Séminaire sur les systèmes de numérotation et leurs convergences
Workshop on numbering planning and convergence of numbering
Accra, Ghana 28-30 April 2010

Recommendation E.164 – E.169
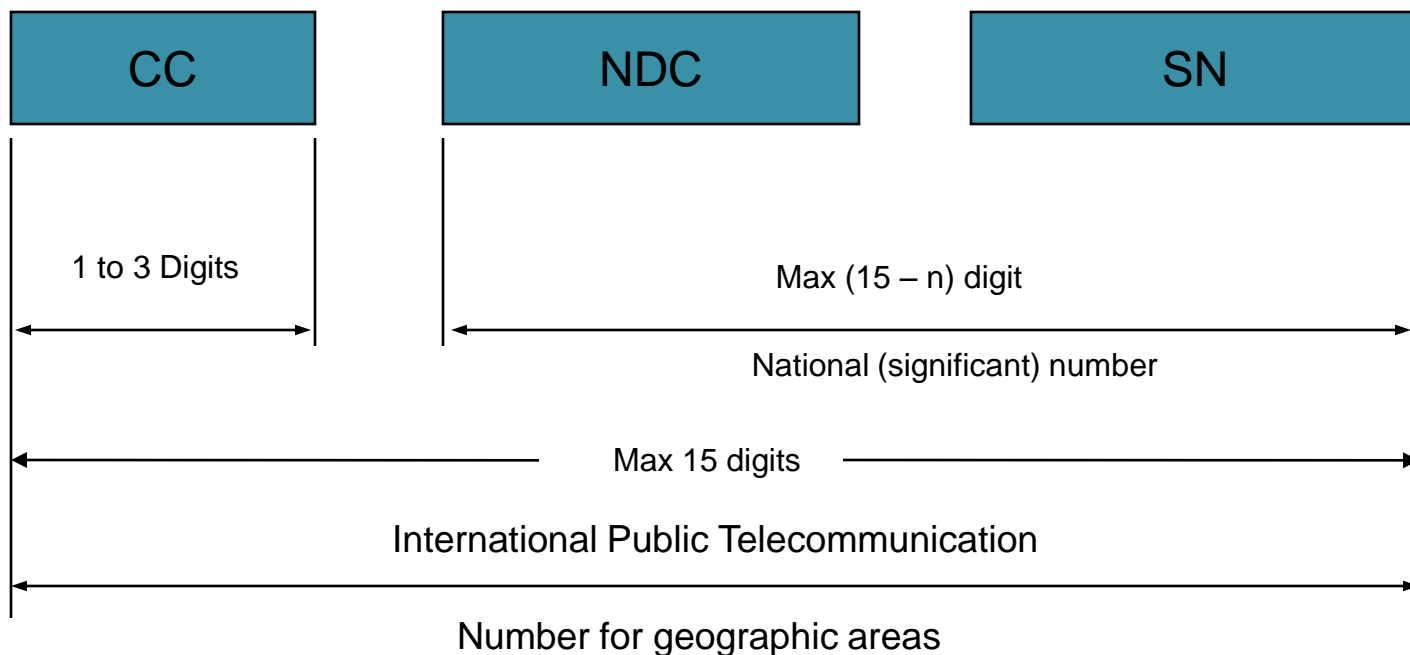Martha Onyeajuwa

E. 164 – NUMBER STRUCTURE

Specifically ITU-T Recommendation E.164 - the International public telecommunication numbering plan defines the number structure and functionality for five principal categories of numbers used for international public telecommunication namely:

- ➤ International E.164 number for geographic areas
- ➤ International E.164 number for global services
- ➤ International E.164 number for Networks
- ➤ International E.164 number for Group of Countries
- ➤ International number for Trials

- The ITU-T E164 recommendations specifies that the maximum no of digits for the International geographic, global services, Network and Groups of countries applications should be 15

- The leading digits of the National (Significant) numbers indicate services/or geographical area.

- Administration should do their best to limit digits to be dialed to the lowest possible , consistent with the service needs.

- The digit analysis should not be more than 7 digits to determine the country of destination, the most appropriate routing and the proper charging.

- It is recommended that notification of national numbering changes be submitted to the ITU-T, at least 2 years in advance.

