





Doc: GA43(04)24
Agenda item: 5.2
Document for: Discussion

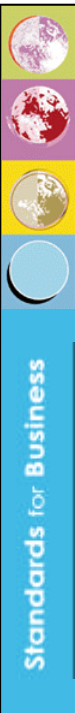


TC TISPAN

*(Telecommunications and Internet converged
Services and Protocols for Advanced
Networking)*

Directions for TISPAN_NGN Project

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TISPAN results from the combination 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

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tispan since September 2003 ETSI

Standards for Business

- ❑ **First (Kick-off) meeting on 22-26 September 2003**
 - Structuring the new TB
 - Appointment of Officials
 - Combination of ongoing SPAN and TIPHON Work programmes
 - Advancement of the TISPAN internal TIPHON project

- ❑ **TISPAN#2 meeting on 1-5 December 2003**
 - TISPAN_NGN Project launch
 - Release 1 (for Mid-2005) Scope discussion
 - TISPAN_NGN Project Steering Group to be set-up (a temporary Interest Group is progressing)
 - TISPAN internal TIPHON Project closed
 - Completion of the actual integration of former TIPHON and SPAN Work programmes

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tispan Current Structure ETSI

Standards for Business

8 Working Groups ↓ **6 Projects**

| | | |
|----------------------|--|----------------------|
| SERVICES | | SERVICES |
| ARCHITECTURE | | ARCHITECTURE |
| PROTOCOLS | | PROTOCOLS |
| NUMBERING & ROUTEING | | NUMBERING & ROUTEING |
| QoS | | QoS |
| TESTING | | TESTING |
| SECURITY | | SECURITY |
| NETWORK MANAGEMENT | | NETWORK MANAGEMENT |

Etc... as needed

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tispan **NGN goals & Technical overview** **ETSI**

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❑ **The Next Generation Network will eventually provide:**

- **A multi-service multi-protocol, multi-access, IP based network - secure, reliable and trusted**
 - Multi-services: delivered by a common QoS enabled core network.
 - Multi-access: diverse access networks; fixed and mobile terminals,
 - Not one network, but different networks that interoperate seamlessly
- **An enabler for Service Providers to offer**
 - real-time and non real-time, communication services
 - between peers, or in a client-server configuration.
- **Mobility / Nomadicity**
 - of both users and devices
 - inter and inter-Network Domains, eventually between Fixed and Mobile networks
- **“My communications services” anywhere, any terminal**

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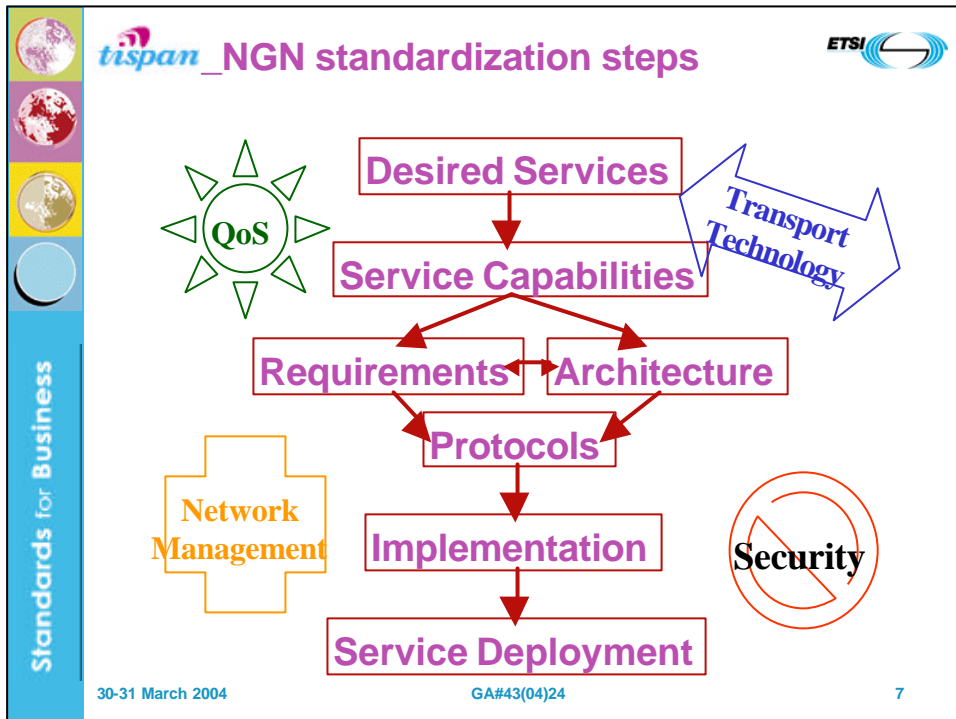
tispan **Technical approach to NGN specification** **ETSI**

