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Foreword

This Technical Report (TR) has been produced by ETSI Technical Committee Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN).

The present document defines the TISPAN_NGN Release 1 requirements, features and documentation set together with their inter-relationships.

Introduction

The present document defines Release 1 of an anticipated series of releases of TISPAN NGN. The TISPAN NGN is described in terms of the requirements and content capabilities and Release 1 is defined by the documentation set and the features that these support.

Clause 4 provides a general description of an NGN.. In order to fulfil these general objectives of an NGN, the present document focuses on key initial capabilities and a generalized architectural principle to enable an NGN to be a flexible platform allowing future enhancements and releases.

The TISPAN NGN is specified using a release mechanism. The present document provides an overview of the requirements for the first release. No assumptions should be made about future releases.

Throughout the present document, references to NGN are assumed to be references to TISPAN NGN unless otherwise indicated.

1   Scope

The present document provides a description of the content of NGN Release 1 and defines the release through a catalogue of the Release 1 documentation set. The inter-relationships between release 1 documents and the features supported is also provided..

The present document is structured as follows:

-       clause 4 provides an overview of Next Generation Networks (NGN);

-       clause 5 describes the NGN Release 1, the Requirements to support Release 1 and outlines the major capabilities that Release 1 will fulfil;

-       clause 6 defines the content and capabilities of NGN Release 1;

-       clause 7 introduces the Release 1 plan documentation set.

The present document does not provide solutions for the technical issues that are identified therein.

2   References

For the purposes of this Technical Report the following references apply:

[1]   TR 180 000: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Terminology".

[2]   ETSI TR 183 013: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Analysis of relevant 3GPP IMS specifications for use in TISPAN-NGN Release 1 specifications".

[3]   ITU-T Recommendation Y.1541: "IP Network QoS classes" and 3GPP TS 23.107 "UMTS QoS classes".

[4]   ETSI TS 123 107: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Quality of Service (QoS) concept and architecture (3GPP TS 23.107)".

[5]   ITU-T Recommendation M.3050: "Enhanced Telecommunications Operations Map".

[6]   ETSI TS 133 203: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); 3G security; Access security for IP-based services (3GPP TS 33.203)".

3   Definitions and abbreviations

3.1   Definitions

For the purposes of the present document, the terms and definitions given in TR 180 000 and the following apply:

access network: collection of network entities and interfaces that provides the underlying IP transport connectivity between the device and the NGN entities

NOTE: An example of an "Access Network" is ADSL.

hand-over: special case of session continuity where the incurred interruption or loss of data is below certain limits such that real-time services can be continued despite of the change of access point

mobility management: set of functions used in the Core Network to provide mobility

NOTE: These functions include authentication, authorization, location updating, paging, download of user information and more.

nomadism: ability of the user to change his network access point on moving; when changing the network access point, the user's service session is completely stopped and then started again

NOTE: I.e. there is no session continuity or hand-over possible. It is assumed that normal usage pattern is that users shutdown their service session before moving to another access point.

personal mobility: mobility for those scenarios where the user changes the terminal used for network access at different locations

NOTE: The ability of a user to access telecommunication services at any terminal on the basis of a personal identifier, and the capability of the network to provide those services delineated in the user's service profile.

roaming: ability of the users to access services according their user profile while moving outside of their subscribed home network

NOTE: I.e. by using an access point of a visited network. This requires the ability of the user to get access in the visited network, the existence of an interface between home network and visited network, as well as a roaming agreement between the respective network operators.

seamless hand-over: hand-over is further called seamless when the terminal location change does not result in delay or loss of data that would be perceived by the user as degradation of quality of service

seamless mobility: ability to provide services irrespective of changes that may occur by user/terminal's activities

NOTE: The user is able to change his network access point, as he moves, without interrupting his current service session, i.e. handovers are possible. In some situations, the hand-over may lead to a briefly suspended service session or it may require a change in the level of service provided as a consequence of the capabilities of the new access point to which the user has become connected through the hand-over process.

seamless service (or seamless service continuity): Same as service mobility.

service mobility: mobility, applied for a specific Service

NOTE: I.e. the ability of a user to use the particular (subscribed) service irrespective of the location of the user and the terminal that is used for that purpose.

session continuity: ability of a user or terminal to change the network access point while maintaining the ongoing session

NOTE: This may include a session break and resume, or a certain degree of service interruption or loss of data while changing to the new access point.

terminal mobility: ability for a terminal to be moved to different physical locations

NOTE: When being moved it may or may not connect to an access network that is the same in terms of technology to that of the access network that it has just moved from.

terminal mobility: mobility for those scenarios where the same terminal equipment is moving or is used at different locations

NOTE: The ability of a terminal to access telecommunication services from different locations and while in motion, and the capability of the network to identify and locate that terminal.

user mobility: ability for a subscriber to move to different physical locations and be able to use one or more devices connected to one or more access networks to gain access to their services

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

3GPP	3rd Generation Partnership Project
ACR	Anonymous Call Rejection
ADSL	Asymmetrical Digital Subscribers Line
AF	Application Function
A-RACF	Access Resource and Admission Control Function
BGF	Border Gateway Function
BICC	Bearer Independent Call Control
BPON	Broadband Passive Optical Network
BW	BandWidth
CB	Call Barring
CDIV	Call DIVersion
CLF	Connectivity session Location and repository Function
CN	Core Network
CONF	CONFerence
CS	Circuit Switched
CSTA	Computer Supported Telecommunications Application
CUG	Closed User Group
ECT	Explicit Call Transfer
EPON	Ethernet Passive Optical Network
eTOM	enhanced Telecommunications Operations Map
GEPON	Gigabit Ethernet Passive Optical Network
HSS	Home Subscriber Server
I-CSCF	Interrogating Call Server Control Function
IM	Immediate Messaging
IMS	IP Multimedia Subsystem
IP	Internetworking Protocol
IP-CAN	IP Connectivity Access Network
ISDN	Integrated Services Digital Networks
ISUP	ISDN Services User Part
ITU-T	International Telecommunications Union Telecommunication standardization
LAN	Local Area Network
MAN	Metropolitan Area Network
MCID	Malicious Call IDentification
MWI	Message Waiting Indication
NASS	Network Attachment SubSystem
NGN	Next Generation Networks
OIP	Originating Identification Presentation
OIR	Originating Identification Restriction
OMA	Open Mobile Alliance
PC	Personal Computer
P-CSCF	Proxy Call Server Control Function
PECN	Public Electronic Communications Network
PES	PSTN/ISDN Emulation Subsystem
PS	Packet Switched
PSTN	Public Switched Telephone Network
QoS	Quality of Service
RACS	Resource and Admission Control Subsystem
SCN	Switched Circuit Network
S-CSCF	Serving Call Server Control Function
SCT	Switched Circuit Technology
SDP	Session Description Protocol
SDSL	Symmetrical Digital Subscribers Line
SEC	SECurity
SIMPLE	SIP for Instant Messaging and Presence Leveraging Extensions
SIP	Session Initiation Protocol
SIP-T	SIP for Telephony
SLA	Service Level Agreement