E.164 – International E.164-number structure for geographic areas

CC	NDC	SN

1 to 3 Digits

Max (15 – n) digit

National (significant) number

Max 15 digits

International Public Telecommunication

Number for geographic areas

CC   Country Code for geographic area
NDC   National Destination Code
SN   Subscriber Number
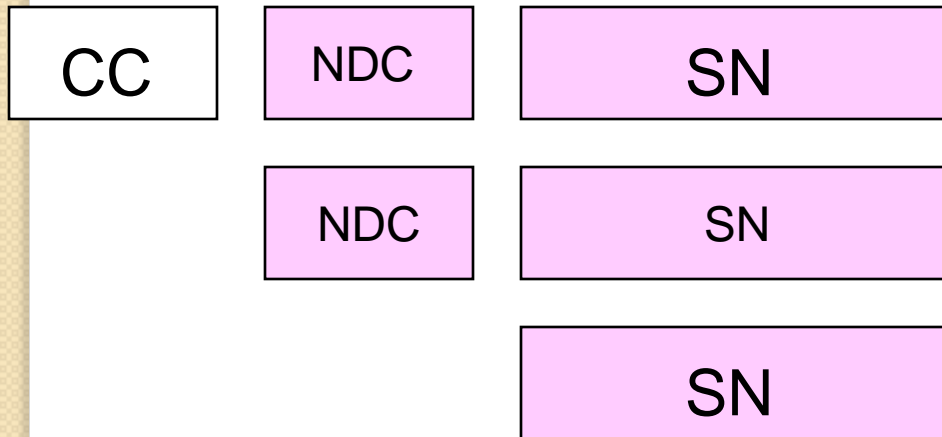N   Number of digits in the country code

NOTE – National and international prefixes are not part of the international E.164 number.

Geographic areas : Structures and options

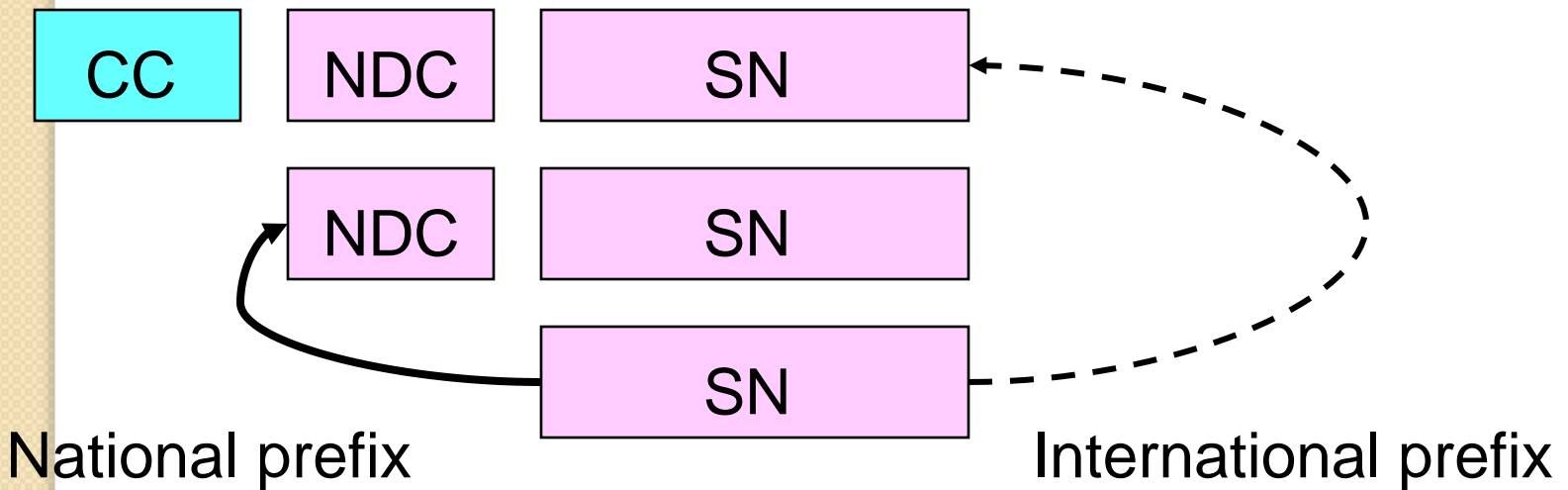Numbers for geographical areas, formats for national use.

Option 1: separate NDC and SN

CC	NDC	SN
	NDC	SN
		SN

Geographic areas : Structures and options

Numbers for geographical areas, formats for national use.

Option 1: separated NDC and SN

CC	NDC	SN
	NDC	SN
		SN

National prefix   International prefix
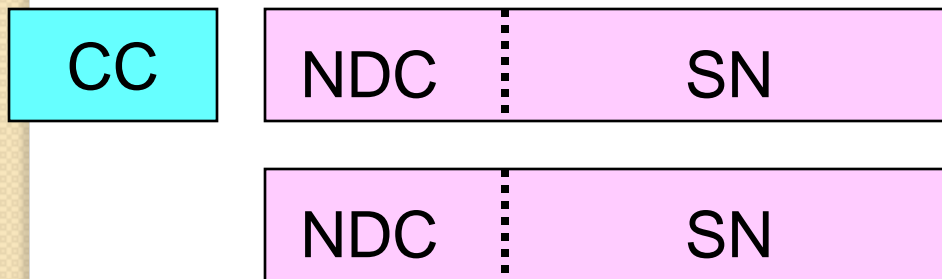
Geographic areas : Structures and options

Numbers for geographical areas, formats for national use.

