A Light Reading Webinar

The Role of TISPAN In Next-Generation Networks

Thursday, March 9, 2006

Hosted by

Graham Finnie
Senior Analyst

Speakers

- **Simon Spraggs**
  Cisco Systems

- **Jared Rosoff**
  Tazz Networks

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Agenda

- What is ETSI TISPAN NGN?
- The NGN evolution & requirements
- ETSI TISPAN architecture
- TISPAN use cases
- Conclusions

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What Is ETSI TISPAN NGN?

- **Background**
  - Telecommunications & Internet Converged Services & Protocols for Advanced Networks (TISPAN)
  - TISPAN is a standards group within the European Telecommunication Standards Institute (ETSI)
  - Specialized in fixed networks & Internet convergence
  - 8 sub-groups defining all aspects of NGN
- **Defining a standards-based NGN architecture**
  - Based on well defined sub-systems, functional blocks & defined interfaces
  - Maximizing fixed & mobile convergence, through adoption of 3G IMS components

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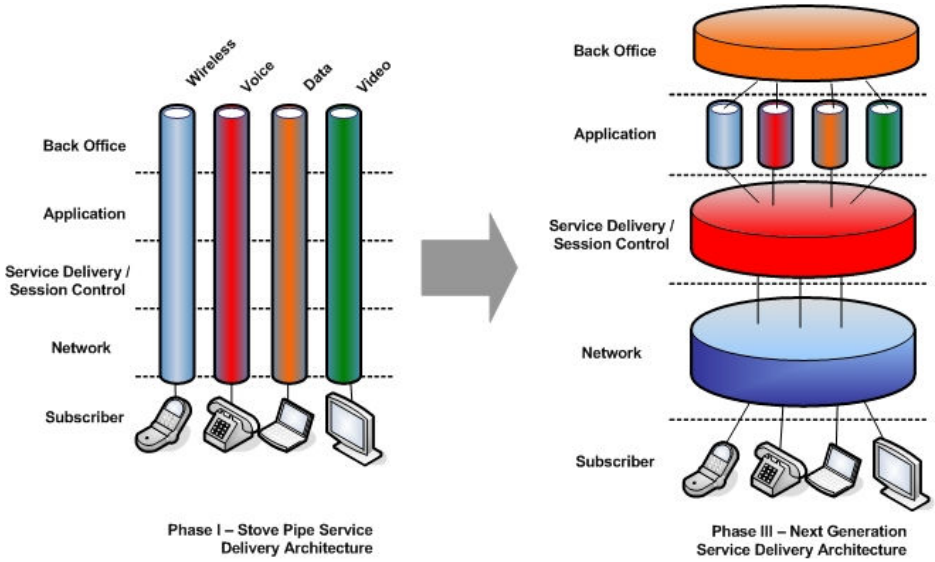
The Benefits of an NGN
From Stovepipes to Converged

- Enhanced User Experience
  - Universal user experience regardless of access medium
  - Integration of presence & mobility
- Simplified Service Introduction
  - Standardized interfaces
  - Well defined capabilities per functional component
- Reduced Operating Costs
  - Automated service delivery
  - Unified network architecture



Any **Application,** Any **Network,** Any **Device**
Delivered with **Quality, Control,** and **Accountability**

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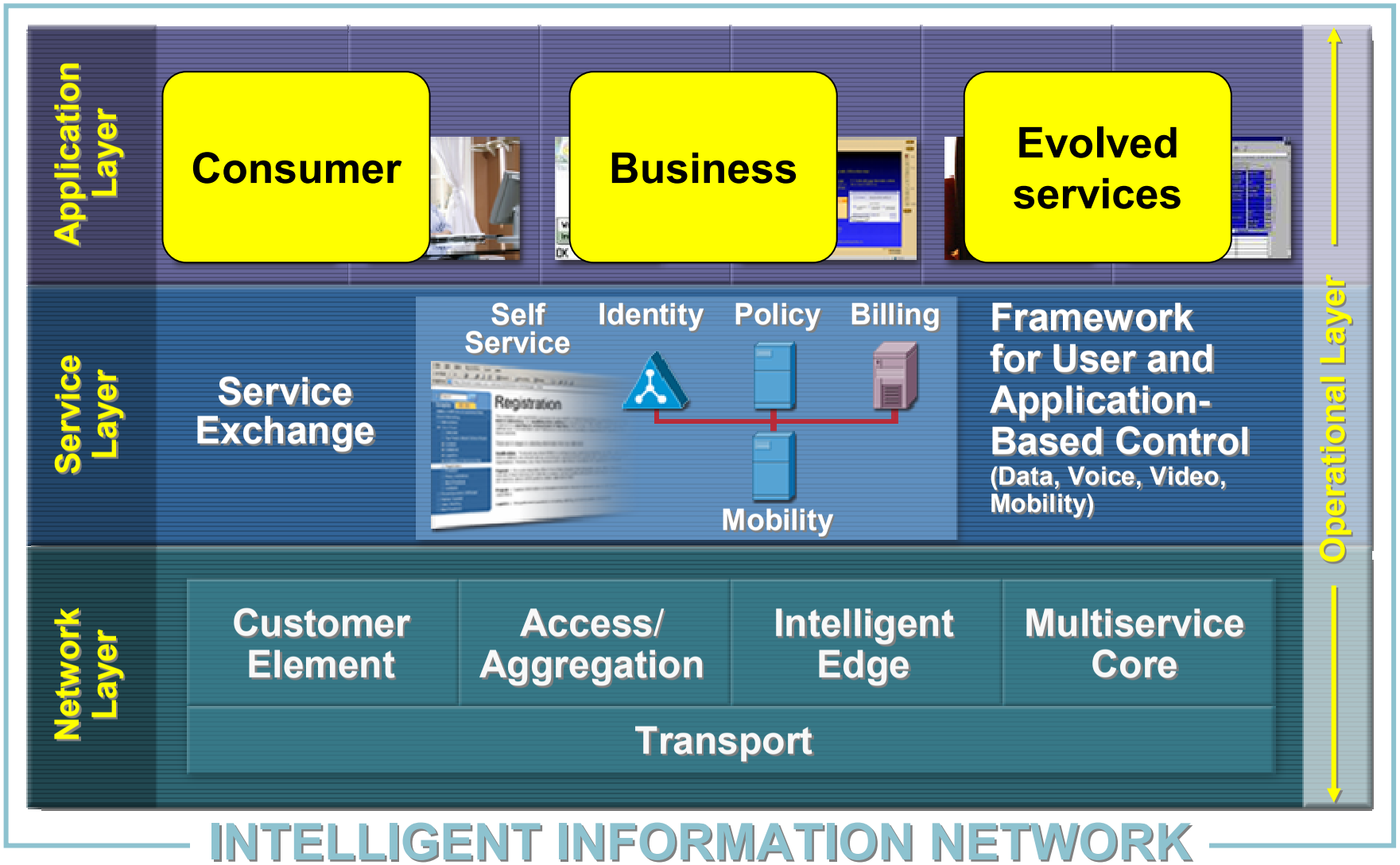
What Is an IP NGN Architecture?



