International Telecommunication Union

Next Generation Network
NGN-GSI
Initiative
ITU-T

NGN: Network Evolution (Migration)

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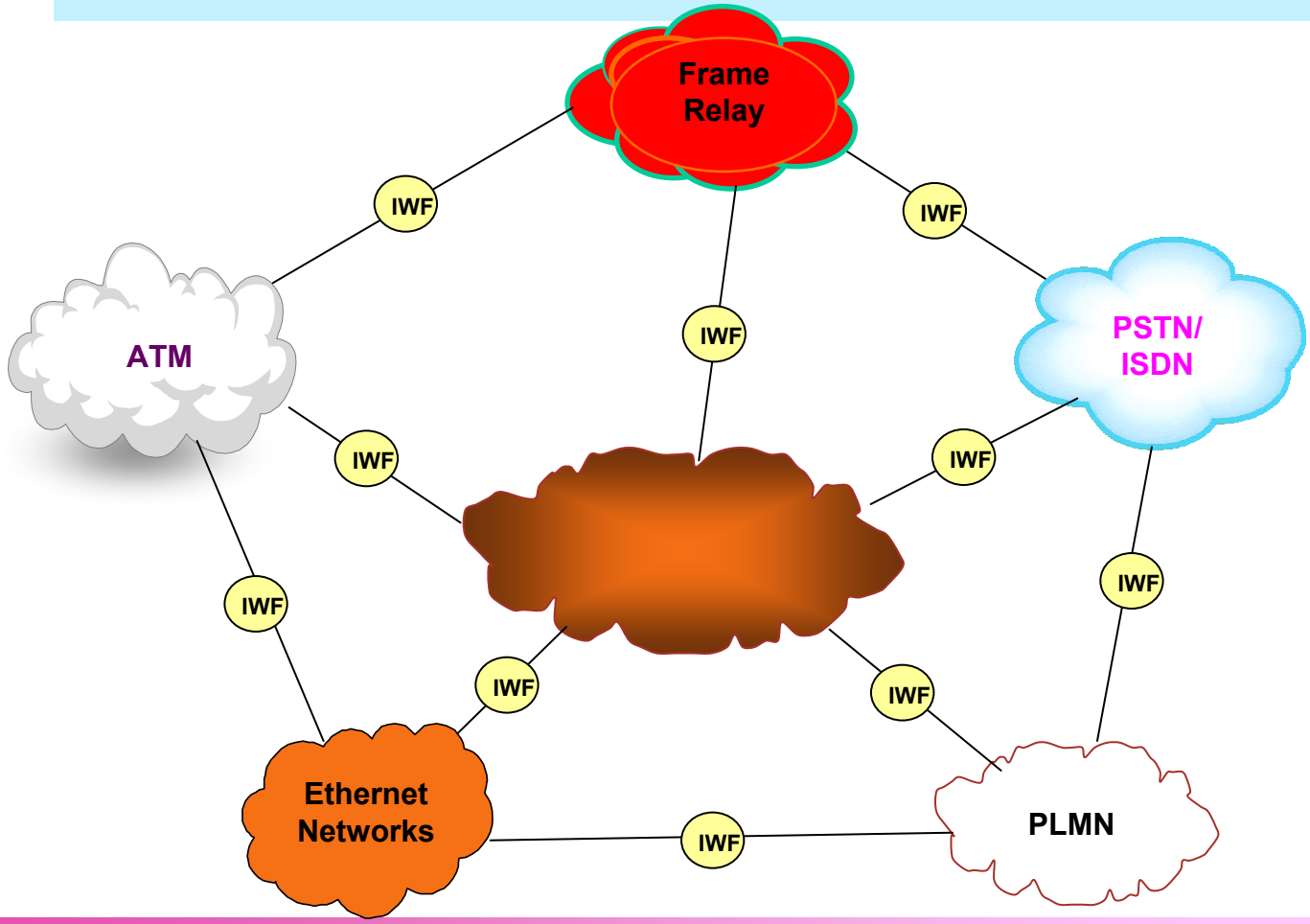
- Why service migration and network evolution?
- What are we doing?
- How far have we got?

Looking at…



- Multiple, interworked, interdependent networks
- Each network has its own control plane and management plane
- Diverse control and management architectures