Option 2: connected NDC and SN

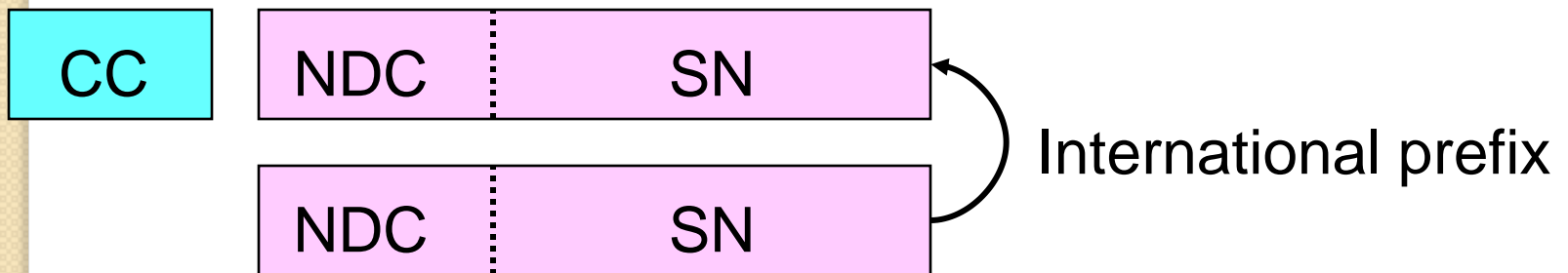| CC	NDC	SN

NDC	SN

National subscriber number

The leading digits of the national subscriber numbers indicates services and/or geography.

Geographic areas : Structures and options

Numbers for geographical areas, formats for national use.

Option 2: connected NDC and SN

CC	NDC	SN

NDC	SN

International prefix

When NDC and SN are inseparably connected to form a single dialling sequence, a national prefix is not necessary.

INTERNATIONAL PUBLIC TELECOMMUNICATION NUMBER STRUCTURE FOR GLOBAL SERVICES

CC	GSN

3 Digits ←→   ← Max 12 Digits →

← Max 15 Digits →

International public telecommunication number for global services
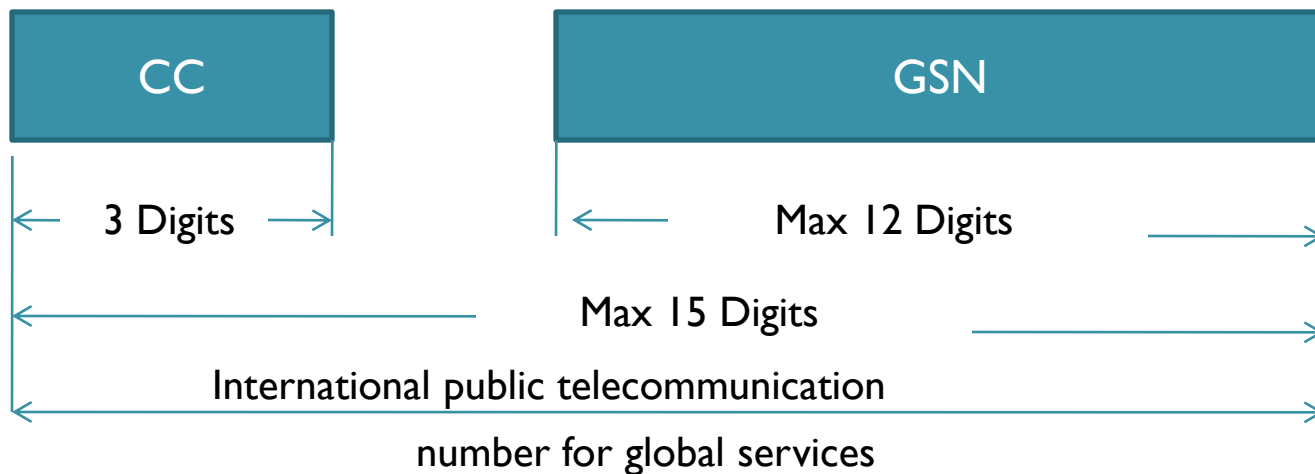
C C: Country Code for Global Services (800, 808, 878, 979)

G S N: Global Subscriber Number

Note: National and International prefixes are not part of the International   E.164 – numbers.

INTERNATIONAL E.164 – NUMBER FOR GLOBAL SERVICES

The International E.164 – number for global services is composed of decimal digits that vary depending on the specific service.

