

**DRAFT DECISION**  
**on the adoption of the technical and commercial terms for the**  
**implementation of number portability**

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On grounds of the Decision no.234/2006 of the Prime-Minister on appointing Mr. Dan Cristian Georgescu President of the National Regulatory Authority for Communications and Information Technology,

On grounds of art.6 paragraph (1) point 7 and of art.7 paragraphs (1), (3) and (5) of the Government Emergency Ordinance no. 134/2006 on the establishment of the National Regulatory Authority for Communications and Information Technology, as well as of art.28 of the Law no.304/2003 on the universal service and users' rights relating to the electronic communications networks and services, with the subsequent amendments and completions,

Taking into account the provisions under the ANRC's President Decision no.144/2006 on the implementation of number portability,

Taking into account the proposal of the working group provided under art.23 paragraph (1) of the ANRC President's Decision no.144/2006,

**THE PRESIDENT OF THE NATIONAL REGULATORY AUTHORITY FOR  
COMMUNICATIONS AND INFORMATION TECHNOLOGY**

issues the present:

**DECISION  
on the adoption of the technical and commercial terms for the  
implementation of number portability**

Art.1. – The technical and commercial terms for the implementation of number portability, established under the annex that is part of this decision, are hereby adopted.

Art.2. – The present decision shall be published in the Official Romanian Journal, Part I, and shall enter into force on the date it is published.

**PRESIDENT  
DAN CRISTIAN GEORGESCU**

Bucharest, February 2007  
No. / EN

# ANNEX

## TECHNICAL AND COMMERCIAL TERMS FOR THE IMPLEMENTATION OF NUMBER PORTABILITY

### 1. INTRODUCTION

#### 1. Overview

Number portability gives a subscriber the possibility to keep his/her telephone number, upon request, while shifting to another provider of publicly available telephone services.

In order to implement number portability, the providers of publicly available electronic communications services shall take specific measures of technical, operational, and administrative nature. Moreover, all these activities must be correlated at national level.

The technical and commercial terms for the implementation of number portability, hereinafter called "Technical and commercial terms", shall apply both to the providers of publicly available telephone services who have the obligation to ensure, upon request, geographic or non-geographic number portability for their subscribers, as the case may be, and to the providers of publicly available electronic communications services originating calls. The present document establishes a set of rules to be observed in view of carrying out the porting process and the routing of call towards ported numbers, in a harmonised manner, at national level.

#### 1.2. Definitions and abbreviations

##### 1.2.1. Definitions

The following terms are defined as follows:

a) serving exchange – the exchange which realises the operational database query in order to establish whether an number is ported and to retrieve the routing number;

b) gateway – the exchange at which is realised the interconnection between 2 public electronic communications networks;

c) operational database – the database which contains ported numbers and the associated routing numbers. Operational database queries are made in real-time by operators through the signalling system in order to retrieve the routing information corresponding to the acceptor network.

Within the technical and commercial terms for the implementation of number portability, the definitions provided by art.2 of the ANRC President's Decision no.144/2006 on the implementation of number portability shall apply.

##### 1.2.2. Abbreviations

The following abbreviations are used within the technical and commercial terms:

A - Subscriber

ACQ - All Call Query

AF - Other providers of publicly available electronic communications services that are involved in implementing number portability but do not have, at a given

moment, the capacity as a FA or FD  
BDOP - Operational database of a fixed or mobile telephony provider  
BDC - Central Database  
CAA - Subscriber cancellation standard request  
CdPA - Called party address  
CgPA - Calling party address  
CdPN - Called Party Number  
CLI - Calling Line Identity  
COLP - Connected Line Presentation  
CPA - Subscriber porting standard request  
DN - Directory Number  
FA - Acceptor provider  
FD - Donor provider  
FDi - Initial donor provider  
FO - Provider originating calls  
FT - Transit provider  
FTI - International transit provider (provider operating the gateway for international traffic)  
FV - Visited provider  
FI - International provider  
GW - Gateway  
GMSC - Gateway MSC  
HLR - Home Location Register  
IAM - Initial Address Message  
IN - Intelligent Network  
LURN - License for the use of numbering resources  
MAP - Mobile Application Part  
MATF - Mobile Application Part Termination Function  
MNP - Mobile Number Portability  
MMS - Multimedia Message Service  
MMSC - Multimedia Message Service Centre  
MSC - Mobile Switching Centre  
MSISDN - Mobile Station ISDN  
MSRN - Mobile Station Routing Number  
NP - Number Portability  
OpBDC - Operator of the central database  
OR - Onward Routing  
PI - Point of interconnection  
RN - Routing Number  
SCCP - Signalling Connection Control Part  
SMS - Short Message Service  
SMSC - Short Message Service Centre  
SMS-GMSC - Gateway for SMS  
SRF - Signalling Relay Function  
SRI\_SM - Signalling Relay Information for Short Message  
SRI\_SM ACK - Signalling Relay Function for Short Message Acknowledged  
TLE - Terminal Local Exchange  
VLR - Visitor Location Register  
VMSC - Visited MSC

### **1.3. Standards and recommendations**

Within the technical and commercial terms for the implementation of number portability, the following standards and recommendations were taken into account:

1. ETSI TR 101 119 - Network Aspects (NA); High level description of number portability
2. ETSI TR 102 081 - Network Aspects (NA); Number portability Task Force (NPTF); Signalling requirements for number portability
3. ETSI EN 301 716 - Digital cellular telecommunications system (Phase 2+); Support of Mobile Number Portability (MNP); Technical Realisation
4. ITU-T Q.763 - Signalling system No.7 – ISDN User Part Formats and Codes
5. ITU-T I.130 - Method for the characterization of telecommunication services supported by an ISDN and network capability of an ISDN
6. ITU-T Q.850 - Usage of cause and location in the DSS1 No.1 and SS No.7 User Part
7. ETSI TS 123 140 – Digital Cellular Telecommunications System(Phase 2+); Universal Mobile Telecommunications System (UMTS); Multimedia Messaging Service (MMS); Functional description; Stage 2 (3 GPP TS 23.140).

## **2. THE PORTING REQUEST**

### **2.1. Service description**

A subscriber's shift to another provider of publicly available telephone services does not necessarily involve the porting of the respective number. The number shall not be ported unless the subscriber submits a written porting request therefor. The porting request is the document by which the requester mandates the FA provider to perform all the procedures required for the termination of the contract between the respective subscriber and the FD (donor provider) regarding the provision of telephone services through the respective number.

Upon porting a number, the contractual relationships between the subscriber and the FD regarding the provision of telephone services through the respective number shall cease.

The contract concluded with the FD shall cease on the date when the porting is carried out. The contract between the requester and the FD shall be terminated under the terms provided in the respective contract. The requester must observe the obligations, provided in his/her contract with the donor provider, that occurred and were not fulfilled prior to the contract termination.

Following the porting process, the requester shall keep his/her number, whereas the service is provided by the FA, according to a service contract concluded between the FA and the subscriber. Before the contract with FD is terminated, FA will conclude with the subscriber a contract regarding the provision of telephone services through the ported number.

Upon receiving the porting request, the FA shall initiate and monitor the porting process and shall inform the requester upon this process.

### **2.2. The porting request**

The FA is responsible for carrying out the porting process.

The FA may not reject a porting request unless he refuses to connect the requester and to provide publicly available telephone service to him/her, under the legal provisions.

The porting request may contain a set of information regarding the subscriber who requests the porting process and the number/numbers for which the porting is

requested, as well as a set of information regarding the progress of the porting process and the effects of porting the number on service provision. The format of the porting request is presented in Annex 1, which is a part of the technical and commercial terms.

Taking into account the fact that there are cases when porting may be refused, as many applicable criteria as possible should be checked upon the entry of the porting request. Thus, before approving the porting request, the FA shall check whether:

- the requester is the holder of the service provision contract or the legal representative of the requester;
- the number/numbers for which porting is requested is/are the object of the contract concluded between the subscriber and the respective FD;
- the number/numbers for which porting is requested is/are included in number blocks that are portable.

In order to obtain all the necessary information (by filling in the porting request form by the subscriber requesting the porting) and to certify the data in view of validating the request, FA may require identity documents, invoices, statements on one's own responsibility and, in the case of porting non-geographic numbers for mobile telephony services, may check the series of the SIM card or the number envisaged by the porting request based on the CLI (in case of the numbers used to provide mobile telephone services for which the calls payment is made in advance) etc.

The procedure for submitting and validating the porting request shall be established by each provider of publicly available telephone services and shall be made publicly available.

FA shall establish – in agreement with the subscriber – the timeline within which the number/numbers may be ported. The porting term should not exceed 3 days - usually, between the 7th and the 9th day from the date of submitting the request.

The porting deadline may not be set on a date exceeding the 9th day, unless the subscriber requests that the number be ported within a longer period or the FA has a longer regular period of connecting the subscriber and starting the provision of the publicly available telephone services. The porting deadline is of maximum 30 working days from the date of a subscriber's submitting the porting request.

The porting date shall be set in the format: " year, month, day, hour".

After the porting request is validated, the FA shall send to the OpBDC the information required for the porting process, in an electronic format, in accordance with the present document. A copy of the porting request shall be made available for the FD only upon his justified request, in cases well established, as in case of porting requests considered abusive. Correspondence will be carried out via post, fax or e-mail. FA will send to FD a copy of the porting request within 2 working days from the date of receiving a request therefor.

In case an abusive porting is carried out, the subscriber shall be ported back to the FD and FA shall pay to FD the costs driven by the porting of the respective number and shall be deemed responsible for the prejudice caused to the subscriber, should it be the case.

When the FA refuses the porting or does not validate the porting request, he has the obligation to keep record of the respective requests, mentioning the justification for the refuse in case of each of these requests, as well as to making this record available to the National Regulatory Authority for Communications and Information Technology (hereinafter called ANRCTI), upon request.

FA shall inform the requester on the fact that, by filling in the porting request, he mandated the FA to take the necessary steps in order to terminate the contract for service provision through the number/numbers for which the porting is requested, concluded between the subscriber and the FD.

FA has the obligation to inform the subscriber, upon receiving the confirmation from the FD, on the moment of completing the porting process, at least 24 hours

before the initial moment of the porting deadline, which was set out by the porting request.

The porting request may be cancelled only by the holder of the service contract, by submitting a request therefor (cancellation request), not later than 24 hours before the initial moment of the porting deadline, which was set out by the porting request. The standard format of the cancellation request is mentioned in Annex 1a, which is part of the technical and commercial terms.

If a cancellation request is received after the above mentioned moment, the porting shall be completed. Another porting process will be initiated, upon the subscriber's request, in order for the number to be ported back to the FD (the porting request shall be submitted to the FD, who thus becomes FA).

If a subscriber requests to amend his porting request, the initial request shall be cancelled and a new porting process shall be initiated.

The following numbers may be subject to porting requests:

- a) individual numbers assigned to subscribers (for voice, fax or data transmission services);
- b) multiple numbers or blocks of numbers assigned to subscribers.

A subscriber who requests for porting shall fill in a porting request for each of the following situations:

- 1. porting of an individual number;
- 2. porting of several individual numbers, which the subscriber wants to be ported together;
- 3. porting a block of numbers.

If a subscriber requests for several individual numbers to be ported fills in a single form, during the administrative porting process the FA shall send the FD a set of correlated porting requests, one for each individual number.

### **3. TECHNICAL SPECIFICATIONS FOR IMPLEMENTING NUMBER PORTABILITY**

#### **3.1. General provisions**

The technical specifications describe the requirements imposed on the electronic communications networks and services providers in view of routing calls and other messages (which are not linked to establishing calls) given the implementation of number portability.

The technical specifications include:

- a) the obligations of the electronic communications networks and services providers regarding the implementation of number portability;
- b) detailed description of number portability, by categories of portable numbers;
- c) routing of calls, given the implementation of number portability;
- d) routing numbers, transmission manner and format of the routing information on the technical interfaces between networks;
- e) impact of number portability on the quality of the provided services;
- f) impact of number portability on the services afferent to the provided services;
- g) data exchanged by means of the administrative interface, required for updating the routing information.

#### **3.2. The obligations of the electronic communications networks and services providers regarding the implementation of**

## **number portability**

In order to implement number portability, the providers of publicly available telephone services must comply with two types of obligations:

1. obligation to offer the subscribers, upon request, the possibility of porting the assigned numbers;
2. obligation to route the calls to the ported numbers.

The providers of publicly available telephone services shall be the only providers to have the obligation to offer the subscribers the possibility of porting the assigned numbers from one provider to another provider of publicly available telephone services (PATS). The fact that the obligation to offer number portability to their own subscribers is incumbent only on the PATS providers triggers a distinction between these and the providers of other publicly available electronic communications services (ECS), which are not within the scope of PATS. According to the legal provisions, the features of the publicly available telephone services are the following:

- a) allows initiating and receiving national and international calls;
- b) allows access to the emergency services;
- c) uses numbering resources from the National Numbering Plan (PNN) or from an international numbering plan.

The acceptor provider must hold a LURN for the category of numbering resources containing the numbers which they intend to overtake following the porting process.

In order to make the routing of calls to their destination possible, the FA shall conclude interconnection agreements with the FDs who have been allotted, by a LURN, the numbering blocks containing the numbers which they intend to overtake following the porting process.

The providers who have the obligation to ensure the routing of calls to the ported numbers are the following:

- a) providers who have the obligation to offer their own subscribers the number portability service (FD, FA);

- b) other providers who originate calls to numbers which are part of the portable blocks of numbers in the PNN:

1. providers of publicly available electronic communications services (ECS, not PATS), who hold blocks of numbers in the PNN, but do not have the obligation to ensure number portability for their own subscribers;
2. providers selected or pre-selected at national level (one- or two-step carrier selection through carrier selection codes);
3. providers who offer services by means of national non-geographic numbers in the domains 0Z = 08 and 0Z = 09;
4. providers who operate switches or gateways receiving international calls to be terminated in the public electronic communications networks in Romania.

Compliance with the obligations related to the implementation of number portability depends on the existence of direct or transit interconnection agreements or on other commercial agreements, for the categories of portable numbering resources, concluded between the providers involved in the number porting process (the provider originating calls, the FA, the FD, the transit provider or other third party provider).

### **3.3. Description of the number portability service**

Number portability shall apply to the numbers in the PNN defined in accordance with Recommendation ITU-T E.164 – International numbering plan for public telecommunications services. The numbers in the following categories of numbering resources in the PNN are portable:

- a) national geographic numbers in the 0Z = 02 and 0Z = 03 domains allotted to



the providers of publicly available telephone services;

b) national non-geographic numbers in the 0Z = 07 domain allotted to the providers of publicly available telephone services, irrespective of the payment method ("post-paid" or "prepaid");

c) national non-geographic numbers in the 0Z = 08 domain for various services, allotted to the providers of publicly available telephone services, in the following sub-domains:

1. 0ZAB = 0800 (green numbers);

2. 0ZAB = 0801 (universal access numbers);

3. 0ZAB = 0802 (universal personal numbers);

d) national non-geographic numbers in the 0Z = 09 domain for Premium Rate services, allotted to the providers of publicly available telephone services.

Numbers used exclusively within one network, as well as any other numbering resources that are not part of the PNN (e.g. IMSI numbers) are not portable.

The PNN destination of the ported numbers may not be changed.

Number portability shall apply to:

a) individual numbers assigned to subscribers;

b) multiple numbers assigned to subscribers (e.g. for ISDN-BRA services);

c) sets of numbers used within private electronic communications networks (assigned for PBX equipments or for ISDN-PRA services).

#### 3.3.1. Portability of geographic numbers (PNG)

Portability of geographic numbers consists of a subscriber's possibility to keep his/her assigned geographic number, at a certain geographic location, while shifting to another provider of publicly available telephone services.

The general form of the national geographic number is 0ZABPQMCDU. In the PNN, geographic numbers are comprised in the numbering domains 0Z = 02 and 0Z = 03. A certain geographic area (one county, the municipality of Bucharest and the county of Ilfov) is identified by means of 2 geographic area codes: 0ZA(B) = 02A(B) and 0ZA(B) = 03A(B).

Number portability allows a subscriber who has been assigned a number in the 0ZA(B) = 02A(B) domain to request the porting of his/her number both to a provider who has been allotted numbering resources in the 0ZA(B) = 02A(B) domain and to a provider who has been allotted numbering resources in the 0ZA(B) = 03A(B) domain. Similarly, a subscriber who has been assigned a number in the 0ZA(B) = 03A(B) domain may request the porting both to a provider who has been allotted numbering resources in the 0ZA(B) = 03A(B) domain and to a provider who has been allotted numbering resources in the 0ZA(B) = 02A(B) domain.

The FD and the FA shall offer services within the same geographic area and shall have been allotted – through a licence – blocks of geographic numbers within the same geographic area, irrespective of the fact whether they are in one domain or in several domains.

For technical reasons, only certain blocks of geographic numbers allotted to a provider will contain portable numbers, during the initial stage of the number portability implementation. Thus, porting is not possible for geographic numbers assigned to the terminal points connected to the digital exchanges - the characteristics of which do not allow for the acquisition of software adequate for the implementation of number portability -, to the analogical and manual exchanges - until they are replaced -, but not later than January 1, 2008. Also, some of the geographic numbers allotted to certain providers of publicly available electronic communications services (ECS), who do not offer publicly available telephone services (PATs), may not be ported.

All the blocks of geographic numbers containing portable numbers shall be published on the website of the ANRCTI and on the website of the central database

operator (OpBDC).

The providers may assign their subscribers one or several numbers. If several geographic numbers are assigned, the following situations may occur:

1. different numbers assigned to a subscriber, on individual lines (analogical or by other technologies) for telephone, data transmission and fax services (numbers that are independent from one another);
2. multiple subscriber numbers (MSN). The service provision is usually performed by means of ISDN-BRA access. These numbers include a main number (whose CLI is transmitted within the network) and maximum 10 numbers;
3. set of numbers assigned for PABX, used for directly dialling PABX (DDI) extensions. The provision of services shall be performed by ISDN-PRA access. This set may be associated with a main number (whose CLI is transmitted within the network);
4. set of "hunting" numbers assigned for PBX, irrespective of the type of the access link. This set is associated with a main number (whose CLI is transmitted within the network). Usually, the main number is dialled for access to the PBX, while access to the PBX extensions may be performed by an operator or by using two-step dialling.

*Porting rules:*

In case of several various numbers assigned to a subscriber and of multiple subscriber numbers (MSN), one may require the individual, partial or full porting of the respective numbers. In case of the individual or partial porting of the MSN numbers, no restrictions regarding the main number shall be applied.

In case of sets of numbers assigned for PBX/PABX, partial or full porting may be requested, as follows:

- a) a minimum portable set includes 10 numbers;
- b) for PBX/PABX that serve sets of tens of numbers, the porting of X sets of 10 numbers each is allowed, as is full porting;
- c) for PBX/PABX that serve sets of hundreds of numbers, the porting of Y sets of 100 numbers each is allowed, as is full porting;
- d) for PBX/PABX that serve sets of thousands of numbers, the porting of Z sets of 1,000 numbers each is allowed, as is full porting.

The sets of portable numbers are sequences of numbers, the first of which ending by 0, 00 or 000.

In case of successive porting processes, the sets of ported numbers shall stay as a whole.

3.3.2. Portability of non-geographic numbers for various services and Premium Rate services (PNNG)

The portability of non-geographic numbers (PNNG) consists of a subscriber's possibility to keep his/her non-geographic number, at any geographic location, when shifting to another provider of publicly available telephone services.

