ITU Workshop on Satellites in IP and Multimedia
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IP over Satellite:
Standardization activities in ETSI/TC-SES

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Chairman ETSI TC-SES/ BSM Working Group

ETSI TC-SES
(SATELLITE EARTH STATIONS AND SYSTEMS)

- **Responsible for all aspects relating to satellite communications.**
- **Responsibilities inside ETSI:**
  - **All types of satellite communication services and applications (both fixed and mobile).**
  - **All types of earth stations and earth station equipment, especially the radio frequency interfaces and network and/or user interfaces.**
  - **Protocols implemented in earth stations and satellite systems.**
- **Responsibility outside ETSI**
  - **Primary Committee for co-ordinating the position of ETSI with relevant ITU Study Groups for satellite matters.**

TC-SES Working Groups with IP elements

- **Broadband Satellite Multimedia (BSM)**
  - Main focus for IP over Satellite work in TC-SES
  - This WG is the main subject of this presentation
- **Satellite Component of UMTS/IMT-2000 (S-UMTS)**
  - Developing a S_UMTS air interface based on the 3GPP UMTS air interface.
  - Air interface submitted as an IMT-2000 candidate
  - Collaboration between ESA and TTC (Korea)
- **GEO Mobile Radio Interfaces (GMR)**
  - Developing a "GMPRS" MES air interface based on the GSM/GPRS packet-mode air interface.
  - GMPRS-1 packet-mode specifications build on the earlier GMR-1 circuit-mode air interface

TC-SES/ BSM WG

- **To produce specifications, standards and other ETSI deliverables for broadband satellite multimedia. This includes:**
  - **Definition of satellite system architectures supporting broadband services**
  - **Service requirements and descriptions for broadband communications systems**
  - **Definition of network architectures and interface protocols leading to air interface standards, interworking standards and other user terminal specifications.**
- **To liaise with relevant other standardization bodies (e.g. TIA, ITU) on satellite matters**

Background to BSM – STF126

- **TC-SES STF 126 Phase 1**
  - **Produced Technical Report TR 101 374-1 "Part 1: Survey on standardization objectives"**
    - **Surveys the current scenario and the status of proposals from both existing and future satellite operators, for provision of broadband multimedia services via satellite.**
    - **Published October 1998 (V121)**
- **TC-SES STF 126 Phase 2**
  - **Produced Technical Report TR 101 374-2 "Part 2: Scenario for standardization"**
    - **Considers a standardization scenario for Broadband Satellite Multimedia - based on Part 1.**
    - **Published March 2000 (V111)**

Background to BSM

- **Broadband Satellite Multimedia Working Group (BSM-WG) formed in June 2002 (SES#45)**
- **Triggered by the 18 recommendations from STF-126 Phase 2 (TR 101 374-2)**
- **BSM WG has set the following priorities:**
  - **GSO satellites**
  - **Fixed systems**
  - **Internet Protocol**
- **First set of work items:**
  - **Services and Architectures report**
  - **IP over satellite report**
  - **Air interfaces**

