Number Portability
Specification of the Network Functionality
Fixed, Mobile and Freephone

Updated October 2019

Contents

1   SCOPE

This document specifies network functionality needed to support Number Portability in both fixed, mobile and freephone networks as required under the following:

- MCA Report on Consultation and Decision of March 2005; "Introducing Number Portability in Malta".

- MCA Report on further Consultation and Decision of August 2008 "A Framework for Freephone Services in the 800 range".

This document specifies all functions that either:

- Involve exchanges between the operators
- Involve actions by one operator that affect other operators or the subscriber.

This document does not specify the form of implementation needed to support the required functionality. Implementation may be decided separately by each operator.

The document covers the network functionality needed for circuit-switched calls (including telephony, data and fax), SMS and MMS.

This document may need to be reviewed when new services are introduced.

2   DEFINITIONS

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

Block network: network to which the number range containing the ported number has been allocated

Direct routing: With respect to routing a call to a ported number, this means determining which is the serving network and routing the call to that network and not relying on the block network to onward route the call. The call may cross one of more transit networks. This implies that either the originating network or the transit network needs to perform All Call Query

Donor network: subscription network from which a number is ported in the porting process. This may or may not be the number range holder network.

Freephone number: A number in the 800x range.

Indirect routing: With respect to routing a call to a ported number, this means routing the call to the block network and relying on the block network to onward route the call to the serving network. The call may cross one of more transit networks. This implies that neither the originating network nor the transit network performs All Call Query

Mobile number portability: ability for a mobile subscriber to change mobile network subscription within the same country whilst retaining his/her original MSISDN(s).

Number portability database: operational database (used in real time at call set-up) which provides portability information

Onward routing: The routing of a call across a network where the network doing the routing is the network that is allocated number range containing the called number, ie is the block network in relation to the called number.

Originating network: network where the calling party is located

Recipient network: network that receives the number in the porting process. This network becomes the subscription network when the porting process is complete

Subscription or serving network: network with which the customer's Service Provider has a contract to implement the customer's services for a specific MSISDN

Transit Network: a network, other than the block network, that the originating operator chooses to route calls originating from its network.

NOTE: The term "recipient network" is used during the porting process. The recipient network becomes the "subscription network" after the completion of the porting process.

NOTE: A given network may function as a block network for routing calls to numbers that it has ported out and a transit network to numbers that it neither services nor has ported out. For example if a small cable company routes all its calls to Go Fixed, then Go Fixed is acting as a transit network for calls to mobiles and to unported numbers served on other fixed networks, but as a block network for calls to numbers that it has ported to other fixed networks.

3   ABBREVIATIONS

ACQ   All Call Query
GMSC   Gateway MSC
HLR   Home Location Register
IMSI   International Mobile Subscriber Identity
MMS   Multimedia Message Service
MMSC   Multimedia Message Service Centre
MNP   Mobile Number Portability
MSC   Mobile Services Switching Centre
MSISDN   Mobile Station International ISDN Number
MSRN   Mobile Station Roaming Number
NPDB   Number Portability Database
OR   Onward Routing
SMS   Short Message Service
SMSC   Short Message Service Centre
SRF   Signalling Relay Function
SRI   Send Routing Information
VLR   Visited Location Register
VMSC   Visited MSC

4   CIRCUIT SWITCHED CALLS

4.1   Connectivity

Operators shall establish whatever interconnections are needed to deliver calls to both ported and non-ported numbers. Operators are not required to have direct interconnections with all other networks but may route calls via transit networks, e.g. a new entrant fixed operator may choose to interconnect only with GO Fixed and so to route all calls to mobile operators.

The consequence of this requirement is that any operator who acts as a transit operator for calls within Malta will have to be able to route calls according to number portability routing prefixes.

4.2   Routing

Each operator shall ensure that all calls from their own subscribers and all calls received from other operators can be routed successfully to the network that is currently serving the subscriber. This means that each operator has to provide onward routing to the recipient operator for the ported-out numbers in its own number block.

An originating fixed operator or a transit operator may choose whether to route a call to a ported number directly to the serving network or to route it indirectly via the block network. In the case of calls to freephone numbers, the originating fixed operator is recommended to route the call directly to the serving network
An originating fixed operator is not obliged to use the same routing for all calls of the same type nor for all calls to the same number (e.g. for calls at different times).

Where a subscriber has been ported into its network, an originating fixed operator may route calls to the ported number in a loop via the block operator if it does not wish to use direct routing.

An originating mobile operator shall route all calls to a ported mobile number directly or via a transit network to the serving network, but for calls to ported fixed or freephone numbers may choose to route the call indirectly via the block network.

4.3   Use of Routing Prefixes

Where an originating operator determines, under All Call Query routing, or when a terminating operator determines under onward routing, that the called party number is ported, they shall add a routing prefix to the called party number indicating which network currently serves the number[1]. The function of this prefix is to:

- Facilitate the routing of the call subsequently by saving the need for other switches or networks to determine which network now serves the called number

- Facilitate correct billing in respect of additional conveyance charges if relevant

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[1] In the case of freephone numbers, the routing prefix of the network currently serving the number shall be added to the called freephone number.

The 4-digit routing prefixes to be used are specified in Annex 1. The NoA value for the resulting B-Number shall not be changed, ie it shall have a National Nature of Address (NoA) value = 3. This applies for calls to both fixed and mobile numbers.

Operators may choose by mutual agreement not to add prefixes for calls passed between them.

4.4   Incoming Call Handling

If an incoming call is prefixed with a routing prefix, then the receiving party shall route the call in accordance with the prefix and shall not analyse the remaining part of the number for routing unless the prefix indicates that the number is served on its own network. Where the prefix indicates an operator's own network but the operator determines that the number is not served on its network, the operator shall fail the incoming call. Note: This provision is needed to avoid endless loops.

4.5   Signalling parameters

The call routing arrangements shall ensure that signalling parameters on calls to ported numbers are not changed as a result of the implementation of number portability with the exception of the addition of the routing prefix to the called party number. Where a routing prefix has already been added to a parameter, the parameter should not be changed.

5   SMS

5.1   Connectivity

Operators shall establish whatever interconnections are needed to deliver SMSs to both ported and non-ported numbers.

5.2   Routing

Each operator shall ensure that all SMSs from their own subscribers can be routed successfully to the network that is currently serving the subscriber.

An originating operator in Malta when sending an SMS to a subscriber of another operator in Malta shall route the SRI_SMS message to the HLR of the recipient operator not the block operator.

An operator acting as a block operator for an SMS sent to a ported number shall onward route any SRI_SMS signalling message to the current serving network and shall add the number portability routing prefix to the Called Party Number in the SRI_SMS signalling message. This applies only for SMS messages from foreign networks.

5.3   Use of Routing Prefixes

Where an operator determines that the called party number of an SMS is ported, they shall add a routing prefix to the called party number indicating which network currently serves the number and onward route the SRI to the HLR of the serving network.

5.4   Incoming SRI_SMS Handling

If an incoming SRI_SMS contains a routing prefix and the prefix indicates an operator's own network but the operator determines that the number is not served on its network, the operator shall send back to the originator a response indicating the subscriber is not known. Note: This provision is needed to avoid endless loops.

5.5   SMS support by fixed operators

SMS is not currently supported by the fixed operators. If the fixed operators decide to introduce SMS services then appropriate interconnection arrangements will be needed with the mobile operators and these arrangements will need to support number portability.

6   MULTIMEDIA MESSAGE SERVICE (MMS)

6.1   General

Operators shall establish whatever interconnections are needed to deliver MMSs to both ported and non-ported numbers. MMSs sent between different operators are exchanged across the MM4 reference point whose interface is based on the SMTP protocol as specified by the 3GPP TS 22.140 "Multimedia Messaging Service (MMS); Stage 1" and TS 23.140 "Multimedia Messaging Service (MMS); Functional description; Stage 2".

Operators are not required to have direct interconnections with all other message centres but may route MMSs via intermediate "transit" message centres.

6.2   Routing

Each operator shall ensure that all MMSs from their own subscribers and all MMSs received from other operators can be routed successfully to the message centre that is currently serving the subscriber.

An originating operator or a transit operator may choose whether to route an MMS MESSAGE to a ported number directly to the serving message centre or to route it indirectly via the message centre of the block operator. Where the operator chooses to use indirect routing via the block operator, additional conveyance is payable to the block operator.

Each block operator who receives an MMS message to a number that they have ported out shall onward route the MMS message to the serving network.

In order to avoid endless loops, an operator who may be serving a number shall always check whether they are serving the number before routing an MMS message to another operator.

6.3   Use of Routing Prefixes

Routing prefixes shall not be used explicitly for MMS, although they are used within the SRI_SMS mechanism that also supports the MMS service.

Note: Routing prefixes are not necessary for billing purposes because the destination is identified either by an IMSI or a domain name.

The MMSC caters for number portability by resolving the recipient address based on IMSI as illustrated in the signalling flows in Annex D. The procedure adopted is based on Annex H of 3GPP TS 23.140 "Multimedia Messaging Service (MMS); Functional description; Stage 2".

6.4   Incoming MMS Message Handling

In order to avoid endless loops, an operator who receives an MMS message for a number that they may be serving shall always check whether they are serving the number before routing the MMS message to another operator.

Incoming MMS messages from foreign operators to ported numbers may be rejected if:

- The sending operator does not have an interconnection agreement with the block operator

- The sending operator does not have an interconnection agreement with the recipient operator.