PNNG shall apply to the non-geographic numbers provided in the PNN, in the following domains:

- 0ZAB = 0800 (green numbers);
- 0ZAB = 0801 (universal access numbers);
- 0ZAB = 0802 (universal personal numbers);
- 0ZAB = 0900, 0ZAB = 0903, 0ZAB = 0906 (Premium Rate services).

The porting of non-geographic numbers does not involve the porting of the corresponding numbers assigned to the network terminal points where the service provided through the non-geographic number whose porting was requested is offered.

*Porting rules:*

In case of non-geographic numbers for various services and for Premium Rate

services, there may be requested only the individual porting of a number.

### 3.3.3. Portability of mobile non-geographic numbers (PNM)

The portability of non-geographic numbers for mobile telephone services (PNM) refers to the possibility of a subscriber to these services to keep an E.164 (MSISDN) number while shifting to another provider of publicly available telephone services. The numbers used for the provision of 2G mobile telephone services are portable numbers, as are the numbers used for the provision of 3G mobile telephone services. The numbers used for the provision of prepaid services and the ones used for fax and data transmission services are also portable.

The numbers by means of which prepaid services are provided shall not be portable if, from/to the respective numbers, no call has been originated/received.

PNM shall observe the principle of technological neutrality. For example, no distinction shall be made between GSM and CDMA; thus, a GSM subscriber could be ported to a provider using the CDMA technology and vice versa, and a 2G subscriber could be ported to a provider using the 3G technology and vice versa.

All the numbering blocks in the 0Z = 07 domain contain portable numbers.

In view of assigning multiple numbers/sets of numbers in the 0Z = 07 domain, the following cases may occur:

- a) multiple numbers/sets of numbers assigned to a subscriber, on SIM cards or other equipments, including VPN;
- b) multiple numbers, assigned to a subscriber for voice, data transmission and fax services on one SIM (these are numbers independent from one another, but associated to one SIM);
- c) GSM gateway numbers (premicell – GSM gateway) assigned to subscribers, who can receive calls (the respective CLI in the network is presented) or cannot receive calls (the CLI is not presented);
- d) multiple numbers/sets of numbers used for PABX.

#### *Porting rules:*

In case of multiple numbers/sets of numbers assigned to a subscriber, on SIM cards or other equipments, including VPN, individual, partial or full porting of the respective numbers may be requested.

In case of multiple numbers assigned to a subscriber for voice, data transmission and fax services on one SIM, individual, partial or full porting of the respective numbers may be requested. If a subscriber requests only the telephone number to be ported, the FD will decide whether he continues providing the data transmission and the fax services.

In case of number sets assigned for PABX, the rules available for geographic numbers shall apply. The numbers assigned to the GSM gateway that cannot receive calls shall not be ported.

## **3.4. Routing calls**

### 3.4.1. General provisions

The provision of services by means of the ported numbers requires a series of changes in the networks, mainly for the purpose of ensuring the correct routing of the originated calls to the ported numbers.

A call shall be routed to the called number based on analysing the digits in the respective directory number (DN). DN is transmitted by means of the CdPN (Called Party Number) parameter of the IAM (Initial Address Message) in the SS7 signalling system (Recommendation ITU-T Q.763). If number portability does not apply, the first

digits in the DN structure (the national prefix, the national destination code and the digit sequence identifying the block of numbers allotted by means of a LURN to a certain provider) are used for providing information for routing the call to the destination network. The number of analysed digits is different in various categories of numbers.

In case of geographic numbers, the ZABPQ group usually identifies a local exchange in the PSTN/ISDN network or a provider in a certain geographical area.

In case of non-geographic numbers for mobile telephone services, ZA identifies a mobile telephony services provider.

The other digits in the sequence are usually used, in the destination network, by the local exchange, in the E.164/IP translation process (for IP networks), or by the subscriber directory (HLR, VLR).

In case of non-geographic numbers in the 0Z = 08 and 0Z = 09 domains, there are two call routing methods:

A. when a call is initiated to a non-geographic number belonging to another provider than that in whose network the call was initiated, the 0ZABPQ(M) sequence is analysed and the point of interconnection (with the provider to whom the respective non-geographic numbers were allotted by LURN) is identified. The call shall be directed to the identified interconnection point, whereas the provider to whom the respective non-geographic number has been allotted routes the call using a number corresponding to the terminal network point;

B. when a call is initiated to a non-geographic number allotted to the provider in whose network the call was initiated, the routing is performed by means of a number corresponding to the call termination point, through an intelligent platform (IN).

After the implementation of number portability, the analysis of the digit sequence consisting of the national prefix, the national destination indicative and the group of digits, that identify the block allotted by means of a LURN, in the called number, shall not suffice anymore for identifying the destination network of the ported number, and – therefore – the signalling messages must include additional routing information.

In this case, the networks participating in the routing of calls must fulfil the following portability-specific functions:

1. establish a mechanism in order to identify whether the called number has been ported or not;
2. extract routing information from a database;
3. insert routing information in the signalling message ;
4. route the call between networks and within networks, based both on the DN and on the routing information.

The designation of the provider in charge of routing the calls is extremely important, as it involves this provider's obligation to bear the additional costs of routing the calls to the ported numbers. According to the provisions of the ANRC President's Decision no.144/2006, the providers of publicly available electronic communications services in whose networks the users originate calls to ported numbers have the responsibility of ensuring the accurate routing of the calls. The responsibility for routing a call does not trigger the responsibility for implementing the routing and, therefore, if a provider does not have the technical means to perform the routing, he may purchase routing services from a third party.

Generally, the third party may be:

- a) the transit network using ACQ;
- b) a separate entity operating a BDOp shared by several providers.

#### 3.4.2. Routing methods

The portability-specific functions may be fulfilled during various call routing stages, by one or several networks. Thus, the ITU-T recommendations and the ETSI

technical specifications describe four methods of call routing in case of number portability:

1. ONWARD ROUTING (OR);
2. CALL DROPBACK (CDB);
3. QUERY ON RELEASE (QoR);
4. ALL CALL QUERY (ACQ).

At a national level, the call routing method used for the implementation of number portability is ACQ. In case of technical limitations, a provider originating calls will be allowed to use the OR routing method on the condition he bears the additional routing costs. The call routing method used within one network will be decided by each provider.

#### All Call Query (ACQ)

ACQ is the favourite routing method in view of implementing number portability.

If the origination network is able to implement the ACQ method, this will have to route the call directly to the acceptor network. A call can be routed if there exists a direct or transit interconnection agreement concluded between the origination provider and the FA.

If the origination network uses the routing services of a third party provider, which deploys the ACQ method, the third party shall route the call directly to the acceptor network.

Before routing the call, the portability of the called directory number shall be checked in the originating network or in the third party's network, in order to establish whether the respective number is ported or not. The BDOP of the provider using the ACQ method will be interrogated in order to check whether the number is ported and to find the routing number.

In case of mobile non-geographic numbers, the calls will be marked by the routing number of the destination network, irrespective whether the number is ported or not. If the checking reveals the fact that the directory number is ported, the FA's routing number shall be extracted. For non-ported numbers, the routing number of the provider who holds the numbering block that includes the non-ported number shall be added. The call shall be further routed based on the analysis of the routing number. The routing data in the signalling message will be also transmitted to the point of interconnection with the acceptor network.

In case of geographic numbers, the calls to non-ported numbers that were checked in the BDOP shall not be marked unless this is technically feasible.

If interconnection is performed by means of a transit network, this network shall ensure the transmission of the routing information to the point of interconnection with the acceptor network.

#### Onward Routing (OR)

The use of the OR method requires the conclusion of additional bilateral agreements between the provider originating the call and the other public electronic communications networks providers (FDI).

If the network originating the call uses the OR method, the portability of the called DN is checked only for the numbers belonging to the numbering blocks allotted to the respective provider. If the check reveals that the number has been ported, the routing information is extracted and the call shall be routed directly (or through the transit network) to the acceptor network, based on the analysis of the routing information. The routing information shall be also transmitted to the point of interconnection with the acceptor network (and with the transit network).

If the checking indicates that the called directory number is not ported or does

not belong to the numbering blocks allotted to the originating provider, the usual routing method shall be applied, therefore the call shall be terminated in the provider's own network or shall be routed (directly or through transit) to the network of the FDi. The network of the FDi will check whether the number has been ported or not and shall route the call to the acceptor network.

#### Routing methods and principles

The calls initiated from numbers in the 0Z = 07 domain shall be routed to ported numbers in the 0Z = 07 domain through the ACQ method. The calls initiated from numbers in the 0Z = 07 domain shall be routed to ported geographic numbers in the 0Z = 02 and 0Z = 03 domains, in general, through the ACQ method.

The calls initiated from geographic numbers may be routed to ported geographic numbers or to ported mobile non-geographic numbers either through the ACQ method or through the OR method, in accordance with one of the reference configurations in Annex 2, which is part of the technical and commercial terms.

The calls initiated from geographic or mobile non-geographic numbers may be routed to ported non-geographic numbers in the 0Z = 08 and 0Z = 09 domains either through the ACQ or through the OR method, in accordance with one of the reference configurations.

If a provider originating calls intends to use the OR method, he shall submit to ANRCTI a justified request, within 3 months after the date when the technical and commercial terms entered into force, or at least 2 months prior to the start of service provision. The list of providers who may use the OR method shall be published on the website of ANRCTI.

Taking into account the fact that two routing methods may be used, the following routing principles shall apply:

A. if a call is originated in a network using the ACQ method, this network will check whether the number is ported;

B. if a call is originated in a network using the OR method, this network will check whether the number that has been allotted by means of a LURN to the provider using that network for service provision is ported;

C. if a network receives a call from another network that uses the ACQ method, the network receiving the call will no longer check whether the number is ported or not;

D. if a network using the ACQ method receives a call from a network using the OR method, the network receiving the call will check whether the number is ported or not;

E. if a network using the OR method receives a call from another network that uses the OR method, the network receiving the call will check whether the number is ported or not, but only for the numbers belonging to its own numbering blocks (allotted by means of a LURN).

In case of calls to ported numbers, the network checking whether the number is ported shall extract the routing number and shall add the routing number to the corresponding signalling message.

#### Exceptions

##### *Error cause encoding*

In view of diminishing the risk of generating loops in the routing process, the general principle rules that a call shall be released in case of abnormal functioning, specifying the cause of the error. This is possible by means of the Cause Indicators field in the Cause Value parameter of the "Release" message in the ISUP (Recommendation ITU-T Q.763). In all cases, when the "Release" message reaches the originating network, the call shall be released and the routing information related to the respective

number shall be checked.

The codes to be used in specifying the error cause are mentioned in the Recommendation ITU-T Q.850. Since the exceptional situations regarding number portability are not utterly provided in Q.850, these shall be further established, taking into account the characteristics of the existing networks.

In order to encode portability-specific errors, the value "Cause value=112" has been defined, bearing the significance "no such ported number". The networks that cannot generate this value will use "Cause value=1", bearing the significance "number not allotted".

### 3.5. Routing numbers

#### 3.5.1. Background

In order to route the calls to ported number, the called directory number (DN) needs additional routing information, respectively the routing number (RN). Pursuant to the interrogating the operation databases, a routing number shall be extracted for the numbers marked as ported. Full routing information consists of the routing number and the directory number.

The routing information shall be transmitted to the interconnection point of the networks by means of the "concatenated addresses" method. RN and DN shall be transmitted together within the CdPN parameter in the IAM message of the ISUP signalling system.

This method of sending the routing information triggers certain restrictions regarding the routing numbers, thus:

a) the length of the routing number may be critical. GSM providers have certain limitations regarding the maximum length of the MSISDN number (maximum 15 digits) to be transported in the MAP (Mobile Application Part);

b) there must be established a method of telling the DN from the RN concatenated with the DN, which are both transmitted within one signalling parameter. This method may use the following solutions:

1. the first sign in the routing number should be different from a numerical character;
2. the first digit or group of digits in the routing number (routing number code) should not be used in the PNN;
3. a corresponding mark should be used within another signalling parameter (NoA).

#### *Remarks:*

*1. When choosing the solution at letter b) point 2, the numbering resources in the PNN having the first digit/digits identical with those of the routing number code shall not be available for allotment.*

*2. When choosing the solution at letter b) point 3, the technical limitations in certain electronic communications networks should be minded.*

The routing numbers may identify the destination network, an interconnection point or a switch in the destination network.

Calls to the ported numbers shall always undergo two-step routing in case of non-geographic numbers, as well as for geographic numbers in case of the networks based on the IP technology, where the calls are routed in the destination network by means of numbers translated into IP addresses. In such cases, the routing number suffices in identifying the destination network (acceptor network).

In case of a call routed to geographic numbers, in the PSTN or ISDN networks, if the routing number identifies a certain switch in the destination network, the respective call may be routed based on the routing number also in the termination network

(acceptor network), without requiring further interrogation of its own database in the destination network.

### 3.5.2. Structure of routing numbers

Upon analysing the limitations within both the fixed and the mobile public telephone networks, the routing number shall comprise 5 digits assembled in the 18xyz format, of which:

a) the 18 group is the routing number prefix;  
b) the xyz group shall be established for each provider, depending on the significance of the routing numbers in the provider's network. Thus:

1. the providers of publicly available telephone services provided through public mobile networks shall use one routing number indicating the network to which the ported number is connected;

2. S.C. Romtelecom S.A. shall use a maximum number of 100 routing numbers. A routing number shall indicate a switch in this provider's network;

3. the providers of telephone services provided through public fixed networks may use one or several routing numbers, depending on the routing method used within their own networks (PSTN/ISDN or IP);

c) the 18xyz=18000 combination may not be allotted, but shall be used within the administrative process, if a ported number becomes a non-porting one (FA becomes FDi).

The routing numbers shall be managed by ANRCTI, based on a transparent procedure. Considering that the first two digits of the routing number will always be 1 and 8, no more than 999 combinations will be possible. If the routing numbers prove to be insufficient, ANRCTI shall have the right to change the format of the routing numbers and to establish rules for their allotment and use, accordingly.

## **3.6. Impact of implementing number portability on the provision of services by means of ported numbers**

### 3.6.1. Dialling PNN numbers

Until the closing of the PNN, the ported numbers shall be dialled in the same manner as before the porting. In view of originating calls, a ported subscriber shall dial the numbers in the PNN according to the dialling rules in the acceptor network.

After the closing of the PNN, calls from the ported numbers and calls to the ported numbers shall be made by dialling the national number (0ZABPQMCDU).

### 3.6.2. Interconnection agreements

Calls to a ported number may be received if there are interconnection agreements concluded (at national and international level) between the FA and the providers in whose networks the users originate calls to the ported numbers.

As well, SMS and MMS services may be affected for international and roaming destinations, according to the interconnection agreements concluded by each provider.

While submitting the porting request, the FA shall inform the subscriber on certain limitations regarding the availability of services (including SMS or MMS) resulted from the lack of interconnection or roaming agreements.

### 3.6.3. Terminal equipment

Shifting from one provider to another may require changing the user's terminal equipment (e.g. when porting a number from a provider using the GSM technology to one using the CDMA technology, or from PSTN technology to IP technology etc.).

Upon submitting the porting request, the FA shall inform the subscriber on the



configuration and type of the terminal equipments to be used for the service provision, following the porting process.

#### 3.6.4. Traffic marking (17xy)

At present, in case of indirect interconnection of the providers of public fixed telephony networks with providers of public mobile telephony networks, the CdPN parameter in the IAM message shall include a digit sequence (17xy) representing the identity code of the network where calls are originated. This network identity code of the network where calls are originated shall be introduced by the transit provider (FT), to the extent it is provided in the interconnection agreement.

For a ported number, the CdPN parameter in the IAM, presented by the FT at the interface for interconnection with the destination network, shall have the following format:

$$\text{CdPN} = 17xy + \text{RN} + \text{DN}$$

#### 3.6.5. Unbundled access to the local loop

The conditions under which S.C. Romtelecom S.A. provides full or partial access to the local loop or sub-loop to other providers of public electronic communications networks or providers of publicly available electronic communications services are comprised in the Reference Offer of S.C. Romtelecom S.A. on the unbundled access to the local loop (Reference Unbundling Offer - RUO).

In some cases, the porting process is influenced by, or affects, the unbundled access to the local loop. Thus, several situations may occur:

I. one asks for porting a number from S.C. Romtelecom S.A. to an FA that can provide access without using the local loop owned by S.C. Romtelecom S.A., while the telephone service is provided by S.C. Romtelecom S.A. through a local loop by means of which the broadband electronic communications service is also provided.

In this case, two situations may occur:

1. if the broadband electronic communications service is provided by S.C. Romtelecom S.A., the subscriber may benefit from both the S.C. Romtelecom S.A.'s broadband electronic communications service (xDSL technology) and from the FA's telephone service; in such case, the porting process does not affect unbundled access to the local loop;

2. if the broadband electronic communications service is offered through one of S.C. Romtelecom S.A.'s local loops by another provider, and the subscriber chooses to continue receiving the respective provider's broadband electronic communications service at the same time requesting only the telephone service from the FA, then S.C. Romtelecom S.A. shall inform the other provider, in writing, on the subscriber's choice to cancel his/her contract concluded with S.C. Romtelecom S.A. for the provision of telephone services, starting from the porting date, and requires the other provider to agree with the changing of the shared access into full access to the local loop, in accordance with the provisions under RUO;

II. one asks for a number from a provider offering services through the local loop owned by S.C. Romtelecom S.A. (full access) to be ported to an FA that can ensure access without using S.C. Romtelecom S.A.'s local loop. In this case, the porting shall be performed without modifying the service of full unbundled access to the local loop, if the respective subscriber chooses to continue receiving the broadband electronic communications service from the initial provider; in such case, the porting process does not affect unbundled access to the local loop;

III. one asks for porting a number from a provider that cannot ensure access unless he uses the S.C. Romtelecom S.A.'s local loop. In this case, the provider should have concluded an agreement for unbundled access to the local loop with S.C. Romtelecom S.A. and should have access to the switches connected to the local loops

through which are provided services to the subscribers who request the number porting service. In this case, porting is associated with the provision of the unbundled access to the local loop. In order to successfully port the respective number, the two processes must be correlated. Thus:

1. if S.C. Romtelecom S.A. provides on its local loop only the telephone service, based upon the written agreement of the subscriber related to the provision of local loop access services, the FA shall require the unbundled access to the local loop and the porting, at the same time. These two requests shall be correlated as follows:

- the request for unbundled access to the local loop shall mention the existence of a porting request and vice versa;

- the request for unbundled access to the local loop shall indicate the term within which access to the local loop is achieved, so that it should be correlated with the porting date;

- the porting request shall establish the same term as the request for unbundled access to the local loop.

If one of the requests cannot be met, S.C. Romtelecom S.A. shall inform the FA and shall not initiate any of the two processes. FA shall inform the subscriber who submitted the request and shall either continue the feasible process or shall cancel the two processes;

2. if S.C. Romtelecom S.A. provides on its local loop only the telephone service, while the broadband electronic communications service is provided by another provider, which was granted shared unbundled access to the local loop, two situations may occur:

- the provider benefiting from the service of shared unbundled access to the local loop of S.C. Romtelecom S.A. is the FA. In this case, based on the written agreement of the subscriber related to the provision of the services of full unbundled access to the local loop, the FA shall require the change of the shared access into full access and the porting, at the same time. The procedure shall be similar to the one presented above;

- the provider benefiting from the service of shared unbundled access to the local loop of S.C. Romtelecom S.A. is different from the FA. In this case, based on the written agreement of the subscriber related to the provision of the services of full unbundled access to the local loop, the FA shall require both the change/transfer of the unbundled access to the local loop from the provider benefiting from the shared unbundled access to the local loop of S.C. Romtelecom S.A. to the FA, and the porting, at the same time. The procedure shall be similar to the one presented above.

