ITU-BDT Regional Seminar on Fixed Mobile Convergence and new network architecture for the Arab Region
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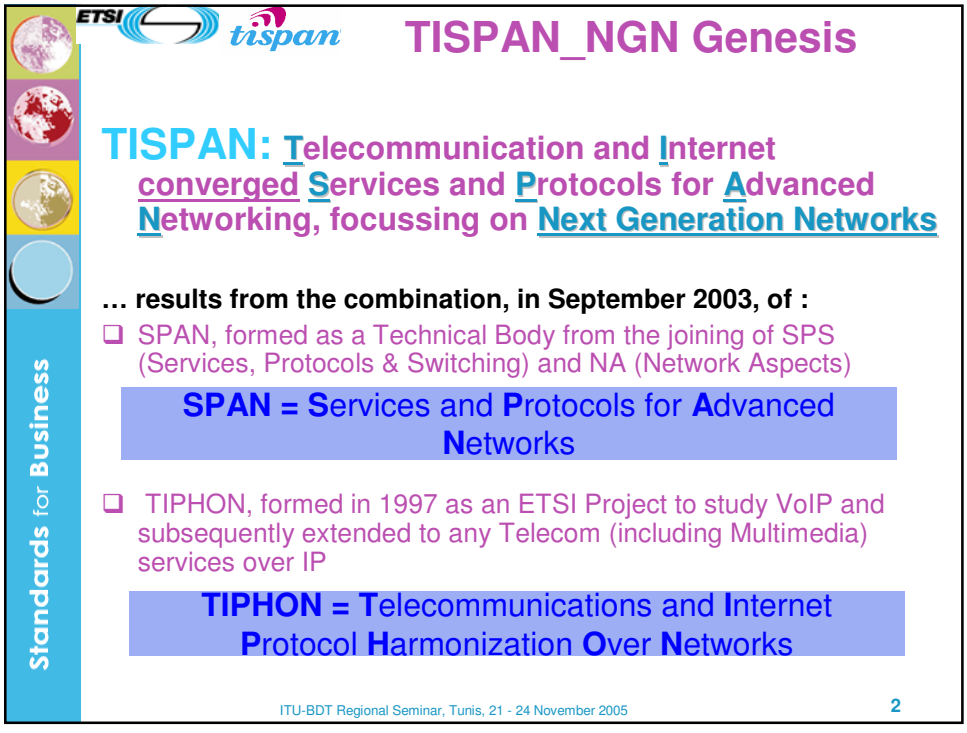
Day 1 Session 1.2: International Framework

Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN):

Towards Fixed-Mobile converged Next Generation Networks

Prepared by: Alain Le Roux (France Telecom), *ETSI TISPAN Chairman*
alainxavier.leroux@francetelecom.com
Presented by: John Visser (Nortel), *ITU-T SG19 Chairman*
jvisser@nortel.com



TISPAN_NGN Genesis

TISPAN: Telecommunication and Internet converged Services and Protocols for Advanced Networking, focussing on Next Generation Networks

… results from the combination, in September 2003, of :

- SPAN, formed as a Technical Body from the joining of SPS (Services, Protocols & Switching) and NA (Network Aspects)

SPAN = Services and Protocols for Advanced Networks

- TIPHON, formed in 1997 as an ETSI Project to study VoIP and subsequently extended to any Telecom (including Multimedia) services over IP