7   OTHER SIGNALLING MESSAGES

Each mobile operator shall ensure that all non-call related signalling messages received from operators outside Malta concerning ported-out numbers in their own number range can be routed successfully to the network that is currently serving the subscriber. In consequence, an operator acting as a block operator for a ported number shall onward route any such signalling message to the current serving network and shall add the number portability routing prefix to the Called Party Number in the signalling message. This applies for example to the following messages eg SRI for SOR, Send_IMSI, CCBS_Request, ATI etc). Where necessary and practicable, fixed operators should provide the same functionality.

If an incoming signalling message from an operator within Malta contains a routing prefix and the prefix indicates an operator's own network but the operator determines that the number is not served on its network, the operator shall send back to the originator a response indicating the subscriber is not known. Note: This provision is needed to avoid endless loops.

If an incoming signalling message from an operator within Malta contains a routing prefix and the prefix indicates an operator's own network and the operator determines that the number is served on its network, the operator shall respond in the manner appropriate to the support of the service or function.

8   USE OF SIGNALLING RELAY FUNCTIONS BY THE MOBILE OPERATORS

A signalling relay function and a number portability database provide the functionality to analyse Send Routing Information queries that are normally sent to the HLR, and to return the called party number with a routing prefix added if the number is ported. This section refers to this functionality, which may be provided by different forms of equipments and is not meant to imply any particular implementation.

The requirement for block operators to provide an onward routing capability means in practice that mobile operators shall have access to a signalling relay function and a number portability database in order to provide onward routing. The SRF nodes within the networks of different operators are not mandated to have a direct, logical connection between them. In order to prevent loops during routing, only one number portability check shall be performed during the end-to-end communication session, this is ensured by the addition of the routing prefix whenever a check is made.

A mobile operator may agree to share the signalling relay functions and number portability database of another operator or a third party either for all their operations or as a back-up arrangement in case their own systems are unavailable and may conclude appropriate payment arrangements for such use. An SRF owner is not obliged to enter such an agreement and such arrangements are at their own discretion.

Note: If operators who are deemed to have significant market power engage in sharing, then they may be required in due course by the MCA to offer such sharing on a non-discriminatory basis.

A mobile operator, shall not access signalling relay functions and number portability database of another mobile operator in Malta without the latter's explicit consent.

The availability of SRFs and their associated databases shall be no less than the availability of an operator's own HLR averaged over a period of a year, and shall be at least 99.99% so as to safeguard the service for ported out subscribers as much as possible.

9   SUBSEQUENT PORTINGS

Annex 6 shows the sequential process of changing routings for portings between two operators that are not the block operators.

10 NUMBER PORTABILITY DATABASE

There is no requirement to implement a central database of ported numbers to identify which operator currently serves the number, although the operators are free to choose to implement such a database.

Because:
- additional conveyance charges may be payable for calls routed via the donor
- the retail tariffs may vary between different networks who provide number portability between each other
- some operators offer on-net discounts

each operator needs to know immediately when a number has been ported.

The porting procedure specification contains requirements for the recipient operator to send a Porting Announcement via the Webservice as soon as each porting is completed.

The format of the Porting Announcement is given in the webservice specification.

Each operator who opts to use direct routing will have to maintain their own database of ported numbers.

In addition, unless the MCA waives the requirement, each operator shall maintain and update each working day a passworded web site containing a text file with a list of the ported numbers active on their network. The URL and password shall be made available to the MCA for disclosure to any party having a reasonable interest in this information.

The file names shall have the format:

<OO><YYYYMMDD>.txt

where:

- <OO> is the two digit operator code
- <YYYYMMDD> is the date

The format of the files shall be:

Line 1: "Lines ="<8 digit number of subsequent lines>
Line 2 and subsequent: <8 digit number>

11 TARIFF WARNINGS

Number porting reduces tariff transparency for callers where there are on-net discounts and where the retail tariffs are different for networks that are porting between each other. The MCA is initially waiving the requirement to provide in-call tariff warnings because:

- Call related warning systems are expensive to implement
- Warning systems based on tones and announcements are applicable to voice calls only
- No solution has been identified that would fulfil the expectations of the majority of customers

The MCA will keep this policy under review together with the operators if there are a significant number of complaints from subscribers.

All operators shall ensure that their own subscribers may call or interrogate by SMS, the number `180' free of charge to determine whether a subscriber is on-net or off-net. This is only required if a different tariff is applicable.

It is encouraged that operators provide the '180' tariff warning service by means of both voice and SMS. In case an operator decides to solely offer this service via one of the options (i.e. Calling facility only or SMS facility only), it shall ensure that subscribers making use of the inoperative option are properly instructed so as to utilise the option facilitating the '180' service.

This service shall be kept up-to-date within two working days with the latest portings. A charge may be applicable if the caller or interrogator is roaming.

Note: Because tariffs change and there are various discount and inclusive call arrangements the service is not required to provide explicit tariff details as they will differ from operator to operator and from subscriber to subscriber.

12 PENDING MESSAGES

When a number is deactivated by a donor network pending messages such as voice mail messages and MMSs stored by the donor may be erased.

Note: Pending SMS messages stored by the originating operator should still be delivered as the SRI sent to the donor will be onward routed to the recipient.

13 PORTING OF DIRECT DIALLING IN NUMBERS

Operators shall support the porting of DDI numbers only between fixed and fixed operator or between mobile and mobile operators. There is no requirement to support the porting of DDI numbers between fixed and mobile operators.

14   NON-GEOGRAPHIC (SPECIAL TARIFF) NUMBER PORTABILITY

This will be considered further following the revision of the numbering conventions.

Annex 1: Routing Prefix values

Individual Number Portability Routing Prefix values can be found in the National Numbering Plan Allocations Matrix which is updated in real-time[2].

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[2] This generic text was introduced in October 2019 to replace the previous list of individual routing prefix values.

Annex 2: Call Flows to mobile numbers

The following figures illustrate call and the main signalling flows for the various different routings and routing options. It should be noted that originating mobile operators in Malta are required to use All Call Query but originating fixed operators are not required to do so, consequently the relevance of the diagrams to a given operator will depend on the options that they select. The relevance of the diagrams will also depend on the availability of interconnections and the corresponding commercial agreements.

The following table shows the scenarios covered. The scenarios are structured in terms of the called number because this is what will be analysed by the networks:

Figure	Calling party	Called number range	Ported	Routing by originating network
A2.1	Mobile subscriber	Same as originating network	No	ACQ
A2.2	Mobile subscriber	Same as originating network	Yes	ACQ
A2.3	Mobile subscriber	Other mobile network	No	ACQ
A2.4	Mobile subscriber	Other mobile network	Yes to originator	ACQ
A2.5	Mobile subscriber	Other mobile network	Yes to 3rd operator	ACQ
A2.6	Fixed/foreign subscriber	Mobile network	No	Not ACQ
A2.7	Fixed/foreign subscriber	Mobile network	Yes	Not ACQ
A2.8	Fixed subscriber	Mobile network	Yes	ACQ