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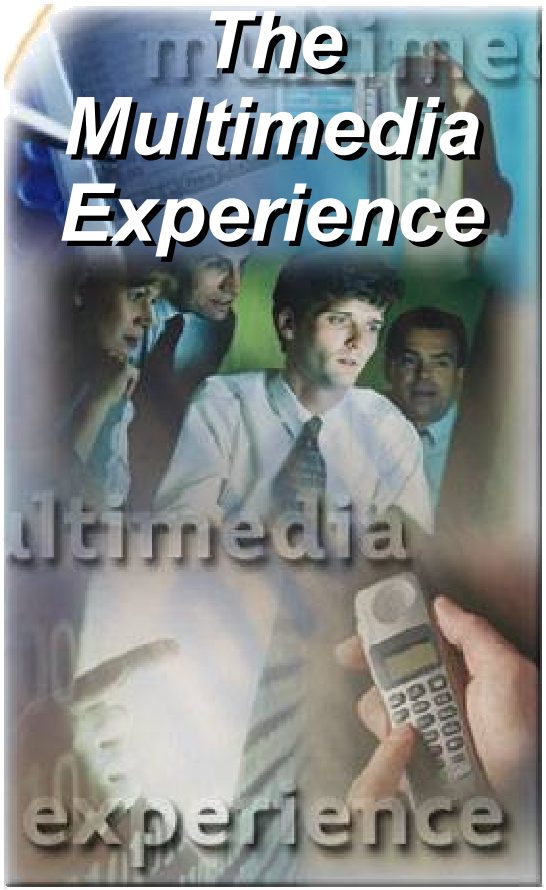
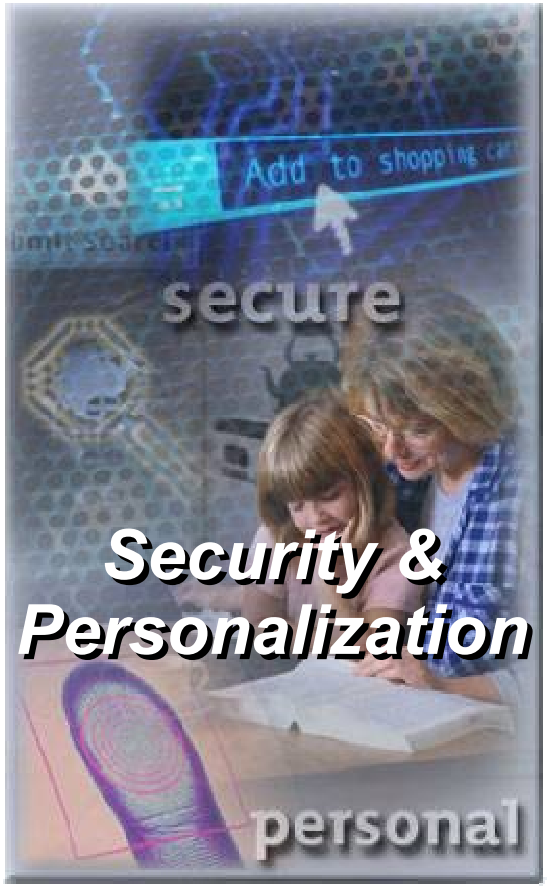
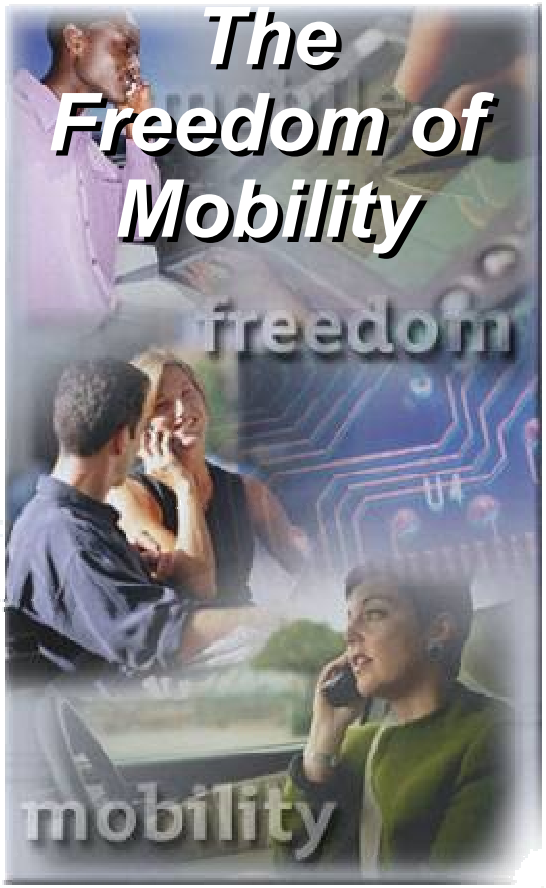
The end-user is looking for….







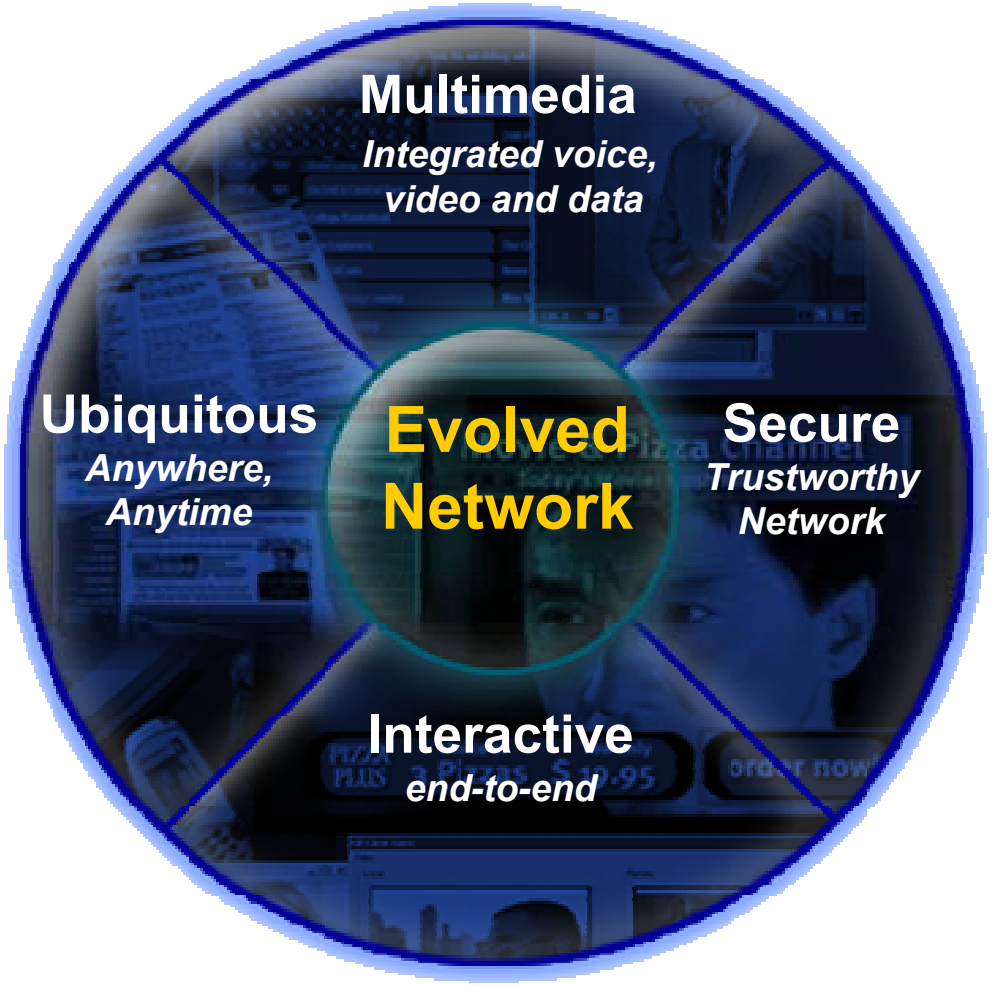
…to enhance productivity and user experience.