SPDF	Service Policy Decision Function
TIP	Terminating Identity Presentation
TIR	Terminating Identity Restriction
TV	TeleVision
UMTS	Universal Mobile Telephony Service
UNI	User-Network Interface
UTRAN	UMTS Terrestrial Radio Access Network
VDSL	Very high bit-rate Digital Subscribers Line
VPN	Virtual Private Network
WLAN	Wireless Local Area Network
XCAP	XML Configuration Access Protocol
xDSL	Digital Subscribers Line (incorporating ADSL, SDSL and VDSL)
XML	eXtensible Mark-up Language
xPON	x Passive Optical Network incorporating (BPON, EPON and GEPON)

4   NGN Overview

PECN operators within Europe have developed and deployed broadband-enabled accesses which are largely used for fast internet access. To enable continued development of broadband, it is important to introduce new services to retain and attract new customers which in turn will sustain or generate further revenues. NGN aims to meet the needs of network operators and vendors alike in developing specifications for a feature-rich NGN that supports key capabilities necessary to enable a wide range of multimedia services. Capabilities in support of legacy PSTN/ISDN services (PSTN/ISDN emulation/simulation) and appropriate interconnections to other networks are supported in Release 1 alongside new multimedia services.

The fundamental aspects of an NGN are defined in TR 180 000 [1], and the present document describes, in clause 6, the compatibility of Release 1 with those objectives.

The documents defining NGN Release 1 are listed in clause 7.

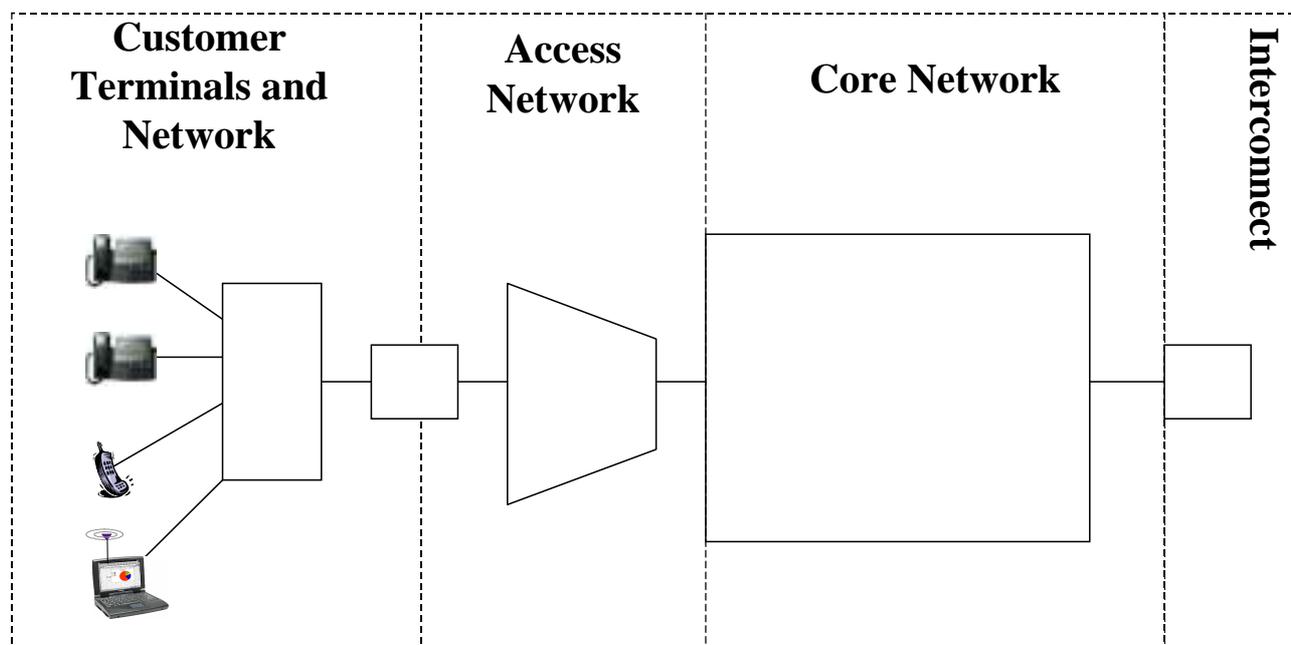## 4.1   NGN System Components

Figure 1: NGN System Components

Figure 1 shows that there are four fundamental areas that are key to the NGN;

- Customer Networks (Including Enterprise Networks).

- Access Networks.

- Core Network (including the control domain, the transport domain, and the applications environment).

- Interconnect.

5 Definition of Release 1

5.1 Release 1 Objectives

The general objective of the first release of all release-based standards is to provide a framework, that provides an extensible platform for future service and architecture development. The objectives for NGN Release 1 were to provide such an extensible platform and architecture, and to demonstrate viability by specifying the details for two significant objectives were set:

- to enable delivery of the services supported in a 3GPP IMS to broadband fixed lines;

- to enable PSTN/ISDN replacement (in whole or in part).

A deployed Release 1 NGN may support either of the above objectives, or both using the same core network, transport, service and applications. An overview of the requirements to support these two specific objectives is given in clauses 5.3 and 5.5 respectively.

NGN Release 1 is designed to be extensible, allowing new services to be incorporated into the release 1 subsystems, and to enable other subsystems to be defined (see clause 6.2.2).

5.2 NGN Core Network

The NGN Core Network is built upon IP as a network transport technology and based upon the 3GPP IMS as defined in 3GPP Release 6 and 3GPP2 revision A for IP-based multimedia applications. Minimal changes, for example to support fixed-line broadband access (such as xDSL) are introduced in Release 1. The core network is also required to support PSTN/ISDN replacement and migration scenarios.

5.3 NGN Interfaces

NGN interfaces are shown in figure 2. It should be noted that this figure does not show all cases, for example some customer premises will not include a customer network, and some access networks will not incorporate a Switched Circuit Technology (SCT) access network.