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❑ **From Services to Protocols**

- **Typical Services and basic features**
- **Service Capabilities (building blocks) QoS, Security, Naming and Addressing**
- **Architecture and Requirements**
- **Network and Service Management (NGN OSS)**
- **Protocol Selection and Profiling**
- **Evaluation & Modification (“fit for purpose”)**
- **Test Specification and Test Suites (to facilitate interoperability)**

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- tispan** _NGN Services & Requirements
- ETSI
- Service Sets
- Interoperability with PSTN/ISDN
 - Telephony
 - Voice Services
 - Multimedia Services
 - Interoperability with 3GPP IMS
 - Conferencing & Multiparty services
 - Streaming Services
 - Non voice services
 - Internet Access
- Functionality
- PSTN/ISDN switch Replacement
 - QoS control
 - Access control
 - Interconnections
 - Management
 - Mobility
 - Services platforms
 - 3rd Party Service Providers
 - Billing for services
- Standards for Business
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tispan _NGN Wide range of services ETSI

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

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tispan _NGN User Access & Terminals ETSI

User's Access


- DSL, Cable, Ethernet and WiFi technologies
- Interoperability through 3GPP
- Service hand over from one access technology to another
- Support for PSTN/ISDN & narrowband access
 - Backwards compatibility
 - Forwards compatibility


User Terminals

- PC's; PDA's; MM devices; Entertainment devices
- Personal devices
- Public Devices
- Shared Devices

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tispan **Multi-access solution requirements** 

- Profile handling
- Service adaptation
- AAA support
- Mobility management
- Access selection
- Access discovery

- personal profiles for multi-access & content adaptation
- applications adapting to access, terminal etc.
- authentication, authorization, accounting
- session continuity
- session transfer
- reachability/presence
- what access to choose
- what accesses are currently available/accessible