The International service number code fields are the 3-digit country code for global services and the Global Subscriber Number (GSN)

Fig 3/International E.164 Number Structure for Network

| CC	IC	SN
3 digits	1-4Digits	Max (12-x) Digits

Max 12 Digits

Max 15 Digits
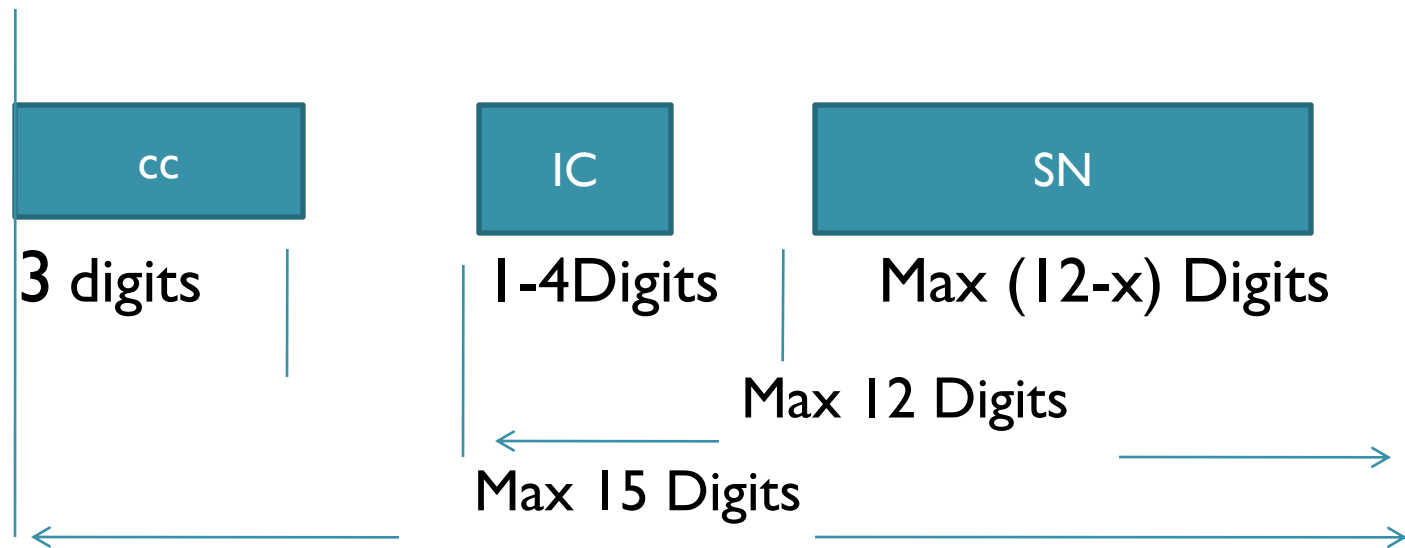
- CC — Country Code for Networks
- IC — Identification Code
- SN — Subscriber Number
- X — Number of digits in identification code (IC)
- cc + ic gives the network identification code

International E.164 Number for Networks

- The international public telecom. number for Networks (Figure 3) is composed of decimal digits arranged in three code fields. The code fields are the 3 digit shared Country Code (CC) field, the IC field, which vary in length between 1 to 4 digits, and the subscriber number (SN) which can be up to 15 minus the number of digits in the CC and IC fields.