The following conventions are used:
- The only signalling shown is the signalling to obtain a Mobile Station Routing Number (MSRN) and to interrogate the number portability database/SRF/HLR complex. Signalling paths are shown by a dashed line, but simple acknowledgements rather than replies are omitted.
- Call paths are shown by a solid line.
- The NPDB/SRF/HLR 'cloud' depicts the sub-network of Home Location Register, Number Portability Data Base and Signalling Relay Function. Different operators may have different implementations of this sub-network..
- P denotes a routing prefix
- B denotes a call sent to the Called Party Number (MSISDN)
- P+B denotes a call sent to the Called Party Number preceded by the routing prefix
- MSRN denotes a call sent to the mobile station roaming number.
- Numbers show the order of events.
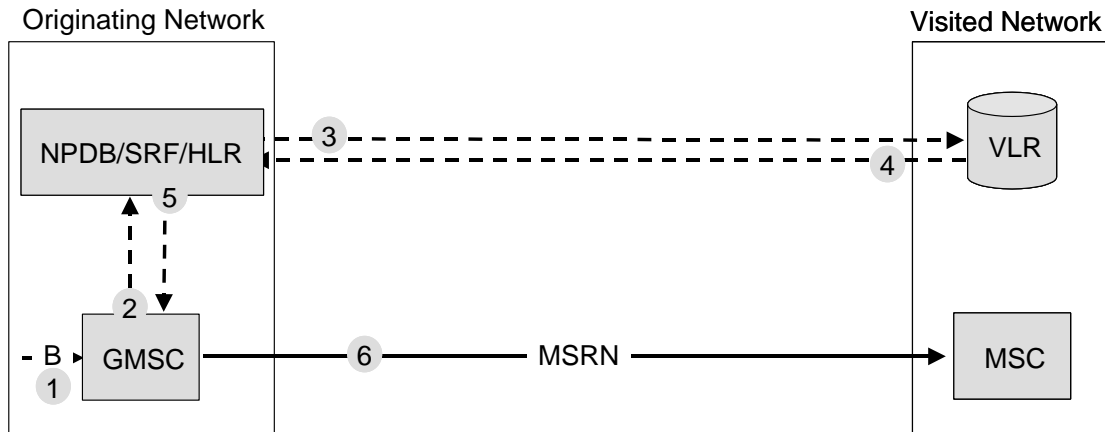
Figure A2.1: Mobile (ACQ) - mobile, own number range, non-ported
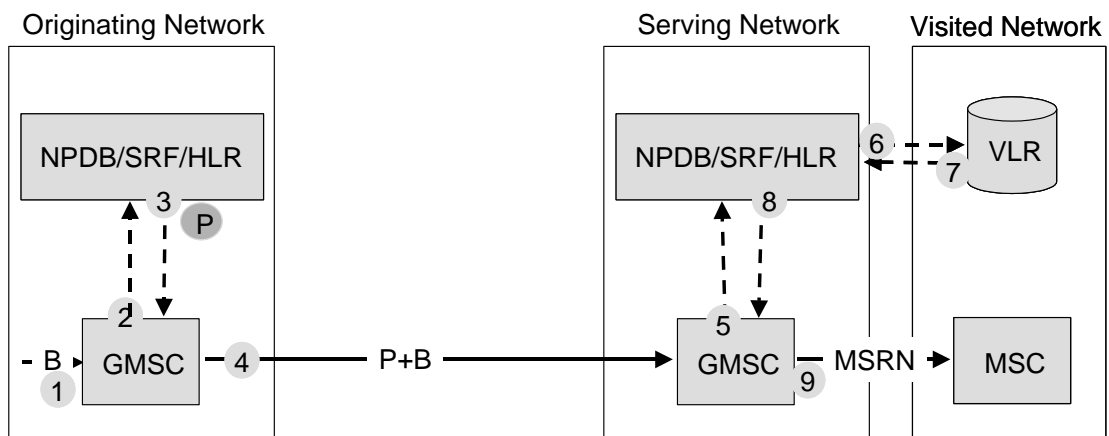
Figure A2.2: Mobile (ACQ) - mobile, own number range, ported
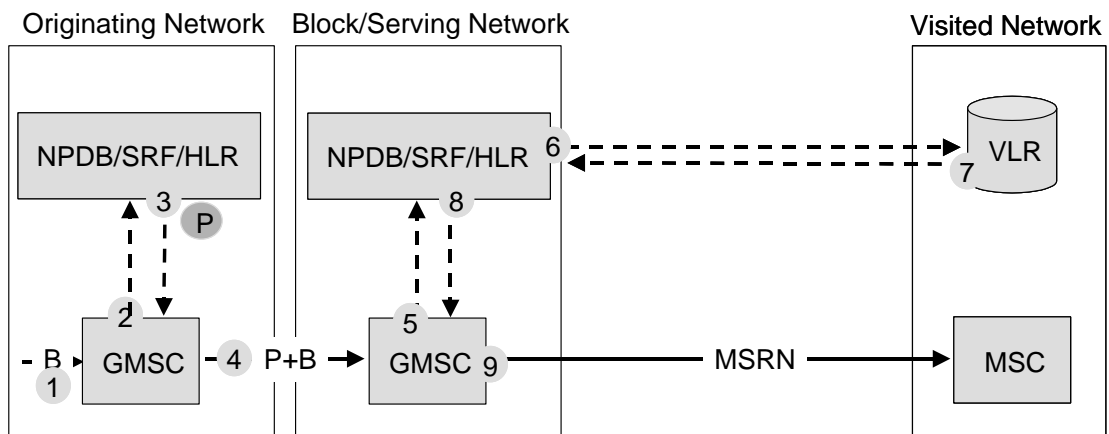
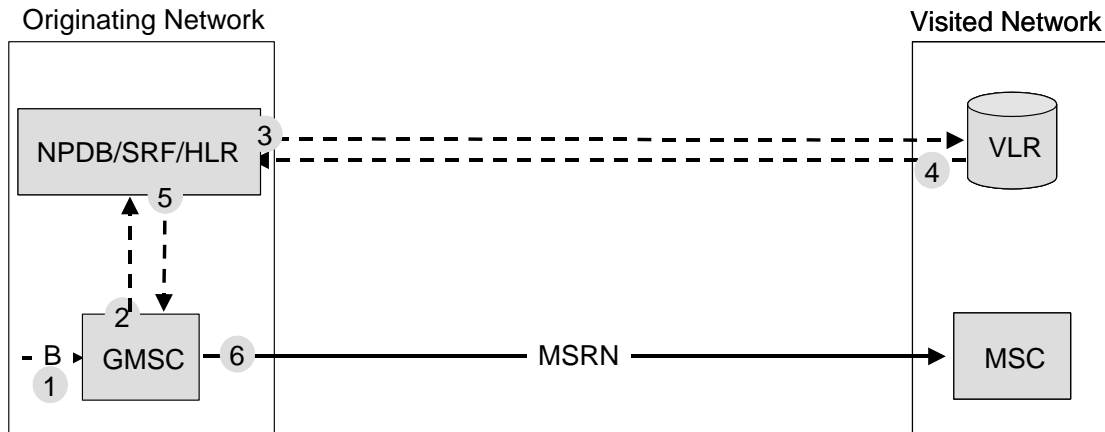Figure A2.3: Mobile (ACQ) -mobile, other number range, non-ported

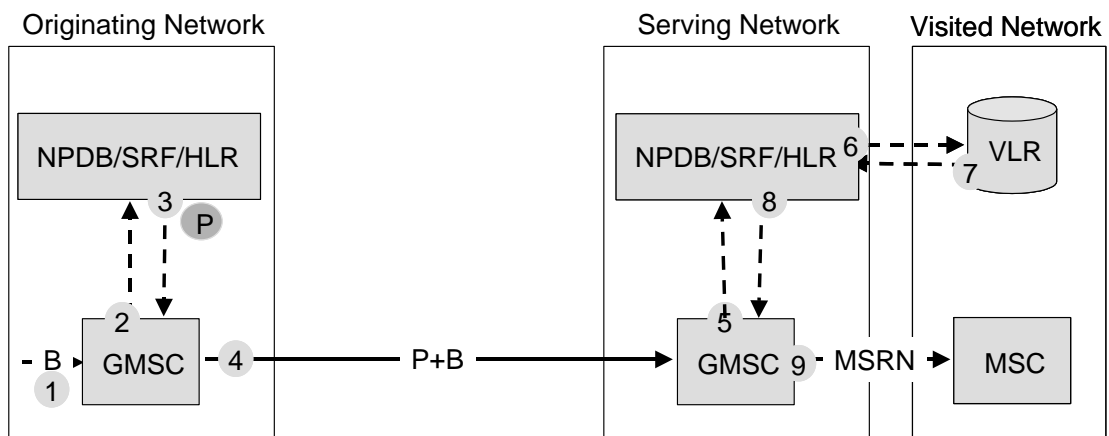Figure A2.4: Mobile (ACQ) -mobile, other number range, ported to originator

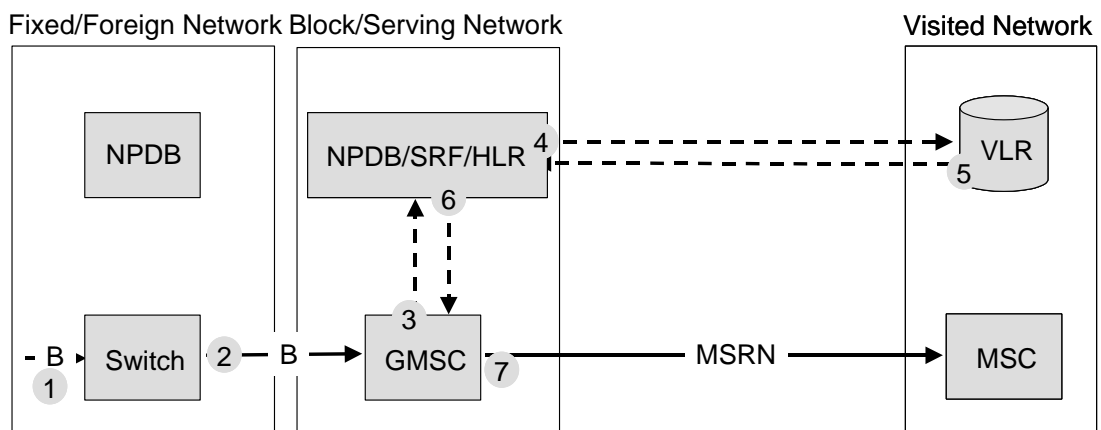Figure A2.5: Mobile (ACQ) -mobile, other number range, ported

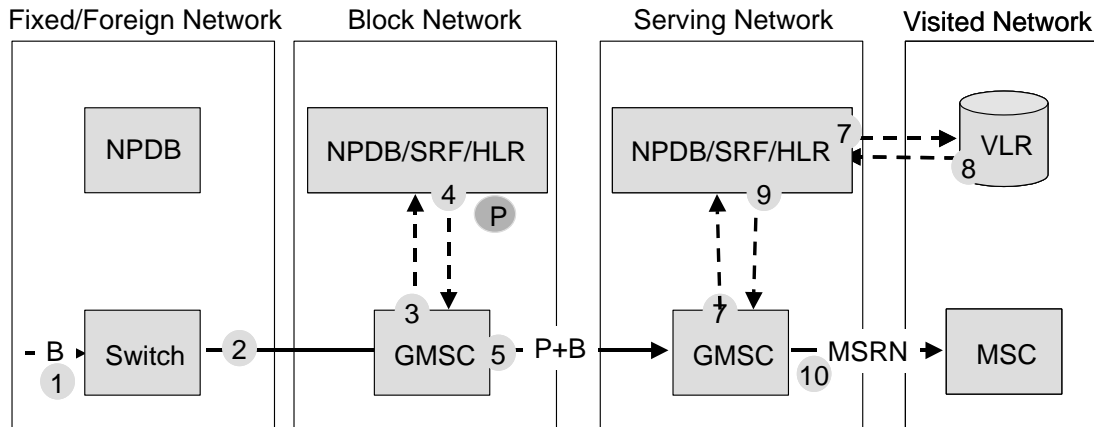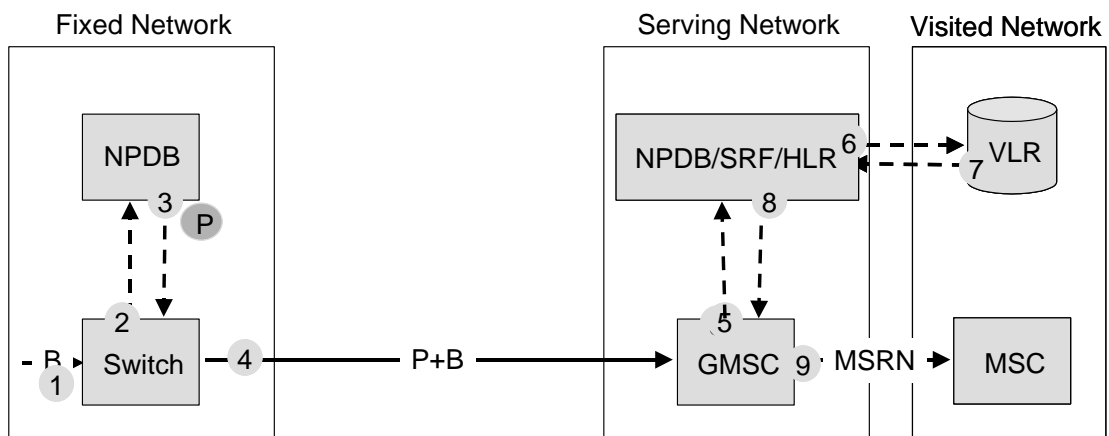Figure A2.6: Call from fixed/foreign (not ACQ), non-ported

