

## **Next Generation Networks; Element Naming Framework**

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## Foreword

This NICC Document (ND) has been produced by NICC Working Group NNA.

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## 1 Scope

The present document sets out the format of naming, numbering and addressing to be used between UK NGN networks. It sets the general format of naming which will be drawn upon by relevant application and architecture standards.

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## 2 Normative References

For the particular version of a document applicable to this release see [ND1610](#) [4].

- [1] IETF STD0066 : Uniform Resource Identifier (URI): Generic Syntax
- [2] IETF STD0013 : Domain names - implementation and specification
- [3] IETF RFC 3490 (March 2003) : Internationalizing Domain Names in Applications (IDNA)
- [4] ND1610 Multi-Service Interconnect of UK Next Generation Networks

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## 3 Definitions and abbreviations

### 3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

<**Authority**>: As defined in STD0066 [1]

<**UserInfo**>: As defined in STD0066 [1]

### 3.2 Abbreviations

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

CP	Communications Provider
DNS	Domain Name System
ID	Identity
NGN	Next Generation Network
UK	United Kingdom of Great Britain & Northern Ireland
URI	Uniform Resource Identifier

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## 4 Domain Naming Scheme

### 4.1 Domain Name Format

Domain names used in UK NGN standards **shall** comply with STD0013 [2].

The fully qualified domain name **shall** consist of the following component parts:

*<network internal part>.<local application ID>.<provider>.<NGN root domain>*

or:

*<application-specific part>.<global application ID>.<NGN root domain>*

### 4.1.1 NGN Root Domain

<NGN root domain> **shall** be “*uktel.org.uk*” for all NICC compliant NGN IP interconnects.

Note that this may be subject to change, for example following agreement of a standardized NGN root domain name by ETSI.

### 4.1.2 Provider

Where present, <provider> **shall** uniquely identify the NGN CP.

Valid <provider> names **shall** be those registered with the administrator of the <NGN root domain>. Names chosen for the <provider> component **should**, where possible, reflect the CP’s company name. The <provider> **shall** contain a single label. <provider> identities are assigned to CPs for the purposes of NICC standards. The CP **shall** only use the domain in a manner described by such standards, or for internal purposes related to those standards.

A <provider> name **shall not** be identical to a <global application ID>.

NOTE: when the <NGN root domain> is “*uktel.org.uk*”, the <provider> name is the fourth-level domain.

### 4.1.3 Local Application ID

The <local application ID> **shall** uniquely identify the NICC standardized application or provider-specific usage of the domain name. It **shall** consist of a single label.

- A register of labels that are referred to in NICC standards or potential standards will be kept by the <NGN root domain> administrator and CPs **must not** use these labels in any way other than as required by those standards.
- CPs **may** use any <local application ID> which contains numeric digits.
- For historical reasons, CPs **may** use the <local application IDs> “*pstn*”, “*messaging*”, and “*vch*”.
- CPs **must not** use any other <local application ID>.

NOTE: when the <NGN root domain> is “*uktel.org.uk*”, the <local application ID> is the fifth-level domain.

### 4.1.4 Network Internal Part

The <network internal part> **shall** identify the appropriate node(s) or entity(s) within a CP’s NGN. It is allocated by the owner of the registered <provider> name. For any given <local application ID>, CPs **shall** ensure that <network internal part> is unique within their NGN. The <network internal part> **may** contain a series of labels, separated by dots. It **may** also be omitted; if so, the dot between it and the <local application ID> is also omitted.

NOTE: when the <NGN root domain> is “*uktel.org.uk*”, the <network internal part> is the sixth-level and subsequent-level domains.

### 4.1.5 Global Application ID

Where present, the <global application ID> **shall** uniquely identify the NICC standardized application.

NOTE: when the <NGN root domain> is “*uktel.org.uk*”, the <global application ID> name is the fourth-level domain.

### 4.1.6 Application-Specific Part

The <application-specific Part> **shall** identify the appropriate node(s) or entity(s). The usage **shall** be specified in the relevant application architecture standard. The <application-specific part> **may** contain a series of labels, separated by dots. If permitted by the relevant standard, it **may** also be omitted; if so, the dot between it and the <global application ID> is also omitted.