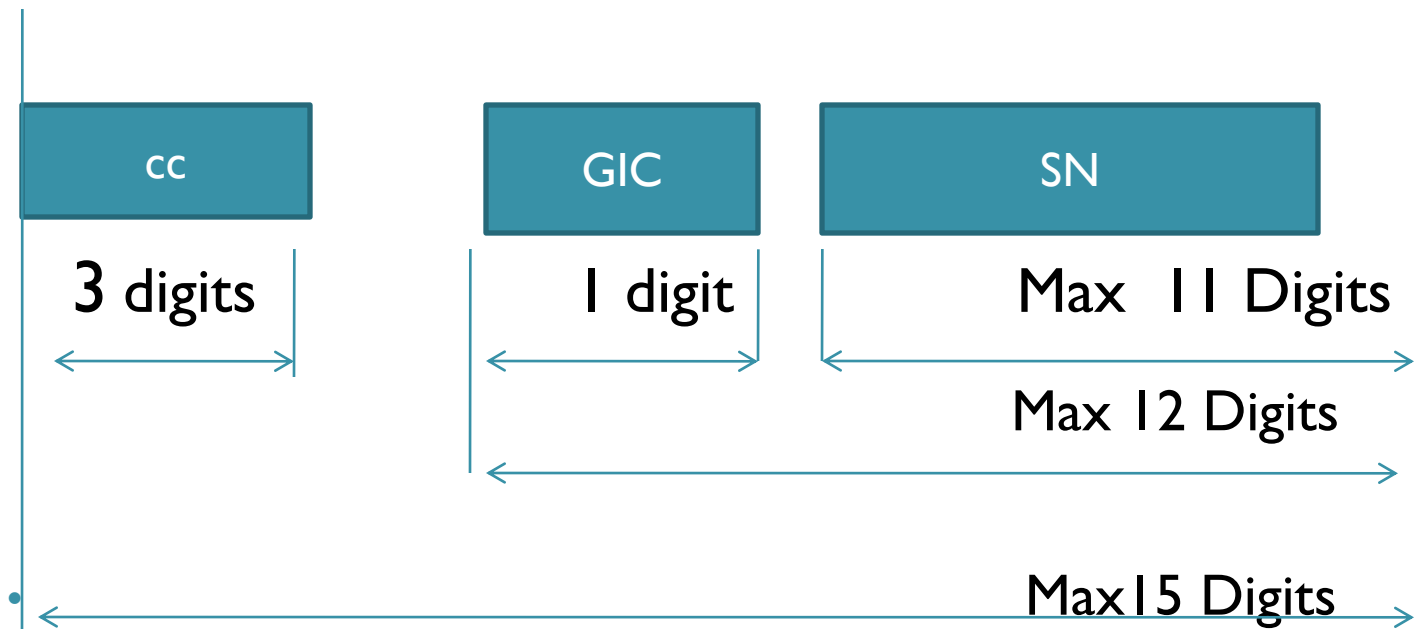# Numbers for Networks, optional formats

| CC | IC | SN | Incoming to Network |

| IC | SN | Between Networks |

| SN | Network internal |
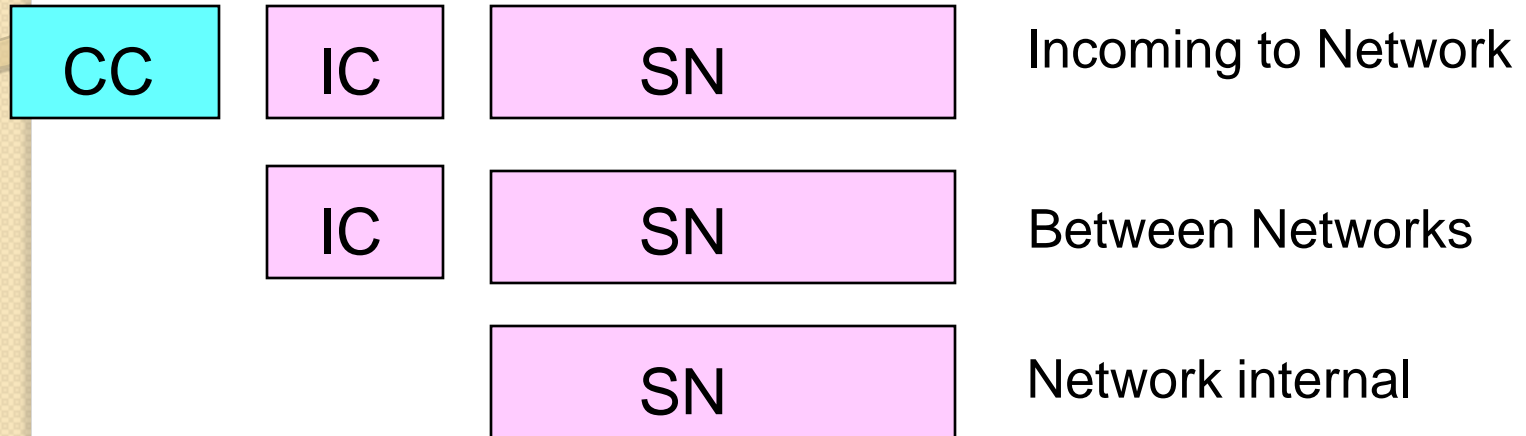
To use the three formats for the mentioned purposes each Network would have to create their own Network internal prefixes.

Fig.4/E.164-International E.164 Number for Group of Country (GoC)