Expectations are …

- Scalability, reliability, robustness, …
- Security and performance
- Ubiquity
- Richness in content and application
- Common services infrastructure
- Simplified service deployment, User control
- Fixed / Mobile / Broadband
- PSTN and IP services
- *Affordable*

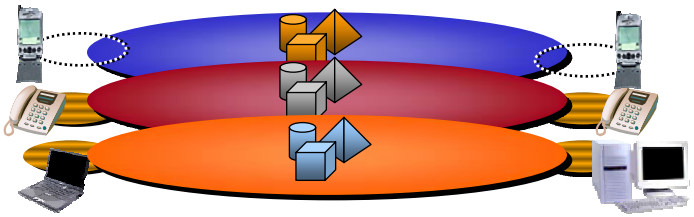
Achieving these goals for both end-user and the operator, requires ……..
Globally Recognized Open Standards

To sum up



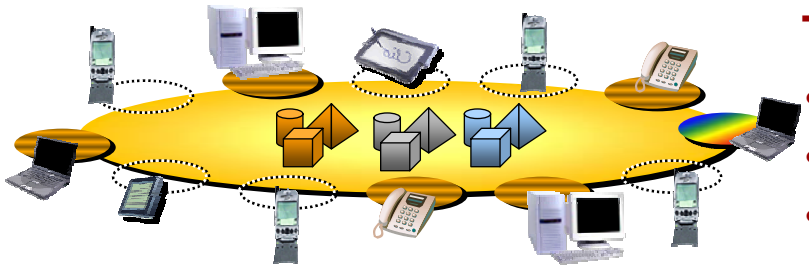
Major reason for, and expectation from, Network evolution

