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Emergency Services and Priority Signaling

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(With credit to Percy Tarapore (AT&T) for Priority contributions)

ITU-T

What are Emergency Services?

- Government Emergency Services
  - Emergency Telecommunications Service (ETS) –

    ETS extends the functional requirements, capabilities and applications of Governments Emergency Telecommunications Service/Wireless Priority Service (Gets/WPS), including multimedia services for National Security and Emergency Preparedness (NS/EP) communications over multiple network environments, including end-to-end IP-based packet networks.
  - Telecommunications for Disaster Relief (TDR) –

    TDR is an application of (or the use of) an international telecommunications capability on a per occasion basis for purposes of disaster relief and mitigation. Network and service facilities used to support TDR may or may not be dedicated to the TDR application alone.
- Civil Emergency Services (e.g., E911 in USA)

Emergency Telecommunications Service (ETS)

- Requires priority treatment in the IP network infrastructure to support of National Security / Emergency Preparedness (NS/EP) communications.

- Has capabilities to increase the probability of successful completion of calls, sessions, or other communications, initiated by government authorized users over the public network infrastructure.

- Also includes legacy circuit-switched NS/EP services such as Government Emergency Telecommunications Service (GETS) and Wireless Priority Service (WPS).
  (TIA uses the term "Wireless Priority Service" whereas 3GPP uses the term "Priority Service")

