

TELECOMMUNICATIONS REGULATORY AUTHORITY BAHRAIN



هيئة تنظيم الاتصالات
Telecommunications Regulatory Authority

Routing and Charging Specification

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Referenced Documents

Reference	Description
[1]	Number Portability Regulation issued by the Telecommunications Regulatory Authority; 27-04-2010; :
[2]	National Numbering Plan; 10-09-2008; final version;
[3]	MNP Process Specification; 31-10-2010; Final v1.0;
[4]	Central System Specification; 31-10-2010; Final v1.0;

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1 Introduction

This document is issued pursuant to Article 3 of the Number Portability Regulation (the “Regulation”) issued by the Telecommunications Regulatory Authority of the Kingdom of Bahrain (TRA) on April 27, 2010¹. It contains the specifications and requirements for the routing and charging arrangements to be followed regarding connecting calls to Ported Numbers.

1.1 NP implementation in Bahrain

Article 6 of the Regulation establishes that Number Portability is a Recipient-led process that is initiated when a Subscriber submits a valid Number Portability Request and any necessary supporting documents to the Recipient Operator. Article 6(c) of the Regulation explicitly prohibits contact between the Donor Operator and the Subscriber in the context of Number Portability. Consequently the Recipient Operator, through the Central System, coordinates all communications concerning Number Portability.

Details on the Number Portability Process are referenced in Specification [1], Number Portability Process Specification.

Details on the Central System are specified in Specification [2], Central System Specification.

Article 5(a) of the Regulation obliges all Licensees granted a Telecommunications License that allows the use of Numbers to implement Number Portability. Article 4 mandates the use of a Central System by all such Licensees, who must be connected to the Central System and use it in accordance with the Number Portability Specifications.

Article 11 of the Regulation articulates that the Authority will establish and administer the Central System and that each Licensee obliged to implement Number Portability shall bear its own costs relating to its own copy (Licensee Copy) of the Central System, connectivity between the Licensee Copy and the Central System as well as routing and support systems required in order to comply with the obligations of the Regulation. Figure 1 illustrates the Number Portability network that will be implemented as a consequence of the Regulation.

¹ The Number Portability Regulation is available at “http://www.tra.org.bh/en/pdf/NPRegulation-English_2_.pdf”

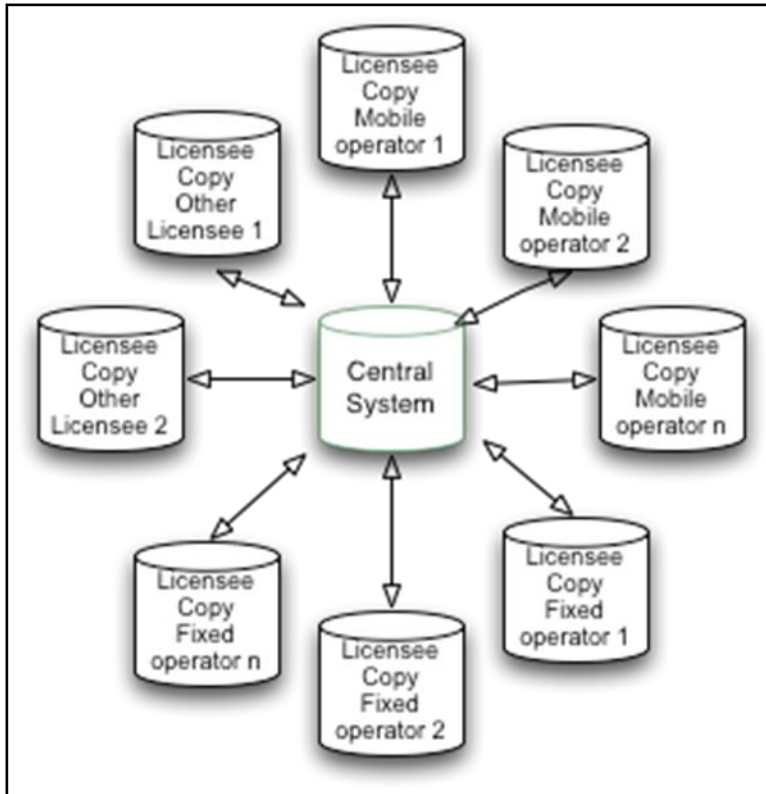


Figure 1. Centralized model where all messages pass through the Central System

All Licensees must be connected to the Central System. All Licensees have the potential to be involved in the number portability process as a Donor, Recipient or Block Operator, depending on the Number Ranges involved in the request. All Operators connected to the Central System will be notified of any Number Porting requests that are ongoing or executed.

1.2 Number Portability (NP)

1.2.1 Definitions

Unless otherwise stated herein all capitalized terms will have the same meaning as that ascribed to it in the Regulation, the National Numbering Plan or the Telecommunications Law.

“**Other Operator**” means any party involved in a particular instance of the Number Portability Process other than the Donor Operator or Recipient Operator.

“**Serving Operator**” means the network on which the Subscriber is located.

“**Subscription Network**” means the network to which a Number has been Ported.

2 Routing

2.1 Introduction

This Section defines the arrangements of call routing to Ported Numbers. The Licensees in the Kingdom of Bahrain need to implement a number of technical facilities, including the following:

1. Routing mechanisms
2. Signaling; agreement on the SCCP version, addressing and translation types used between networks (in case SS7 is applied)
3. Voice interconnects; transfer of the network routing number in the ISUP IAM (in case of circuit switched traffic)
4. Portability process, specified in Specification [1], NP Process Specification

This document does not aim to describe specific implementations on the Licensee side regarding the Licensee Copy of the Ported Number Database and how lookups are performed, as different solutions are possible such as:

- a. Intelligent Network (IN)
- b. Signaling Relay Functions (SRF)
- c. Special routing functions, Flexible Number Routing.

2.2 Routing for Mobile Ported Numbers

2.2.1 General Principles

Each Licensee shall route calls to Ported Numbers in the most efficient way possible. Licensees shall route calls to the Subscription Network when it receives international calls which do not have a Routing Number prefixed. However, there is no restriction against foreign networks maintaining a Ported Number Database with Bahrain numbers, and vice versa.

Although several techniques can serve the same goal, it is necessary –in order to avoid incompatibility issues or call loops- that the voice (ISUP, SIP) and signaling (SCCP-MAP) interfaces between Licensees are specified. This Specification does not prescribe how exactly the Routing Number (RN) is to be transferred to the Destination network (either as a prefix to the Called Party Number, as a suffix, or in a separate field). The method of transferring the RN will be dependent on the signaling interfaces used (ISUP, MAP, SIP) and is generally expected to be a prefix to the Called Party Number.

Applicable Interfaces for routing between the Licensees:

- Voice (ISUP, SIP)
- Signaling (SCCP/MAP) for SMS and other non-call related signaling

- MMS (MM4)

Voice

The general principle is that all Licensees shall perform Number Portability lookups when:

1. A Licensee's customer places (originates) a call (All Call Query)
2. Licensee receives a call from another network which has not performed a NP lookup.

(See Section 2.3.1 for SIP routing principles in case of IP interconnects)

1) This is also referred to as **All Call Query (ACQ)**. If the Called Party is Ported from the Block Operator to a new Subscription Network, then the call to the National Significant Number (NSN) shall be directly routed to the Subscription Network by including a Routing Number (RN) in the ISUP-IAM message, also noted as: RN+NSN.

“Directly” in this context means that the call will not be routed to the Block Operator first. The call may however pass through a transit operator.

If the called party is not Ported then the call shall be routed to the Block Operator, also with the NSN associated with RN in the IAM.

The Licensee receiving an ISUP-IAM with RN shall not modify the RN. In case the RN refers to its own network (does not act as transit) and the Subscriber is not connected on this network, then the call shall be released.

The call may also be destined for the Licensee's own customers (on-net call). In these cases it is up to the Operator how to route the calls and handle the ISUP-IAM.

2) A Licensee may receive a call from another network. These calls can be destined for the Licensee's own Subscribers (terminating traffic) or are destined for another Licensee (transit traffic).

In case the call is, according to the RN, destined for the Licensee's Subscribers, but the Routing Number is incorrect then the call shall be dropped. This measure prevents call loops in case the terminating network's SRF/NP database indicates that the Number belongs to the originating network.

In case of transit, the transiting network is fully transparent regarding the RN provided by the Originating Network. Even if the RN seems to be wrong according to the SRF/NP database, then the call will be routed to the Destination Network by RN. However a transit agreement must be in place to support such a routing scenario.

If the call does not contain a RN, then the Licensee shall perform a check on the Licensee Copy of the Ported Number Database to look up the Subscription Network. The following situations can occur:

- a. The call is routed by Number Range and the Licensee is the Block Operator. The Block Operator terminates the call to its Subscriber.

- b. The call is routed by Number Range and the Licensee is the Block Operator but the Number has Ported out. The Block Operator shall act as a Transit Network and the call shall be routed to the Subscription Network. This is also referred to as **Onward Routing (OR)**. The Ported Number Database holds all Bahraini Ported Numbers, not only its own Ported Numbers, enabling the Licensee to include the correct RN (e.g. directly in the ISUP-IAM) without having to take measures for subsequent Porting (relaying SRI messages or modifying RN's).
- c. The call is offered for transit. The Transit Operator will perform Onward Routing to the Subscription Network. Whether calls are Ported or still with their Block Operator, a RN will be included.

However a transit agreement must be in place to support the above transit routing scenarios.

SMS

For SMS the same principle is applicable, but the protocols are different (MAP) from voice (ISUP). After a Subscriber has submitted a SMS towards the SMS-C, then the SMS-C shall perform the MAP operation 'Send Routing Info for Short Message' (SRI_SM) to the HLR. An intermediate step however is to check the SRF/Ported Number Database to check if the Number has been Ported (ACQ). If the Number has been Ported, then the MAP message SRI_SM shall be sent to the Subscription Network's HLR (instead of the Block Operator) with RN+MSISDN. The Subscription Network's HLR shall answer the originating network's SMS-C with information on where to route the SMS (visited MSC, corresponding IMSI).

If a Licensee receives a SRI_SM (no RN) but the customer has been ported out, then it shall onward route the SRI to the Subscription Network according to the NP lookup (RN+MSISDN).

If a SRI_SM has been routed to the wrong Destination Network (RN not correct) then the RN shall not be modified but an acknowledgement will be sent back that the subscriber is unknown. This is analogue to the solution for voice (drop the call) to prevent loops.

Other Signaling

If a Licensee (Block Operator in these cases) receives other signaling destined for a subscriber that has been Ported out (e.g. SRI for Optimal Routing, Call Completion for Busy Subscriber or CAMEL message Any Time Inquiry) then the messages shall be onward routed to the Subscription Network.

MMS

There are no NP arrangements for the MM4 interface, assuming the originating MMS-C makes use of the MAP signaling messages SRI_SM or Send_IMSI to find the corresponding Subscription network by Mobile Country Code and Mobile Network Codes (MCC MNC).

Transit

In above context 'direct routing' may still take place via a transit operator if no direct interconnects are in place. The different scenarios are depicted in Figure 2.

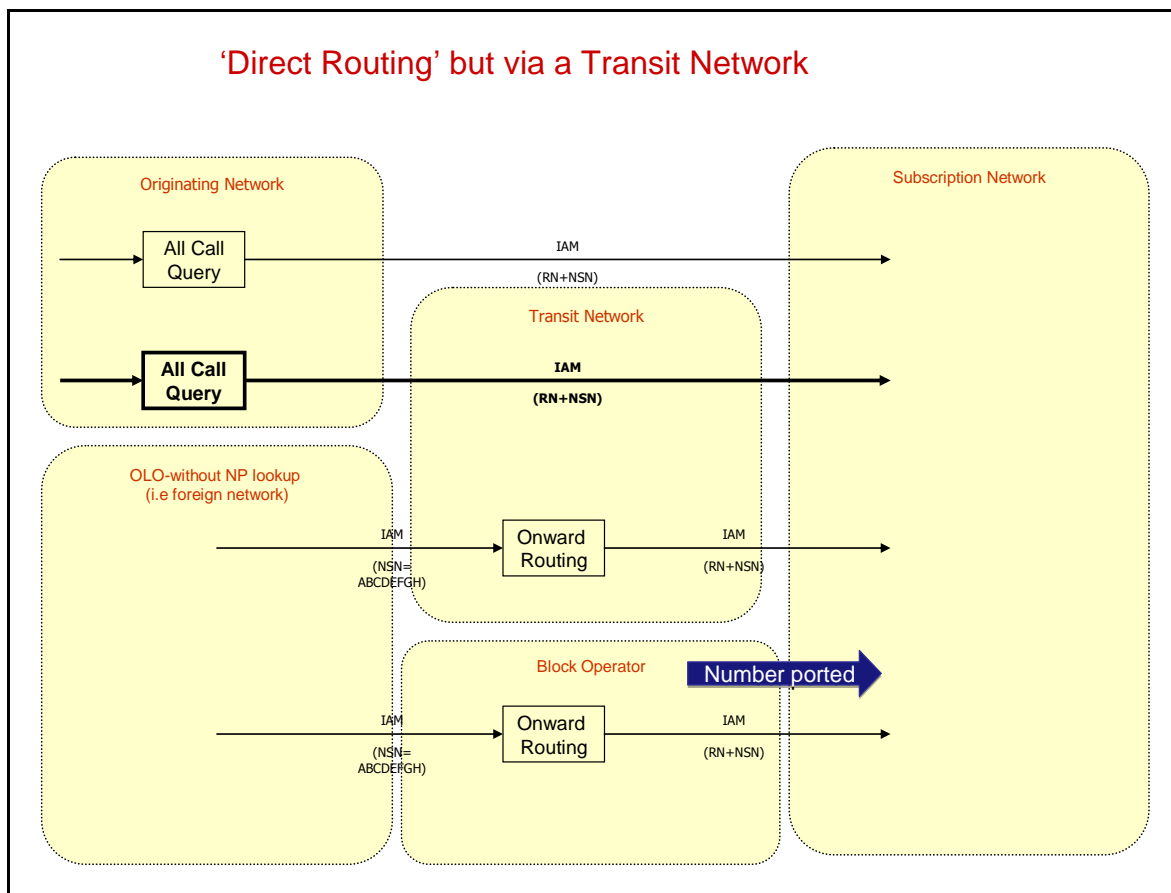


Figure 2. 'Direct Routing' via a Transit Network

2.2.2 ETSI/3GPP Specifications

The following specifications describe in detail the 'All Call Query' and 'Onwards Routing' mechanism, as well as possible technical implementations on the Operator's side and make reference to specifications explaining in more detail the impact on MAP and ISUP fields:

- 3GPP TS 22.066 V9.0.0 (2009-12); 3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Support of Mobile Number Portability (MNP); Service description; Stage 1 (Release 9)
- 3GPP TS 23.066 V9.0.0 (2009-12); 3rd Generation Partnership Project; Technical Specification Group Core Network and Terminals; Support of Mobile Number Portability (MNP); Technical realization; Stage 2; (Release 9)

The MMS scenario's follow the following specification:

- 3GPP TS 23.140 V6.16.0 (2009-03); 3rd Generation Partnership Project; Technical Specification Group Core Network and Terminals; Multimedia Messaging Service (MMS); Functional description; Stage 2; (Release 6)

2.2.3 Routing mechanisms: 'All Call Query' and 'Onward Routing'

Figure 3 and Figure 4 depict the ACQ and OR routing mechanisms. As explained in Section 2.2.1, in practice Licensees shall use a combination of both ACQ and OR. Note: the RN xyz is an example and is not intended to prescribe a specific way of adding the RN to the call related messaging.

