IMS based NGN Architecture and its application

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Outline

- IP Multimedia Subsystem
  - Overview & Key Features
  - Use in NGN
  - Benefits
- Support for PSTN/ISDN Replacement
  - Simulation
  - Emulation
- Overall Architecture
  - ITU-T SG13, ETSI TISPAN & BT 21CN

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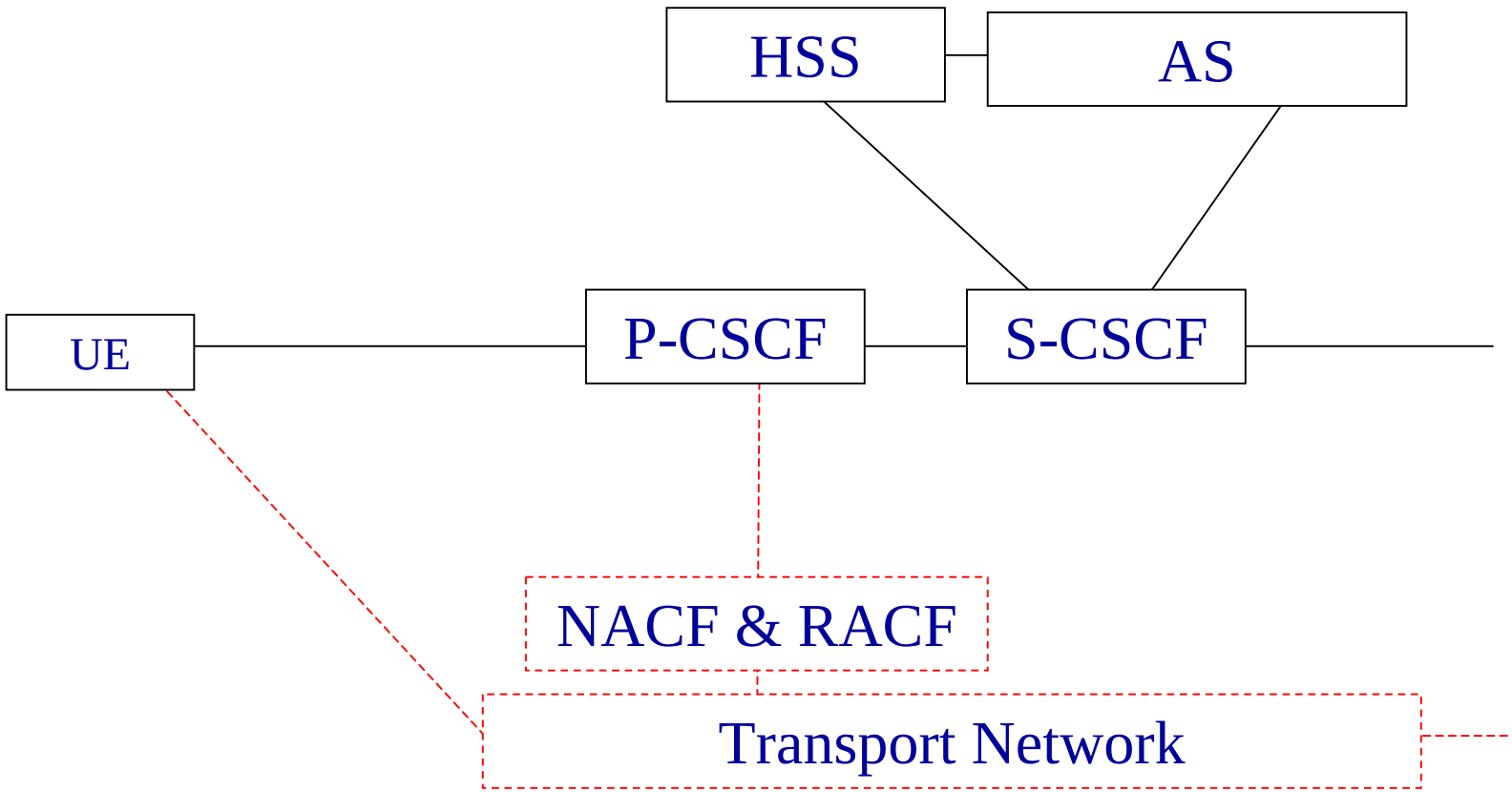
IP Multimedia Subsystem