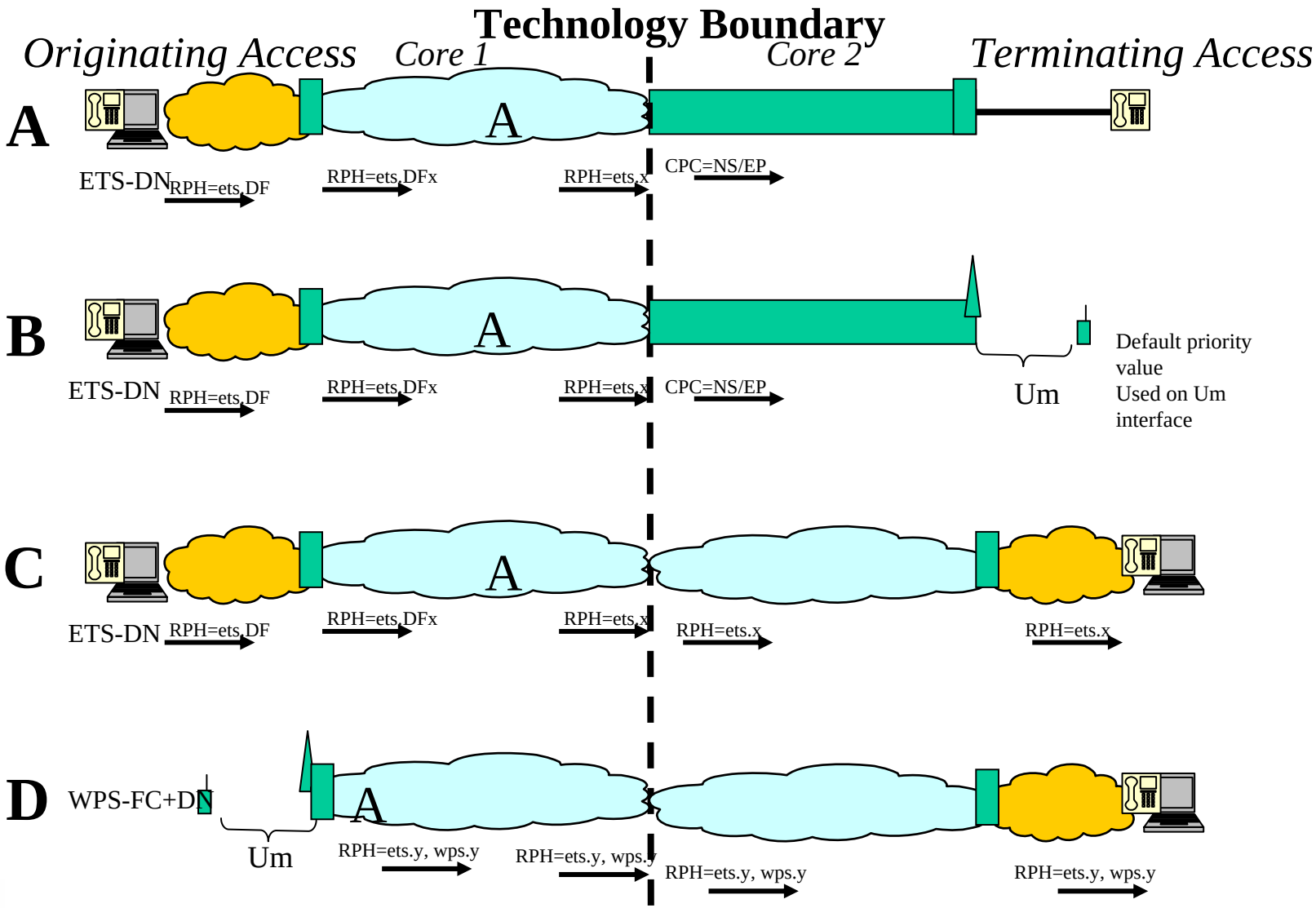
IP-ETS Phase 1 - ATIS Standards

- **IP-ETS Phase 1**
  - ETS within and between IP based service provider networks.
  - Currently in the approval process.
  - Architectural Agnostic
  - Phase 1 addresses:
    - Procedures for interoperability/interworking between IP-based and existing circuit-switched wireline and wireless service provider networks;
    - Basic ("GETS-like") authentication mechanisms and procedures;
    - Security requirements.
- **Packet Priority Marking Release 1:**
  - In Letter Ballot Process

IP-ETS Phase 2 - ATIS Standards

- **IP-ETS Phase 2:**
  - Issue statement (project statement of work) was approved, and will create a Standard that defines protocol and procedures for supporting ETS in NGN/IMS, with a focus on security and authentication on IP access.
  - Work Directed to ITU SG 11 for signaling.
  - Authentication and Security:
    - Work Directed to Recommendations in ITU-T SG13
    - To be Aligned with a Standards in ATIS

