


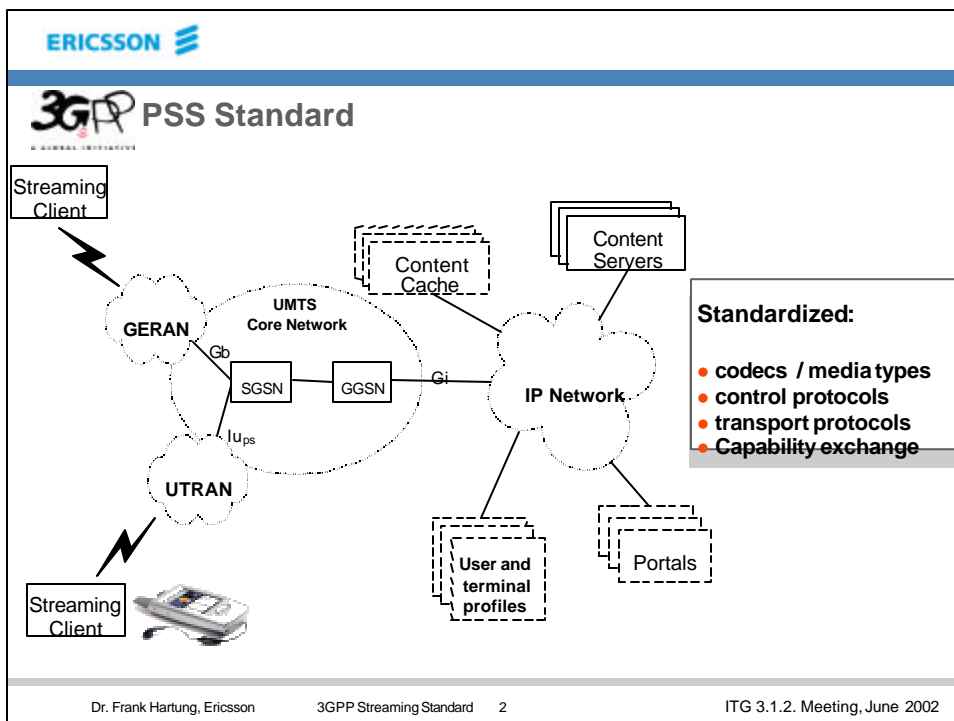
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3GPP Streaming Standard - Overview



- 3GPP PSS - Packet-switched Streaming Service
 - An umbrella standard (IETF, W3C, ITU, MPEG, 3GPP)
 - Work started summer 2000
- Versions according to 3GPP releases
 - Rel 4 - first version, Q1 2001
 - Rel 5 - just finalized (Q1/Q2 2002)
 - Rel 6 - Q2/Q3 2003
- Active companies: Panasonic, Ericsson, Nokia, Siemens, Motorola, Alcatel, Emblaze, Celvibe, Philips, Fraunhofer, Sharp, Packet Video, Luxxon, Serome Technology, Toshiba, NTT DoCoMo, Vodafone, France Telecom, Microsoft, RealNetworks, Apple,...

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3G PSS: Codecs [underlined: new in Rel 5 compared to Rel 4]

- **Codecs (Rel5)**
 - Mandatory video codec: H.263 profile 0 level 10 (-QCIF, -64 kbps)
 - H.263 profile 3, level 10 optional
 - MPEG-4 visual simple profile @ Level 0 optional
 - Mandatory speech codec: AMR
 - AMR-WB optional
 - Audio codec MPEG-4 AAC Low Complexity (stereo, 48 KHz s.r.)
 - MPEG-4 AAC LTP optional
 - Synthetic audio format SP-MIDI optional
 - Mandatory image codec JPEG/JFIF S0F0/S0F2
 - GIF 87a, 89a, PNG optional
 - Mandatory text formats: XHTML Mobile, Timed Text, UTF-8, UCS-2
 - Vector Graphics: SVG Tiny mandatory , SVG Basic opt.