- SIP-based control system to enable media-agnostic service delivery in IP networks
  - Secure registration
  - Secure communications
  - Location independence
  - Separation from Service providing application
  - Specified by 3GPP

- Control system for a flexible service delivery platform

Key Elements



Key Elements Functionality 1

- UE – User Equipment
- P-CSCF
  - Proxy Call Session Control Function
  - First contact point
  - Forward SIP messages from UE to S-CSCF and vice-versa
  - Generation of CDRs.
  - Maintain security association to UE
  - Authorisation of bearer resources
- HSS Home Subscriber Server
  - Mobility Management
  - User security
  - Service Provisioning & authorisation support
  - Call / Session establishment support
  - GUP Data Repository
  - Identification handling
  - Access authorisation
  - Application Services Support

Key Elements Functionality 2

- S-CSCF
  - Serving Call Session Control Function
  - Control for registered UE sessions
  - May behave as Proxy Server or User Agent
  - Interaction with Services Platforms
  - Provide endpoints with service event related information
- Obtain Address of entry point for network serving the destination user
- Modify the SIP request according to HSS and service control interactions
- Perform preference and capability matching

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IMS in NGN

- Performs Service Control Functions
  - Within the service stratum
  - Meets the requirements of Y.2001
- Flexible approach to services
  - Service delivery using Internet applications, services and protocols
- Provides inherent mobility support
- Already exists!
- BUT – specific to IP Connectivity Access networks

IMS Adaptations in NGN

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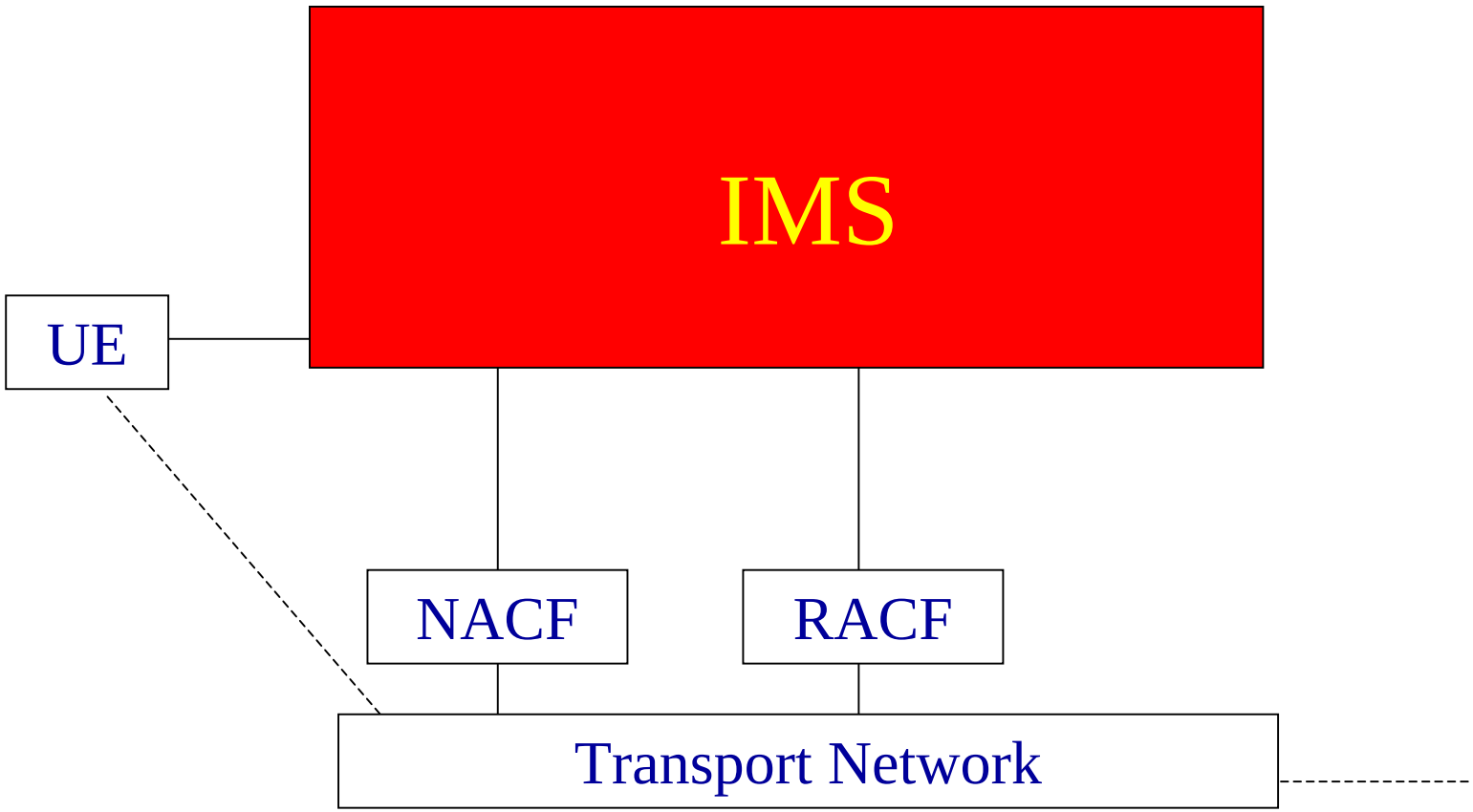
Specific adaptations to NGN – generic access