Examining and planning…



Existing

- Multiple networks
- Simple devices
- Disparate services

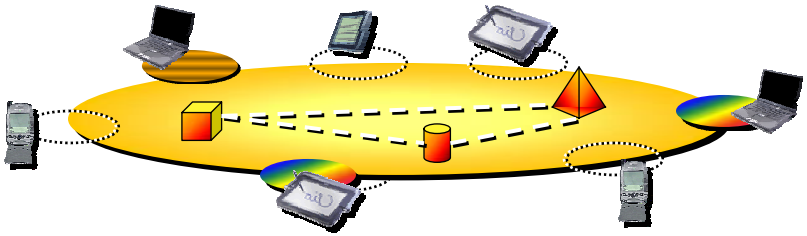


Transition

- Converged packet network
- Multimedia devices
- Linked services

Simplify

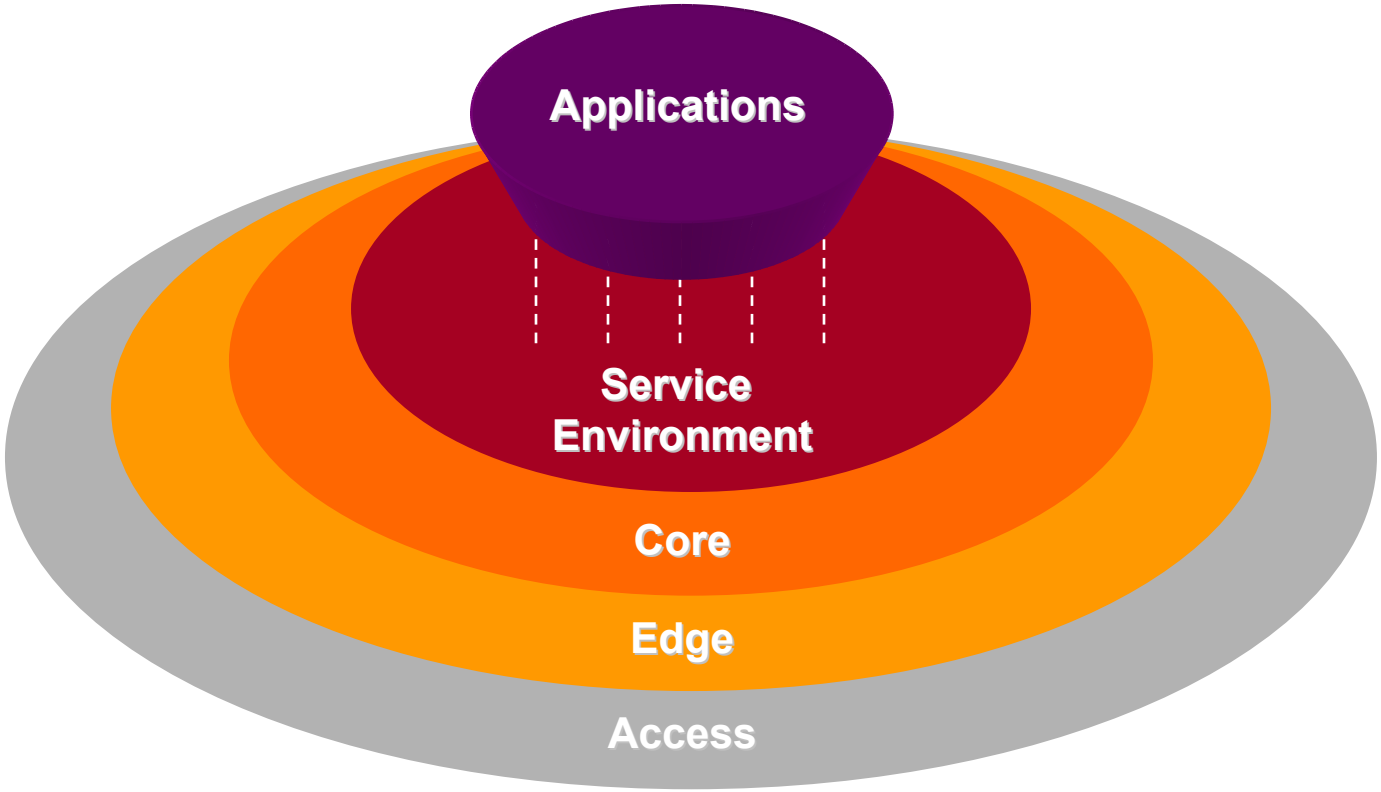
Network Profile



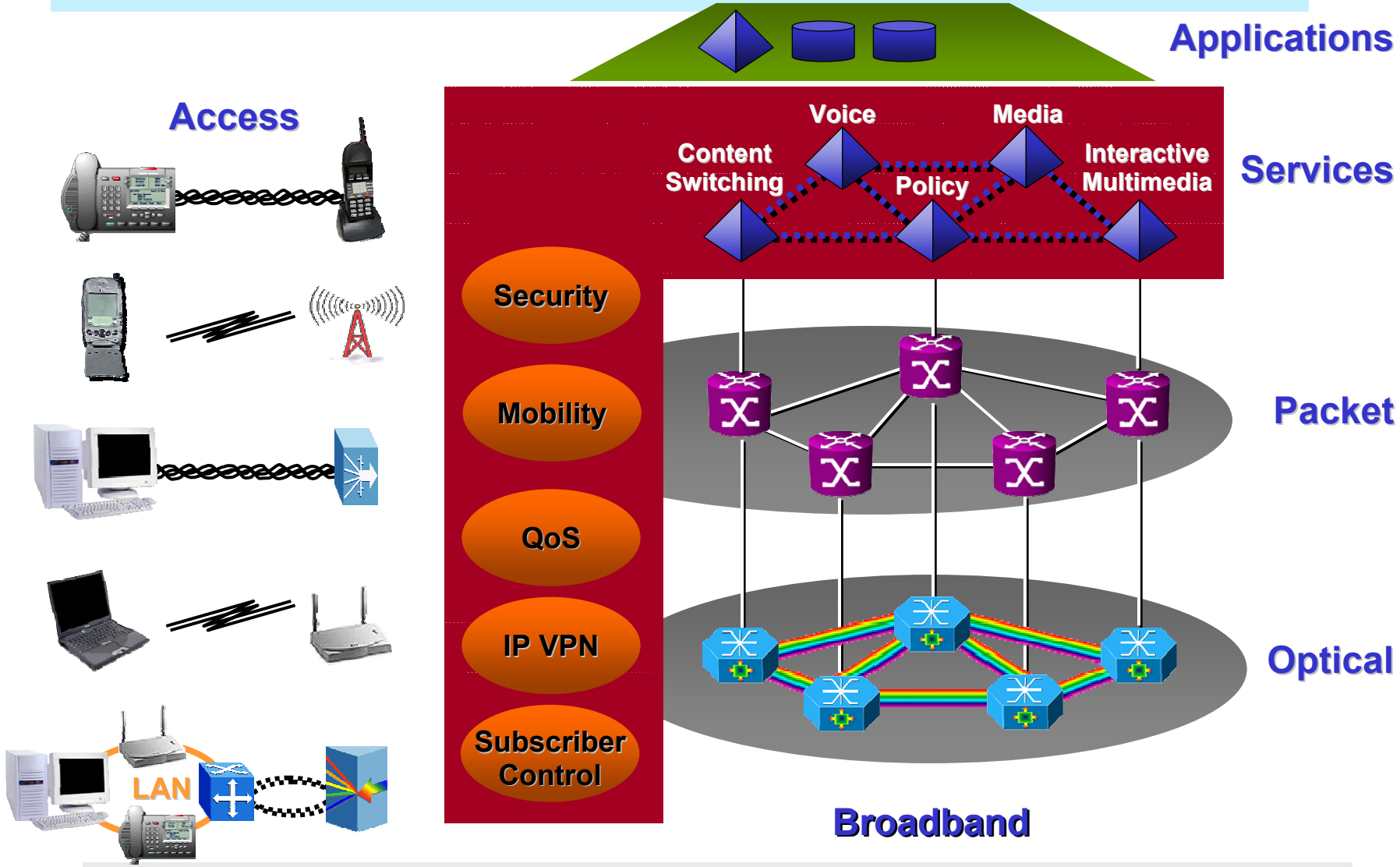
Evolution

- Dynamic packet/ optical network
- Secure multimedia services
- Ubiquitous broadband
- Integrated functionality