CC	GIC	SN
3 digits	1 digit	Max 11 Digits

Max 12 Digits

Max15 Digits

CC   Country Code that is shared

- GIC Group Destination Code

- GoC Group of Countries

- SN   Subscriber Number

Fig. 5/E164 – International E164 Number Structure for Trials

CC (991)	TIC	SN

3 digits   3 digits   Max 9 Digits

Max 12 Digits

Max 15 Digits
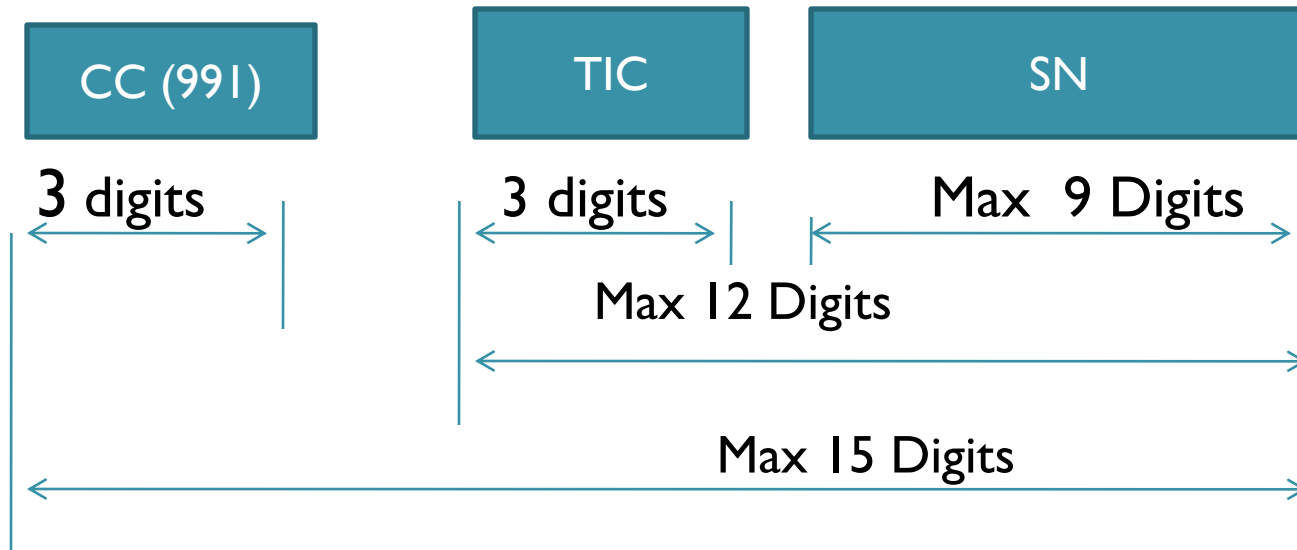
Functionality of TIC is determined by the Assignee

CC: Country Code for Trials (991)

TIC: Trial Identification Code

SN: Subscriber Number

ITU-T Recommendation E.164

ITU-T Recommendations related to E.164 include:

- E.164.1: Criteria and procedures for the reservation, assignment and reclamation of E.164 country codes and associated Identification Codes(ICs)

- E.164.2: E.164 numbering resources for trials

- E.164.3: Principles, criteria and procedures for the assignment and reclamation of E.164 country codes and associated identification codes for groups of countries.

- ITU-T Recommendation E.190: principles and responsibilities for the management assignment and reclamation of E-series international numbering resources

ITU-T Recommendation E.165

- E165 – TIMETABLE for coordinated implementation of the full capability of the Numbering Plan for ISDN ERA (Recommendation E.164)

- All ISDN must be E.164 – conforming networks
- Function associated with E.164 conforming networks are:

  - For calls originated within such a network, provision for carrying E.164 numbers of up to 15 digits to interfacing networks;

  - Comparable treatment for transit calls;

  - Capability for conducting digit analysis for ISDNs and PSTNs as indicated in Recommendation E.164;

ITU-T Recommendation E.165 contd

o Screening to ensure that, taking into account agreements between the networks concerned, no transit calls are offered to non-conforming networks incapable of handling number lengths as defined in Recommendation E.164;

o Provision of interim procedures, such as two-stage selection, for internal network sources, e.g. local exchanges, not equipped to handle 15 digits, so that all internal network sources can originate calls to all E.164 addresses.
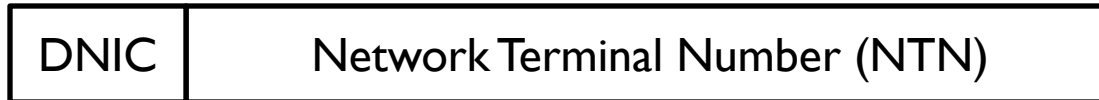
ITU-T Recommendation E.165.1

E165.1 – Use of escape code "0" within the E.164 numbering plan during the transition period for implementation.

E.166 / X122
Structure E.121: Format of numbers for data transmission

E.166/x.122 Numbering plan interworking for the E.164 and x.121 numbering plans

DNIC	Network Terminal Number (NTN)

(4 digits)   (up to 10 digits)

DCC	National Number (NN)

(4 digits)   (up to 11 digits)

DNIC: Data Network Identification Code

NTN: Network Terminal Number

DCC: Data Country Code

NN: National Number

E.166 / X122
Structure E.121: Format of numbers for data transmission

DNIC

The Data network Identification Code has 4 digits, of which the three first digits are the DCC.

The first digit of the DNIC is as fellows:

a) 1 For public mobile satellite systems and public global networks
b) 2 – 7 For country or geographic specific DNICs

The DNIC can identify:

a) A Public Data Network within a country,
b) A global service,
c) A PSTN or a ISDN,
d) A group of Public Data Networks,
e) A group of a private data networks.

E.167 ITU-T RECOMMENDATION

E.167 concerns the ISDN network identification codes (NIC ISDN).

The country code(CC) and network identification code (NIC) are allocated by the ITU-T.

