FIXED NUMBER PORTABILITY GUIDELINES

THE TECHNICAL APPROACH

1 Introduction

1.1 This document describes the technical approach for the deployment of Fixed Number Portability ("**FNP**") service by Facilities Based Operators offering fixed line level "6" voice service ("**Fixed Line Voice Service Providers**") (the list of Fixed Line Voice Service Providers is given in Annex 1).

1.2 FNP service refers to the ability for subscribers to switch between Fixed Line Voice Service Providers without the need to change telephone numbers. A Fixed Line Voice Service Provider will need to engage in multi-party arrangements with other Fixed Line Voice Service Providers in order to offer FNP service to its subscribers.

2. Fixed Number Portability Service

2.1 The Fixed Line Voice Service Providers shall implement FNP service using an Intelligent Network ("**IN**") solution based on the Query on Release ("**QoR**") method which is a form of originating call re-routing method. In order to support the QoR method, the network is required to implement a signaling option to indicate to the originating network that the dialed number has been ported out.

2.2 The QoR method is where the Donor Network Operator sends a Release message with a specific cause value to the originating network. The originating network operator will then query its database for the Routing Number and route the call to the Recipient Network Operator. To support this solution, each network will have its own Database as the solution requires the originating network operator to make the query. The cause value to be used for the QoR method is '0001110' or 14 to indicate the number has been ported.

2.3 Two numbers (the Directory Number ("**N1**") and the Routing Number ("**N2**")) will be used by Fixed Line Voice Service Providers to route the call to the Recipient Network Operator. An Integrated Services Digital Network User Part ("**ISUP**") parameter, the Additional Calling Party Information ("**ACLI**"), is defined under national option to carry N2 in the Initial Address Message ("**IAM**") message across the networks.

2.4 The procedures for acquiring FNP services can be found in Annex 2.

2.5 The technical specifications for the QoR method can be found in Annex 3.

3. FNP Agreements

3.1 The current Fixed Line Voice Service Providers have signed a multi-party FNP Agreement to provide FNP services to each other. New Facilities Based Operators who are required to provide FNP service should also conclude similar agreements with the existing Fixed Line Voice Service Providers for the provision of FNP service.

Jointly prepared by the Fixed Number Portability Working Group

Annex 1 – List of Fixed Line Voice Service Providers

Singapore Telecommunications Ltd

Contact: Manager (Interconnect)

Fax Number: 6848 4113

StarHub Ltd

Contact: Head (Government and Strategic Affairs)

Fax Number: 6721 5002

M1 Limited

Contact: GM (Corporate Development)

Fax Number: 6655 1977

Verizon Communications Singapore Pte Ltd

Contact: Manager (Regulatory)

Fax Number: 6248 6980

Annex 2 – Procedures for Acquiring FNP Service

1 Processing Procedure of Recipient Network Operator ("**RNO**")

1.1 The RNO shall initiate the porting of a Fixed Network Directory Number upon receipt of an NP Application Form for the FNP Service from a customer.

1.2 The RNO will send the customer's signed NP Application Form to the Donor Network Operator ("**DNO**") for processing, five (5) Working Days prior to the activation of the FNP Service.

1.3 By the end of the Working Day, the RNO shall send, to each DNO, a summary report of all NP Applications sent by the RNO to the DNO in that Working Day.

2 Processing Procedure of Donor Network Operator

2.1 Upon receipt of the NP Application Form submitted by the RNO, the DNO shall process the application and notify the RNO whether it accepts or rejects the NP Application and such notice shall be given within one (1) Working Day of receipt of the NP Application.

3 Exceptions

3.1 Where the DNO rejects the NP Application, the RNO shall rectify the cause of rejection and submit a new NP Application form in accordance with the FNP Agreement.

3.2 Where an NP Application has been wrongly rejected, the DNO shall use best endeavors to implement the FNP Service within five (5) Working Days from the date of the NP Application or where the five (5) Working Days have elapsed, as soon as practicable.

4 Preparation

4.1 Upon acceptance by the DNO of the NP Application, the DNO will update its database with the routing information and carry on such other preparatory work as may be required in the agreed timescales.

4.2 The RNO shall update the DNO and Innocent Party ("**IP**") on the activation of the FNP Service giving two (2) Working Days' prior notice before the requested activation date via FTP file.

5 Implementation

5.1 The activation of the FNP Service will be carried out by all Fixed Line Voice Service Providers either between midnight and 7.00am of the 5th Working Day, or between 2.00pm and 4.00pm of the 5th Working Day.