and furthermore, looking at…



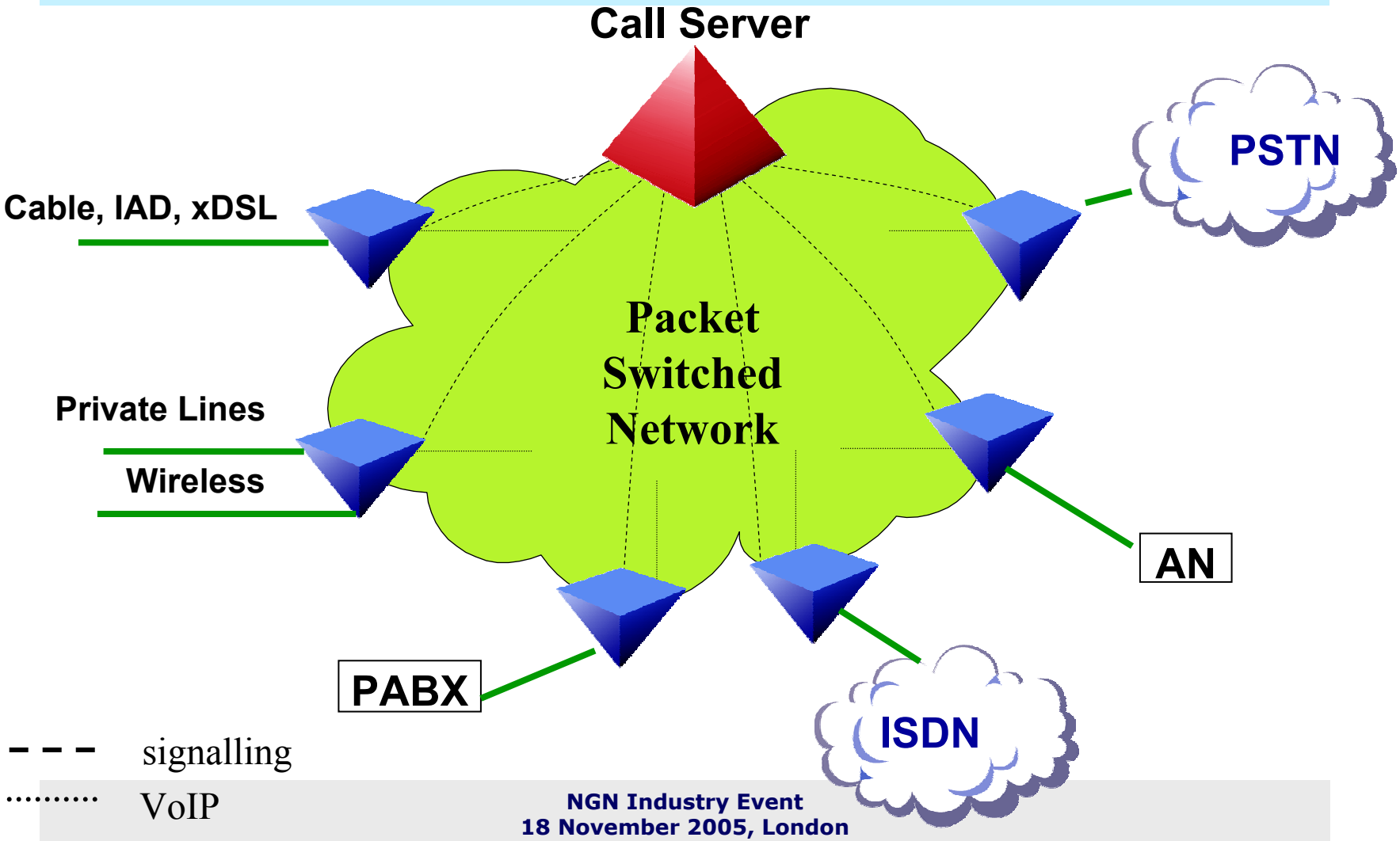
leads us to.


Applications
Access
Voice
Media
Content Switching
Policy
Interactive Multimedia
Services
Security
Mobility
QoS
IP VPN
Subscriber Control
Packet
Optical
LAN
Broadband