IMS Adapted to NGN

- Control of IP Transport Networks (admission control, QoS, authentication, etc.)
- Co-ordination of multiple control components to a single core transport
- Interworking and interoperability with legacy and other networks
- Mutual de-coupling of applications from session/call control and transport
- Access technology independence of session/call control and applications

Architecture of IMS for NGN

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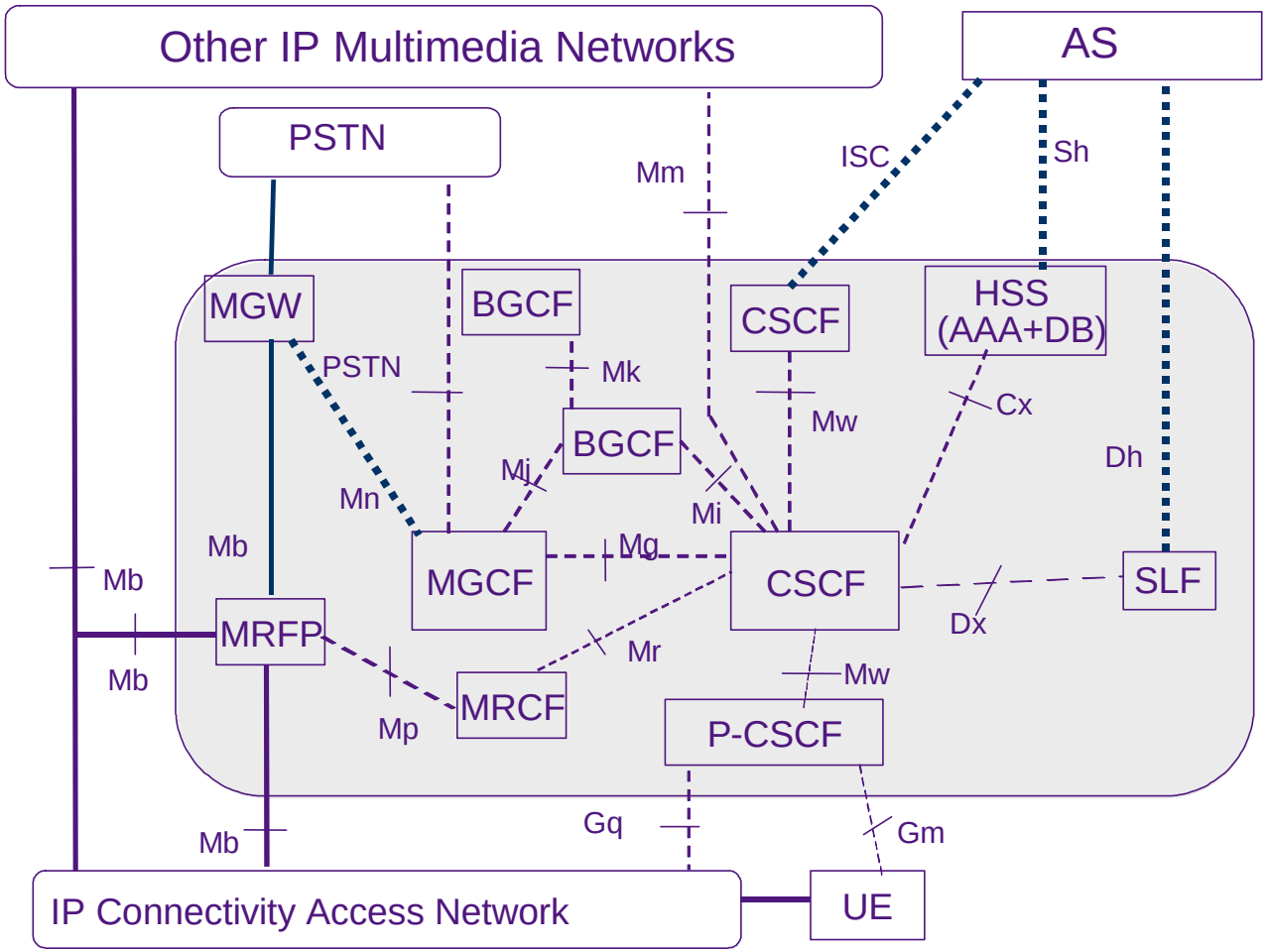
Figure 1 of draft ITU-T Recommendation Y.IFA



