The market for IMS and the consequences for ENUM

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Frankfurt, April 2008

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A provocative view on IMS and ENUM

IMS and ENUM will probably not achieve the success that they are technically capable of.

IMS and ENUM	George D. Salisbury
■ IMS is primarily a network operator view of service delivery. ■ The IMS concept was laid down 10 years ago when technology and business models were different to those of today. ■ Network operators need Number Portability support far more than they need Public ENUM.	Detecon International GmbH Head of Technology Strategy Group ■ 19 years in product development for international vendors. ■ 5 years in business and strategy development for an international voice/IP/data service provider. ■ 4 years in telecommunications consultancy.

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Driver for NGN

The overwhelming reason to change from legacy to NGN technology is operational cost reduction, it is not driven by new services!

The only reason for change is:

- to put the business in a **better** position than it would be in if the change were not implemented

There are two definitions of better:

- New revenue streams.
- Lower cost base for existing revenue streams.

Drivers

- **1997**: 1 Giga Floating Operations per second (GFLOPs) cost about 30,000 US $.
- **Today**: an off-the-shelf PC provides about 10 GFLOPs for about 300 US $.
- Price decreases for fiber, IP and Ethernet are also impressive.

Lower costs

Developments in telecommunications nodes

- PSTN: ~ 80 exchanges per million inhabitants.
- ISDN: ~ 20 exchanges per million inhabitants.
- MPLS core: ~ 2 sites per million inhabitants (with MPLS LE and LS routers).
- NGN: ~ 1 voice "site" per 4 million inhabitants. (with call control capabilities for PSTN services).

Fewer boxes

New entry to the market is cheaper!
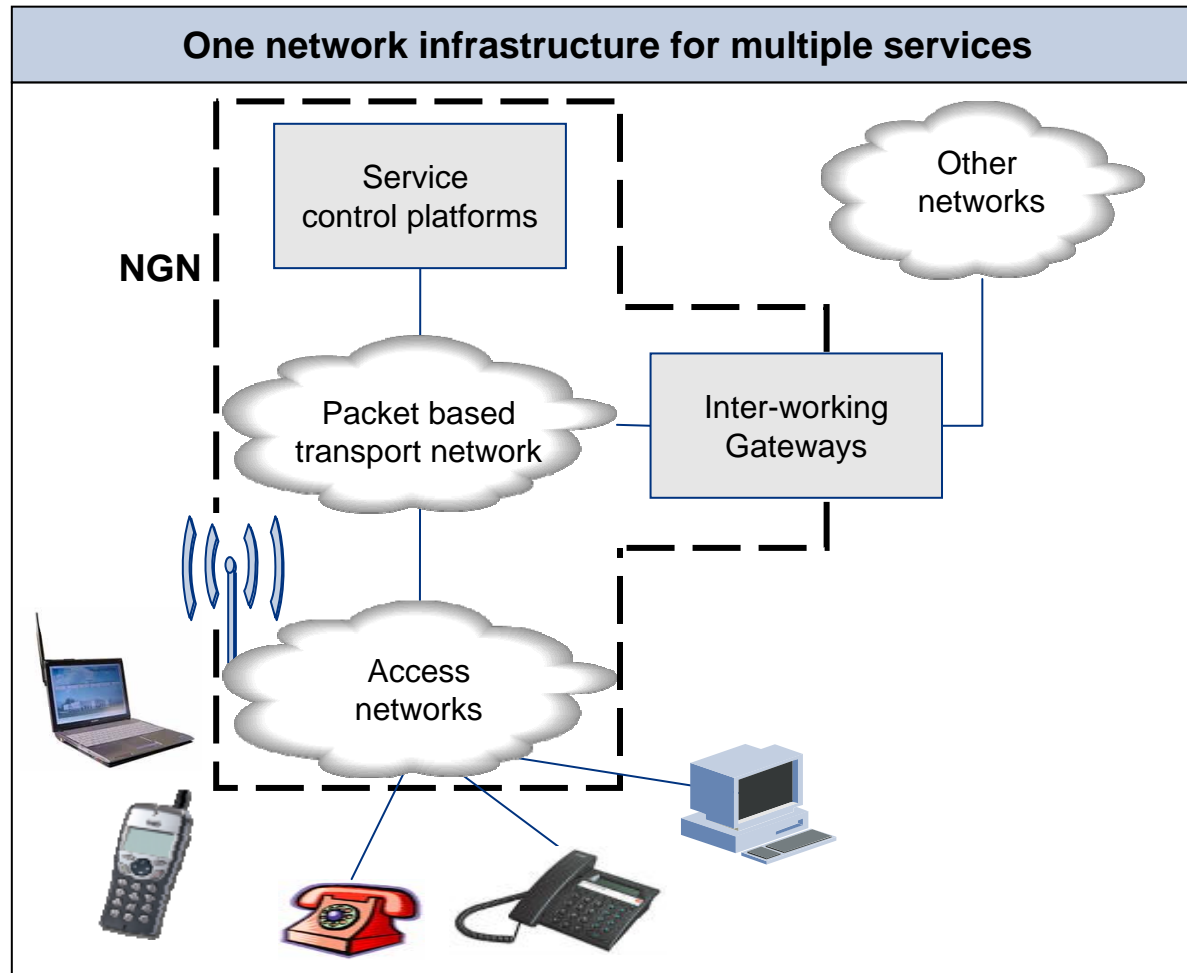
100 %