### **3.7. Service quality**

When porting a number, the calls may be established with additional delays that could affect service quality. Such additional delays are determined by:

a) BDOp interrogation time;

b) time for establishing additional connections (required for routing a call to the correct destination).

These delays may occur in the different networks involved in the porting process. Therefore, it is hereby recommended that the interconnection agreements provide the delay time for each network involved in routing a call, taking into account their functions. Also, the interconnection agreements should provide that additional delays for making calls to ported numbers may not exceed one second, as compared to delays in case of calls to non-porting numbers.

It is also hereby recommended that calls received at ported numbers should not be of lower quality than calls to non-porting numbers.

### **3.8. Additional services**

As a general rule, additional services available in the donor network shall not be ported to the acceptor network. Nevertheless, the acceptor network may provide the same type of additional services.

#### 3.8.1. Direct Dialling (DDI)

The DDI numbering sets may be ported partially or in full. The DDI service shall not be affected if the FA offers this service.

#### 3.8.2. Multiple Subscriber Numbers (MSN)

The numbers in MSN sets may be ported individually, partially, or in full. The MSN service shall not be affected if the FA offers this service.

#### 3.8.3. Call Forwarding services

The network originating the initial call has the obligation to route the call to the called number (B-number). If the call is redirected to another number (C-number) which has been ported, the network where the B-number belongs shall become the origination network of the redirected call.

#### 3.8.4. Call presentation services

In case of calls originated from ported numbers, the calling line identity presented (CLIP) shall correspond to that of the ported number. In order to ensure the accurate identification of calls (especially the emergency services), the calls from ported numbers shall be treated as regular calls, as regards the CLIP.

In case of calls to ported numbers, the identity of the connected line presented (COLP) shall correspond to that of the ported number.

#### 3.8.5. Services using transaction capabilities

##### **I. SMS services**

In case of SMS originated at national level, the originating network shall have to ensure the routing of signalling messages directly to the acceptor network.

In case of SMS originated at international level, the originating network will generally route the signalling messages, indirectly, to the FDi, who will have the obligation to redirect the message to the acceptor network.

The FDi shall have to insert the routing number in the CdPA field within the SCCP of the message for redirecting the SRI\_SM, and – optionally – in the MAP section of this message.

If the supposedly acceptor network does not actually serve the called number, it shall insert – in the feedback (SRI\_SM\_ACK) – an error code, such as “no such subscriber found”, in order to prevent the vicious looping between networks and the useless charging of the re-transmission mechanisms of the SMSCs.

##### **II. MMS services**

In case of sending MMS messages to the ported numbers, the providers of mobile telephone services will be able to use one of the solutions for – directly or indirectly - routing the messages, according to the technical capabilities of their networks.

The FDi shall ensure the service of redirecting the SRI\_SM signalling messages for MMS sent to numbers within the numbering blocks he holds according to a LURN and ported to other public mobile networks.

The FDi shall insert the routing number in the CdPA field within the SCCP of the

message for redirecting the SRI\_SM, and – optionally – in the MAP section of this message.

If the supposedly acceptor network does not actually serve the called number, it shall insert – in the feedback (SRI\_SM\_ACK) – an error code, such as "no such subscriber found", in order to prevent the vicious looping between networks and the useless charging of the re-transmission mechanisms of the MMSCs.

a. Other additional services

It is possible that other additional services using the transaction capabilities of the SS7 (TC/SCCP) signalling system, such as queuing calls (MW) or cancellation of calls to busy subscribers (CCBS), could not be provided if the OR routing method is used.

### **3.9. Data exchanged on the administrative interface**

The routing of calls to ported numbers is performed through the providers' BDops. The providers' BDops shall receive real-time interrogations at call initiation, in view of extracting the routing information.

The providers must be prompted with accurate data in view of updating the routing information in their own BDop. For this purpose, they will use the information in the central reference database, irrespective of the routing method used (ACQ or OR).

The BDC sends such information through the administrative interface, in accordance with the provisions under point 4 of the technical and commercial terms. Such information is interpreted and used by each provider in view of updating the routing information in its own BDop.

The mandatory data to be transmitted by the BDC include:

- a) directory (ported) number (DN);
- b) routing number (RN);
- c) porting date and time (year, month, day, hour);
- d) ID FD;
- e) ID FDi;
- f) ID FA.

The BDC may transmit further details (e.g. billing information), at will.

## **4. DETAILED DESCRIPTION OF THE PROCEDURE FOR MANAGING THE PORTING PROCESS**

### **4.1. General provisions**

The management of the porting process, including the providers' exchange of information on the ported numbers, shall be performed by means of the central database (BDC). The use of the BDC is mandatory both in view of achieving the information exchange on the porting process and in view of modifying data regarding the ported numbers, so that the FDi could stop the provision of the service offered through a ported number and retrieve the ported number. Also, the BDC stores the complete set of information including the ported numbers and the routing numbers (central reference database). In view of routing calls to the ported numbers, irrespective of the routing method to be used (ACQ or OR), the providers will use the information in the central reference database.

The administrative processes associated with the implementation of number portability include sub-processes or phases. Each process is mentioned together with the entities involved, their information exchange, the activities to be conducted and their deadlines. The information exchange is achieved as messages, which are specific

to each process.

Annex 3, which is part of the technical and commercial terms, lists the main parameters (fields) contained by the messages. Annex 4, also part of the technical and commercial terms, lists the error codes generated by the various entities in the system.

Information presented in the annexes shall be analysed and detailed during the implementation of the BDC.

## **4.2. Administrative processes associated with the implementation of number portability**

In view of implementing number portability, the BDC must carry through the following processes:

1. porting;
2. disconnecting;
3. changing the routing information;
4. synchronizing;
5. transferring (reallocating) a numbering block;
6. informing on system status.

## **4.3. The porting process**

The porting process is the process spanning between the moment when a porting request is submitted and the moment when calls may be accurately terminated at the ported number.

The porting process encompasses two phases: validation of the porting request by the FD and the actual porting.

As well, during this process, two sub-processes have been identified, that reflect specific situations occurred during the porting process:

1. cancellation of the porting request;
2. process interruption.

Amendments to a porting request may be brought by cancelling the respective request and by initiating a new porting process.

If a subscriber requests the porting of one number or of a set of numbers, this request shall be treated as an individual one. If a subscriber requests the simultaneous porting of several numbers belonging to one category of numbering resources, associated to terminal points (as regards geographic numbers) installed at the same address, this request shall be treated as a set of correlated requests.

### **4.3.1. Validation of a porting request**

The validation phase of a porting request is aimed at obtaining the agreement of the parties involved the porting process (FA, FD) on accepting the porting and on the porting deadline.

This phase starts at the moment of the FA's sending the porting request ( $t_{10}$ ) to the BDC and ends at the moment when the FD accepts or rejects the request ( $t_{11}$ ).

#### ***I. Individual request***

The messages sent during the request validation phase are the following:

**CPF** – the provider's porting request: the number portability request sent by the FA to the FD;

**ACP** – acceptance of the porting request: the FD's feedback to the CPF, by which the FD agrees to port the number;

**RCP** – rejection of the porting request: the FD's feedback to the CPF, by which

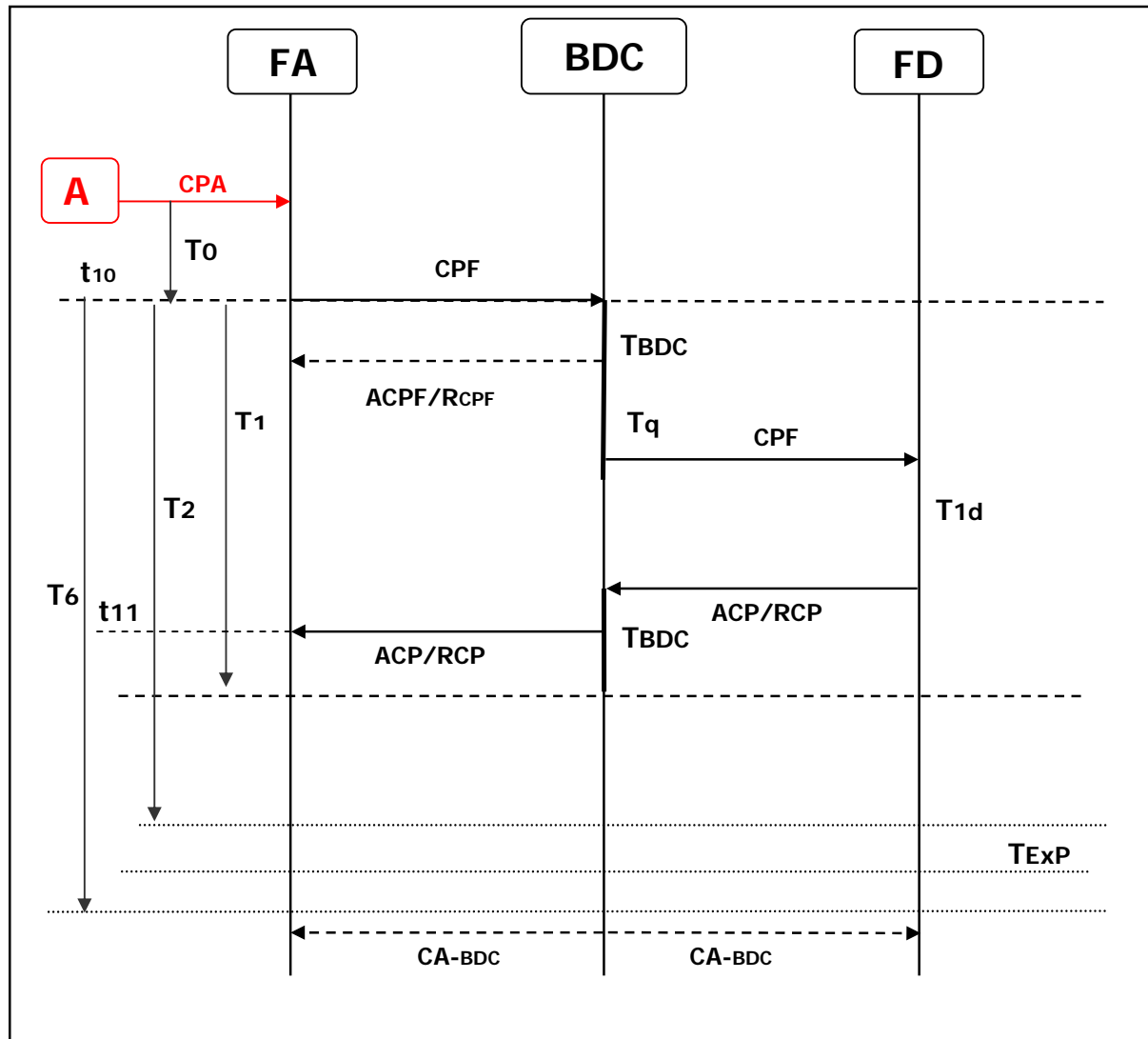
the FD refuses to port the respective number;

**ACPF** – acceptance of the porting request by the BDC: the confirmation message sent by the BDC, by which it accepts the CPF;

**RCPF** – rejection of the porting request by the BDC: the feedback message sent by the BDC, by which it rejects the CPF;

**CABDC** – cancellation of the porting request by the BDC: message by which the BDC cancels the CPF due to the expiry of the term  $T_6$ .

Diagram 1 illustrates the message exchange during the phase of validation of an individual porting request.



**Diagram 1**

The maximum duration of this phase is  $T_1$ . The moment when the FA sends the porting request to the BDC ( $t_{10}$ ) is considered as reference time for starting the porting process. The moment when the FA receives the request acceptance/rejection message from the FD ( $t_{11}$ ) shall end the validation phase.

The message exchange must be conducted so that, under normal functioning circumstances, the following condition should be fulfilled:  $t_{11} - t_{10} < T_1$

The activities associated with this phase are the following:

**P1a1:**

FA sends the porting request to the BDC.

**P1a2:**

1. The porting requests received by the BDC are registered in the database table. The database table storing the messages is implemented based on the queuing principle. The BDC checks the message, sends the answer to the FA and then sends the accepted message (CPF) to the FD, according to the first in - first sent principle.

- if the CPF message is not accepted, the BDC sends the rejection message (RCPF) to the FA within the maximum term TBDC. The rejection message includes the error code and (at will) the error description;

- if the porting request is accepted, the BDC generates the ACPF message, sending it to the FA within the maximum term TBDC, whereas the CPF message is sent to the destination FD, on the current day, if the number of sent requests does not exceed the number of requests that can be processed, daily, by the respective FD. The requests sent on one day are considered those sent by 18:00.

The requests exceeding the daily processing capacity shall be stored and sent to the FD on the next day.

The requests sent to the BDC, which exceed the processing capacity of an FD for the current day, as well as for the next day, shall be rejected by the BDC on grounds of exceeding the processing capacity.

By the ACPF message, the BDC shall inform the FA on the date when the CPF is to be sent to the FD (on the current or next day).

2. The BDC shall keep a log regarding the porting request.

**P1a3:**

1. The FD checks the CPF message received from the BDC.

2. If porting is possible, the FD sends the ACP message to the BDC, introduces the request in its own management system for porting requests and prepares the actual porting phase. Within the ACP message, the FD will also establish the porting date (day and hour) agreed for porting (TEXP). The porting date and time must fall in one of the days and one of the time intervals within the porting period indicated by the FA in the porting request. 9 hours shall be mentioned for the time intervals 9-13 and 9-14, 13 hours for the interval 13-18, and 14 hours for the 14-18 interval.

3. If porting is not possible, the FD sends the RCP message to the BDC, indicating the rejection cause (error code and, at will, error description). Porting cannot be performed for one of the rejection grounds provided under art.8(2) of the ANRC President's Decision no.144/2006.

The ACP and RCP messages must be transmitted to the FD within the time interval T1.

**P1a4:**

1. The BDC sends the FA the message ACP/RCP received from the FD.

2. The BDC updates the log regarding the respective porting request.

**P1a5:**

1. After receiving the ACP message, the FA prepares the phase of actually porting the number.

2. After receiving the RCP message, the porting process is cancelled. A new porting request may be sent after the cause of rejection is eliminated.

**II. Set of correlated requests**

In case of a set of correlated requests, the FA shall send one set of messages CPF<sub>i</sub> (i=1,...,n), one for each individual number for which porting is requested. The CPF<sub>i</sub> messages shall include a series of specific fields (e.g. "ID number of the set of correlated requests (NIOP)", "Registration number of a request (NOC)", "Total number

of correlated requests (NTC)” and “Acceptance of partial porting (APP)” .

Diagram 2 illustrates the message exchange performed during the request validation phase, for a set of correlated requests.

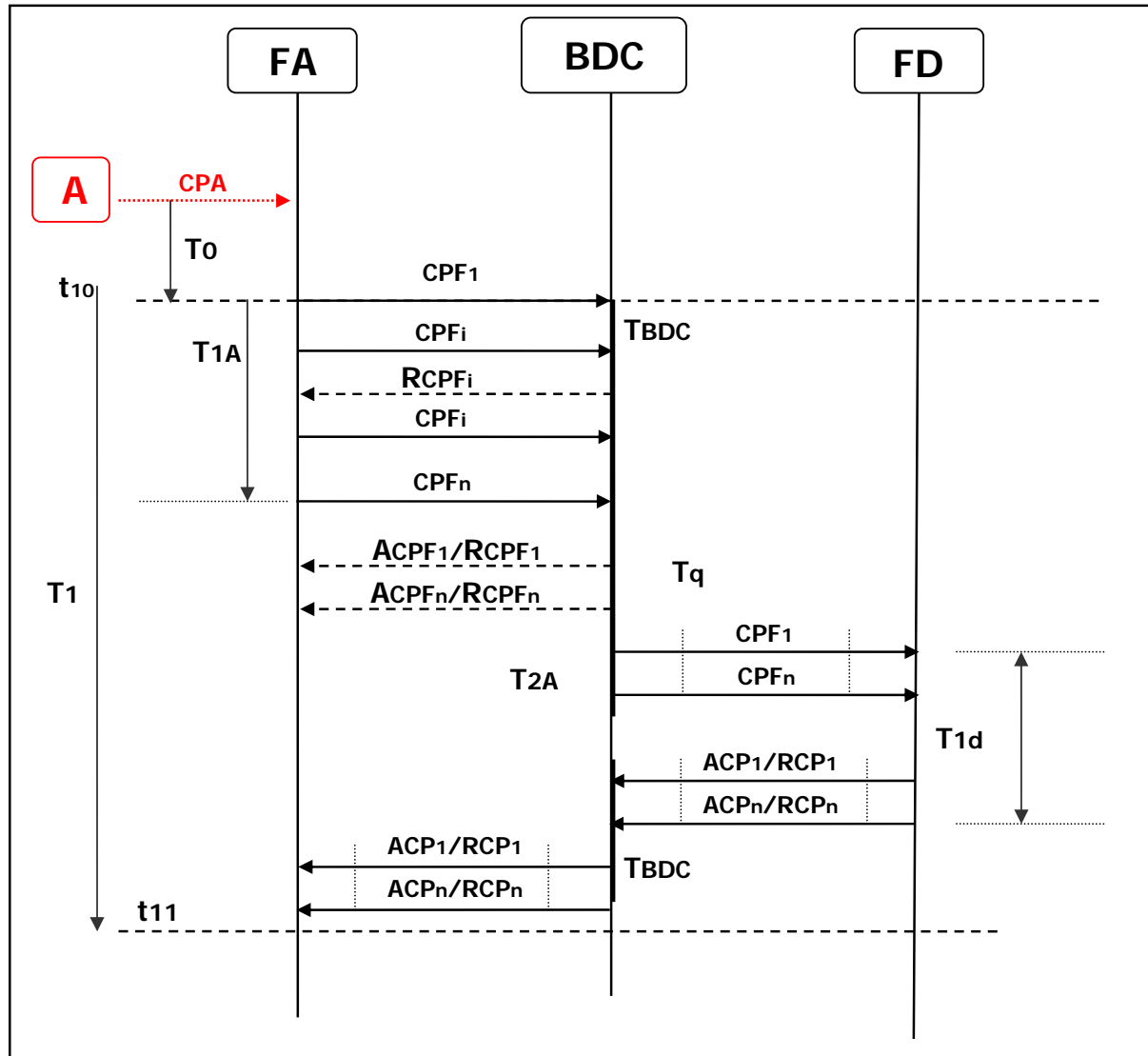


Diagram 2

The reference moment for starting the porting process ( $t_{10}$ ) is considered the moment of sending the first request.

The activities associated with the validation phase of the porting request – for a set of correlated requests – are similar to the activities associated with an individual porting request, minding the following particularities:

1. the FA sends, in good order, all the correlated requests.
2. the BDC checks the  $CPF_i$  messages for all the requests in the set. If certain messages are not accepted, the BDC sends a rejection message ( $RCP_i$ ) to the FA, for each  $CPF_i$ . The FA shall resend the corrected  $CPF_i$  messages. If, within the term  $T_{1A}$ , certain messages of a set of correlated requests fail to be received and accepted by the BDC, the BDC will send the FA the rejection messages ( $RCPF$ ) for the whole set of correlate requests, indicating – through the error code – the fact that the set of correlated requests was incomplete.