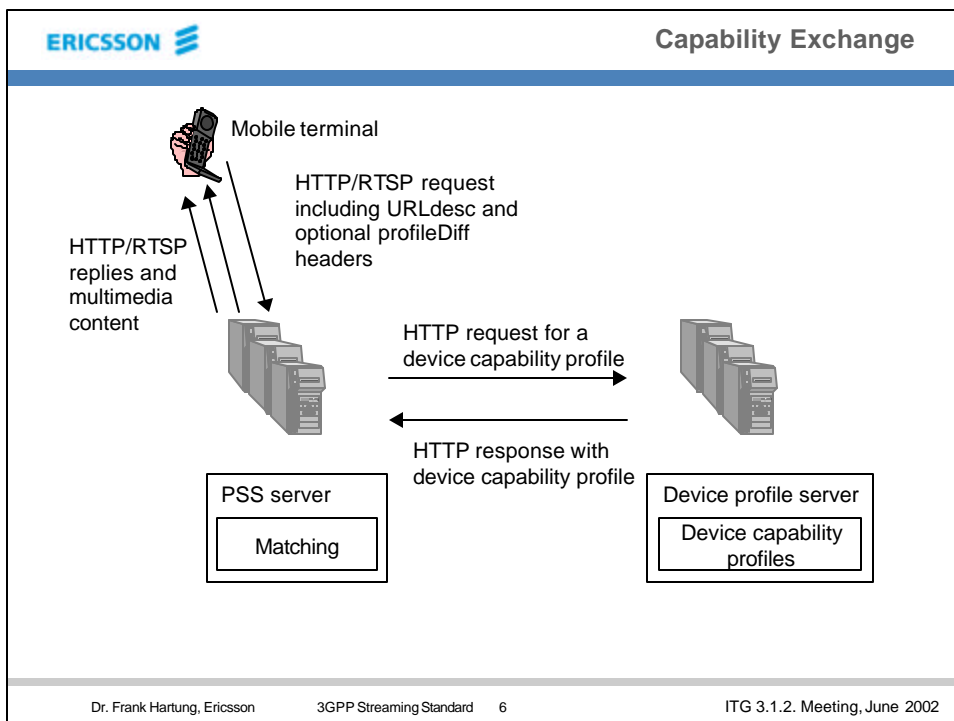
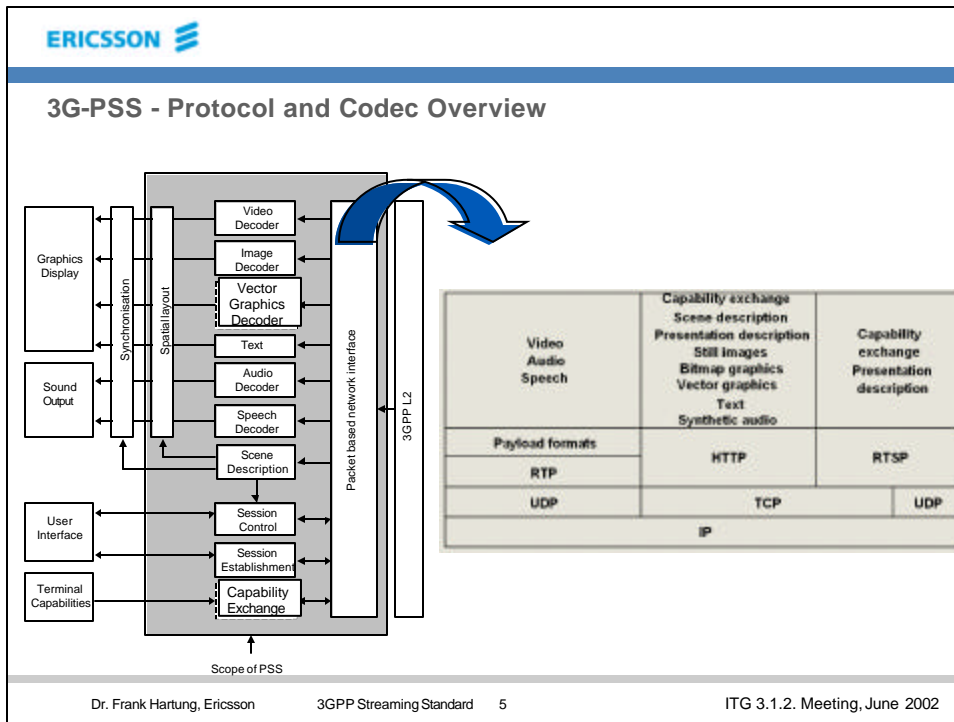
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3GPP PSS: Protocols [underlined: new in Rel 5 compared to Rel 4]

- **Session set-up und control protocols**
 - RTSP (Real-Time Streaming Protocol) App. D + DESCRIBE + RANGE, transport according to RFC 2326
 - SDP (Session Description Protocol) + CONTROL + RANGE + RTPMAP + FMTP + experimental buffer attributes
 - MIME types used in SDP (partly own definitions, where necessary)
- **Transport protocols**
 - RTP (over UDP) for speech/audio/video, RTCP for reports
 - RTP payload format acc. to RFC 2429, RFC 3016
 - HTTP (over TCP) for SMIL, images, text, and SVG
- **Presentation layout**
 - SMIL 2.0 Basic Language Profile + EventTiming + MediaClipping + MetaInformation + MediaAccessibility + MediaDescription + PrefetchControl + BasicTransitions
- UAProf for Capability Exchange

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Some additional 3GPP PSS issues

- Rel5 fully backwards compatible with Release 4
- File format based on MP4FF (only required for MMS interworking)
- Optional video buffering model with standard pre-decoder buffer
- Informative part on UMTS bearer interaction

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Proposed extensions for PSS Rel 6

- Rel6: around Q2/Q3 2003
- Discussed extensions compared to Rel5:
 - Adaptivity (“pre-transport“ and “transport“)
 - New codecs and formats (H.264, JPEG2000, ... ?)
 - MMS interworking
 - File format for MMS interworking and progressive download
 - DRM (Digital Rights Management)
 - MBMS (Multimedia Broadcast/Multicast Services)
 - Re-Use of IMS (IP Multimedia sub-system=conversational services) infrastructure for PSS
 - QoS Metrics
 - IPv6

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