

## **Next Generation Networks; Release Definition**

---

© 2008 Ofcom copyright

## NOTICE OF COPYRIGHT AND LIABILITY

### Copyright

All right, title and interest in this document are owned by Ofcom and/or the contributors to the document unless otherwise indicated (where copyright be owned or shared with a third party). Such title and interest is protected by United Kingdom copyright laws and international treaty provisions.

The contents of the document are believed to be accurate at the time of publishing, but no representation or warranty is given as to their accuracy, completeness or correctness. You may freely download, copy, store or distribute this document provided it is not modified in any way and it includes this copyright and liability statement.

You may not modify the contents of this document. You may produce a derived copyright work based on this document provided that you clearly indicate that it was created by yourself and that it was derived from this document and provided further that you ensure that any risk of confusion with this document is avoided.

### Liability

Whilst every care has been taken in the preparation and publication of this document, NICC, nor any committee acting on behalf of NICC, nor any member of any of those committees, nor the companies they represent, nor any person contributing to the contents of this document (together the “Generators”) accepts liability for any loss, which may arise from reliance on the information contained in this document or any errors or omissions, typographical or otherwise in the contents.

Nothing in this document constitutes advice. Nor does the transmission, downloading or sending of this document create any contractual relationship. In particular no licence is granted under any intellectual property right (including trade and service mark rights) save for the above licence to copy, store and distribute this document and to produce derived copyright works.

The liability and responsibility for implementations based on this document rests with the implementer, and not with any of the Generators. If you implement any of the contents of this document, you agree to indemnify and hold harmless the Generators in any jurisdiction against any claims and legal proceedings alleging that the use of the contents by you or on your behalf infringes any legal right of any of the Generators or any third party.

None of the Generators accepts any liability whatsoever for any direct, indirect or consequential loss or damage arising in any way from any use of or reliance on the contents of this document for any purpose.

If you have any comments concerning the accuracy of the contents of this document, please write to:

The Technical Secretary,  
Network Interoperability Consultative Committee,  
Ofcom,  
2a Southwark Bridge Road,  
London SE1 9HA.

---

# Contents

Next Generation Networks; Release Definition .....	1
Intellectual Property Rights .....	4
Foreword .....	4
Introduction .....	4
1 Scope .....	5
2 References .....	5
2.1 Normative references .....	5
2.2 Informative references .....	6
2.3 List of NICC Specifications and versions applicable to Green Release .....	7
3 Definitions, symbols and abbreviations .....	7
3.1 Key Words .....	7
3.2 Abbreviations .....	7
4 NGN Document Release Structure .....	7
4.1 NGN Document Structure .....	8
4.2 NICC Specification Version Numbering .....	9
5 Green Release Scope .....	9
6 Compatibility of Interconnect Services over a MSI .....	10
History .....	11

---

## Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to NICC.

Pursuant to the NICC IPR Policy, no investigation, including IPR searches, has been carried out by NICC. No guarantee can be given as to the existence of other IPRs which are, or may be, or may become, essential to the present document.

---

## Foreword

This NICC Document (ND) has been produced by NICC.

---

## Introduction

NICC has adopted a release scheme for the development of interconnect and interoperability standards relating to NGNs. This release scheme is a mix of both programme management of the NGN standards development in NICC and for interconnect services, defining a set of services that can be supported over a common multi-service interconnect. The release scheme draws together the NICC standards developed for a given NGN service and publishes a comprehensive set of standards for the services in that release in a single step.

A significant driver for Next Generation Networks (NGNs) is the realisation of a common network that can simultaneously support multiple services on the same platform infrastructure. NGNs use a number of packet technologies for service transport, of which the most common is the Internet Protocol (IP). However, an NGN interconnect also has to support services that are not IP based, therefore the underlying interconnect transport technology needs to accommodate the range of services that require interconnect. In order to use interconnect physical connections efficiently, i.e. fibres, the underlying transport interconnect infrastructure needs to be able to be flexibly configured to allow a range of services to share these connections.

The approach for NGN Multi Service Interconnect (MSI) is to define a common transport infrastructure that is service independent and can offer different transport capabilities to the services requiring interconnect. As new services are added to the scope of the NGN MSI, a new service-specific architectural specification will be produced that will define how the service works and its use of the underlying common transport. This new service specification, or any enhanced service specification, will be included in the scope and associated document references of the NGN MSI Release document.