If all the messages in a set are transmitted and accepted by the BDC within the time interval  $T_{1A}$ , the BDC shall send the acceptance messages ( $ACPF$ ) to the FA and the  $CPF_i$  messages to the FD. Messages to the FD shall be sent as a group, within the



interval T2A.

3. The FD analyses the possibility of porting the numbers that make the object of a set of correlated requests. Where partial porting is not specified, the rejection of one request will trigger the rejection of all the requests in the respective set. The rejection messages corresponding to the requests that generated the rejection of the whole set shall mention the corresponding rejection cause, whereas the messages for the other requests in the set shall specify the cause "incomplete set of requests". In this case, the porting process shall be cancelled.

If partial porting is specified, the FD shall send the BDC an acceptance message (ACP) or a rejection message (RCP) for each request in the correlated set. The FD shall establish one porting date (day and hour) for all the requests in a set, which shall be communicated to the BDC and to the FA within the corresponding ACP messages. In this situation, the porting process shall continue only for the accepted requests.

4. The BDC collects all the acceptance or rejection messages regarding a set of correlated requests sent by the FD, prior to resending them to the FA.

The ACP/RCP messages must be sent within the T1 interval.

*Remarks:*

*1. In case of manual web interfaces, the BDC shall provide facilities for filling in and sending a set of correlated requests.*

*2. Both the accepted requests and the rejected ones shall be processed according to the model at point 4.3.1.I.*

#### 4.3.2. Porting Activation Phase

Prior to the porting activation phase, both the FA and the FD shall conduct all the technical activities for preparing the porting, so that the porting date stipulated by the porting request shall be observed. The FA activates the service provision to the ported subscriber, ensuring the required output traffic, while sending the IPN message to the BDC.

The end of the actual porting phase coincides with the updating, by all the providers originating calls, of the routing information regarding the ported number. At the end of this process, all the providers will be able to route calls to the ported number.

The messages sent during the actual porting phase are the following:

**IPN** – initiate number porting: message sent by the FA, confirming the connection of the ported subscriber and asking the FD to perform the porting;

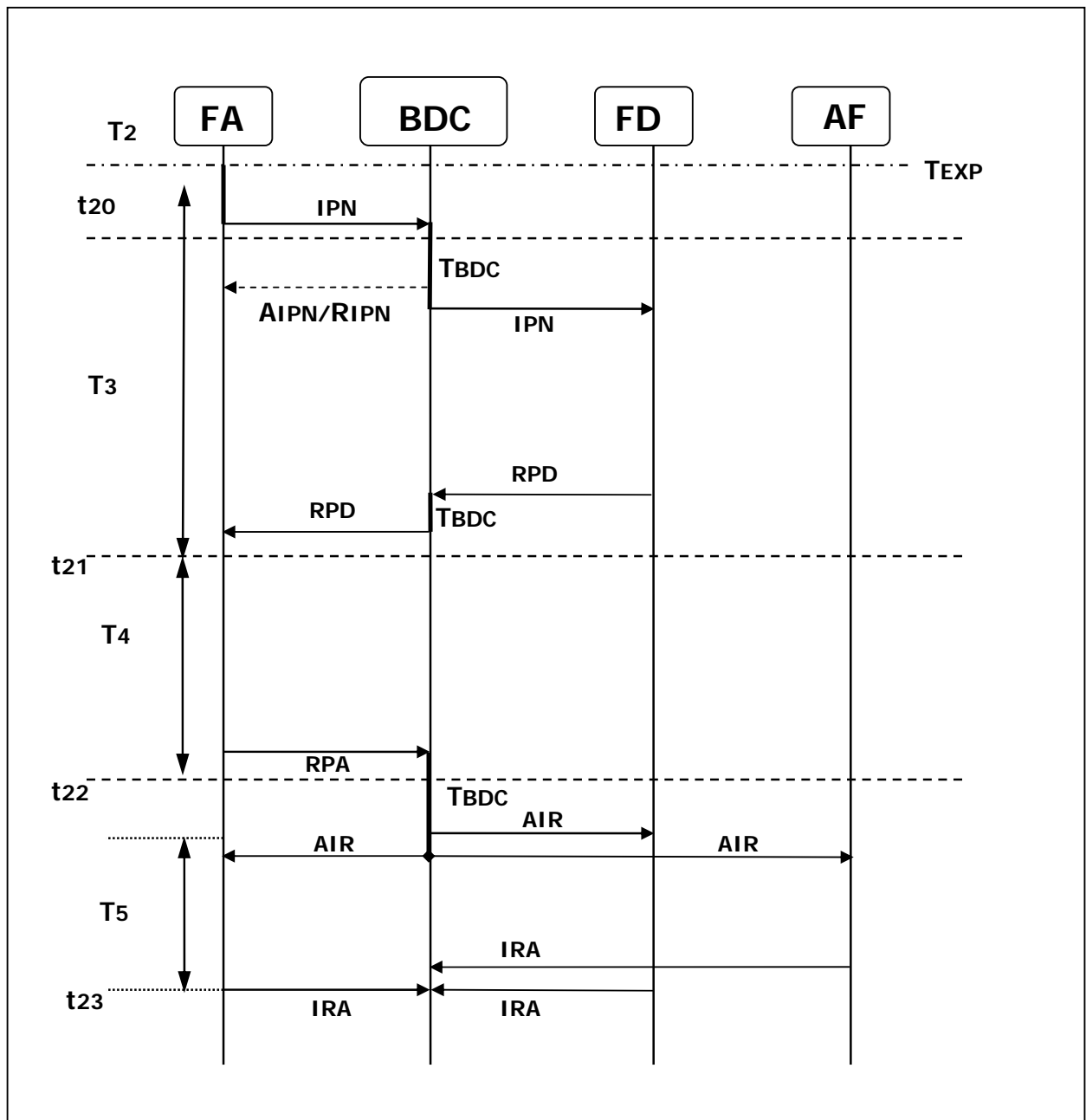
**RPD** – porting performed by the donor: message sent by the FD as a reply to the IPN message, confirming that porting has been performed by the FD;

**RPA** – porting performed by the acceptor: message sent by the FA, confirming that porting has been performed by the FA and the service is functional both in the FD and in the FA network;

**AIR** – update (add) routing information: message sent by the BDC to all the providers, asking for updating the routing information corresponding to the ported number;

**IRA** – routing information updated: the providers' reply to the BDC, confirming the updating of the routing information regarding the ported number.

Diagram 3 illustrates the message exchange during this phase.



**Diagram 3**

During this phase, terms T3, T4 and T5 are activated.  
t20 - moment when the FA sends the IPN message;  
t21 - moment when the FA receives the RPD message;  
t22 - moment when the FA sends the RPA message;  
t23 - moment when the providers confirm the updating of the routing information (IRA) to the BDC.

t20 - t10 > T2	t23 - t22 < T5
t21 - t20 < T3	T0 + T2 + T3 + T4 + T5 ≤ Tp
t22 - t21 < T4	Tp = 10 working days

*Note:*

*These terms are observed under normal functioning conditions.*

The IPN message shall be sent after the (TEXP) moment, within 1 hour from the beginning of the porting interval.

The following activities are performed during this phase:

**P2a1:**

1. The FA activates the service by means of the ported number and ensures outgoing traffic to the ported subscriber.
2. The FA transmits the BDC the IPN message informing it that the actual porting process has started and asking the FD to activate the porting of the respective number. This message is meant to confirm the data in the porting request, regarding the exact porting moment.

**P2a2:**

1. The BDC sends the acceptance/rejection message (AIPN/RIPN) to the FA.
2. The BDC sends the FD the IPN message received from the FA, if the latter's message has been accepted (and AIPN transmitted).
3. The BDC sends the FA the RIPN message, indicating the error code and – at will – the error description.

**P2a3:**

1. After receiving the IPN message, the FD performs the actions required for porting the respective number, so that porting should be completed within the term T3.
2. The FD sends the RPD message to the BDC when porting is completed (the ported number is de-activated by the FD and introduced in the ported number database).

**P2a4**

1. The BDC sends the RPD message to the FA.
2. The BDC updates the log regarding the respective porting request.

**P2a5**

1. The FA has now the obligation to check, end-to-end, whether the porting process is performed by the FA and the FD and whether the service provided by means of the ported number is functional both in the FD and in the FA networks.
2. The FA sends the RPA message to the BDC when the service is functional, having observed the term T4.

**P2a6**

1. If the BDC receives the RPA message, it means that the number portability service may be registered as operational for the FD and the FA.
2. The BDC updates the reference database.
3. The BDC sends the AIR message to all the parties involved. For the providers, this message indicates the fact that the routing information must be updated.

**P2a7**

All the providers originating calls update the routing information in their own BDOp that contain the ported numbers, based on the data in the reference central database sent by means of the AIR message, and send the IRA message as a reply to the AIR message.

The manner of sending the AIR messages shall be correlated with the type of interface between the BDC and the provider.

The model presents the on-line flow of messages for updating the routing information sent to the providers in view of updating their own databases (in case of the providers connected to the BDC by automatic interfaces). If certain providers featuring low traffic are connected to the BDC through a web interface and they agree

with the OpBDC, the latter may send a file containing all the messages for updating the routing information registered within one time unit (one day).

The providers are to decide whether they update the BDOp in real time or at certain time intervals.

In case of correlated requests, the IPN messages shall be transmitted – sequentially – both by the FA to the BDC and by the BDC to the FD. The FA shall send the first IPN message after all the numbers envisaged by correlated porting requests are connected, within the accepted porting interval. The reception of the first IPN message by the FD marks a disconnection order regarding all the numbers to be ported within the porting interval validated for the ported subscriber. The IPN, RPD and RPA messages will be correlated with the CPF.

#### 4.3.3. The sub-process of the porting request cancellation

##### *1. Cancellation requested by the FA*

The FA may require the cancellation of a porting request by sending a request cancellation message to the BDC. A porting request may be cancelled after the BDC accepted the CPF message (by sending the ACPF message), not later than the term T10 (24 hours before the moment agreed for completing the porting - TEXP). The porting of a set of correlated requests shall be cancelled individually, by sending the cancellation messages for all the porting requests in the set of correlated requests. In case of a set of correlated requests, if partial porting has been accepted, the cancellation of a porting request does not trigger the cancellation of the rest of the requests in the set.

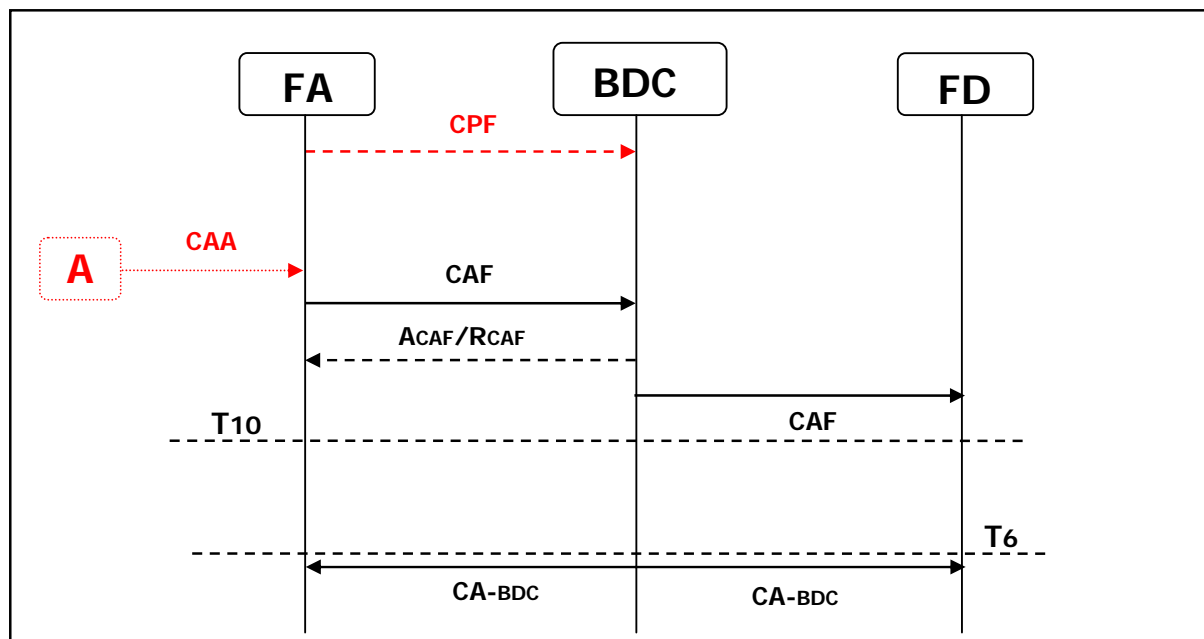
The messages sent within the process of cancelling the porting request are the following:

**CAF** – acceptor’s cancellation request: message sent by the FA requiring the FD to cancel a previously sent porting request;

**ACAF/RCAF** – the BDC’s acceptance or rejection of the cancellation request;

**CA-BDC** – cancellation request initiated by the BDC.

Diagram 4 illustrates the message exchange conducted within the sub-process for the FA’s cancelling the porting request.



**Diagram 4**

The activities associated with this phase are as follows:

**P3a1:**

The FA sends the CAF message to the BDC, requiring the cancellation of the porting request.

**P3a2:**

1. The BDC sends the ACAF confirmation message, if the cancellation request is valid, or the RCAF rejection message containing the error code.
2. In case of accepting the CAF, the BDC shall send the cancellation request to the FD.

**P3a3:**

The FD processes the cancellation request and stops the activities related to porting the number.

*II. Cancellation requested by the FD*

FD may request the cancellation of a porting request by sending to the BDC a message for cancelling the porting request. A porting request may be cancelled after sending the FD the ACP message, not later than T10. The FD's cancellation of the porting request is determined mainly by technical causes identified after sending the ACP message. The FD may propose a new porting date, through the respective message. The porting process is thus interrupted and the FD continues the service provision by means of that number for which porting had been requested.

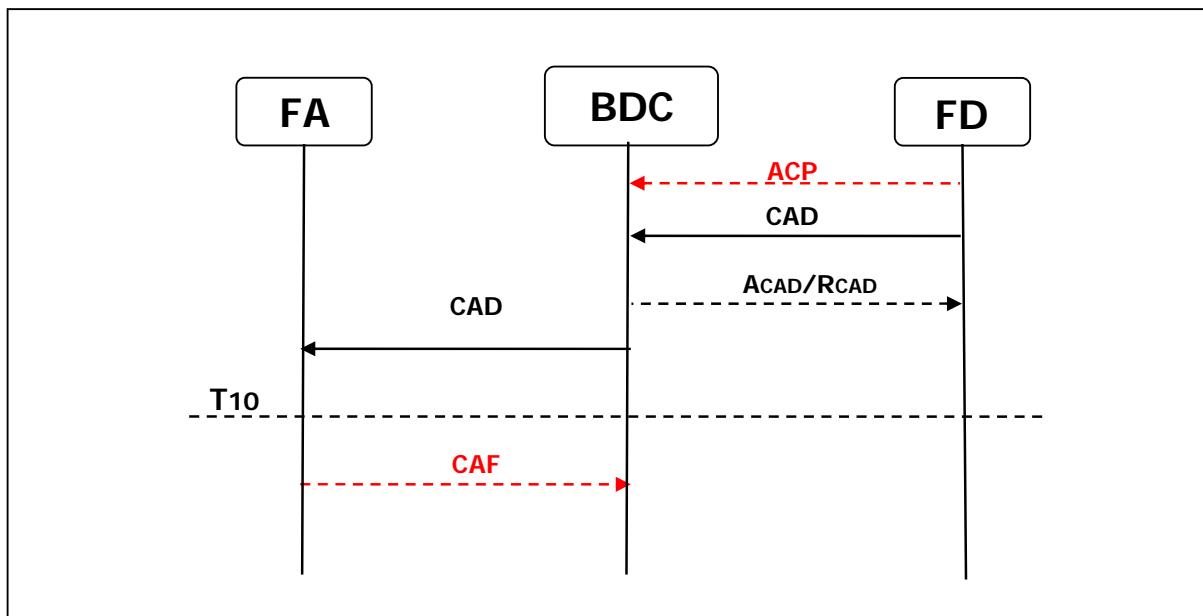
The FA shall inform the subscriber accordingly and continued the process by sending a new porting request or a new cancellation request.

The messages sent during the cancellation of the porting request are the following:

**CAD** – donor's cancellation request: message sent by the FD, requesting the interruption of the porting process, following a previously sent ACP;

**ACAD/RCAD** – the BDC's acceptance or rejection of the porting request.

Diagram 5 illustrates the message exchange performed during the sub-process of the FD cancelling the porting request.



**Diagram 5**

The activities associated with this phase are the following:

**P4a1:**

The FD sends the CAD message to the BDC, requesting the interruption of the porting process.

**P4a2:**

1. The BDC sends the confirmation message, if the request is valid, or the rejection message containing the error code.
2. In case of accepting the CAD, the BDC shall send the cancellation request to the FA.

**P4a3:**

The FA processes the cancellation request, informs the subscriber accordingly and initiates a sub-process for the cancellation or amendment of the porting request.

*Remarks:*

*Amendments to the porting request sent by the FA to the FD may arise when certain data in the porting request (porting date, routing number or set of numbers for which porting is requested) change. In this case, the FA shall send a request for the cancellation of the porting request and will subsequently initiate a new porting process by sending a new porting request.*

4.3.4. Sub-process of interrupting a porting process

The FA may request the interruption of the porting process by sending the BDC a request for stopping the porting process (CSF). This request may be transmitted by the FA after the term  $T_{10}$  (not sooner than 24 hours before TEXP). The interruption may be initiated either before the inception of the porting process, or after the FA proceeds to the actual porting (after sending the IPN message).

Porting interruption may occur in one of the following cases:

- a) the porting is not possible due to unexpected technical hindrances;
- b) a process of erroneous porting is in progress (the subscriber did not request the porting).

If the porting process is interrupted before the IPN message has been sent, the stop message shall replace the IPN message. If the interruption of the porting process occurs after sending the IPN message, the porting process may be stopped only before the RPA message is sent to the FA.

The interruption of the porting process may be caused both by the FD, when the RPD message is not sent, and by the FA, when the latter finds that the process is not end-to-end functional, and the RPA message cannot be sent. If the FD cannot port the respective number (does not send the RPD message), it will directly contact the FA (the document must be identifiable) in order to request the interruption of the porting process.

