

## Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Services and Capabilities Requirements

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**ETSI**

650 Route des Lucioles  
F-06921 Sophia Antipolis Cedex - FRANCE

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Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C  
Association à but non lucratif enregistrée à la  
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# Contents

Intellectual Property Rights .....	5
Foreword.....	5
Introduction .....	5
1 Scope .....	6
2 References .....	6
2.1 Normative references .....	6
2.2 Informative references .....	7
3 Definitions and abbreviations.....	7
3.1 Definitions .....	7
3.2 Abbreviations .....	7
4 Capabilities for the support IP Multimedia Services.....	8
4.1 Business models .....	8
4.2 Service requirements .....	8
4.2.1 General services requirements .....	8
4.2.2 Handling of sessions .....	8
4.2.3 PSTN/ISDN Simulation Service.....	8
4.2.4 IMS messaging .....	8
4.2.5 Presence Service .....	8
4.2.6 Location Service .....	8
4.2.7 VideoTelephony Service.....	8
4.3 Mobility.....	9
4.4 Number, naming and addressing .....	9
4.5 Terminal requirements .....	9
4.6 Regulatory service requirements .....	9
4.7 Access network requirements.....	9
4.8 Customer Networks .....	9
4.8.1 General.....	9
4.8.2 Home and Small Office Networks .....	10
4.8.3 Corporate Networks .....	10
4.9 Interworking.....	10
4.10 Quality of Service (QoS).....	10
4.11 Security Requirements .....	10
4.11.1 General.....	10
4.12 Charging and Accounting.....	11
5 PSTN/ISDN Emulation Service .....	11
5.1 Business Models.....	11
5.2 Service Requirements.....	11
5.3 Mobility.....	11
5.4 Number, naming and addressing .....	12
5.5 Terminal requirements .....	12
5.6 Regulatory service requirements .....	12
5.6.1 Lawful Intercept service requirements.....	12
5.6.2 Emergency service requirements .....	12
5.6.3 Malicious Communication Identity service requirements (MCID) .....	12
5.6.4 Anonymous Communications Rejection service requirements (ACR).....	12
5.7 Access Networks .....	13
5.7.1 Wireline Access .....	13
5.8 Customer Networks.....	13
5.8.1 Home and Small Office Networks.....	13
5.8.2 Corporate Networks.....	13
5.9 Interworking.....	13
5.9.1 Interworking with Legacy PSTN/ISDN.....	13
5.9.2 Interworking with PSTN/ISDN Emulation.....	13

5.9.3	Interworking with PLMN .....	14
5.9.3.1	Interworking with IMS based PLMN.....	14
5.9.3.2	Interworking with PLMN - CS Domain.....	14
5.9.4	Interworking with Packet Cable network.....	14
5.9.5	Interworking with IMS network .....	14
5.9.6	Interworking with other networks.....	14
5.10	Quality of Service (QoS).....	14
5.11	Security requirements.....	14
5.12	Charging and accounting.....	14
6	Codecs services .....	15
6.1	General .....	15
6.2	Audio Codec.....	15
6.3	Video Codec.....	15
7	Network Attachment Requirements .....	15
8	CPE Configuration .....	16
9	Network Management.....	16
10	Control of Processing Overload .....	16
11	IP Addressing .....	16
<b>Annex A (informative):</b>	<b>Basic communication cases for IMS networks.....</b>	<b>17</b>
<b>Annex B (informative):</b>	<b>Guidance for terminal implementation .....</b>	<b>18</b>
<b>Annex C (informative):</b>	<b>Bibliography.....</b>	<b>19</b>
<b>Annex D (normative):</b>	<b>Rel-7 parts of Common IMS.....</b>	<b>20</b>
<b>Annex E (informative):</b>	<b>Change history .....</b>	<b>21</b>
History .....		22

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## Foreword

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

The present document describes the Service and Capabilities Requirements of TISPAN NGN Release 1.

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## Introduction

The present document specifies the requirements that need to be fulfilled by NGN technical specifications to provide services in an NGN.

The present document considers two service sets: IP Multimedia Services and PSTN/ISDN Emulation services. Each of these service sets has its own clause, which is further divided into clauses providing clear and precise requirements for each of these two service sets. Further clauses provide generic network requirements to support service deployment and interoperability.

The present document provides generic requirements on networks from a services point of view. Specific details of individual services and capabilities are provided in other documents.