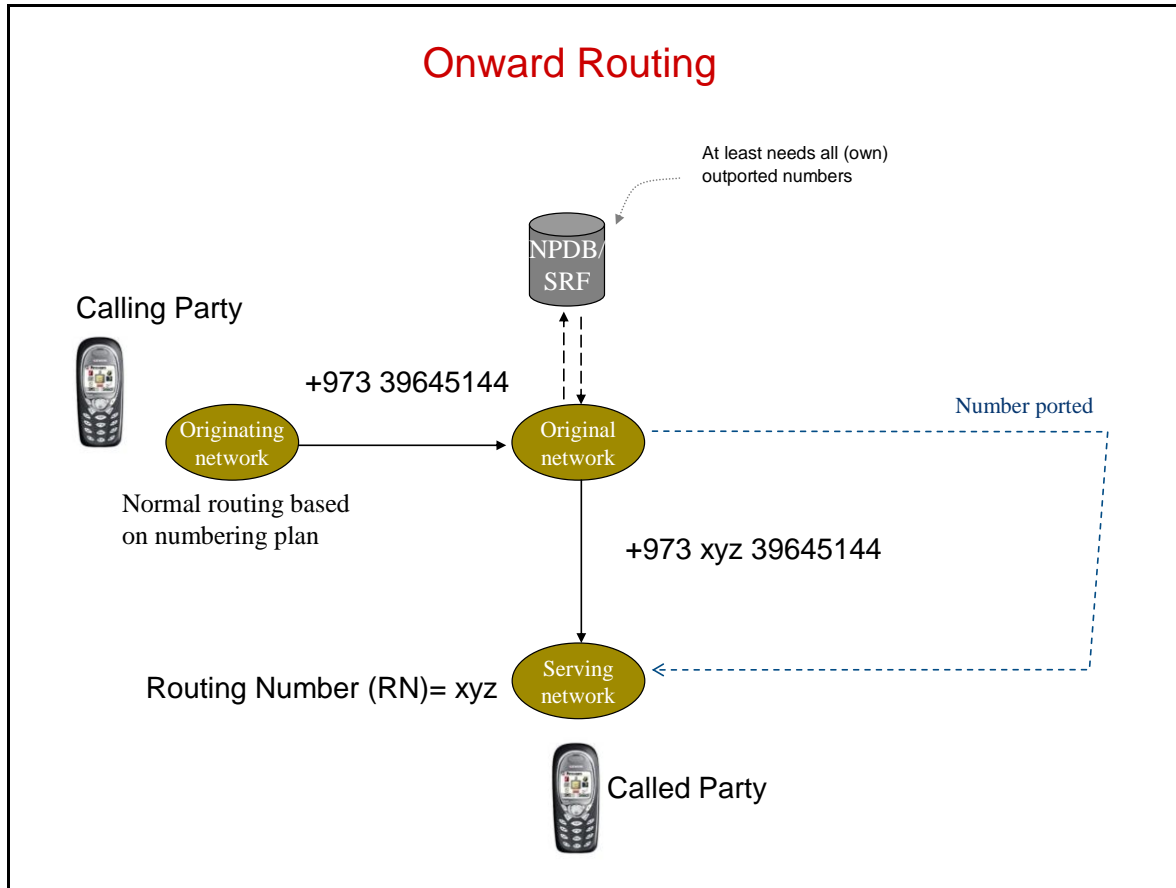


Figure 3 – Onward Routing (OR)

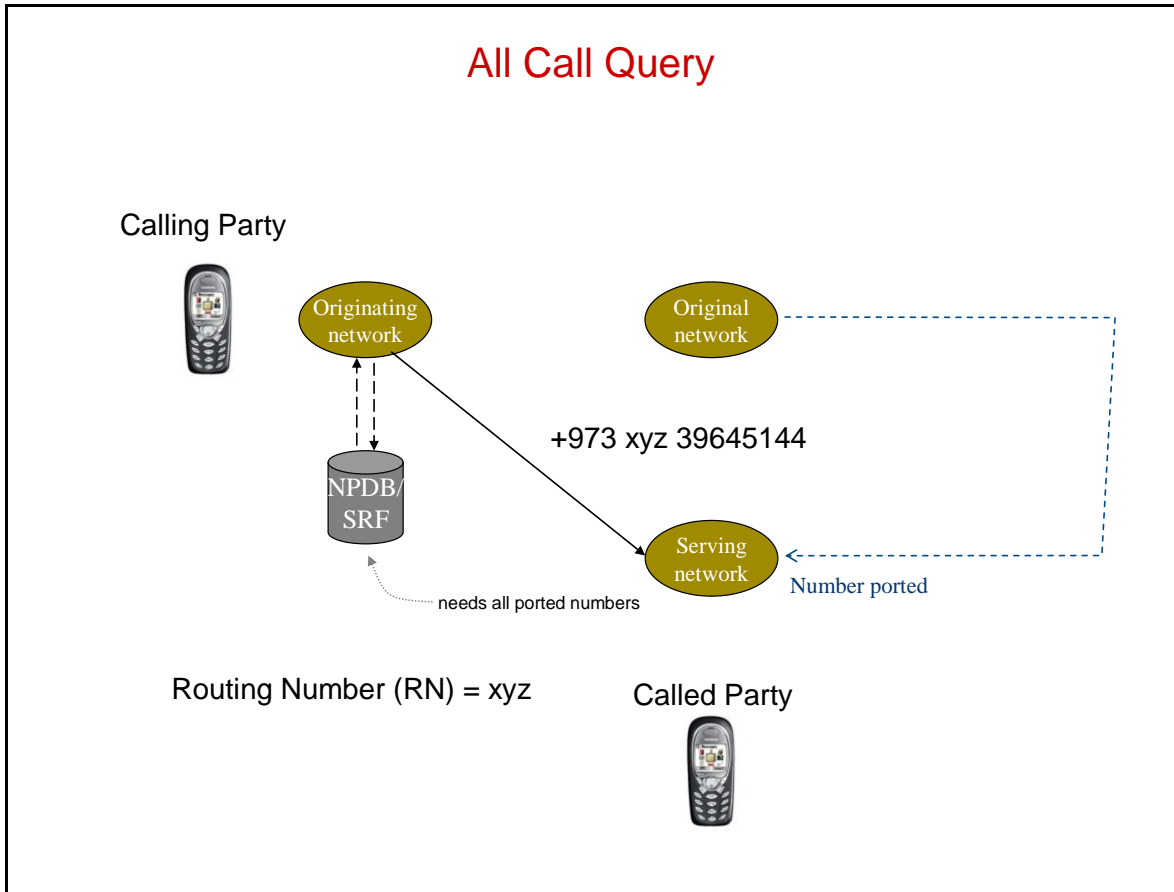


Figure 4 – All Call Query (ACQ)

2.2.4 Traffic Scenario's: MNP

The following sections depict the different traffic scenarios. Note that in cases where it is stated 'no lookup as RN already included', there is in fact no objection to NP lookups for internal means as long as the Licensee shall not modify the RN for onward routing.

2.2.4.1 Traffic Scenario's MNP- voice

Note: All scenario's where is stated "No NP lookup as RN already included" means that the RN shall not be modified on the ISUP interface as NP lookup has already been done by the Originating Network. This specification does not aim to limit the Licensee on their internal implementation (i.e. whether or not a SRF/NPDB is used or not to find a corresponding HLR, etc).

If the Number is not connected on the Destination Network, then again no modification of the RN takes place (given that the destination network has a different RN registered in its NPDB/SRF) but the call is released. These situations however should lead to an operational procedure to solve the inconsistency that exists between the Origination and Destination Network.

The reason not to change the RN in the Destination Network is to prevent 'circular routing' of calls.

In addition to this measure (or possibly as an alternative measure) Network Operators are advised to analyze and implement functions for 'looping prevention'.

Traffic scenario 1c (Figure 7 - on-net call) - is an example and is included for comparison and completeness. This document does not aim to set rules for the Licensee on how/if to perform NP lookups nor on how to route these calls (whether an RN should be used or not).

For scenario 3a (Figure 10) and scenario 3b (Figure 11), a foreign network terminating traffic is chosen as an example for a network which has no NP lookup facility. However, there is no legal or technical restriction to prevent a foreign operator to hold a NP database with Bahraini Numbers and directly route calls accordingly.

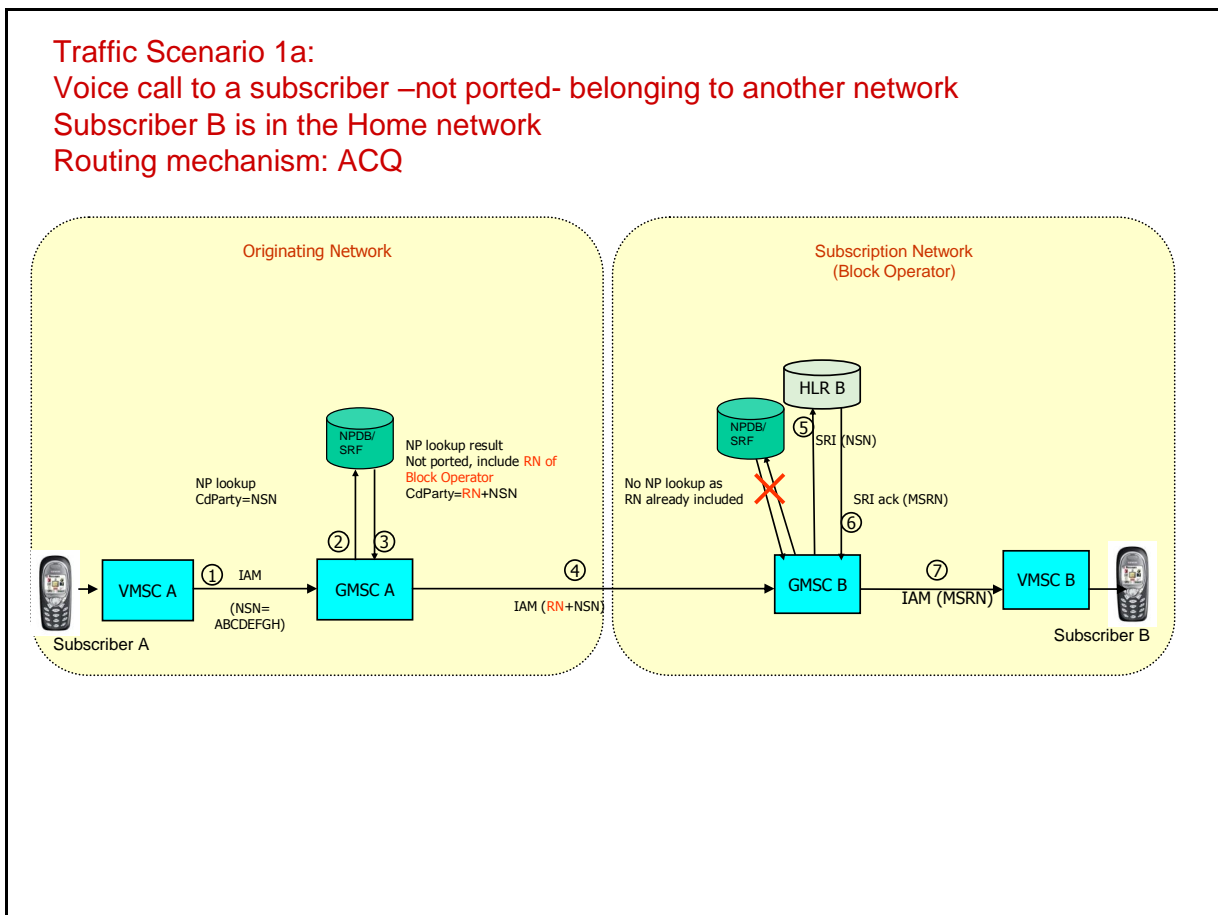


Figure 5. Voice call to a non-ported subscriber in another network-non roaming

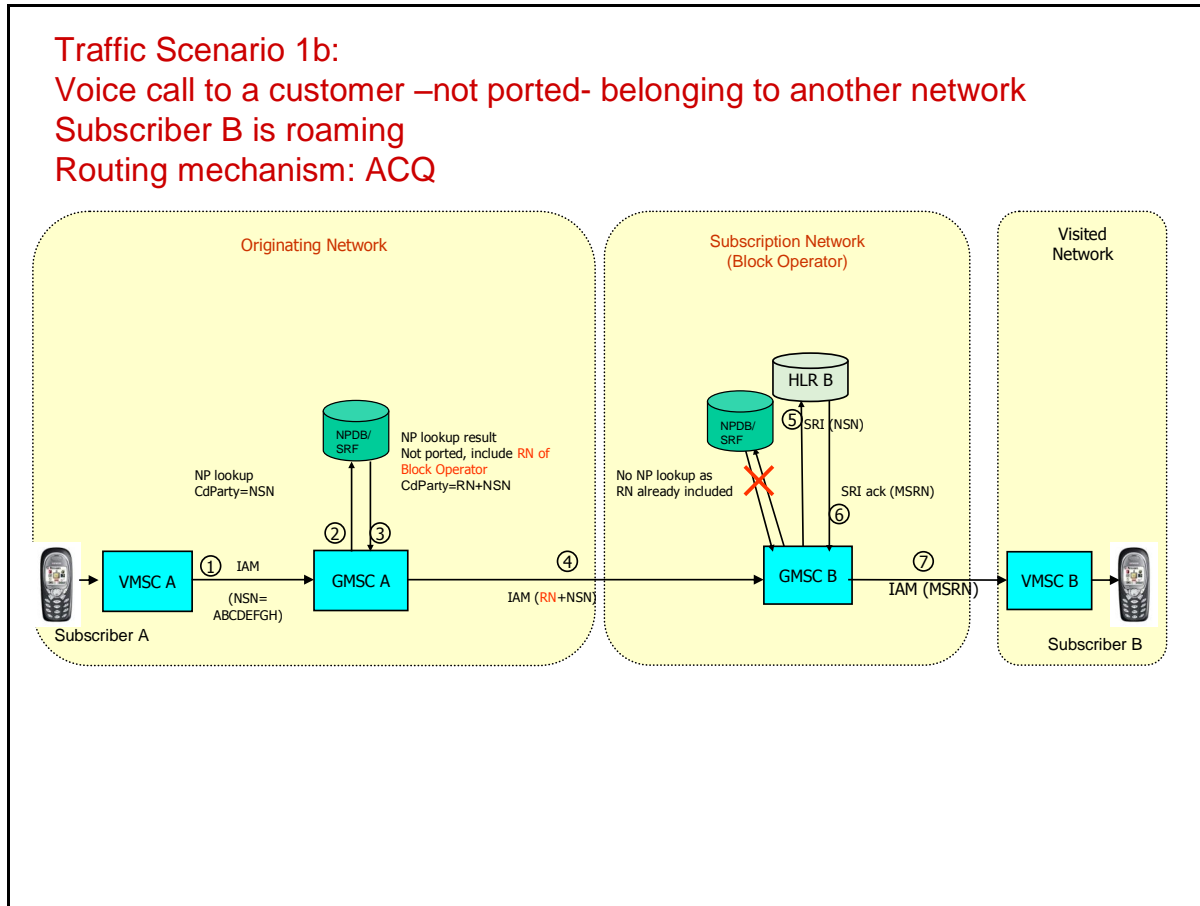


Figure 6. Voice call to a non-ported subscriber in another network- roaming

Traffic Scenario 1c:
Voice call to a customer –not ported- belonging to the same network (onnet)
Subscriber B is in the home network
Routing mechanism: ACQ

