ITU Workshop on Numbering Planning and Convergence of Numbering
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National Numbering Plan (NNP): Nigeria

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Introduction

- The current NNP is mainly derived from the digit combination structure suggested in the ITU recommendations ITU-T E.123, E.164, E.212, E.214

- The Numbering Plan is an addressing Mechanism for communication networks, which enables routing of traffic to designated networks

- NNP is sometimes used to identify different types of services

Brief History of the Nigerian NNP

- The NNP was prior to liberalization administered and managed by the incumbent Monopoly Operator (NITEL).

- After Liberalization of the Telecoms Market, the Management of the NNP was handed over to the Regulator, the NCC in the year, 2003

- At NCC NNP was re-aligned to accommodate multiple-operators and services. For Example, Trunk Codes such as 080X and 070X were made available for use by new mobile telephone service operators.

What the Law Says

- Section 4(1)(k) says NCC is responsible for "development, management and administration of a national numbering plan and electronic addresses plan and the assignment of numbers and electronic addresses therefrom to licensees"

- Section 128 (1) The Commission shall, solely and exclusively be vested with control, planning, administration, management and assignment of the numbering and electronic addressing of network services and applications services

- (2) The Commission shall develop a numbering and electronic addressing plan for the numbering and electronic addressing of network services and applications services taking into account the subsisting numbering plan prior to the commencement date of this Act

- NCC is also empowered by Sections 70(2) of the Act to make Regulations in respect of Numbering and other areas.

The Nigerian National Numbering Plan (NNP)

- The Country Code for Nigeria is +234 and the NNP can be categorized into Five classes which are:

  - Geographic Numbers/Numbering Areas for Fixed Communications Services.

  - Non-geographic Numbers for Mobile Services

  - Vanity and Toll-Free

  - Premium Numbers.

  - Short Codes for Special Services. For example 112 for emergency services.

The NNP-1

- The NNP currently have the following digit lengths
  - Two (2) and three (3) digit Trunk Code/Area Code for Geographic Numbers/Numbering Areas, e.g. 01 for Lagos and 073 for Jos.

  - Six (6) and Seven (7) digit Directory Numbers (DN). For example. 232900 and 4617356

  - Four (4) and Five (5) digit Trunk Code/Mobile Access Code for Non-geographic Numbers/Mobile Service Numbers. For example: 080x and 0702x

  - Subscriber Number taken together -Eleven (11) digits for Mobile Service Numbers e.g. 0803-547-2555 and Nine (9)digits for Fixed/Geographic Numbers e.g. 09–461-7000

The NNP-2

- In conforming with the internationally adopted standard, the typical National (Significant) Number – N(S)N digit combination structure for a subscriber has a format depicted as shown in the table below where the N(S)N is the combination of

"(Country Code)+(Trunk Prefix)+(Trunk Code)+(Exchange Code)+(Subscriber Number)"

234   (0)   9   461   7398

CC	NDC			SN	
Country Code (CC)	"0"(Usually prefixes a national code, but is suppressed for International dialing)	National Code for Standard Trunk Dialing (STD)	Exchange Identification Code	Subscriber Number (SN)	
3-Digits	1-Digit	1 or 2 Digits	2 or 3-Digits	4-Digits	ΣDigits = 15 Digits

The NNP-3

- Procedure for the allocation of NNP resource includes but not limited to the following:
  - The applicant who possess a valid *Operational License* is expected to duly fill and submit the NNP Application form to the Commission. The NNP application form (STD/02) is available from the NCC website (http://www.ncc.gov.ng.)

  - If all requirements laid down in the NNP application form are met and backing documents are submitted along with the form and the applicant is determined by the Commission to have fulfilled her regulatory obligations, the applicant should, under normal circumstance, receive the NNP resource within three (3) to four (4) weeks of receipt of the application after payment of the applicable fees.

  - Numbers are paid for by the operators annually except those assigned as a part of a License bundle.

Standard Nigeria'sTrunk Codes

- Presently the total number of Trunk codes is ninety-three (94).

- Thus a 3-digit Trunk code plan can, theoretically, provide and accommodate up to 900 codes (where we have excluded all numbers with a leading zero, i.e. 000 to 099 (out of 000-999).