The messages sent during porting interruption process are the following:

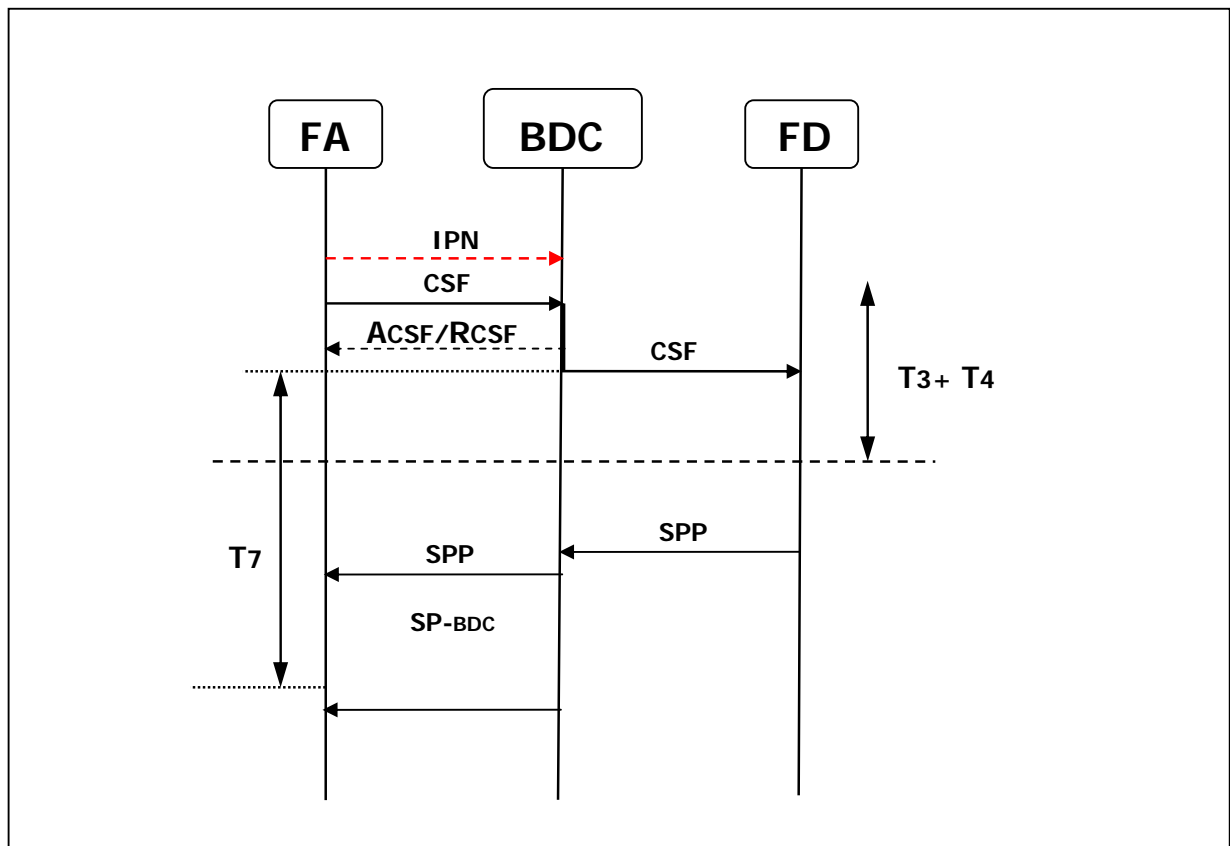
**CSF** – provider's interruption request: message sent by the FA, requesting the FD to stop the porting process;

**SPP** – stop porting process: the FD's reply to the CSF, confirming the interruption of the porting process;

**ACSF/RCSF** - the BDC's acceptance/rejection of the interruption request;

**SP-BDC** – stop porting: the BDC's reply confirming the deletion of the data related to the respective porting request, without FD's confirmation.

Diagram 6 illustrates the message exchange within the interruption sub-process.



**Diagram 6**

The activities associated with the interruption sub-process are the following:

**P5a1:**

The FA sends the CSF message to the BDC.

**P5a2:**

1. The BDC sends the ACSF/RCSF message to the FA, by which the CSF is accepted or rejected.
2. The BDC updates the log regarding the porting request, specifying the date on which the process has been stopped.
3. The BDC sends the CSF message to the FD.

**P5a3:**

1. Upon receiving the request for stopping the porting process, the FD shall interrupt the actual porting process and shall continue or shall resume service provision to the respective subscriber by means of the number for which porting was requested.
2. The FD shall send the BDC the SPP message. The FD shall send the SPP message within the term  $T_7$ .

**P5a4:**

The BDC shall send the SPP message to the FA.

As well, within this sub-process, the BDC generates the error codes if the messages are not standard or if the terms agreed for stopping the process have not been observed.

If the FD does not send the message for the interruption of the porting process within the established term ( $T_7$ ), the BDC shall generate a reply to the FA (SPBDC) and

shall delete the data regarding the request for porting the respective number.

The BDC shall generate a report – on a regular basis – comprising statistics on all the interrupted porting processes.

The costs related to stopping a porting process shall be born by:

- a) FA - if the process is interrupted due to the FA;
- B) FD - if the process is interrupted due to the FA.

#### **4.4. The process of disconnecting a ported number**

Disconnection is the process by which a ported number is returned to the FDi, following the termination of the contract between a subscriber and the FA regarding the provision of services by means of the respective number.

Within 5 days from the disconnection of the respective number (termination of the contract between the subscriber and the FA), the FA has the obligation to notify the FDi – by means of the BDC – that the respective number has been released.

The data regarding the capacity as a ported number should be removed from the reference database and from all the providers' databases.

The process of disconnecting a subscriber shall start by the FA's sending the BDC a notification on disconnecting the ported number and shall end when all the providers confirm the deletion of the routing information for the disconnected ported number.

Within this process, the following messages are transmitted:

**NDN** – notification on disconnecting a number: message sent by the FA, informing the BDC and the FDi on disconnecting a ported number, which is to be returned to the FDi;

**AND** – acceptance of a notification on disconnection: the FDi's acceptance message, as a reply to a notification sent by the FA, regarding the disconnection of a number;

**RND** – rejection of a notification on disconnection: the FDi's rejection message, as a reply to a notification sent by the FA, regarding the disconnection of a number;

**NPD** – ported number disconnected: message sent by the FA, informing the BDC that the ported number has been disconnected ;

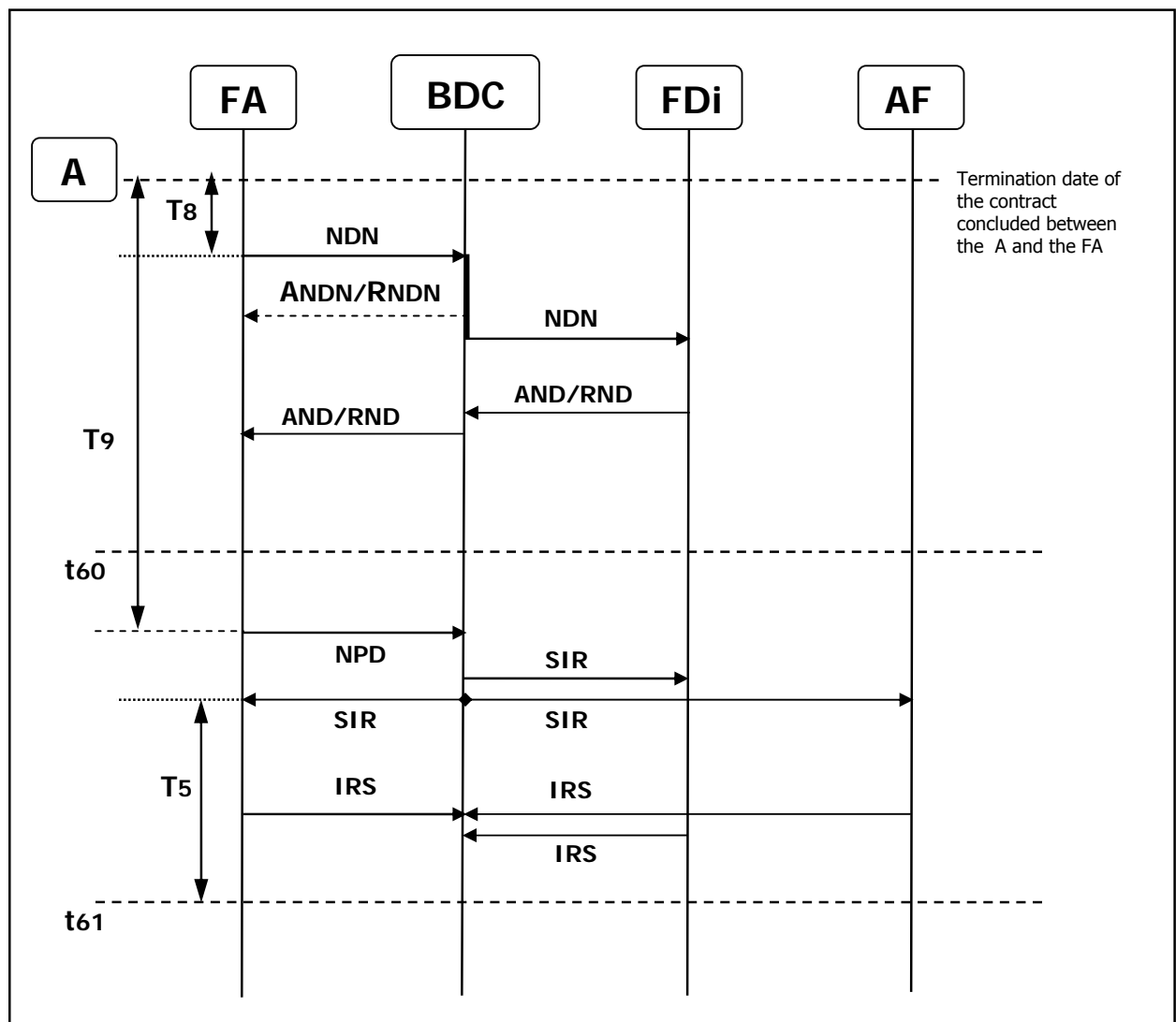
**SIR** – erase routing information: message sent by the BDC to all the providers, requesting the deletion of the routing information corresponding to a ported number;

**IRS** – routing information deleted: providers' reply to the BDC confirming the deletion of the routing information regarding the ported number;

**ANDN/RNDN** – the BDC's acceptance/rejection of the disconnection notification.

Diagram 7 illustrates the message exchange during the interruption process.





**Diagram 7**

The activities associated with the process of disconnecting a ported number are the following:

**P6a1:**

The FA shall send the NDN message informing the BDC on disconnecting the ported number.

**P6a2:**

The BDC accepts or rejects the message. If the message is accepted, the BDC transmits the NDN message to the FDi. The BDC creates an entry regarding the disconnected ported number.

**P6a3:**

The FDi checks whether the disconnected ported number is part of the numbers allotted by its LURN. The FDi shall send the message regarding the notification acceptance/rejection.

**P6a4:**

The BDC updates the information regarding the respective disconnected number and retransmits the message received from the FDi to the FA.

**P6a5:**

1. The FA shall count the term T9 (quarantine), during which it has the obligation to answer the calls initiated to the respective number by a voice message informing on the number disconnection.

2. Upon expiry of the term T9, the FA shall send the NPD message, informing the BDC on the expiry of the quarantine period and on the return of the respective number to the FDi.

**P6a6:**

The BDC shall erase the routing information from the reference database and shall send the SIR message, informing the FDi and the other providers on the end of the ported status of a number. The respective ported number is returned to the FDi.

**P6a7:**

1. After receiving the SIR message from the BDC, the providers shall delete the routing information for the respective ported number from their own operation databases.

2. The providers shall send the IRS message to the BDC in order to confirm the deletion of the routing information.

**P6a8:**

The BDC records all the replies and deems that all the providers have updated the routing information after the expiry of the interval T5.

#### 4.5. The process of changing the routing information

This process occurs if the FA changes the routing information regarding certain ported numbers. The information in the reference central database and in the providers' BDOps should be modified accordingly.

The FA sends to the BDC a message with the updated routing information. The BDC changes the data in the reference central database regarding the respective ported numbers and relays the message to all the providers. After operating the changes, they confirm the BDC that the routing information has been updated.

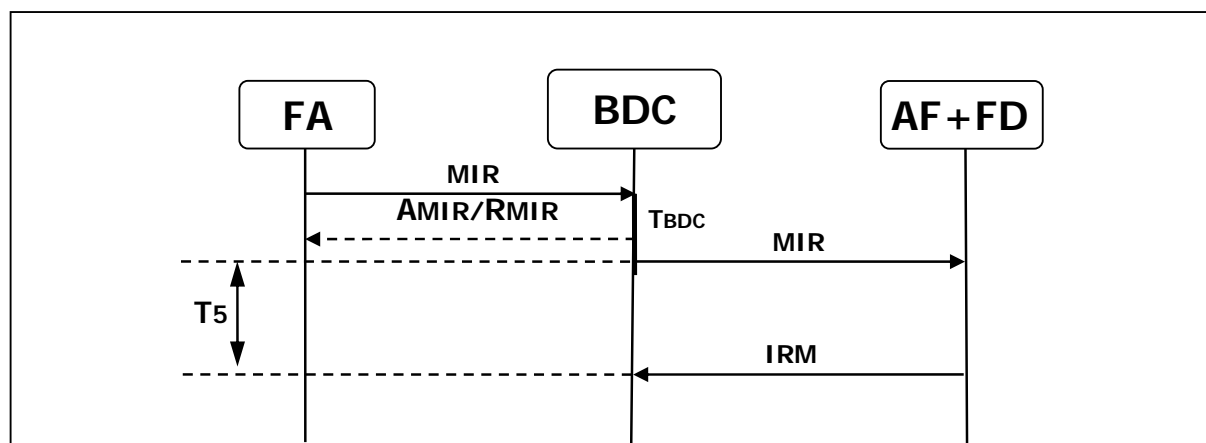
The messages sent during this process are the following:

**MIR** - modify routing information: message sent by the FA to the BDC;

**IRM** - modified routing information: reply message sent by the providers to the BDC;

**AMIR/RMIR** - BDC's acceptance/rejection of the routing information modification.

Diagram 8 illustrates the exchange of messages during the process of modifying the routing information.



## Diagram 8

The activities associated with the process of modifying the routing information are the following:

### **P7a1:**

The FA sends the BDC the MIR message including the modified routing information.

### **P7a2:**

1. The BDC sends the FA the message of acceptance or rejection of the MIR message.

2. If the MIR message is accepted, the BDC updates the information in the reference central database.

3. If the MIR message is accepted, the BDC sends the MIR message containing the modified routing information to all the providers originating calls to the ported numbers.

### **P7a3:**

The providers send the BDC the IRM message confirming that the routing information has been modified in their own databases.

### **P7a4:**

1. The BDC records the providers' answers sent within the T5 interval.

2. The BDC deems that the providers have updated the routing information if they do not send a reply before the expiry of the interval T5.

### *Remarks:*

*If the parameter "Routing number" in the MIR messages has a pre-established value (RN=18000), this means that the respective number belongs to a numbering block that has been reallocated to the FA and thus the FA has become an FDi. The respective number shall be erased from the ported numbers reference database. If the rest of the providers receive this message, they shall erase the ported number information from their own databases.*

## **4.6. The synchronizing process**

The synchronizing process ensures that the routing information in the providers' databases are always updated with regard to the ported numbers and consistent with the information contained in the reference central database. Usually, the providers' databases are updated based on the information sent by the BDC through the updating messages (AIR), deletion messages (SIR) or through the messages of modifying the routing information (MIR) mentioned in the respective processes. The synchronizing process is aimed at:

1. allowing a provider to retrieve lost information regarding a ported number, information for a certain time interval (delta) or information for all the ported numbers;
2. allowing a new provider to synchronize with the current status of the BDC.

### 4.6.1. The audit sub-process

A provider may request the BDC to send him the data regarding a certain number, by sending the VSF message. The BDC answers this request by sending a copy of the updated information contained in the reference database, based on the last updating message sent regarding the respective number (AIR). The exchange of

messages occurs in real time.

The messages sent during this sub-process are the following:

**VSF** – check by the provider: message sent by the provider to the BDC, specifying the set of data whose integrity the provider wishes to check;

**R-BDC** – BDC answer.

Diagram 9 illustrates the exchange of messages occurred during the sub-process of auditing a number.

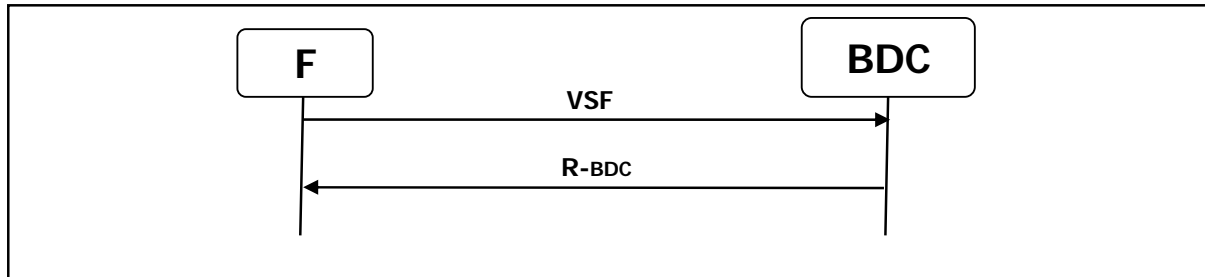


Diagram 9

#### 4.6.2. The sub-process of total or partial synchronizing

The process of total or partial synchronizing occurs if a new provider or a provider whose database has been partially jeopardised (over a limited period) or totally jeopardised requires a copy of the central database. The provider may require a copy of the BDC for all the ported numbers or for the numbers ported during a certain time-frame. The provider sends the BDC the CDS message. The BDC reply (RDS) shall specify the manner and moment of sending the required data. The synchronizing of the databases shall be performed by another transaction, at the moment established in the RDS message. The data may be transmitted on a support agreed with the respective provider (stored on a physical support, file transfer). The updated information in the BDC (ported number, routing number, acceptor's ID, donor's ID, porting date) shall be sent as they have been received by means of the AIR messages.

The messages sent during this process are the following:

**CDS** - request for synchronised data: message sent by the provider to the BDC, requesting a copy of the BDC data;

**RDS** - reply message of the BDC.

Diagram 10 illustrates the exchange of messages within the partial or total synchronizing sub-process.

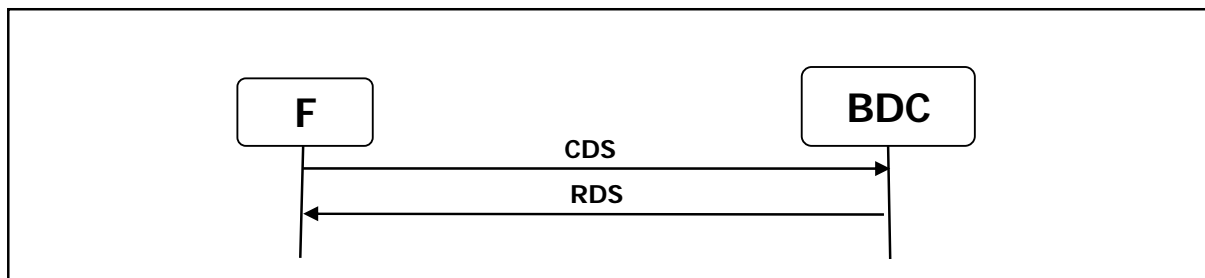


Diagram 10

### 4.7. The process of transfer (reallocation) of a numbering block

If ANRCTI reallocates a numbering block containing ported numbers to another electronic communications services provider, the respective provider becomes an initial

donor provider (FDi). This is the case also for the partial or total assessment of a licence for the use of numbering resources (LURN). The assignor becomes an FDi.

In order for the reallocation to be possible, the FDi shall cease providing services by means of the numbers in the respective block. The provider to whom the numbering block is reallocated shall inform all the providers who route calls on the reallocation and shall amend the interconnection agreements accordingly. ANRCTI shall inform the BDC on the reallocation of the respective numbering block and shall post on its website information on the reallocation of the respective block of numbers.