TIPHON = Telecommunications and Internet Protocol Harmonization Over Networks

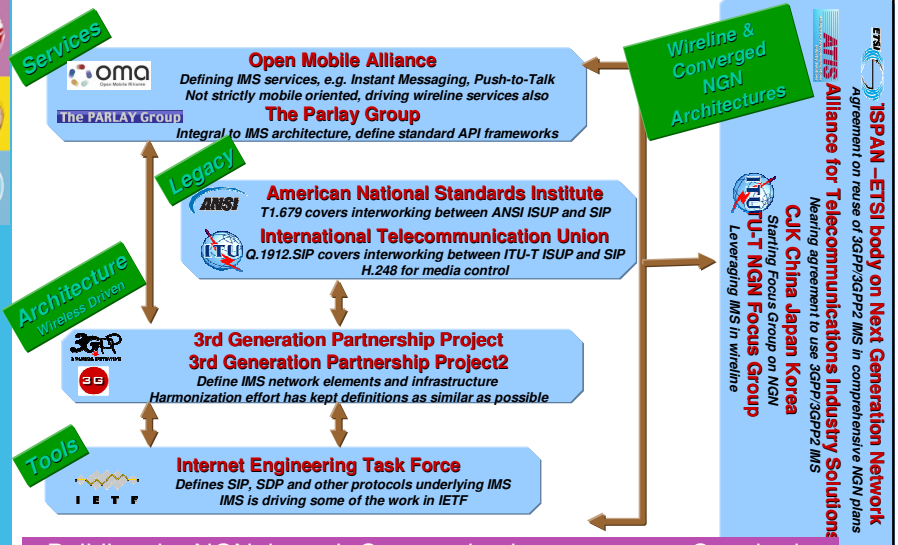
Facilitating FMC through use of IMS in 3G Mobile networks and NGN

Agenda:

- ETSI TISPAN_NGN Project as a Global standards development cooperation
- TISPAN_NGN services & capabilities
- TISPAN_NGN architecture and capabilities
- Support of PSTN/ISDN service emulation
- IMS adaptations for wireless and fixed access applications
- Ongoing ETSI TISPAN_NGN activities and workplan
- Concluding remarks

TISPAN_NGN : a pragmatic approach to NGN

Global standards cooperation



Building the NGN through Cooperation between many Standards players (incl. ITU-T, ETSI, ATIS …): leading to convergence

_NGN Services Requirements

- TISPAN_NGN supports legacy POTS services (PSTN/ISDN Emulation)
  - **This is the same as the PSTN/ISDN Telephony service over an IP infrastructure**
  - **This will enable use of the existing ISDN Supplementary services**
- TISPAN is defining a Voice Service (Simulation)
  - **Similar - but not identical - to existing PSTN service**
  - **Including "important" "supplementary" services**
  - **Based on IMS capabilities for basic voice call**
  - **If extensions needed, work in TISPAN; expected to be included in R7 of 3GPP IMS capabilities**
- Standard capabilities with the aim to make the service applicable for other IMS networks than TISPAN IMS, e.g. mobile networks to facilitate seamless fixed mobile convergence for Telephony over IP services

New generation services … without forgetting legacy (PSTN/ISDN emulated) services

_NGN Regulatory and Operational Requirements

- Regulatory related features (according to the EU Framework directive)
  - **Examples include: E112 Emergency Speech, Malicious Communication Identification and Anonymous Communication Rejection**
  - **Validated location information**
- Management & Operational needs including Charging and Accounting (Off-line, On-line, Flow-based)
- Solutions shall support the presence of NAT and Firewalls in the access network user premises, and assignment of IP addresses to the end user equipment by the access network
- NGN IMS supports identifiers for fixed lines as well as 3GPP IMS type user identifiers
- Presence, Instant Messaging, Conferencing … Service enablers