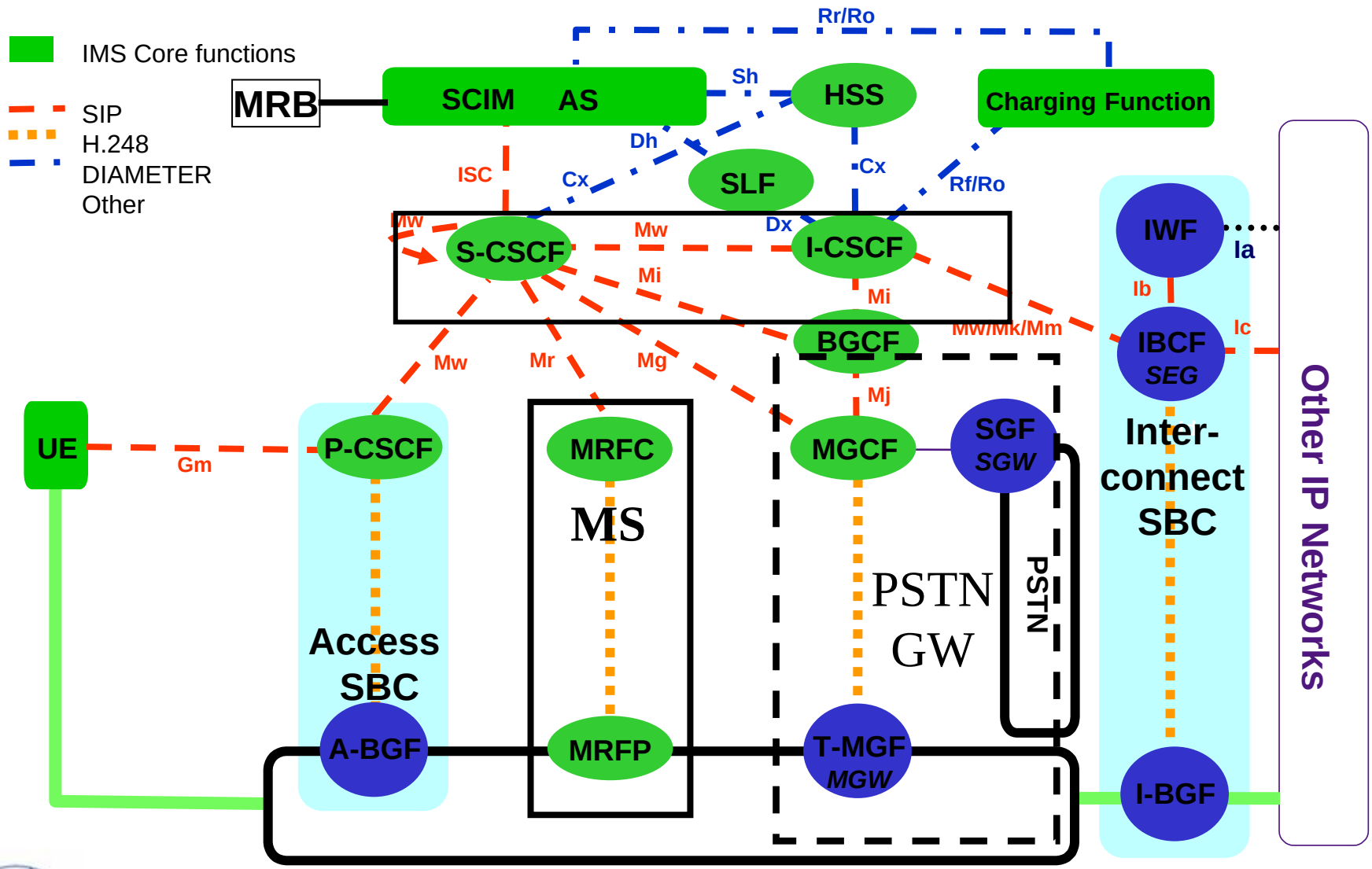
IP-to-IP Network Interconnection, IP Access Network