As multiple releases will co-exist as deployments in the UK, so multiple versions of the release document will co-exist as valid to support these deployments until they are no longer needed and can be deprecated.

---

# 1 Scope

This document defines the requirements for the new services in this Release (Green) and for services previously defined in the previous release (Purple). The Release identifies the NICC standards for these new services, and for interconnect services, the services that can be used on the same multi-service interconnect.

---

## 2 References

### 2.1 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For the particular version of a document applicable to this release see clause 2.3 of the present document

- [1] ND1611 "Multi-Service Interconnect Common Transport for UK NGNs".
- [2] ND1612 "Generic IP Connectivity for PSTN/ISDN Services between UK NGNs".
- [3] ND1613 "Management of NGN Interconnect: Transport Service Layer".
- [4] ND1614 "Management of General Connectivity of PSTN/ISDN Service Interconnect for UK NGNs".
- [5] ND1635 "NGN Interconnect - Media Path Technical Specification".
- [6] ND1636 "NGN Interconnect - IP Address Allocation".
- [7] ND1620 "Interconnect architecture for Voice Line Control Service between UK NGNs".
- [8] ND1633 "UK Next Generation Networks; Element Naming Framework".
- [9] ND1628 "Security".
- [10] ND1019 "Endorsement of TISPAN SIP and SDP".
- [11] ND1021 "VLC for UK Interconnection using TISPAN IMS-based PSTN/ISDN Emulation; SIP and SDP".
- [12] ND1018 "Transmission Control Protocol (TCP)".
- [13] ND1012 "Interconnect Stream Control Transmission Protocol (SCTP) and Adaptation Layers".
- [14] ND1621 "Generic Overload Control for use on Interconnect of UK NGNs".
- [15] ND1704 "End-to-End Network Performance Rules & Objectives for the Interconnection of NGNs".
- [16] ND1631 "NGN; PSTN/ISDN Interconnect; Naming Numbering & Addressing Architecture".
- [17] ND1415 "NGN; PSTN/ISDN Service Interconnect; Guide to Common Numbering Database standards".
- [18] ND1022 "NGN; PSTN/ISDN Service Interconnect; Central Numbering Database; DNS Implementation".
- [19] ND1023 "NGN; PSTN/ISDN Service Interconnect; Central Numbering Database; XML Principles".
- [20] ND1024 "NGN; PSTN/ISDN Service Interconnect; Central Numbering Database; XML Implementation of D Reference Points".

- [21] ND1025 "NGN; PSTN/ISDN Service Interconnect; Central Numbering Database; XML Implementation of M Reference Points"
- [22] ND1208 "Mobile Number Portability"
- [23] ND1017 "Interworking between Session Initiation Protocol (SIP) and UKISDN User Part (UK ISUP)"
- [24] ND1701 "Recommended Standard for the UK National Transmission Plan for Public Networks"
- [25] ND1409 "Guidelines on PSTN/ISDN IP Interconnect Pre-operational Testing"
- [26] ND1410 "Transport Operational Test Manual"
- [27] ND1411 "Signalling Operational Test Manual"
- [28] ND1412 "ISUP Services Operational Test Manual"
- [29] ND1615 "NGN Interconnect; Voice Line Control Service; General Connectivity Management"

## 2.2 Informative references

- [30] SR 001 262 (V2.0.0): " ETSI drafting rules Section 23:- Verbal Forms For The Expression Of Provisions ".
- [31] ND1423 "Guidelines for Usage of Enbloc/ Overlap Signalling in UK Networks"
- [32] ND1625 "NGN Interconnect RTP Packet Transport Quality Monitoring"<sup>Notes 1 and 2</sup>
- [33] TSG008 "Multi-Service Interconnect of UK NGNs (Green Release)"<sup>Note 2</sup>
- [34] ND1610 "Multi-Service Interconnect for UK NGNs – Purple Release"

### **Notes**

1. This document is approved by NICC but remains at draft status as it refers out to Internet Draft draft-ietf-avt-rtcp-hr which is subject to change. NICC intend to monitor the developments in IETF and to update this document to full issue status to comply with an eventual issued IETF RFC for RTCP HR. This document is provided for information and guidance.
2. This document is published on NICC TSG website and hence only available to NICC members.