- It is also possible to associate each trunk code with up to nine million (9,000,000) local DNs. 0,000,000-0,999,999 (out of 0,000,000-9,999,999)

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Current National Distribution of Trunk-codes for different numbering areas

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STD codes for different numbering areas in Nigeria
Regional/Fixed Networks

S/N	NUMBERING AREA	TRUNK CODE
1	LAGOS	01
2	IBADAN	02
3	ADO-EKITI	030
4	ILORIN	031
5	NEW BUSSA	033
6	AKURE	034
7	OSHOGBO	035
8	ILE-IFE	036
9	IJEBU-ODE	037
10	OYO	038
11	ABEOKUTA	039
12	WUKARI	041
13	ENUGU	042
14	ABAKALIKI	043
15	MAKURDI	044
16	OGOJA	045
17	ONITSHA	046
18	LAFIA	047
19	AWKA	048
20	IKARE	050
21	OWO	051
22	BENIN	052
23	WARRI	053
24	SAPELE	054
25	AGBOR	055
26	ASABA	056
27	AUCHI	057
28	LOKOJA	058
29	OKITIPUPA	059
30	SOKOTO	060

S/N	NUMBERING AREA	TRUNK CODE
31	KAFANCHAN	061
32	KADUNA	062
33	GUSAU	063
34	KANO	064
35	KATSINA	065
36	MINNA	066
37	KONTAGORA	067
38	BIRNIN-KEBBI	068
39	ZARIA	069
40	AZARE	071
41	GOMBE	072
42	JOS	073
43	DAMATURU	074
44	YOLA	075
45	MAIDUGURI	076
46	BAUCHI	077
47	HADEJIA	078
48	JALINGO	079
49	ABA	082
50	OWERRI	083
51	PORT HARCOURT	084
52	UYO	085
53	AHOADA	086
54	CALABAR	087
55	UMUAHIA	088
56	YENAGOA	089
57	ABUJA	09
58	CELLULAR MOBILE	090

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Mobile Networks Trunk codes for in Nigeria

S/N	NUMBERING AREA	TRUNK CODE
59	VANITY NUMBERS (Alpha Technologies)	0700
60	NITEL, (FNC)	07021
61	NITEL, (FNC)	070220
62	NITEL, (FNC)	070221
63	NITEL, (FNC)	070222
64	NITEL, (FNC)	070223
65	NITEL, (FNC)	070224
66	ZOOMMobile Nig. Ltd	07023
67	Prest Cable & Satellite	07024
68	Visafone Communications Ltd	07025
69	Visafone Communications Ltd	07026
70	Multi-links Telecommunications Ltd	07027
71	STARCOMMS	07028
72	STARCOMMS	07029
73	MTN (GSM)	0703
74	Visafone Communications Ltd	0704
75	GLO MOBILE (GSM)	0705
76	MTN (GSM)	0706

S/N	NUMBERING AREA	TRUNK CODE
77	ZOOMobile Nig. Ltd	0707
78	Celtel Nigeria Limited (Trading as Zain) (GSM)	0708
79	Multi-links Telecommunications Ltd	0709
80	Toll Free NUMBERS (Alpha Technologies)	0800
81	Celtel Nigeria Limited (Trading as Zain) (GSM)	0802
82	MTN (GSM)	0803
83	MTEL (GSM)	0804
84	GLO MOBILE (GSM)	0805
85	MTN (GSM)	0806
86	GLO MOBILE (GSM)	0807
87	Celtel Nigeria Limited (Trading as Zain) (GSM)	0808
88	EMTS (Etisalat) (GSM)	0809
89	Celtel Nigeria Limited (Trading as Zain) (GSM)	0812
90	MTN (GSM)	0813
91	MTN (GSM)	0816
92	EMTS (Etisalat) (GSM)	0818
93	STARCOMMS	08190
94	STARCOMMS	08191

Current DN Block Size Information

S/N	Description	DN Block Size	Proportion
1	Allocated DN Block Size	242,786,653	65.57%
2	Available DN Block Size	127,480,652	34.43%
3	Total DN Block Resource	370,267,305	100.00%

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NON-E164 Numbers Managed by NCC

- National Signaling Point Codes. For example; Destination Point Code in Decimal: 1345 for ZOOM Mobile.