BSM Work Items - Top-level technical reports

- **First two deliverables just published by ETSI**

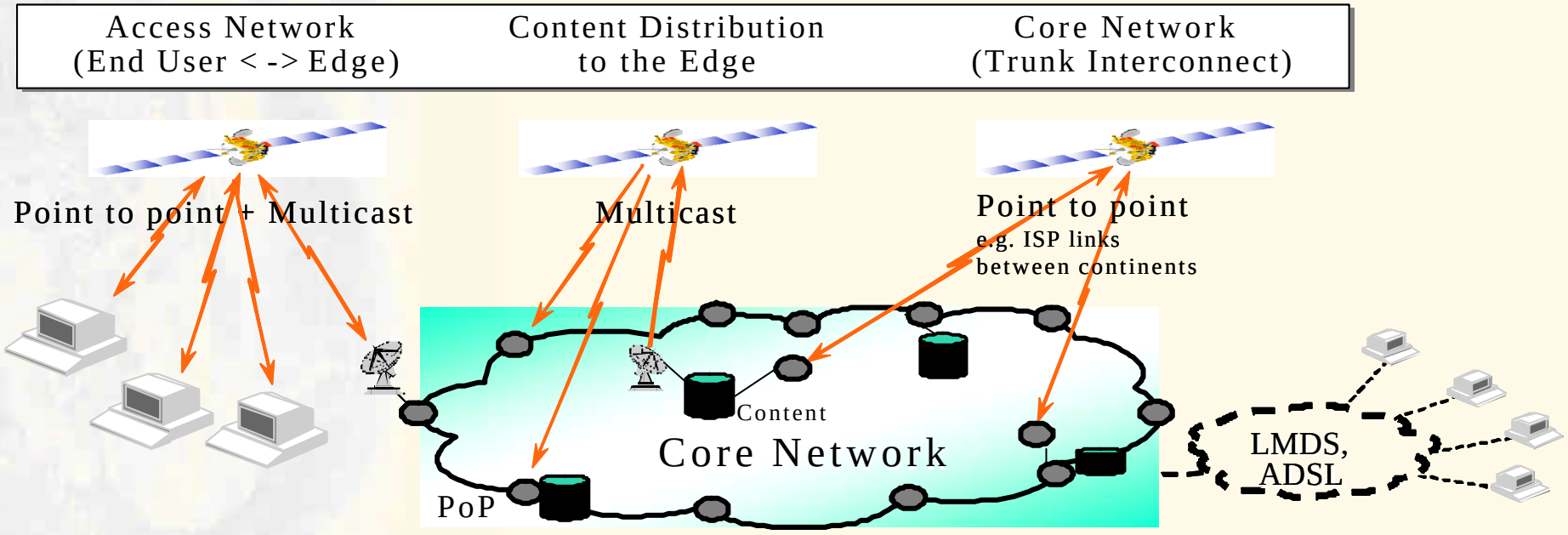
Technical Report TR 101 984 v1.1.1. "Services and Architectures"