OPEX

CAPEX

OPEX

CAPEX

?

Legacy Platform(s)

IP-QoS Platform

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NGN, what is it

**Network operators distinguish very clearly between an NGN and the Internet.
The Internet is *best-effort* constrained, an NGN is not.**

One network infrastructure for multiple services	Internet ≠ NGN

NGN, a definition:

- *The use of a common Transport and Control infrastructure to deliver digital information, between a source and one or more destinations, to one of a set of pre-defined quality of services.*
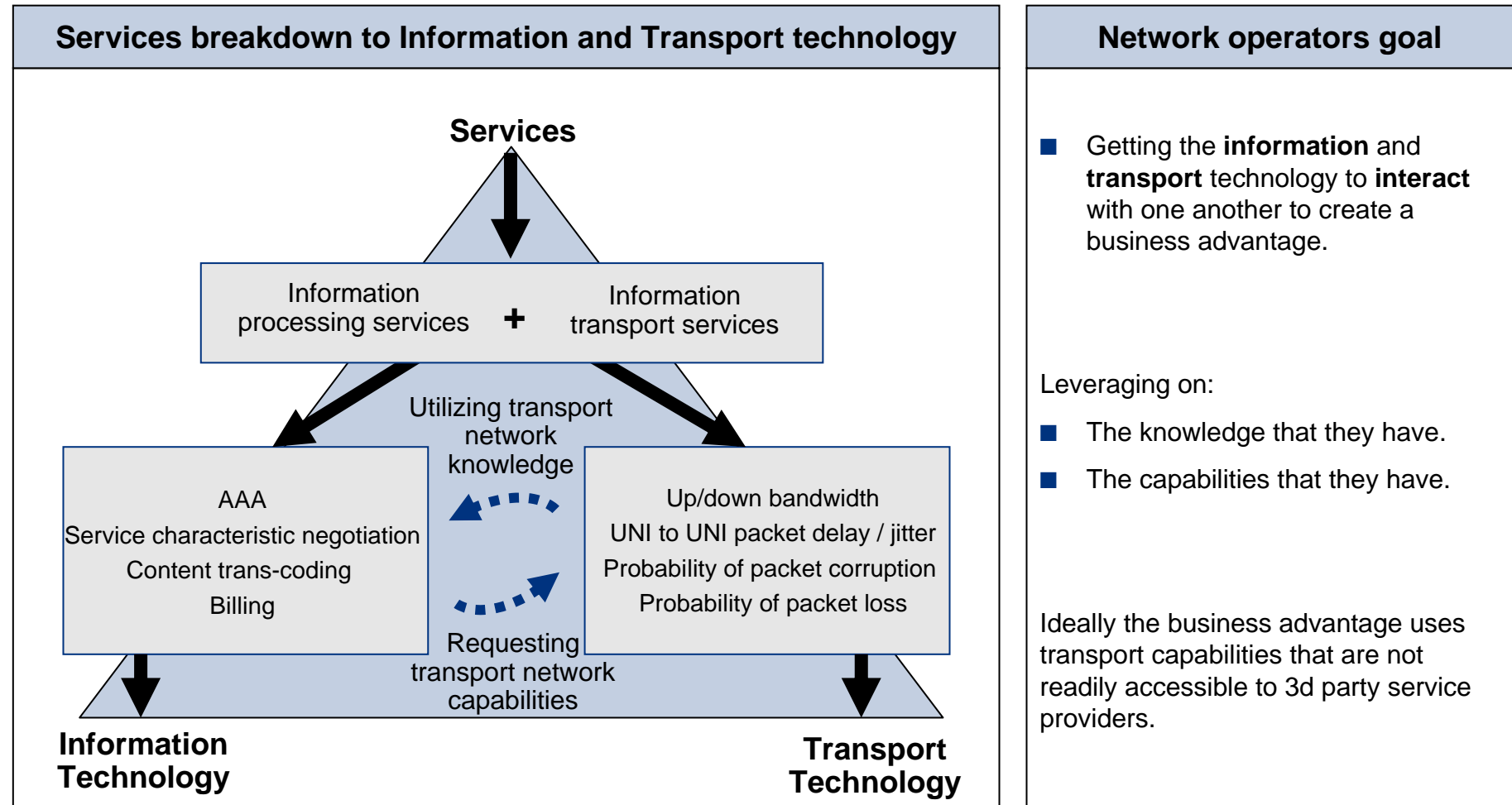
Characteristics:

- Multi-service capability: voice, IP, TV, data.