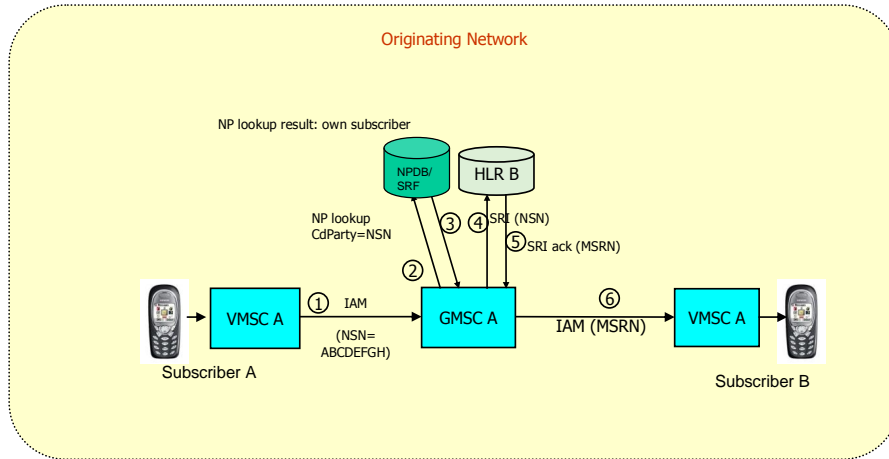


Figure 7. Voice call to a non-ported subscriber in the same network (on-net)

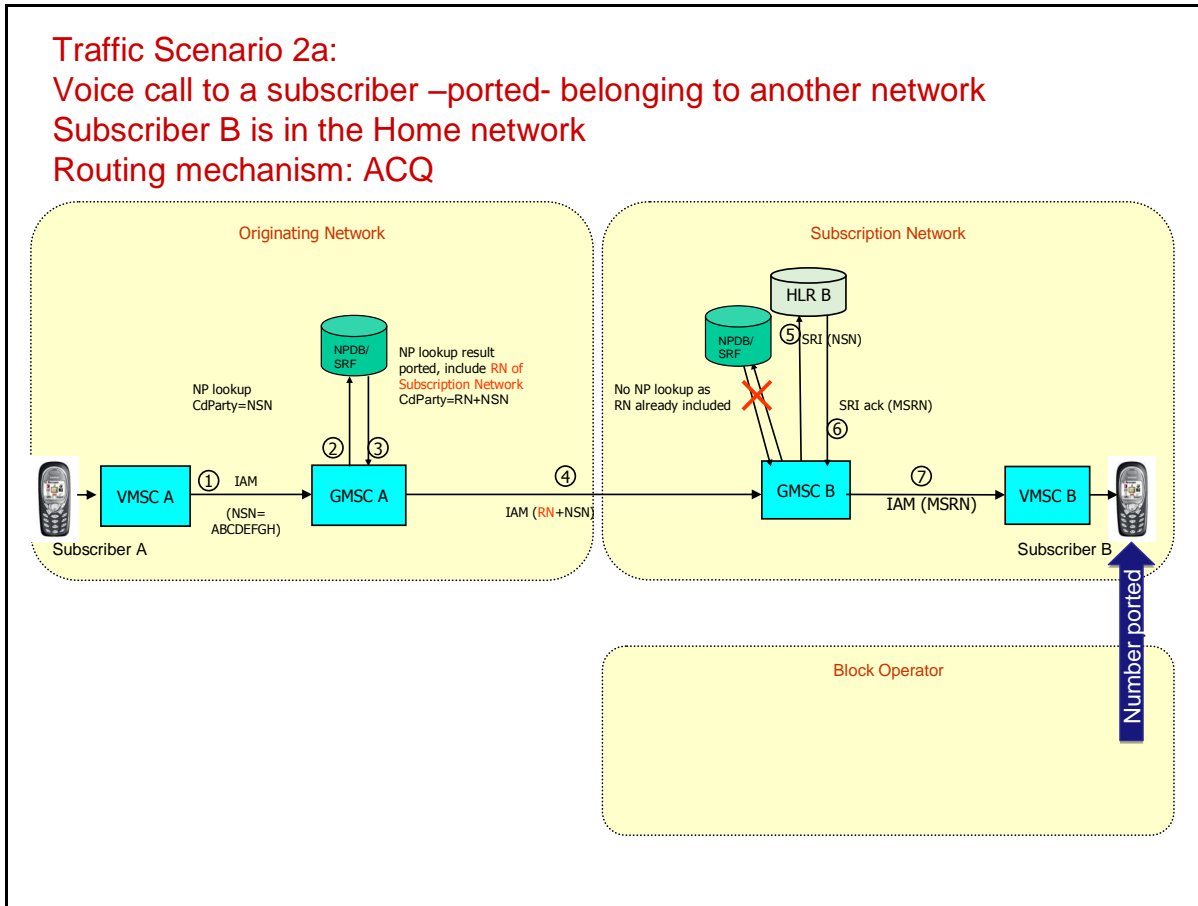


Figure 8. voice call to a ported number(ACQ) in another network - non roaming

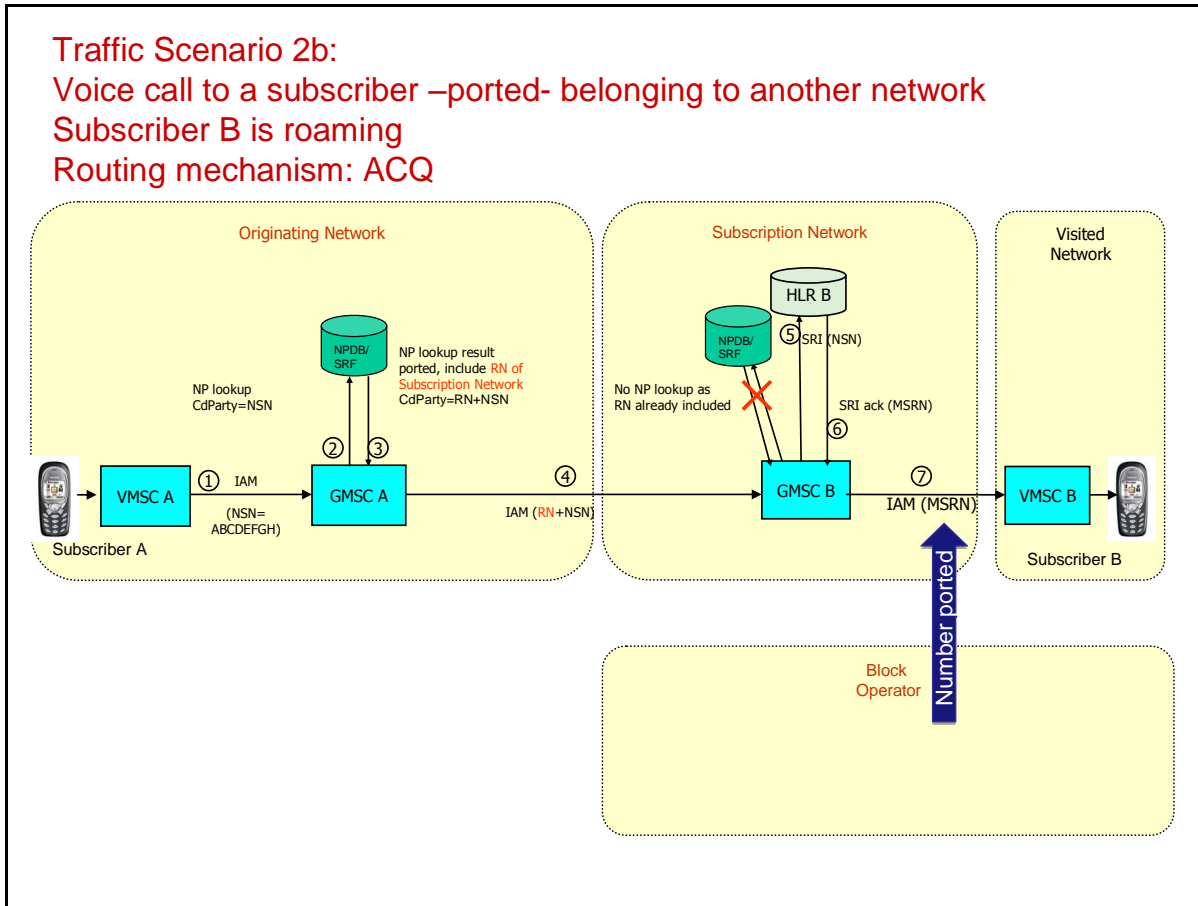


Figure 9. voice call to a ported number (ACQ)in another network- roaming

Traffic Scenario 3a:
Voice call to a subscriber –ported- belonging to another network
Subscriber B is in the Home network
Routing mechanism: OR

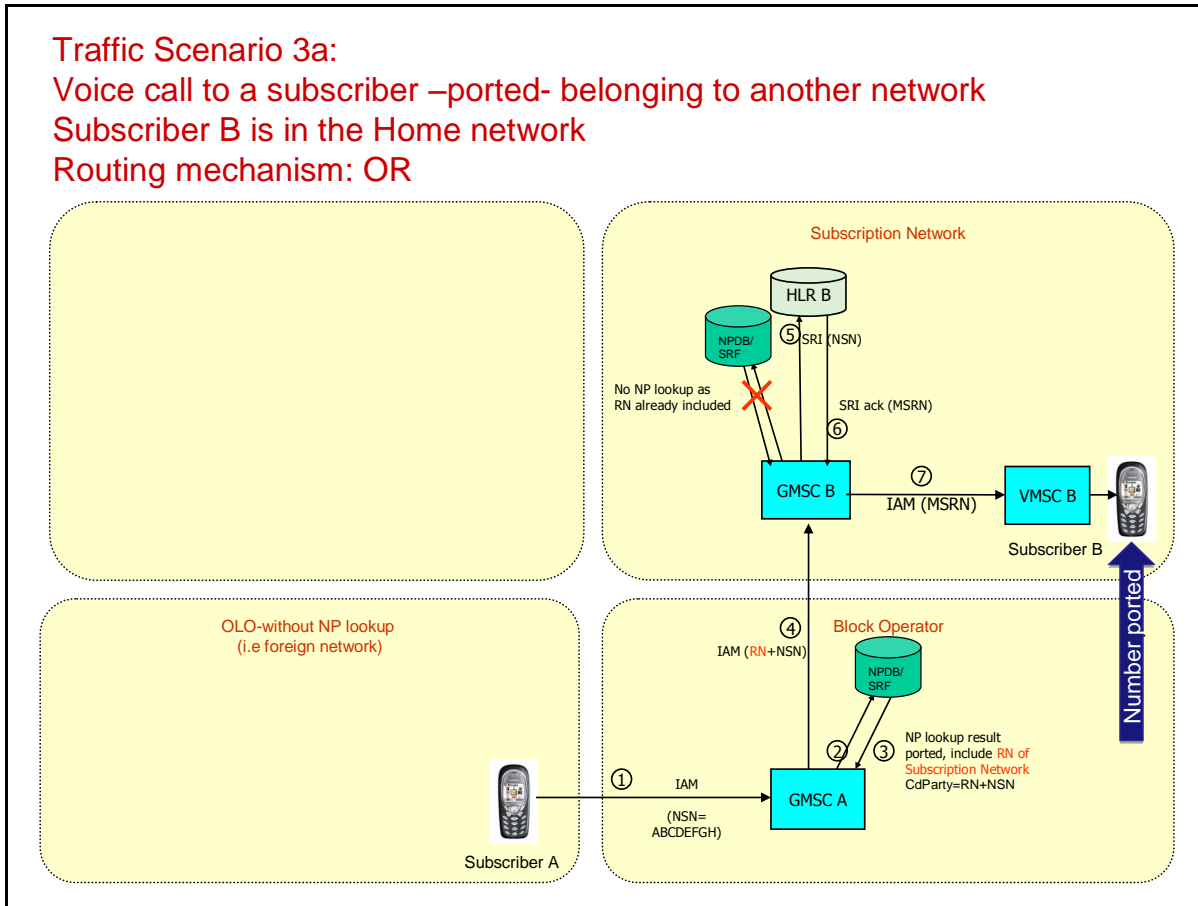


Figure 10. voice call to a ported number (OR) in another network-non roaming

Traffic Scenario 3b:
Voice call to a subscriber –ported- belonging to another network
Subscriber B is roaming
Routing mechanism: OR

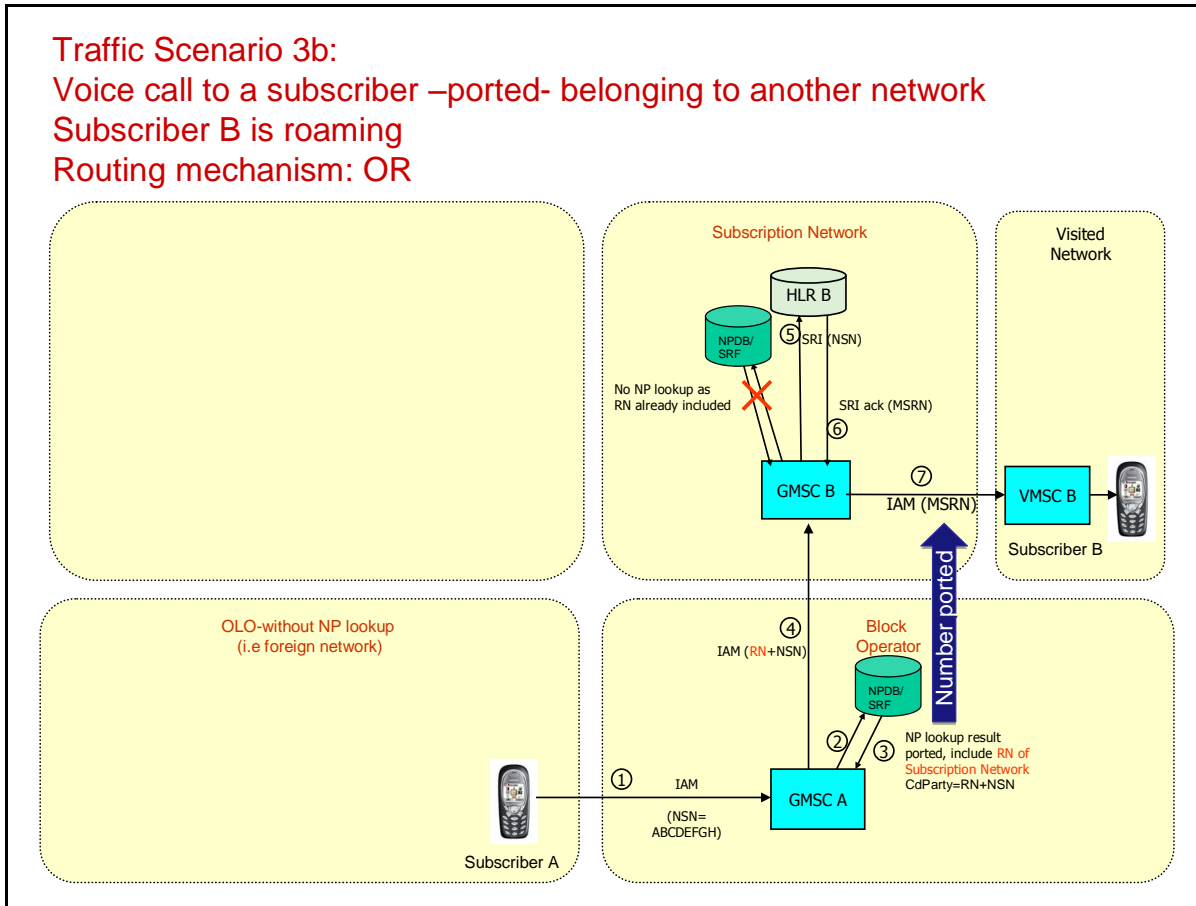


Figure 11. voice call to a ported number (OR) in another network-roaming

2.2.4.2 Traffic scenario's MNP- SMS Signaling

Note: Traffic scenario 4c (Figure 14, on-net SMS) is an example and is included for completeness. This document does not aim to set rules for the Licensee on how/if to perform NP lookups for these calls nor on how to route these calls, for example whether or not a RN should be used.