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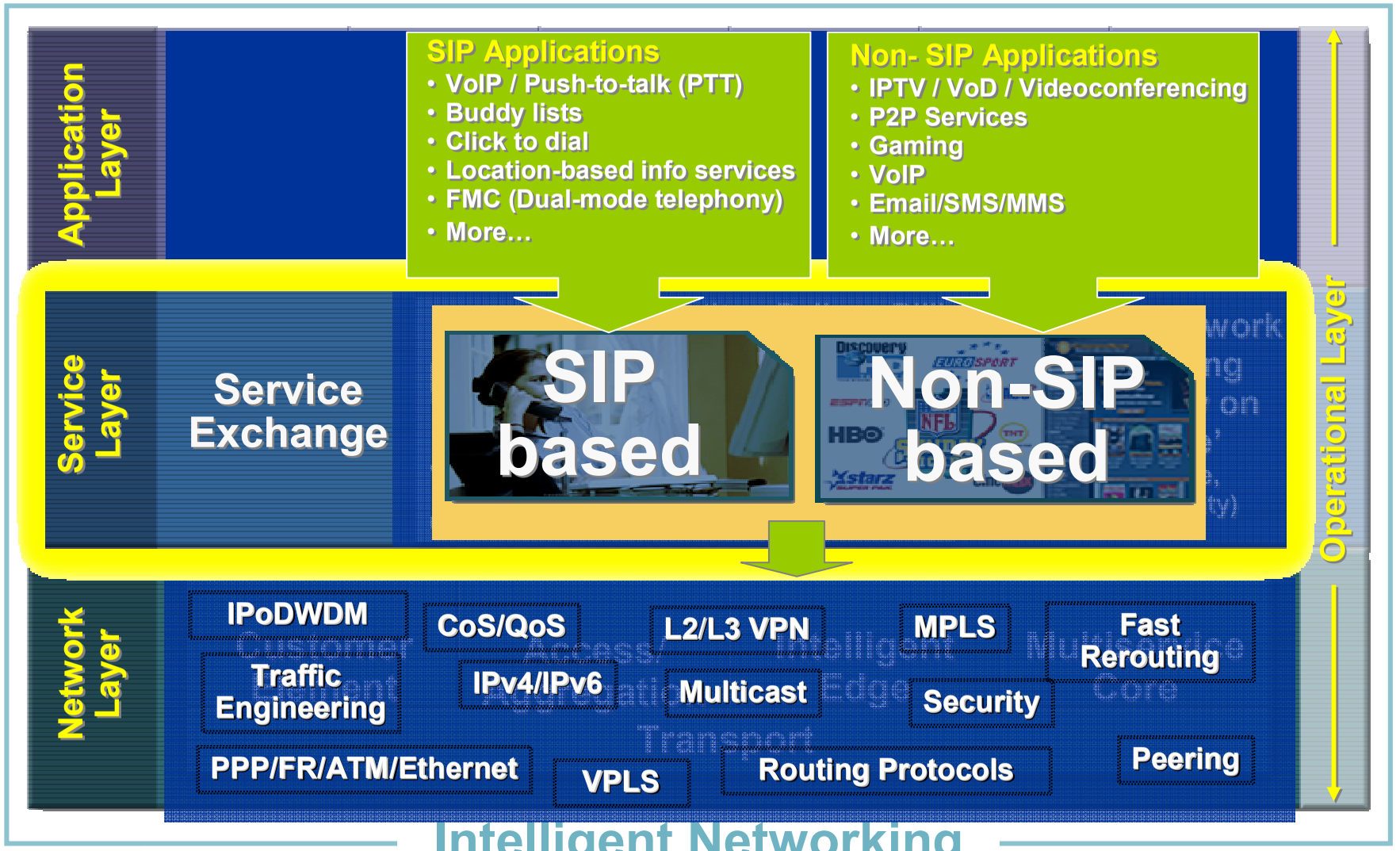
NGN Application/Protocol Requirements

Comprehensive Support for SIP and Non-SIP applications



Intelligent Networking

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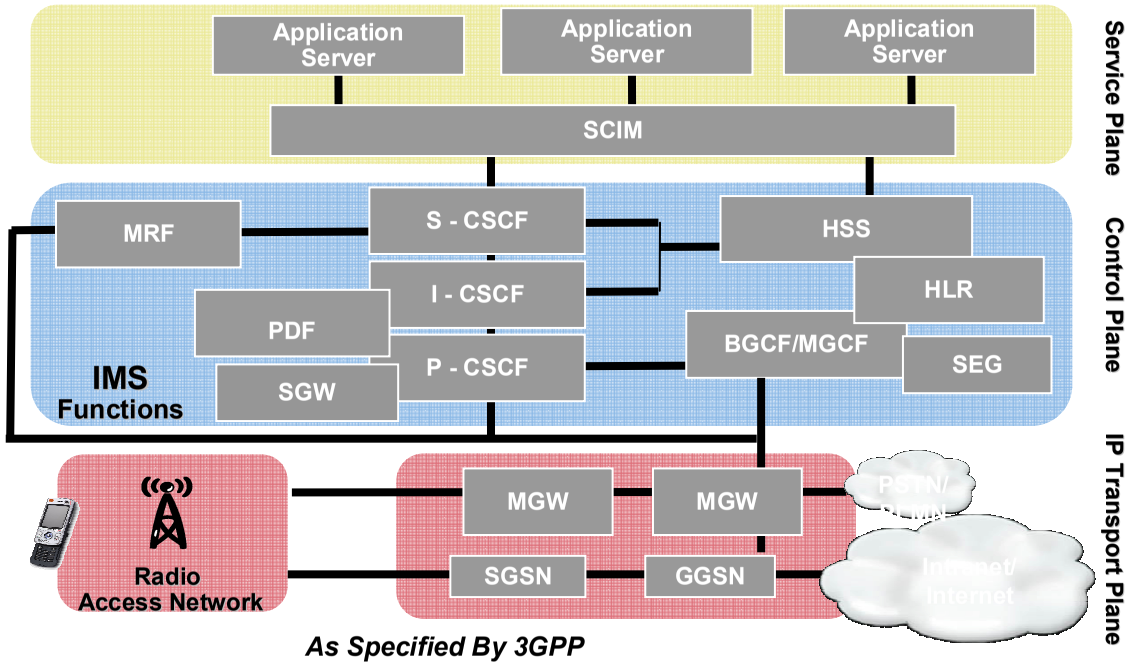
Why Not Just Adopt 3GPP IMS for Everything?