Fixed/Foreign Network　　Block Network　　Serving Network　　Visited Network

NPDB | NPDB/SRF/HLR | NPDB/SRF/HLR | VLR

Figure A2.7: Call from fixed/foreign (not ACQ), ported

Fixed Network　　Serving Network　　Visited Network

NPDB | NPDB/SRF/HLR | VLR

Figure A2.8: Call from fixed (ACQ), ported

Annex 3: Call Flows to fixed numbers

The following figures illustrate call and signalling flows for the various different routings and routing options. It should be noted that originating mobile operators in Malta are required to use All Call Query but originating fixed operators are not required to do so, consequently the relevance of the diagrams to a given operator will depend on the options that they select. The relevance of the diagrams will also depend on the availability of interconnections and the corresponding commercial agreements.

The following table shows the scenarios covered. The scenarios are structured in terms of the called number because this is what will be analysed by the networks:

Figure	Calling party	Called number range	Ported	Routing by originating network
A3.1	Fixed subscriber	Same as originating network	No	Not ACQ
A3.2	Fixed subscriber	Same as originating network	No	ACQ
A3.3	Fixed subscriber	Same as originating network	Yes	Both ACQ and not ACQ
A3.4	Fixed subscriber	Other fixed network	No	Not ACQ
A3.5	Fixed subscriber	Other fixed network	No	ACQ
A3.6	Fixed subscriber	Other fixed network	Yes to originator	Not ACQ
A3.7	Fixed subscriber	Other fixed network	Yes to originator	ACQ
A3.8	Fixed subscriber	Other fixed network	Yes to 3rd operator	Not ACQ
A3.9	Fixed subscriber	Other fixed network	Yes to 3rd operator	ACQ
A3.10	Mobile/foreign network	Fixed subscriber	No	Not ACQ
A3.11	Mobile/foreign network	Fixed subscriber	Yes	Not ACQ
A3.12	Mobile network	Fixed subscriber	No	Not ACQ
A3.13	Mobile network	Fixed subscriber	Yes	ACQ

The following conventions are used:
- The only signalling shown is the signalling to interrogate the number portability database. Signalling paths are shown by a dashed line, but simple acknowledgements rather than replies are omitted.
- Call paths are shown by a solid line.
- For mobile networks originating calls, the Signalling Relay Function is not shown.
- The portability prefix is added only by the number portability database not by the switch. In practice the routing prefix for exported numbers may be held on the donor switch but it is shown as held separately in these diagrams. This is not intended to constrain the implementation chosen by the fixed operator and the fixed operator may use an implementation that does not require a number portability database.
- P denotes a routing prefix
- B denotes a call sent to the Called Party Number (MSISDN)

- P+B denotes a call sent to the Called Party Number preceded by the routing prefix
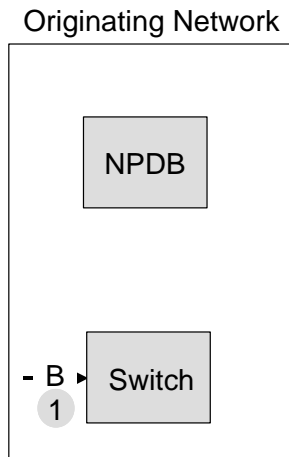- Numbers show the order of events.

Originating Network

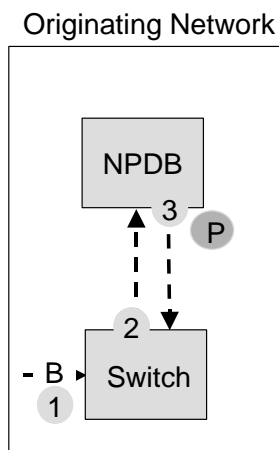Figure A3.1: Fixed (not-ACQ) - fixed, own number range, non-ported

Originating Network

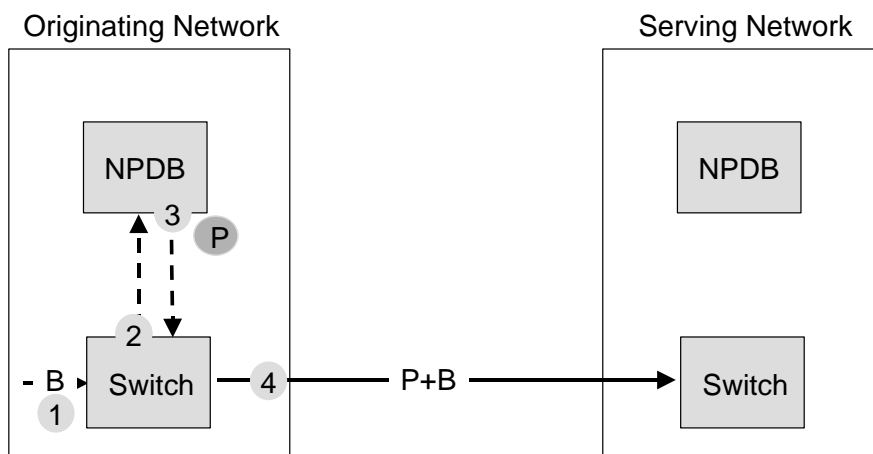Figure A3.2: Fixed (ACQ) - fixed, own number range, non-ported

Originating Network   Serving Network

Figure A3.3: Fixed (ACQ & not ACQ) - fixed, own number range, ported
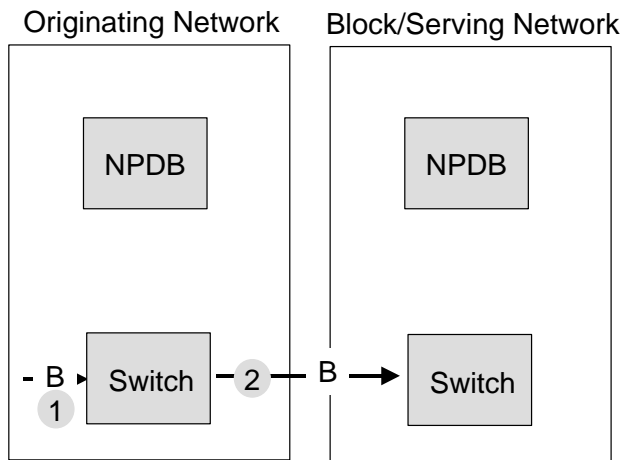
Figure A3.4: Fixed (not-ACQ) - fixed, other number range, non-ported
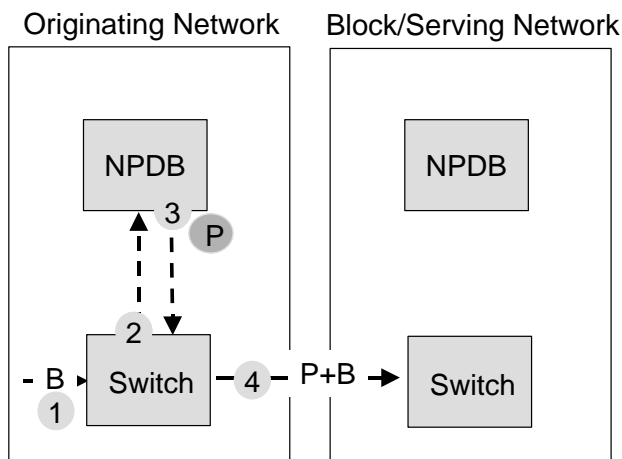
Figure A3.5: Fixed (ACQ) - fixed, other number range, non-ported
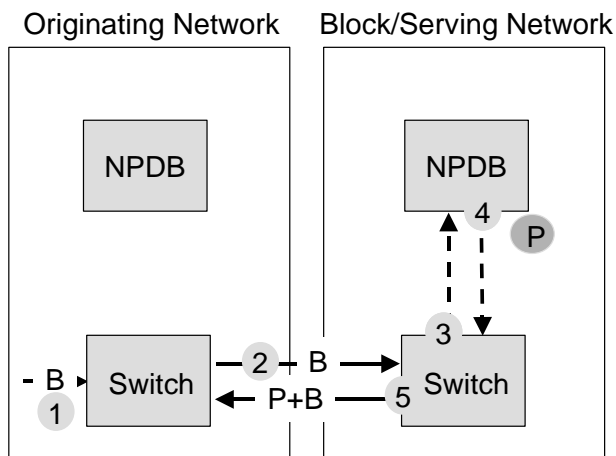
Other #s