New generation services and regulatory requirements

_NGN Wide range of services & Applications

Person-to-Person – Communication Services

Conversational
- Voice call
- Video call
- Chat call
- Multimedia call

Messaging
- e-Mail
- SMS → EMS
- MMS
- IM

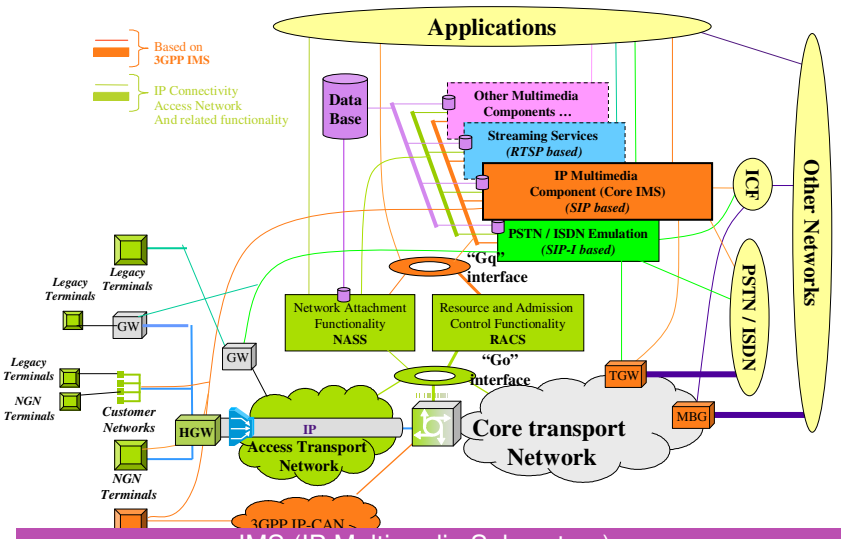
Content-on-demand
- Browsing
- Download
- Streaming
- Push
- Broadcast
- Peer-to-Peer

_ NGN architecture and capabilities

- Use “core” IMS as one of the NGN architecture components
  - xDSL-based access networks provide access to IMS and other subsystems (e.g.; streaming)
  - xDSL-based access networks as a new type of IP-Connectivity Access Network for the IMS
  - Supporting PSTN/ISDN simulation and multimedia services
- Complement IMS with other subsystems
  - A PSTN/ISDN Emulation subsystem specifically tailored to allow TDM equipment replacement
  - Other multimedia subsystems and applications
- IP connectivity is provided using two subsystems:
  - Network Attachment Subsystem (NASS)
  - Resource and Admission Control Subsystem (RACS)

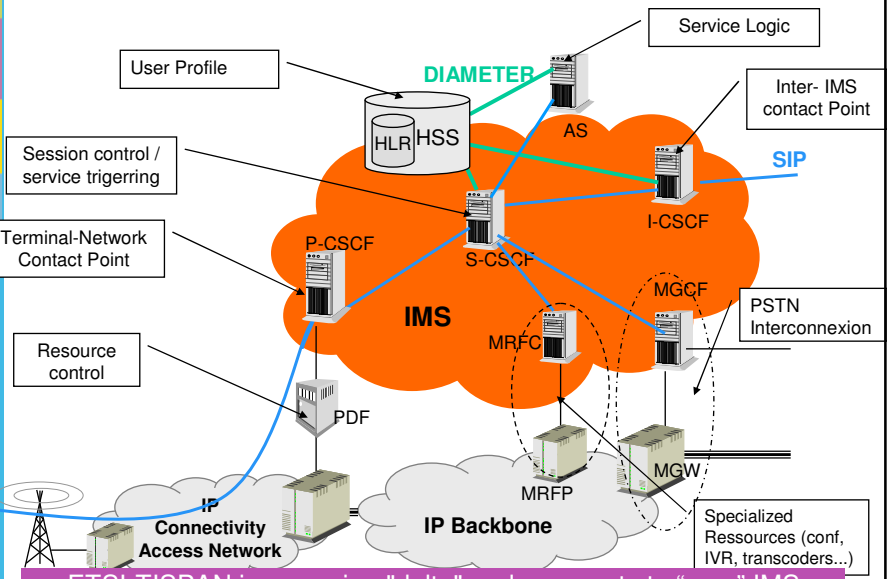
A focussed and pragmatic approach to provide multimedia services over IP networks:
With emphasis on xDSL in NGN Release 1