- BSM reference architectures and models
- BSM bearer services
- BSM interfaces

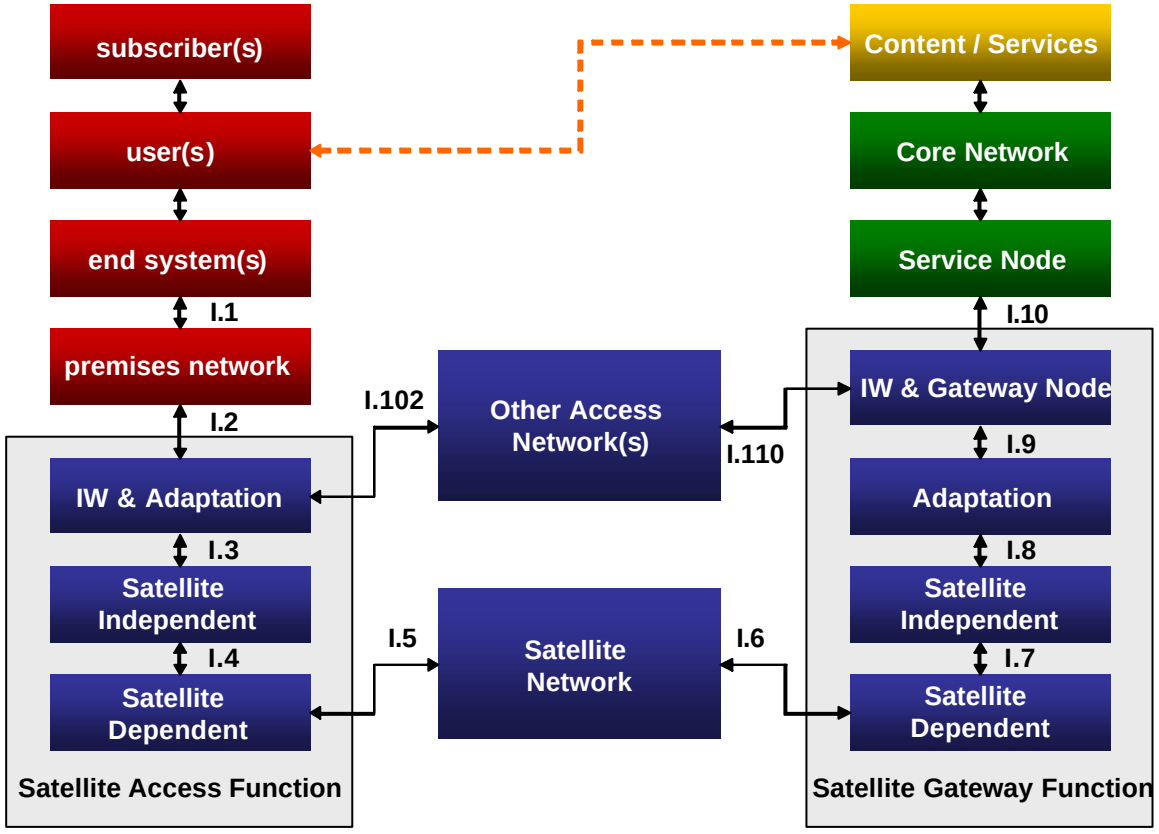
Technical Report TR 101 985 v1.1.2. "IP over Satellite"

