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

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

Foreword

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z the third digit is incremented when editorial only changes have been incorporated in the document.

Introduction

The present document is structured in a similar manner to ETSI TS 181 005 [2] and the main clause numbering from this point in the document onwards therefore follows that document, with the scope of those clauses also following that of ETSI TS 181 005 [2].

As well as the interconnection of NGCN equipment to the NGN, the NGN can be used to host various business communication capabilities on behalf of an enterprise. These are:

a) virtual leased line, where NGCN sites are interconnected through the NGN;

b) business trunking application, where the NGN hosts transit capabilities between NGCNs, break-in capabilities from NGN to NGCN and break-out capabilities from NGCN to NGN; and

c) hosted enterprise services, where an NGN hosts originating and/or terminating business communication capabilities for business communication users that are directly attached to an NGN.

These hosted capabilities may be hosted using the different capabilities described in different clauses in ETSI TS 181 005 [2] and therefore where appropriate the various clauses of the present document are broken up to further describe interconnection requirements, and these various hosted capabilities, as follows:

x.1 General;

x.2 NGN/NGCN interconnection requirements;

x.3 Specific requirements for hosted enterprise services;

x.4 Specific requirements for business trunking application; and

x.5 Specific requirements for virtual leased line.

This structure has been followed in 3GPP TS 22.519, even though 3GPP TS 22.228 [6] (the equivalent specification) is structured in a different manner.

1 Scope

The present document specifies network requirements:

- to support connection and interoperation of business communication capabilities (either hosted in NGCN or NGN) to the NGN; and
- to support connection and interoperation of business communication capabilities to other business communication capabilities (either hosted in NGCN or NGN); and
- to support connection and interoperation of business communication capabilities to other business communication capabilities located in or connected to the ISDN and PSTN; and
- to support PABX functionality (hosted enterprise services) in an NGN.

NOTE 1: Network requirements to support connection of NGCN directly connected to an NGN are specified.

NOTE 2: Attachment of legacy PBX functionality to the NGN is not specified in the present document. It is assumed that existing legacy service requirements apply in this case.

The present document also specifies network requirements for communication between NGCN capabilities (including user equipment) to other NGCN capabilities of the same enterprise through the NGN (e.g. geographically separated).

The present document does not specify NGCN services, nor does it specify network based application services provided to a user of an NGCN.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] Recommendation ITU-T E.164: "The international public telecommunication numbering plan".

[2] ETSI TS 181 005 (V1.1.1): "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Services and Capabilities Requirements".

[3] 3GPP TS 33.203: "3G security; Access security for IP-based services".

[4] 3GPP TS 33.210: "3G security; Network Domain Security (NDS); IP network layer security".

[5] ISO/IEC 11571: "Information technology - Telecommunications and information exchange between systems - Private Integrated Services Networks - Addressing".

[6] 3GPP TS 22.228: "Service requirements for the Internet Protocol (IP) multimedia core network subsystem (IMS); Stage 1".

[7] ETSI TR 102 478 (V1.1.1): "Corporate telecommunication Networks (CN); Enterprise communication involving Next Generation carrier Networks (NGN)".

[8] 3GPP TS 22.115: "Service aspects; Charging and billing".

[9] 3GPP TS 33.106: "3G security; Lawful interception requirements".

[10] 3GPP TR 21.905: " Vocabulary for 3GPP Specifications".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in TR 21.905 [10] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in TR 21.905 [10].

business communication: any communication that is either:

- originated in an NGCN; or
- terminated in an NGCN; or
- originated in the NGN on behalf of an enterprise; or
- terminated in the NGN on behalf of an enterprise;

and which is subject to special arrangements between the NGN operator and the enterprise

business communication capabilities: any capability whether hosted in an NGCN or an NGN that enables and/or enriches Business Communication

NOTE: Business Trunking, Hosted Enterprise Services and Virtual Leased Line are examples of business communication capabilities hosted in NGN.

