ETSI IPTV Standards

Visible Benefits for your Business

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Presentation Roadmap

Why Standards?

TISPAN - IPTV for NGN

Conclusions

Why Standards?

Interoperable Solutions	Open and Standard interfaces ensure interworking of services and networks on a global scale
Product Innovation	Standards play a crucial role in product development, and support company R&D efforts
New Markets	Expands markets to enable the economies of scale, enables healthy competition
Standard Solution	Reduces costs of integrating multiple non-standard solutions, simplifying deployment of complex solutions
Regulatory Requirements	Satisfies essential regulatory requirements

Example of 'some' IPTV Regulatory issues

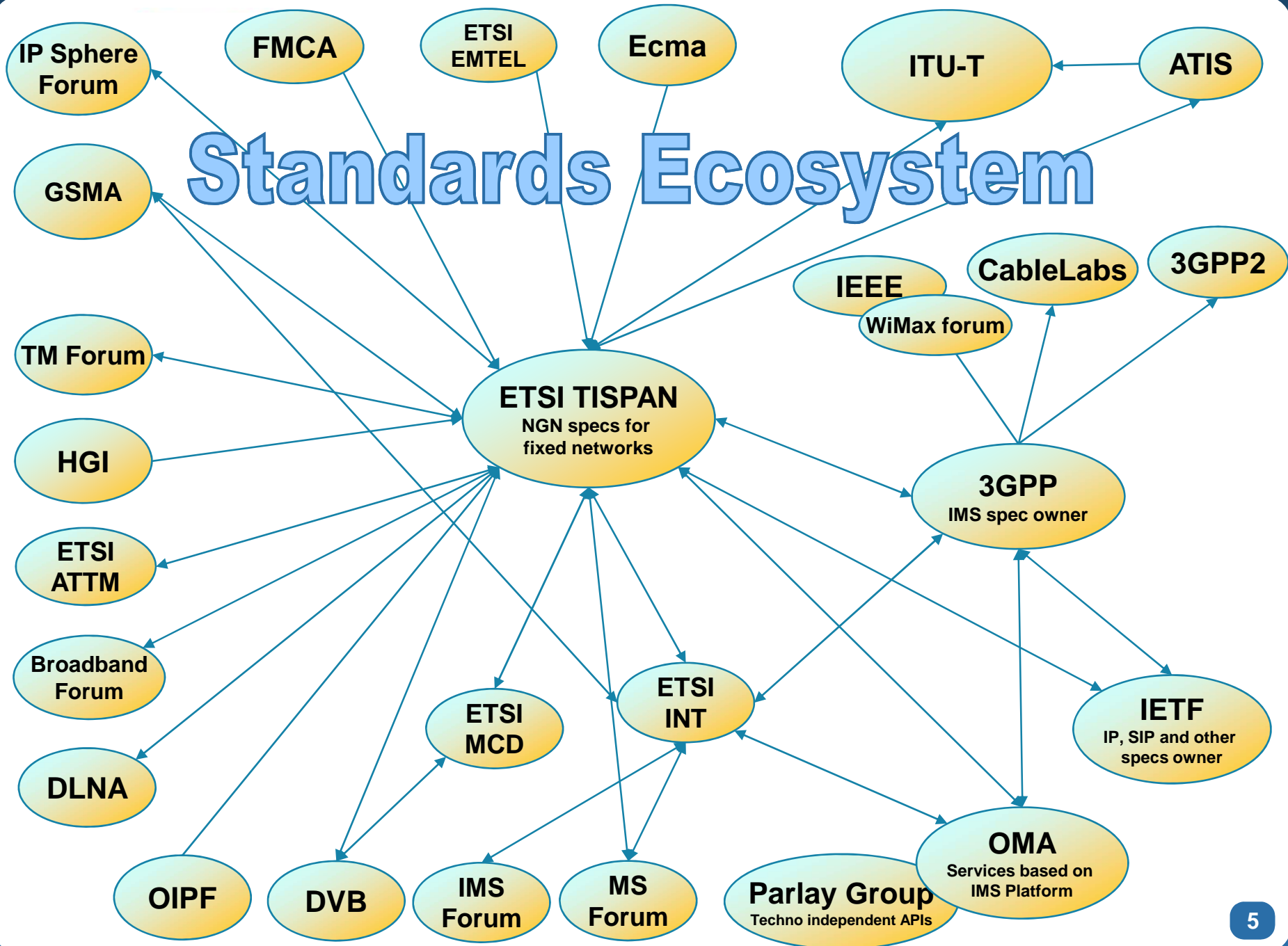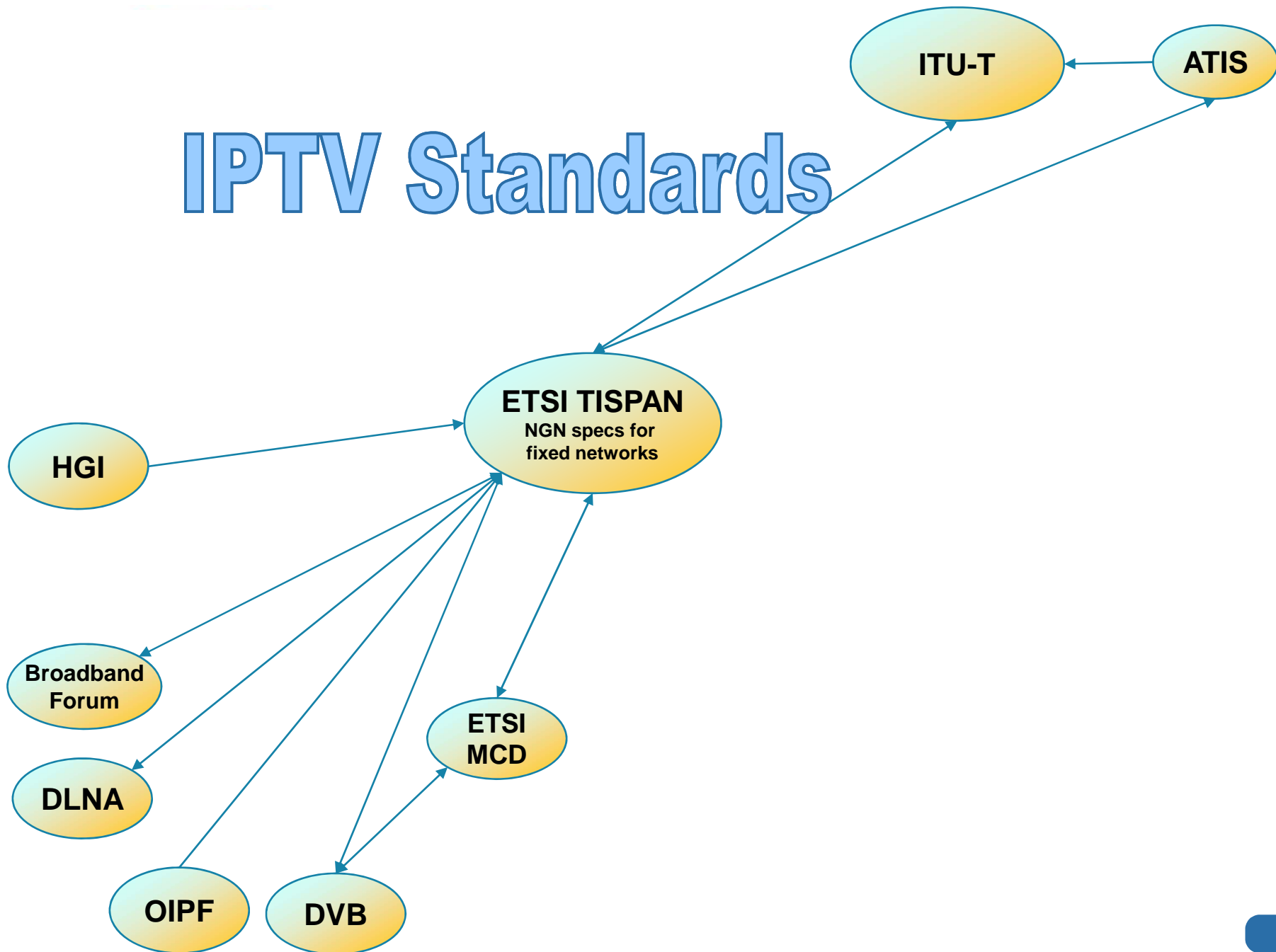| Advertising	Targeted advertising and advertisement-less content delivery to allow new business models
Time Shift	Legal framework to support content storage, redistribution and content access from multiple devices
Privacy	Protect privacy of users and their profiles and content (whilst allowing for lawful intercept)
Piracy	Provide a framework for detection and prosecution

Standards Ecosystem

IP Sphere Forum

FMCA

ETSI EMTEL

Ecma

ITU-T

ATIS

GSMA

IEEE

WiMax forum

CableLabs

3GPP2

TM Forum

HGI

ETSI TISPAN
NGN specs for fixed networks

3GPP
IMS spec owner

ETSI ATTM

Broadband Forum

DLNA

ETSI MCD

ETSI INT

IETF
IP, SIP and other specs owner

OIPF

DVB

IMS Forum

MS Forum

Parlay Group
Techno independent APIs

OMA
Services based on IMS Platform

IPTV Standards

ITU-T

ATIS

ETSI TISPAN
NGN specs for fixed networks

HGI

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ETSI MCD

Why ETSI?