- International Signaling Point Codes. For example; 6-043-3 for Globacom Limited (Glo-mobile)

- Mobile Network Codes (MNC). For example; 30 for MTN Nigeria Communications Limited.

- System Identification (SID) Numbers for CDMA operators. For example; 9248 for Visafone.

NATIONAL SIGNALING POINT CODEs

- Signaling Point Codes (SPCs) are signaling addresses used in a signaling network employing common channel signaling System No.7 (SS7) for call set-up. SPC is needed for establishing interconnection between two SS7 switches

- National Signaling Point Codes (NSPCs) are codes used to establish direct SS7 signaling links and interconnection between national/local networks. In a message you will find an OPC (Originating Point Code) and a DPC (Destination Point Code)

- Depending on the network a point code can be:

  24 bits (North America, China), 16 bits (Japan), or 14 bits (ITU standard, International SS7 network and most countries) in length.

NATIONAL SIGNALING POINT CODE

SPC FORMAT

- **ANSI point codes** use 24 bits, mostly *in 8-8-8 format*. Twenty-four bit point codes are written in one of, (a) decimal, (b) hexadecimal, or (c)8-8-8 format.

- **ITU point codes** use *14 bits and are written in 3-8-3* format. Fourteen bit point codes can be written in a number of formats. The most common formats are (a) decimal number, (b) hexadecimal number, or (c) 3-8-3 format (3 most significant bits, 8 middle bits, 3 least significant bits).

   Nigeria assigns SPC to operators **based on ITU decimal format.**

INTERNATIONAL SIGNALING POINT CODE

The worldwide signaling network has two functionally independent levels: the international level and the national level. Within the International Signaling System No. 7 network, a signaling point is identified by an *International Signaling Point Code (ISPC)* while within the National signaling system No.7 network, a signaling point is identified by a *National Signaling Point Code (NSPC).*

International Signaling Point Codes (ISPCs) are unique 14-bit binary codes used to establish direct SS7 signaling links and interconnection with overseas networks. It is also used for message routing and identification of signaling points involved.

Assignment or withdrawal of International Signalling Point Codes (ISPC) for Signalling System No. 7 (According to ITU-T Recommendation Q.708 (03/9

- ITU Recommendation Q.708 states that the assignment of Signaling Area/Network Codes *(SANC) is to be administered by Telecommunication Standardization Bureau (TSB)*. The assignment of international signaling point codes (ISPC) will be made by each country who will then notify TSB.

- In order to keep the list up to date, Administrations are, therefore, requested to *notify TSB, by using the notification form, as soon as an ISPC assignment* or withdrawal is made.

- This List will be updated by numbered series of amendments published in the ITU Operational Bulletin. Furthermore, the information contained in this Annex is also available on the ITU home page http://www.itu.int/itu-t/bulletin/index.html, and can be consulted by subscribers by remote access.

SANC ASSIGNED BY ITU TO NIGERIA

S/N	SANC	ISPC	REMARK
1.	6-041	6-041-0 to 6-041-7	Only three (3) available for assignment to operators
2.	6-042	6-042-0 to 6-042-7	All eight (8) available ISPC fully assigned
3.	6-043	6-043-0 to 6-043-7	All eight (8) available ISPC fully assigned

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MOBILE NETWORK CODE 1

A **Mobile Network Code** (MNC) is used in combination with a Mobile Country Code (MCC) (also known as a "MCC / MNC-tuple") to uniquely identify a mobile phone operator/carrier using the GSM, CDMA, iDEN, TETRA and UMTS public land mobile networks and some satellite mobile networks. The ITU-T Recommendation E.212 defines mobile country codes.