The overall network is divided into segments as shown in figure 2, and the segments may be separate administrative domains. The interfaces between segments may need to support various functionality for security and control. Where such interfaces exist, it should be possible for each administrative domain to protect itself from others for various purposes.
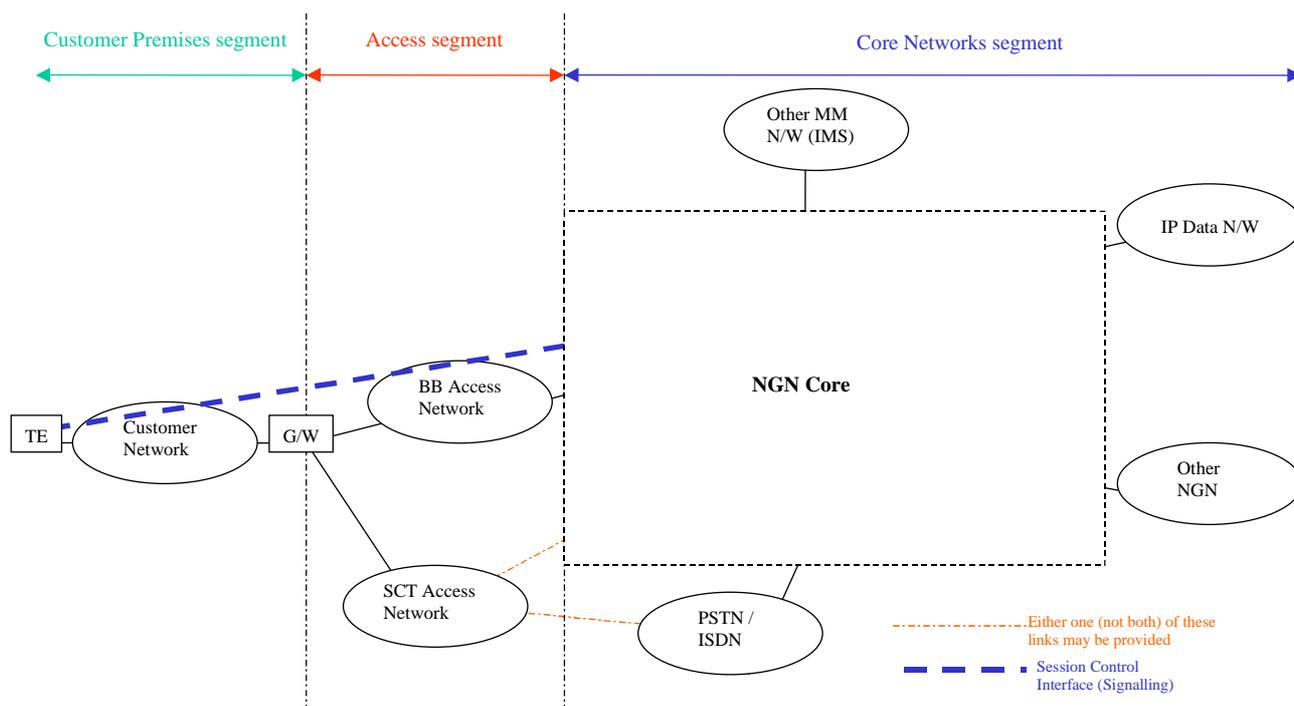
Figure 2: NGN Interfaces

5.4   NGN and 3GPP IMS

The core network of NGN Release 1 is required to be based upon the IMS, as defined in 3GPP Release 6 and 3GPP2 revision A for IP-based multimedia applications. Additional capabilities not covered by 3GPP IMS Release 6 and 3GPP2 Revision A are summarized in the present document.

NGN support for 3GPP IMS is such that the (SIP-based) IP Multimedia subsystem (Core IMS) in figure 3 enables a 3GPP terminal to access the services provided by this subsystem via a 3GPP defined IP connectivity access network (IP-CAN). Access to services in the other subsystems is not explicitly provided.

5.5   Mobility

The NGN is required to support the mobility of services, users and terminal equipment in networks where mobility management exists. Services are mobile where a mobility management interface between networks exists. Users are mobile where a user control interface to the terminals of the access network exists. The required mobility support in NGN release 1 is limited to the ability of a terminal to be moved to different access points (which may be owned by a different access network provider). NGN Release 1 mobility is required to support nomadicity. NGN Release 1 mobility is not required to support hand-over of communications sessions between access networks. There is no requirement to prevent continuous terminal mobility within an access network.

5.6   PSTN/ISDN Emulation

The NGN will support a gradual migration for the support of both legacy equipment and the PSTN/ISDN service set. Key scenarios of this feature are:

- PSTN/ISDN Replacement (in whole or in part).

- Support for legacy terminal equipment connected directly and indirectly to the NGN.

Legacy terminal support includes direct connection via an SCT access network and indirect connection via terminal adaptation and the broadband access network.

Legacy terminal support includes direct connection via an SCN access network and indirect connection via terminal adaptation and the broadband access network. The PSTN/ISDN service set and call servers are not re-defined by NGN. It is assumed that a PSTN/ISDN call server will provide an ISUP or other PSTN call model, and will provide signalling transport and interworking. The full PSTN/ISDN service set is only applicable to certain terminal types, i.e. legacy terminals or user equipment behaving like legacy terminals.

PSTN/ISDN replacement of trunk switches by IP-based transport and the re-use of PSTN call control as the only signalling providing services (trunking scenarios) are not defined in NGN.

5.7 PSTN/ISDN Simulation

The provision of services similar to the PSTN/ISDN to voice and other multimedia terminal equipment is termed simulation. It is not assumed that such services will be identical to their counter-parts in the PSTN/ISDN, and they will not necessarily utilize PSTN/ISDN call models or signalling protocols. PSTN/ISDN Simulation is provided at the User Interface (so the UNI may be different to the PSTN/ISDN) while PSTN/ISDN replacement (emulation) is the provision of the exact same service set to support PSTN/ISDN legacy terminals on a different network.

5.8 Interconnection

As well as interconnection between multiple NGN networks, the NGN is also required to support access to other networks that provide communications, services and content, including seamless interoperability with 3GPP networks, and the secure and safe interconnection to the public Internet.

5.9 Access Networks

NGN Release 1 is required to support access networks of diverse technologies and capabilities. Regardless of the type of access network technology, the NGN communications and services are required to be available to all subscribed users.

5.9.1 Access Network Assumptions/Requirements

The access network is defined as a collection of network entities and interfaces that provides the underlying IP transport connectivity between the device and the NGN core entities. Examples of "Access Network" are given below. It should be noted that this list is not an exhaustive list and other access network may be considered.

- Wireline

    - xDSL: this includes ADSL, SDSL and VDSL transport systems and supporting connection/multiplexing technologies.

    - Optical access: this covers single star and xPON transport systems such as BPON, EPON, GEPON.

    - Other wireline access network connectivity types (e.g. Gigabit Ethernet link to a corporate network). NGN assumes that this interface is a direct connection to a customer owned and managed LAN or MAN. Control is limited to admission control.

    - Interworking with corporate networks (serving either one single or multiple enterprises) as a customer network connected via any type of access network; The use of corporate network purely as another type of access network is not precluded by this scenario.

    - Cable networks may be supported as another type of access network, but no interworking requirements are placed. NGN will not control resources or authenticate access to this network by terminals and users.

- Wireless

    - Wireless LAN networks are required to be supported by the NGN. For Release 1 they are regarded as just another type of access network. The NGN interface to the wireless LAN network will be at a fixed (not radio) point. Requirements for this support are similar to the support for xDSL access networks.

- 3GPP or 3GPP2 PS domain. NGN shall support the 3GPP PS domain at the same interface point as other access networks, see figure 3. Network attachment and associated functionality is supported in exactly the same way as in a 3GPP network. In this sense NGN supports any 3GPP or 3GPP2 IP-CAN. NGN does not support the CS domain as an access system. All interfaces between the PS domain and the IMS are maintained unchanged in the NGN. The 3GPP PS domain is not re-documented as part of NGN specifications.

- Other wireless access network connectivity types.

All NGN capable access types are required to offer IP connectivity.