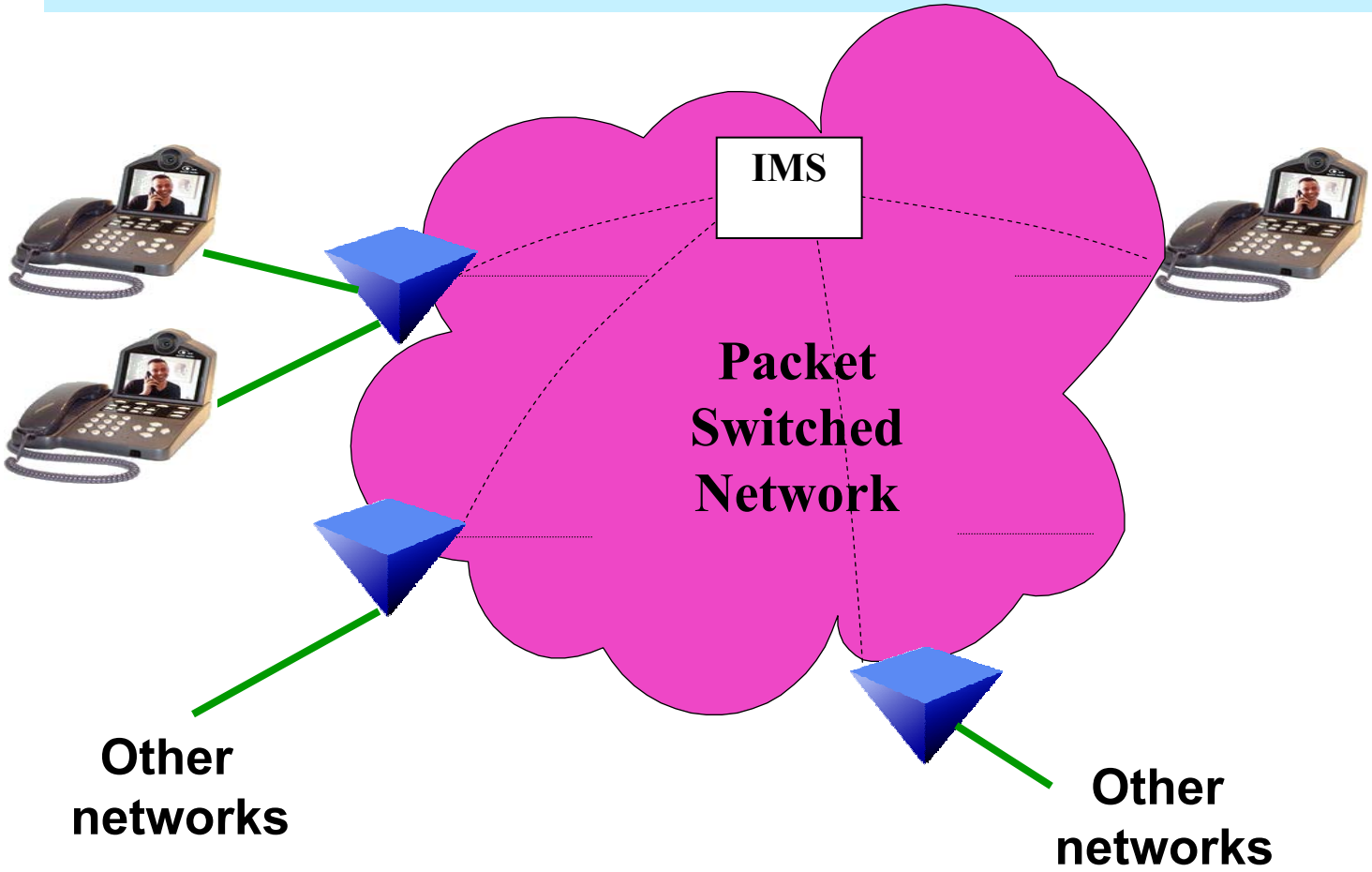
PSTN/ ISDN the first to evolve

- Call server (CS)-based
  - Equipment re-use
  - Service continuity
- IP multimedia sub-system (IMS)-based
  - Immediate migration
  - Access to new services

CS-based


Call Server
PSTN
Cable, IAD, xDSL
Packet Switched Network
Private Lines
Wireless
AN
PABX
ISDN
signalling
VoIP