Format of the Interim INIC

Country code	INIC Format
One digit	ICXX
Two digits	ICCX
Three digits	ICCC

Table E.167

I is the initial digit (0-9)
C is a digit of the country code
X is an additional digit (0-9)

Note:
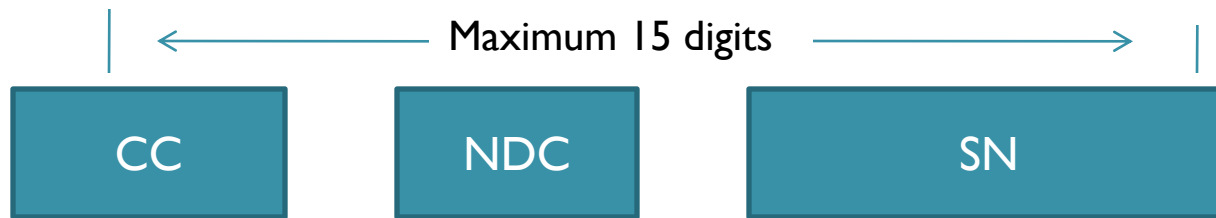Work is continuing by ITU-T for final definition of INIC

ITU-T RECOMMENDATION E.168

- E.168 – Application of E.164 numbering plan for UPT
- Scenario 1 – The structure of the home-related numbering scheme.

Maximum 15 digits

CC	NDC	SN

CC   Geographic country code as defined in ITU-T Rec. E.164

NDC National destination code

SN   Subscriber number identifies UPT customer

Scenario 1 – Home related scheme Contd.

- For this scenario the E.164 structure may be interpreted as follows:

CC: country code

NDC + SN: national (significant) number

- In this scenario the leading digits of the national (significant) number do not permit identification of the number as being a UPT number.

Scenario 2 – The structure of the country-based numbering scheme

Maximum 15 digits

1-3 digits Maximum (15 − n) digits

| CC | NDC | SN |

UPT   SP
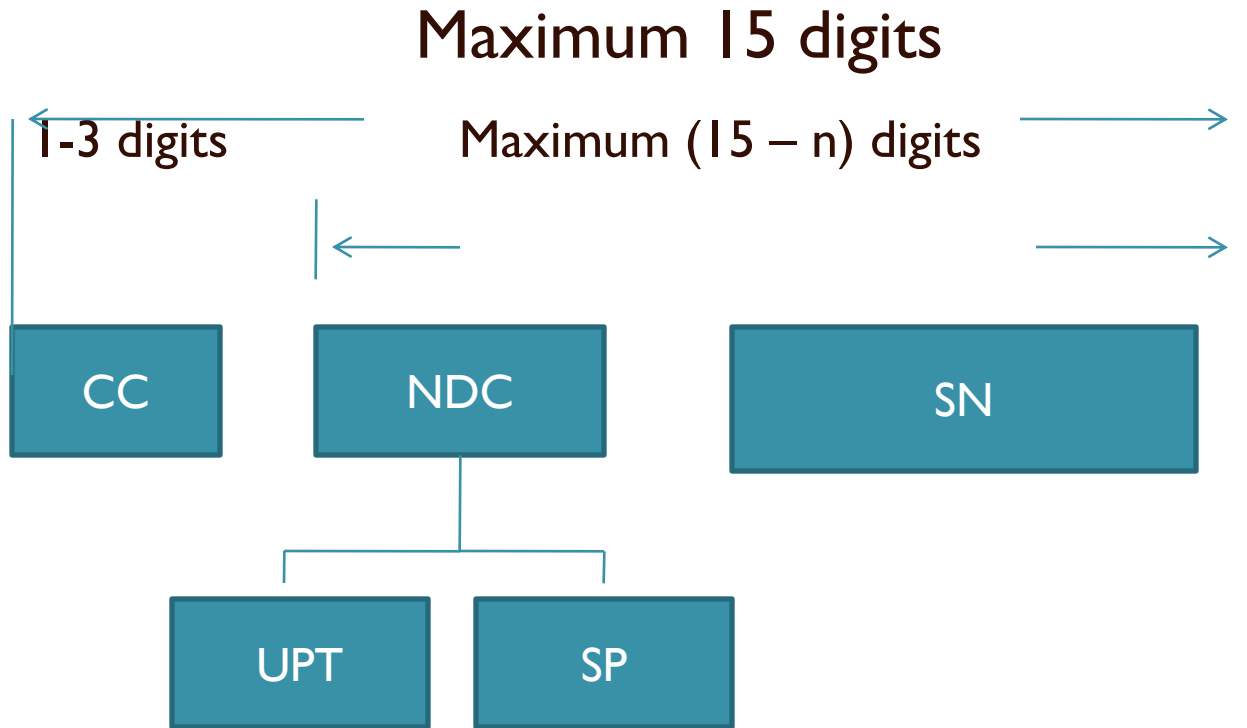
CC: Geographic country code as defined in ITU-T Rec. E.164
NDC: National destination code

Scenario 2 – The structure of the country-based numbering scheme contd.