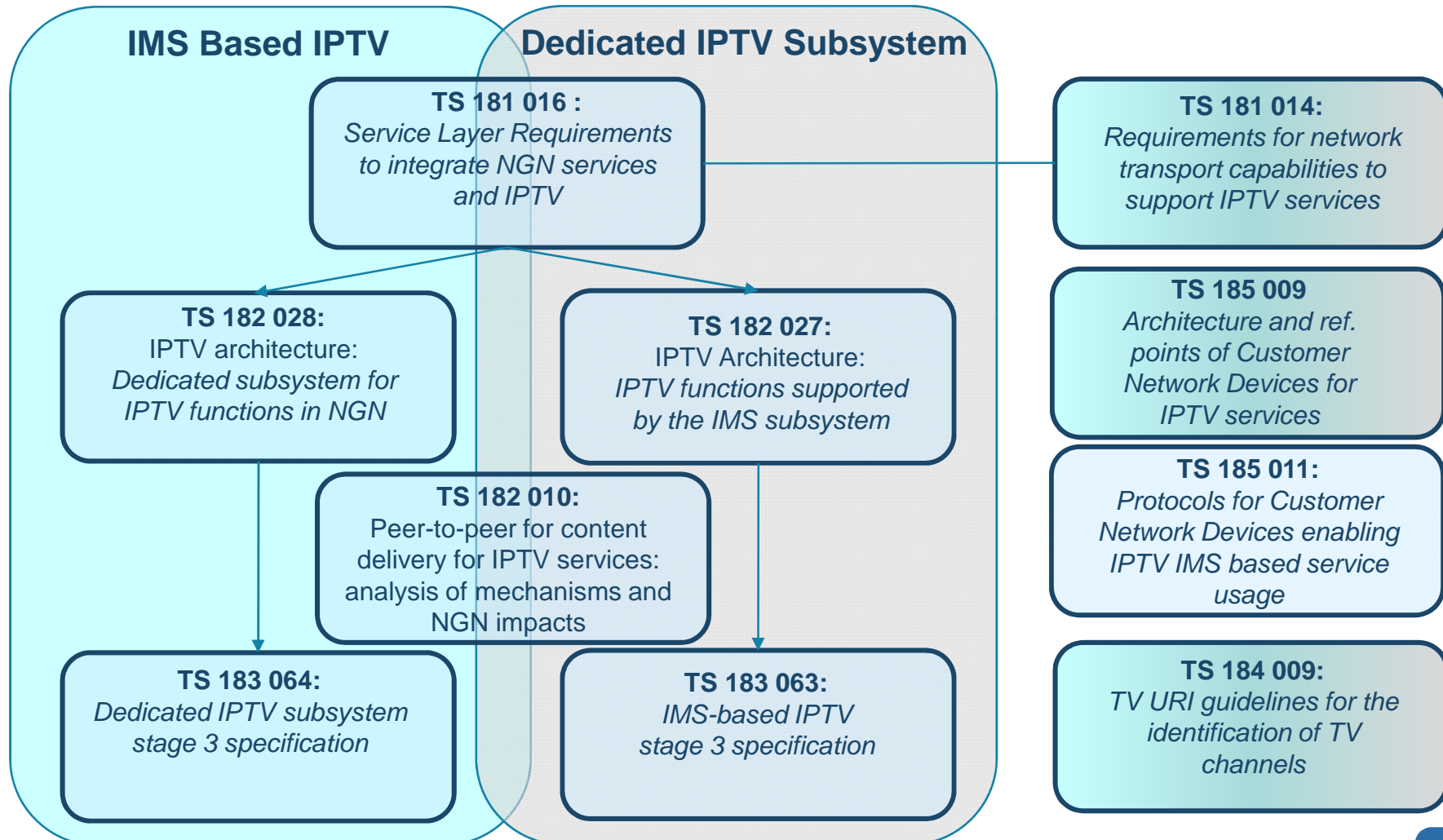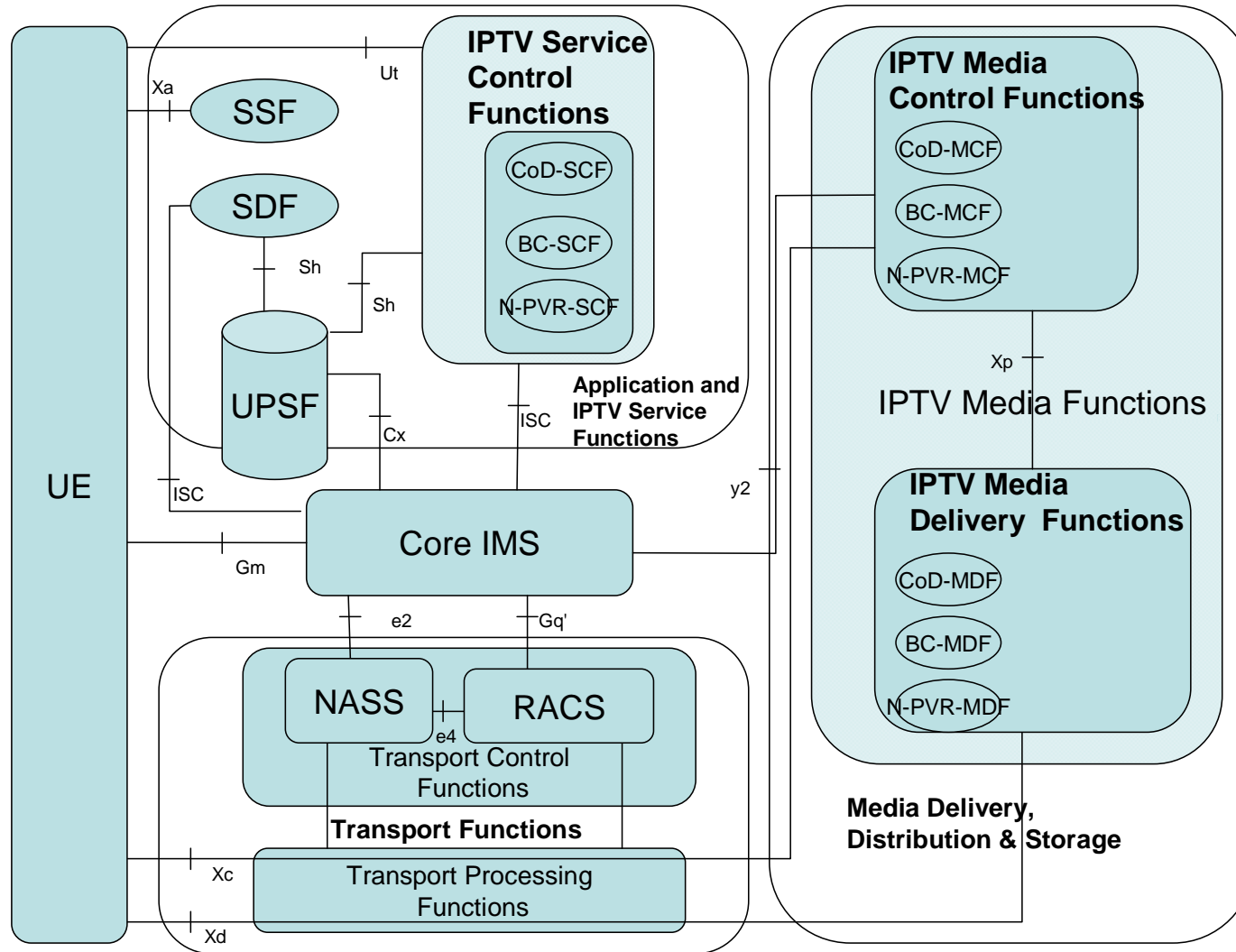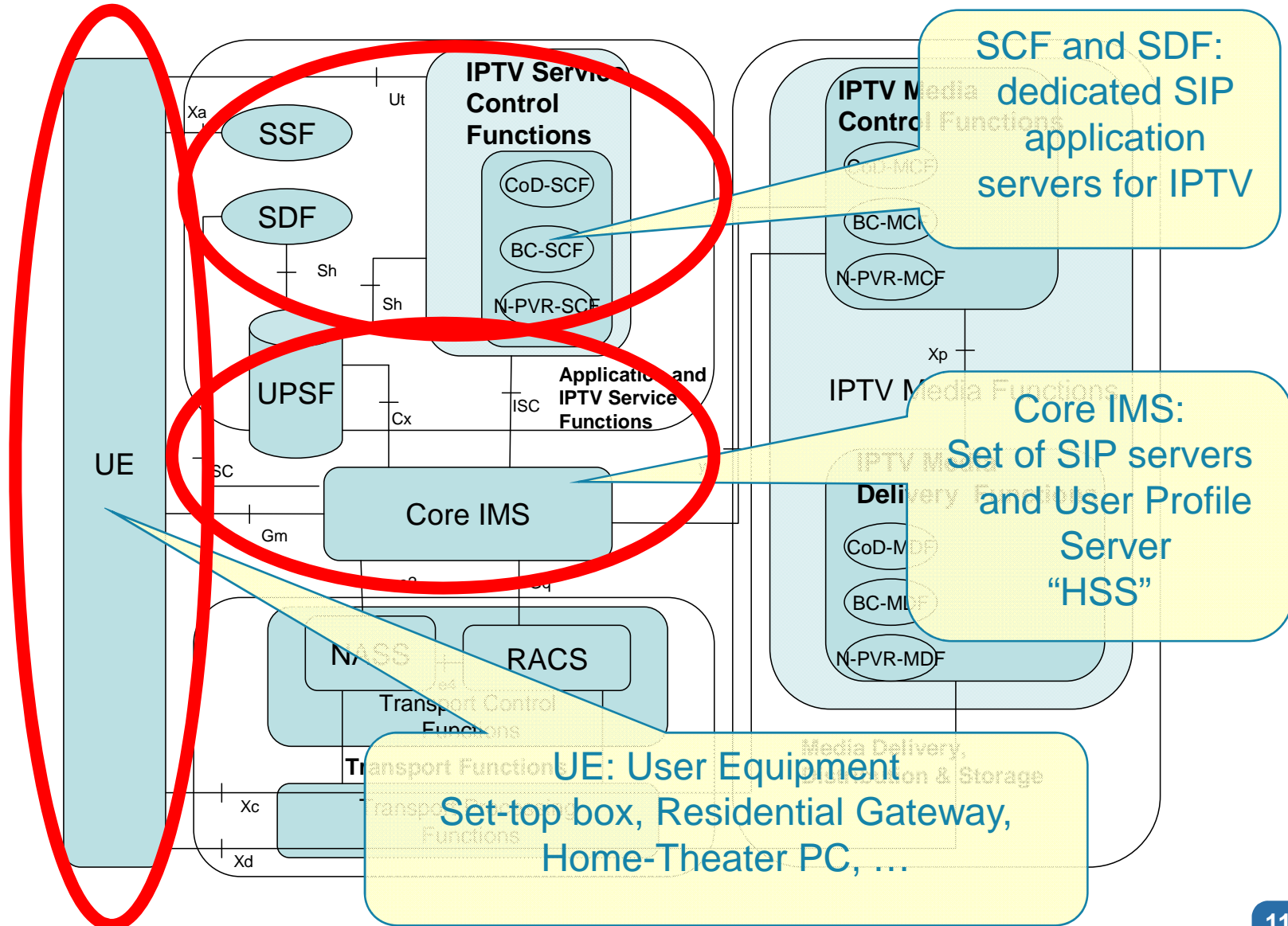| Global Reach	Produces globally applicable standards (GSM, NGN …)
Independent non-for profit	Independent non profit organization, recognized by EC
Standards Services	Standards service package (fora support, plugtests)
FRAND IPR Policy	Industry reference of IPR policy
Fast Track	High quality fast to market standards solutions
Economic Option	Free download of publications, scalable membership