Figure A3.6: Fixed (not-ACQ) - fixed, other number range, ported to originator

Originating Network

NPDB

3

P

2

- B ▸ Switch

1
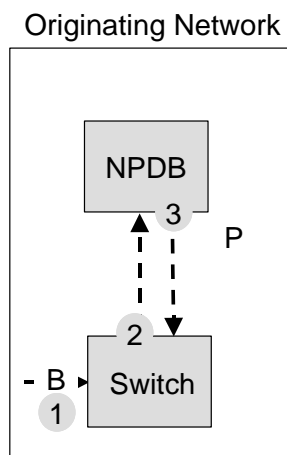
Figure A3.7: Fixed (ACQ) - fixed, other number range, ported to originator

Originating Network   Block Network   Serving Network

NPDB   NPDB   NPDB

4 P

3

- B ▸ Switch · 2 — B ▸ Switch ·5 - P+B ▸ Switch

1
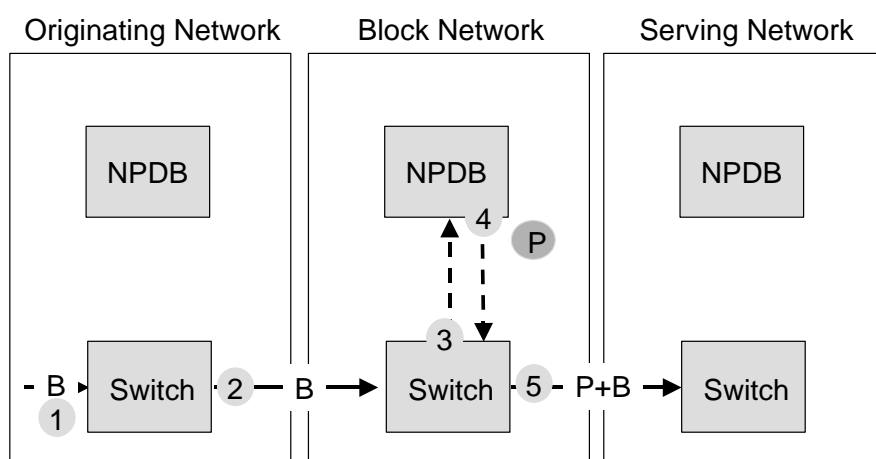
Figure A3.8: Fixed (not-ACQ) - fixed, other number range, ported

Originating Network   Serving Network

NPDB   NPDB

3 P

2

- B ▸ Switch - 4 — P+B ▸ Switch

1
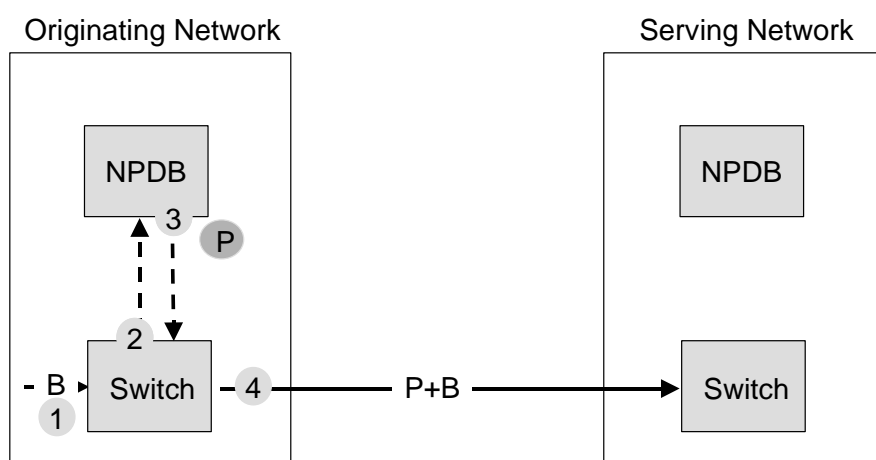
Figure A3.9: Fixed (ACQ) - fixed, other number range, ported

Mobile/Foreign Network Block/Serving Network
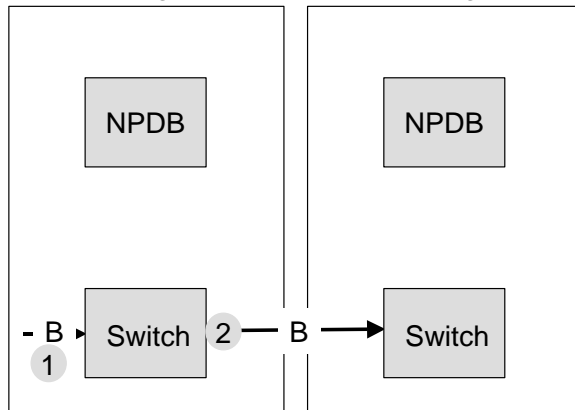
Figure A3.10: Mobile or foreign (not-ACQ) - fixed, non-ported
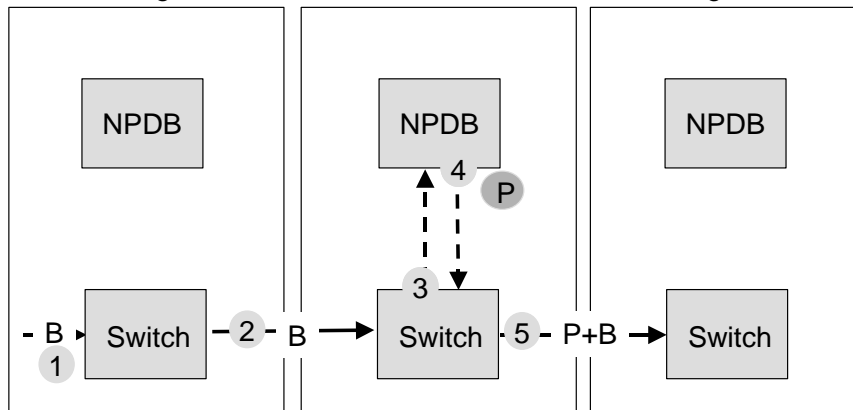
Figure A3.11: Mobile or foreign (not-ACQ) - fixed, ported
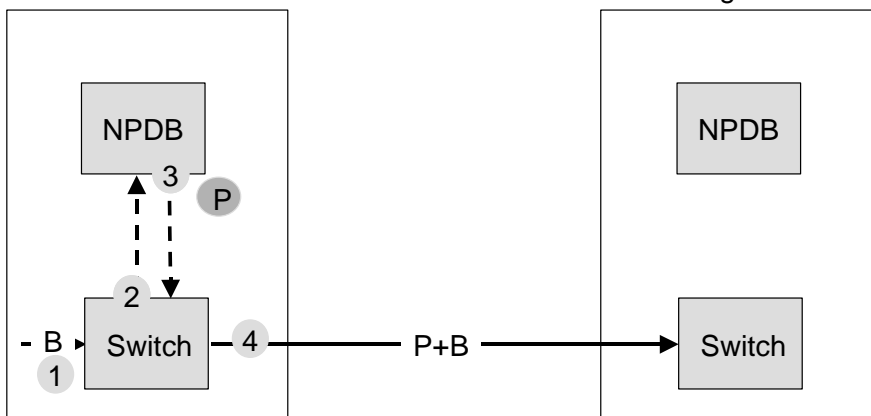
Figure A3.12: Mobile (ACQ) - fixed, ported

Annex 4: SMS Message Flows

The following figures illustrate call and signalling flows for the various different routings and routing options. The relevance of the diagrams will depend on the availability of interconnections and the corresponding commercial agreements.

The following table shows the scenarios covered. The scenarios are structured in terms of the called number because this is what will be analysed by the networks:

Figure	Calling party	Called number range	Ported	Routing by originating network
A4.1	Mobile subscriber	Same as originating network	No	"ACQ"
A4.2	Mobile subscriber	Same as originating network	Yes	"ACQ"
A4.3	Mobile subscriber	Other mobile network	No	"ACQ"
A4.4	Mobile subscriber	Other mobile network	Yes to originator	"ACQ"
A4.5	Mobile subscriber	Other mobile network	Yes to 3rd operator	"ACQ"
A4.6	Foreign mobile subscriber	Malta mobile network	No	Not-ACQ
A4.7	Foreign mobile subscriber	Malta mobile network	Yes	Not-ACQ

The following conventions are used:
- Signalling paths to find the current location of the subscriber and to acknowledge receipt of the SM are shown by a dashed line.
- Signalling that carries the SM is shown by a solid line. This is the Forward SM (FSM) message with the IMSI of the called subscriber, irrespective of it being ported or not.
- The NPDB/SRF/HLR 'cloud' depicts the sub-network of Home Location Register, Number Portability Data Base and Signalling Relay Function. Different operators may have different implementations of this sub-network.
- P denotes a routing prefix
- B denotes an SRI-SM MAP message with the original Called Party Number (MSISDN)
- P+B denotes an SRI-SM MAP message with the original Called Party Number preceded by the routing prefix
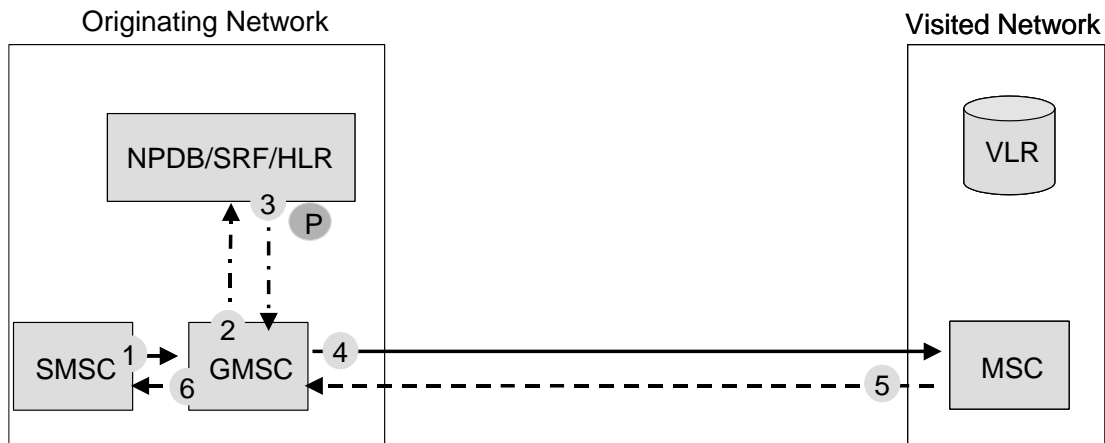- Numbers show the order of events.