NOTE: when the <NGN root domain> is “*uktel.org.uk*”, the <application-specific part> is the fifth-level and subsequent-level domains.

## 4.2 Domain Characters and Length

### 4.2.1 Permissible Characters

Labels **shall** be compliant with STD0013 [2]. Characters used in names **shall** be from the “LDH code points” set defined in RFC3490 section 2 [3]. This consists of the 26 ASCII letters, the 10 ASCII digits, and the hyphen-minus.

Other characters **must not** be used but they **may** be represented by encoding them into allowable characters. When such encoding is required then it **shall** implement the IDNA scheme defined in RFC 3490 [3].

### 4.2.2 Name Length

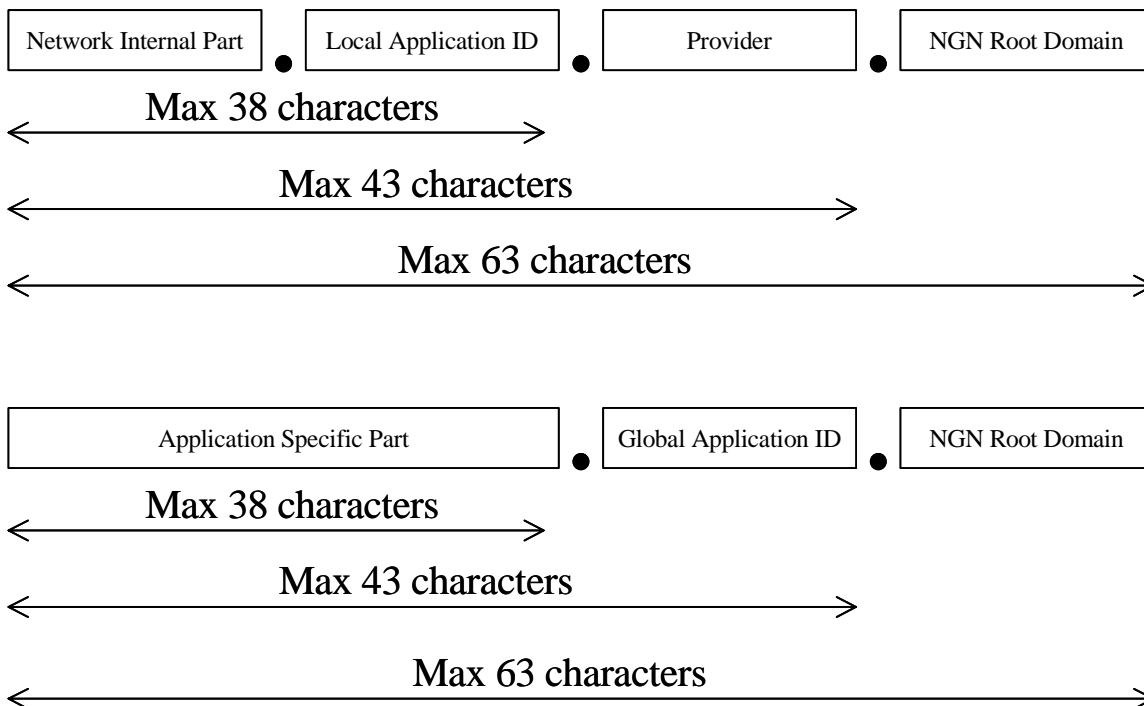
The <network internal part> and <local application ID> components **shall** together consist of a maximum of 38 characters. Note that this excludes the dot between the <local application ID> and the <provider> components.

The <application-specific part> component **shall** consist of a maximum of 38 characters. Note that this excludes the dot between the <application-specific part> and <global application ID> components.

The entire name up to and excluding the dot before the <NGN root domain> (but including any previous dots) **shall** consist of a maximum of 43 characters.

To accommodate any future changes, implementations **shall** be capable of accommodating a domain name of up to 63 characters including dots.

These constraints are illustrated in Figure 1, below.



**Figure 1 : Domain name length constraints**

Note: These constraints have been chosen to allow for a potential future information privacy requirement to mask the <provider> identity to something less meaningful, and to facilitate a migration to an <NGN Root Domain> aligned with ETSI standards.