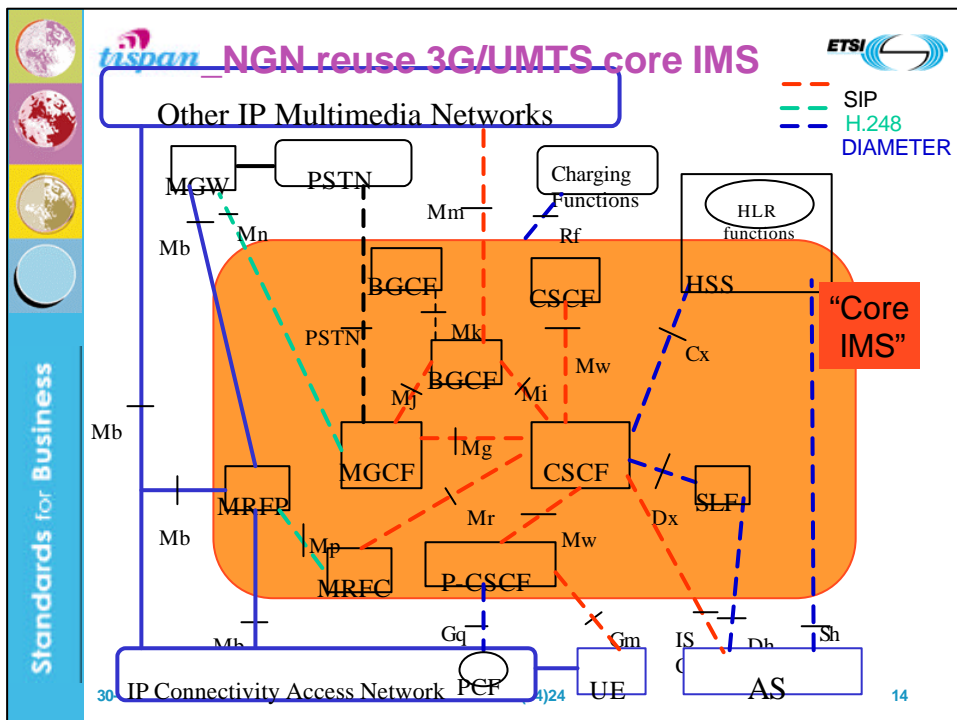
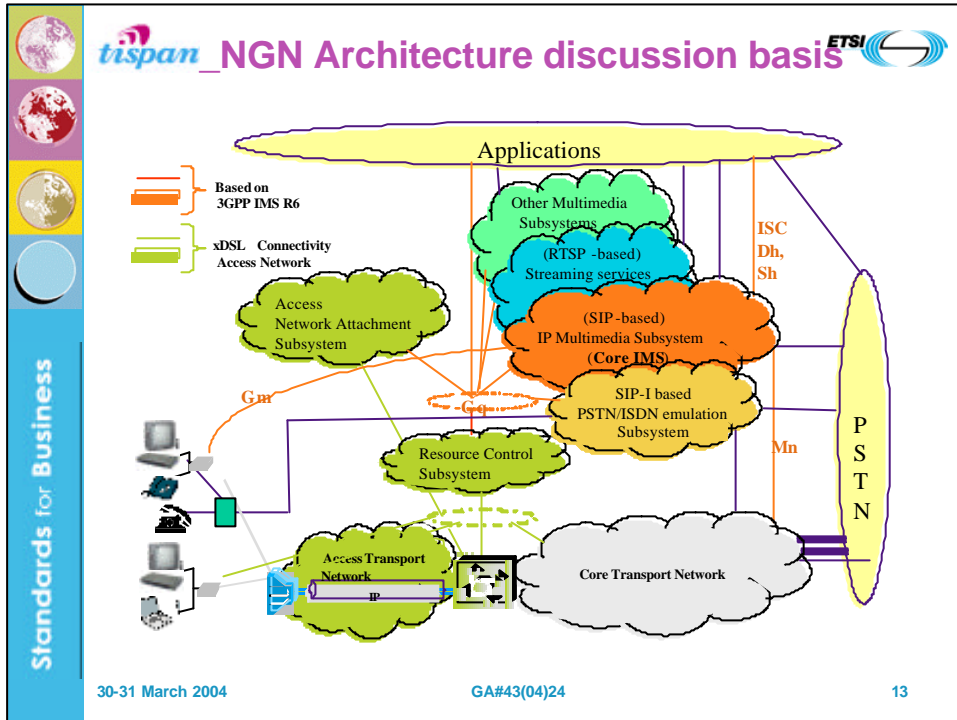
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