Business Trunking (BT): connection of an NGCN to an NGN

business trunking application: NGN application that either provides transit capabilities between NGCNs, or, break-in capabilities from NGN to NGCN and/or break-out capabilities from NGCN to NGN

NOTE: A business trunking application may also provide additional services beyond basic breakin, breakout and transit capabilities to the NGCN.

corporate network user identifier: identifies a corporate network user on communications entering, leaving or transiting the NGN, either representing an originating corporate network user or as a globally routable target identity

Corporate telecommunication Network (CN): sets of enterprise premises equipment, owned by or managed on behalf of an enterprise that are located at geographically dispersed locations and are interconnected to provide telecommunication services to a defined group of users belonging to that enterprise

enterprise: unit of economic organization or activity, especially a business organization

Hosted Enterprise Services (HES): NGN application whereby the NGN hosts all originating and/or terminating business communication capabilities for enterprise users that are directly attached to NGN and have an IMS service subscription for this application in the NGN

Next Generation CN (NGCN): self-contained corporate network designed to take advantage of emerging IP-based communications solutions and that can have its own applications and service provisioning

NOTE 1: For the purpose of the present document it is a corporate network that provides an IP-based interface to an NGN.

NOTE 2: TR 102 478 [7] uses NGCN to collectively refer to IP-PBXs.

NGCN site: separate part of an NGCN

NOTE: An NGCN site might represent a part of an NGCN bound to a specific geographic location. When an NGCN site serves more than one geographic location then all locations served by that NGCN site would have access to an NGN concerned via the NGCN site's connectivity arrangement with that NGN. Communication between different NGCN sites belonging to the same NGCN can but need not pass through their respective NGN(s). For example, such communications might be routed by the NGN(s) only during periods of high traffic or equipment outage within the NGCN. An NGCN site can have access to its NGN either directly or via some other NGN that provides a transit capability. An NGCN can have NGCN Sites in different countries.

NGCN identifier: identifier by which an NGCN is known to an NGN with which it has a connectivity arrangement

public network traffic: traffic sent to or received from an NGN for processing according to the normal NGN rules

private network traffic: traffic sent to or received from an NGN for processing according to an agreed set of rules specific to an enterprise or a community of closely related enterprises

Private Numbering Plan (PNP): numbering plan explicitly relating to a particular private numbering domain, defined by the PISN Administrator of that domain

NOTE 1: See ISO/IEC 11571 [5].

NOTE 2: Terminology used in this definition and in relation to this term used in the text is as defined in ISO/IEC 11571 [5]. For the purposes of the present document a PISN and a NGCN can be regarded as equivalent.

PNP number: number belonging to a PNP

NOTE: See ISO/IEC 11571 [5].

3.2 Abbreviations

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

BT	Business Trunking
CAC	Communication Admission Control
CN	Corporate telecommunication Network
HES	Hosted Enterprise Services
IMS	IP Multimedia core network Subsystem
IP	Internet Protocol
NGCN	Next Generation Corporate Network
NGN	Next Generation Network
PBX	Private Branch Exchange
PNP	Private Numbering Plan
PSAP	Public Safety Answering Point
SLA	Service-Level Agreement
TIP	Termination Identity Interface
UE	User Equipment
UNI	User to Network Interface

4 Capabilities for the support of IP multimedia services

4.1 General

4.1.1 Types of traffic

The traffic generated or received on behalf of an NGCN can be either:

1) traffic sent to the NGN for processing according to normal rules of the NGN. This type of traffic is known as public network traffic;

2) traffic sent to the NGN for processing according to an agreed set of rules specific to an enterprise. This type of traffic is known as private network traffic. Private network traffic is normally within a single enterprise, but private network traffic can also exist between two different enterprises if not precluded for regulatory reasons.

NOTE: An enterprise network may separately distinguish private network calls that originate in the NGN from private network calls that originate in the enterprise; this does not form part of the present document.