Example:

E.212(IMSI) =   MCC+MNC+MSIN

              e.g.   621-30-8033021418 (MTN Nigeria)

                     621-20-8023021418 (Zain Nigeria)

                     621-50-8053021418 (Glo Nigeria)

                     621-60-8093021418 (Etisalat Nigeria)

MOBILE NETWORK CODE 2

S/N	Countries	Mobile Country Code (MCC) (@Signaling level)	International Country Code (CC)
1.	Nigeria	621	234
2.	Ghana	620	233
3.	Cote'Ivoire	612	225
4.	Egypt	602	20
5.	South Africa	655	27

- E.164(MSISDN) = CC+NDC+SN, e.g. 234-09-4617000

- E.212(IMSI) = MCC+MNC+MSIN, e.g. 621-30-8033021418 (MTN Nigeria)

- E.214(MGT) = combination of E.212 and E.164 (Exact combination is defined in the operators IR21 document)

Refer to: The NNP

- In conforming with the internationally adopted standard, the typical National (Significant) Number – N(S)N digit combination structure for a subscriber has a format depicted as shown in the table below where the N(S)N is the combination of

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SYSTEM IDENTIFICATION NUMBER (SID)1

A **System Identification Number** (**SID**) is used to identify a cellular network in a certain area. It is a Global *number to identify base stations* for AMPS, TDMA or CDMA networks. This number sometimes has conflicts (best noticed when using roaming services). These codes ranged from 0- 32767 or 32768-65536 and can be listed within a wireless device to show preference for one network over another. (e.g. 9248-9279 for Nigeria from International Forum for ANSI-41 Standards Technology, IFAST)

SIDs are sometimes programmed into the phone. The SID is used by mobiles to recognize when they are in their home system (e.g. it controls the "roam" light). Some newer phones may maintain a list of "preferred" systems identified by their SID code. The SID may also modify some signaling messages that are transmitted by mobiles.

SYSTEM IDENTIFICATION NUMBER (SID)2

- TIA TR-45.2 assigned ranges to every country in the 1980s and national regulators assigned individual numbers.

- International Forum on ANSI-41 Standards Technology (IFAST) took over in 1997. This number space is 90% utilized, however many countries do not use all of their allocated codes.

- IFAST inherited the assignment of SID ranges to countries and has continued the allocation of blocks to countries that need more codes or that were never assigned a block (e.g. because the country was not independent when the blocks were first assigned in the 1980s). IFAST considers it the responsibility of national telecom regulators to assign SID codes to individual wireless systems.

SYSTEM IDENTIFICATION NUMBER (SID)s

How SIDs works

- When the phone is turned on, it listens for a signal. If it receives a signal, it looks at the SID (being carried by the signal), and compares it with the one that is stored in the phone. If they match, then you are in your home area. You are roaming if you are in an SID area that is not recognized by your phone.

- The Preferred Roaming List (**PRL**) is mostly responsible for determining which SIDs a phone could roam on.

- A typical SID coverage area is about 30 – 60 miles in diameter, but some may be as large as 200 or more miles.

Challenges of NNP

- No reservation of dedicated set of numbers for VoIP and other related services.

- The available Exchange Codes for some Numbering Areas is nearing depletion. Also, 050x-080x Mainly used by Nitel, Limiting Mobile Expansion in the Range

- Inefficient use of Numbers:

    Some blocks for DN for Geographic Numbers especially from the incumbent (NITEL) are not fully utilized.

    e.g. Block 640000 -649999 (10,000 numbers)

    643400 -644599 (1200 numbers used)

    Balance of 8800 left unused, and then begins fresh assignment on another block

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Challenges of NNP-2

- The older legacy exchanges have been observed to prove inadequate in handling the co-existence of five (5) –digit DN with six (6) –digit DN in the same Numbering Area

- NNP guideline/regulation especially for Short Codes

- Harmonized NNP in Africa in the face of the Concept of one network

- Agreeing on an answer to a Question: Is number a Scarce or Limited Resource bounded by our plan?
  - Consider Population and growth
  - Ease of remembering
  - Closed and Open NP
  - Length of African Country Codes Vis-a-Vis USA and EU (234, 233 etc

Future Plan for the NNP

- Development of New NNP for Nigeria.

- Assigned DN-Blocks must be utilized.

- All un-utilized DN-Blocks should be recovered

- A uniform-digit length numbering plan is likely to be administered.

- DN-block shall be shared in a contiguous manner.

- Implementation of Number Portability

- Conclude on the different on-going regulations for NNP such as for Short Codes, Premium Service Numbers, etc.

Conclusions

- **Have discussed**
  - History of the NNP and What the Nigerian Law Says on the NNP

  - The current status of Nigerian NNP and other Non E.164 Network numbers administered by NCC

  - The Challenges of NNP

  - The Future Plan by NCC for the NNP

THE END

I Thank You all

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