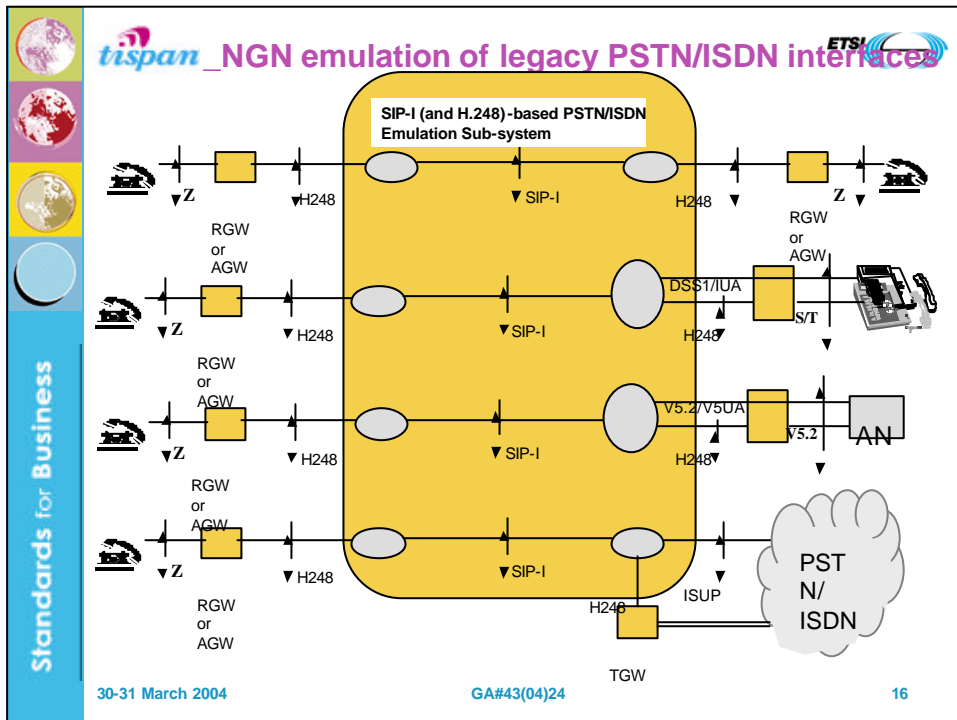
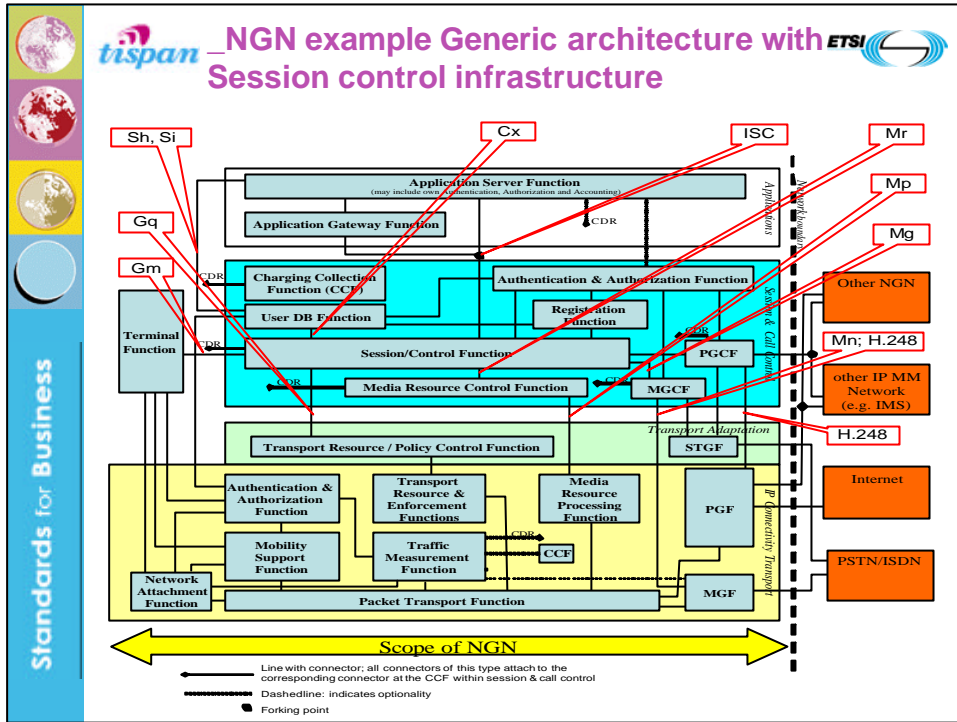