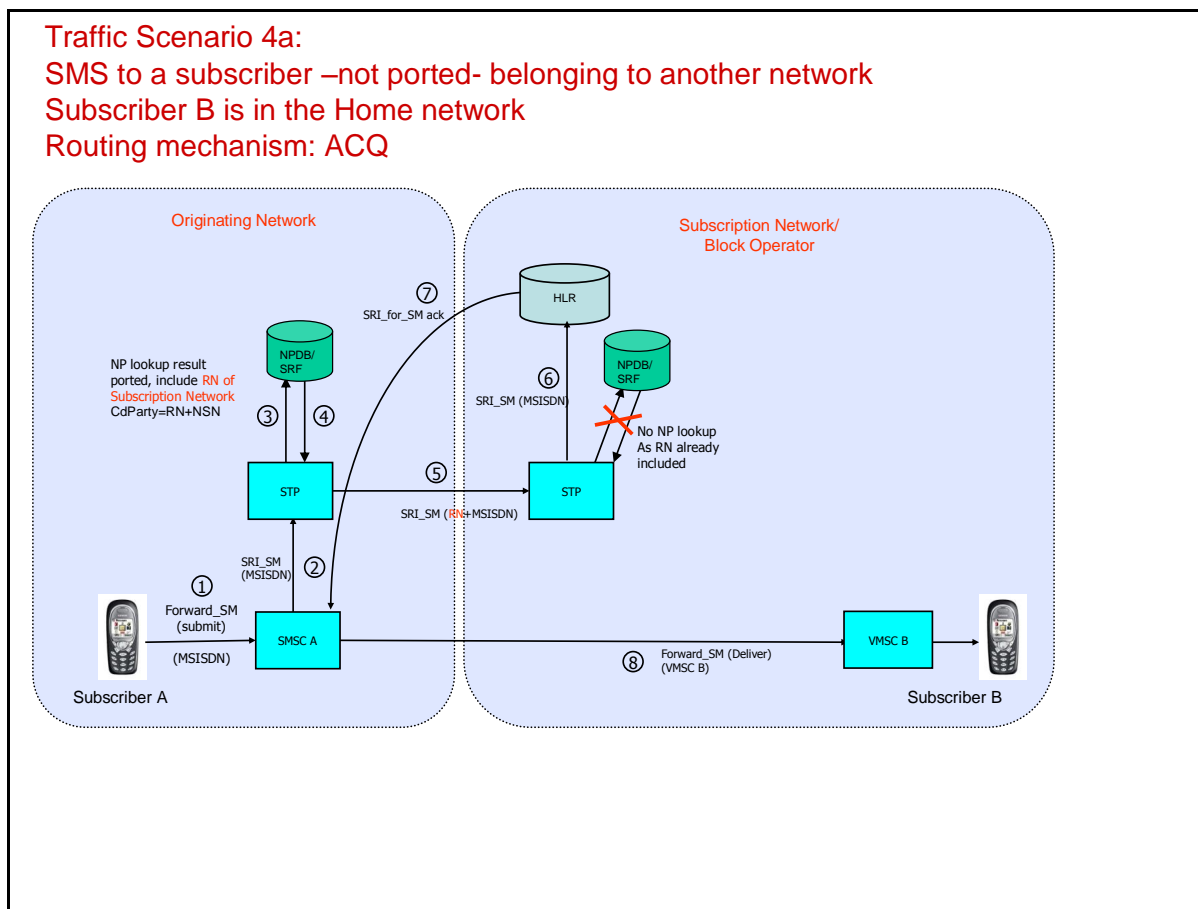


Figure 12. SMS to non-ported number in another network – non roaming

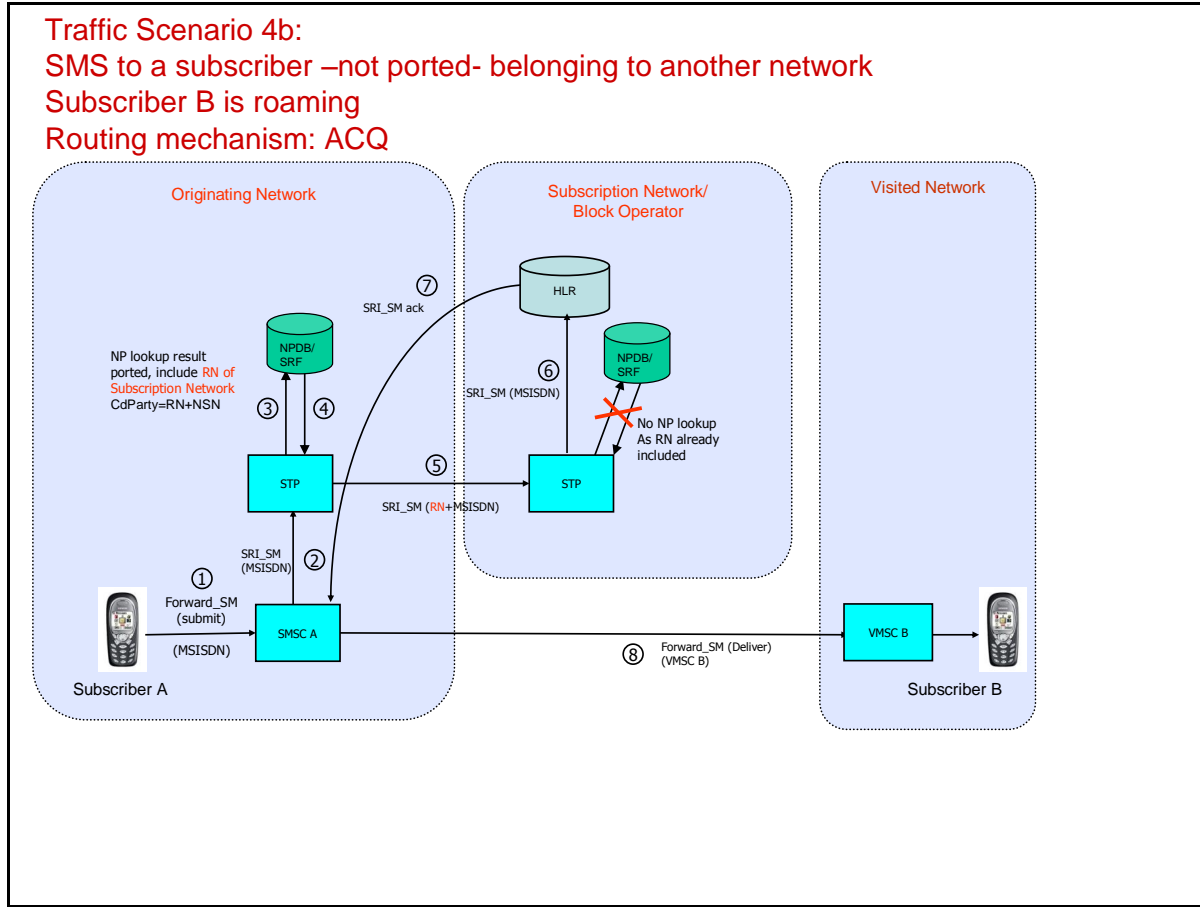


Figure 13. SMS to non-ported number in another network – roaming

Traffic Scenario 4c:
SMS to a subscriber –not ported- belonging to the same network (onnet)
Subscriber B is in the home network
Routing Mechanism: ACQ

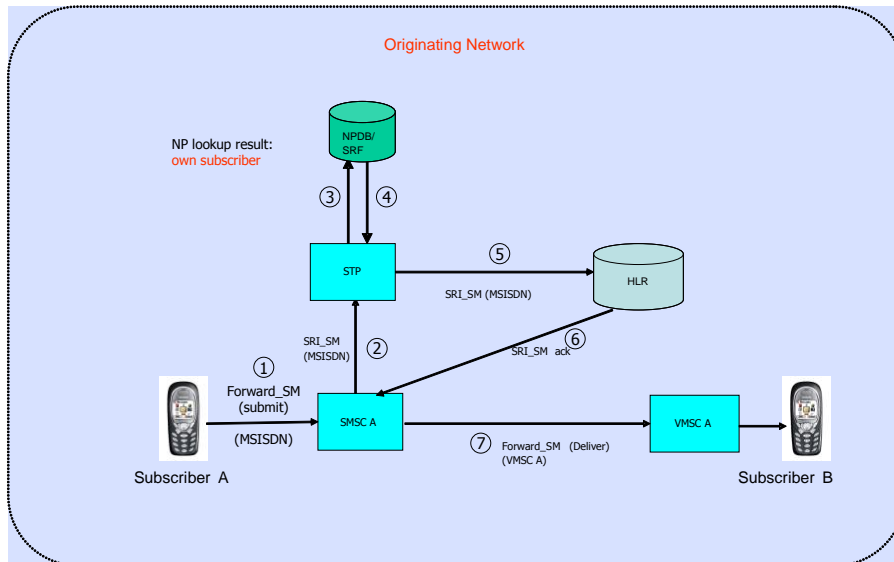


Figure 14. SMS to non-ported number on the same network (on-net)