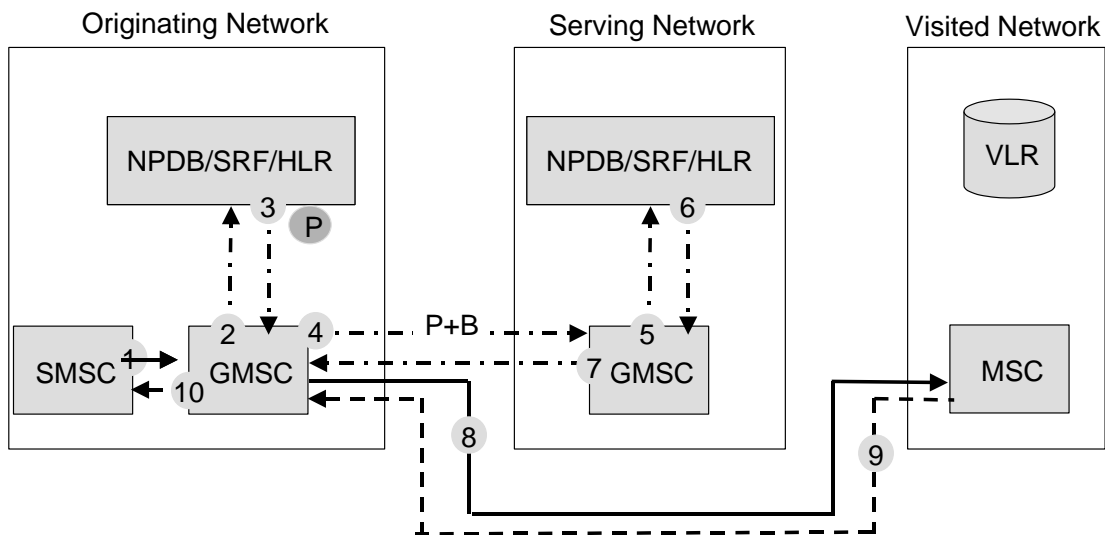Figure A4.1: Own number range, non-ported

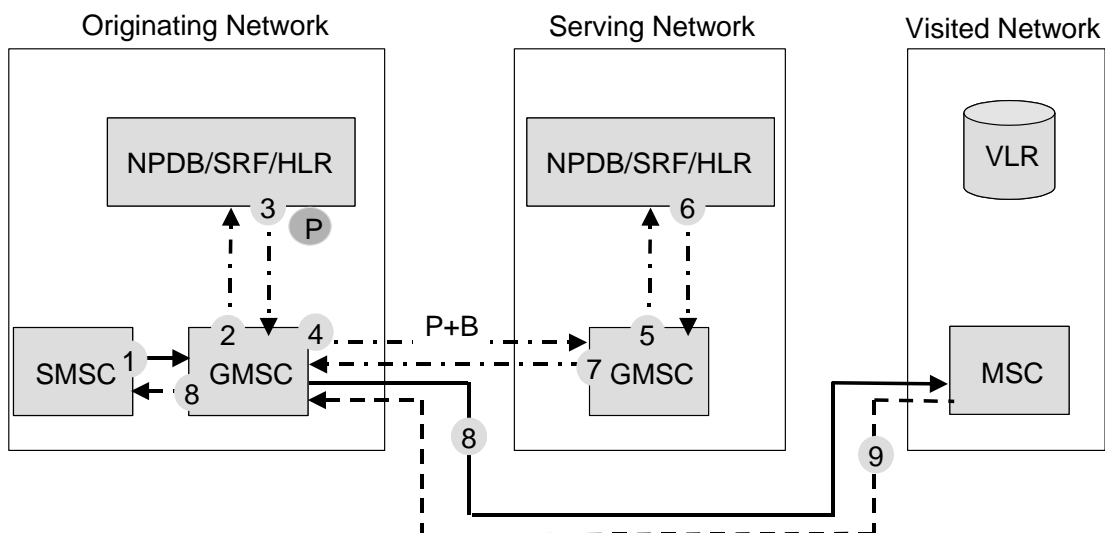Figure A4.2: Own number range, ported
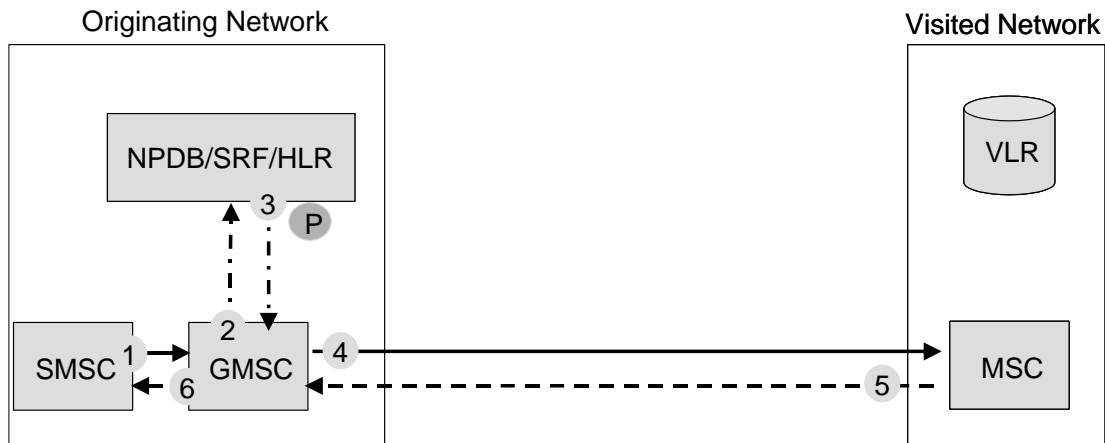