tispan **_NGN Architectural requirements** 

- **Networks**
 - Customer Networks
 - Access Network Technologies
 - Core Transport
 - Multimedia Control
 - Streaming Services
 - Other service delivery (e.g. non-voice)
- **Requirements**
 - Multimedia Control Architecture
 - Based on 3GPP IMS and TIPHON Control Plane
 - Resource Control
 - Access Network Control
 - End to end delivery of Services

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tispan **NGN attachment sub-system** ETSI

- ❑ **Fundamental subsystem**
 - IP address allocation (DHCP)
 - Authentication, Access authorization
 - Access configuration according to subscribed profile
 - Terminal location

To service control functions and applications

To User Equipment / Transport Plane


To Resource and Admission Control Subsystem

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tispan **Benefits in re-using 3G/UMTS IMS in NGN** ETSI

- ❑ **IP Multimedia Subsystem generally fulfills the NGN requirements for conversational services**
 - For managed, carrier operated telecom network
 - With Release 6 becomes applicable to a range of access network types
 - IMS access (technology) independence
- ❑ **Whole Telecom industry benefit**
 - Will enable simple and effective interworking between Cellular and Wireline
 - Growing IMS market, encouraging greater usage
 - Wider choice of IMS suppliers
 - Market stimulation, decreasing costs (thanks to shared development/deployment costs)
 - ...


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tispan **NGN standards built on 3GPP IMS specs** 

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- ❑ Use the “core” IMS as one of the high-level components of the overall NGN architecture, with initial focus on xDSL.
 - 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.
- ❑ Complement the IMS with other subsystems
 - A resource and admission control subsystem.
 - A network attachment subsystem.
 - A PSTN/ISDN Emulation Subsystem.
 - Other multimedia subsystems and applications



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tispan **NGN standards built on 3GPP IMS specs** 

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- ❑ Identify inherent differences between xDSL-access networks and UMTS access networks:
 - Wireline/Wireless, Assumptions on terminal capabilities,
 - Differences in Location and Resource Management,...
- ❑ Derive impacts on 3GPP specifications, particularly on :
 - Internal IMS interfaces (both SIP-based and DIAMETER-based).
 - Gq interface (application/session control to resource control), Rf interface (charging).
 - ISC and OSA interfaces (session control to applications).
- ❑ And specify NGN reminder aspects (e.g. alternative to GPRS for network attachment)

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tisper_NGN xDSL access typical impacts on IMS

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- ❑ **Relaxing the constraint on IPv6**
 - implies that IPv4 has to be taken into account and is likely to lead to a requirement to support NAPT functionalities.
- ❑ **Relaxing the constraint on the support of UICC**
 - alternative (probably weaker) authentication procedures will have to be taken into account.
- ❑ **Relaxing the constraints on bandwidth scarcity**
 - lead to consider optional the support SIP compression.
- ❑ **Differences in location management**
 - will impact various protocols which convey this information
- ❑ **Differences in resource reservation procedures**
 - will require changes to the P-CSCF procedures
- ❑ ...

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Examples of issues impacting the 3GPP IMS SIP profile specification

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- ❑ **xDSL access potential impacts on the 3GPP IMS SIP Profile for its re-use in fixed NGN :**
 - End user terminal geographic location (xDSL related instead of UTRAN Cell Identity)
 - Access information (adapt the syntax of the P-Access-Network-Info header to provide xDSL access information)
 - Administrative domain of the Access Call server (to inform the entities in the signalling path)
 - Some Features supported by 3G terminals may not be required:
 - Signalling compression (Sigcomp) probably not required
 - Indication of RTP stream bandwidth in SDP usually not required
 - Authentication mechanism without UICC (Universal Integrated Service Card)
 - Address and Port translation (IPv6 not mandated, NAPT functions to be considered for security requirements)
 - User information (identity, location) overriding (user) option
 - Access call server discovery: if IPv6 not supported, extensions to DHCPv4 may be considered.

... just to illustrate that adoption of 3G IMS specs will not be that straight. Some adaptations/extensions ... yet to be discussed.