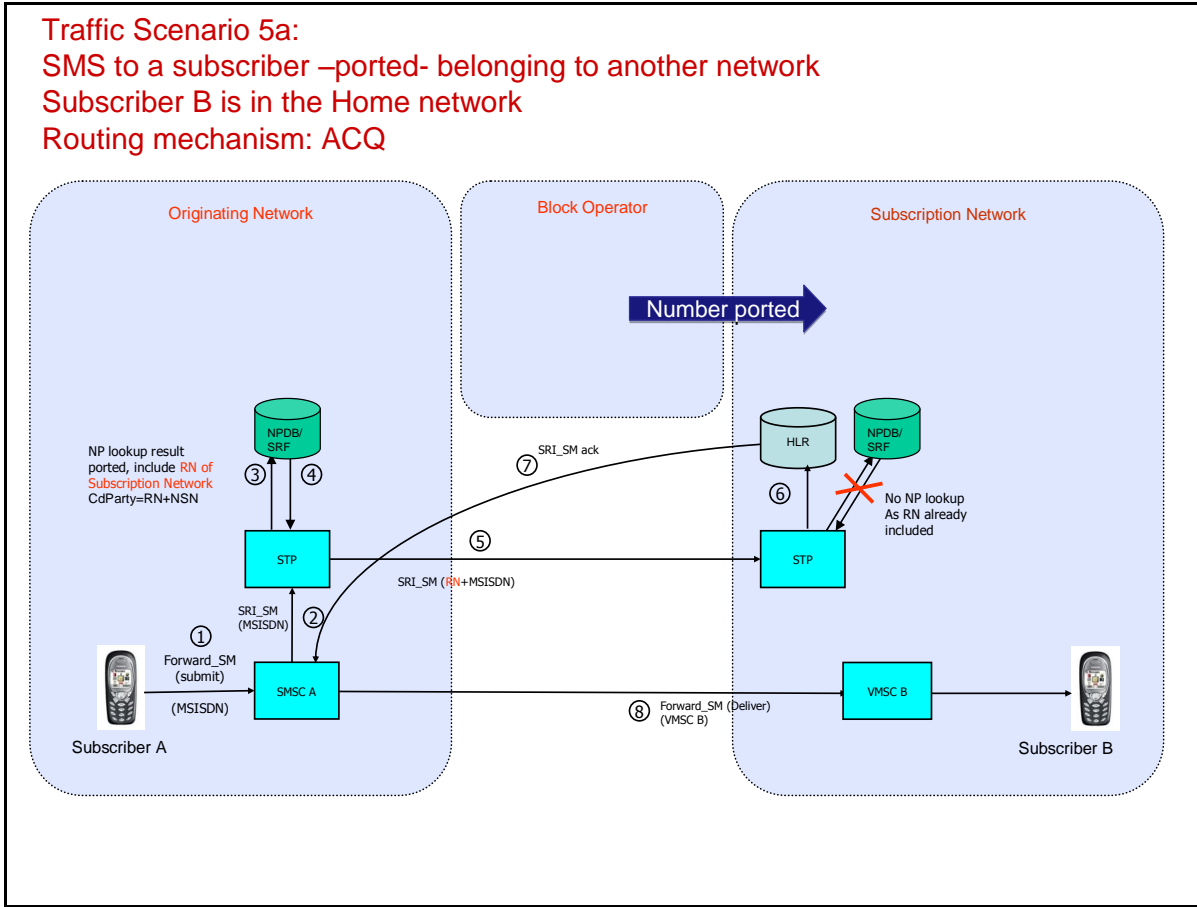


Figure 15. SMS to ported number (ACQ) on another network- non roaming

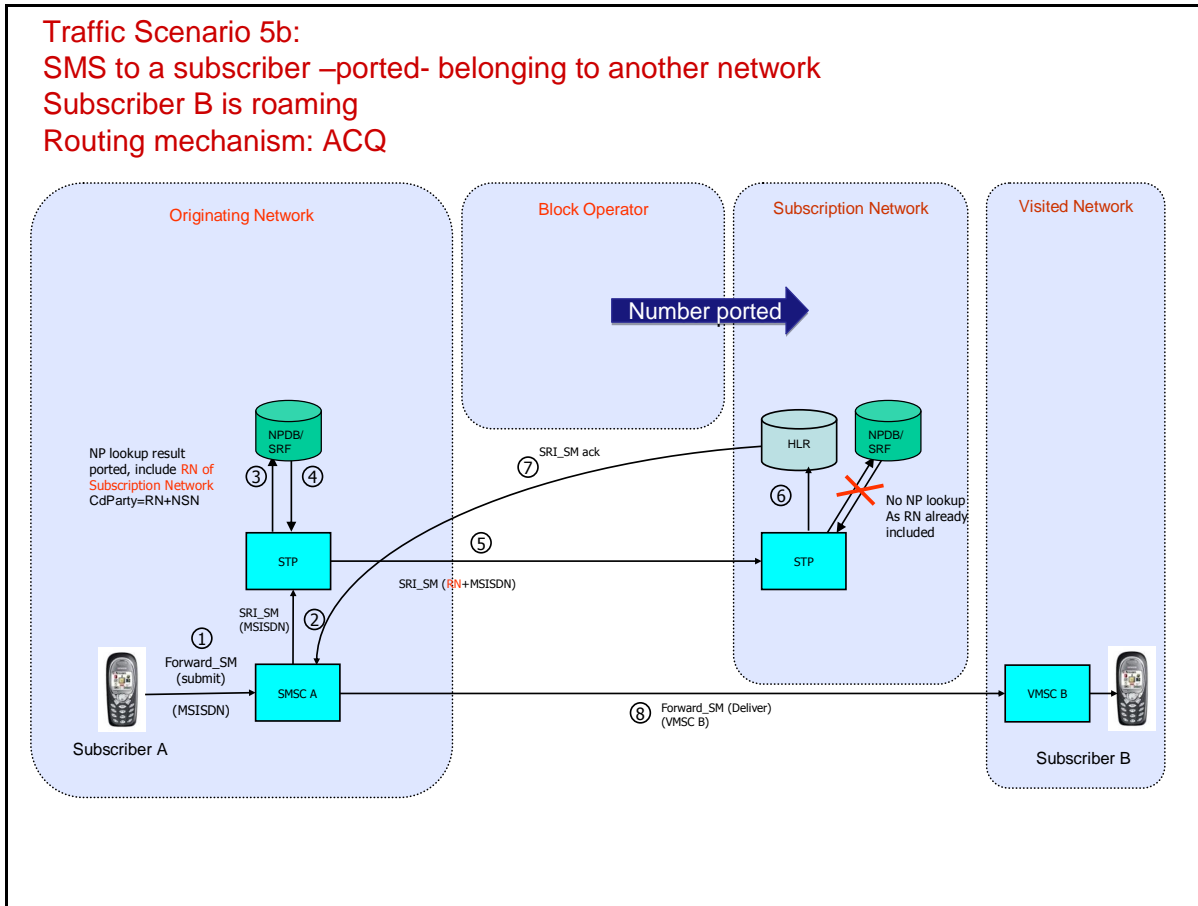


Figure 16. SMS to ported number (ACQ) on another network- roaming

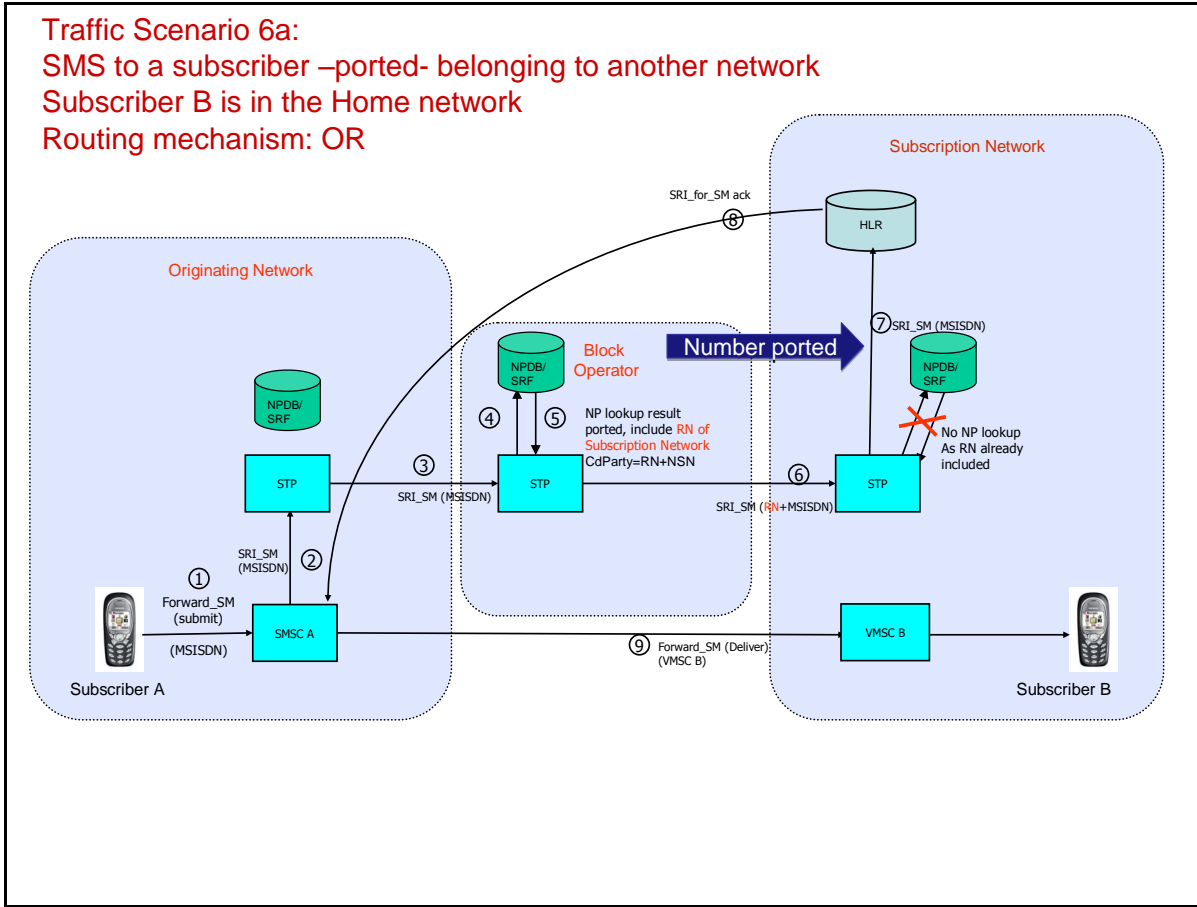


Figure 17. SMS to ported number (OR) on another network- non roaming

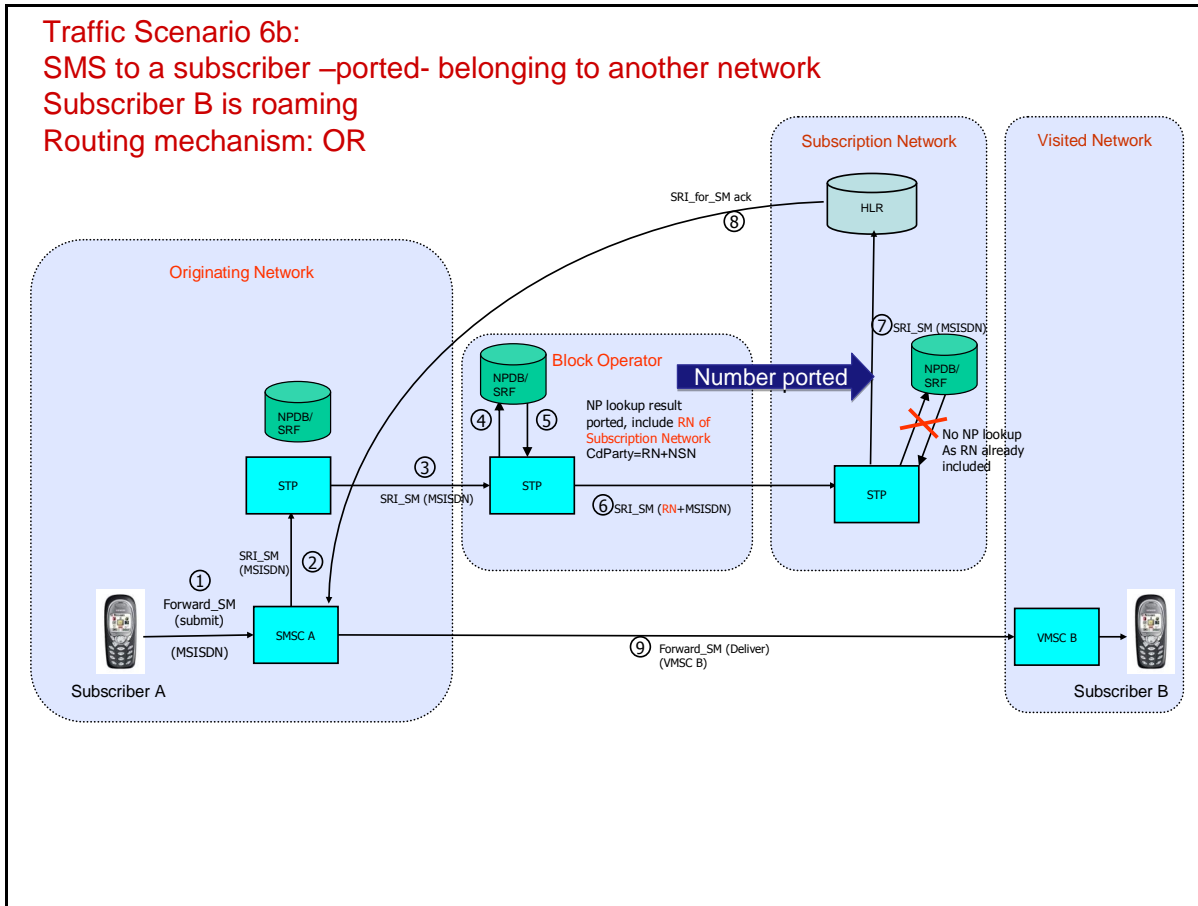


Figure 18. SMS to ported number (OR) on another network- roaming

2.2.4.3 Traffic scenario's MNP- other signaling

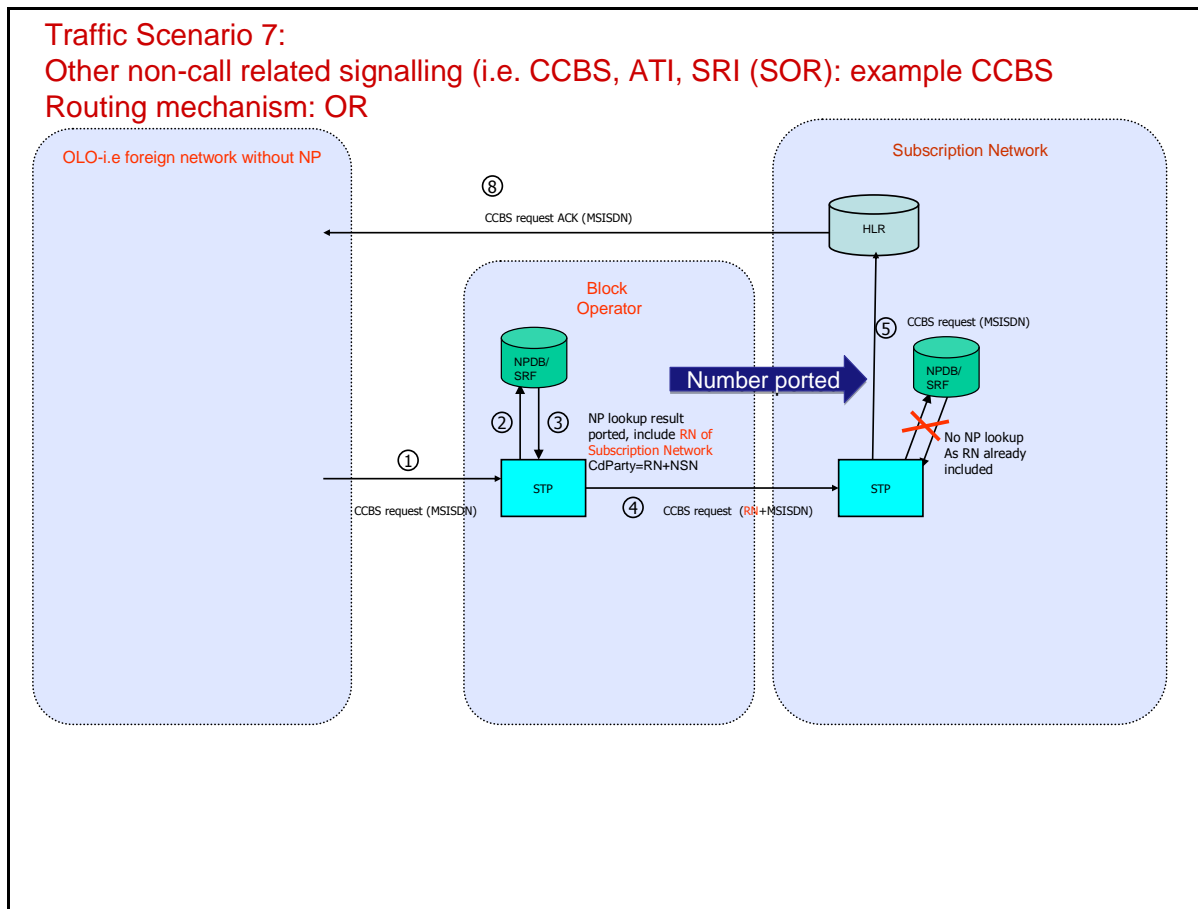


Figure 19. other signaling to ported numbers (OR)

2.2.4.4 Traffic scenario's MNP - MMS to ported to mobile numbers

There are no NP arrangements for the MM4 interface, like onward routing. MMS uses the SMS MAP message SRI_SM to resolve the corresponding network (Subscription Network) by IMSI. The first 5 digits (6 in North America) are the MCC and MNC. These are in turn used to resolve the Subscription Network's MMS-C IP address.

Alternatively the MAP operation SEND_IMSI can be used.

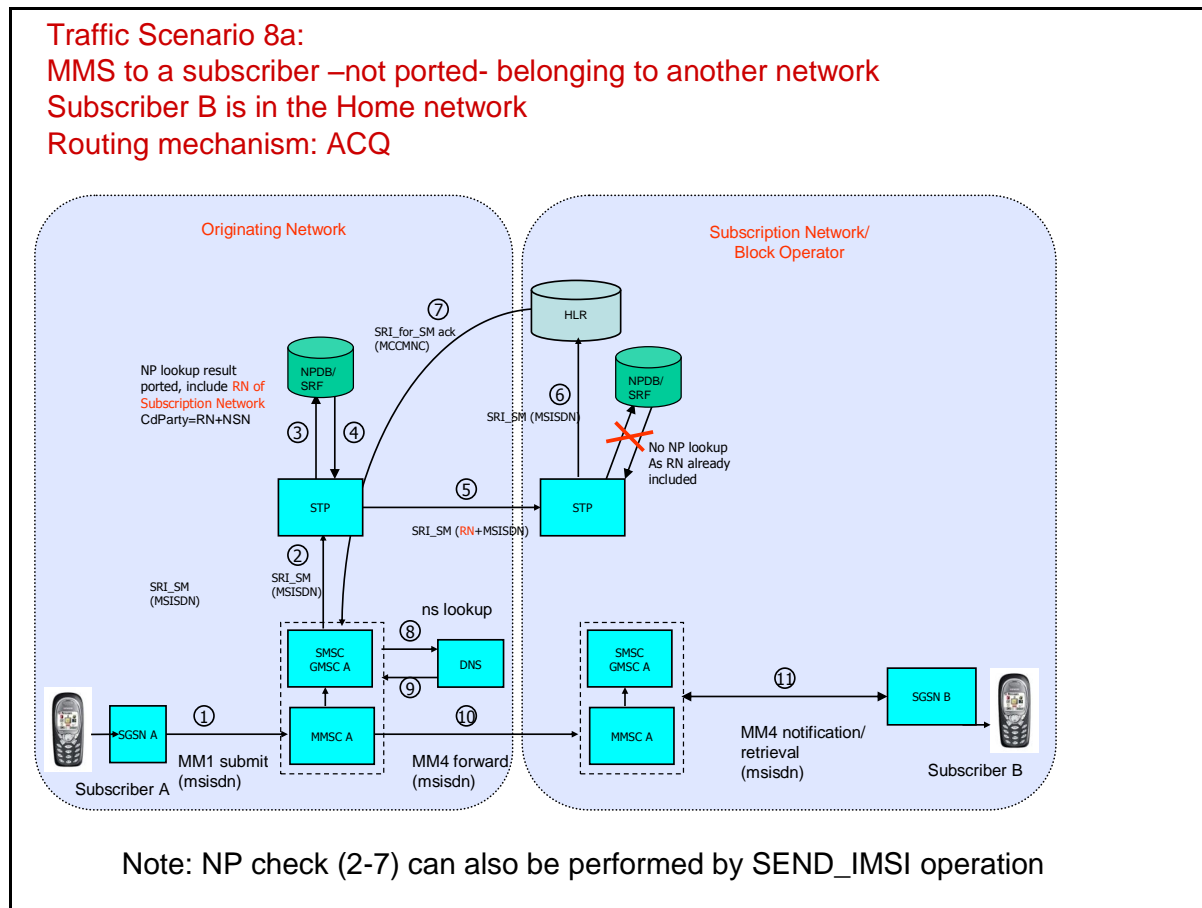


Figure 20. MMS to non-ported numbers in another network- non roaming

Traffic Scenario 8b:
MMS to a subscriber –ported- belonging to another network
Subscriber B is in the Home network
Routing mechanism: ACQ