## 2.3 List of NICC Specifications and versions applicable to Green Release

The list showing Specifications for the Green Release is available on the NICC web site. <http://www.nicc.org.uk>

# 3 Definitions, symbols and abbreviations

## 3.1 Key Words

The key words “**shall**”, “**shall not**”, “**must**”, “**must not**”, “**should**”, “**should not**”, “**may**”, “**need not**”, “**can**” and “**cannot**” in this document are to be interpreted as defined in the ETSI Drafting Rules [30].

## 3.2 Abbreviations

ATM .....	Asynchronous Transfer Mode
C7 .....	The European terms for SS7 signalling in telecoms networks, CCITT7
CP .....	Communications Provider
DTMF .....	Dual Tone Multi-Frequency
ETSI .....	European Telecommunication Standards Institute
IETF .....	Internet Engineering Task Force
IP .....	Internet Protocol
ISDN .....	Integrated Services Digital Network*
ISUP .....	ISDN User Part of C7 signalling
ITU-T .....	International Telecommunication Union - Telecoms
MSI .....	Multi-Service Interconnect
ND .....	NICC Document
NGN .....	Next Generation Network
NICC .....	Network Interoperability Consultative Committee
OTM .....	Operational Test Manual
PSTN .....	Public Switched Telephone Network*
PVC .....	Permanent Virtual Circuit
RFC .....	Request for Comments
SCTP .....	Stream Control Transmission Protocol
SIP .....	Session Initiation Protocol
TCP .....	Transmission Control Protocol
TDM .....	Time Division Multiplex
TISPAN .....	Telecoms & Internet converged Services & Protocols for Advanced Networks
UDP .....	User Datagram Protocol
UK .....	United Kingdom

\* PSTN and ISDN when used with the term ‘service’ define the replication of the service set applied to NGNs rather than the legacy networks themselves.

# 4 NGN Document Release Structure

The NICC NGN Release document structure has been formed to provide:

- A set of interconnect and interoperability services that can be supported on an NGN.
- A set of NICC NGN standards that support those services.
- A mapping of all NICC standards that are required in support of each service. For a given service included in a given Release, the mapping will contain all of the NICC standards (eg architecture, protocol, security, management) applicable to that service.
- Some services in a given Release may be specified to interconnect service between 2 NGNs via shared transport infrastructure. For these interconnect services, the Release document (ie this document) will specify which of the interconnect services included in the release are compatible for support over a MSI.
- A Release will define whether services defined in the previous Release are supported or deprecated.

It should be noted that there will not be a fixed interval between Releases but each Release will be published taking account of the availability of the NICC standards and the needs of NICC members to have the standards published.

## 4.1 NGN Document Structure

The NGN is fully defined by a four layer documentation structure:-

- Layer 1) The top layer document, this document, which defines the scope of a NGN Release. It holds the Service Requirements and identifies the Service Architecture Specifications. The version of the Specification applicable to this release can be accessed via link in 2.3 of the present document. For all services included in this NGN Release, this layer 1 document will list the application Layer 2, 3 and 4 documents . Separate entries will be used for each service to identify the layer 2, 3 and 4 documents and their version applicable to that service.
- Layer 2) This document layer contains each of the service level interconnect specifications supported by the release. Each Service Architecture Specification will describe the service features, functional architecture and any other general reference documents that **must** be taken into account, in part or in whole. It provides the binding of NICC standards associated with that service but will reference out to the Layer 1 document for the definition of the versions of these documents that should be used.
- Included in this document layer is the common transport service as a common infrastructure that is agnostic to the services it carries.
- Layer 3) This document layer contains
- Service Management Guides
  - Architectural specifications for specific areas that are service agnostic and are common to one or more Service Architecture Specifications
  - Service management information that is common to one or more Service Management Guides.
- Layer 4) This layer contains general reference NICC Documents that are referred to within the Layer 2 or 3 documents for service specific or common infrastructure implementations. This includes signalling interface specifications.

Figure 1 shows a generic example of the structure and relationship of the ND documents under the NGN MSI Release Scheme as defined here.

It is important to note that there can be more than one version of a given ND document active at the same time with one version being relevant in one colour NGN Release and another version relevant to a different colour Release (e.g. the different versions of the NGN MSI Common Transport Architecture ND document in Figure 1).