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tispan NGN Release 1 scope ETSI

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- ❑ All yet under discussion
 - progressing by correspondence
 - To be consolidated at TISPAN#3 fall April meeting
- ❑ Major service capabilities being proposed
 - Real time conversational services (Voice, Videotelephony)
 - Messaging (Instant Messaging, MMS)
 - Content delivery (VOD, Video Streaming, TV-Channel distribution)
 - Also covering scenarios enabling legacy PSTN/ISDN migration towards NGN
- ❑ Network Architecture basis
 - ADSL access prime focus, possibly WLAN (later decision)
 - 3G/UMTS IMS sub-system being considered for real-time Conversational services (SIP-based session control)
- ❑ Objective: mid-2005
 - Pragmatic bottom-up approach for Release 1
 - Not excluding Top-down (TIPHON-like) approach for preparing future Releases

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tispan Fixed and Mobile networks evolution ETSI

PSTN/ISDN ...

Towards NGN ...

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1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003-04

GSM

Phase 1 Phase 2 Rel 96 Rel 97 Rel 98

UMTS

Rel 99 Rel 4 Rel 5 Rel 6

1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003-04

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tispan _NGN high level Roadmap ETSI

Towards a converged a Wireline and Cellular NGN ...

Release 1 Release 2 Release 3

xDSL, WLAN FTTx Fully Nomadic ???

2004 2005 2006 2006 2007 2008

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- ❑ Release 1 bringing Multimedia services
 - Intra-domain nomadicty/user-controlled roaming
 - Based on use of Access network Atachment Subsystem
- ❑ Release 2 optimizing resources usage
 - According o user subscription profile and service use
- ❑ Release 3 introducing full Nomadicty
 - Inter-network domain nomadicty/user-controlled roaming
 - Higher bandwidth access(VDSL, Wi-max ...)


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tispan Future possible relationships with 3GPP ETSI


- ❑ There are a number of areas where commonality between 3G IMS adapted to fixed NGN should be aimed at, e.g.:
 - SIP-based Call/session control
 - Call server-Service/Application control interfaces (ISC, Dh, Sh)
 - Charging (e.g. Diameter at Rf interface)
 - Management ...
- ❑ Possible approaches (may not be exclusive) are:
 - Define xDSL access Delta compared to relevant stable 3GPP specs
 - Re-use and adapt for full TISPAN_NGN spec
 - Contribute Deltas to 3GPP IMS Release 7 work
 - Work jointly on common 3GPP IMS and TISPAN_NGN specs
- ❑ Course of actions:
 - TISPAN_NGN to progress on its Release 1 Scope
 - Discuss and define the xDSL requirements and differences compared to 3G IMS, taking R6 as the base reference
 - Plan a joint Workshop with 3GPP SA and CN (week 26/end of June)
- ❑ Ongoing TISPAN work (up to TISPAN#3 for decisions)

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tispán_NGN Next steps




- ❑ **TISPAN_NGN to progress**
 - On Release 1 (mid-2005) scope and priorities
 - Meeting #3 on 26-30 April
 - Identify xDSL IP-CAN specific requirements and potential 3GPP IMS common interfaces
 - Plan a Workshop (end of June) with 3GPP SA&CN
 - To discuss common interfaces
 - Identify 3GPP base specifications (Release 6)
 - SIP profile commonality for Fixed and Mobile
 - Agree on collaboration method and documents handling
- ❑ **TISPAN_NGN and 3GPP collaboration, e.g.**
 - Joint Working Groups on
 - IMS interfaces reuse/adaptation for fixed NGN
 - SIP profile reuse/adaptation to support xDSL IP-CAN
 - Cross participation
 - To other specific Work Items as needed


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tispán_NGN summary



- ❑ **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 mid-2005**
 - Giving main standards directions
 - With realistic and implementable solutions
- ❑ **ETSI TISPAN taking lead to propose an architecture basis consisting of a set of subsystems:**
 - Maximizing Wireline and Cellular convergence, through adoption of 3G/UMTS IMS component for support of conversational services
 - Access network attachment, Resource and admission control sub-systems ... preparing for next Releases
- ❑ **TISPAN to collaborate with 3GPP to accommodate Wireline access network requirements by IMS**
 - Workshop being scheduled 2nd Half June
 - To identify areas of synergy and plan future collaboration

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