TISPAN IPTV Overview

❑ TISPAN is the ETSI body responsible for Integrating IPTV into the NGN

❑ TISPAN seeks to blend multiple Telco and Web services (voice, data, presence, messaging, community, IPTV) by re-using the same IP based NGN components

❑ TISPAN Release 2 introduces NGN based IPTV to the NGN architecture, and provides the essential IPTV services

❑ TISPAN Release 3 will provide new kinds of services such as user generated content, content personalization, user recommendation, etc.

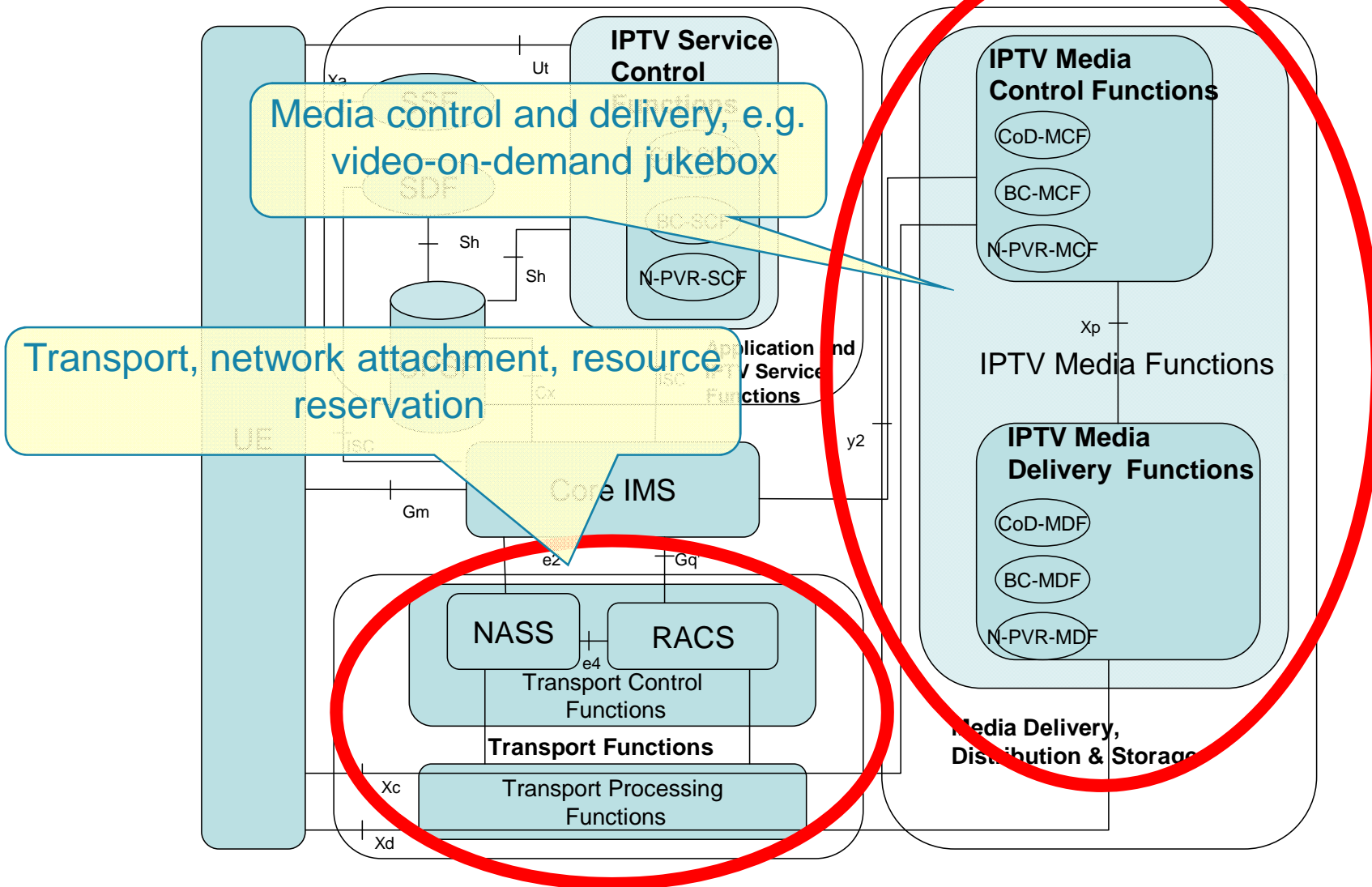❑ IPTV in ETSI is being strongly supported by our Asian members (ZTE, Huawei, China mobile)
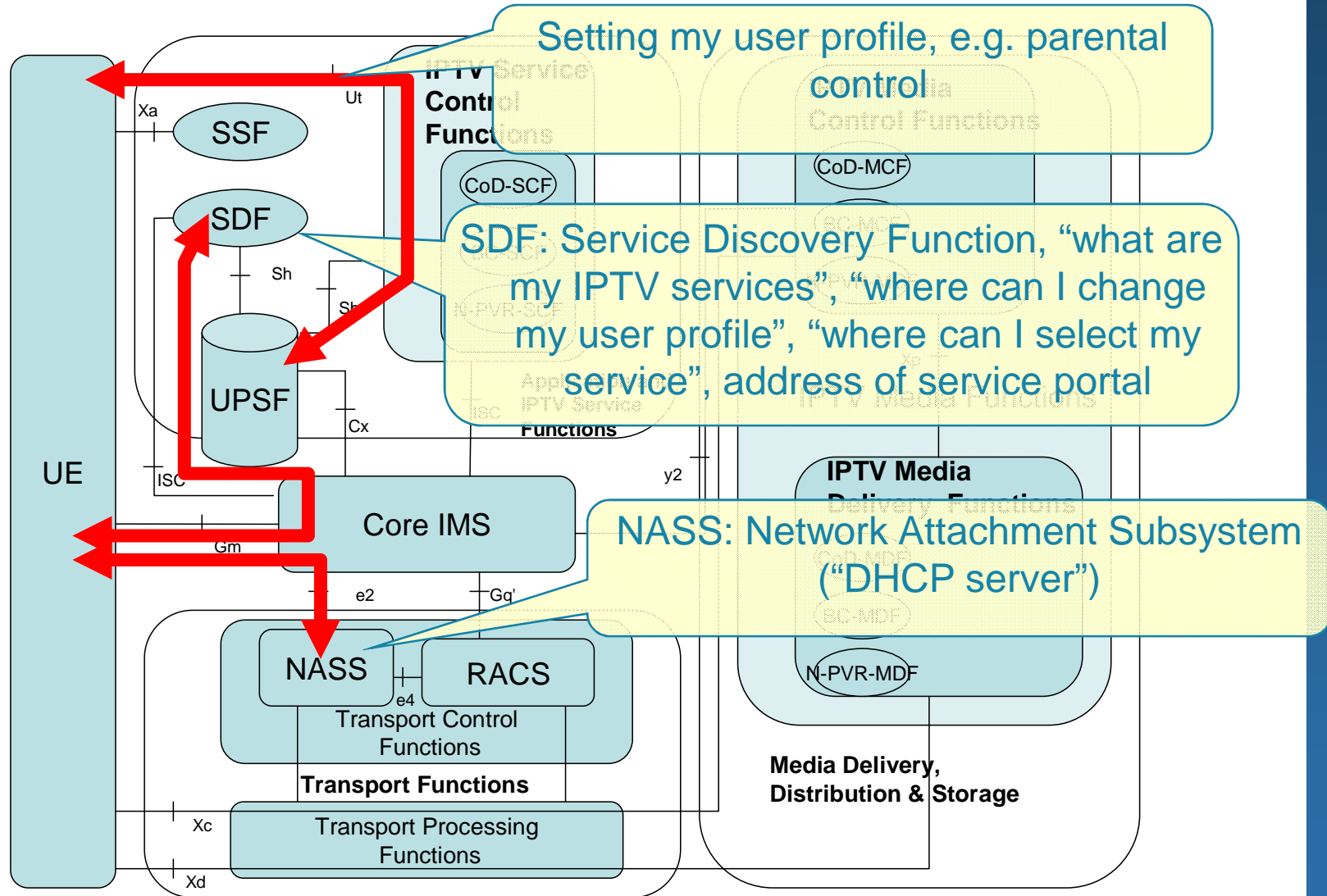
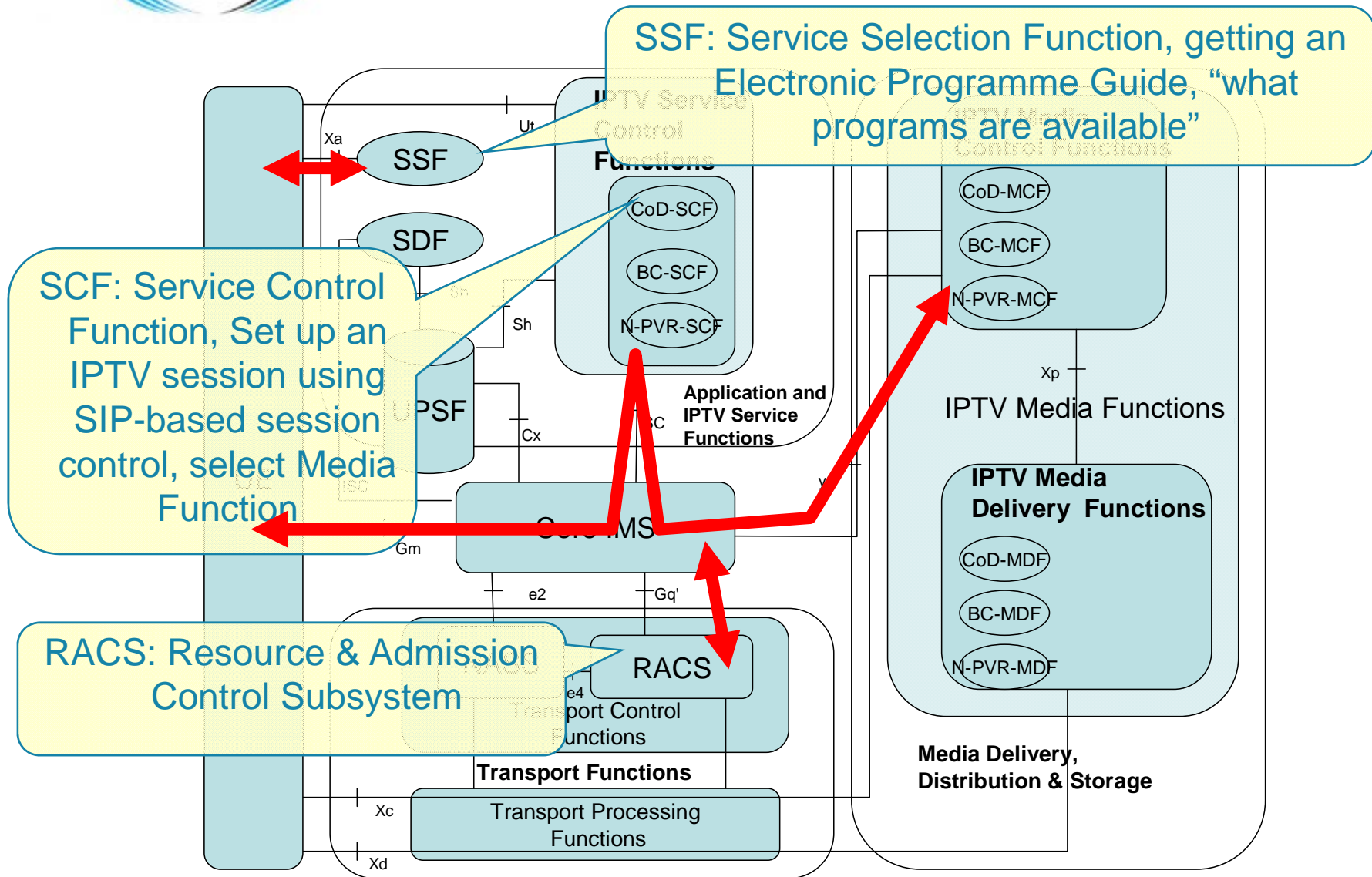# TISPAN IPTV Specifications