Figure A4.3: Other number range, non-ported

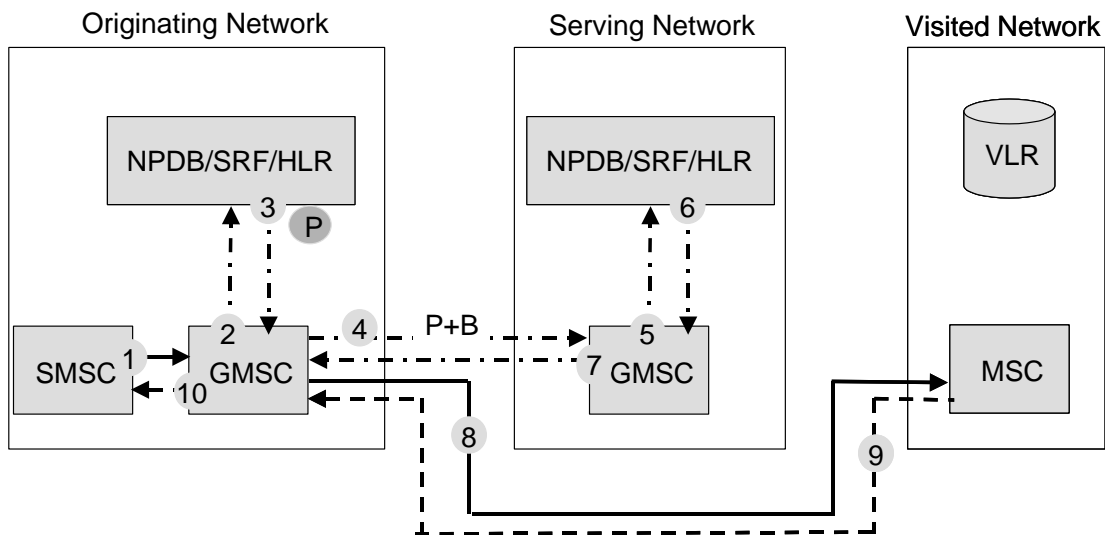Figure A4.4: Other number range, ported to originator, ACQ
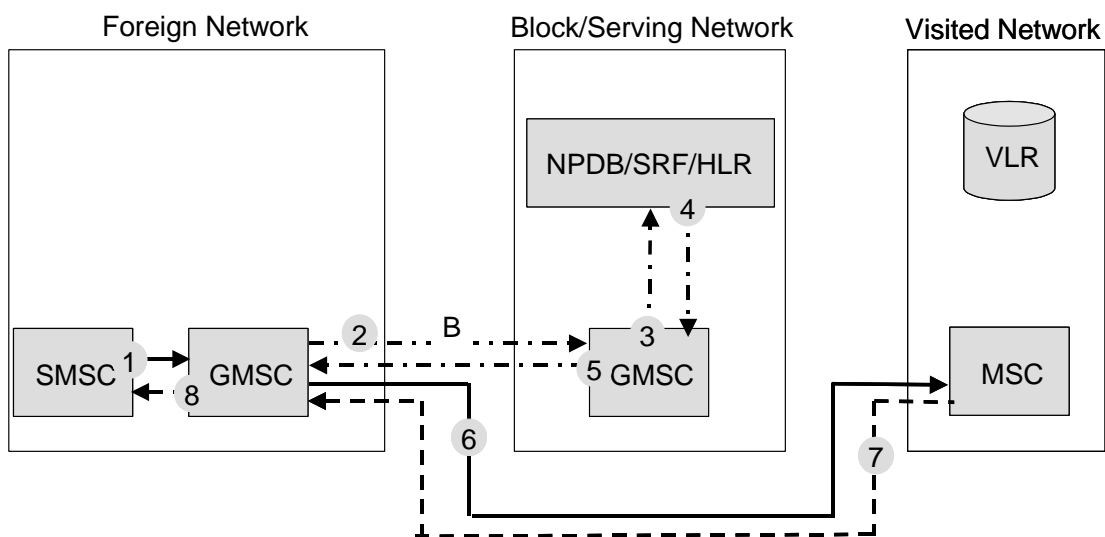
Figure A4.5: Other number range, ported, ACQ
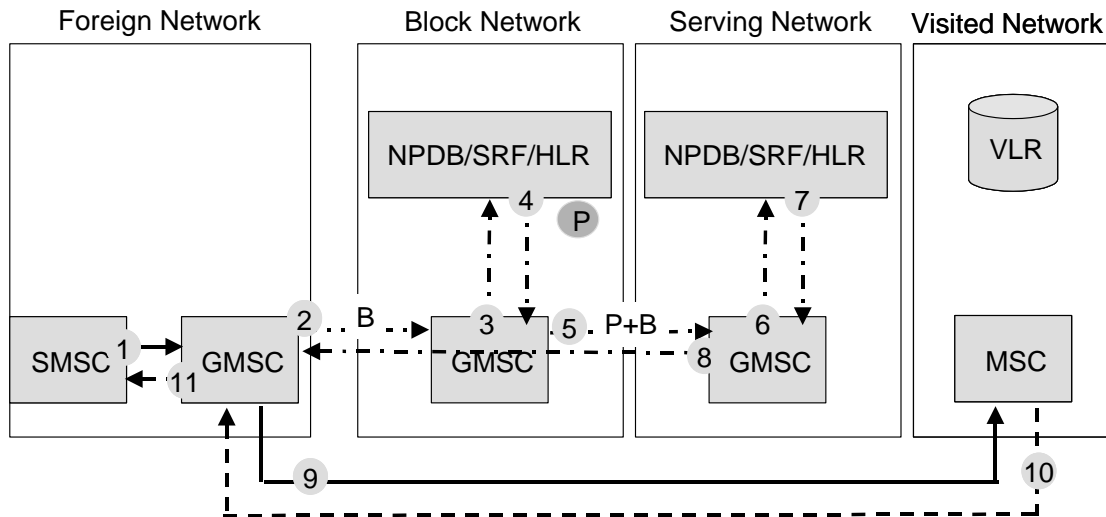
Figure A4.6: International, non-ported

Figure A4.7: International, ported

Annex 5: MMS Message Flows

The following figures illustrate call and signalling flows for the various different routings and routing options. The relevance of the diagrams will depend on the availability of interconnections and the corresponding commercial agreements.

The following table shows the scenarios covered. The scenarios are structured in terms of the called number because this is what will be analysed by the networks:

Figure	Calling party	Called number range	Ported	Routing by originating network
A5.1	Mobile subscriber	Same as originating network	No	N/a
A5.2	Mobile subscriber	Same as originating network	Yes	Same
A5.3	Mobile subscriber	Other mobile network	No	N/a
A5.4	Mobile subscriber	Other mobile network	Yes to originator	"ACQ"
A5.5	Mobile subscriber	Other mobile network	Yes to 3rd operator	"ACQ"
A5.6	Foreign mobile subscriber	Malta mobile network	No	N/a
A5.7	Foreign mobile subscriber	Malta mobile network	Yes	"OR"

The following conventions are used:
- Signalling paths are shown by a dashed line.
- Message paths are shown by a solid line.
- The NPDB/SRF/HLR 'cloud' depicts the sub-network of Home Location Register, Number Portability Data Base and Signalling Relay Function. Different operators may have different implementations of this sub-network.
- P denotes a routing prefix
- Numbers show the order of events.

Notes:
1   MMS is designed for the subscriber to retrieve their messages from their message centre, and does not push the messages to the called party.

3   The routing arrangements are based on Annex H (Recipient MSISDN resolution based on IMSI) of 3G TS 23.140. After the identity of the serving operator has been established a SRI_SMS is sent to the HLR of the serving operator to obtain the IMSI of the called subscriber. The IMSI is then used to determine from a table the fully qualified domain name used for the message centre so that the message can be forwarded over an IP-based network, normally the GPRS Routing Exchange (GRX).

3   The diagrams do not show the acknowledgement sent back to the originating MMSC on receipt of the message by the serving MMSC.
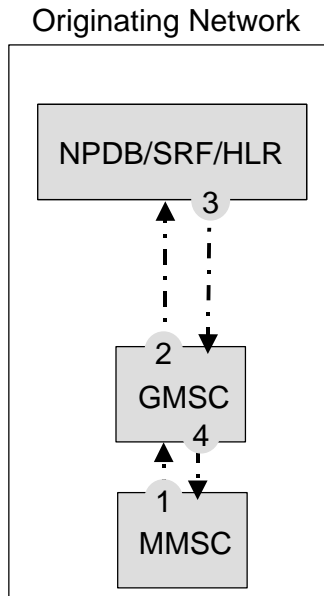
Originating Network

Figure A5.1: Own range, non-ported

Originating Network   Serving Network
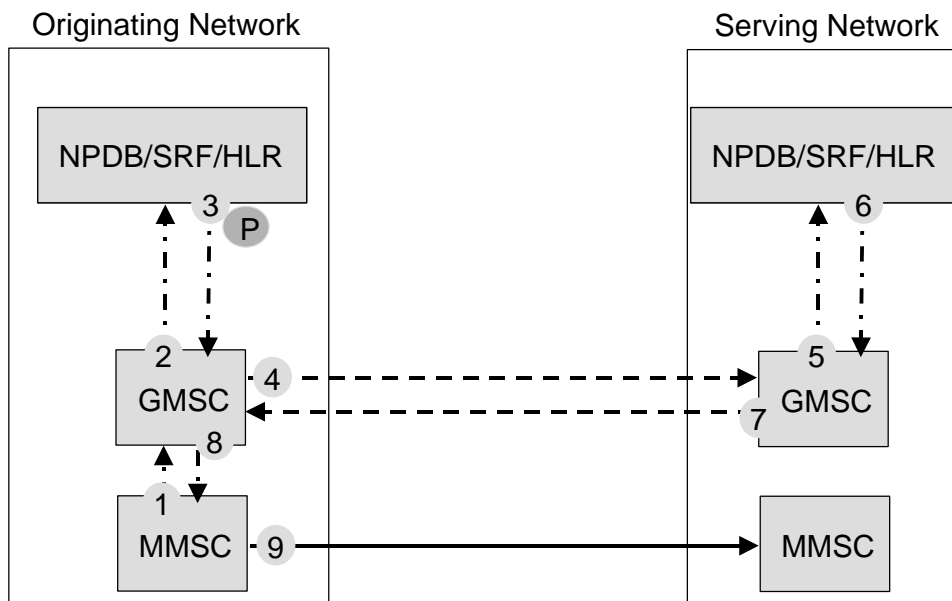

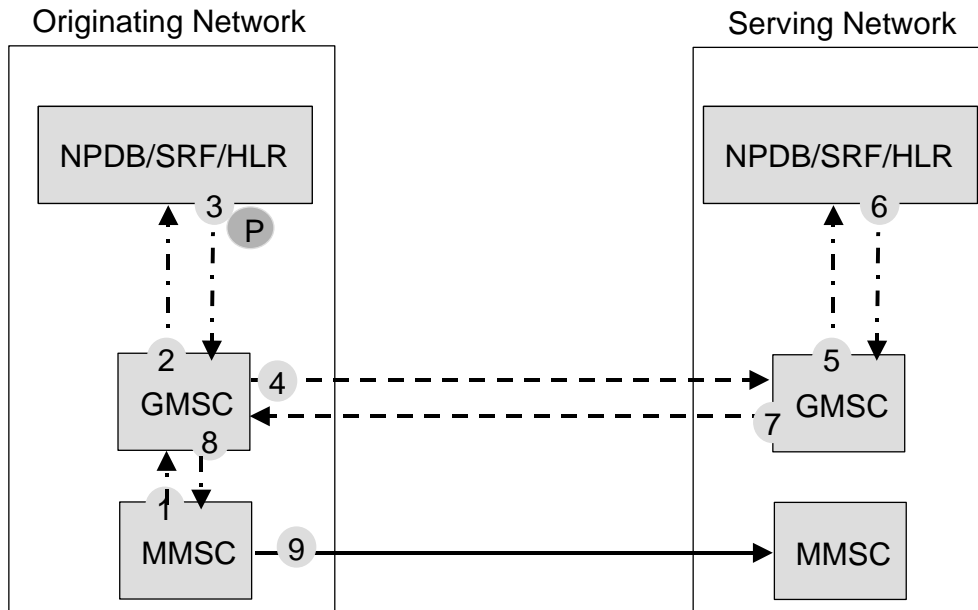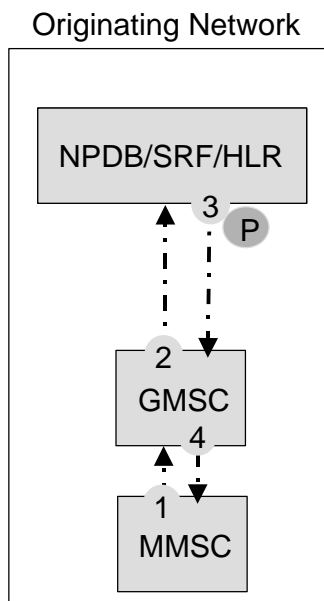Figure A5.2: Own range, ported