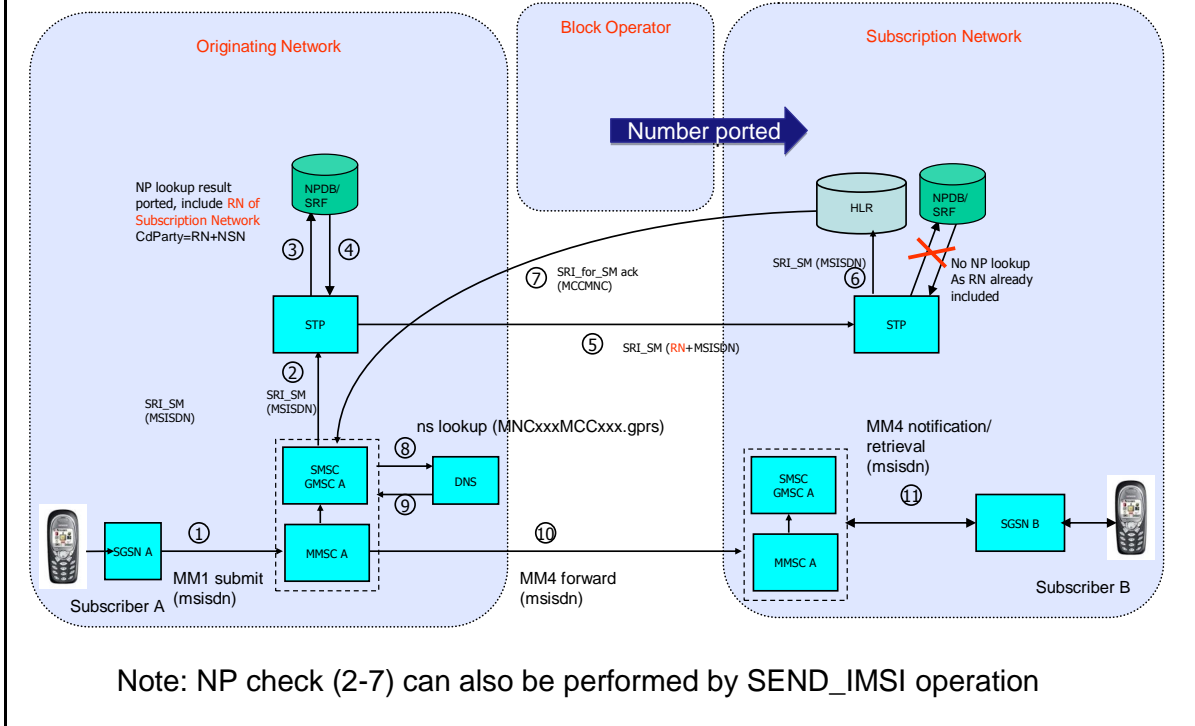


Figure 21. MMS to a ported number in another network - non roaming

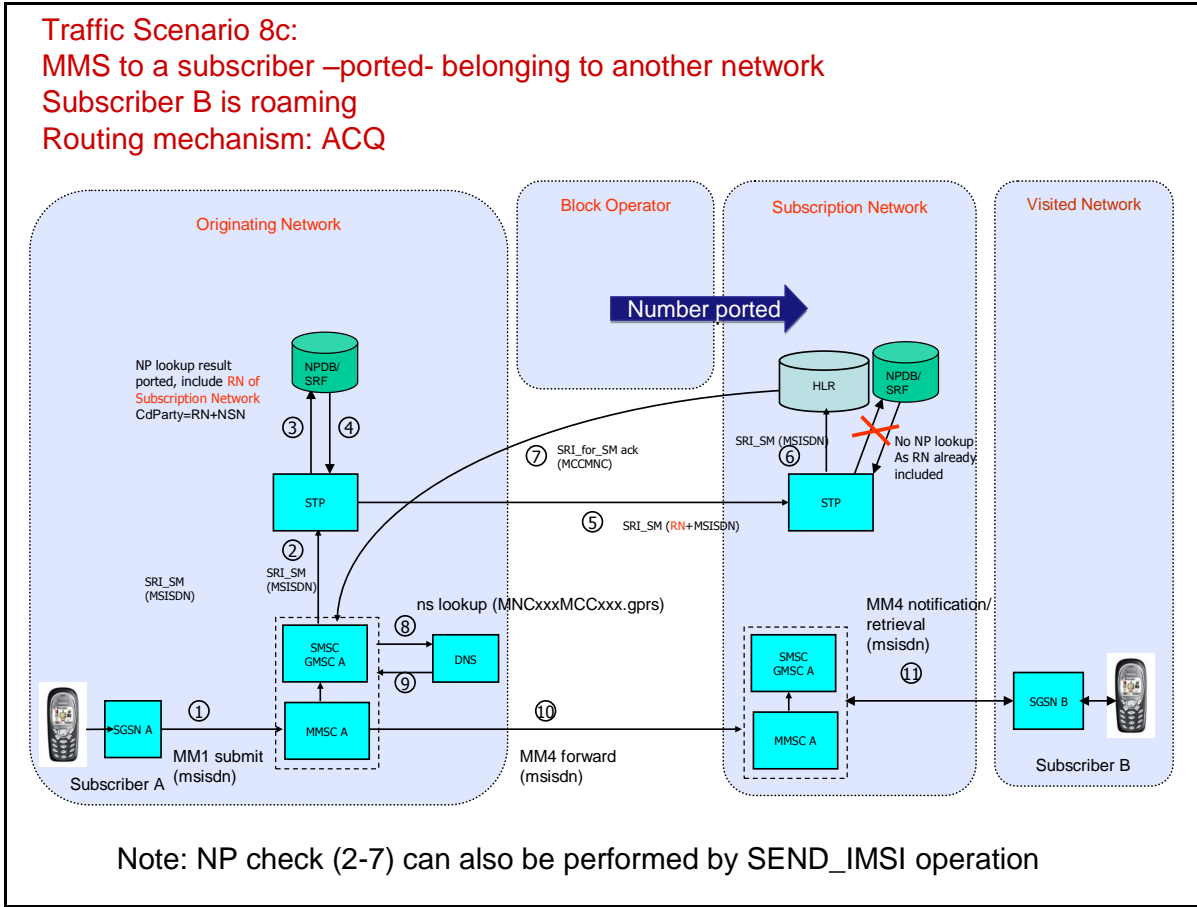


Figure 22. MMS to a ported number in another network-roaming

2.3 Routing for FNP

2.3.1 General Principles

For cases where circuit switching and ISUP signaling are applied for interconnection between networks, the traffic scenarios for FNP are similar to the MNP scenarios. However it should be noted that:

- 1) The terminology for certain network components like GMSC or VMSC does not exist in Fixed networks;
- 2) SMS/MMS does not apply;
- 3) The terminating Subscriber is not capable of roaming in a Visited Network (internationally) as is the case for Mobile networks;
- 4) Signaling internally within the Fixed network is most likely not SS7 signaling but Session Initiation Protocol (SIP), where SIP URI are used instead for routing.

For cases where IP interconnections may be applied (using SIP) the SIP URI should identify to which Subscription Network a call should be routed. For example, if the Number 12345678 is ported from network A to network B, then instead of applying the Routing Number for network B, a SIP URI such as 12345678@sip.networkb.bh should be applied, that unambiguously directs the call to the ported subscriber in the subscription network. In this example the Routing Number provided by the Central System to the Origination Network (and stored in the local NP database of Network A) should be uniquely translated to a corresponding SIP URI. This solution can only work in case each SIP URI address in the Destination Network is adhering to a fixed format such as in the above example.

Optionally the RN could be added to the NSN part in the SIP URI in order to make it known to the Destination Network that a NP look up took place at the Origination Network, so that the destination network will not 'reroute' the call in case it has conflicting Routing and NP information in its own network. This would prevent 'looping' or 'circular routing' as in the circuit switching technology.

2.3.2 Traffic Scenario's FNP

In the next figures not every possible scenario is depicted. Two examples are given:

- 1) (Figure 23) Call to a Ported Fixed Line Subscriber- directly routed to the Subscription Network by an All Call Query Mechanism
- 2) (Figure 24) Call to a Ported Fixed Line Subscriber- onward routing to the Subscription Network by the Block Operator

Traffic Scenario 9a:
Call to a Fixed Line subscriber –ported- belonging to another network
Routing mechanism: ACQ

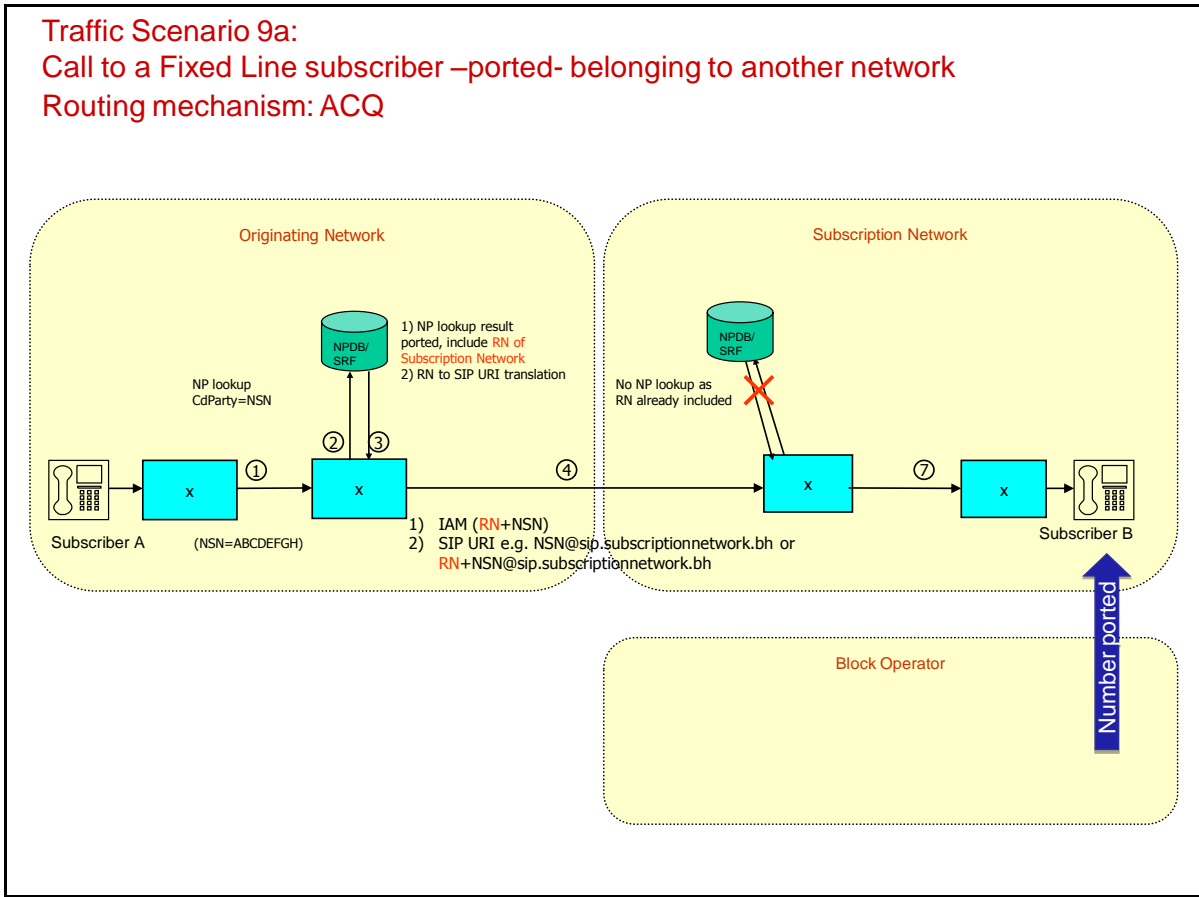


Figure 23. Call to ported Fixed Line subscriber (ACQ)

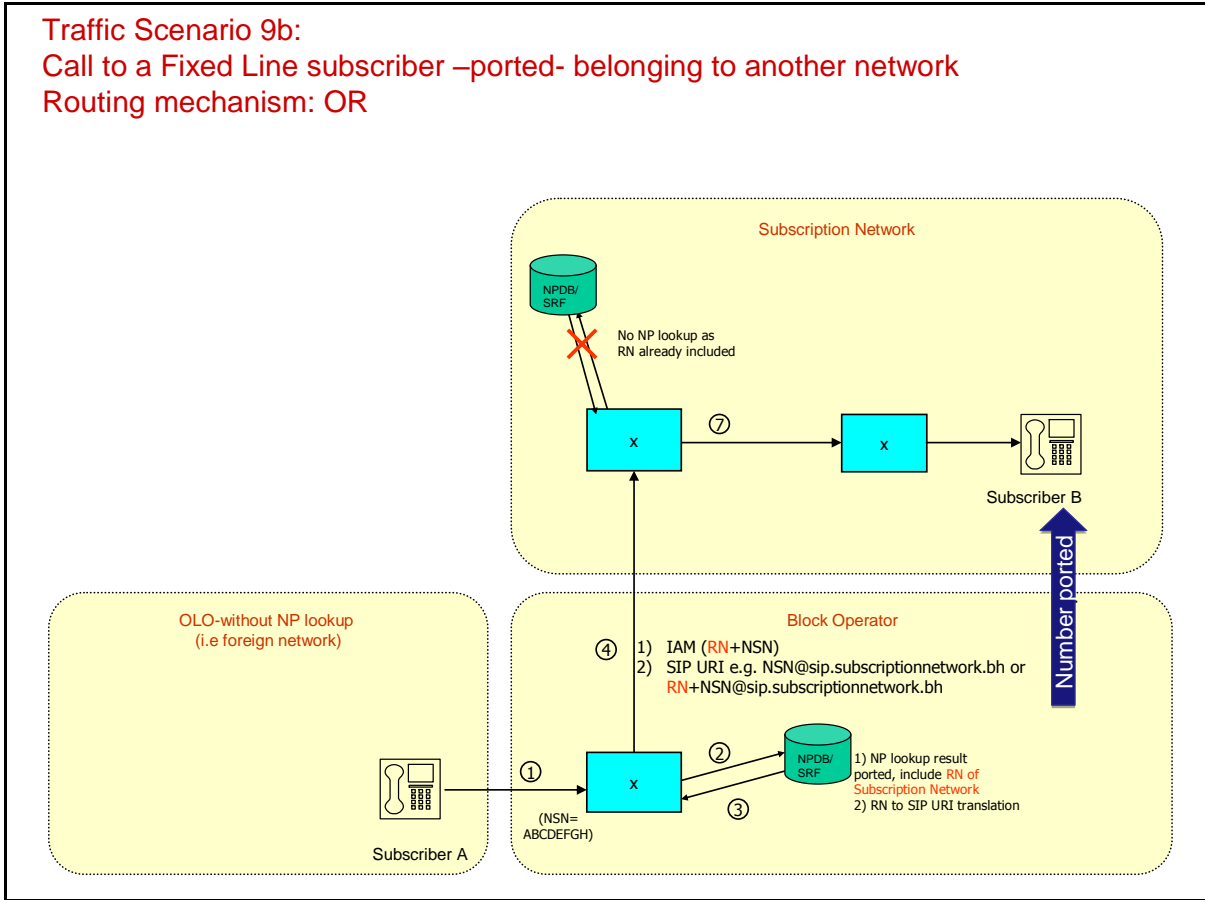


Figure 24. Call to ported Fixed Line subscriber (OR)

3 Charging

3.1 Introduction

This chapter covers the specifics of all charging aspects for Ported Numbers.

3.2 Charging of transactions

Licensees will bear the costs involved with setting up Number Portability processes, related IT/Network investments, the XML gateways on the Licensee networks and the interconnection/communication channel with the Central System. This should exclude all costs related to the implementation of the Central System itself. Please refer to Articles 3(c) and 4(a) of the Number Portability Regulation for further details.