PSTN / ISDN Replacement

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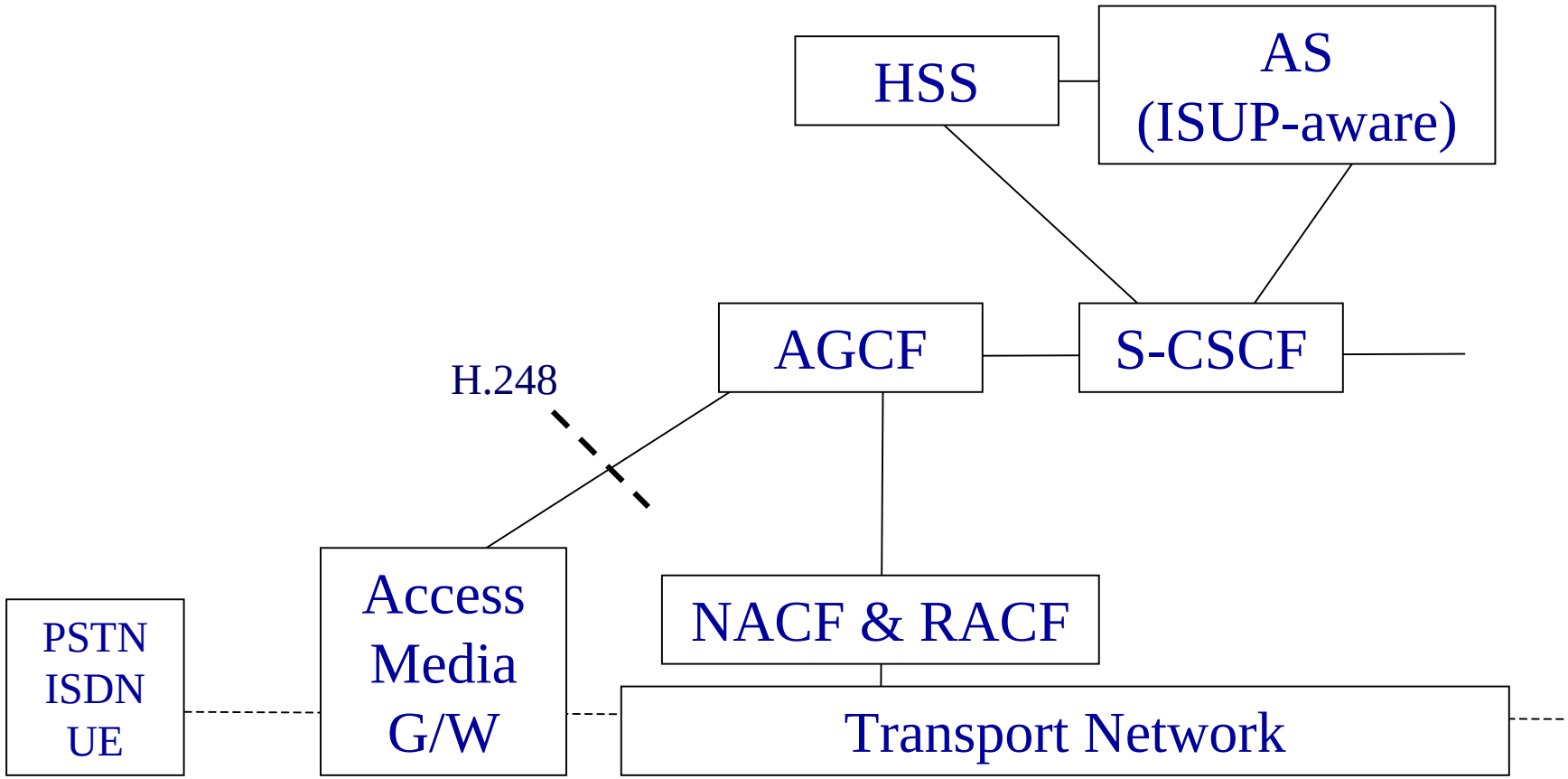
Simulation