5.10   Customer networks

NGN recognizes that there may be a customer network beyond the access network. This implies that any interface to the NGN must potentially support multiple terminals. It is recognized that some customer networks (usually unmanaged) can cause conflicting service requests (e.g. an unmanaged best effort customer network can allow two terminals to request services that the customer network does not have enough resources to support).

NGN will support configurations of customer networks that includes multiple terminals. NGN support for customer networks is limited to control of the gateway between the customer-owned equipment and the access network. This gateway may be customer-owned or access network operator owned. The level of support for a customer-owned gateway will be limited.

In the case of Corporate Networks configured as customer networks, internal communications do not necessarily require the involvement of the NGN core network.

5.11   NGN end user equipment

The NGN will support a variety of terminals end user equipment.

This includes legacy terminals, which may be connected to a residential gateway, a SIP phone, a soft-phone (program on PC), set-top box, multimedia terminals, PC, end user equipment with intrinsic capability to support a simple service set, and end user equipment that can support a programmable service set.

Release 1 does not specify or mandate a particular terminal type or capability.

Release 1 explicitly supports a mobile terminal fully compliant with 3GPP specifications only when directly connected through a 3GPP IP-CAN.

5.12   Application Support

NGN supports the delivery of end-user services through application servers, rather than directly embedding services as capabilities in the control protocols. For real-time conversational services (SIP based session control), the application server controls the communication session by modifying the behaviour of the generic session control (e.g. using triggers).

Third-party service providers and applications are supported through suitable control interfaces.

5.12.1   CSTA Support

NGN is required to transport CSTA Information in a SIP XML body to support remote control of user equipment from an application.

5.13   Security

Release 1 will provide a secure and trustworthy environment for customers, network operators and service providers.

5.14 Quality of Service

An essential feature of NGN is QoS assurance. Release 1 will provide a QoS assurance environment for customers, network operators and service providers. It will also provide a measurable QoS environment.

5.15 Disabled users

NGN-R1 shall provide support to users with disabilities (including but not restricted to those with hearing and speech disabilities).

6 Release 1 Content and Capabilities

6.1 Fundamental Capabilities

The fundamental aspects of an NGN are defined in TR 180 000 [1], and the following clauses compare these with the support for those fundamentals within NGN Release 1.

6.1.1 Packet-based transfer

This is supported in Release 1. NGN assumes the universal use of IP networking at the network layer. Other packet based switching protocols may be used at lower layers.

6.1.2 Separation of control functions among bearer capabilities, call/session, and application/ service

This is supported in Release 1. It is a fundamental aspect of all NGN architectures.

6.1.3 Support for a wide range of services, applications and mechanisms based on service building blocks (including real time/ streaming/ non-real time services and multi-media)

This is supported in Release 1. NGN enables network providers to provide services by combining service capabilities provided either in house or via 3rd parties. NGN supports conversational real and non-real time services and streaming. Services can take advantage of the multimedia capabilities of the NGN network. Additionally, NGN defines PSTN/ISDN "emulation" in support of transparent PSTN/ISDN service between legacy PSTN/ISDN terminal equipment and "PSTN/ISDN Simulation" in support of PSTN/ISDN-like services on NGN terminals. For conversational services NGN uses an enhanced 3GPP IMS (Release 6) as its core.

6.1.4 Broadband capabilities with end-to-end QoS and transparency

NGN supports interfaces to a variety of different broadband Access Networks providing IP connectivity, such as xDSL, cable and 3GPP UTRAN. NGN recognizes that there may be a customer network beyond the access network. In support of end to end QoS, NGN includes a policy control framework based on admission control between the access and core networks. Resource reservation mechanisms may be deployed in the access network however R1 does not mandate the use of resource reservation in the core network.

In the case of a Corporate Network connected via an access network, provision of admission control by the TISPAN_NGN policy framework is not required. Besides, resource reservation may be provided within that customer network.

6.1.5 Interworking with legacy networks

This is supported in Release 1. NGN Release 1 supports the interworking with legacy SS7 networks via a gateway. Additionally, NGN Release 1 also supports interconnection to other networks such as 3GPP IMS, and IPCablecom based cable networks.

6.1.6 Generalized mobility

Support for Nomadism and personal mobility is provided in Release 1. NGN assumes that service mobility may be supported and that such service mobility may employ session continuity. The session continuity achieved may in some circumstances be close to that of a "hand-over" however NGN R1 gives no guarantee that this will be the case. Terminal mobility is supported to the extent that devices that may be moved between access networks must support the relevant technologies employed in that access network. Seamless hand-over is supported only in 3GPP UTRAN access networks.

6.1.7 converged services between Fixed/Mobile

This is supported in Release 1. NGN is based on the IMS defined in a number of 3GPP Release 6 specifications. NGN Release 1 provides modifications or adaptations to these specifications in order to support the same services on terminals utilizing access networks other than the 3GPP IP-CAN.

6.2 Service and Architectural Principles

Existing networks have largely standardized the complete set of tele-services, applications, and supplementary services which they provide. As a consequence, substantial re-engineering is often required to enable new services to be provided and the market for services is largely determined by operators and standardization. Thus, this makes it difficult for operators to differentiate their services.

NGN standardizes service capabilities and not the services themselves. Service capabilities consist of bearers defined by QoS parameters and the mechanisms to realize these services. These mechanisms include functionality provided by various network entities, the communication between these entities, and the storage of relevant data.

6.2.1 Major Service Capabilities

NGN Release 1 supports the following major service capabilities:

- Session establishment and control for session based services, including:
    - Real-time conversational services (voice, multi-media, messaging, etc.).
    - Multimedia Telephony.
    - Videotelephony.
- Presence.
- PSTN/ISDN migration scenarios for both replacement and evolution (emulation and simulation).

NGN services are based on the 3GPP IMS (Release 6) supported services (for SIP-controlled services including presence). The existing PSTN/ISDN services are supported for legacy terminals by PSTN/ISDN emulation. NGN additionally supports content delivery and Public Internet type services.

6.2.2 Network Architecture

The Network Architecture is based on the re-use of the 3GPP IMS (Release 6) for SIP-controlled services including the control and delivery of real-time conversational services (SIP-based control). The 3GPP IMS is extended in NGN to support additional access network types, such as xDSL and WLAN (see clause 5.9 of the present document). The 3GPP IMS extensions take account of:

- The control of access networks (QoS, admission control, authentication, etc.).

- The co-ordination of multiple control sub-systems to a single core transport for resource control.

- The interworking and interoperability with legacy networks.

- Mutual de-coupling of the application layer from the session/call control layer and the transport layer.

- Access technology independence of session/call control layer and application layer.