tispan _NGN architecture overview



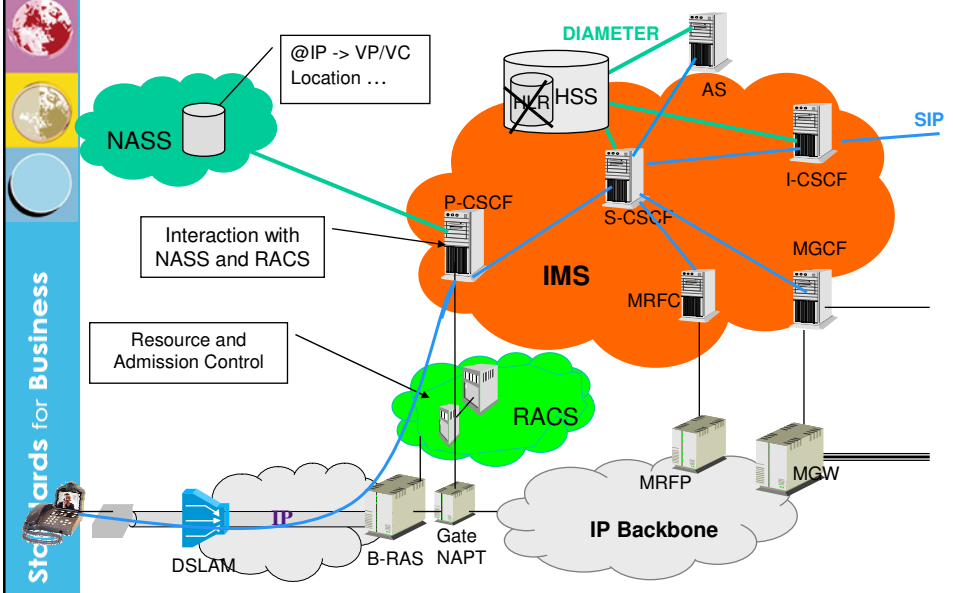
IMS (IP Multimedia Subsystem):
The NGN core subsystem for (SIP based) conversational services

tispan IMS (simplified) Architecture



ETSI-TISPAN is preparing "delta" endorsements to "core" IMS and defining requirements for fixed access

Impacts of Fixed access on IMS



PSTN/ISDN service emulation

PSTN/ISDN service continuity in NGN:

- **PSTN/ISDN Simulation**
  - *"Provides PSTN/ISDN-like service capabilities using session control over IP interfaces and infrastructure"*
  - The provision of PSTN/ISDN-like services to advanced terminals (IP-phones) or IP-interfaces. There is no strict requirement to make all PSTN/ ISDN services available or identical, although end users expect to have access to the most popular ones, possibly with different ergonomics.
- **PSTN/ISDN Emulation**
  - *"Provides PSTN/ISDN service capabilities and interfaces using adaptation to an IP infrastructure"*
  - Emulates a PSTN/ISDN network from the point of view of legacy terminals (or interfaces) by an IP network, through a gateway. PSTN/ISDN services remain available and identical (i.e. with the same ergonomics), such that end users are unaware that they are not connected to a TDM-based PSTN/ISDN.

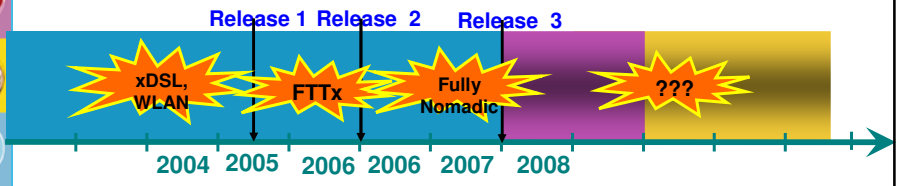
TISPAN_NGN aims at facilitating PSTN replacement