In this situation, the assigned numbers in the reallocated block have one of the following developments:

a) become non-ported numbers, if the provider to whom ANRCTI had reallocated the numbering block was an FA of these ported numbers. The provider (now having the status of an initial donor provider - FDi) shall inform the BDC on all the numbers in the reallocated block by which it used to provide services in its capacity as an FA, these numbers thus becoming non-ported numbers. The information process shall flow in accordance with the procedure for modifying routing information by sending the MIR message, where the parameter "Routing number" has the pre-established value (RN=18000);

b) remain ported numbers, if the reallocated numbering block contained numbers that had been ported to other providers than the one to whom the numbering block was reallocated. The reference data for these numbers (identity of the FDi) shall be modified. The BDC shall inform the providers holding ported numbers in the reallocated block (or all the providers) on the FDi change.

The messages sent during this process are the following:

**ISDi** – information on changing the initial donor provider

Diagram 11 illustrates the exchange of messages during the process of transfer of a numbering block.

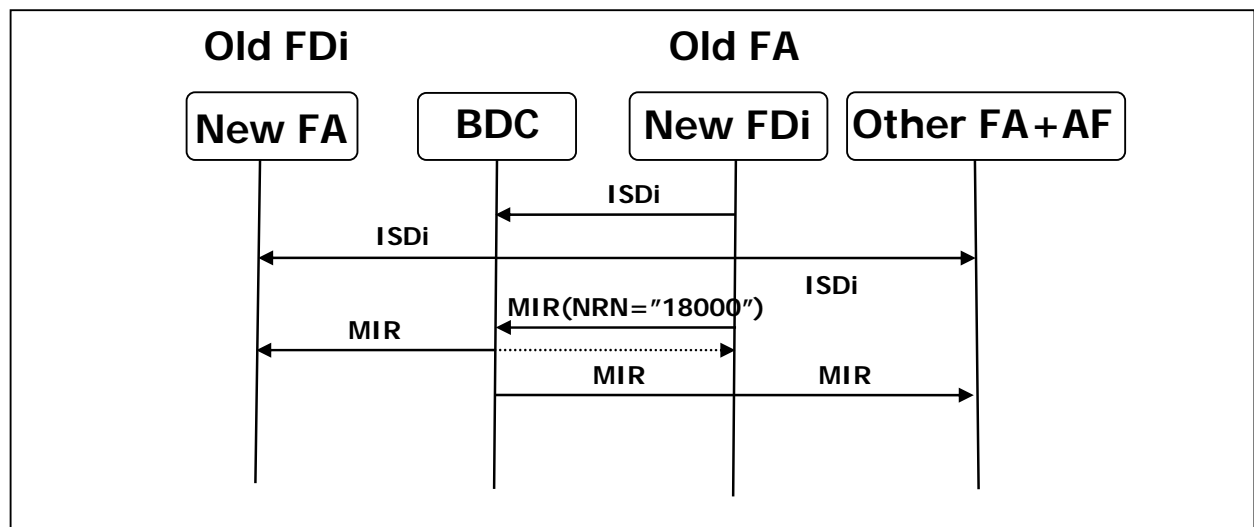


Diagram 11

## 4.8. The system status information process

### 4.8.1. The status of another provider's IT system

The providers shall communicate the BDC the non-functioning/recovery status of the application for the management of the porting process. As well, the BDC shall monitor the functioning of the interfaces with the providers. The non-functioning/recovery status of a provider's application shall be conveyed by a message to the providers in one portability domain that use a point-to-point interface and shall

be visible through a Graphic User Interface web interface.

The BDC shall record the non-functioning period of the provider's IT system and shall re-assess the terms of the processes.

During this process the following messages may be sent:

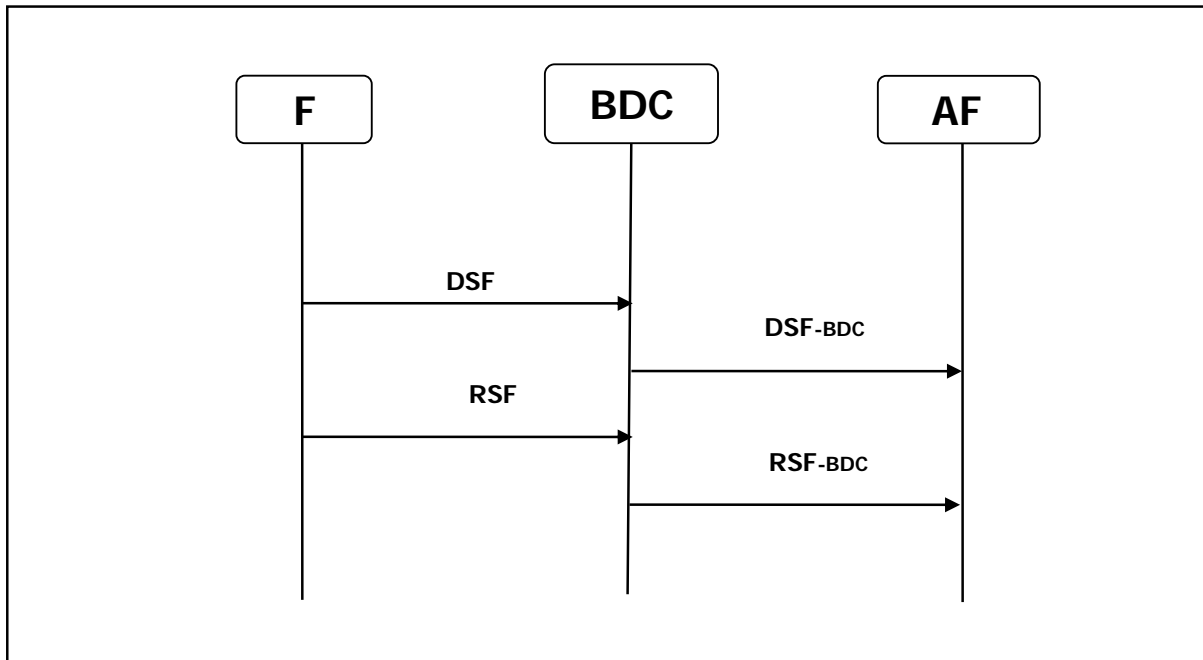
**DSF** – defective provider system: message sent by a provider notifying the BDC on the non-functioning status of the IT system;

**DSFBDC** – message sent by the BDC to the providers informing on the non-functioning status of a provider's IT system;

**RSF** – recovered provider's system: message sent by a provider to the BDC in order to inform on the recovery of the IT system;

**RSFBDC** – message sent by the BDC to the providers, informing on the recovery of a provider's IT system.

Diagram 12 illustrates the message exchange during the process of information on a provider's IT system status.



**Diagram 12**

#### 4.8.2. BDC status

The BDC shall establish an automatic communication mechanism in order to inform the providers on the unforeseen non-functioning/recovery status of the BDC application.

If the BDC cannot process a message sent by a provider, the BDC shall generate the message "BDC technical flaw". In this case, the provider shall resend the message.

The BDC shall notify the providers in due time on the planned non-functioning periods and on the recovery of the functioning status, by specific messages. When such messages cannot be sent, the BDC shall inform the providers by an alternative communication means (telephone, e-mail, fax).

The BDC shall establish a mechanism of resuming the processes interrupted due to system non-functioning situations.

The BDC non-functioning periods shall be recorded by the BDC. The terms established for the administrative processes associated with the implementation of number portability shall be recalculated according to the non-functioning periods.

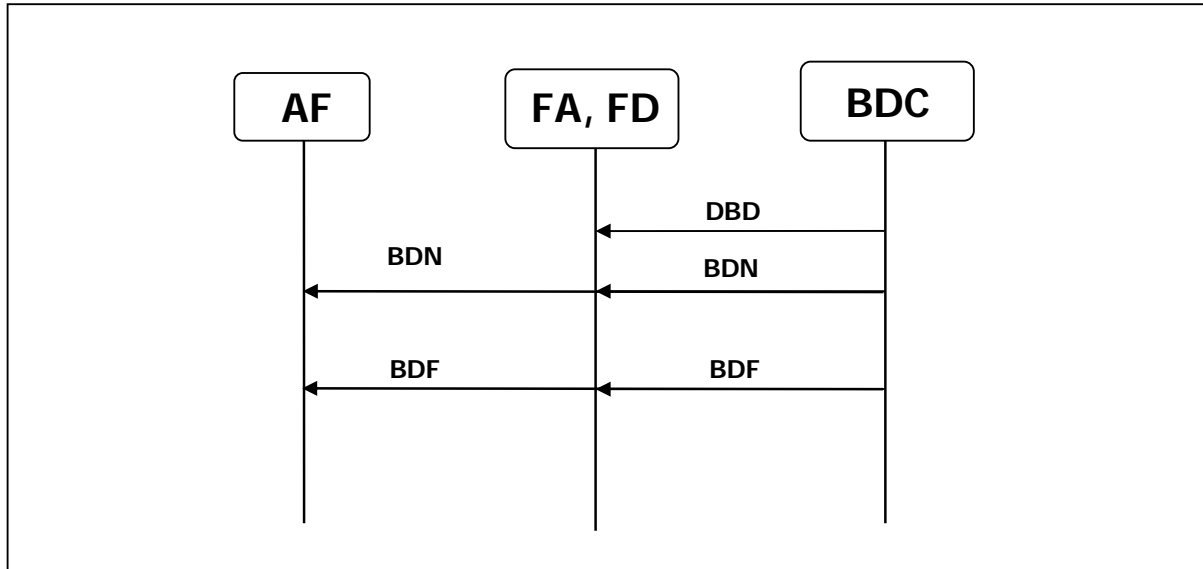
The messages sent during this process are the following:

**DBD**- BDC technical flaw;

**BDN**- non-functioning BDC;

**BDF**- functioning BDC.

Diagram 13 illustrates the message exchange during the process of information on the BDC status.



**Diagram 13**

## 4.9. Exceptional situations

### 4.9.1. Exceptional situations during the validation phase

I. The FA sends the CPF but does not receive any acceptance or rejection messages from the BDC within the TBDC interval. In this situation, the FA resends the porting request, increasing the parameter for number version message (NVE) in the CPF.

*Remarks:*

*The message on the increase of the NVE shall be sent whenever the BDC does not reply with an acceptance/rejection message.*

II. The FD does not send the ACP/RCP message during the T1 interval. In this case, the porting process may continue. The BDC shall record and signal the expiry of the T1 interval. The FA shall contact directly the FD in order to identify the cause of the delay and send a request for porting cancellation, as the case may be. When the T6 term has been exceeded, the process is cancelled by the BDC.

III. The BDC cannot send the FA the ACP/RCP messages during the TBDC interval. In this case, the BDC shall send the FD and the FA the DBD message.

IV. The porting has not been carried out by the expiry of the T6 interval. In this situation, the BDC shall send a message for cancellation of the porting process to the FD and to the FA, after the expiry of the T6 interval. The porting process is cancelled and the BDC may accept a new porting request for the respective number from any provider. The message triggers the statistical metering of the incomplete transaction record for the FA. The metering shall be performed so that the provider guilty for exceeding the T6 completion term should be identified.

V. If the FA is the FDi (following a chain porting process), the parameter "Routing number" in the CPF message shall not contain one of the routing numbers assigned to the FDi, but shall have a pre-established value (RN=18000).

### 4.9.2. Exceptional situations during the actual porting process

I. The FA sends the IPN message before the TEXP moment. In this situation, the BDC rejects the message, generating the corresponding error code.

II. The FD does not perform the porting within the T3 term. In this situation, the FA contacts directly the FD in order to identify the delay cause. The actual porting process may continue or the FA may stop the porting process. If the FD does not confirm the actual porting (does not send the RPD message) within the T4 term at the latest, the FA shall stop the porting process.

III. The service is not end-to-end functional within the term T4, but the FD has sent the RPD message. The FA and the FD shall cooperate to identify and remedy the causes that jeopardise the process. In this situation, the FA shall inform the subscriber on the given situation. The FA may ensure a provisional solution for providing the service (the FA to provide the service on a temporarily assigned number, or the FD to resume total or partial service provision by means of the number for which porting was requested) or may stop the process.

*Remarks:*

*The cases of exceeding the terms T3 and T4 shall be recorded and shall be included in the reports generated by the BDC.*

IV. The BDC does not receive the message confirming the updating of the routing information (IRA) from certain providers within the T5 term. In this situation, the BDC shall consider that porting has been activated by all the providers, but shall record all the providers who did not send the IRA message. A list of the providers who did not confirm the updating of the routing information shall be sent to the FA.

V. If the FA is an FDi (following a chain porting process), the parameter "Routing number" in the RPA and AIR messages shall have the pre-established value (RN=18000). From the BDC viewpoint, this message represents an indication that the ported number has been returned to the FDi and that the ported number information has been erased from the reference database. After receiving the AIR message with the parameter RN=18000, all the providers shall delete the routing number information from their own databases, the calls being routed to the respective number in a similar manner with call routing to non-porting numbers.

#### **4.10. Terms of performing the administrative processes associated with the implementation of number portability**

<b>Terms established through the ANRC President's decision no.144/2006</b>			
<b>No.</b>	<b>Term</b>	<b>Definition</b>	<b>Duration</b>
<b>1.</b>	<b>Tp</b>	Maximum term established for completing the porting process	10 working days
<b>2.</b>	<b>Ts</b>	Minimum term by which the FD has the obligation to store the routing information, after the porting process is completed	24 hours
<b>3.</b>	<b>Tda</b>	Maximum term by which the FA has the obligation to inform the FDi on ceasing the service provision by means of a ported number	5 days
<b>Terms established by the technical and commercial terms</b>			
<b>4.</b>	<b>TBDC</b>	Term within which the BDC has to analyse the accuracy of a received message, to reply with an acceptance/rejection message to the sender and to resend the message to the destination provider, except for the case when the request is stored in queue	15 minutes, under normal conditions
			1 hour, when updating the routing information in the reference database



5.	<b>Tq</b>	Term within which the BDC sends the FD the CPF messages in queue	1 day
6.	<b>T1A</b>	Term within which the FA must send the BDC a set of correlated requests	1 hour
7.	<b>T2A</b>	Term within which the BDC must send the FD a set of correlated requests	30 minutes
8.	<b>TEXP</b>	Date agreed by the FA and the FD for completing the porting	$T2 \leq TEXP \leq 10$ working days
9.	<b>To</b>	Term within which the FA sends the porting request (CPF) or the porting cancellation request (CFA) to the FD, counting from the moment of a subscriber's submitting the request to the FA	The request shall be sent on the submission day
10.	<b>T1</b>	The maximum term elapsed from the moment when the FA sends the porting request to the BDC until the moment when the FA receives, by means of the BDC, the acceptance/rejection reply from the FD	- 4 days, for requests sent by the BDC on the reception date - 5 days, for the requests stored by the BDC and sent on the next day following reception
11.	<b>T1d</b>	Maximum term within which the FD must answer a request by sending the ACP or RCP message	$T1d = T1 - Tq - 2 * TBDC$
12.	<b>T2</b>	Minimum term within which the FA may request the FD to start the actual porting process, counting from the moment of sending the porting request	- 6 days, for requests sent by the BDC on the reception date - 7 days, for the requests stored by the BDC and sent on the next day following reception
13.	<b>T3</b>	The maximum term within which the FD must perform the activities required for actually porting the number. The term starts when the IPN message is sent and ends when porting is completed by the FD (the FA receives the RPD message)	- 3 hours – geographic numbers and non-geographic numbers, other than numbers for mobile telephone services - 2 hours – non-geographic numbers for mobile telephone services
14.	<b>T4</b>	Maximum term within which the FA must perform the activities required for completing the porting and checking the service functioning both on the donor network and on the acceptor network. The term starts when the RPD message is received and ends when all the activities required (including tests) for ensuring the routing of calls to the ported number on the FA network and in the FD network (sending the RPA message) are completed	- 2 hours – geographic numbers and non-geographic numbers, other than numbers for mobile telephone services - 2 hours – non-geographic numbers for mobile telephone services

15.	T <sub>5</sub>	Maximum term within which all the providers have to update the routing information, following the BDC's transmission of the messages containing updated routing information (AIR, SIR, MIR)	1 day
16.	T <sub>6</sub>	Maximum term within which the porting may be completed. If this term is exceeded, the BDC automatically cancels the porting process	30 working days
17.	T <sub>7</sub>	Maximum term elapsed from the moment when the BDC registers the request for cancelling the porting process for a certain number and the moment when any references regarding that number is deleted. After the expiry of this term, a new porting process may be initiated for the respective number	24 hours
18.	T <sub>8</sub>	Maximum term elapsed from the moment when the ported number is disconnected and that when the FA informs the FDi, by means of the BDC, on the cessation of the service provision	$T_8 \leq T_{da}$ ( $T_{da} = 5$ days)
19.	T <sub>9</sub>	Maximum term elapsed from the moment when the ported number is disconnected and the moment when the number is returned to the FDi	60 days
20.	T <sub>10</sub>	Maximum term by which the porting request may be cancelled	TEXP - 24 hours

*Notes:*

1. The terms shall be recalculated by the BDC through an automatic mechanism, based on the non-functioning periods. These terms shall be communicated to the providers involved.

2. The terms shall be established either as hours, as calendar days or as working days.

A working day shall be deemed to be any weekday, Monday to Friday, except legal holidays.

A normal working programme shall be deemed to be the period between 09:00 – 18:00 of any working day. In order to calculate the term T<sub>1</sub>, any CPF message received within this interval shall be deemed received during that day, at the respective hour, and any CPF message received after 18:00 on a working day shall be deemed received at 09:00 on the next working day.

3. In view of completing the porting, two porting intervals shall be established:

a) 9-13 and 14-18 for porting non-geographic numbers for mobile telephone services

b) 9-14 and 13-18 for porting geographic and non-geographic numbers, other than numbers for mobile telephone services.

The providers may also agree on other porting intervals.

The minimum number of requests processed daily by an FD during the first quarter after the implementation of number portability:

a) porting geographic numbers:

No. requests (per geographic area indicative)		
Total (at national level)	Bucharest and Ilfov county	Other counties

250	50	10
-----	----	----

b) porting non-geographic numbers, other than numbers for mobile telephone services: 10;

c) porting non-geographic numbers for mobile telephone services: 250.

A set of correlated requests shall contain, during the first quarter of implementing number portability, at most 50 requests (n=50). This value could be updated depending on the daily processing capacity. If the last request accepted during one day is part of a set of correlated requests, all the requests in the set shall be accepted.

All the providers of publicly available telephone services have the obligation to increase the minimum processing capacity, on a quarterly basis, by a percentage equal to the average percentage of the requests rejected on grounds of exceeded processing capacity, during the first two months of the previous quarter. The BDC shall establish and communicate to each FD – on the last month of each quarter – the daily processing capacity for the following quarter.

## **5. REGULATION FOR THE ORGANISATION AND FUNCTIONING OF THE CENTRAL DATABASE**

### **5.1. General Provisions**

The implementation and management of number portability are carried out by means of an informatics system - BDC, that includes the adequate software, hardware and communications resources. The informatics system comprises a database, that stores the data in a specified form, and a set of functions that carry out operations over these data and ensure communication with the informatics systems of the electronic communications services providers (FSCE), either through secured point-to-point interfaces or through a secured web application. Also, BDC feeds a publicly available website that provides information on the ported numbers.