For non-SIP controlled services the NGN architecture may include additional subsystems defined by figure 3 shows a representation of the components of the NGN. The subsystems shown overlap and may share functionality.
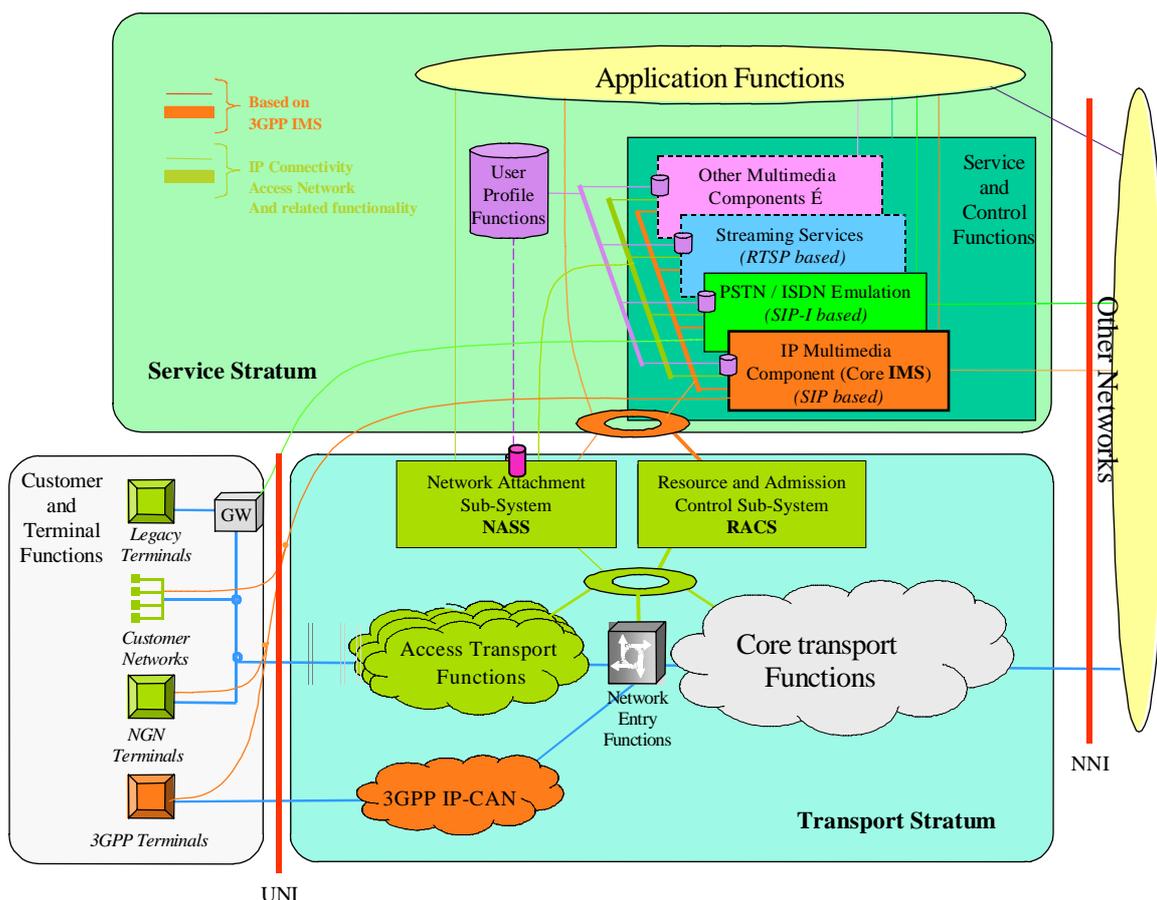
Figure 3: NGN Overview

Figure 3 combines both the physical and functional overview of the scope of NGN. It provides a simplistic decomposition of an NGN into defined portions to enable standardization activities to progress in parallel.

Figure 3 makes extensive use of colour to group related aspects of service delivery. Service delivery and control are represented by components, and intend to collate related control functions. Complex services are supported in the NGN by a common applications layer.

The components are related to each other and may contain common or shared functionality. No assumptions should be made concerning their representation as separate components in the figure. Release 1 concentrates on the re-use of 3GPP specifications (orange) and the adaptation to fixed-network accesses (mid-green).

The PSTN/ISDN Emulation component (fluorescent green) provides all of the network functionality associated with supporting existing services to legacy customer interfaces and equipment

Physical transport networks provide the connectivity for all components and physically separated functions within the NGN. Transport is divided into Access Networks and Core Network, with a Border Gateway linking the two transport network categories.

IP-connectivity is provided to the NGN customer equipment by the transport layer, under the control of the network attachment subsystem and the resource and admission control functionality.

The figure represents the compilation of user and other control data into a single "User Profile" function. This function may be specified and realized as a set of co-operating databases with functionality residing in any part of the NGN.

Customer interfaces are supported by both physical and functional (control) interfaces, and both are shown in the figure. No assumptions are made about the diverse customer interfaces and customer networks that may be connected to the NGN access network. All categories of customer equipment are supported in the NGN, from single-line legacy telephones to complex corporate networks. Customer equipment may be both mobile and fixed.

The NGN interface(s) to other networks includes many existing networks, such as the PSTN/ISDN, other NGN, 3GPP networks, the Public Internet, etc.

The NGN interfaces other networks both at the control level and at the transport level, using border gateways. Border gateways may involve media transcoding and bearer adaptation. Interactions between the control and transport level may take place, directly or through the RACS functionality.

All of the interfaces and service categories are further overviewed elsewhere in the present document. The functionality and interactions for all the items in the figure are defined within the complete specifications of the NGN, see clause 7 for a roadmap of documents.

6.3 Session Types

The NGN capabilities are based upon a generic session control capability.

The NGN supports 3 types of sessions: uni-cast (sessions between 1 source and 1 destination), multicast (sessions from 1 source to multiple - more than 1 - destinations), and broadcast (sessions from 1 source to all destinations).

Any peer-to-peer or client-server communications can be considered as an example of uni-cast. A radio or TV broadcast service can of course be considered as broadcast (in which case the terminal is responsible for selecting the wanted information stream (channel) among all the received streams (channels)), while online gaming through a gaming server could be a multicast service.

6.4 Other Capabilities

Authentication / Identification / Authorization

The authentication and identification of a user is an important capability which is essential for any commercial real time and non-real time services. Authentication requires a user to identify themselves towards the network/service provider in order to obtain access to the network/service, while identification relates to a user revealing their identity towards another user.

Network Authentication

User groups / VPNs

An NGN should enable the creation of closed user groups or VPNs (depending on the level of the service). Of course almost any type of basic service capability can occur inside a CUG or VPN.

6.5 Quality of Service

The following requirements are applicable for TISPAN NGN Release 1.

6.5.1 General Requirements for QoS

- The NGN Release 1 should take into consideration the fact that in an opened and deregulated market, it is not always possible to control the user's domestic installation.

- The TISPAN_NGN Release 1should be able to support a wide range of QoS-enabled services.

- A mechanism is required for dynamic negotiation of QoS parameters between service and access providers based on an SLA.

- It should support the development of at least one of two different models of service assurance: guaranteed and relative QoS.

- It should allow that terminals without support of QoS specific signalling be deployed as well as to terminals with such support.

- An application driven QoS mechanism should be supported.