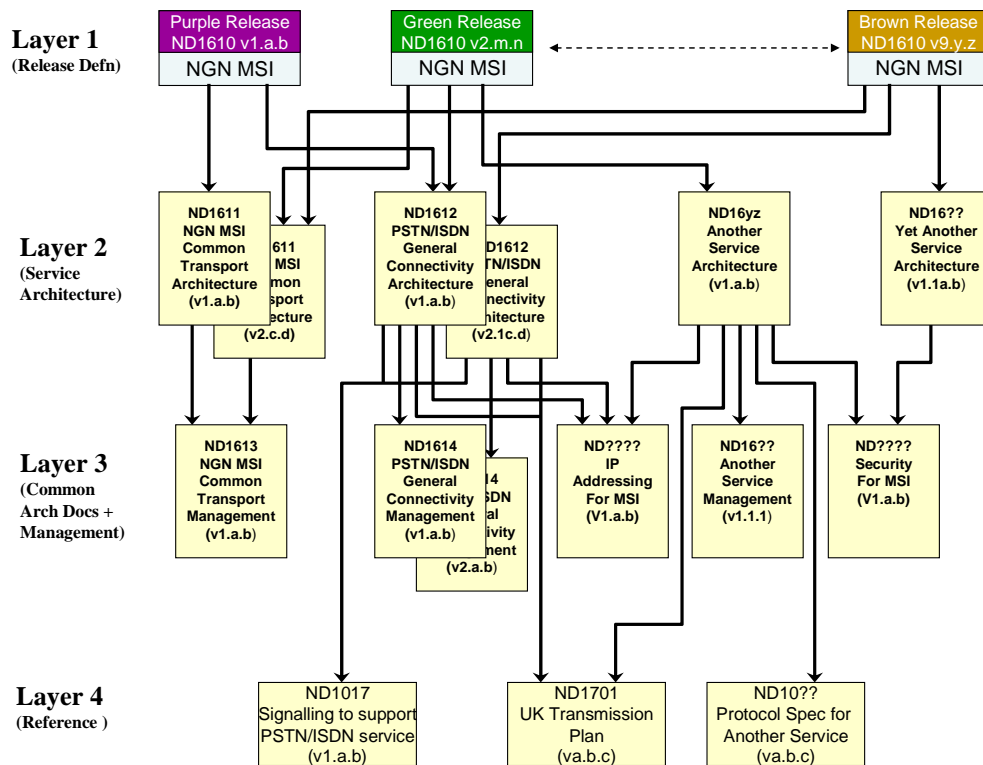


Figure 1: Generic Example of NGN MSI Release Documentation Structure

## 4.2 NICC Specification Version Numbering

NICC specifications, including NGN documents **shall** be version controlled using the following scheme

Version A.B.C where:-

- A is a number indicating major changes / new version
- B is a number indicating minor, technical changes
- C is a number indicating only editorial changes

The first published version of a NICC specification is given the version number v1.1.1. NICC specifications published before version numbering was introduced (and hence given Issue numbers) **shall** be given a version number when up-issued. Issue N of such a specification will become v1.(N+1).1 when it is up-issued.

## 5 Green Release Scope

The Green Release was developed from a set of requirements [33] and includes:-

- Common Transport:- The reference to the specification of a common interconnect transport infrastructure that has the capability to simultaneously support a range of different services.
- Voice Line Control Service:- The service where one Communications Provider will have real time control of the voice application serving individual PSTN access lines provided by another VLA Provider and have access to relevant management functionality. The provision of this technology shall be able to utilise the same physical point of handover as used by the PSTN Emulation service. The architecture shall provide equivalence of both input and output for all parties.
- Common Number Database: - the generic function which holds reference mapping of telephone numbers to Destination Group which is to be used by all UK CPs for call routing.
- From the Purple Release [34], PSTN/ISDN Service:- The reference to the specification for interconnecting current PSTN and ISDN services that are on an NGN and the associated use of the underlying common interconnect transport infrastructure. The specification defines the PSTN/ISDN service general connectivity that is used by various interconnecting products (e.g. interconnect for geographic numbers, number portability, carrier pre-selection) but not these specific products themselves.

---

## 6 Compatibility of Interconnect Services over a MSI

The following interconnect services specified in the Green release are compatible for support over a MSI:-

- Voice Line Control Service
- PSTN/ISDN Service

---

## History

<b>Document history</b>		
V2.0.1		First Draft issue
V2.0.2		Updated to latest style sheet and references statements
V2.1.1	August 08	Final Agreed version