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# 1 Scope

The present document specifies network requirements in terms of service-related capabilities for TISPAN NGN. The present document places requirements for all TISPAN NGN Release 1 subsystems.

The present document provides generic requirements for services and interoperability in TISPAN NGN in terms of the capabilities for a network or networks.

Requirements on service-related subsystems provide sufficient detail for architecture, networking requirements and protocols to be specified. Requirements on service independent subsystems are contained within the service-related subsystem requirements.

Specific service requirements may be contained in other documents, as identified in the present document, and by other documents referencing the present document.

The present document does not define services, only capabilities and requirements. The present document does not place requirements on terminals or other customer-owned equipment. The present document specifies the service-related requirements that are used to determine the network architecture, requirements and control protocols for a network interface to a customer environment.

NOTE: The present document uses the term "NGN" only in the context of TISPAN.

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# 2 References

References are either specific (identified by date of publication and/or edition number or version number) or non-specific.

- For a specific reference, subsequent revisions do not apply.
- Non-specific reference may be made only to a complete document or a part thereof and only in the following cases:
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Referenced documents which are not found to be publicly available in the expected location might be found at <http://docbox.etsi.org/Reference>.

NOTE: While any hyperlinks included in this clause were valid at the time of publication ETSI cannot guarantee their long term validity.

## 2.1 Normative references

The following referenced documents are indispensable for the application of the present document. For dated references, only the edition cited applies. For non-specific references, the latest edition of the referenced document (including any amendments) applies.

- [1] ETSI TR 180 000: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); NGN Terminology".
- [2] ETSI TS 122 340: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; IP Multimedia Subsystem (IMS) messaging; Stage 1 (3GPP TS 22.340)".
- [3] ETSI 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".

- [4] ETSI TS 188 003 (V1.y.z): "Telecommunications and Internet Converged Services and Protocols for Advanced Networking (TISPAN); OSS requirements; OSS definition of requirements and priorities for further network management specifications for NGN".

NOTE: The latest version in the V1.y.z series applies.

- [5] ETSI TS 122 228: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Service requirements for the Internet Protocol (IP) multimedia core network subsystem (IMS); Stage 1 (3GPP TS 22.228 version 7.3.0 Release 7)".
- [6] ETSI TS 122 495: "Universal Mobile Telecommunications System (UMTS); TISPAN; Services and Capabilities Requirements (3GPP TS 22.495 version 7.0.0 Release 7)".
- [7] ETSI TS 187 005 (V1.y.z): "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); NGN Release 2 Lawful Interception; Stage 1 and Stage 2 definition".

NOTE: The latest version in the V1.y.z series applies.

- [8] IETF RFC 2486: "The Network Access Identifier".

## 2.2 Informative references

The following referenced documents are not essential to the use of the present document but they assist the user with regard to a particular subject area. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Not applicable.

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## 3 Definitions and abbreviations

### 3.1 Definitions

For the purposes of the present document, the terms and definitions given in TS 122 228 [5], TR 180 000 [1] and the following apply:

**IP multimedia application:** See TS 122 228 [5].

**IP multimedia service:** See TS 122 228 [5].

**IP multimedia session:** See TS 122 228 [5].

**IP Multimedia Core Network Subsystem (IM CN Subsystem):** See TS 122 228 [5].

**nomadism:** See TR 180 000 [1].

**portability:** See TR 180 000 [1].

### 3.2 Abbreviations

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

ACR	Anonymous Communications Rejection service requirements
AMR	Adaptive Multi-Rate
AN	Access Network
CN	Core Network
CS	Circuit Switched
DSL	Digital Subscriber Line
IM	IP Multimedia
IMS	IP Multimedia Subsystem

IP	Internet Protocol
IPCAN	IP-Connectivity Access Network
IPv4	Internet Protocol version 4
IPv6	Internet Protocol version 6
ISDN	Integrated Services Digital Network
MCID	Malicious Communication Identity service requirements
NAI	Network Access Identifier
NAT	Network Address Translation
NGN	Next Generation Network
PLMN	Public Land Mobile Network
PSTN	Public Switched Telephone Network
QoS	Quality of Service
SLA	Service Level Agreements
TDM	Time Division Multiplexing
URI	Uniform Resource Identifier

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## 4 Capabilities for the support IP Multimedia Services

This clause covers the requirements of the IP Multimedia services supported by the NGN.