IMS Based IPTV

Dedicated IPTV Subsystem

TS 181 016 :
Service Layer Requirements to integrate NGN services and IPTV

TS 181 014:
Requirements for network transport capabilities to support IPTV services

TS 182 028:
IPTV architecture:
Dedicated subsystem for IPTV functions in NGN

TS 182 027:
IPTV Architecture:
IPTV functions supported by the IMS subsystem

TS 185 009
Architecture and ref. points of Customer Network Devices for IPTV services

TS 182 010:
Peer-to-peer for content delivery for IPTV services:
analysis of mechanisms and NGN impacts

TS 185 011:
Protocols for Customer Network Devices enabling IPTV IMS based service usage

TS 183 064:
Dedicated IPTV subsystem stage 3 specification

TS 183 063:
IMS-based IPTV stage 3 specification

TS 184 009:
TV URI guidelines for the identification of TV channels

IMS-based IPTV architecture, (ETSI TS 182 027)

SCF and SDF:
dedicated SIP
application
servers for IPTV

Core IMS:
Set of SIP servers
and User Profile
Server
"HSS"

UE: User Equipment
Set-top box, Residential Gateway,
Home-Theater PC, …

IPTV Service Control Functions
SSF
SDF
CoD-SCF
BC-SCF
N-PVR-SCF

IPTV Media Control Functions
CoD-MCF
BC-MCF
N-PVR-MCF

Application and IPTV Service Functions
UPSF
Core IMS

IPTV Media Functions
IPTV Media Delivery Functions
CoD-MDF
BC-MDF
N-PVR-MDF

UE

NASS
RACS
Transport Control Functions

Transport Functions

Media Delivery, Distribution & Storage

Xa
Ut
Sh
Sh
Cx
ISC
Gm
Xp
Xc
Xd

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Media control and delivery, e.g. video-on-demand jukebox

Transport, network attachment, resource reservation

IPTV Service Control

IPTV Media Control Functions
- CoD-MCF
- BC-MCF
- N-PVR-MCF

Xp

IPTV Media Functions

IPTV Media Delivery Functions
- CoD-MDF
- BC-MDF
- N-PVR-MDF

N-PVR-SCF

Sh

Sh

Gm

Core IMS

e2

Gq

NASS

RACS

e4

Transport Control Functions

Transport Functions

Xc

Transport Processing Functions

Xd

Media Delivery, Distribution & Storage

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Setting my user profile, e.g. parental control

SDF: Service Discovery Function, "what are my IPTV services", "where can I change my user profile", "where can I select my service", address of service portal

NASS: Network Attachment Subsystem ("DHCP server")

UE

SSF

SDF

UPSF

Core IMS

NASS

RACS

Transport Control Functions

Transport Functions

Transport Processing Functions

IPTV Service Control Functions

CoD-SCF

IPTV Service Functions

IPTV Media Control Functions

CoD-MCF

IPTV Media Functions

IPTV Media Delivery Functions

N-PVR-MDF

Media Delivery, Distribution & Storage

Xa
Ut
Sh
Sh
Cx
ISC
Gm
e2
Gq'
e4
Xc
Xd
y2

World Class Standards

Why use IMS for IPTV

- ❑ **Allows integration of IPTV flows into bundled service packages to expand market and increase customer interest**

- ❑ **Reuse well standardized IMS components to enforce IPTV control, e.g. registration & authentication, multi-user identity, session control, real-time billing, QoS, NASS/RACS.**

- ❑ **Enable enhanced and converged services (Caller ID on screen, personalized TV, chat on view, friends TV, …)**

- ❑ **Enables convergence, access agnostic of different type of access networks, service continuity across devices…**

New Challenges and Future Opportunities

❑ **Peer to Peer (ETSI Work Item 02075)**

❑ **Targeted Advertising Insertion**

❑ **Interactive Advertising (push/pull)**

❑ **Regionalised/localised Ad-insertion**

❑ **IMS enabled IPTV Roaming / Mobility**

❑ **User Generated Content (UGC)**

❑ **Personalize Channel (PCh) / User oriented content**

❑ **… much more**

Some thoughts to take away

❑ **Participation in Standards is essential**

➢ **Standards investment, saves money and builds market**

❑ **ETSI has all major areas of IPTV standardization covered**

➢ **NGN, IMS re-use, home network and IPTV in TISPAN**

➢ **IMS network testing in INT and IPTV testing**

❑ **ETSI now looking at the bigger picture**

➢ **New Media Content Distribution (TC MCD) group**

➢ **Ensuring interoperability of content distribution in a converged environment supporting IPTV, Mobile TV and broadcast TV**

Thank you
for your attention

Any Questions?

World Class Standards

www.etsi.org

ETSI are at booth 11 in the Exhibition

Additional Slides

Why Standards?

- ❑ **Regulation**
  - ➢ **Regulators insist that operators adhere to recognized standards**
- ❑ **Assist product development**
  - ➢ **Standards play a crucial role in R&D, and product development**
- ❑ **Interoperability and global reach**
  - ➢ **Open and Standard interfaces ensure interworking on a global scale**
- ❑ **Cost reduction**
  - ➢ **Grow the market and harvest the economies of scale**
  - ➢ **Reduce the cost of integrating multiple non-standard solutions**
- ❑ **Prevent vendor lock-in**
  - ➢ **Allow greater choice of vendors, ensuring competitive pricing and access to data and high quality,**
  - ➢ **Possible to adopt an optimal "mix and match" strategy**
- ❑ **Arena for expert networking**
  - ➢ **Excellent platform to meet like minded people & share ideas**
  - ➢ **Introduce company developed solutions in the standards**

SG-DMCD

❑ **All players in the ecosystem(s) and a strong representation of content provision industry (broadcasters, studios, TV channels)**

❑ **Participation from other organizations**

  ▪ **DVB, OMA, BMCO, Open IPTV forum, etc**

❑ **Output documents at** http://portal.etsi.org/Portal_Common/home.asp

  ▪ **Mapping of standards, Use cases, drivers for convergence, MW for interactivity, pervasiveness of Internet models…**

❑ **Focus**

  ▪ **IOP of content distribution across platforms**

  ▪ **Service layers (above MDF)**

  ▪ **Help coordinate → partnership with other bodies**

  ▪ **Balance between players**

TC-MCD

❑ **Addresses the domain of interoperability of content distribution and related services in a converged environment supporting IPTV, Mobile TV and broadcast TV (ToRs at B69(08)42)**

❑ **Coordination will be a strong focus from scratch**

  ▪ **Inside and beyond ETSI/3GPP**

  ▪ **EU and beyond**

❑ **Planned first set of deliverables**

  ▪ **Use cases (content portability, Interactivity portability, service interoperability, content Distribution)**

  ▪ **Implementations and "best practice" for service interoperability**

  ▪ **Framework and roadmap for service interoperability missing bricks and how/with whom to specify them.**

  ▪ **H4TV, a standard for the authoring and interoperable delivery over broadcast and on line media of interactive services**

ETSI is …

❑ **A standards organization producing globally applicable standards for Information & Communications Technologies:**

➢ **Telecommunications**
➢ **Radiocommunications**
➢ **Broadcasting**
➢ **Other related areas**

❑ **Independent & strictly non-profit**

❑ **Based in Sophia Antipolis, south of France**

❑ **More than 700 members**

❑ **Members are: manufacturers, network operators, service providers, administrations, research bodies and users**

❑ **80% members have headquarters outside of Europe**

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ETSI is …

- **<u>Officially recognised</u> European Standards Organization**
- **18,000 publications available for free**
- **ETSI standards are adopted worldwide, e.g. GSM, UMTS, DECT, DVB, TETRA, Lawful Intercept ... and many more**

- **ETSI standards can no longer be considered as simply "European"**

- **All ETSI standards available for free from our website http://www.etsi.org/**

Three primary roles

ESO: European Standards Organization

GSP: Global Standards Producer

SES: Standards Enabling Services

ESO: European Standards Organization

Only ETSI can produce <u>Harmonized Standards</u> in the area of telecommunications & ICT used to access European market