- Separation of service from transport.

- Packet based transport.

- Potential for operational expenditure reduction.

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The network operators hopes

Network operators want to use IMS to capitalize on possession of a network.

Services breakdown to Information and Transport technology	Network operators goal

Services

Information processing services **+** Information transport services

Utilizing transport network knowledge

AAA
Service characteristic negotiation
Content trans-coding
Billing

Up/down bandwidth
UNI to UNI packet delay / jitter
Probability of packet corruption
Probability of packet loss

Requesting transport network capabilities

Information Technology

Transport Technology

- Getting the **information** and **transport** technology to **interact** with one another to create a business advantage.

Leveraging on:

- The knowledge that they have.
- The capabilities that they have.

Ideally the business advantage uses transport capabilities that are not readily accessible to 3d party service providers.

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IMS architecture

IMS can be viewed as a highly standardized architecture for NGN
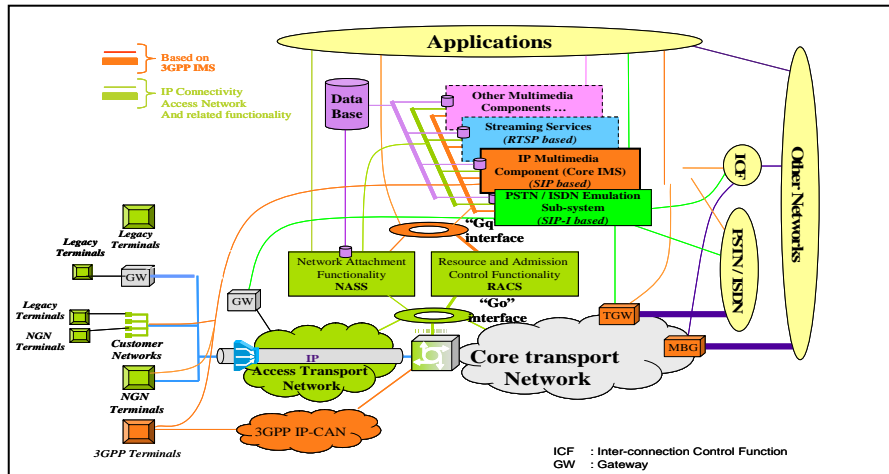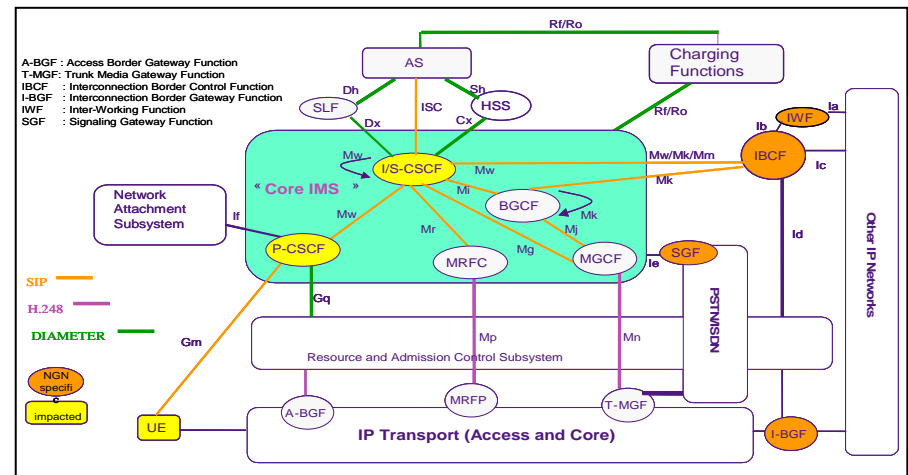

IMS: Pros

- Reduced cost of system integration.

- Opportunity for carrier to swap-in swap-out vendors.

IMS: Cons

- A standard does **not imply** existence of an implementation.

- Standardization roadmap might not reflect a given users time-to-market.

- Reduced opportunity for feature/service discrimination.