The NGN shall distinguish public network traffic from private network traffic. The NGN shall distinguish private network traffic belonging to one enterprise from that belonging to another enterprise.

Private network traffic may require different handling in the NGN compared to public network traffic, see for example clause 4.1.7 on regulatory requirements.

Except between closely-related enterprises where regulations permit, the NGN shall treat traffic between enterprises as public network traffic. In such cases, as part of the capabilities provided to the enterprise, the NGN can provide break-out and/or break-in capabilities on behalf of each enterprise.

For private network traffic the NGN shall be transparent to any extensions of the chosen signalling protocol, except where there is a specific need for NGN intervention required to deliver the service requested by the enterprise customer.

4.1.2 Business communication capabilities

The NGN can provide the following capabilities to an enterprise:

a) virtual leased line, where NGCN sites are interconnected through the NGN. No additional capabilities are provided by the NGN;

b) business trunking application, where the NGN hosts transit capabilities between NGCNs, break-in capabilities from NGN to NGCN and break-out capabilities from NGCN to NGN. A business trunking application may also host additional capabilities beyond basic break-in, break-out and transit capabilities to the NGCN. Typically there is no corporate network terminal equipment connected directly to an NGN. The capabilities provided are defined in clause 4.4;

c) hosted enterprise services, where an NGN hosts originating and/or terminating business communication capabilities for business communication users that are directly attached to an NGN and have an IMS service subscription for this application in this NGN. This is known commonly as IP-Centrex. The capabilities provided are defined in clause 4.3.

NOTE: NGCNs will not necessarily use IMS in their support of session-based capabilities.

4.1.3 Business models

Additionally to the business domain relationships as specified in 3GPP TS 22.228 [6] the NGN shall support the following business domain relationships:

a) NGCN to IMS relationship: NGCN is attached to an Access network that is connected to the NGN IMS with which the NGCN has a service agreement as shown in figure 4.1, the relationship is with the home IMS.

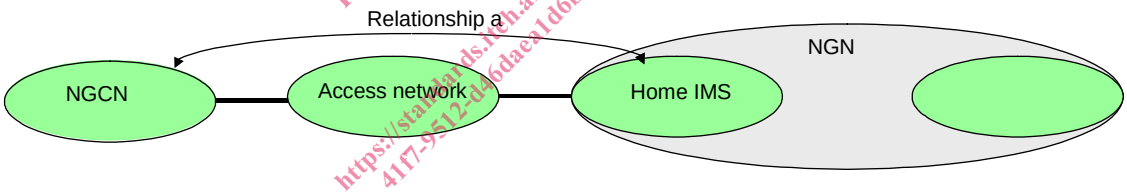

Figure 4.1

b) NGCN to Access network relationship: NGCN is connected to an Access Network as shown in figure 4.2. The relationships given in 3GPP TS 22.228 [6] would normally be sufficient to enable connectivity with the NGN, providing there is a relationship between the NGCN and the IMS. Relationship b may be required in some cases.

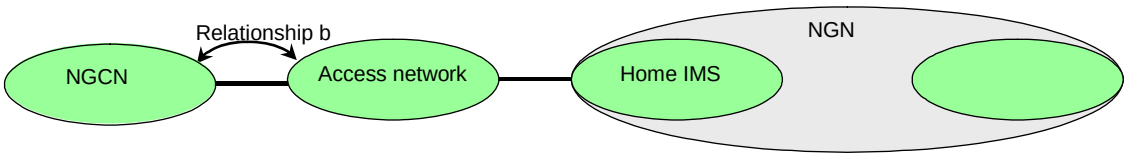

Figure 4.2

NOTE: The Access Networks to which the various NGCN sites are connected may belong to different operators.

The following business model relationship is shown as it plays a role in some scenarios. The present document assumes the business relationships described in item a) and b) and those as assumed from 3GPP TS 22.228 [6] in order to create communications in support of this relationship:

c) NGCN to NGCN relationship: The relationship between two NGCNs is shown in figure 4.3.