- BSM systems based on GeoSynchronous Orbit (GSO) satellites;
- Integration of BSM services with IP-based services;
- Integration of BSM satellite networks with terrestrial networks;
- Integration of BSM broadcast and multicast services with IP-based services, including IP multicast services.

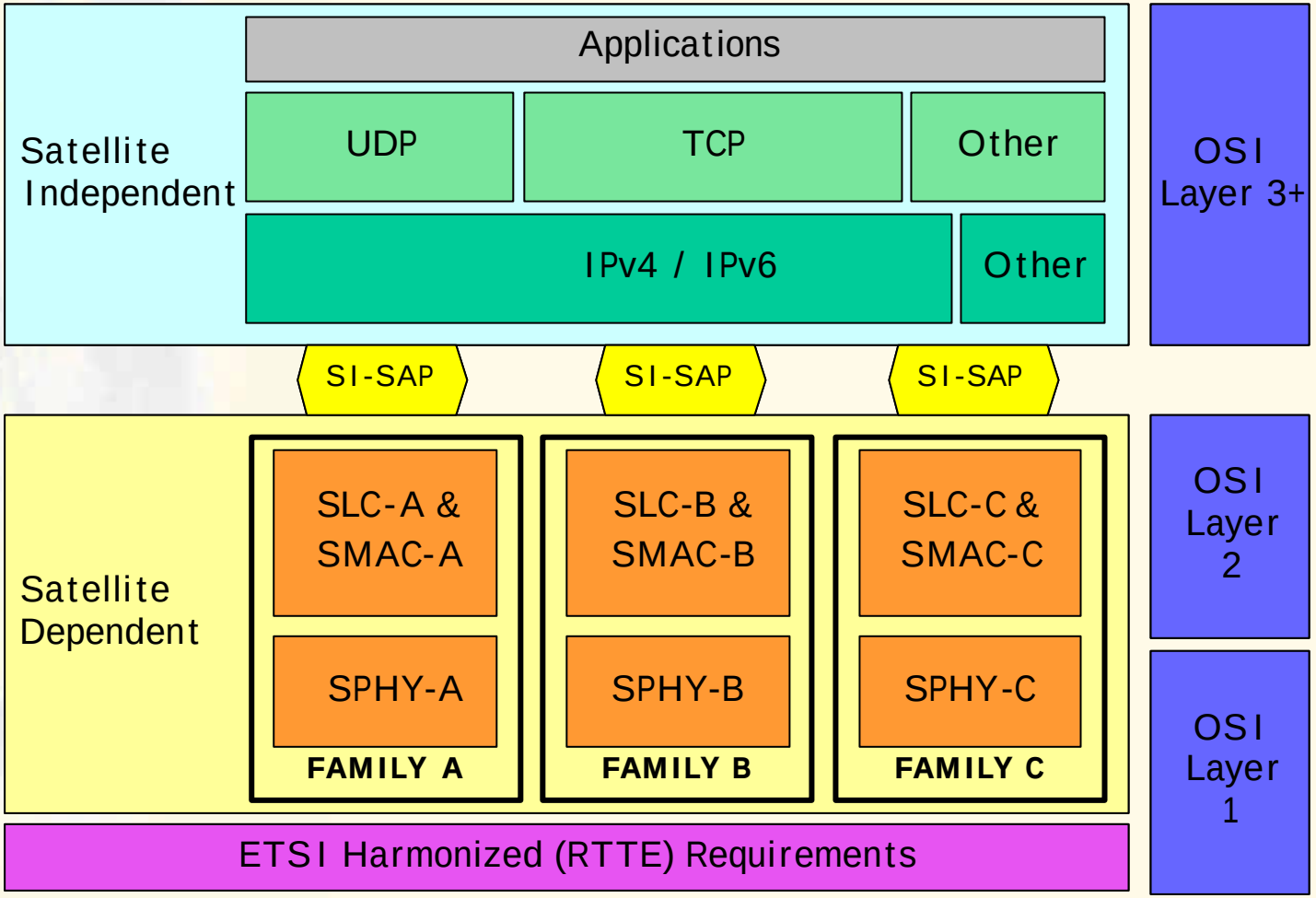
Examples of BSM based internet services



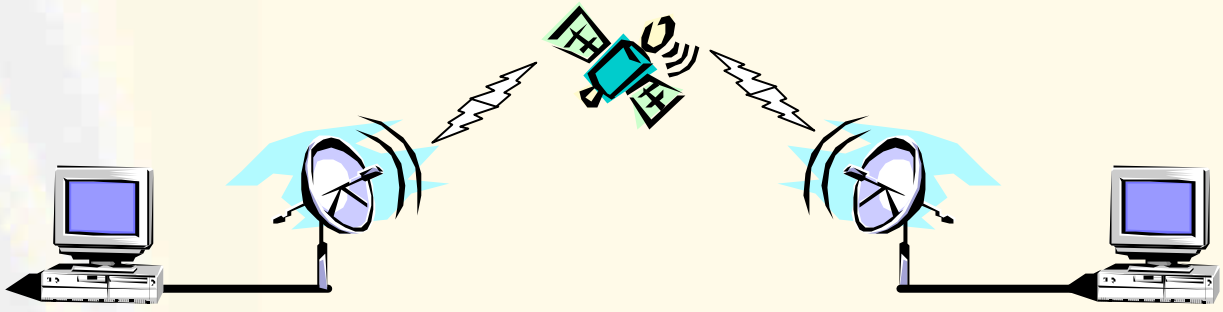
Reference model for satellite access

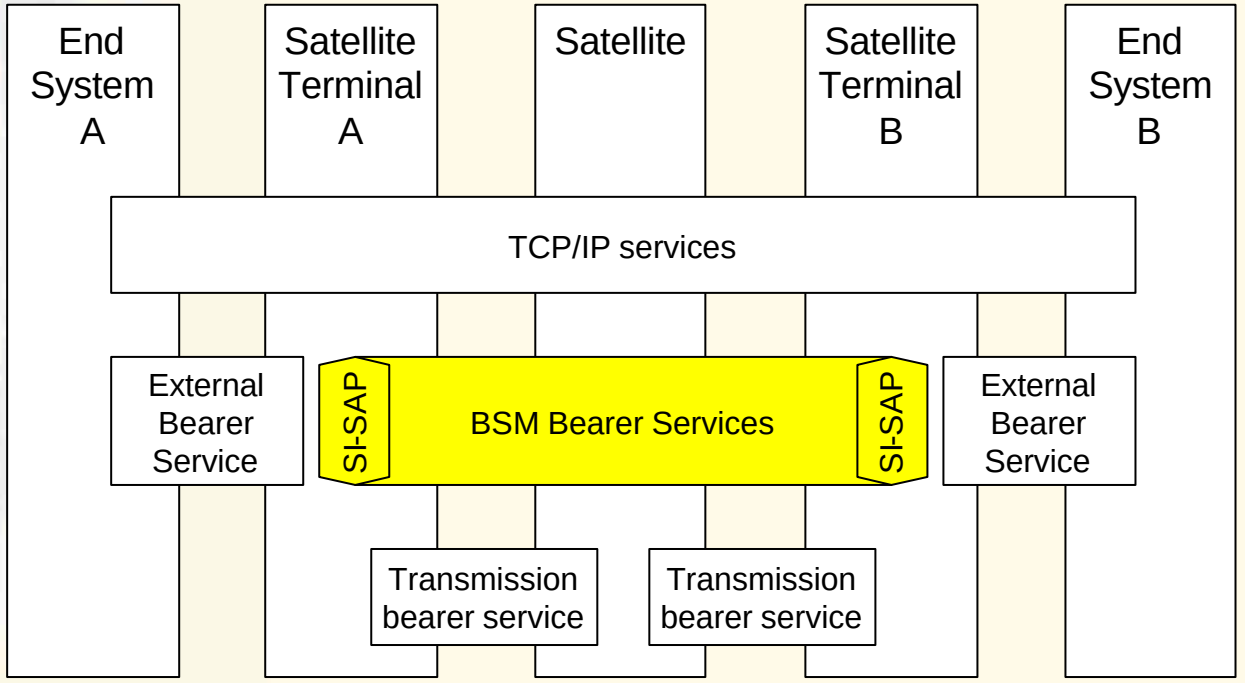


Protocol architecture



BSM Services

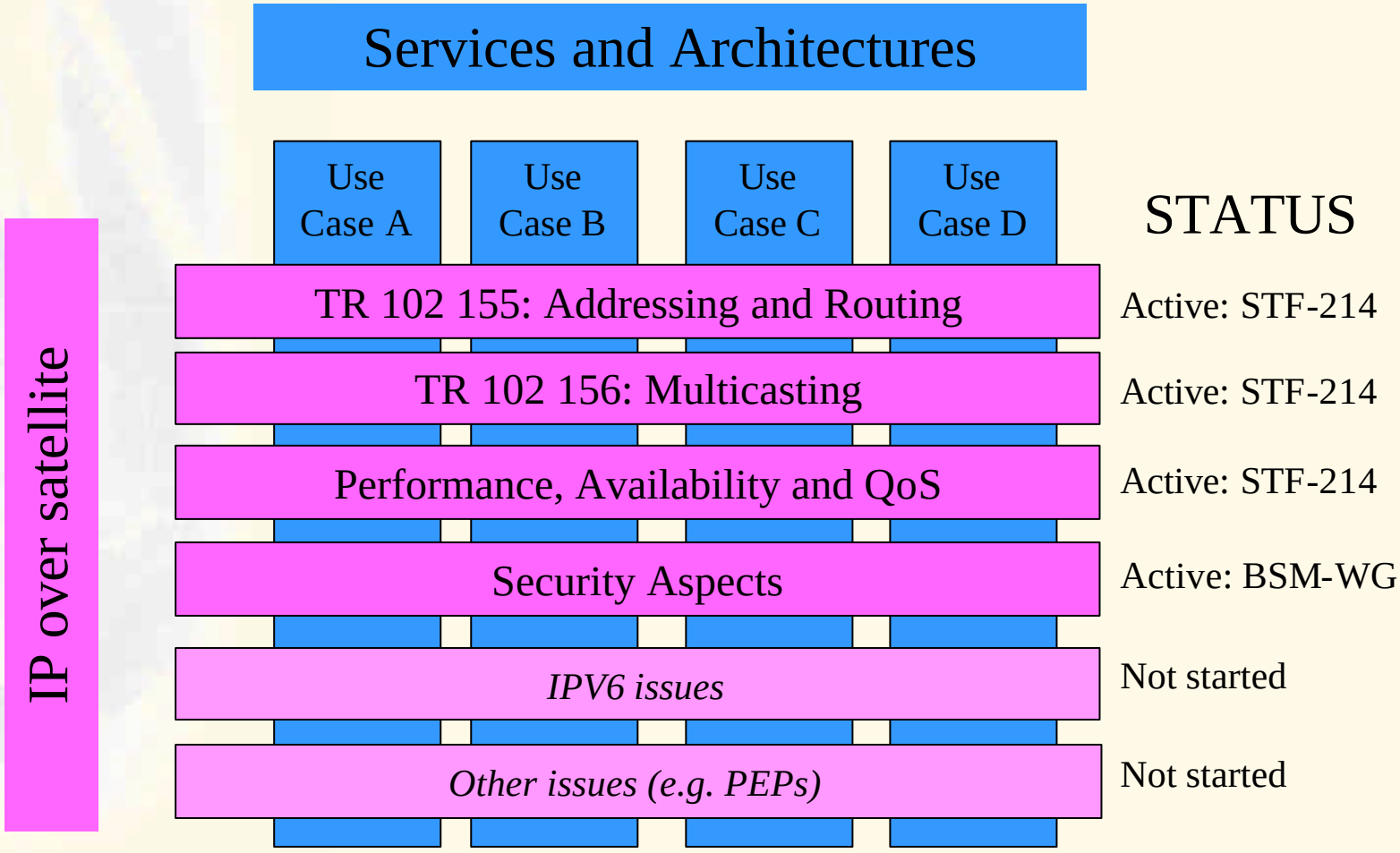




TR 101 985 “IP over satellite” Study areas

Study Area	Clause	Description