- Interactions between AS and UE provide "PSTN/ISDN-like" services to NGN Users
- IP "Terminals"
- Includes terminal adapters
- Network and UE based services
- Example use of IMS

Emulation

- PSTN/ISDN service capabilities and interfaces using adaptation to an IP infrastructure
- Legacy user equipment and interfaces unchanged
- Two approaches:
  - Call Server (Softswitch)
  - IMS-based

IMS-Based Emulation



Advantages of IMS PES

- Preserves common interface to RACS & transport network
- Common service control functions
- Common Routing and configuration data between emulated PSTN/ISDN Users and NGN Users
- Economy of scale
  - Consider effects of reducing numbers of emulated users
  - Provision of advanced services

Service Control Architecture

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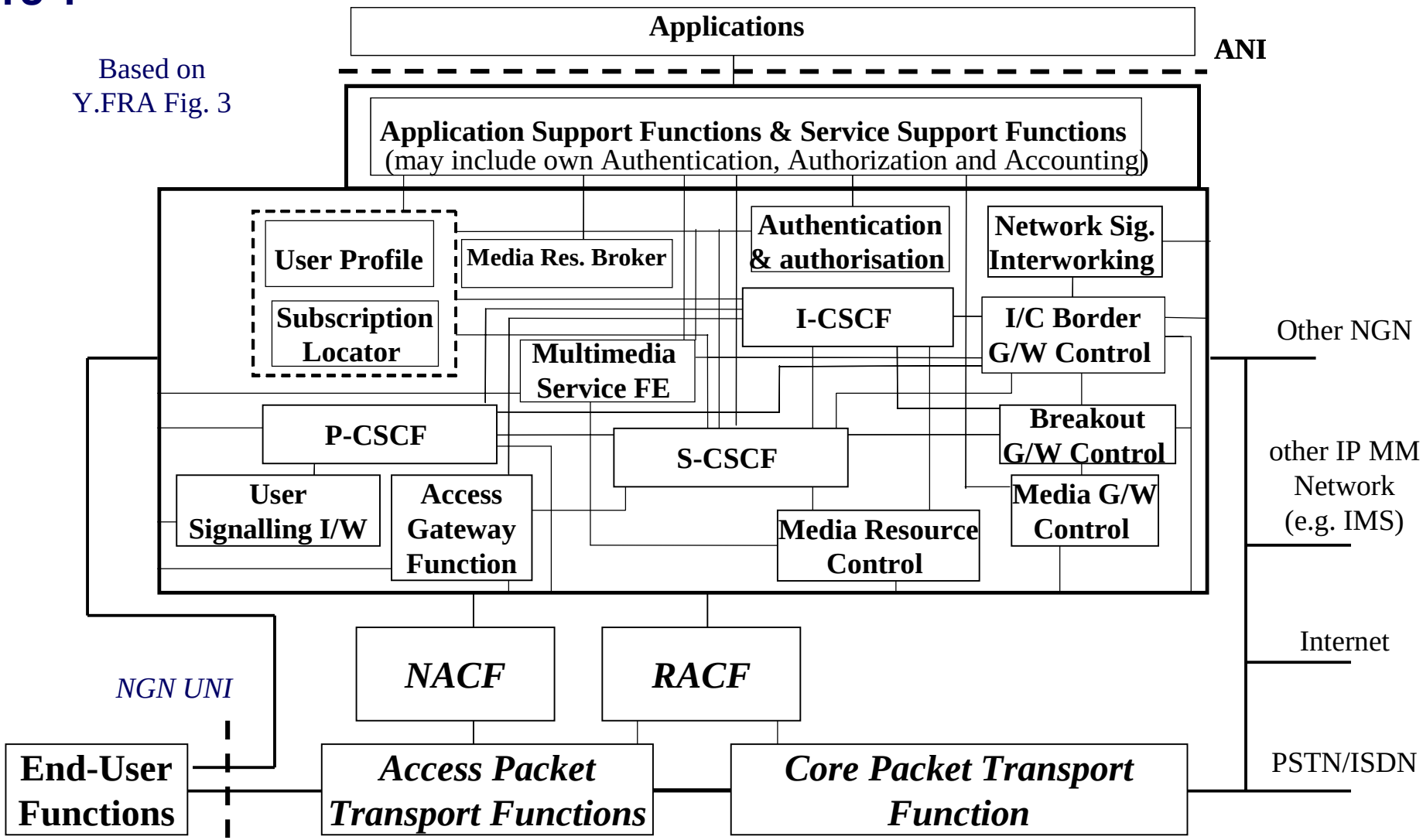
Based on
Y.FRA Fig. 3