As Specified By 3GPP

- **Claims to be access agnostic**
  - R6 moving in that directions
  - R7 more so
- **Implicit assumptions**
  - Policy element part of the Proxy SIP server :- implicit assumption that only SIP applications need policy
  - Wireless UE & authentication:- No account taken of 15 years of AAA deployment in wireline
  - Wireless access network via GGSN :- No account of CMTS for cable, BRAS for xDSL
  - Only SIP signaled application :- No account taken of the majority of Internet applications, bandwidth apps
  - No account of the regulatory and resulting commercial models seen in wireline

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ETSI TISPAN NGN Detail & Status

- **Release Timeline**
  - Pragmatic approach & emphasis on solutions
  - Release 1 :- Released in Dec 2005
    - Main standards direction
    - Voice, xDSL, SIP-oriented solutions, edge QoS capabilities
  - Release 2:- 2007 timeframe
    - Being defined now
  - Release 3:- 2009 timeframe
    - Generalized mobility
- **Architectural Highlights**
  - Support of SIP-oriented & Non SIP applications
  - IMS for conversational SIP-oriented applications
  - Other sub-systems for other application types
  - Access agnostic
  - Support for complex commercial models
  - Roadmap to fixed mobile convergence based on IMS
  - Re-use & collaboration with SDO (specifically 3GPP)

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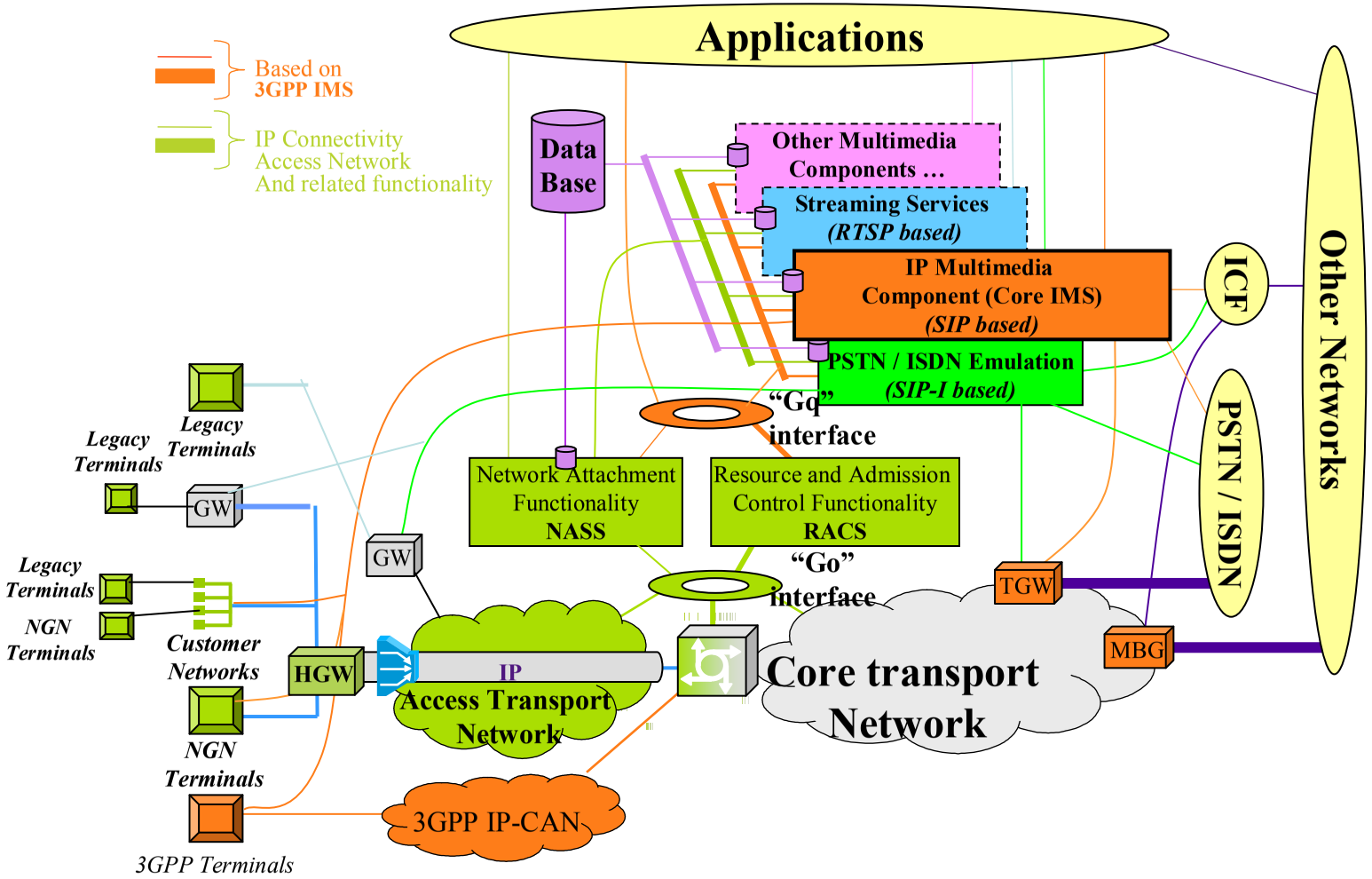
TISPAN NGN Architecture Overview



IMS (IP Multimedia Subsystem):
The NGN core subsystem for SIP based conversational services

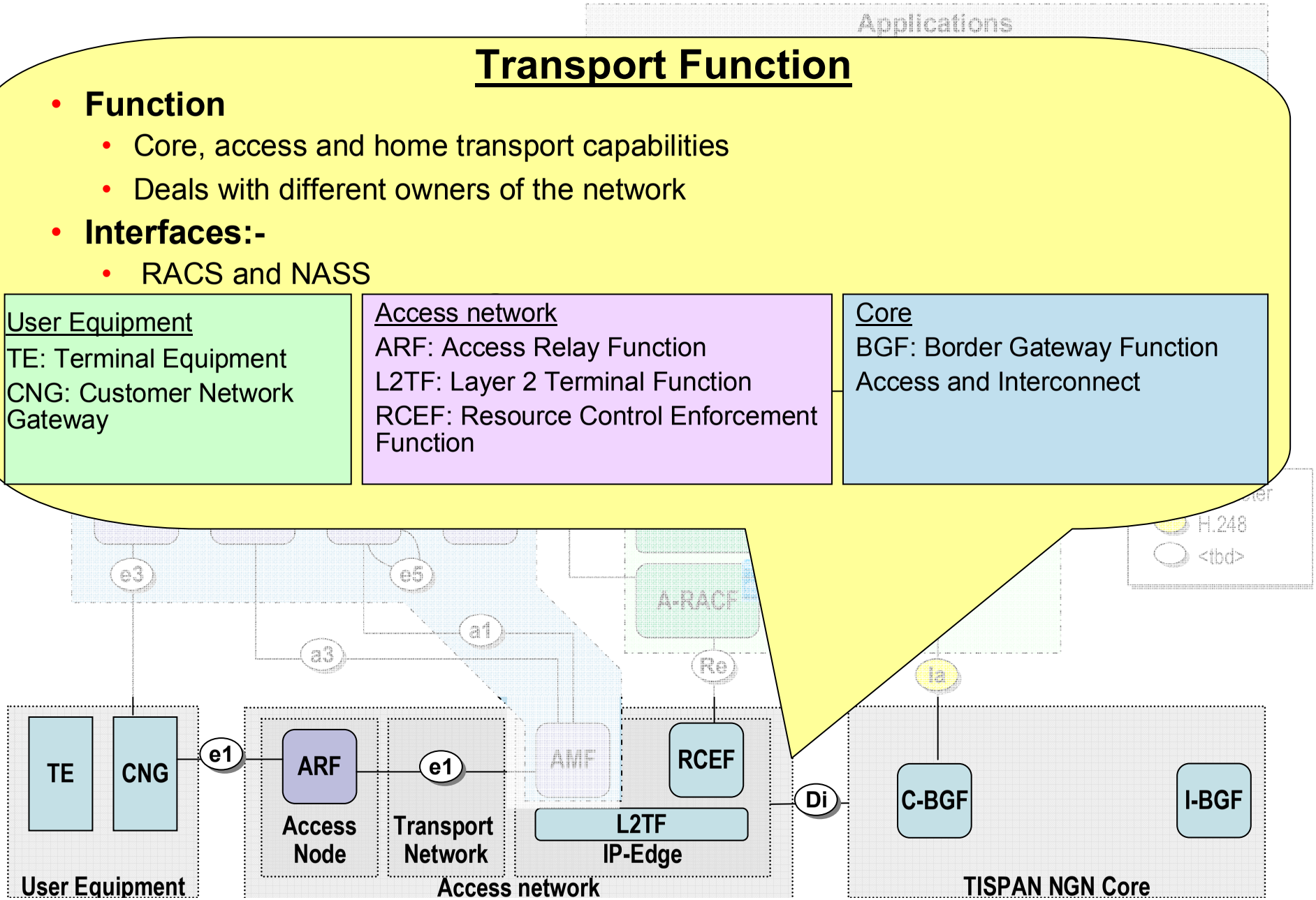
Source:-Global Standards Collaboration, GSC#10, 28 August – 2 September 2005 [ETSI ES 282 001 "Telecommunications and Internet Converged Services and Protocols for Advanced Networking (TISPAN): NGN Functional Architecture R1]