Reference Architectures	5	Architectures and associated definitions for the specific cases of IP interworking. Based on the Services and Architecture models
Bearer services for transport for IP structured signals	6	Basic requirements for transport of IP packets
Performance and Availability	7	Top level generic performance requirements: delay class, availability class, etc.
Quality of Service (QoS)	8	QOS for a BSM network, using an architecture based on TS 123 107
Routing and Addressing	9	Routing issues, address resolution, etc.
Multicast and Broadcast	10	Multicast and Broadcast issues, with particular reference to efficient handling of IP multicast and IP streaming
Security	11	Security threats and requirements Satellite independent mechanisms (incl. IPSec) plus satellite dependent mechanisms.
Performance Enhancing Proxies (PEPs)	12	A review of PEPs, based on IETF RFC 3135

BSM Work Items:
Detailed Technical Reports



BSM Work Items:
Air interfaces

- **TR "BSM Families"**
  - **Overview of BSM families**
- **SI-SAP Specification**
  - **Common specification for the Satellite Independent Service Access Point (SI-SAP)**
- **RSM-A Air Interface Specifications**
  - **Satellite Dependent Specification**
  - **Regenerative Satellite Mesh – A (RSM-A)**
    - **SLC/SMAC Layer Specifications (3 parts)**
    - **Physical Layer Specifications (7 parts)**