ETSI TISPAN Architecture

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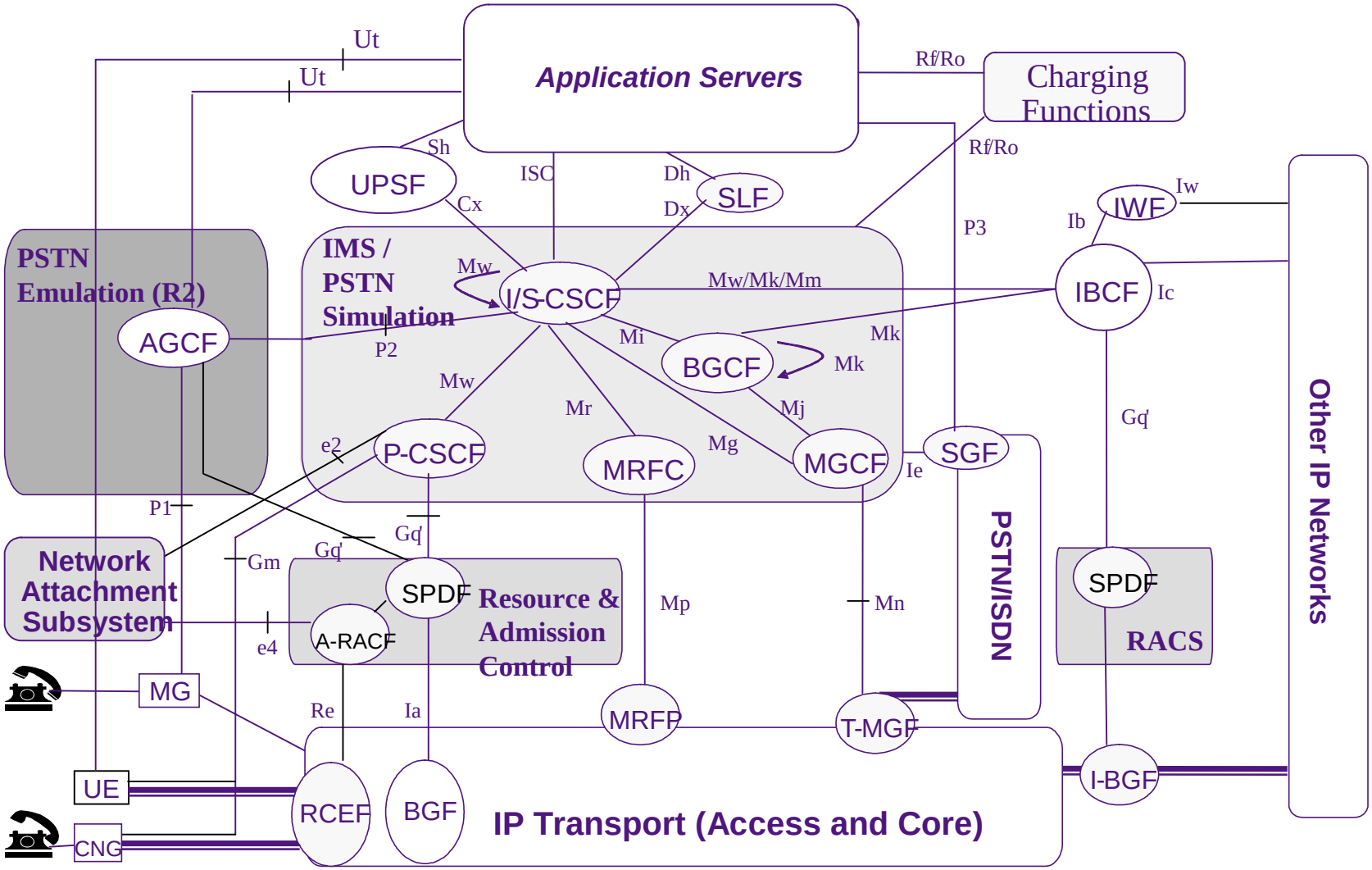