5.2 If an order is placed on a Monday, the FNP will either be activated from 00:00hrs to 07:00hrs or 14:00hrs to 16:00hrs the following Monday. If an order is placed on a Monday, and the following Monday is a public holiday, the FNP will either be activated from 00:00hrs to 07:00hrs or 14:00hrs to 16:00hrs the following Tuesday.

Annex 3 – QoR Technical Specification

1 General Description

1.1 A ported subscriber has two numbers used by the Network to reach him: the Fixed Network Directory Number (N1), which represent the logical identity of the user itself, and the Routing Number (N2) that is used to route the call towards him when he is called represents the “physical” identity of the user.

1.2 For a ported user originating a call, the transfer of both N1 and N2 is useful for security services based on the logical identity and the physical location of the calling user. A new ISUP parameter (ACLI) is defined under national option to convey the second identity of a calling user across the Network.

1.3 The originating Network may deliver the following information to the recipient Network in the call path, once the routing information has been obtained :

(a) the Routing Number; and

(b) the Additional Calling Party Information (ACLI), if available

1.4 The FNP method to be adopted shall be Query on Release (QoR)

1.5 To support QoR, there is a requirement as a Network option to indicate in the backward direction, from the Donor Network/Exchange to the originating Network, that the dialed Number has been ported out. The Donor Network shall send a Release Message with a specific cause value to the originating Network. The Originating Network shall query its Database for the Routing Number and route the call to the Recipient Network.

2 Technical Specifications of Number Portability

2.1 **Type of Addressing**

The Routing Number (N2) from the query shall be in the Called Party Number parameter of the IAM message to route the call to the Recipient Exchange.

2.2 **Cause Value**

The cause value for QoR shall be ‘0001110’ or 14 (QoR: ported number). The format shall be in accordance with Q.850 with the coding standard sub-field coded as depicted below:

Coding standard

Bits 7 6

0 0 ITU-T standardised coding

2.3 Additional Calling Party Information (ACLI)

A new ISUP parameter is defined under national option to carry the actual calling party number of the ported subscriber (N2) in the IAM message across the Network.

The ACLI parameter shall be coded as ‘11111010’ and format shall be in accordance with the Calling Party Number parameter as defined in ITU-T Q.763. The presentation indicator shall be coded as ‘presentation restricted’ The format is shown below:

	8	7	6	5	4	3	2	1
1	Odd/	Nature of address indicator						
2	NI	Numbering plan Ind.			Present. Ind.		Screening	
3	2nd address signal				1st address signal			
.								
n	Filler (if necessary)				nth address signal			

Note - When the address presentation restricted indicator indicates address not available, octet 3 to n are omitted.

Additional CLI parameter field

The following codes are used in the subfields of the new parameter.

a) Odd/even indicator
(See Q.763, 3.9a)

b) Nature of address indicator

0 0 0 0 0 0 0	spare
0 0 0 0 0 0 1	subscriber number (national use)
0 0 0 0 0 1 0	unknown (national use)
0 0 0 0 0 1 1	national (significant) number (national use)
0 0 0 0 1 0 0	international number
0 0 0 0 1 0 1 to 1 1 0 1 1 1 1	spare
1 1 1 0 0 0 0 to 1 1 1 1 1 1 0	reserved for national use
1 1 1 1 1 1 1	spare

c) Calling party number incomplete indicator (NI)

0	complete
1	incomplete

d) Numbering plan indicator
(See Q.763, 3.9d)

e) Address presentation restricted indicator

0 0 presentation allowed

0 1 presentation restricted

1 0 address not available (Note) (national use)

1 1 spare

NOTE – When the address is unavailable, the subfields in item a), b) c) and d) are coded with 0’s.

f) Screening indicator

0 0 reserved (Note)

0 1 user provided, verified and passed

1 0 reserved (Note)

1 1 network provided

NOTE – Code 00 and 10 are reserved for "user provided, not verified" and "user provided, verified and failed" respectively. Codes 00 and 10 are for national use.