ETSI TISPAN Network Model (Release 1)

Transport Function

- **Function**
  - Core, access and home transport capabilities
  - Deals with different owners of the network
- **Interfaces:-**
  - RACS and NASS

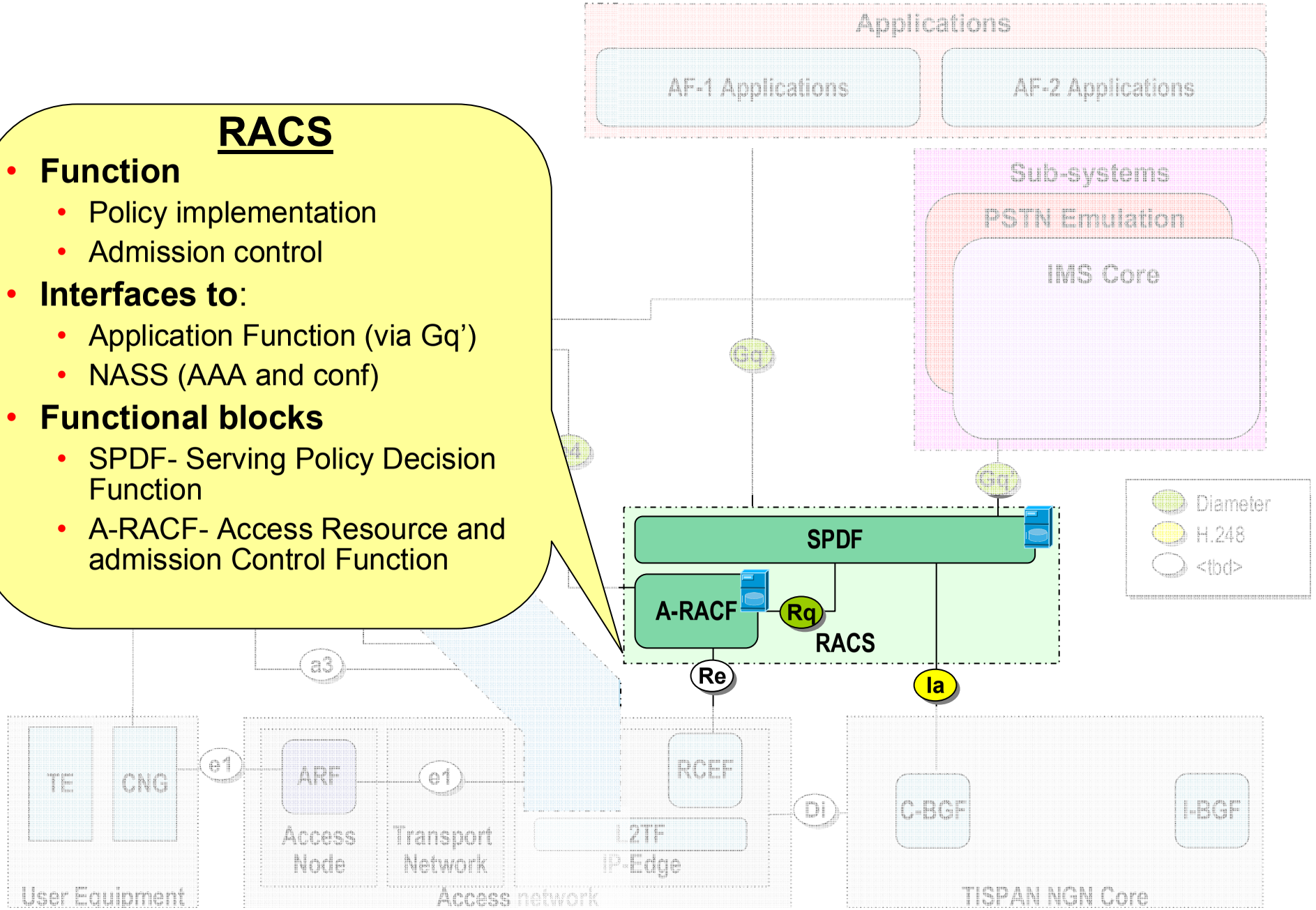
User Equipment	Access network	Core
TE: Terminal Equipment CNG: Customer Network Gateway	ARF: Access Relay Function L2TF: Layer 2 Terminal Function RCEF: Resource Control Enforcement Function	BGF: Border Gateway Function Access and Interconnect