_NGN Security Issues

- **TISPAN NGN/IMS security requirements under evaluation and solutions to be discussed jointly with 3GPP (SA3)**
- **Security issues include:**
  - Security for xDSL and for IP generic access (supporting xDSL, WLAN and fiber access scenarios)
  - Smooth NAT/FW traversal of NGN signaling and media protocols
  - Authentication to NASS and IMS services
  - Security Key Management
  - H.248 security for Residential/Access gateways control
  - Interworking of various security mechanisms
  - Interdomain/Interconnection security
  - Single-sign on
  - Various, unique identities in the NGN environment
  - Lawful Interception …

Standards for Business

_Ongoing ETSI TISPAN activities and workplan



- **Release 1 bringing Multimedia services**
  - 0. Terminology, Strategy, QoS, Security, NNA & Identification, ENUM
  - 1. Requirements, General architecture, Early services and protocols
  - 3. Detailed architecture, Specific services and protocols, 3GPP interface endorsements, testing
  - 4. Operations Support Systems, Congestion control, NGN user data, Single sign-on, PSTN/ISDN emulation
- **Release 2 optimizing access resources usage**
  - Content delivery: Streaming, IP-TV …
  - Optimized resource usage (e.g. inter-network domains)
  - Corporate users specific requirements …
- **Release 3**
  - Generalized mobility …

A Release approach to answer market needs timely.

Standards for Business

tispan_NGN: Concluding remarks

- A strong industry demand
  - For new generation Multimedia services on xDSL access
  - For preparing replacement of soon becoming obsolescent PSTN
- For a first Release of specifications by 2005
  - Giving main standards directions
  - With realistic and implementable solutions
- ETSI TISPAN proposing an architecture basis consisting of a range of subsystems:
  - Access network attachment Subsystem, Resource and admission control sub-system
  - Maximizing Fixed and Mobile convergence, through adoption of 3G/UMTS IMS component for support of conversational services
- TISPAN collaborating with 3GPP to accommodate Wireline access network requirements by IMS
  - A workshop held with 3GPP in Washington end of March 05
  - To coordinate the IMS evolution and resolve issues
- TISPAN contributing to ITU-T on a global standard
  - ITU-T NGN Focus Group, SG4, SG 11, SG 13, SG 19, other SDOs

A significant step is being taken to enable Fixed-Mobile Convergence for mumtimedia in TISPAN_NGN Release 1

Summary TISPAN_NGN Release 1

- Tight time scale but Release 1 achievable by December 2005: at TISPAN#9 (28 Nov-9 Dec 2005)
- Strongly supported by service providers and suppliers
- Based on 3GPP IMS Rel-6 & 7 with extensions
- TISPAN_NGN provides a path towards Fixed mobile convergence
- Wireless and Wireline access networks
- Multiservice/Multimedia capability
- Scalable network solutions
- Paying much attention to Regulatory related and Security requirements

Release 1: An ambitious and challenging objective to make implementable TISPAN_NGN R1 specs by end of 2005

THANK YOU

Questions/Comments ?

ETSI TISPAN Portal: http://portal.etsi.org/Portal_Common/home.asp
Publicly open area: http://portal.etsi.org/docbox/TISPAN/Open/

Acronyms

API	Application Programming Interface
AS	Application Server
BGCF	Breakout Gateway Control Function
CAMEL	Customised Applications for Mobile Enhanced Logic
CSCF	Call Session Control Function (I- for Interrogating, P- for Proxy)
IMS	IP Multimedia Subsystem
IM SSF	IP Multimedia Service Switching Function
IP-CAN	IP- Connectivity Access Network
ISC	IP_multimedia_subsystem_Service_Control_interface
IWF	Inter-Working Function
HLR	Home Location Register
HSS	Home Subscriber Server
MRF	Media Resource Function
MG	Media Gateway
MGCF	Media Gateway Control Function
NASS	Network Attachment Sub-System
NA(P)T	Network Address (Port) Translation
OSA	Open Services Architecture
PDF	Policy Decision Function
SCS	Service Capability Server
QoS	Quality of Service
RACS	Resource and Admission Control Subsystem
SIP	Session Initiation Protocol
SLF	Subscription Locator Function