for the X-Interface (Management).

o T1S1: Security for SS7 and other Signaling.

o T1E1: Physical Protection.

o T1P1: Security for Wireless (e.g. Cellular).

o T1X1: Security in Optical Switching.

Summary

o Work on ETS in Committee T1 is coordinated with the ITU and other SDOs.

o Requirements are (generally) defined in new ETS Technical Report.

o New TRs and Standards are progressing (ETS and Security).

o An ETS Program Management website for T1 and TIA is under development.

o http://www.t1.org/html/ets.htm

Workshop on Telecommunications for Disaster Relief, 17-19 February 2003