Graphics source: ETSI

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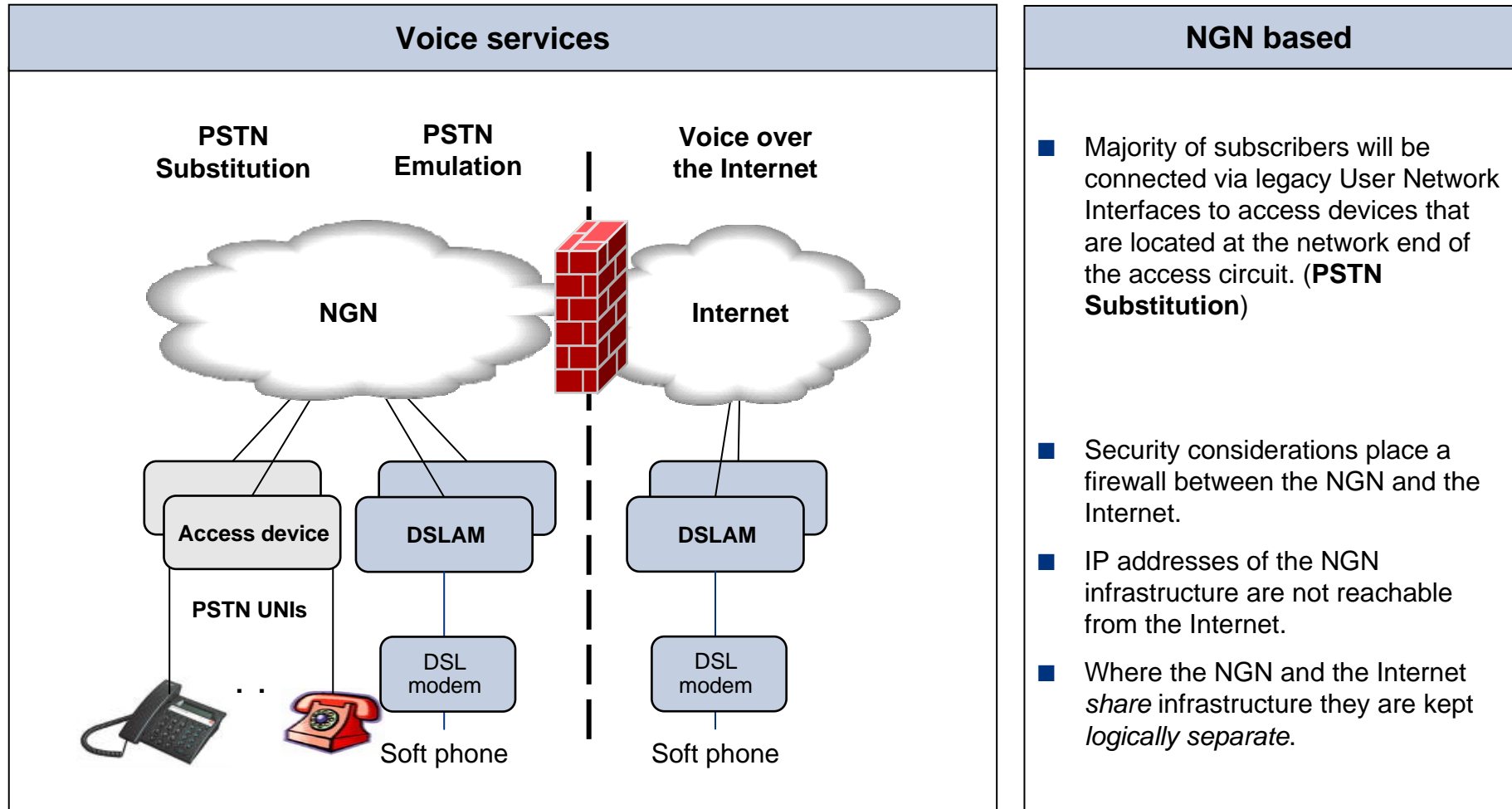
Architectural purity versus pragmatic engineering

Highly standardized architecture does not necessarily mean *open*.

Goal versus reality	Cynical (?) observation
To minimize the cost of achieving inter-operability across an interface. The more **exposed** interfaces that a system has, the more likely it is that some-one will push for standardization of that interface. **But:** Some vendors are grouping IMS functions on to a common platform thus reducing interface exposure and: ■ better use available processing power. ■ short-cuts communication between functions (i.e. avoid the full SIP stack). e.g. I/P/S CSCF on a common processing platform (i.e. no external messages needed between I/P/S).	Expect to see more IMS functionality being grouped on "monolithic" processing platforms to: ■ Take advantage of the continuing advancements in processing power **and** network interface speeds. ■ Avoid network based communication between components. ■ Inhibit vendor competition.