GSP: Global Standards Producer

☐ **ETSI produces standards intended to meet international and global needs (e.g. GSM, DECT, TETRA, DVB & IMT2000)**

☐ **ETSI works in close collaboration with other worldwide standardization bodies via specific agreements, Global Standards Collaboration, and Partnership Projects**

Some Of Our Latest Work Areas

- ❑ **Next Generation Networks (NGN)**
- ❑ **Common IMS Network Testing**
- ❑ **Reconfigurable Radio Systems**
- ❑ **Ultra wideband (UWB)**
- ❑ **Grid Communication**
- ❑ **RFID - Radio Frequency Identification**
- ❑ **Emergency alerting, e-call**
- ❑ **GSM on aircraft**
- ❑ **Communications for Public Safety**
- ❑ **Intelligent Transport Systems (ITS)**
- ❑ **eHealth**

SES: Standards Enabling Services

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TECHNOLOGY ENABLING SERVICES

PRODUCT ENABLING SERVICES

FORAPOLIS
The home of your Forum

INTEROPOLIS

PRODUCT

IDEA

Business Process mngmt	Admin-istration	IT	Meeting	Legal & Financial		Test Methodo. & Develop.	Interop-erability initiatives	Techn. validation	Training	Test tools Engineer--ing

GROWING IDEAS... ENABLING PRODUCTS

Our Goals In Our Standardisation Activities

❑ **The ETSI Vision:**
"ETSI will be a world renowned, 'must consult' standards organization, a status it will attain through high quality, innovation and team spirit"

❑ **The ETSI Mission:**
"To exploit opportunities in the development and deployment of globally applicable standards for telecommunications and other electronic communications networks and related services, and to participate in appropriate global and regional initiatives"

TISPAN is …
the home of NGN standards

TISPAN is …
the home of NGN standards

❑ **TISPAN is the ETSI body that specifies:-**

> ➢ **Standards for Fixed networks and internet convergence**

> ➢ **Developed the Convergence work Item (FMC)**

> ➢ **Specifies the Next Generation of Networks**

❑ **Provides the definition of the NGN principally from a European view but NOTE:**

> ➢ **Typically 15% of participating organizations have their HQ's from outside of Europe**

> ➢ **TISPAN NGN specifications are referenced (re-used) by the ITU-T and can be considered as THE global NGN solution**

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… but what is NGN?

❑ **Next Generation of Networks**

➢ **is a broad term to describe some key architectural evolutions in telecommunication core and access networks that will be deployed over the next 5-10 years.**

➢ **The general idea behind NGN is that one network transports all information and services (voice, data, and all sorts of media such as video) by encapsulating these into packets, like it is on the Internet.**

➢ **NGNs are commonly built around the Internet Protocol, and therefore the term "all-IP" is also sometimes used to describe the transformation towards NGN.**

From Wikipedia, the free encyclopedia

❑ **An Example of NGN**

➢ **Excellent 'buzz word' but what is the point?**

➢ **http://www.youtube.com/watch?v=aYIBNGyaiPU**

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… but what is NGN?

❑ **In summary - Next Generation of Networks provide:**

  ➢ **Access to any service**

  ➢ **Anywhere**

  ➢ **Over any device**

  ➢ **All of this enabled by IP, and more specifically IMS**

TISPAN
What have we done?

❑ **NGN Release 1: (December 2005)**

➢ **Adopts the 3GPP IMS standard for SIP-based applications, and adds further functional blocks and subsystems to enable fixed access to IMS and to handle non-SIP applications**

❑ **NGN Release 2: (April 2008)**

➢ **Introduces new IMS enabled services and adds key elements to the NGN such as :-**

- **Supplementary services**
- **IPTV (both IMS and non-IMS based)**
- **Home Networking**
- **Corporate networks and the NGN**

TISPAN
## What are we doing?

❑ **NGN Release 3: (present active release)**
Improvement of several aspects introduced in the previous Releases, such as:-

➢ **IPTV service evolution (including blended services and P2P)**

➢ **IP Network to Network interconnection**

➢ **Corporate Network interconnection**

➢ **Home Network interconnection**

➢ **VoIP Consolidation (including QoS, security)**

❑ **Also several new areas including:-**

➢ **Migration scenarios from CS to PS networks**

➢ **Ultra Broadband (fixed and wireless) access**

TISPAN NGN Architecture
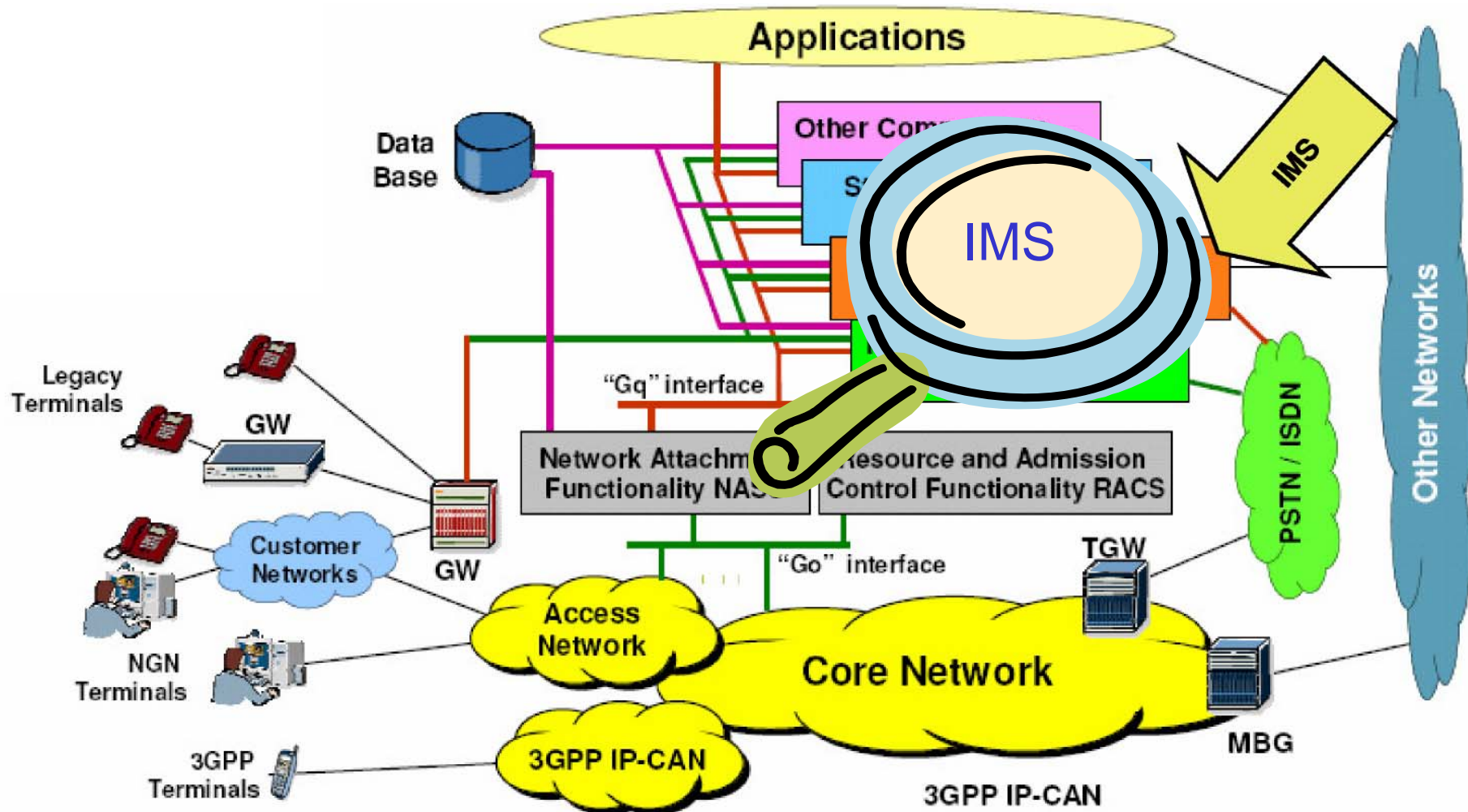
IMS in a Nutshell

IMS: making convergence a reality

What is IMS?