The BDC collects and stores data regarding the ported telephone numbers and allows the providers to exchange information related to the portability process. Communication between the BDC and the informatics systems of the providers is carried out by means of standard interfaces, in a secured manner. Routing information contained in the BDC are used by the providers for routing calls to the ported numbers.

The BDC comprises information regarding all ported categories of PNN numbers. Moreover, the BDC ensures ANRCTI's access to all information necessary in order to verify the way number portability is implemented. Access of other bodies (such as the operator of the Unique Emergency Number System - 112) to information contained within the BDC shall be established subsequently.

The Operator of the Central Database (OpBDC) is the person (entity) that ensures the operation, management and maintenance of the BDC for the purpose of implementing number portability.

### **5.2. BDC Architecture**

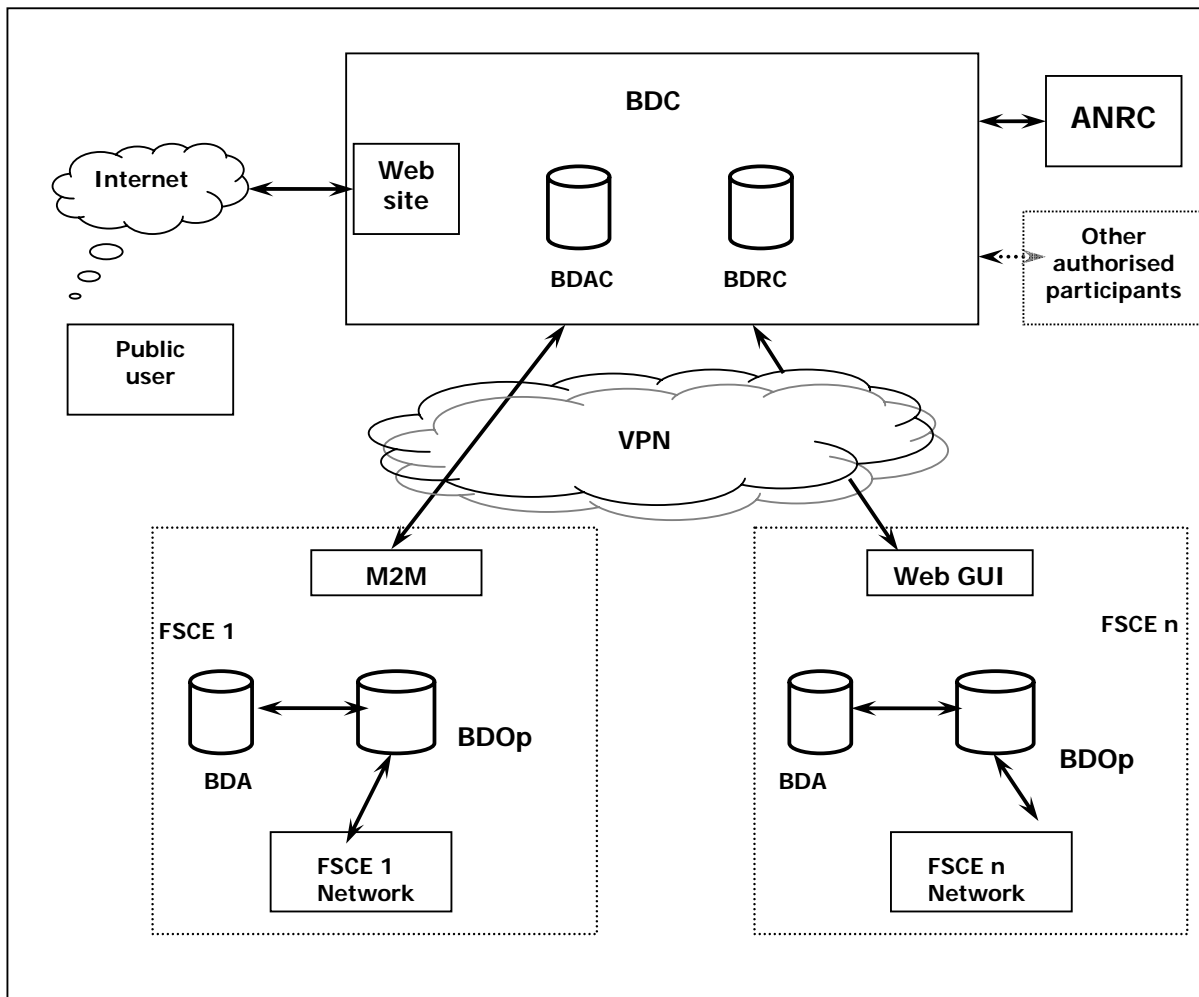
The BDC consists of 2 main components:

1. administrative database (BDAC) - comprises the register of the transactions (administrative procedures) taking place between the providers, as well as other additional information, necessary in view of implementing number portability. BDAC ensures both the exchange of messages between providers and the storage of these messages;

2. reference database (BDRC) - contains the full set of information related to the

ported numbers and the routing numbers.

The block scheme for number portability is depicted in Diagram 14.



**BDC** – Central database  
**BDAC** – Central administrative database  
**BDRC** – Central reference database  
**BDA** – Provider's administrative database  
**BDOP** – Provider's operational database

**Diagram 14**

The providers do not use the BDC in the real time for routing calls to ported numbers. The providers shall ensure the routing of calls or other messages to the ported numbers by using the own operational databases or those provided by third parties.

The local administrative databases (BDA), owned by the providers, are used by these providers in order to communicate with the BDC for the purpose of number porting. The BDA receive from the BDC the routing information related to the ported numbers, store these information and update the operational databases.

All the providers originating calls must have access to the routing information related to the ported numbers, stored in the BDC. The respective providers bear the responsibility for implementing the local BDOP and BDA.

Communication between the BDC and the providers involved in the implementation of number portability (providers initiating calls and ANRCTI) is carried out either by means of a VPN network on secured IP or by means of dedicated leased lines. Communication is only possible on an unilateral basis, between each provider and

the BDC. The way number portability is implemented provides the solution for securing communications, defining BDC interfaces and defining the interfaces for communicating with users.

### **5.3. BDC Functions**

#### **5.3.1. Informatization of the processes related to the implementation of number portability**

Within BDC, the software application must implement the administrative processes associated with number portability in accordance with the technical and commercial terms. For that purpose, the application shall ensure real-time exchange of messages transmitted from and towards the providers and shall update the data tables accordingly. The providers' databases shall be updated based upon information transmitted by the BDC through the messages regarding the updating, deleting or changing of the routing information. Additionally, BDC shall ensure the synchronization of the providers' databases, allowing, upon their request, the download of routing information related to a certain ported number, all ported numbers, or the numbers ported in a certain time-frame.

The software application must provide adequate mechanisms in order to:

- a) treat the porting requests individually as well as in a correlated manner;
- b) monitor and update the daily processing capacity of each FD;
- c) manage the queue of porting requests for 2 days (the current and the next day);
- d) manage the exceptional situations occurred as part of the administrative processes (such as the interruption of processes due to the non-functioning of the BDC or of the providers' applications; the providers' failure to transmit messages in due term; adapting terms according to the functioning status etc.)

#### **5.3.2. Storing and changing reference information regarding ported numbers**

For each ported number, a record is stored in the BDC (while transmitting the AIR message). Such record will comprise:

- a) the ported number (DN), in the national format;
- b) ID FDI;
- c) ID FD;
- d) ID FA;
- e) date and hour when the porting is carried out;
- f) the routing number.

If necessary, the OpBDC shall replicate the reference data stored in the BDC, in order to ensure synchronization with the respective provider's local database.

#### **5.3.3. Provision of publicly available information**

The BDC shall include a web application that should:

- a) publish the numbering blocks including portable numbers;
- b) provide a search engine by means of which the end-users may find whether a certain number is ported and, if so, the provider of publicly available telephone services operating the respective number at the interrogation moment.

The end-users shall be warned that, in order to find out the tariffs charged for calls to the respective ported number, they should contact their services provider. To this extent, the application shall make available the contact data and the links to the websites of the publicly available electronic communications services providers.

The users will have access to this web application by means of the validation procedure (e.g. confirm a random code on the screen). Access to publicly available

information must not affect the BDC security and the integrity of the BDC data.

#### 5.3.4. Reports

The BDC generates standard or on-demand reports, ensuring the possibility that these reports be printed or transferred as a secured file.

The BDC allows the processing of requests for one record/message, type of record/message, parameter or various types of events over a certain period without affecting the regular operation performance.

As well, the BDC keeps an updated list of the generated reports.

The reports are classified depending on their recipient:

a) consolidated reports destined exclusively to ANRCTI - the BDC provides instruments or support for ANRCTI to elaborate consolidated reports regarding the BDC system users. These reports will include data regarding all the participants who use the BDC;

b) regular reports destined to FSCE and ANRCTI - each provider (FD or FA) shall have access exclusively to the reports on the numbers ported from or to their own network. ANRCTI shall have access to all the types of reports. These reports shall be provided on a daily, monthly or quarterly basis, as the case may be.

The list of standard reports generated by the BDC is available in Annex 5, which is part of the technical and commercial terms.

### **5.4. Ensuring the participants' access to the BDC**

The participants' access to the BDC shall be ensured through the administrative interfaces. Communication is provided through messages carrying specific information. The communication protocol shall ensure a mechanism for the validation of the message data integrity.

The BDC shall include a "web client" type software for sending messages related to the processes, depending on which of the following technical solutions the participant may choose:

a) web-based manual transmission;

b) web-based manual transmission and automatic reception of messages from the BDC;

c) automatic transfer, based on the direct communication of the BDC with the provider's administrative database (M2M). The M2M communication solution shall not allow the BDC to access providers' system applications. Communication may be established over SOAP protocol with XML file transfer, but alternative implementation solutions may be used.

The software application of the BDC shall ensure the server solution that communicates with the client solution to be provided to the BDC users.

Access requirements for the participants who use manual transmission:

a) a web browser that should yield the BDC client application for sending messages;

b) adequate security mechanisms;

c) IP connection.

The participants who use automatic transfer must own a software that should allow automatic connection to the BDC in order to perform the exchange of XML messages over SOAP protocol.

### **5.5. The billing function**

The software application shall allow the following:

a) implementation of a billing function, if this is required for charging the users in

view of covering the administration, operation and maintenance costs related to the BDC;

b) provision of information regarding the ported numbers, in view of performing cross-payments between providers.

## **5.6. Monitoring the functioning of the BDC**

The BDC ensures:

- a) monitoring the processes and the message flows;
- b) monitoring data integrity;
- c) monitoring interfaces and communication links.

## **5.7. BDC-related requirements**

### **5.7.1. Requirements regarding the application programmes**

The software application shall fulfil the following specific requirements:

- 1. standard, jointly accepted applications shall be provided;
- 2. operation shall be ensured by means of quick menus and commands;
- 3. the screen image must include the necessary data for each function;
- 4. the mandatory fields must be correspondingly marked on the data input interfaces;
- 5. the error messages must be prompted in a standard format for the whole system and in the same section of the screen;
- 6. there must be a separate administration module, enabling corrections (e.g. change the status of the ported numbers);
- 7. the system must yield format checking for the data input, thus ensuring their accuracy;
- 8. the system must provide a validation mechanism for the integrity of the data in the exchanged messages (e.g. control files);
- 9. in case of actions that are simultaneously initiated by several users, a special management system shall be used, based on message priority and access classes;
- 10. an automatic mechanism shall be used for the management of exceptional situations;
- 11. different profiles shall be ensured for the providers and for the OpBDC;
- 12. data tables shall be created for the application;
- 13. reference data tables shall be created:
  - a) tables containing information of the participants (name, contact data);
  - b) tables containing the providers' ID;
  - c) tables containing the providers' access classes;
  - d) tables containing the blocks of numbers allotted by LURN to the providers of publicly available electronic communications services;
  - e) tables containing the routing numbers;
  - f) tables containing the message types;
  - g) tables containing the rejection and the error codes;
  - h) tables containing the manner of sending the messages for updating the routing information (AIR, MIR, SIR), depending on the technical solution ensuring the users' access;
  - i) tables containing the terms of the administrative processes (Timers);
  - j) tables containing the working days and the holidays;
  - k) other tables required by the BDC applications;
- 14. the data shall be mapped in tables with appropriate codes;
- 15. description labels shall be created for the data tables.

#### 5.7.2. Requirements regarding the users' access to the BDC

The BDC shall allow registration of the users, registration cancellation and amendments to the registered data, as well as the possibility of defining participant profile. A user's profile shall include:

- a) way of access to the BDC;
- b) class of access.

The following classes of access shall apply:

1. class I - OpBDC;
2. class II - the users in this class have access to the BDC for all the portability-related processes in which they are directly involved;
3. class III - the users in this class have access exclusively to the routing information in the BDC;
4. class IV - ANRCTI. ANRCTI has access to the statistical data regarding the progress of the porting process.

#### 5.7.3. Security requirements

The BDC shall ensure that the following security requirements are observed:

- a) the users' access to the BDC shall be possible only based on a secure log-on method;
- b) the log-on levels, IDs and passwords shall be allotted by the system administrator. The initial passwords will be handed out to the participants in sealed envelopes;
- c) the passwords must have at least 8 characters (alphanumeric characters and special characters);
- d) the initial passwords allotted must be changed by the providers on the first logging session within the BDC and may be changed on a regular basis;
- e) the access rights shall be checked in case of receiving requests for reports, of writing or reading data in the BDC;
- f) logged-on messages shall be managed (e.g. authentication of data origin for each message, message reply detection, message modification detection, detection of the "time frame" of the messages);
- g) the BDC system must be able to check the authenticity of the data, based on the users' electronic signatures.

##### *Security mechanism (encrypting)*

The interface between the BDC and the provider's data base shall ensure the encrypting of the data, based on the system of public keys and digital signature algorithm or other encrypting algorithms that may ensure an adequate security level. OpBDC and the providers shall communicate the list of the encrypting algorithms used.

##### *Registration for audit*

The BDC shall be provided with the possibility of auditing the participants' actions upon it, as well as with log tables, which must record at least the following log contents:

1. entry messages resulting from connection setup or termination;
2. all the invalid messages (e.g. invalid signature, digit sequence outside the set, unauthorised sender of the respective request);
3. all the entry messages that may alter the information in the BDC;
4. access IP;
5. changes of the access rights;
6. authorised/unauthorised use of an access account;
7. time-stamp (time label automatically allotted to a message).

#### 5.7.4. Requirements regarding the performances of the BDC:



- a) initially, the BDC must have an extendible storing capacity that may hold at least 2 million ported numbers;
- b) the BDC must be able to process at least 10 porting message transactions per second;
- c) the BDC must be able to offer access services to at least 300 users (providers) at a time. Each provider shall have one access point (one user name, one password, one open session);
- d) the BDC must be able to process at least 6000 ported numbers a day;
- e) the BDC must be able to store and interpret information regarding the message exchange for at least a 10-year period. Only the data for the previous 12 months must be directly accessible. Therefore, the following methods shall be used:
  - 1. recording - there must be provided a procedure (function) for saving and recording the data older than 12 months on a back-up medium (preferably external);
  - 2. recovery of recorded data - there must be provided a procedure for recovering the recorded data and for searching old data without affecting the content of the operation data.

#### 5.7.5. Requirements regarding reliability and availability

The BDC shall be so designed as to ensure high reliability, taking into account the integrity and redundancy characteristics of the data, the multiprocessing and the possibility to extend the capacity.

The BDC shall fulfil the following reliability and availability requirements:

- a) the BDC shall remain operational 24/24, 7/7;
- b) the BDC availability shall score 99.95% as regards both the operational capacity of the database and the data integrity;
- c) the timeline allowed to restore the system after a minor deficiency should not exceed 1 hour (from the moment of reporting the deficiency until the full recovery of the system);
- d) the timeline allowed to restore the system after a major deficiency should not exceed 8 hours (from the moment of reporting the deficiency until the full recovery of the system);
- e) the BDC shall ensure a mechanism of informing the providers in case of accidental malfunction ("BDC technical error");
- f) the BDC shall ensure a mechanism of processing the transactions affected by the BDC malfunction.

#### 5.7.6. Back-up, recovery and recovery after disasters

The BDC shall ensure that the following requirements are fulfilled:

- a) the BDC must include back-up functions to ensure a full updated back-up version of the BDC;
- b) the BDC must yield automatic recovery procedures in case of data loss;
- c) the automatic back-up of the database sector containing information on the ported numbers should not take longer than 1 hour;
- d) the automatic back-up of the whole database should not take longer than 2 hours;
- e) the procedures for back-up, system recovery and recovery of operation after disasters must be well defined and endorsed by documents, so that their management could be ensured by the OpBDC without acknowledging the content of the BDC.

In case of a disaster that limits the capacity of the BDC, the following shall be ensured:

- a) the capacity of receiving, processing and sending updates should be restored in less than 12 hours;
- b) full functionality should be restored within 48 hours.

In order to monitor BDC's performance in accordance with the above mentioned requirements, the BDC shall provide reports.

#### 5.7.8. Testing facilities

The BDC shall be provided with an additional testing module for checking the connections and for performing tests regarding the information exchange between the BDC and the users. The testing conditions shall be similar with the ones under real functioning (production system).

#### 5.7.9. Facilities for monitoring the functioning of the system

In order to ensure data and system integrity (data maintenance), the BDC must include the following procedures for the data maintenance function:

- a) procedures for monitoring the BDC resources (including hardware);
- b) procedures for checking the integrity of the database;
- c) procedures for detecting the error conditions;
- d) rules for checking data updates;
- e) procedures for dealing with multiple entries;
- f) procedures for synchronizing the system timer, thus ensuring the synchronised operation of the BDC and the providers' databases by using adequate protocols (e.g. NTP - network time protocol, server Stratum 2 MCTI).

In view of monitoring the communication links with the BDC, the system must ensure:

- a) detection of communication errors;
- b) assistance in solving the data communication problems between the providers and the BDC;
- c) monitoring of access interruption and recovery of the regular access.

#### 5.7.10. Scalability and upgrading

The BDC shall ensure the following:

- a) shall satisfy the requirements for changing the record size, in order to include all the fields of a certain message type;
- b) shall have the possibility of upgrading the system software and hardware.
- c) shall be upgradeable and extendable with a minimum impact on the need to interrupt its functioning. Generally, these activities must be performed during the scheduled interruptions.

#### 5.7.11. Maintenance, training and technical assistance

The provider of the software application shall ensure the following:

- a) technical (software and hardware) assistance in order to guarantee the BDC operation for at least one year after the date when it is provided;
- b) full technical documentation regarding the BDC;
- c) test documentation;
- d) (online) assistance programmes;
- e) training programmes related to the use of the BDC.

### **5.8. OpBDC role**

The OpBDC has the following functions:

- a) manage and monitor the BDC;
- b) plan and implement the back-up policies for ensuring data protection;
- c) ensure the BDC data and application data security;
- d) configure the database according to the requirements of the providers using the BDC;

- e) configure the database and the application according to the providers' security requirements;
- f) monitor the processes within the application;
- g) monitor the BDC as regards the performance and the capacity of the application;
- h) investigate the problems raised by the application users;
- i) provide service in case of malfunctions;
- j) system integrator during the implementation of the BDC.

## **5.9. OpBDC attributions**

### 5.9.1. Register/change/cancel participant registration

The OpBDC shall register, change or cancel users' registration, based on the requests received and shall establish the access class for each user, depending on the information provided by them (create participant profile).