- Although the ultimate quality of service perceived by the end user is clearly an end-to-end QoS, the access network is considered the most critical segment. In the scope of TISPAN Release 1 the QoS solution will only be provided for the access segment. QoS in the core transport network is considered to be achieved by other means that are out of the scope of TISPAN NGN Release 1 (e.g. over provisioning).

- The QoS mechanism in TISPAN NGN Release 1 should provide QoS for application traffic where upstream and downstream flows have specific QOS requirements.

- The architecture should allow BW reservation.

- The provision of QoS in TISPAN_NGN mechanisms should take account of different QoS control mechanisms corresponding to different technologies and possibly different business models.

- The provision of QoS in TISPAN_NGN mechanisms should take account of different QoS control mechanisms corresponding to different technologies and possibly different business models. The following three scenarios have been identified:

    a) Proxied QoS with policy-push: The users terminal or Home gateway does not itself support native QoS signalling mechanisms. It requests a specific service to the Application Manager, which determines the QoS needs for this service (as in xDSL network).

    b) User-requested QoS with policy-push: The client is able to request its QoS needs and the terminal or the Home gateway is capable to send QoS requests over signalling and/or management protocols for its own QoS needs, but requires prior authorization from an Application Manager (as in Mobile Network).

    c) User-requested QoS with policy-pull: The user's terminal or Home gateway is capable of sending QoS Request over signalling and management protocols for its own QoS needs, and does not require prior authorization.

6.5.2 Technical Requirements for QoS

- TISPAN_NGN QoS classes should be based on the ITU-T Recommendation Y.1541 [3] "IP Network QoS classes" and TS 123 107 [4].

- It should be possible to map QoS application requirement to different bearer related QoS.

- Derivation/definition of network performance parameter values from the application requirements has to be simple.

- The architecture for QoS should permit an easy and incremental deployment of service.

- QoS mechanism have to allow efficient use of access resource.

- QoS mechanism should allow independent evolution of Core and Access networks.

6.6 Network Management

NGN management supports the monitoring and control of the NGN services and service and transport components via the communication of management information across interfaces between NGN components and management systems, between NGN-supportive management systems, and between NGN components and personnel of service providers and network operators.

NGN management supports the aims of the NGN by:

- Providing the ability to manage, through their complete life cycle, NGN system components, both physical and logical. This includes resources in the core network (including IMS), access networks, interconnect components and customer networks and their terminals.

- Providing the ability to manage NGN service components independently from the underlying NGN transport components and enabling organizations offering NGN end user services (potentially from different service providers) to build distinctive service offerings to customers.

- Providing the management capabilities which will enable organizations offering NGN end user services to offer customers the ability to personalize end user services and to create new services from service capabilities (potentially from different service providers).

- Providing the management capabilities which will enable organizations offering NGN end user service improvements including customer self service (e.g. provision of service, reporting faults, online billing reports).

- Developing a management architecture and management services which will enable service providers to reduce the time frame for the design, creation and delivery of new services.

- Supporting the security of management information, including customer and end user information.

- Supporting the availability of management services any place any time to any authorized organization or individual (e.g. access to billing records shall be available 24/7).

- Supporting eBusiness Value Networks based upon concepts of business roles (Customer, Service Provider, Complementor, Intermediary, Supplier (e.g. Equipment Vendor)) [Y.110, M.3050 [5]/eTOM].

- Allowing an enterprise and/or an individual to adopt multiple roles in different value networks and also multiple roles within a specific value network (e.g. one role as a retail Service Provider and another role as a wholesale Service Provider) [M.3050 [5]/eTOM].

- Supporting B2B processes between organizations providing NGN services and capabilities.

- Allowing the management of hybrid networks comprising NGN and non-NGN (e.g. PSTN, cable network) resources.

- Integrating an abstracted view on Resources (network, computing and application), which is hiding complexity and multiplicity of technologies and domains in the resource layer.

- Supporting the collection of charging data for the network operator regarding the utilization of resources in the network either for later use by billing processes (offline charging) or for near-real time interactions with rating applications (online charging).

The Release 1 Management specifications provide the architectural framework which is required to implement the listed features and capabilities in a coherent and flexible way. To achieve the required flexibility the use of a Service Oriented Architecture is specified.

6.7　Security

The ability to guarantee secure communications and to block unwanted traffic or access to a terminal is beneficial for almost all types of basic service capabilities.

The IM CN subsystem will reuse the authentication and authorization mechanisms specified by 3GPP in TS 133 203 [6]. This reuse requires certain other security mechanisms such as:

- specification of security between entities of the IM CN subsystem that are involved in the mechanisms specified by TS 133 203 [6], particularly between the HSS, P-CSCF, I-CSCF and S-CSCF.

NGN release 1 will specify mechanisms for protecting user traffic controlled by IMS.

6.8   Billing, charging and accounting

NGN should enable all possible types of billing arrangements, as well as accounting (between providers). This includes also e-commerce arrangements.

Billing, charging and accounting in NGN will be based on the collection of information from any appropriate entities in the form of Charging Data Records (CDRs). NGN release 1 will specify the format and content of these CDRs, reusing where possible appropriate specifications from 3GPP. This reuse may include entities outside the IMS.

NGN release 1 will not specify the functionality of billing, charging and accounting systems, or how CDRs are collected.

7   Release 1 Documentation Set

7.1   List of documents comprising NGN Release 1

7.1.1   General

TR 180 001:   "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Release 1 Definition".

TR 180 000:   "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Terminology".

7.1.2   Services and requirements

TS 181 001:   "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Videotelephony; Service Description".

TS 181 002:   "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Multimedia Telephony with PSTN/ISDN Simulation Services; Service Description".

TS 181 010:   "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Service requirements for end-to-end session control in multimedia networks".

TS 102 424:   "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Requirements of the NGN network to support Emergency Communication from Citizen to Authority".

TS 181 005:   "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Service and Capabilities; Requirements".

7.1.3   Architecture

ES 282 001:   "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Overall Network Architecture; Functional Architecture".

ES 282 002:   "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN Emulation subsystem (PES); Functional Architecture".

ES 282 003:   "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Resource and Admission Control subsystem (RACS); Functional Architecture".

ES 282 004:   "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Network Attachment subsystem (NASS); Functional Architecture".

TR 182 005:   "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Organization of user data".

TS 182 006: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IP Multimedia Subsystem (IMS); Stage 2 Description; TS 23 228 Release 6, modified".

ES 282 007: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IP Multimedia Subsystem (IMS); Functional Architecture".

TS 182 012: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IMS-based PSTN/ISDN Emulation subsystem; Functional Architecture".

TS 182 008: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Presence service; Functional Architecture and Functional Description; 3GPP TS 23.141, modified; OMA-AD-Presence_SIMPLE-V1_0, modified".

ES 282 010: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Charging (Endorsement of 3GPP TS 32.240 v6.3.0, TS 32.260 v6.3.0, 3GPP TS 32.297 v6.1.0, TS 32.298 v6.1.0 and TS 32.299 v6.4.0)".

TS 182 011: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); XML Document Management; Architecture and Functional Description (Endorsement of OMA-AD-XDM-V1_0)".