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Different flavors of voice service

There are three types of voice telecommunication services.

| Voice services			NGN based
PSTN Substitution	**PSTN Emulation**	**Voice over the Internet**	■ Majority of subscribers will be connected via legacy User Network Interfaces to access devices that are located at the network end of the access circuit. (**PSTN Substitution**) ■ Security considerations place a firewall between the NGN and the Internet. ■ IP addresses of the NGN infrastructure are not reachable from the Internet. ■ Where the NGN and the Internet *share* infrastructure they are kept *logically separate*.

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Public ENUM – example

Suppliers of public communications services do not need Public ENUM except to identify the owning service provider i.e. nothing more than Number Portability

Public ENUM	Simple call

Public ENUM:

Sub-A and Sub-B both subscribe to services from the service providers SP1 and SP2 respectively.

Sub-A wants to call Sub-B:

- Sub-A can not bypass SP1 and go straight to SP2 without a prior contract (AAA problems).

- SP1 can not bypass SP2 to get to Sub-B because of :
  - Possibility legal interception.
  - Termination services that Sub-B may have from SP2.

Note: PSTN substitution service is even more unfriendly to Public ENUM.

Simple call:

Sub-A → SP1
Sub-B → SP2

ENUM

SP1   SP2

IP cloud

Sub- A   Sub- B

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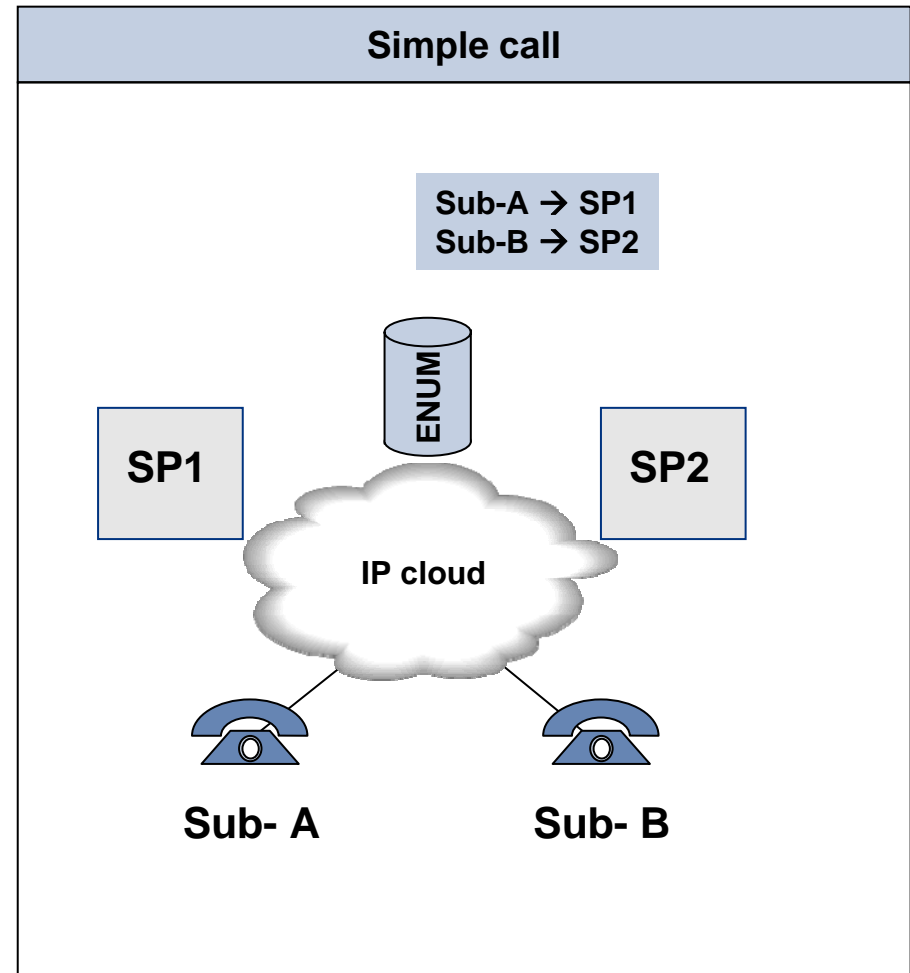
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Summary

IMS and Public ENUM face massive hurdles.

Summary - IMS	Summary – Public ENUM
■ Tomorrows technology will make today's obsolete.	■ Public ENUM has issues with supporting pay-for-use services.
■ Today's architectures are inappropriate for tomorrows technology.	■ ENUM supported sub-direct-to-sub communications bypasses legal interception.
■ IMS was laid down 10 years ago.	■ Except as a number portability substitute, telecommunications service providers have no reason to like Public ENUM.
■ Today's technology has already bypassed IMS architectural drivers.	