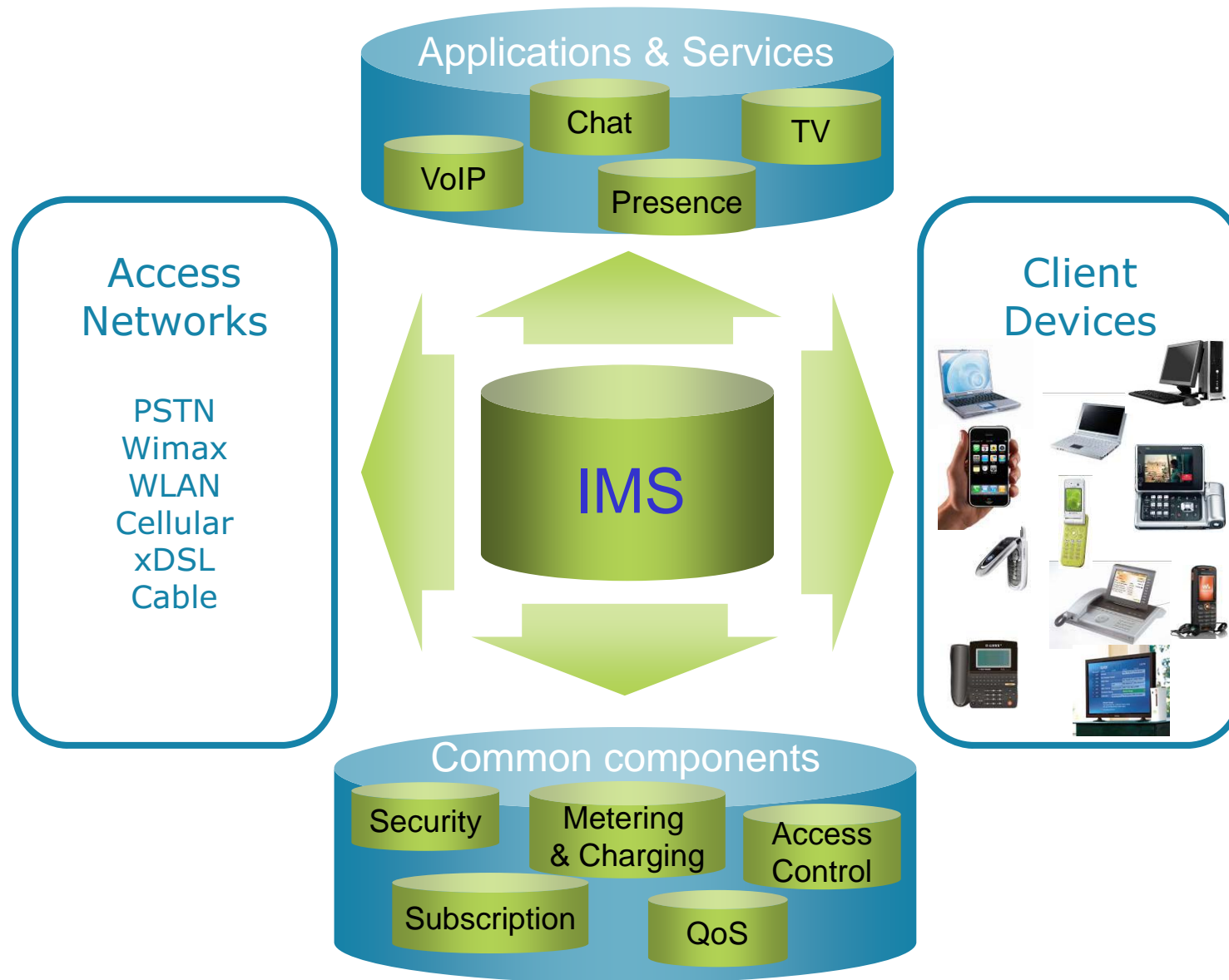|	
Standards based	IMS is a clearly defined sub-system, based on open interfaces and functional components
Internet based	IMS supports IP based applications over IETF defined SIP (Session Initiation Protocol) over IPv6 (as well as using AAA and DIAMETER also defined by the IETF)
Access agnostic	IMS provides a unified architecture that can be accessed by a range of different wireless and fixed technologies
Horizontal control	Control layer independent from the access network and service layers

Applications & Services

- VoIP
- Chat
- Presence
- TV

Access
Networks

PSTN
Wimax
WLAN
Cellular
xDSL
Cable

IMS

Client
Devices

Common components

- Security
- Metering & Charging
- Access Control
- Subscription
- QoS

What does IMS provide?

Services Enabler & Control

- ❑ Adds (SIP) call session control to the packet network
- ❑ Enables real-time services - such as voice, video - over a packet-switched domain (p2p, VoIP, IM, presence)
- ❑ Enables signalling to be separated from transport data

Mixed Multimedia

- ❑ Ability to pick and mix various multimedia flows in single or multiple sessions

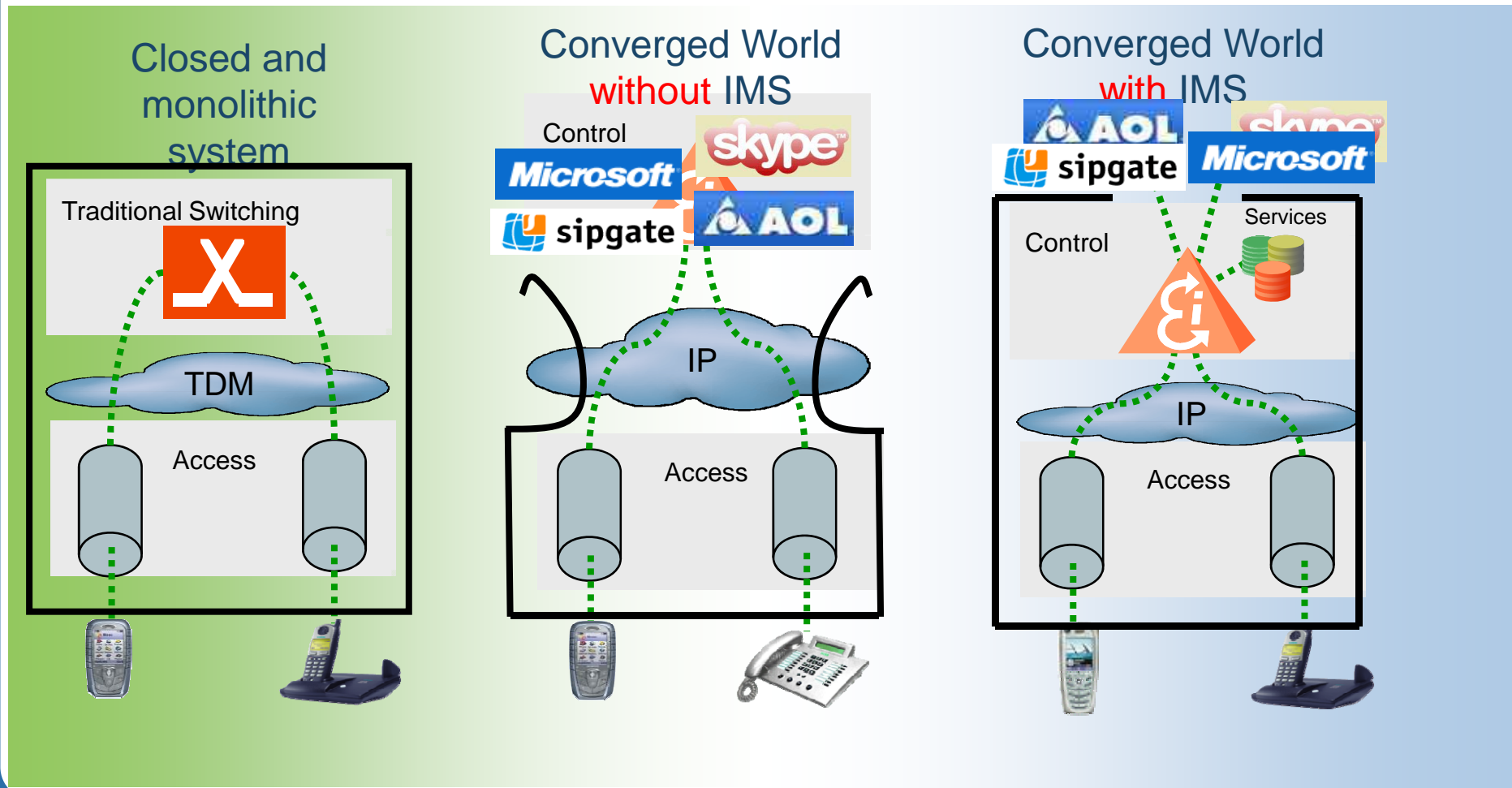# What does IMS provide?