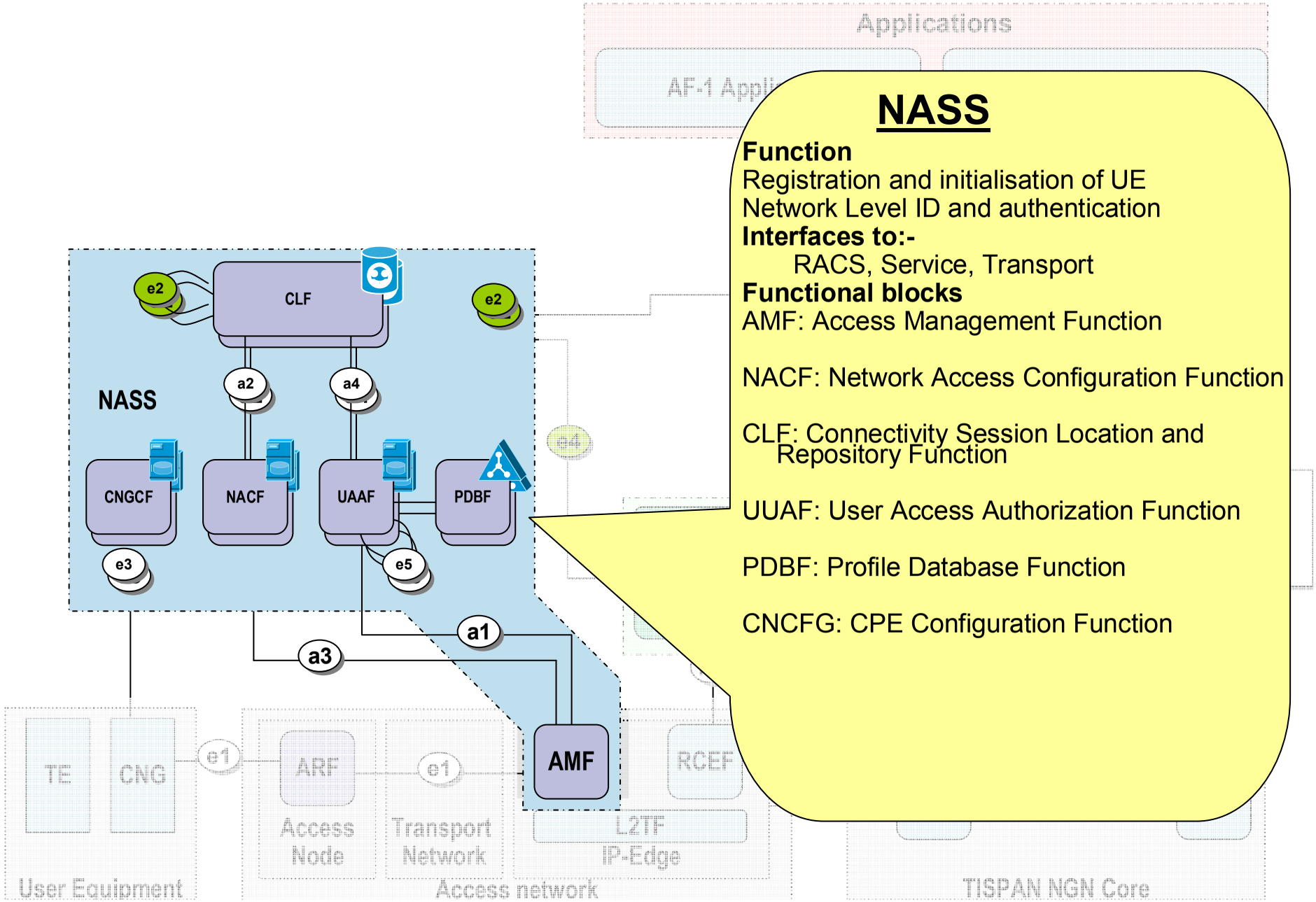
ETSI TISPAN Network Model (Release 1)

RACS

- **Function**
  - Policy implementation
  - Admission control
- **Interfaces to**:
  - Application Function (via Gq')
  - NASS (AAA and conf)
- **Functional blocks**
  - SPDF- Serving Policy Decision Function
  - A-RACF- Access Resource and admission Control Function



ETSI TISPAN Network Model (Release 1)



NASS

Function
Registration and initialisation of UE
Network Level ID and authentication
Interfaces to:-
RACS, Service, Transport
Functional blocks
AMF: Access Management Function

NACF: Network Access Configuration Function

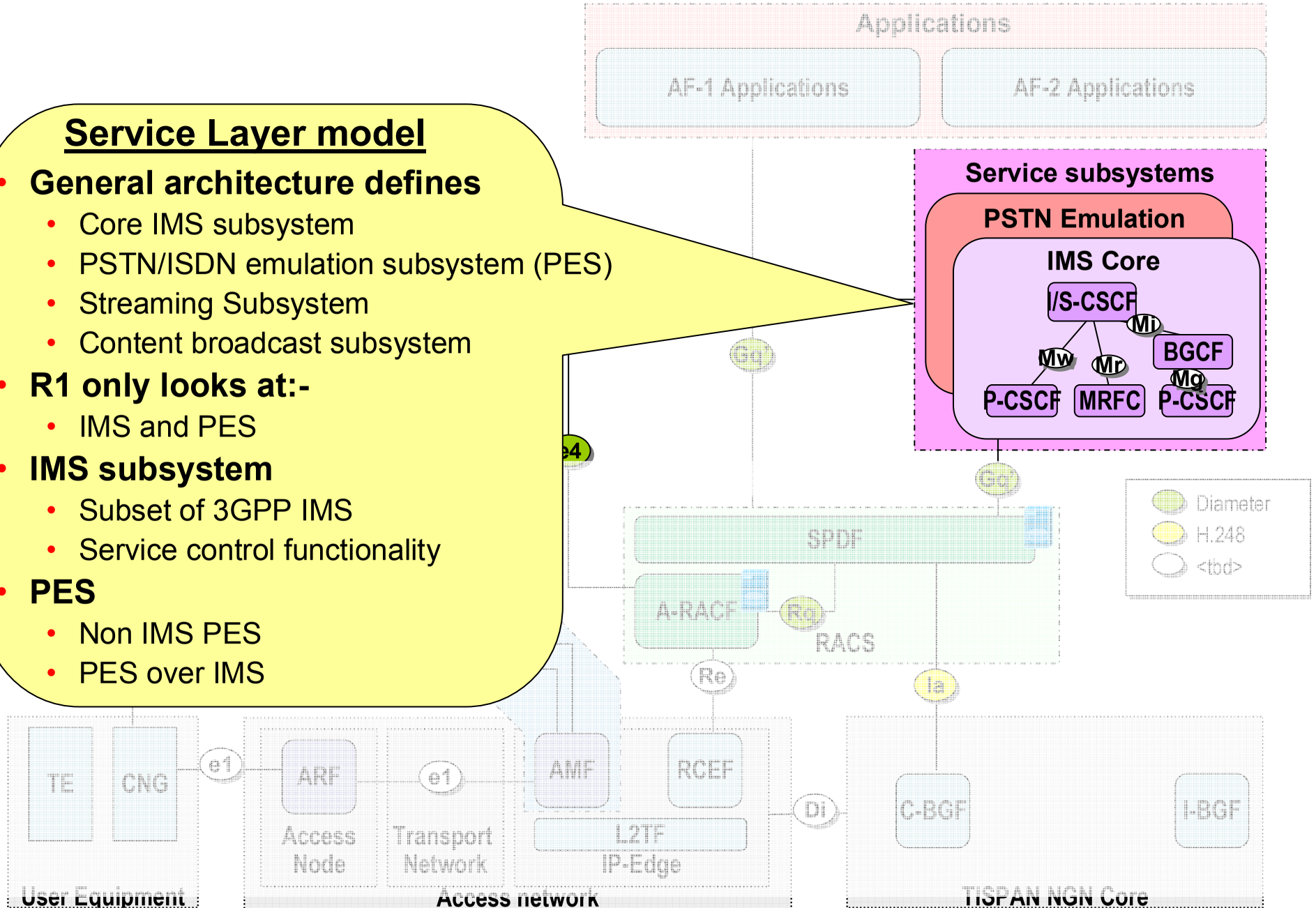
CLF: Connectivity Session Location and Repository Function

UUAF: User Access Authorization Function

PDBF: Profile Database Function

CNCFG: CPE Configuration Function

ETSI TISPAN Network Model (Release 1)