7.1.4 Protocols

7.1.4.1 Interworking documents

EN 383 001: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Interworking; Interworking between Session Initiation Protocol (SIP) and Bearer Independent Call Control Protocol or ISDN User Part; ITU-T recommendation Q.1912.5, modified".

ES 283 012: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Interworking; Trunking Gateway Control Procedures for interworking between NGN and External CS Networks".

TS 183 021: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Interworking; Interworking between the IMS and IP multimedia networks".

ES 283 027: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Interworking; Endorsement of the SIP-ISUP Interworking between the IP Multimedia (IM) Core Network (CN)subsystem and Circuit Switched (CS) networks; 3GPP TS.29.163 (Release 7)".

7.1.4.2 Interface Protocol documents

ES 283 002: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN Emulation; H.248 Profile for controlling Access and Residential Gateways in the PSTN/ISDN Emulation subsystem; protocol specification".

ES 283 003: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IP Multimedia Call Control Protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP) Stage 3 Protocol specification; 3GPP TS. 24.229 (Release 7), modified".

ES 283 039-3: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Access Gateway - Media Gateway Controller Overload Control".

TS 183 017: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Resource and Admission Control; DIAMETER protocol for session based policy set-up information exchange between the Application Function (AF) and the Service Policy Decision Function (SPDF); Protocol specification".

ES 283 018: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Resource and Admission Control; H.248 Profile for controlling Border Gateway Functions (BGF) in the Resource and Admission Control subsystem; Protocol specification".

TS 183 019: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Network Attachment; Network Access xDSL and WLAN Access Networks; Interface Protocol Definitions".

TS 183 020: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Network Attachment; Roaming in TISPAN NGN Network Accesses; Interface Protocol Definition".

TS 183 043: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN) IMS-based PSTN/ISDN Emulation Call Control Protocols; Stage 3".

ES 283 024: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN Emulation; H.248 Profile for controlling Trunking Media Gateways in the PSTN/ISDN Emulation Subsystem; Protocol specification".

ES 283 026: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Resource and Admission Control; Protocol for QoS resource reservation information exchange between the Service Policy Decision Function (SPDF) and the Access-Resource and Admission Control Function (A-RACF) in the Resource and Admission Control subsystem; Protocol specification"

ES 283 031: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IP Multimedia; H.248 Profile for controlling Multimedia Resource Function Processors in the IP Multimedia subsystem; Protocol specification".

TS 183 033: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IP Multimedia; IP Multimedia (IM) Subsystem Cx and Dx Interfaces; Signalling flows and message contents & IP Multimedia (IM) Subsystem Cx and Dx Interfaces; Cx and Dx interfaces based on the Diameter protocol [3GPP TS.29.228 v.6.8.0 and 3GPP TS.29.229 v.6.6.0, modified]".

ES 283 034: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Network Attachment Subsystem e4 interface based on the DIAMETER protocol".

ES 283 035: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Network Attachment Subsystem; e2 interface based on the DIAMETER protocol".

TS 183 038: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); XML Group Management; Stage 3 Specification; (Endorsement of OMA OMA-TS-XDM_Core-V1_0-20050628 and OMA-TS-XDM_Shared-V1_0-20050628)".

TS 183 023 (V1.1.1): "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services; Extensible Markup Language (XML) Configuration Access Protocol (XCAP) for Manipulating NGN PSTN/ISDN Simulation Services; Protocol specification".

TS 183 023 (V1.1.2): "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services; Extensible Markup Language (XML) Configuration Access Protocol (XCAP) over the Ut interface".

7.1.4.3   Service related documents

TS 183 004: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services; Communication Diversion (CDIV); Protocol specification".

TS 183 005: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services; Conference (CONF); Protocol specification".

TS 183 006: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services; Message Waiting Indication (MWI); Protocol specification".

TS 183 007:   "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services; Originating Identification Presentation (OIP) and Originating Identification Restriction (OIR); Protocol specification".

TS 183 008:   "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services; Terminating Identification Presentation (TIP) and Terminating Identification Restriction (TIR); Protocol specification".

TS 183 011:   "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services; Anonymous Communication Rejection (ACR) and Communication Barring (CB); Protocol specification".

TS 183 016:   "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services; Malicious Communication Identification (MCID); Protocol specification".

Ts 183 022:   "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Media Gateway Control; H.248 Package for Media Gateway Control information; Protocol specification".

TS 183 029:   "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services; Explicit Communication Transfer (ECT); Protocol specification".

ES 283 030:   "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Presence Service; Protocol specification; 3GPP TS 24.141, modified; OMA-TS-Presence_SIMPLE-V1_0, modified".

TS 183 010:   "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services; Communication Hold (HOLD); Protocol specification".

TS 183 041:   "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Messaging Service using the IP Multimedia (IM) Core Network (CN) Subsystem; Stage 3; Protocol Specifications".

7.1.4.4   General documents

TR 183 014:   "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN Emulation; Development and Verification of PSTN/ISDN Emulation".

TS 183 028:   "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Common basic communication procedures; Protocol specification".

7.1.5   Quality of Service

TR 102 479:   "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Review of available material on QoS requirements of Multimedia Services".

7.1.6   Security

TS 187 001:   "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); TISPAN_NGN Security (NGN_SEC); Requirements - NGN Release 1".

TR 187 002:   "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Threat and Risk Analysis".

TS 187 003:   "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); - Security - Security Architecture".

7.1.7   Network Management

TS 188 001:   "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); NGN management; Operations Support Systems Architecture".

TS 188 003:   "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Network Management; Operations Support System; Requirements".

TR 188 004:   "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); TS 188 003 v. 1.1.1 Network Management; Operations Support System; Requirements; Network Management; Operations Support System Vision".

TR 102 647:   "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Network Management; Operations Support System; Standards Overview and Gap Analysis".

7.2   3GPP documents endorsed by TISPAN

The IP Multimedia Subsystem, specified by 3GPP, forms an integral part of the NGN in Release 1. TISPAN endorses by direct normative reference a number of 3GPP documents.

The full list of 3GPP documents endorsed, and the TISPAN document undertaking the endorsement shall be as contained in TR 183 013 [2].

7.3 Capabilities and features supported in Release 1

Table 1 provides a cross-reference to the Release 1 documents according to capabilities and features supported in Release 1.