BSM liaisons & co-operations

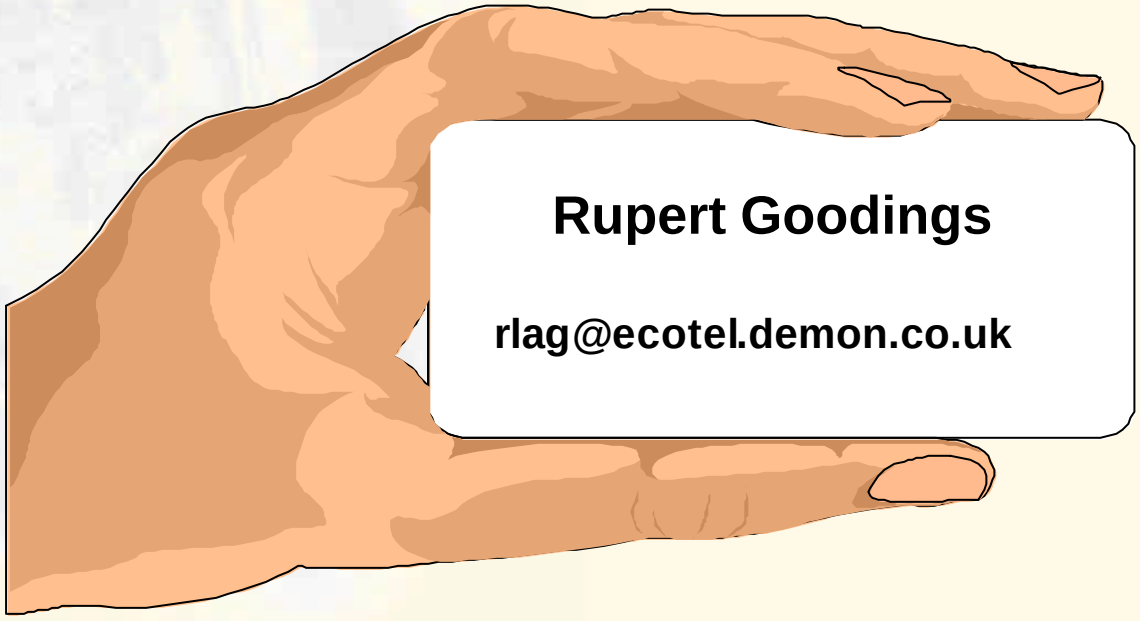
- **ITU-T Q13/13 (Tolga Ors - rapporteur)**
  - Co-operation on IP over satellite issues
    - Y.1541 (performance objectives)
    - Y.SatIP_xx draft recommendations
- **TIA TR 34.1.1. (Enrique Laborde - chair)**
  - Co-operation on air interface standards
- **IETF & IP-over-DVB (Gorry Fairhurst - rapporteur)**
  - Co-operation on IP over DVB-S/DVB-RCS
- **ESA**
  - Outputs from new transport protocols studies
- **IST projects**
  - Outputs from various IST projects (e.g. GEOCAST, ICEBERGS, SATIP6)

BSM activities - 2003

- **Completion of Detailed Technical Reports**
  - **Performance, Availability and QoS**
  - **Security Aspects**
  - ***Other TRs [to be confirmed]***
- **New STF planned for 2003**
  - **Funding from the European Commission**
  - **Start of work on new Technical Specifications**
  - **Specific aspects of IP over satellite**
    - **Based on detailed proposals from STF-214**
- **Air Interfaces**
  - **TR on "BSM families"**
  - **SI-SAP specification**
  - **RSM-A interface specifications**