### 4.1 Business models

As specified in TS 122 495 [6].

### 4.2 Service requirements

As specified TS 122 495 [6].

#### 4.2.1 General services requirements

As specified in TS 122 495 [6].

#### 4.2.2 Handling of sessions

As specified in TS 122 495 [6].

#### 4.2.3 PSTN/ISDN Simulation Service

As specified in TS 122 495 [6].

#### 4.2.4 IMS messaging

As specified in TS 122 495 [6].

#### 4.2.5 Presence Service

As specified in TS 122 495 [6].

#### 4.2.6 Location Service

As specified in TS 122 495 [6].

#### 4.2.7 VideoTelephony Service

As specified in TS 122 495 [6].



## 4.3 Mobility

As specified in TS 122 495 [6].

## 4.4 Number, naming and addressing

As specified in TS 122 495 [6].

## 4.5 Terminal requirements

The present document does not specify terminal requirements. However, NGN terminals (not precluding network adaptors) that comply with the NGN IMS UNI interface offered by the network, shall be supported by the NGN.

The NGN IMS UNI interface is not required to support 3GPP mobile terminals in Release 1.

It is a service provider option to support a 3GPP IPCAN for a user to access the NGN IMS. The NGN IMS shall support 3GPP mobile terminals connected via the 3GPP IPCAN.

Terminal developers guidelines are provided in annex B.

## 4.6 Regulatory service requirements

As specified in TS 122 495 [6].

## 4.7 Access network requirements

Any access to the NGN core shall provide IP connectivity, i.e. allow transport of IP packets between end user equipment and the NGN core.

Solutions for access to the NGN core shall support the assignment of IP addresses to the end user equipment by the access network. These addresses may not be routable in the public Internet.

Solutions for access to the NGN core shall not require changes to existing access technology infrastructure. All solutions for access to the NGN core shall support the presence of NAT and firewalls in the access network environment. Impacts on access networks shall be minimized.

An NGN deployment shall not inhibit user access to the Internet and other IP networks through existing mechanisms, e.g. ISP offering of internet access to DSL users.

## 4.8 Customer Networks

### 4.8.1 General

Access from a customer network to the NGN core shall provide IP connectivity, i.e. allow for transport of IP packets from the end user equipment.

Solutions for access from a customer network to the NGN shall be able to cope with the assignment of IP addresses to the end user equipment by the customer network. These addresses may not be routable in the public Internet.

Solutions for access from a customer network to the NGN shall not require technological changes to existing customer network technologies.

Solutions for access from a customer network to the NGN shall have minimal impact on existing customer network deployments.

## 4.8.2 Home and Small Office Networks

Solutions for access from a Home and Small Office network to the NGN shall be able to cope with NAT and firewalls in the home/small office environment.

Solutions for access from a Home and Small Office network to the NGN shall support the following configurations:

- Direct connectivity and interaction between the individual terminals and the NGN.
- Indirect connectivity and interaction between the individual terminals and the NGN (e.g. via IP PBXs).

## 4.8.3 Corporate Networks

Solutions for access from a corporate network to the NGN shall be able to cope with NAT and firewalls in the corporate environment.

Solutions for access from a Corporate network to the NGN shall support the following configurations:

- Direct connectivity and interaction between the individual terminals and the NGN (e.g. to support Ipcentrex configurations).
- Indirect connectivity and interaction between the individual terminals and the NGN (e.g. via IP PBXs).

## 4.9 Interworking

As specified in TS 122 495 [6].

## 4.10 Quality of Service (QoS)

The NGN shall support the following:

- A wide range of QoS-enabled services.
- Dynamic negotiation of QoS parameters between service and access providers based on an SLA.
- Terminals that are not capable to indicate QoS requirements as part of the service request. Terminals that are capable shall also be supported.
- QoS provisioning within the access segment. QoS in the core transport network is considered to be achieved by other means that are out of the scope of NGN Release 1 (e.g. Overprovision).
- The provisioning of QoS for application traffic where upstream and downstream flows have specific QoS requirements.
- An architecture that supports bandwidth reservation.
- QoS mechanisms to allow efficient use of access resource.

## 4.11 Security Requirements

As specified in TS 122 495 [6].

### 4.11.1 General

As specified in TS 122 495 [6] except the following requirements:

- The Access Network shall provide access connectivity to a user entitled to use the resources of the Access Network.