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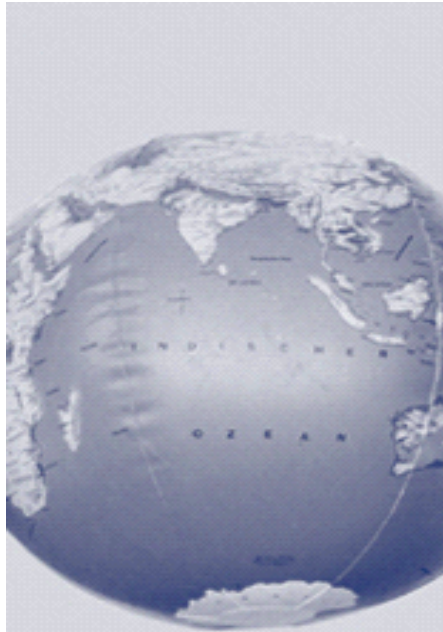
My thanks for your time
and attention.

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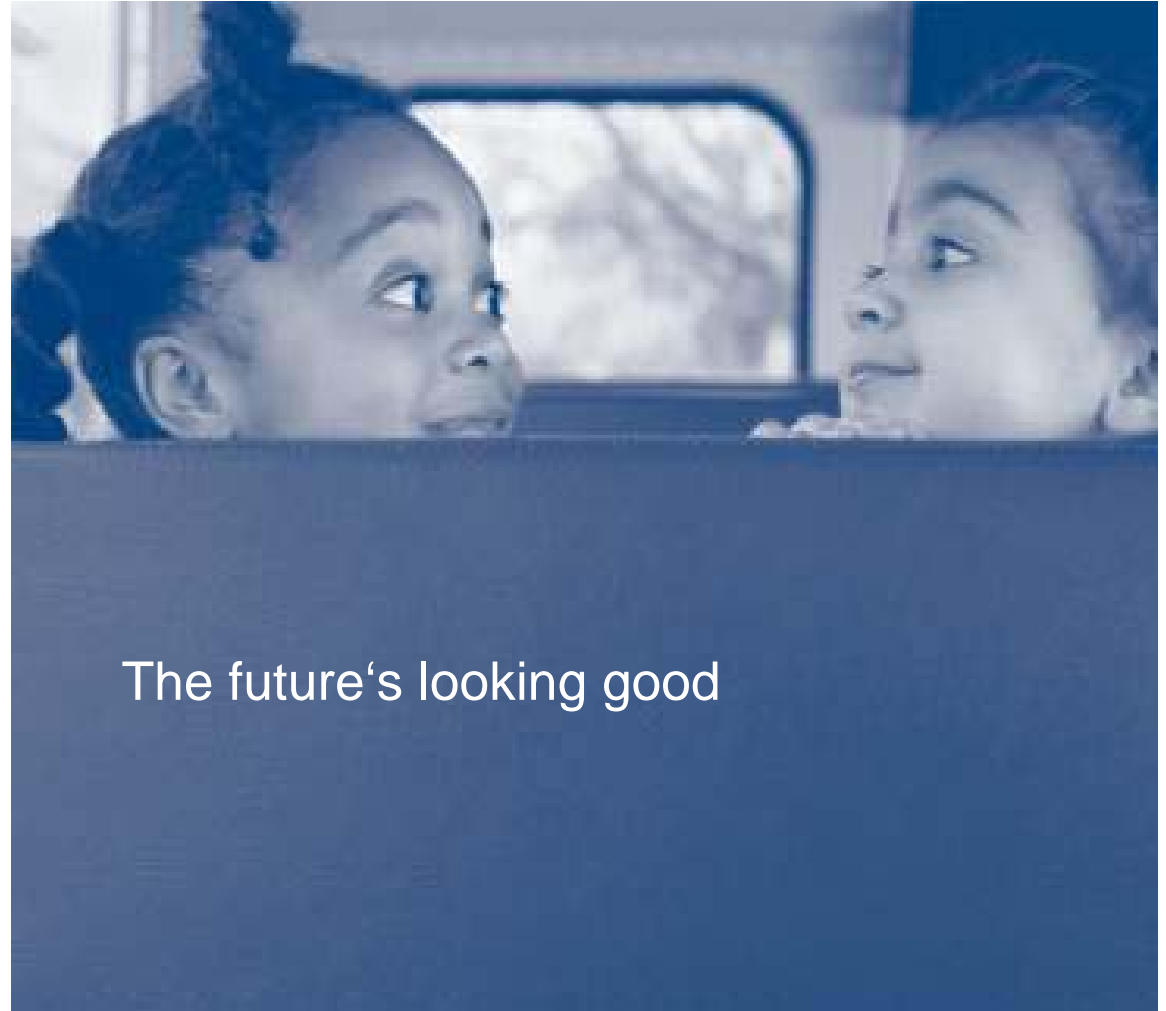
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Enlargement of graphic used in presentation