Figure A5.3: Other range, non-ported

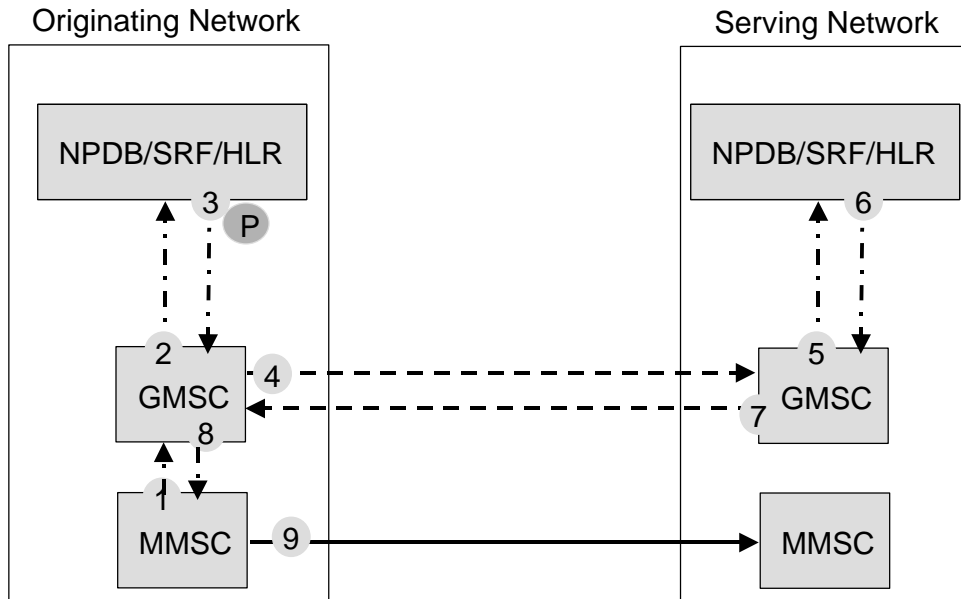Figure A5.4: Other range, ported to originator, ACQ
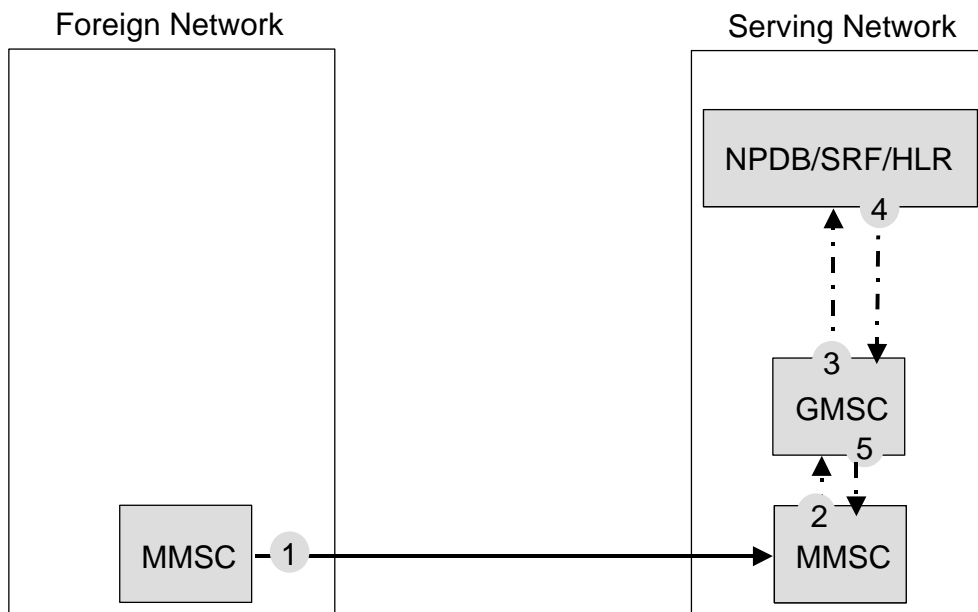
Figure A5.5: Other range, ported, ACQ

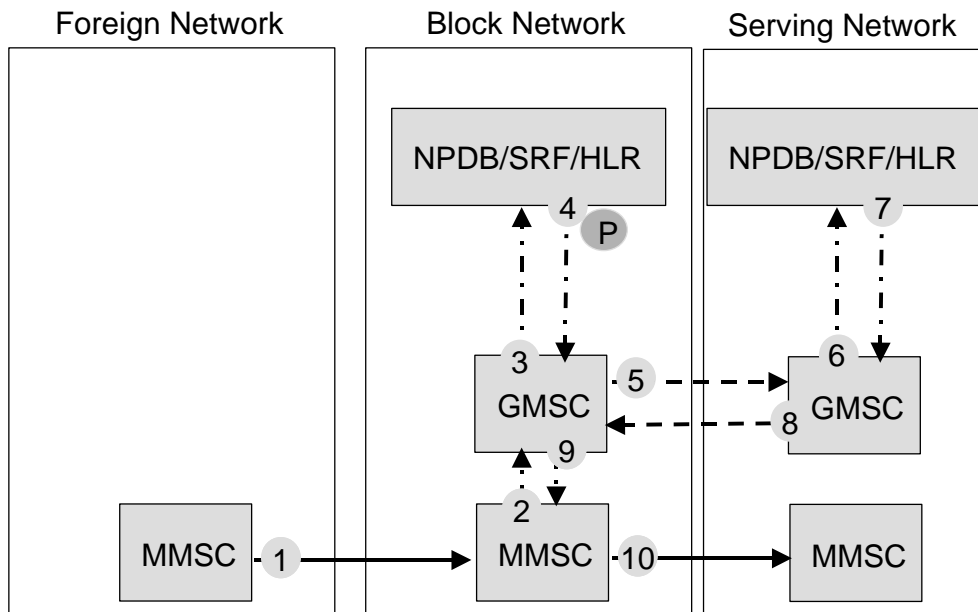Figure A5.6: International, non-ported

Figure A5.7: International, ported

Annex 6: Porting between two operators other than the block operator

Figure A6-1 shows the routing arrangements for calls before the subsequent porting, ie the arrangements established by the first porting. Alternatives are shown for originating operators who use All Call Query (direct routing) and ones who rely on the Onward Routing provided by the block operator.
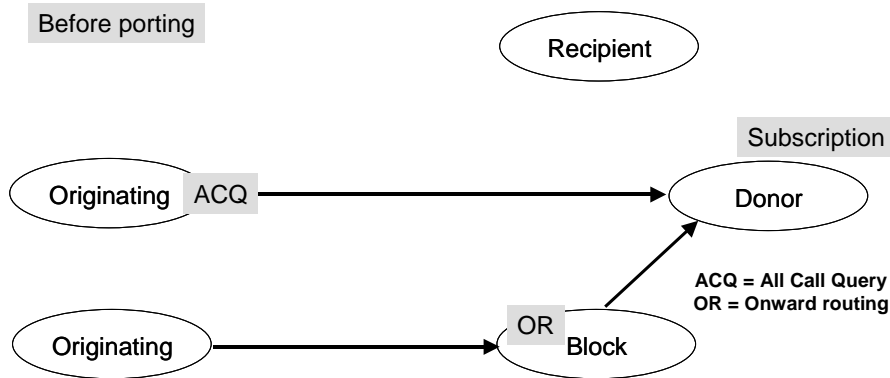

Figure A6-1: Routing of calls before subsequent porting

The porting process is designed so that the block operator and operators who use ACQ will be able to update their routing before the donor operator deactivates the number and hence before onward routing starts.

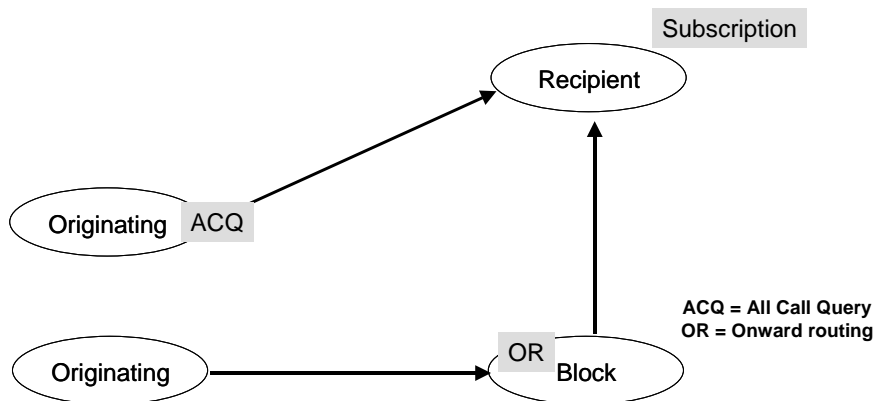Figure A6-2 shows the scenario after porting. The donor operator no longer has any involvement in the routing.

Figure A6-2: Routing of calls after porting.