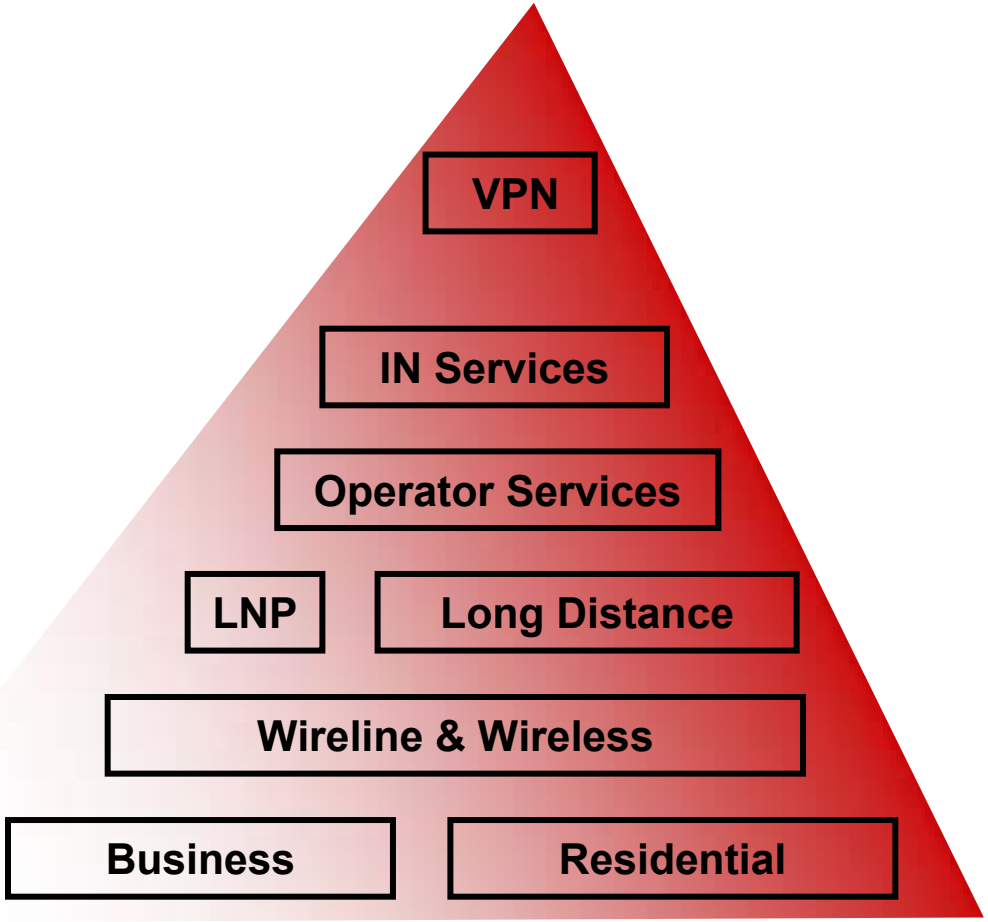
IMS-based



– – – signalling

..... VoIP

What happens to services?



Continuity of providing services is essential

Let's define two terms

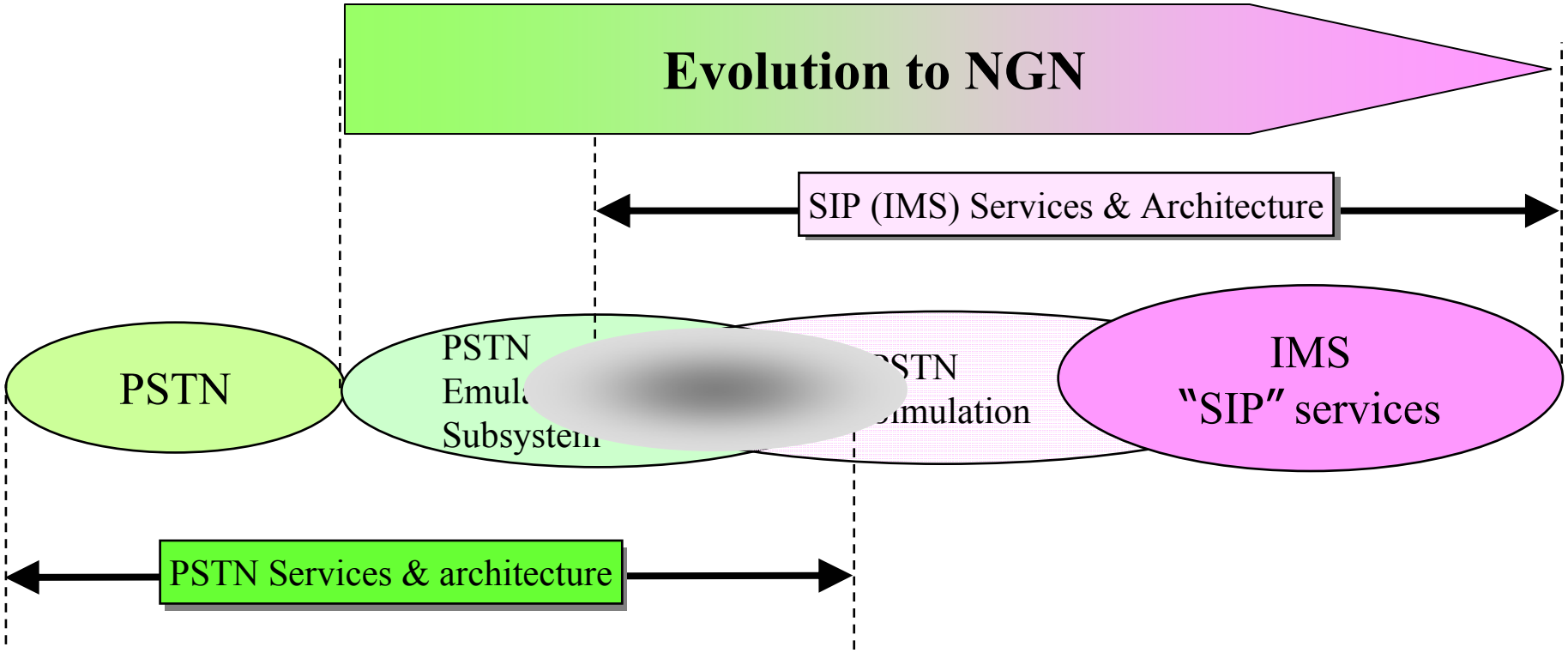
Emulation

- Provision of PSTN/ISDN service capabilities and interfaces using adaptation to an IP infrastructure.