TISPAN and IMS

A-BGF : Access Border Gateway Function
T-MGF: Trunk Media Gateway Function
IBCF : Interconnection Border Control Function
I-BGF : Interconnection Border Gateway Function
IWF : Inter-Working Function
SGF : Signaling Gateway Function
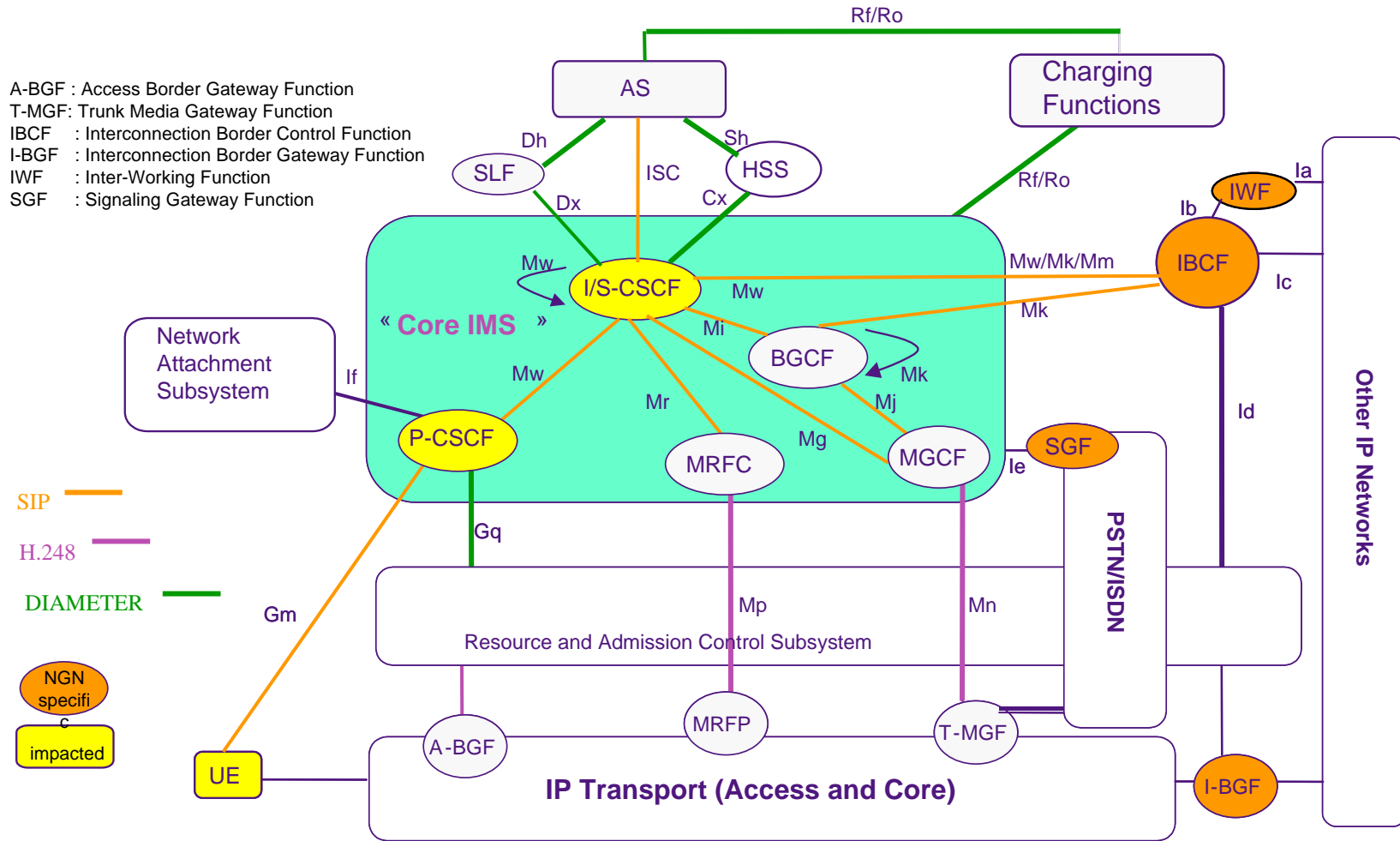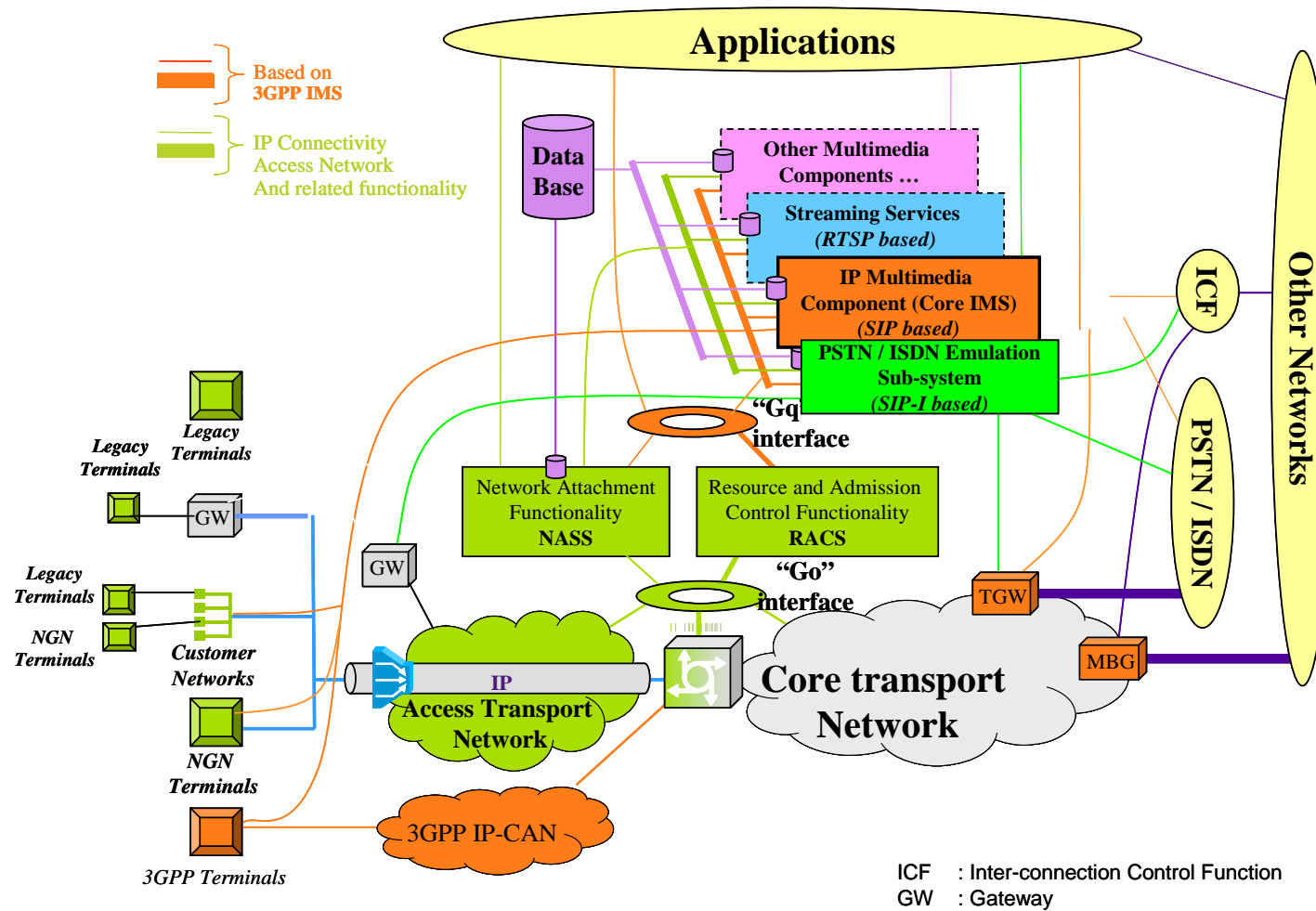
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Enlargement of graphic used in presentation

TISPAN and IMS

Based on 3GPP IMS

IP Connectivity Access Network And related functionality

Applications

Data Base

Other Multimedia Components …

Streaming Services (RTSP based)

IP Multimedia Component (Core IMS) (SIP based)

PSTN / ISDN Emulation Sub-system (SIP-I based)

ICF

Other Networks

PSTN / ISDN

"Gq" interface

Legacy Terminals

Legacy Terminals

Network Attachment Functionality **NASS**

Resource and Admission Control Functionality **RACS**

"Go" interface

Legacy Terminals

GW

Legacy Terminals

NGN Terminals

Customer Networks

GW

TGW

MBG

IP Access Transport Network

Core transport Network

NGN Terminals

3GPP IP-CAN

3GPP Terminals

ICF : Inter-connection Control Function
GW : Gateway

Source: ETSI

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The End

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