Connectivity Access Network Independence

❑ Provides access to IP based services independent of the connectivity network: mobile (3GPP's UMTS, 3GPP2's CDMA2000) and fixed networks (TISPAN)
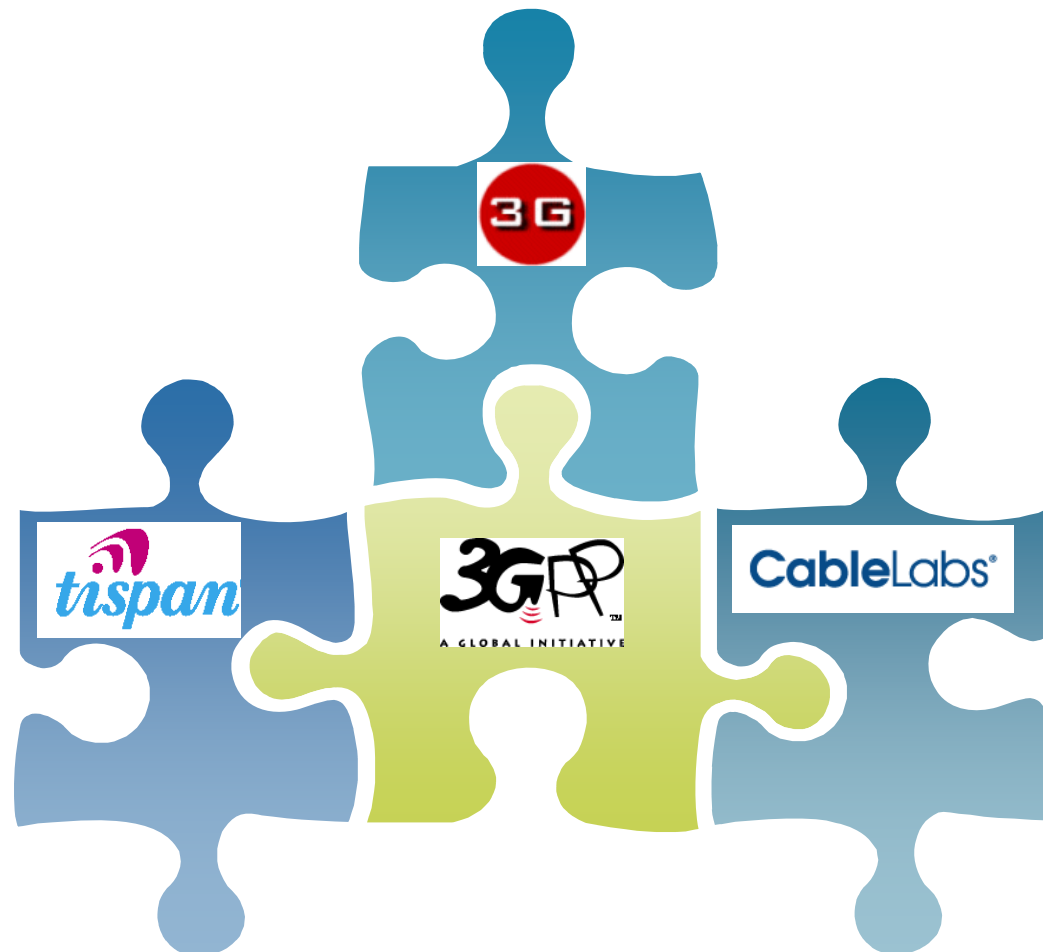
Simple Internet plus

❑ Enhanced security, service based QoS, single sign-on and flexible charging, seamless mobility
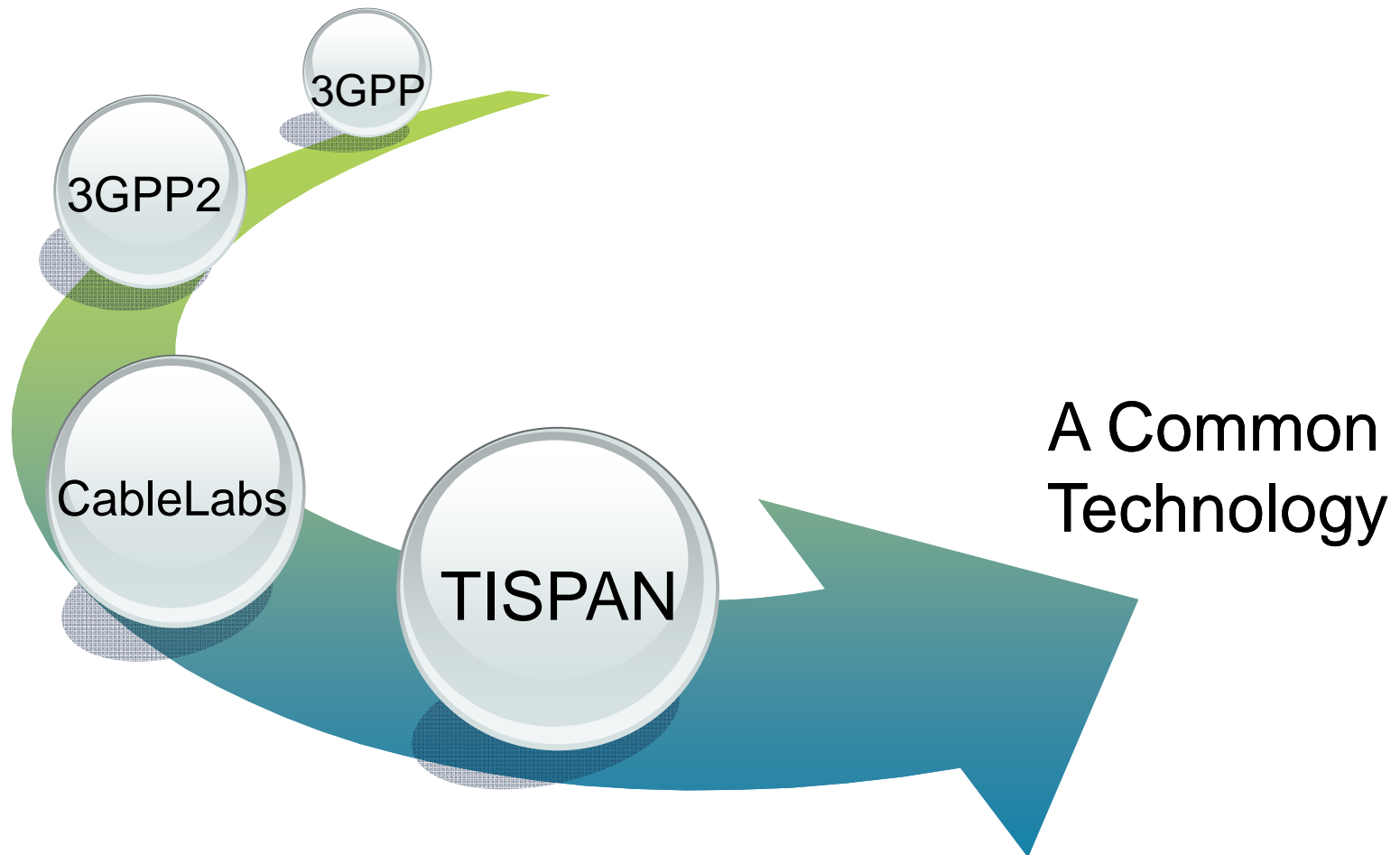
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Evolution of Service Handling

❑ Past, Present, Future:

Closed and monolithic system

Traditional Switching

TDM

Access

Converged World without IMS

Control

Microsoft · skype
sipgate · AOL

IP

Access

Converged World with IMS

AOL · skype
sipgate · Microsoft

Control

Services

IP

Access

Common IMS

… but potentially differentiating

TISPAN IMS

3GPP IMS

3GPP2 IMS

Scope of 3GPP IMS requirements