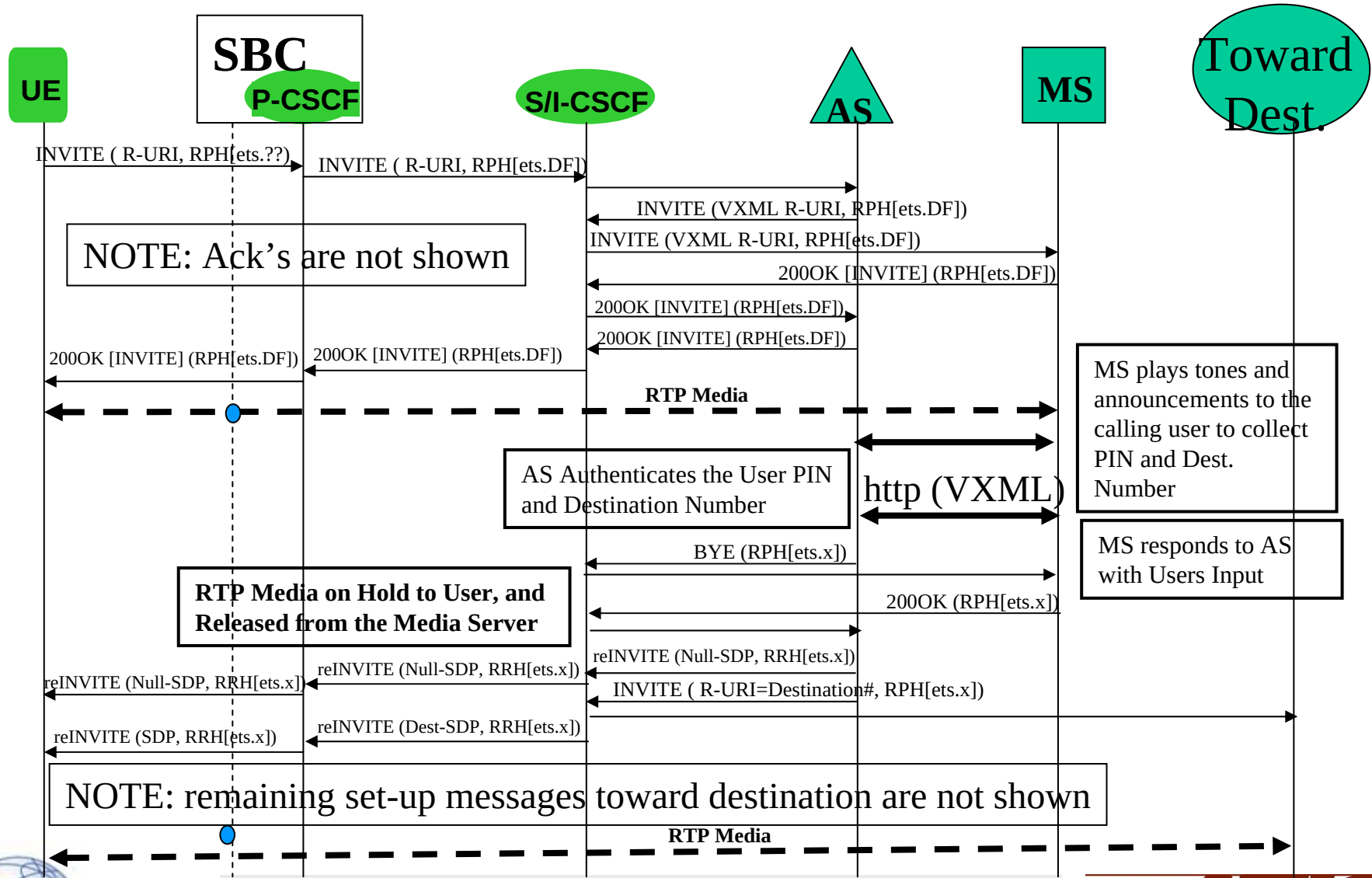
Network Element Capability needs

- Setting SIP RPH (P-CSCF/A-BGF, MGCF/MGW)
- Passing and Acting on SIP RPH (all elements)
- SIP-SS7 Interworking, TDM HPC, Trunk Queuing, TDM HPC Measurements (MGCF/MGW/SGW)
- H.248 Priority for NS/EP if Applicable
- Processing Priority (all elements)
- Priority Access at Resource Admission (Applicable PDP & PEP elements)
- Exemption from NM and Congestion Controls (all Applicable Elements)
- Vertical Interface (setting DCSP) Support to Trigger Layer 3 Priority (layer 2 also if needed, all elements)
- RPH, NMx measurements (all applicable elements)
- Access to the NS/EP AS, MS (for authentication) – with applicable interfaces

ATIS Functional Architecture and Interfaces



ETS Call Flow



Priority Classification & Signaling ATIS Committee Efforts

- Priority Classification in IP Networks:
  - 3 CAC/Resource Reservation Levels:
    - High Priority Reserved for Emergency Traffic (e.g., ETS & E911)
    - Technical Report to be Published
  - Up to 3 Restoration Levels
    - Emergency Traffic to be included in High Priority Traffic
    - Technical Report to be Published
- Priority Signaling Issues:
  - Technical Requirement in Progress for Separate EF PHB for VoIP ETS
  - Requirements Document for Vertical Signaling Interface:
    - Traffic Priority & QoS Signaling from Application to User/Media Planes
    - Minimum attributes Necessary for Layer 3 Processes (e.g., DiffServ, DS-TE)
    - Comprehensive List of Priority and QoS Parameters

Thank You