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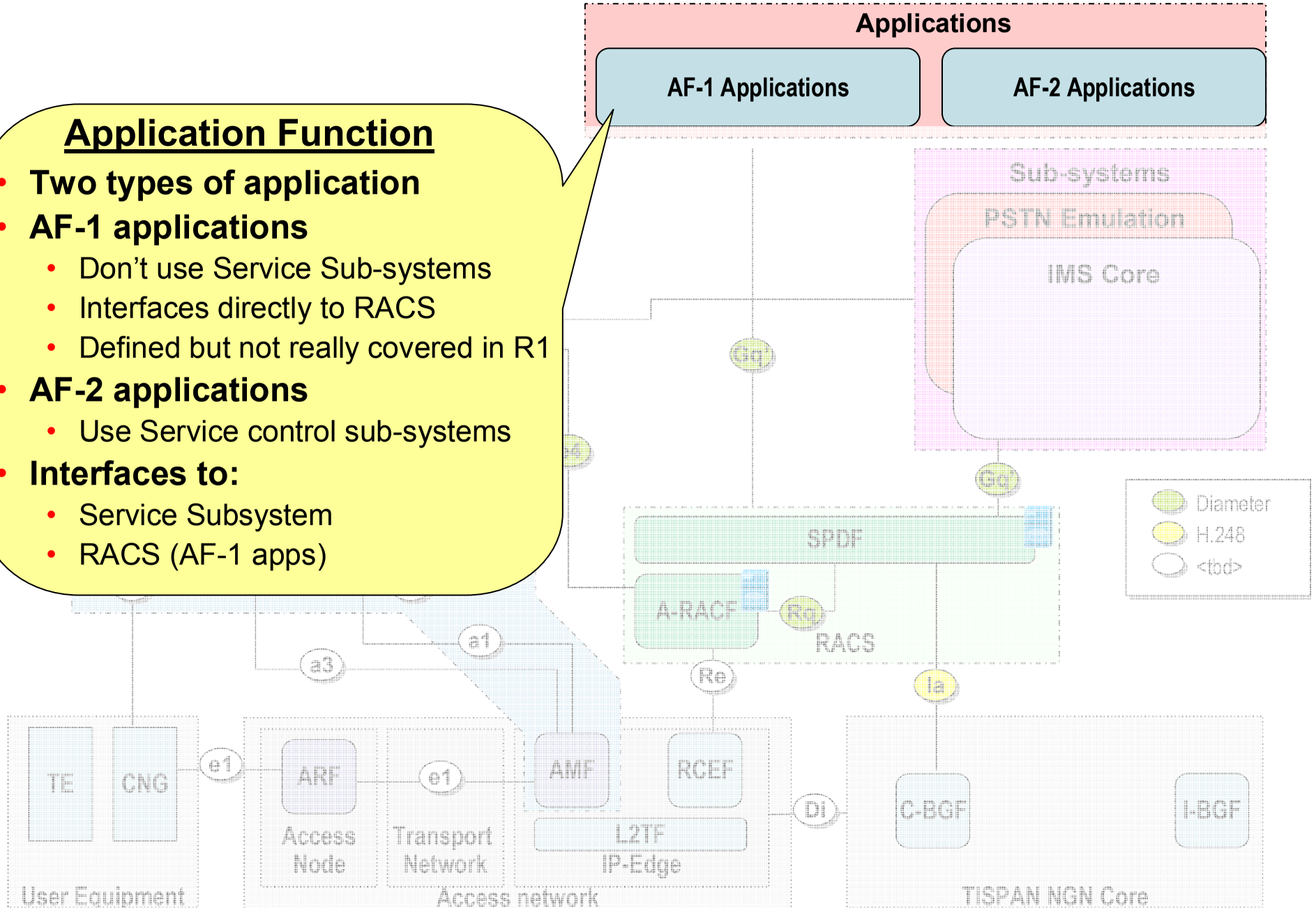
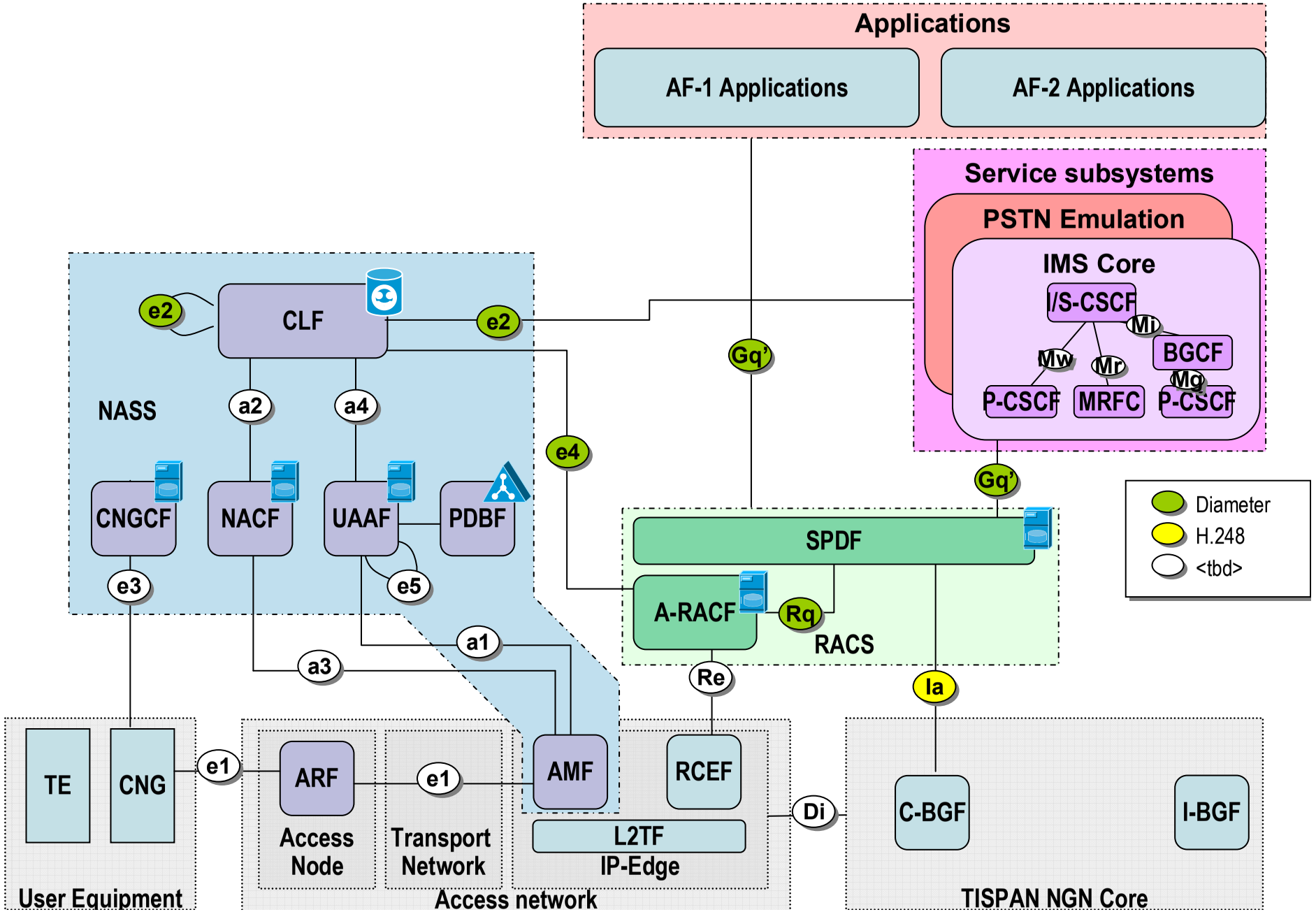