### 4.2.3 Examples

Typical domain names based on this scheme could be as described in Table 1.

Table 1 : Examples of domain names based on this scheme

Network Internal Part	local application ID	Provider	application-specific Part	global application ID	NGN Root Domain	Consequent Domain Name
pstn	cs-23	example-telco	N/A	N/A	uktel.org.uk	pstn.cs-23.example-telco.uktel.org.uk
cs-23	pstn	example-telco	N/A	N/A	uktel.org.uk	cs-23.pstn.example-telco.uktel.org.uk
cs-23	vlc	example-telco	N/A	N/A	uktel.org.uk	cs21.vlc.example-telco.uktel.org.uk
Zone2.backup.cs21	vlc	example-telco	N/A	N/A	uktel.org.uk	zone2.backup.cs21.vlc.example-telco.uktel.org.uk
<i>null</i>	vlc	example-telco	N/A	N/A	uktel.org.uk	vlc.example-telco.uktel.org.uk
N/A	N/A	N/A	alpha	protocol	uktel.org.uk	alpha.protocol.uktel.org.uk
N/A	N/A	N/A	<i>null</i>	protocol	uktel.org.uk	protocol.uktel.org.uk

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## 5 URI rules

### 5.1 URI Format

URIs used in UK NGNs **shall** comply with STD0066 [1].

### 5.2 Domain Names

Where a URI contains a domain name to be specified by an NICC standard, that domain name **shall** conform to the rules of section 4.

### 5.3 Userinfo

Where the *<authority>* component of the URI includes a *<userinfo>* subcomponent (which will be followed by an @ symbol), the *<userinfo>* subcomponent:

- **shall** comply with the relevant specifications for the given application;
- **shall** consist of a maximum of 50 characters;
- **shall not** contain a colon.

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## 6 Usage of Public DNS

This standard does not require anything incorporating the *<NGN root domain>* to be published in a public directory (whether global DNS or otherwise) or, should they be made public, for the end points to be publicly accessible. However, a public website of assigned values will be maintained, see Section 7.



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## 7 Administration of the <NGN root domain>

The *uktel.org.uk* domain has been registered within the global Domain Name Space [2] as the <NGN root domain>. Annex A sets out the policy which **shall** be adopted for administration of the <NGN root domain>.

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## Annex A (normative): Administration Policy for *uktel.org.uk*

The *uktel.org.uk* domain has been registered within the global Domain Name Space [2] as the *<NGN root domain>*. This section describes the policy that **shall** be followed for administration of this domain.

There shall be a *domain administrator* who has overall responsibility for the *uktel.org.uk* domain. This function shall be carried out by the NICC Secretariat.

### A.1 Registries of Names

The administrator shall maintain two registers:

1. A register of all assigned labels for direct sub-domains of the *uktel.org.uk* domain. Each label shall be tagged as exactly one of:
  - a *<global application ID>* value
  - a *<provider>* name
  - reserved for use by the administrator
  - reserved for use in examples
2. A register of all *<local application ID>* values.

### A.2 Public Website

The administrator **shall** operate a public website with the name <http://www.uktel.org.uk> which **shall** contain at least:

- general information about the *uktel.org.uk* domain;
- a copy of the register of *<global application ID>* , *<provider>* and reserved label values;
- a copy of the register of *<local application ID>* values;
- procedures for applying for a *<provider>* name;
- contact information for the administrator;
- any information required by law.

## A.3 Labels Reserved to the Administrator

The following *<global application ID>* labels **shall** be retained for use by the administrator:

admin

mail

ns

www

This does not prevent the administrator using other domains

## A.4 Assignment of Provider Labels

A CP **should not** be assigned more than one such *<provider>* label. Nevertheless, where mergers and takeovers result in a single organisation holding more than one, they **may** retain all these *<provider>* labels indefinitely.

Where a name is released back to the administrator, the CP's view **shall** be taken into consideration when deciding how long to "quarantine" the name.

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## History

<b>Document history</b>		
1.1.1	April 2008	Publication
1.1.2	August 2008	Updated to include reference to ND1610 release sheet