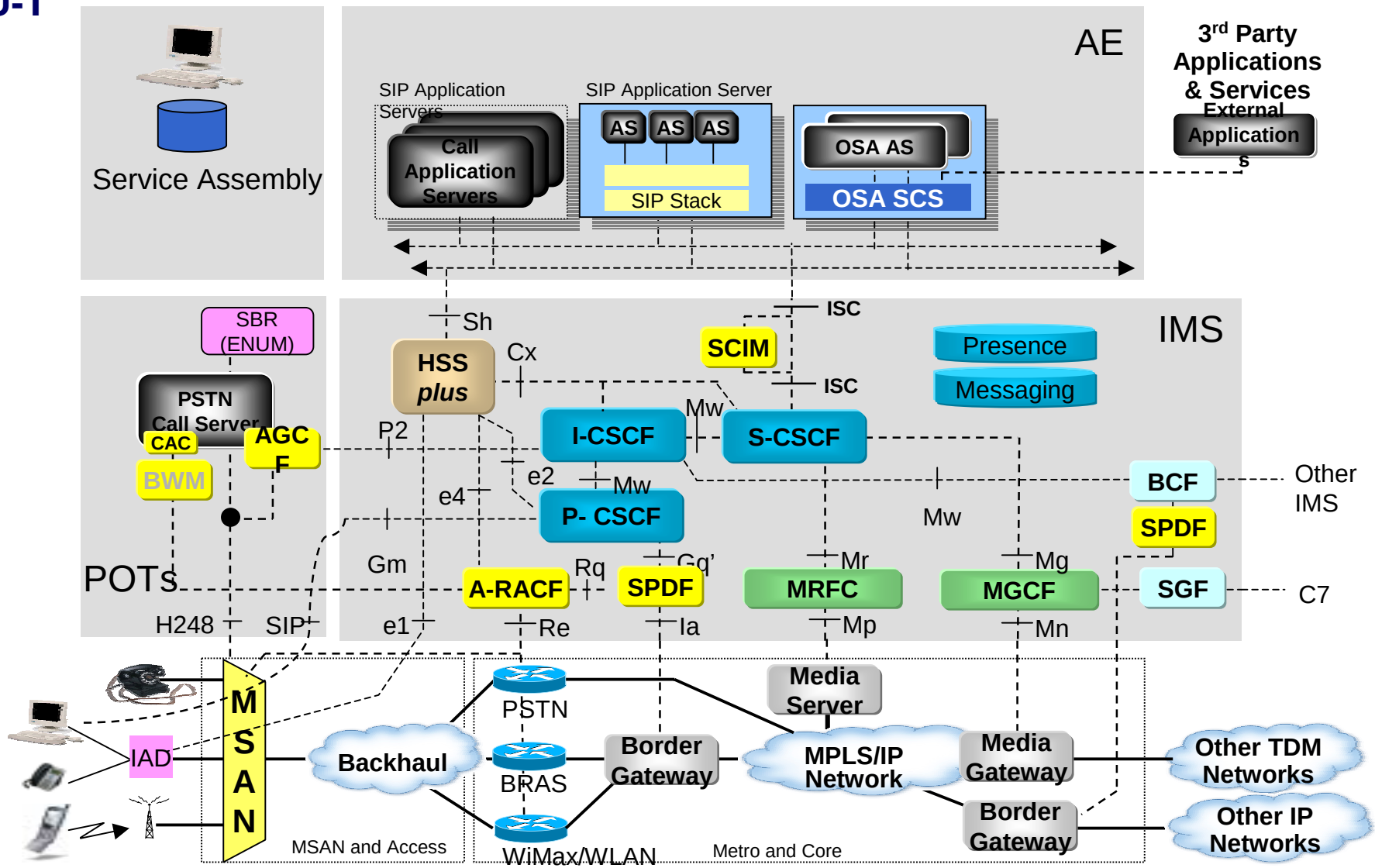
(* apart from IMS-based PSTN Emulation)



BT 21CN Architecture



Thank You