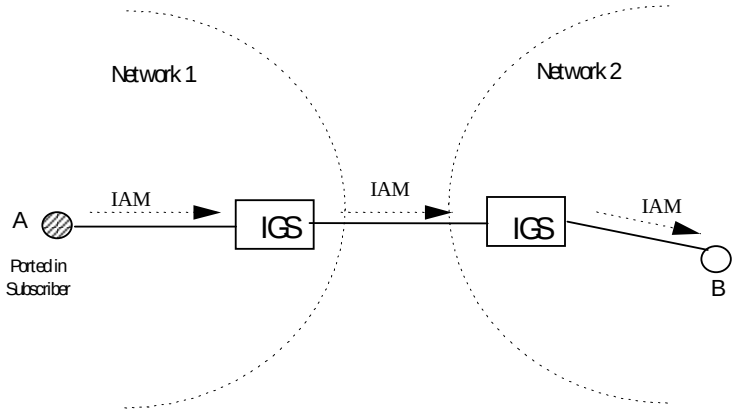
g) Address signal

0 0 0 0	Digit 0
0 0 0 1	digit 1
0 0 1 0	digit 2
0 0 1 1	digit 3
0 1 0 0	digit 4
0 1 0 1	digit 5
0 1 1 0	digit 6
0 1 1 1	digit 7
1 0 0 0	digit 8
1 0 0 1	digit 9
1 0 1 0	Spare
1 0 1 1	code 11
1 1 0 0	code 12
1 1 0 1 to 1 1 1 1	spare

h) Filler (See Q.763, 3.9f)

3 Signaling Requirement Information Flow

3.1 Call Origination from a Ported-in Subscriber



- **New ISUP Parameter : Additional Calling Party Identification**

ISUP IAM

Called Party Number = DNB

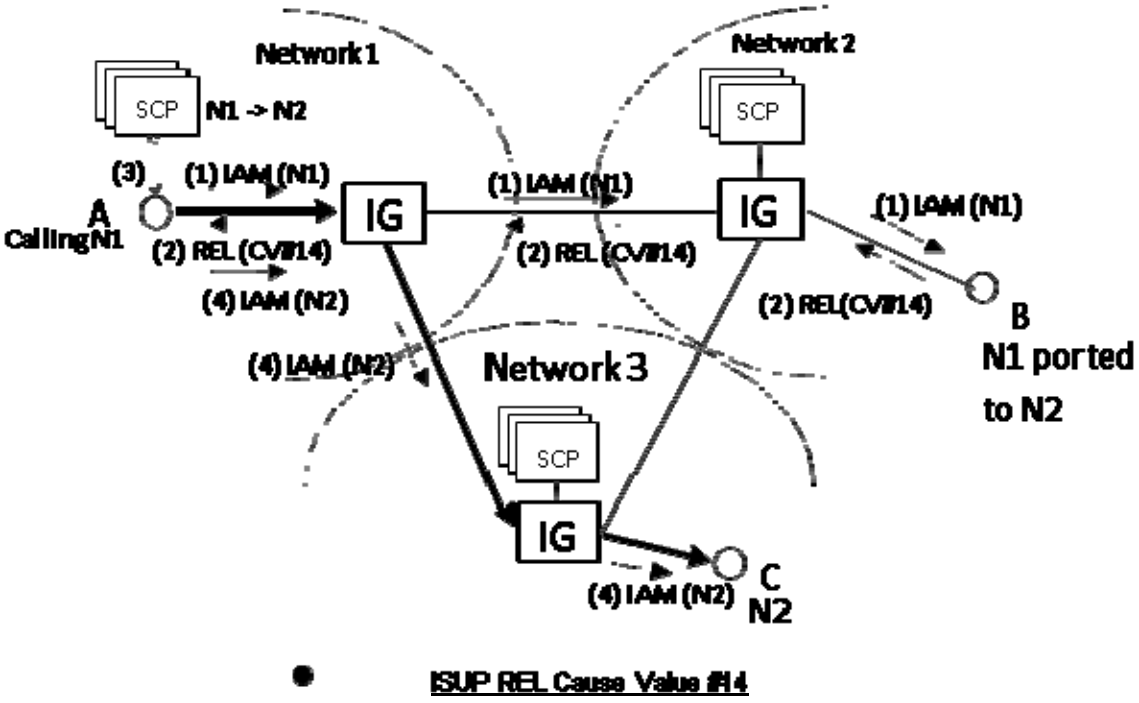
Calling Party Number = DNA (N1)

Additional CLI = RNA (N2)

DN : Fixed Network Directory Number

RN : Routing Number

3.2 Call Terminated to a Ported Subscriber



Information Flow (1) IAM

Called Party Number = DNB (N1)

Calling Party Number = DNA

Information Flow (2) ISUP

Cause Value (CV) = 14

Information Flow (4)

Called Party Number = RNC (N2)

Calling Party Number = DNA

DN: Directory Number

RN: Routing Number