Application Function

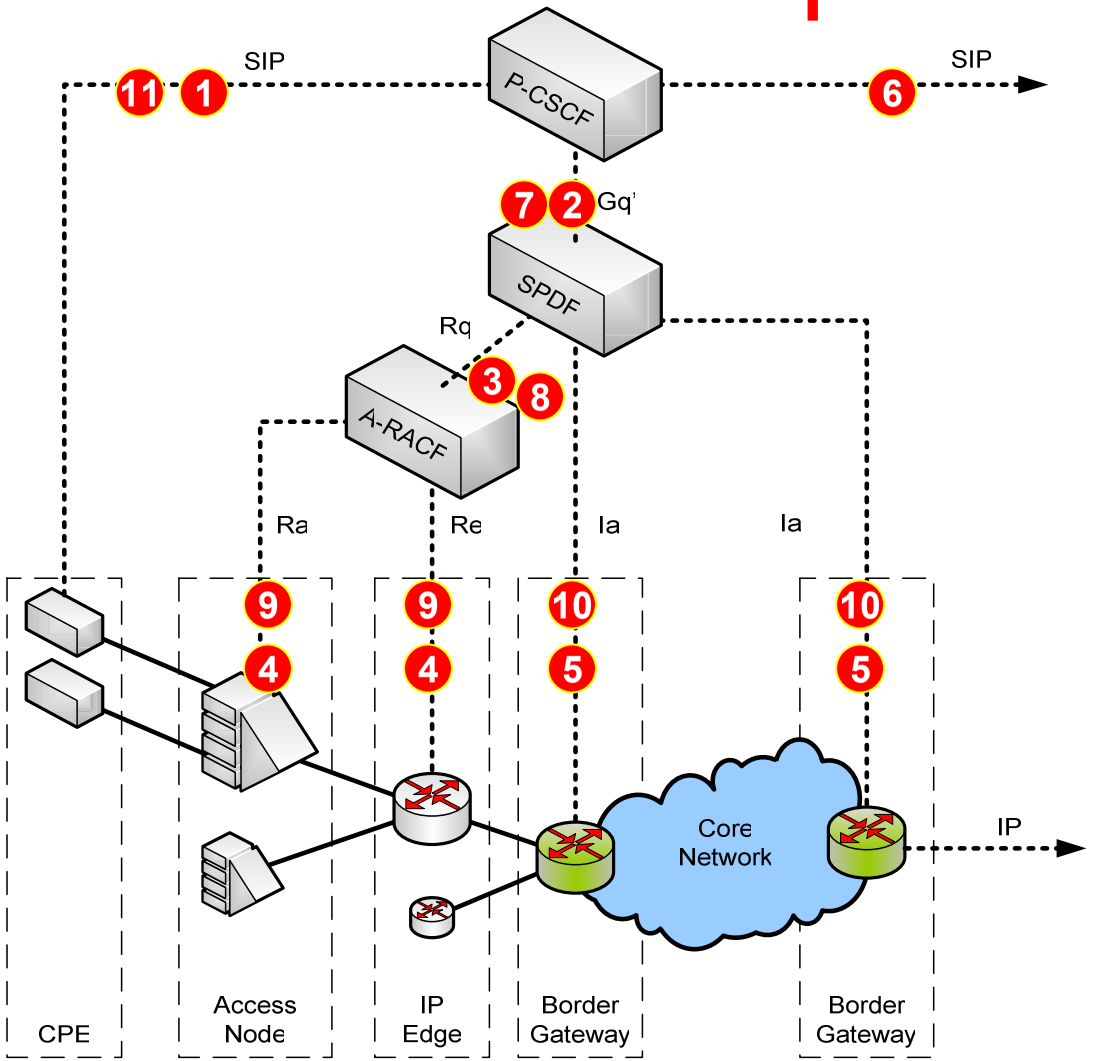
- **Two types of application**
- **AF-1 applications**
  - Don't use Service Sub-systems
  - Interfaces directly to RACS
  - Defined but not really covered in R1
- **AF-2 applications**
  - Use Service control sub-systems
- **Interfaces to:**
  - Service Subsystem
  - RACS (AF-1 apps)

ETSI TISPAN Network Model (Release 1)



TISPAN Scenario: Use Case:- IMS Call Setup

1. User dials phone number, initiates SIP signaling
2. P-CSCF requests authorization for call via Gq' interface
3. SPDF requests authorization for access network resources via Rq interface
4. A-RACF (optionally) provisions policies using Re/Ra interfaces
5. SPDF (optionally) requests BGF authorization via Ia interface
6. Remote party SDP received
7. P-CSCF requests re-authorization for call given remote SDP via Gq' interface
8. SDPF (optionally) re-authorizes access network resources via Rq interface
9. A-RACF (optionally) changes policies using Re/Ras
10. SPDF (optionally) requests BGF re-authorization
11. Ringing signal delivered to user