3.3 Charging for calls to Ported Mobile Numbers

3.3.1 General Principles

Routing of calls to Ported Numbers shall be in line with the interconnect agreements. This means for instance that if a carrier will have to perform onward routing for a received call, then the carrier will charge the originator of the call a Transit Fee.

In interconnect agreements between Licensees, SMS is charged by the destination network according to the delivery of the SMS to its Subscriber, except if the Subscriber is roaming. See Figure 15 where in step 8 the SMS is delivered by the SS7 MAP message Forward_SM. See Figure 16 for SMS delivery to a roaming Subscriber which is exempted from interconnection charges².

For MMS, the destination network charges the origination network based on the delivery of the MMS to its MMSC (regardless of the location of the customer). See Figure 21 where in step 10 the MMS is delivered by the MM4 Forward message.

NP lookups required for relaying SMS related MAP Signalling ('Send Routing Info' for Short Message) are not be settled between Licensees by interconnect agreements. The same applies to the SMS-like signalling related to MMS Number Portability checks and Other Signalling as described in Section 2.2.1.

² Generally there is no SMS Interconnect charge for SMS to a roaming Subscriber. However in case of SMS Home Routing and depending on interconnection arrangements between the origination network and destination network, the SMS towards a roaming Subscriber may be charged. SMS Home Routing means that a SMS is first routed to the home network (a virtual visited MSC) after which the home network delivers the SMS to its Subscriber roaming abroad.

3.3.2 Charging Scenario's MNP

3.3.2.1 Charging scenario MNP – voice

The charges between Licensees for handling calls are handled via Interconnect and Roaming agreements and are not subject to the NP Specifications. However, for the sake of clarity the most important scenarios have been depicted in the following figures.

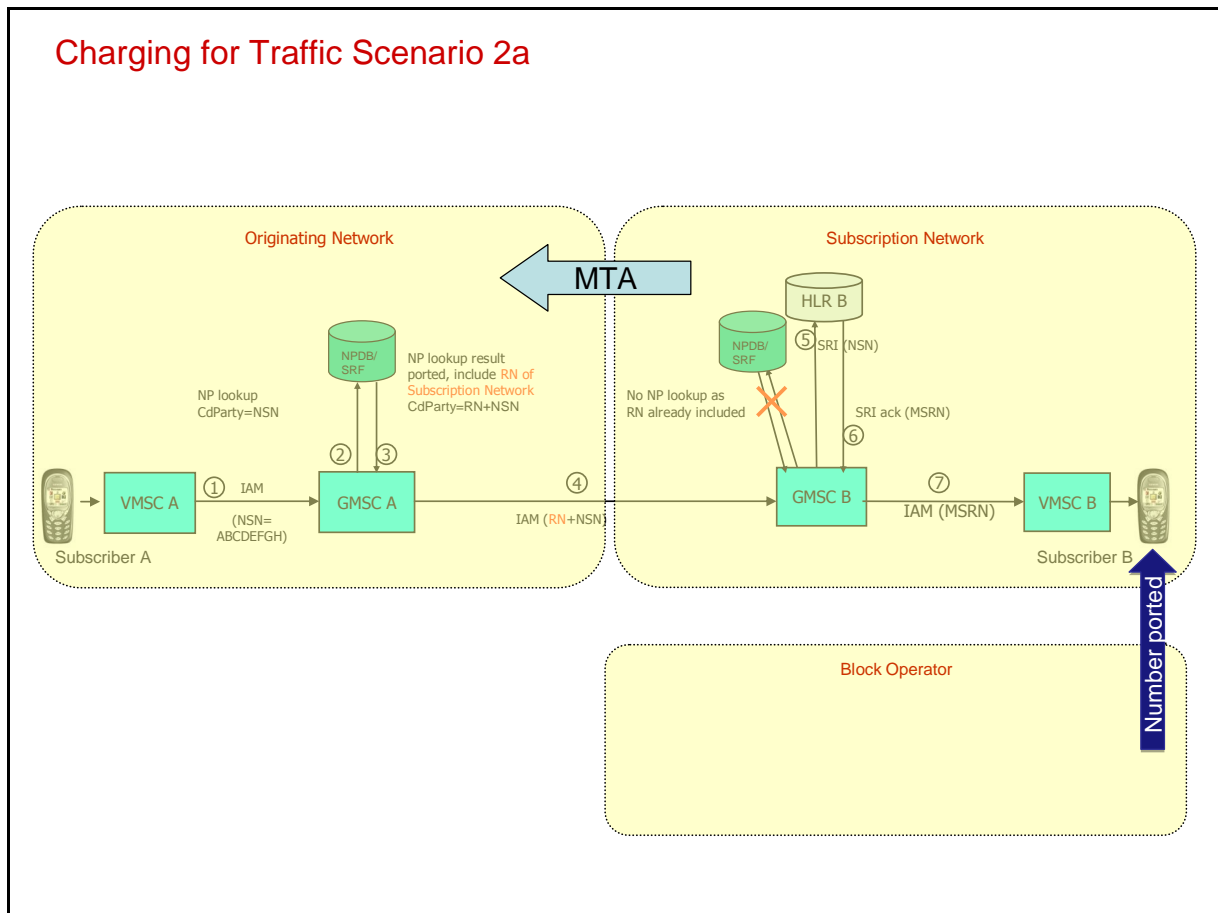


Figure 25. Interconnect settlement for calls to ported number (ACQ) – non roaming

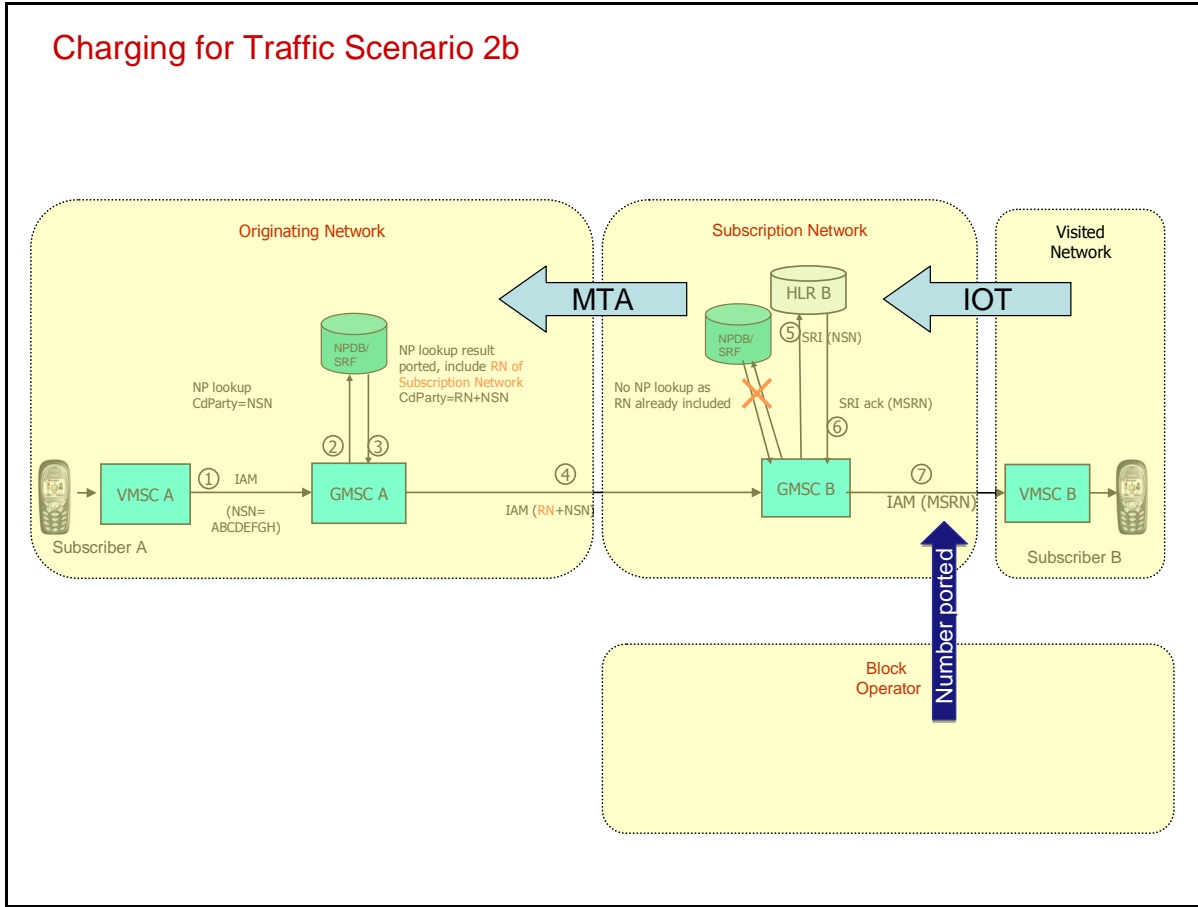


Figure 26. Interconnect settlement for calls to ported number (ACQ) – roaming

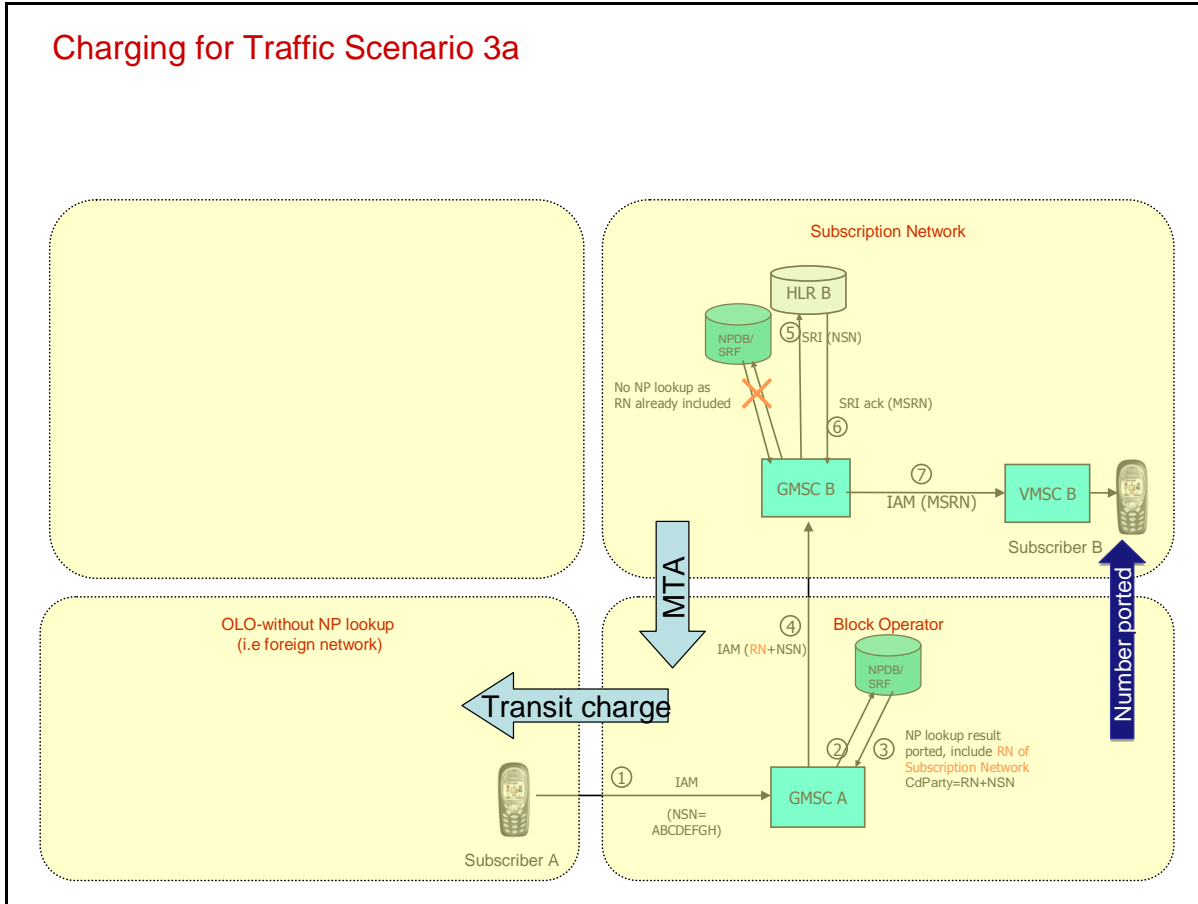


Figure 27. Interconnect settlement for calls to ported number (OR) – non roaming

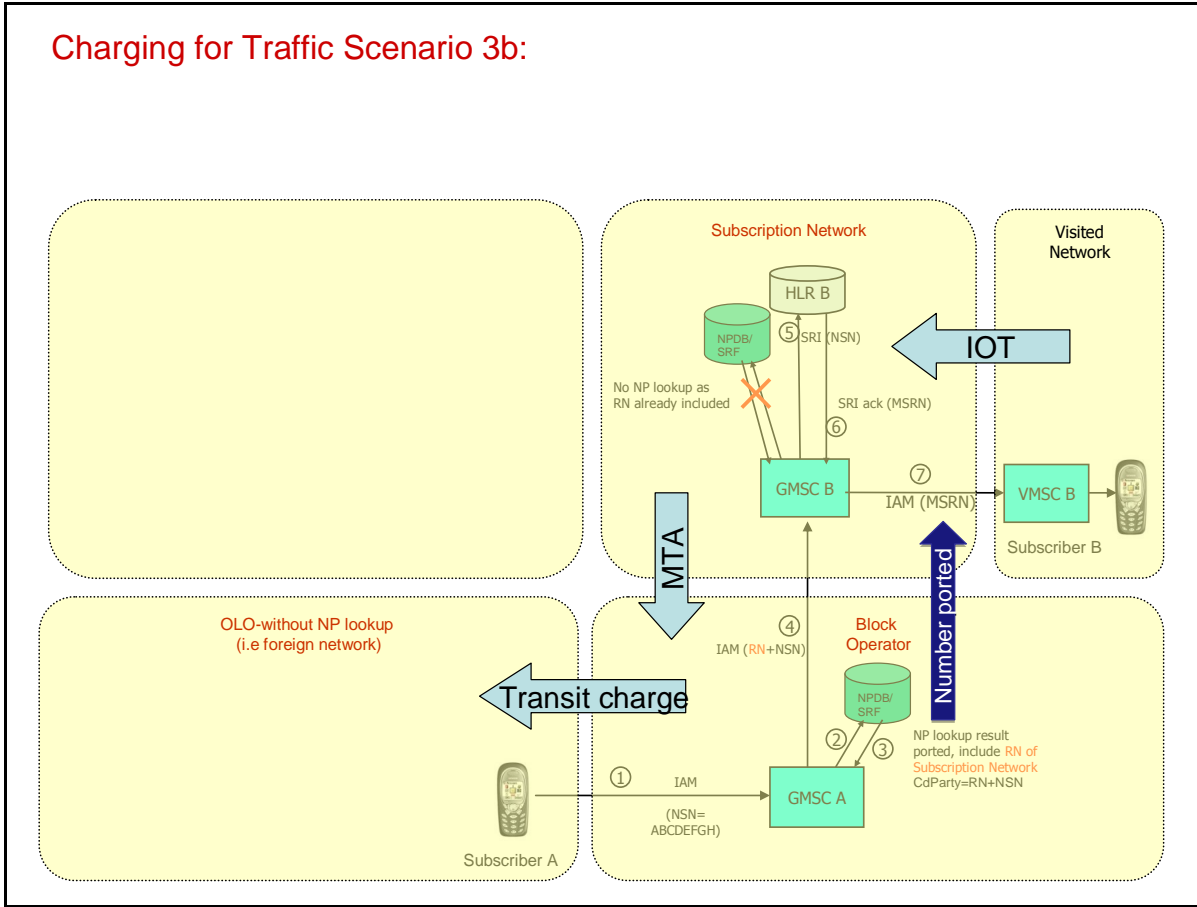


Figure 28. Interconnect settlement for calls to ported number (OR) – roaming

3.4 Charging of calls to Ported Fixed Numbers

3.4.1 General Principles

The charging principles for calls to Ported Fixed Numbers are the same as for Mobile Numbers. There is a slight difference in terminology: MTA is then called PSTN Terminating Access .