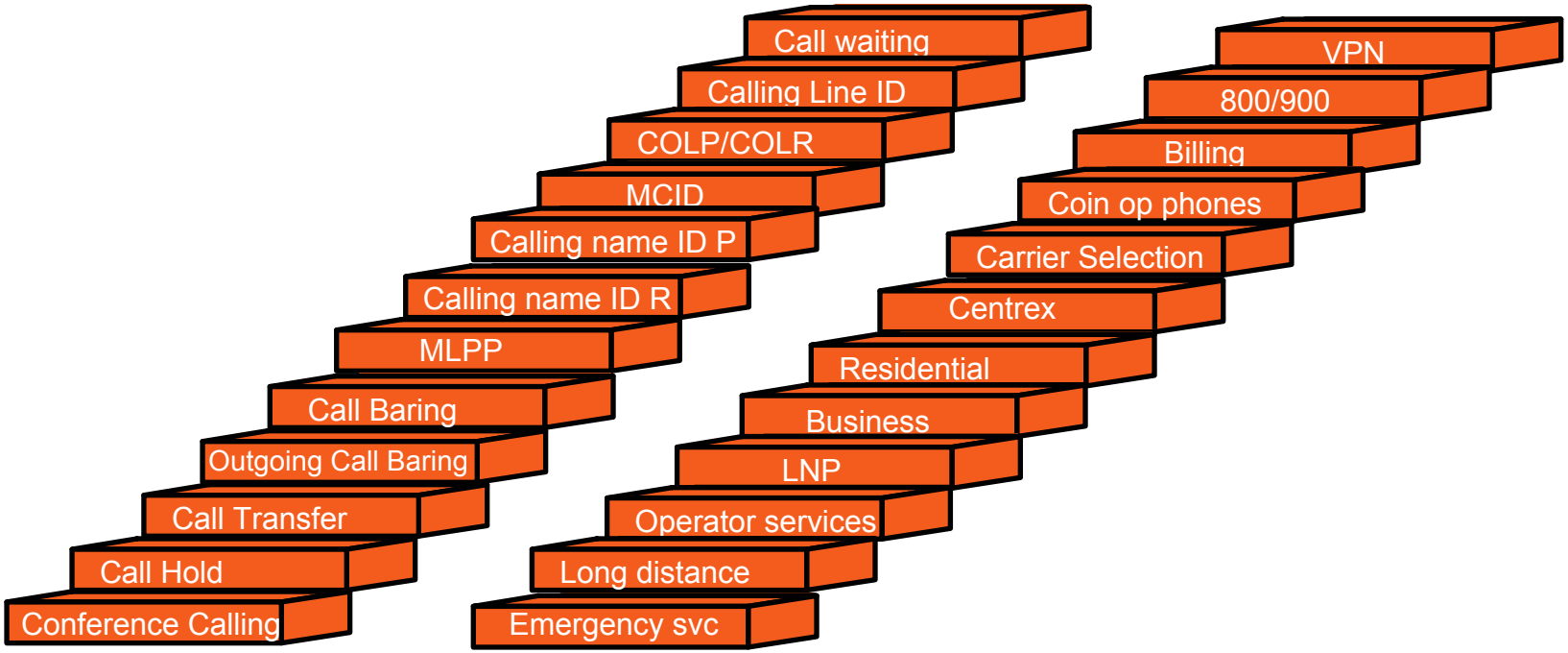
Simulation

- Provision of PSTN/ISDN-like service capabilities using session control over IP interfaces and infrastructure

What is their relationship?



PSTN/ISDN services



Before we go any further we have to ask:

- **Although it is possible to emulate present services but is it wise to do it for all services?**
- **What are the values to the operators and end-users?**
- **Should we be conservative in selecting services for emulation or simulation?**

Where are we now?

- Principles and requirements for evolution
- Described emulation and simulation
- Scenarios for PSTN/ISDN evolution to NGN
- Emulation and simulation scenarios
- Requirements for public interest services

Future work

- Examine existing services and select candidates for emulation and simulation
- Identify additional service capabilities
- Address OAM, management and control & signalling aspects
- Identify protocols

Conclusion

- Substantial progress has been made in the preparation of initial specifications addressing evolution of networks to NGN
- Good progress on PSTN/ISDN emulation and simulation
- More works needs to be done to complete control and signalling aspects for PSTN/ISDN evolution

Our documents

- **Evolution of networks to NGN**
  - Presents concepts for evolution of existing networks to Next Generation Networks (NGN) based on Global information infrastructure (GII) concepts and aligned with related Recommendations Y.2001 and Y.2011.
- **PSTN/ISDN evolution to NGN**
  - Describes possible ways of evolving PSTN/ISDNs to NGNs. It describes scenarios for evolution of PSTN/ISDN transport, management, signalling and control parts to NGN
- **PSTN/ISDN emulation and simulation**
  - Describes PSTN/ISDN emulation and simulation. PSTN/ISDN Emulation could potentially provide PSTN/ISDN service capabilities and PSTN/ISDN Simulation could potentially provide PSTN/ISDN-like service capabilities.
- **The PSTN emulation architecture***
  - Describes the functional architecture for PSTN/ISDN emulation

* WG2 document

List of Acronyms

AN	Access Network
ATM	Asynchronous Transfer Mode
COLP	Connected Line Identification Presentation
COLR	Connected Line Identification Restriction
CS	Call Server
DSL	Digital Subscriber Line
IAD	Integrated Access Device
IMS	IP Multimedia Sub-system
IN	Intelligent Network
IP	Internet Protocol
ISDN	Integrated Services Digital Network
ISUP	ISDN User Part
IWF	Interworking Function
IXC	IntereXchange Carrier
LNP	Local Number Portability
MCID	Malicious Call IDentification
MLPP	Multi-Level Precedence and Preemption
MSC	Mobile Switching Centre
PLMN	Public Land Mobile Network
PSTN	Public Switched Network
QoS	Quality of Service
SIP	Session Initiation Protocol
SIP-I	Refers to Rec. Q.1912.5
VoIP	Voice over IP
VPN	Virtual Private Network

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Thank you for your attention