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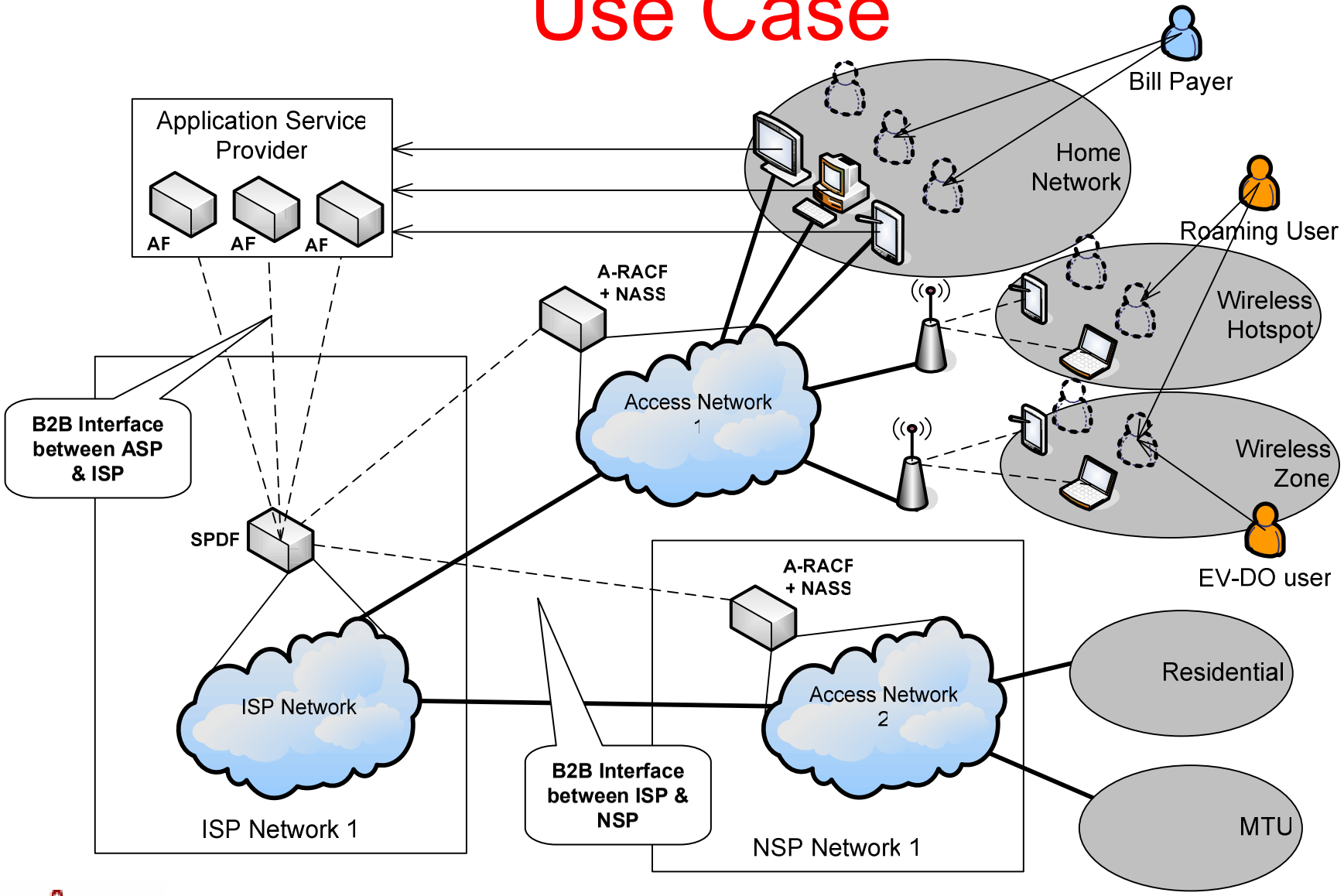
TISPAN in a Wholesale Environment Use Case



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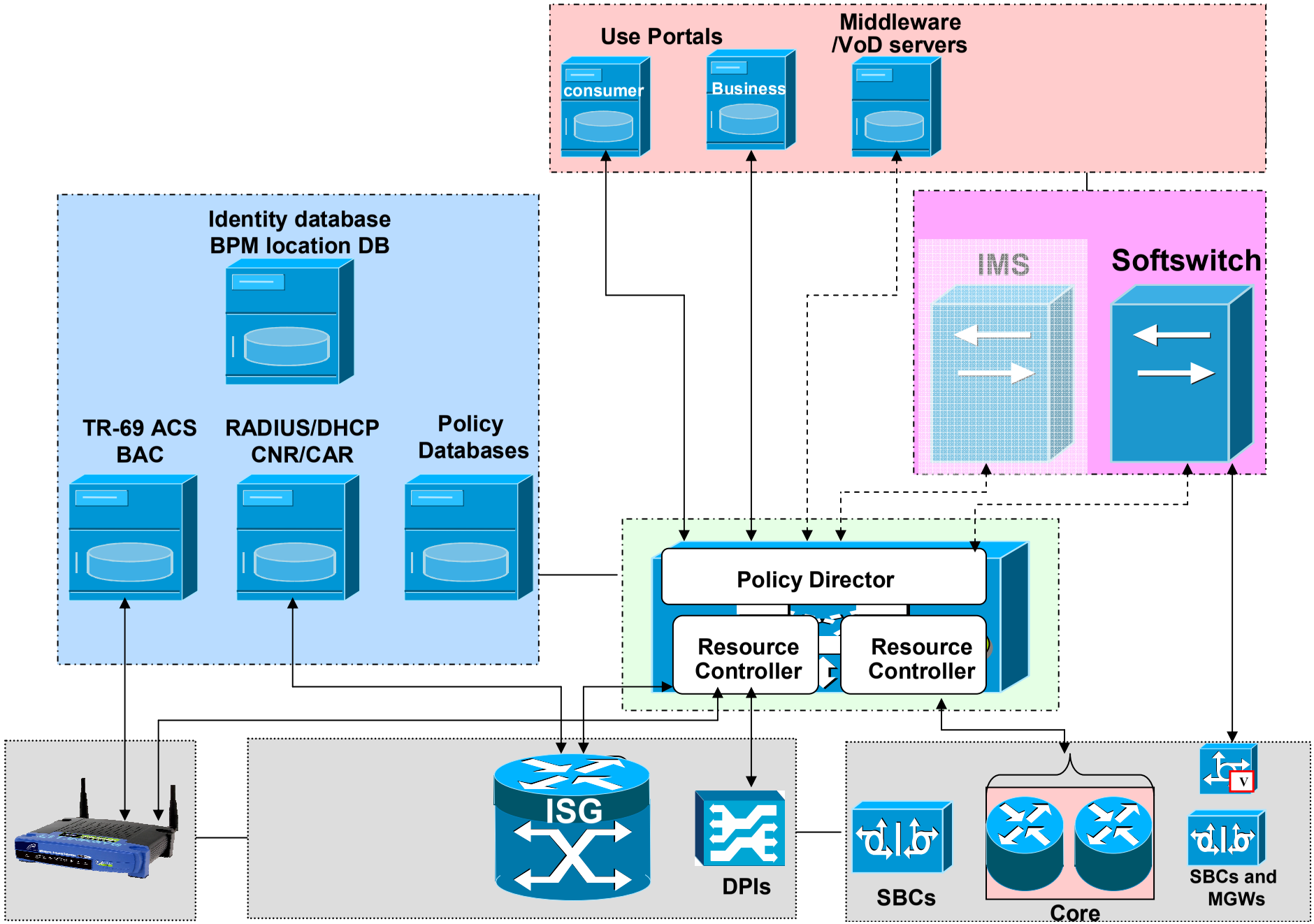
Wireline Today



Will TISPAN NGN Succeed ?

- R1 Is a Great Start
  - Acknowledgement of different access technologies
  - Acknowledgement of commercial models
  - Acknowledgement of varied application types
  - SIP-based FMC through common IMS subsystem
- TISPAN Future Challenges
  - R1 is heavily voice / SIP orientated
  - Support for network-based services
  - Support for existing non-SIP initiated services
  - Support for new emerging applications (for example IP/TV)
  - Gaining support from the content providers (“over the top” services)

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The Poll Question

What will be the first service deployed on a TISPAN RACS / NASS subsystem?

- PSTN emulation service
- FMC multimedia SIP-based services
- IP/TV solution
- Peer to Peer solution
- User initiated bandwidth/QoS services (Turbo button)

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Conclusions & Outlook

- NGNs are an important tool in the future profitability of SPs
  - Network Convergence
  - Common service portfolio regardless access
- TISPAN delivers an NGN architecture
  - TISPAN has taken a pragmatic and sensible approach to NGN environments
  - But TISPAN R1 services are limited
- NGNs architectures are still evolving
  - The future relevance of TISPAN in NGN depends on TISPAN R2 and beyond

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Q & A

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