3.4.2 Charging scenario's FNP

As with MNP, the charges between Licensees for handling calls are handled via Interconnect agreements and are not subject to the NP Specifications. However, for the sake of clarity the scenarios described in Section 2.3.2 have been depicted in the following Figures.

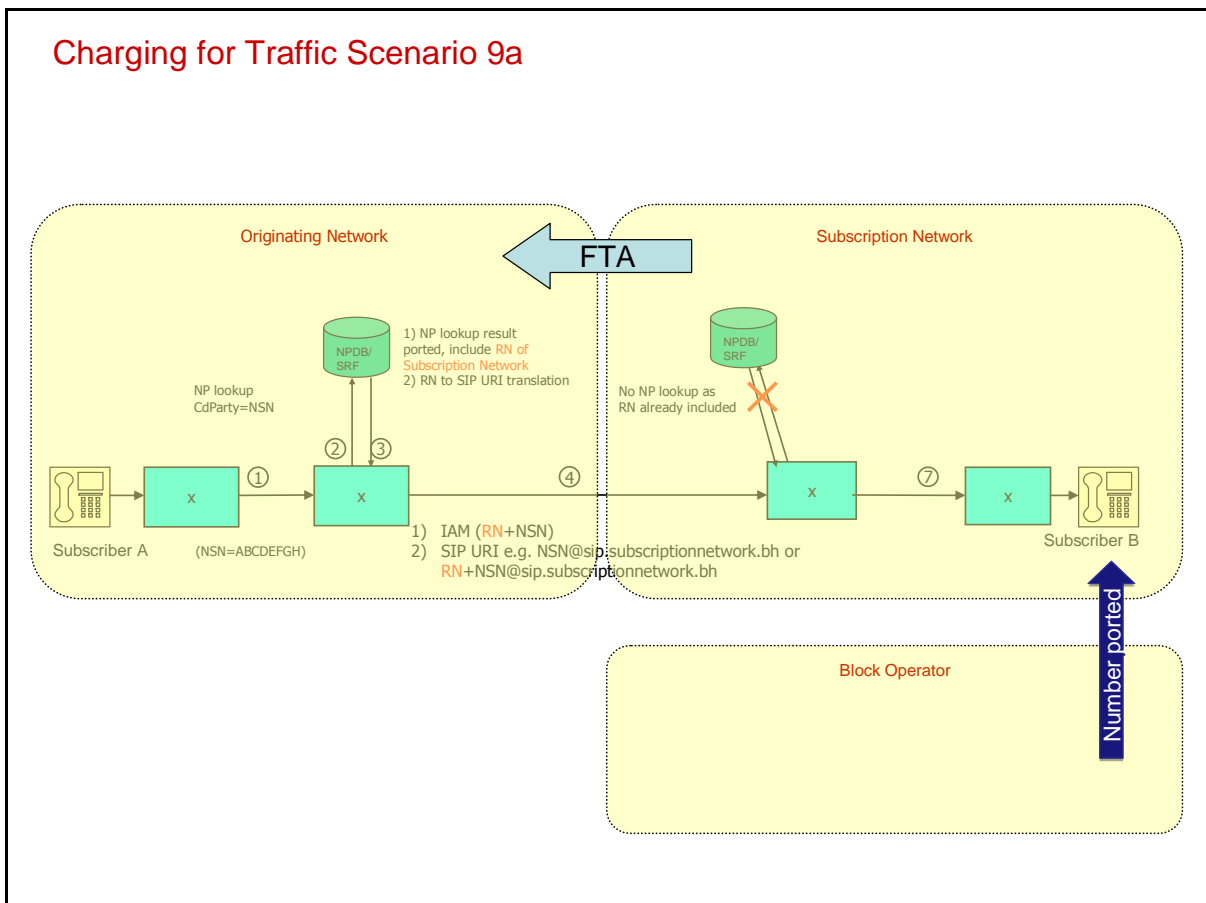


Figure 29. Interconnect settlement for calls to ported Fixed Line subscriber (ACQ)

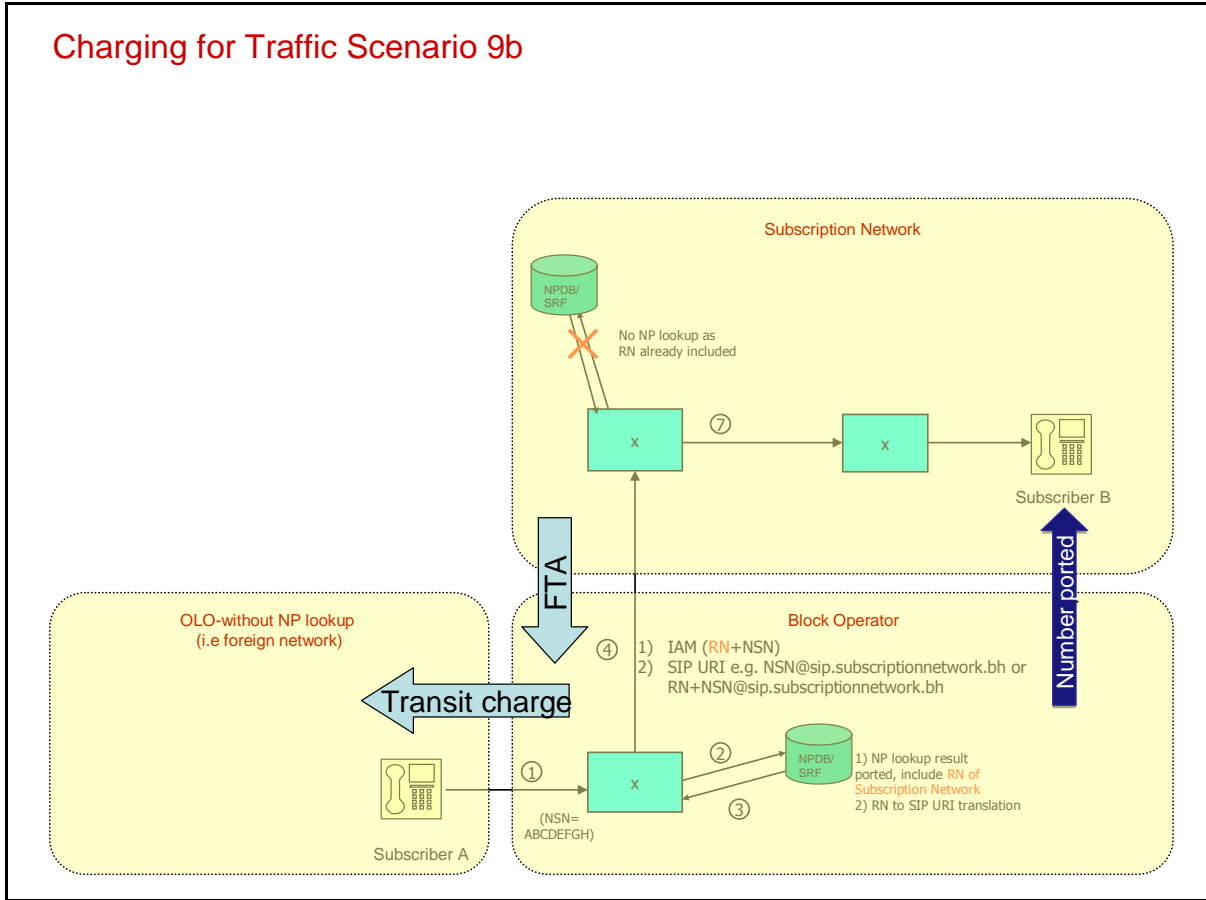


Figure 30. Interconnect settlement for calls to ported Fixed Line subscriber (OR)

Glossary

ACQ	All Call Query, a routing method for Number Portability.
Back port	A Porting where the Number Ports back to the Block Operator/ original Number holder.
Bad Debt	‘Bad Debt’ is defined as ‘unpaid fees, bills or other dues that have been invoiced and notified to a Subscriber, in direct relation to a Number that has been Ported out, which have passed the due date and are equal to or over BHD 3 in value. By this definition, unpaid fees which have not been invoiced or contractual payments which are not yet due (such as installment plans) do not constitute Bad Debt status, nor do any dues that were not communicated or notified to the Subscriber. Bad Debt is one of the possible reasons to reject a Porting Request. If the Subscriber that wishes to Port a Number has been issued an invoice for which the stated due date has passed (and a notification of that status has been issued to the Subscriber by SMS, by email, by postal delivery or by automatic call announcement), and the minimum amount of debt value (BD 3) is exceeded then the Donor Operator can reject the Porting Request for reasons of ‘Bad Debt’.
Billing Notification Period	After the completion of a Number Porting (Recipient Operator having received Porting Executed message), if (bad) debt exists within the Billing Notification period then the Donor Operator may start the Billing Resolution Process.
Billing Resolution Process	A process which aids the Donor Operator in recovering outstanding Bad Debt from a previously Ported Subscriber. The Billing Resolutions process may result in the clearance of Bad Debt and the resumption of normal service to the Number; the disconnection of the Number; or a ‘time-out’ of the process which leads to the resumption of normal service to the Number.
Block Operator	The Licensee who is the original holder of a Ported Number-as it has been assigned the range.
Central System	The system for Number Portability in the Kingdom of Bahrain is referred to as the Central System. The Central System acts as the clearing House for message validation and message handling and routing, provides the communications channels for Licensees and other parties and holds the Ported Number Database.
Deactivation process	This process concerns the return of a Number to the Block Operator holding the Number Range to which the previously Ported Number belongs to. This return will take place within a maximum period of 30 days (Return Period) after the Subscription Network has disconnected a Number which has been previously Ported to the Subscription Network. The Ported Number must be returned to the Block Operator if the Subscriber has been disconnected for any reason other than onward Porting. Only the Block Operator is entitled to re-use the Number for a new subscription.
Destination Network	(In the context of call routing) The Licensee which is receiving a call.

Specification [3]: Routing & Charging Specification

Donor Operator	The Licensee who is transferring the Number to the Recipient Operator.
Execution	This process concerns the actual execution of the Number Porting between a Recipient Operator and a Donor Operator of the agreed Number within the defined timeframe.
FNP	Fixed Number Portability
FTA	Fixed Terminating Access fee, In Kingdom of Bahrain referred to as 'PSTN Terminating Access'
HLR	Home Location Register
IAM	Initial Address Message (ISUP)
IMSI	International Mobile Subscriber Identity. Number used for identification of a mobile subscriber. It is stored on the SIM card and sent by the phone to the network.
IOT	Inter Operator Tariff
ISUP	ISDN User Part or ISUP is part of the Signaling System #7 which is used to set up telephone calls in Public Switched Telephone Networks.
MAP	Mobile Application Part (ss7 signaling stack)
MCC MNC	Mobile Country Code & Mobile Network Code, also 5 (in USA 6) digits of IMSI
MMSC	Multimedia Messaging Service Centre
Maximum Resolution Alert Time	The maximum time between service degradation levels during the Billing resolution process is called the Maximum Billing Resolution Alert time. The Billing Resolution Alert Message should have been received before the Maximum Billing Resolution Alert Time expires. If the Maximum Billing Resolution Alert Time expires, the Billing Resolution Process is terminated and the subscription (using the Ported Number) returns to normal status.
MCC MNC	Mobile Country Code & Mobile Network Code, also 5 (in USA 6) digits of IMSI
Minimum Billing Resolution Alert Time	The minimum time between service degradation levels during the Billing resolution process is called the Minimum Billing Resolution Alert Time. After the Minimum Billing Resolution Alert Time expires the Donor Operator may send a Billing Resolution Alert Message, to force the Recipient Operator to a next level of degradation.
MNP	Mobile Number Portability
Number Portability Messages	Messages exchanged via the Central System during the Porting Process: between Recipient Operator and Donor Operator and Other Operator
MSISDN	Mobile Subscriber Integrated Services Digital Network Number

Specification [3]: Routing & Charging Specification

MTA	Mobile Terminating Access fee
NP	Number Portability: the capability for a Subscriber to change Licensee without changing their Number
Number Portability Phase	<p>The Number Porting Process consists of five procedures, not all of which are invoked sequentially:</p> <ol style="list-style-type: none"> 1. Preparation 2. Execution 3. Deactivation 4. Query 5. Billing Notification
NSN	National Significant Number, in Bahrain this is in the format ABCDEFGH
OR	Onward Routing
OLO	Other Licensed Operator
Other Operator	Other operator or other participants in the Porting Process: other mobile operators and fixed (transit) operators which are informed about the Porting of Numbers or deactivation of previously Ported Numbers via broadcast messages
Operator Code	A code used in Number Portability messages to identify a participant (example: ZAIN or the Central System). Used in fields like DONOR_ID, RECIPIENT_ID, ORIGINATION_ID.
Originating Network	(In the context of call routing) The Licensed Operator originating a call
Preparation process	This process concerns the information exchange between a Recipient Operator and a Donor Operator in order to accept or reject the Number Porting Request of a Subscriber.
Port-ID	Unique ID assigned by the Central System. To be used in messages referring to a specific Porting instance. It is constructed by a 4 digit Recipient Operator code-4 digit Donor Operator code- date of sending the Porting Request YYYYMMDD- 5 digit sequence number restarted each day. The combination of Date and Sequence Number is unique. Example: ZAIN-BATM-20100907-00001
Ported Number	The Number that a subscriber wishes to keep when changing from one Licensee to another. The Number shall be transferred from the Donor Operator to the Recipient Operator during the Porting process.
Query process	This process concerns the query to the Central System for some or all Numbers. The query may concern individual Numbers, ranges of Numbers, a certain time span or a specific Operator's Numbers that are Ported. This message is not to be confused with real-time

Specification [3]: Routing & Charging Specification

	Number Portability lookups performed for call processing within each Licensee's network.
Recipient Operator	The Licensee to whom the Number is being Ported.
Routing Number (RN)	A number (example a01) which is used to route voice calls or signaling (such as SMS) to the correct Subscription Network. This number is used in the Porting Broadcast messages, which allows participants to update their routing tables accordingly (also known as 'pointers').
Service Provider	A Service Provider is a reseller, using the equipments (such as SIM cards), and Numbers of a Licensee under its own brand. The Licensee will have to take responsibility for the Porting Process as it is responsible towards TRA to meet the terms of the Number Portability Regulation and is liable in case the reseller violates the Regulation.
SMS-C	Short Message Service Centre
Subscription Network	The currently serving Network for a given Number. Once a Number has been Ported to the Recipient Operator, then the Recipient Operator is further referred to as the Subscription Network.
SUBMISSION_ID	The SUBMISSION_ID is an identifier that the Recipient Operator adds to the Porting Request. Based on the SUBMISSION_ID the Donor Operator is able to identify Numbers which have been submitted as part of a single batch for a single Subscriber.
SRI_SM	Send Routing Info for Short Message (MAP)
TOR	Terms of Reference
Transit Network	Licensee carrying traffic between the Originating Network and Destination Network
Universal Number	A Number that may be defined as either a Fixed or Mobile Number by the Block Operator to whom Number Range has been allocated. Once defined as either Fixed or Mobile, the Number is no longer considered to be Universal and follows all the relevant processes, rules and restrictions of its type.
V-MSC	Visited Mobile Switching Centre