Close

Thank you



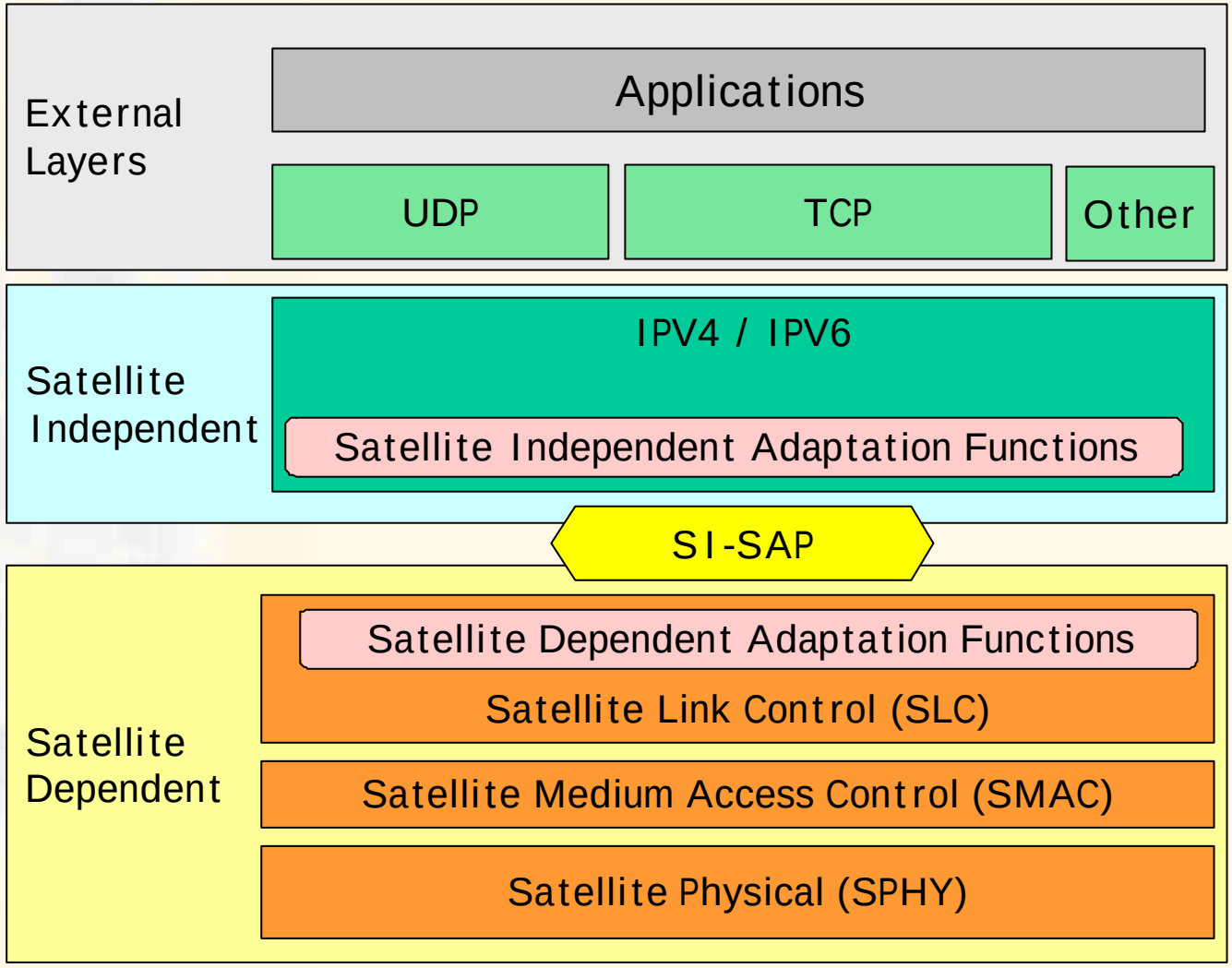
ADDITIONAL SLIDES

(not included in main presentation)

ETSI TC-SES:
Active working Groups

- **10 active working groups**
  - **Broadband Satellite Multimedia (BSM)**
  - **Satellite Component of UMTS/IMT-2000 (S-UMTS)**
  - **GeoStationary Orbit Satellite PCN (GSO S-PCN)**
  - **GEO Mobile Radio Interfaces (GMR)**
  - **Ku-Band Satellite Aircraft Earth Stations (Ku-band AES)**
  - **Autonomous Satellite Signalling Channel (ASSC)**
  - **European Cooperation for Space Standardisation (ECSS)**
  - **Aeronautical Satellite Earth Stations (AES)**
  - **Harmonisation of TBRs (HARM)**
  - **Maritime Earth Stations (MAR)**

Protocol architecture



IP interworking