Table 1: NGN capabilities and features cross reference to documents

Capability/Feature	Document Reference
Overall NGN	
Release 1: Release Definition	TR 180 001
Terminology	TR 180000
Services and Capabilities Requirements for TISPAN NGN Release 1	TS 181 005
NGN Architecture: Overall network architecture; functional architecture	ES 282 001
Organization of User Data	TR 182 005
Service Related	
Multimedia Telephony with PSTN/ISDN Supplementary Services	TS 181 002
IP Multimedia System (IMS) messaging; Stage 1	TS 181 005
Videotelephony over NGN; Service Description	TS 181 001
Presence Service; Stage 1	TS 181 005
Service Provider Access; Open Service access for API requirements; Part 3	EG 201 988-3
XML Group Management; Architecture and Functional Description (Endorsement of OMA-AD-XDM-V1_0)	TS 182 011
Presence service; Functional Architecture and Functional Description; 3GPP TS 23.141, modified; OMA-AD-Presence_SIMPLE-V1_0, modified (Stage 2)	TS 182 008
Common Basic Communication procedures	TS 183 028
PSTN/ISDN simulation services; Communication Diversion (CDIV); Protocol specification	TS 183 004
PSTN/ISDN simulation services; Conference (CONF); Protocol specification	TS 183 005
PSTN/ISDN simulation services; Message Waiting Indication (MWI); Protocol specification	TS 183 006
PSTN/ISDN simulation services; Originating Identification Presentation (OIP) and Originating Identification Restriction (OIR); Protocol specification	TS 183 007
PSTN/ISDN simulation services; Terminating Identification Presentation (TIP) and Terminating Identification Restriction (TIR); Protocol specification	TS 183 008
PSTN/ISDN simulation services; Communication Hold (HOLD); Protocol specification	TS 183 010
PSTN/ISDN simulation services; Communication Hold (HOLD); Protocol specification	TS 183 010
PSTN/ISDN simulation services; Anonymous Communication Rejection (ACR) and Communication Barring (CB); Protocol specification	TS 183 011
PSTN/ISDN simulation services; Malicious Communication Identification (MCID); Protocol specification	TS 183 016
Presence Service; Protocol specification; 3GPP TS 24.141, modified; OMA-TS-Presence_SIMPLE-V1_0, modified (Stage 3)	ES 283 030
XML Group Management; Stage 3 Specification; (Endorsement of OMA OMA-TS-XDM_Core-V1_0-20050628 and OMA-TS-XDM_Shared-V1_0-20050628)	TS 183 038
Messaging Service using the IP Multimedia (IM) Core Network (CN) Subsystem; Stage 3; Protocol Specifications	TS 183 041
PSTN/ISDN simulation services; Extensible Markup Language (XML) Configuration Access Protocol (XCAP) for Manipulating NGN PSTN/ISDN Simulation Services; Protocol specification	TS 183 023
PSTN/ISDN simulation services; Extensible Markup Language (XML) Configuration Access Protocol (XCAP) over the Ut interface	TS 183 023
PSTN/ISDN simulation services; Explicit Communication Transfer (ECT); Protocol specification	TS 183 029
Emergency services	

Capability/Feature	Document Reference
Requirements of the NGN network to support Emergency Communication from Citizen to Authority	TS 102 424
Emergency Location Protocols	TS 102 164
TISPAN adaptations to 3GPP IMS	
Service requirements for end-to-end session control in multimedia network	TS 181 010
IP Multimedia Subsystem (IMS); Functional Architecture	ES 282 007
IP Multimedia Subsystem (IMS); Stage 2 Description; TS 23 228 Release 6, modified	TS 182 006
Analysis of relevant 3GPP IMS specifications for use in TISPAN_NGN Release 1 specifications	TR 183 013
SIP and SDP Stage 3 protocol specification	ES 283 003
Endorsement of 3GPP TS.29.228 (Release 6) and TS.29.229 (Release 6)	TS 183 033
Endorsement of the SIP-ISUP Interworking between the IP Multimedia (IM) Core Network (CN)subsystem and Circuit Switched (CS) networks	ES 283 027
IP Multimedia Subsystem (IMS); Stage 2 Description; Charging Specification	ES 282 010
IP Multimedia; H.248 Profile for controlling MultiMedia Resource Function Processors in the IP Multimedia subsystem; Protocol specification	ES 283 031
PSTN/ISDN Emulation Subsystem (PES)	
PES General	
Interworking for SIP/SIP-T (BICC, ISUP) [ITU-T Recommendation Q.1912.5, modified]	EN 383 001
Softswitch Approach	
NGN and PSTN/ISDN emulation (Stage 2 of Softswitch-based PES)	ES 282 002
PSTN/ISDN Emulation; Development and verification of PSTN/ISDN Emulation	TR 183 011
PSTN/ISDN Emulation; H.248 Profile for controlling Trunking Media Gateways in the PSTN/ISDN Emulation Subsystem; Protocol specification	ES 283 024
H.248 profile for controlling Access and Residential gateways in the PSTN/ISDN Emulation subsystem; Protocol Specification	ES 283 002
IMS-based approach	
IMS-based PSTN/ISDN Emulation subsystem; Functional Architecture	TS 182 012
IMS-based PSTN/ISDN Emulation Call Control Protocols; Stage 3	TS 183 043
Resource and Admission Control Subsystem (RACS)	
Resource and Admission Control subsystem (RACS); Functional Architecture	ES 282 003
Resource and Admission Control; DIAMETER protocol for session based policy set-up information exchange between the Application Function (AF) and the Service Policy Decision Function (SPDF); Protocol specification	TS 183 017
Resource and Admission Control; Protocol for QoS resource reservation information exchange between the Service Policy Decision Function (SPDF) and the Access-Resource and Admission Control Function (A-RACF) in the Resource and Admission Control subsystem; Protocol specification	ES 283 026
Resource and Admission Control; H.248 Profile for controlling Border Gateway Functions (BGF) in the Resource and Admission Control subsystem; Protocol specification	ES 283 018
Resource and Admission Control; DIAMETER protocol for session based policy set-up information exchange between the Application Function (AF) and the Service Policy Decision Function (SPDF); Protocol specification	TS 183 017
Interworking; Trunking Gateway Control Procedures for interworking between NGN and External CS Networks	ES 283 012
Endorsement of TS.29.162 Interworking between IMS and IP networks	TS 183 021
Network Attachment Subsystem (NASS)	
Network Attachment subsystem (NASS); Functional Architecture	ES 282 004
Network Attachment; DIAMETER based protocol for IP-connectivity related session data exchange between the Connectivity Session Location and Repository Function (CLF) in NASS and the Access-Resource and Admission Control Function (A-RACF) in RACS; Protocol specification	ES 283 034

Capability/Feature	Document Reference
Network Attachment Subsystem e2 interface based on the DIAMETER protocol	ES 283 035
Network Access	
Interface protocol definitions for network access through xDSL and WLAN access networks	TS 183 019
Roaming interface protocol definitions for TISPAN NGN network access	TS 183 020
Security	
TISPAN_NGN Security (NGN_SEC); Requirements for Release 1	TS 187 001
Threat and Risk Analysis	TR 187 002
Security Architecture	TS 187 003
NGN Overload and Congestion Control	
Overload Control mechanism for H.248 (between Access Media Gateways and Media Gateway Controllers); Protocol Specification	TR 283 039-3
Quality of Service	
Review of available material on QoS requirements of Multimedia Services	TR 102 479
Network Management	
Network Management; Operations Support System Vision	TR 188 004 Ver. 1.1.1
Network Management; Operations Support System; Requirements	TS 188 003 Ver. 1.1.1
Network Management; Operations Support System; Architecture	TS 188 001 Ver. 1.2.1
Network Management; Operations Support System; Standards Overview and Gap Analysis	TR 102 647 Ver. 1.1.3

History

Document history		
V1.1.1	March 2006	Publication