SN:	Subscriber number indentifies UPT customer

UPT:	A UPT indicator

SP:	Service provider indicator (This field is optional)

N:	Number of digits in the country code

- Management of this scheme is under the purview of the country number administrator
- From international networks the complete UPT number must be dialed. A national short dialing format may exist but must include both the NDC and SN.

SCENARIO 3 – COUNTRY CODE-BASED GLOBAL SCHEME

- This scheme is based on the international number for global services defined in ITU-T Recommendation E.164.

- The presence of country code "878" identifies a UPT call.

15 digits

878	GSN

3 digits · 12 digits
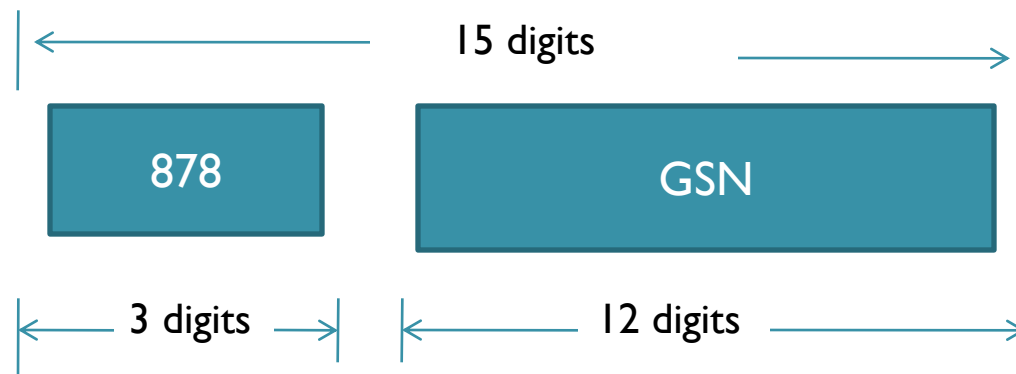
CC (UPT):   An E.164 country code used for the UPT global service
GSN: Global subscriber number

SCENARIO 3 – COUNTRY CODE-BASED GLOBAL SCHEME contd

- In scenario 3 it is always required to dial the full international public telecommunications number

- The interim and long application procedure for scenario 3 are contained in ITU-T Rec. E.168.1.

Summary/E.168 – Number administration responsibility

Scenario	CC	NDC	GSN	SN
1	ITU-T	National	Not applicable	National
2	ITU-T	National	Not applicable	National
3	ITU-T	Not applicable	ITU-T	Not applicable

ITU-T RECOMMENDATION E.169

Description of E.169.x series
Recommendations

ITU-T RECOMENDATION E.169.1

Application of Recommendation E.164 numbering plan for universal international freephone numbers for international freephone service

800	GSN

3 digits   8 digits

Global Subscriber Number (GSN)

Universal International Freephone Number (UIFN)

UIFN FORMAT

- UIFN is composed of a 3-digit CC for a global service application, 800, and an 8-digit Global Subscriber Number (GSN), resulting in an 11-digit fixed format (see Figure 1.1)

- As an example, an IFS customer's UIFN could be 800 yyyyyyyy, where yyyyyyyy is the IFS customer's GSN

- An IFS caller must dial an international prefix prior to the UIFN

ITU-T RECOMENDATION E.169.2

Application of Recommendation E.164 numbering plan for universal international premium rate numbers for international premium rate service

979	CI + SN
3 digits	1 + 8 digits

Global Subscriber Number (GSN)

Universal International Premium Rate Number (UIPRN)

UIPRN FORMAT

- A UIPRN is composed of a 3-digit CC for a global service application (979), a single digit Charging/Accounting Indicator (CI), and an 8-digit Subscriber Number (SN), resulting in a 12-digit fixed format (CC+CI+SN) (See Figure 1.2)

- As an example, an IPRS customer's UIPRN could be 979 x yyyyyyyy, where x is the Charging/Accounting Indicator, and yyyyyyyy is the IPRS customer's SN.

- All calls to a UIPRN must be preceded by an international prefix.

ITU-T RECOMENDATION E.169.3

Application of Recommendation E.164 numbering plan for universal international shared cost numbers for international shared cost service

808	GSN
3 digits	8 digits

$\longleftrightarrow$ Global Subscriber Number (GSN)

$\longleftrightarrow$ Universal International Shared Cost Number (UISCN)

UISCN FORMAT

- A UISCN is composed of a 3-digit CC (808) for a global service application and an 8-digit Global Subscriber Number (GSN), resulting in an 11-digit fixed format (see figure 1.3)

- As an example, an ISCS customer's UISCN could be 808 yyyyyyyy, where yyyyyyyy is the ISCS customer's GSN.

- All calls to a UISCN must be preceded by an international prefix.

Thank you
for your attention

Questions?