In order to be registered in the BDC, all the requesters must send the OpBDC the following data:

- a) the requester's name and contact data (contact person, telephone number, e-mail address);
- b) the provider's ID;
- c) the user's capacity (FA, FD, AF) in view of establishing the access class;
- d) the access solution (automatic or manual) and communication data (e.g. IP address);
- e) telephone number and website where the information on the tariffs of calls to the ported numbers is made available;
- f) blocks of numbers containing numbers that are allotted by LURN and may be ported, as the case may be;
- g) routing numbers allotted by ANRCTI, as the case may be.

The OpBDC shall establish the providers' access class, based on the information provided by ANRCTI (Class II - FA, FD; Class III - AF).

The OpBDC shall notify the users on activating their access right and shall communicate the following:

- a) address for communicating with the BDC (website or IP address);
- b) BDC log-on elements (ID, passwords);
- c) contact data of the OpBDC (contact person, telephone number, e-mail address).

### 5.9.2. Management of the BDC data tables

The OpBDC shall ensure the management of the data tables.

### 5.9.3. Ensure the continuous functioning of the BDC

The OpBDC shall ensure the functioning of the BDC by monitoring the BDC and taking the necessary measures in view of solving all the problems occurred in the operation of the database. The OpBDC shall provide the BDC user's guide (including on the website), as well as training sessions, upon the users' request.

The OpBDC shall coordinate and provide assistance to the users for:

- a) testing the functioning of the BDC with each user, whenever a new user is registered and whenever a malfunction arises;
- b) error correction, in accordance with point 5.7.1.;
- c) solving and analysing problems occurred by file download.

The OpBDC shall notify in advance all the participants on the scheduled interruptions of the BDC, by means of an electronic message. If the message cannot be

sent, the notification shall be made by fax or telephone to the contact numbers made available to the OpBDC by the users.

The OpBDC shall ensure the recovery of the BDC's data using back-up resources as follows:

- a) upon the BDC users' request or in case of malfunctions, the OpBDC shall initiate the data checking and update procedures;
- b) during this process, when trying to access the BDC, the providers shall be informed about the ongoing back-up process;
- c) during this process, the porting requests received from the providers may not be processed;
- d) the porting requests sent during the back-up procedures shall be automatically processed at the end of the process.

The recovery of the BDC's operation after disasters shall be accomplished according to the technical specifications of the implemented system.

The OpBDC shall notify the users on the BDC software versions to be installed. The updated documentation shall be included as part of the software updates. As well, the OpBDC shall notify the participants on the BDC changes.

#### 5.9.4. Ensure the administrative support required for the BDC operation

The OpBDC shall provide:

- a) the personnel and the materials required for the BDC operation;
- b) management of the financial resources;
- c) activity planning for the BDC personnel;
- d) the "Providers' Support Desk" (Hot-line), available during the regular working programme. If so required, this service could be available 24/24, 7/7;
- e) the BDC facilities and their maintenance;
- f) telecommunications facilities:
  - 1. data communications facilities (e-mail, website);
  - 2. voice communications facilities, fixed and mobile;
  - 3. fax machines.

#### 5.9.5. Making information on the ported numbers publicly available

The OpBDC shall make publicly available, cost-free, on its website, clear and updated information on the ported numbers.

Such information shall specify:

- a) numbering blocks containing portable numbers;
- b) whether a certain number is included in the data base of the ported numbers;
- c) the provider servicing the respective number on the interrogation date;
- d) the contact data of the providers of publicly available electronic communications services, including the addresses of the websites where information on the tariffs for the ported numbers is available.

#### 5.9.6. Reports

The OpBDC provides standard or on-demand reports.

#### 5.9.7. Security

The OpBDC shall elaborate security rules as regards the access to the BDC. Also:

- a) the BDC location shall be secured by establishing well defined protection areas and access points;
- b) physical protection of the information storage equipment and the information support shall be ensured.

#### 5.9.8. Confidentiality

During operation, the OpBDC shall guarantee data confidentiality according to the provisions of the following laws:

1. Law no.182/2002 on classified information, with the subsequent amendments;
2. Law no.506/2004 on processing personal data and the protection of privacy in the electronic communications sector, with the subsequent completions;
3. Law no.677/2001 on data protection and the processing of personal data, as well as their free circulation.

Apart from FA and FD, no other participants shall have access to the data regarding the ported numbers - but having no relation to the routing process – used by the BDC during porting. Other data having no relation to the routing process may be relayed to certain authorised users, according to the legal provisions.

#### 5.9.9. Provision of information by the OpBDC to the users

The OpBDC shall establish the set of services offered to the users, according to the specific access class and solution of each provider. Such services shall be offered based on contracts concluded between the OpBDC and the users.

Until the designation of the OpBDC, this role will be played by ANRCTI. Once the OpBDC is designated, the financing solution for the management, operation and maintenance of the BDC shall be established.

## **6. METHODS OF COST REIMBURSEMENT BETWEEN PROVIDERS**

### **6.1. Overview**

The implementation of number portability generates additional costs, which are born by the providers of publicly available electronic communications services. A provider may recover part of these costs from other providers, according to the role he plays in the porting process, or from the end-users.

In view of establishing the methods of cost reimbursement between providers, we hereby shortly analyse the main cost categories triggered by the implementation of number portability and establish the principles for the reimbursement of these costs.

### **6.2. Costs incurred by the providers of electronic communications networks and services**

#### 6.2.1. Costs of implementing the number portability service in the network

The implementation costs occur only once and reflect all the activities (solution development, actual implementation, initial testing, personnel training etc.) conducted in order to make available the technical, operational and administrative capacities required for the implementation of number portability or for changing the number portability solution.

Depending on the network size and architecture, the implementation of number portability may require some changes in the network (switches, intelligent network platforms, signalling network, data network), interoperability with the existing networks, modified OSS systems, amending the internal procedures and the operation methods,

initial testing (internal tests and interoperability tests, related to other providers) etc.

These costs shall be born by each provider of electronic communications networks and services who has the obligation to implement number portability. Considering that, in accordance with the provisions under art.19(1) of the ANRC President's decision no.144/2006, each provider originating calls shall bear his own costs generated by the implementation of number portability, including the costs of interfaces with the central databases. Therefore, these costs may not be recovered from other providers of electronic communications networks or services.

#### 6.2.2. Costs of implementing, managing, operating and maintaining the BDC

Two subcategories of such costs have been identified:

b. costs generated by the acquisition of the BDC and of the required equipments, as well as by their installation and testing. The set up of the BDC shall be financed from PHARE funds;

c. costs of managing, operating and maintaining the BDC. The manner of financing these costs shall be established at the time of OpBDC's designation.

Each provider originating calls shall bear the costs of the interfaces with the BDC, according to art.19(1) of the ANRC President's Decision no.144/2006.

#### 6.2.3. Porting costs per number

The porting costs per number reflect the technical, operational and administrative activities conducted for each porting request. These include the costs generated by the technical (porting the respective number), operational and administrative activities, as well as the costs related to updating the local databases used and of the BDC. Both the FD and the FA register porting costs for each number.

The principles of recovering these costs, as well as the maximum level of the porting tariff have been established by art.19 of the ANRC President's Decision no.144/2006. Thus, the costs of the FD related to the porting of the number may be recovered from the FA, but shall not exceed:

a) 13 Euro for each ported number, in case of porting geographic numbers and non-geographic numbers, other than those for mobile telephone services;

b) 11 Euro for each ported number, in case of porting non-geographic numbers for mobile telephone services.

In case of using the OR routing method, the provider originating the call shall owe the FA the interconnection tariff for the purpose of call termination, the interconnection tariff for commuted transit, the tariff reflecting the use of the portability functions of the FDi, as well as other additional tariffs determined by the use of this routing method. The tariffs owed by the FA according to art.19(2) of the ANRC President's Decision no.144/2006 shall be billed directly by the FA directly to the FD.

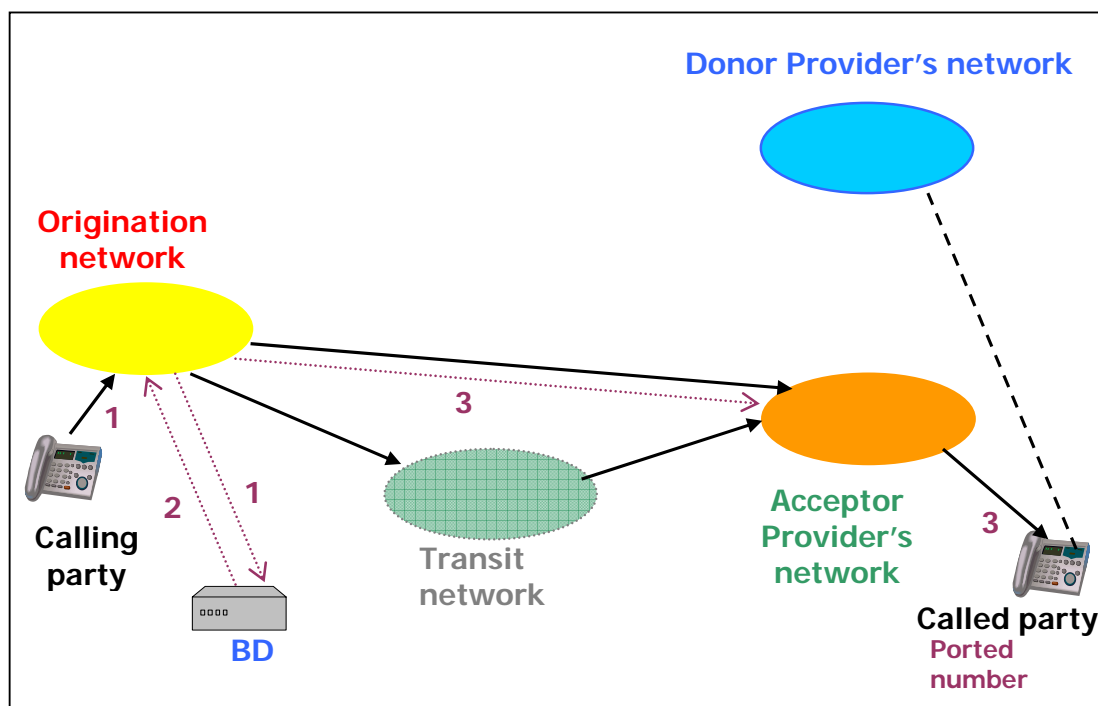
#### 6.2.4. Costs of routing a call to a ported number

The costs of routing calls reflect the additional network resources (switches, transmission, signalling, and interrogation of the local databases and of the BDC) required for routing the calls to the ported numbers. These costs add up to those usually associated with a call to a non-ported number or with the case of portability not being implemented. There are two main categories of such additional costs:

1. additional routing costs, associated with carrying a call from an intermediate network (usually, the initial donor network) to the termination network of the respective call. The additional routing costs are generated by the use of the Onward Routing (OR) method, whereby a call to a ported number is transmitted to the initial donor network;

2. costs of accessing the BDOp. The costs of accessing the BDOp are usually associated with the use of the ACQ routing method, which requires accessing the database in view of processing a call.

These costs are born by the operator on whose network the calls are originated.  
 When the ACQ routing method is used, the transmission of calls to the ported number is sketched in the diagram below:



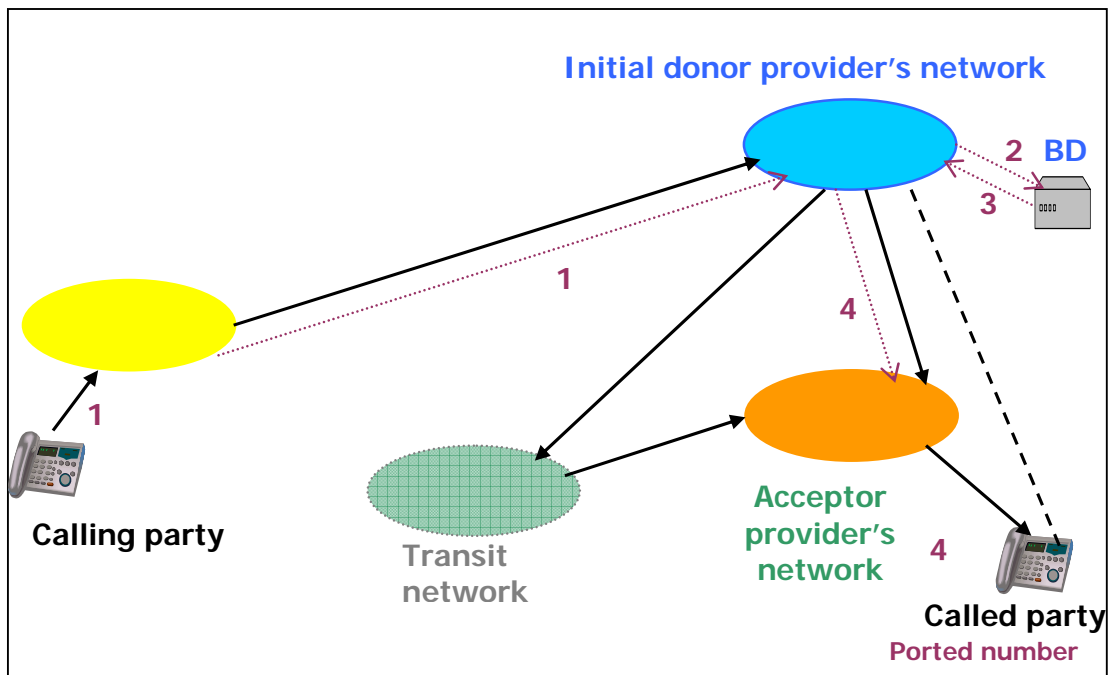
- 1 – The origination network receives a call and sends an interrogation to the provider's own operational database;
- 2 – The database returns the routing number (RN) associated with the called number;
- 3 – The origination network uses the routing number to route the call (directly or by transit) to the FA's network.

**Diagram 15**

The use of the ACQ method for call routing between networks involves an additional cost for the provider originating the call (respectively, the cost generated by interrogating the BDop and the BDC, in view of obtaining routing information). Thus, the costs of accessing the BDop shall be born by the provider in whose network the call is originated. The interconnection tariffs shall be identical with those established before the implementation of number portability.

In case a provider is not able to implement the ACQ method, he may use the OR routing method - upon ANRCTI approval - while bearing all the additional costs.

In case of using the OR routing method, the transmission of calls to the ported number is sketched in the diagram below:



- 1 - The origination network receives a call and routes the call to the FDi's network (directly or by transit);
- 2 - The FD's network interrogates the operational database and establishes that the called number has been ported;
- 3 - The database returns the routing number associated with the called number;
- 4 - The FD's network uses the routing number to route the call (directly or through transit) to the FA's network.

**Diagram 2**

The provider originating the call shall route the calls to the ported numbers in the same manner as the calls to non-portable numbers (based on the analysis of the called number) towards the FD (directly or through transit). The latter will take the necessary steps in order to route the call to the FA's network.

In this case, the provider who originates the call using the OR method shall pay the following tariffs for each call to a ported number:

a) a termination tariff, to the FA (and the transit tariff or tariffs, as the case may be, if the traffic between the FD's networks and the FA's network is carried through one or several transit networks);

b) a tariff reflecting the use of the portability functions, to the FD (costs of accessing the BDOP);

c) a transit tariff, to the FD, in order to cover the additional routing costs occurred following the additional routing of calls to the FD.

The termination and transit tariffs shall be those negotiated and established by the interconnection agreements between the parties, or - for the operators with significant market power in the specific relevant, on whom the obligation of tariff cost-orientation has been imposed - those imposed by ANRCTI.

The tariff reflecting the use of the portability functions shall be established by negotiation between the parties and will be included in the interconnection agreement between providers.

The reimbursement method for the tariffs shall be established by negotiation between the parties: either directly, or by cascading.

In case the provider originating calls purchases routing services from a third party, the conditions for the purchase of these services shall be established on commercial bases, through negotiation. The respective tariffs, payment methods, as well as other conditions shall be included in the interconnection agreement between the



provider originating the calls and the third party.

### **6.3. Tariffs charged on the end-users**

#### 6.3.1. The porting tariff charged on subscribers

Considering that ANRC the FD may recover the porting costs for a number from the FA, the FD shall not charge the subscriber for the activities conducted in view of porting the respective number.

On the other hand, the FA shall bear all the internal costs triggered by porting the number. The FA may transfer part of these costs to the subscriber, to the extent that the principle of tariff affordability is observed. Where ANRCTI finds that the tariffs charged on the end-users are not affordable, ANRCTI shall impose specific obligations, so that the amounts due by the subscribers for this service become affordable.

#### 6.3.2. The tariff charged on the end-users for calling a ported number

According to art.20(2) of the ANRC President's Decision no.144/2006, the tariffs for calls to the ported numbers shall be established by the providers originating calls.

There are two options for charging the end-users for calls to ported numbers:

- a) tariffs established by number – in this case, the tariff remains unchanged upon porting (as if the number hadn't been ported);
- b) tariffs established by network – the tariff paid by the end-user initiating a call is modified as regards the tariff related to the FA's network.

The costs of implementing the end-user information mechanisms, according to art.21 of the ANRC President's Decision no.144/2006, shall be born by each provider of publicly available telephone services.

## **7. QUALITY PARAMETERS FOR THE PROVISION OF THE NUMBER PORTABILITY SERVICE**

### **7.1. Overview**

This chapter establishes the quality parameters that must be observed during the porting process as regards the number portability service, the numbers and the BDC.

The quality parameters defined envisage the activities conducted by the providers of publicly available electronic communications services who incur obligations on ensuring number portability, as well as the activities of the central database operator.

The set of quality parameters and the specific objectives for these parameters are established in order to:

- a) ensure the smooth development of the porting process;
- b) assess compliance with the obligations imposed on the providers of publicly available electronic communications services regarding the implementation of number portability;
- c) assess compliance with the obligations imposed on the OpBDC;
- d) ensure reference terms for the establishment of mutual contractual relationships between the providers involved in the implementation of number portability;
- e) ANRCTI to monitor the impact of implementing number portability and identify the issues with a negative impact on the development of this process;
- f) ANRCTI to conduct statistical analyses.

## 7.2. Defining the quality parameters

### 7.2.1. Quality parameters of the porting process

#### I. Rate of correctly transmitted porting requests (RCC)

This parameter represents the ratio, expressed as a percentage, between the number of porting requests that have been considered correct by the BDC (for which the BDC has sent the  $A_{CPF}$  message) and the total number of requests transmitted by the FA to the BDC (CPF).

$$RCC[\%] = \frac{\text{Number\_of\_accepted\_requests}}{\text{Total\_number\_of\_transmitted\_requests}} \times 100$$

This parameter is calculated for each FA and for each category of portable numbering resources.

#### II. Rate of accepted porting requests (RCA)

##### *1. Rate of porting requests transmitted by an FA and accepted by all the FD (RCAAP)*

This parameter represents the ratio, expressed as a percentage, between the number of the porting requests accepted by the FD (for which the ACP message has been sent) and the total number of requests received from an FA and sent by the BDC to the FD.

$$RCA_{FA}[\%] = \frac{\text{Number\_of\_requests\_accepted\_by\_all\_the\_FD}}{\text{Total\_number\_of\_requests\_transmitted\_by\_an\_FA\_and\_accepted\_by\_the\_BDC}} \times 100$$

This parameter is calculated for each FA and for each category of portable numbering resources.

##### *2. Rate of porting requests sent by all the FA and accepted by an FD (RCAFD)*

This parameter represents the ratio, expressed as a percentage, between the number of the porting requests accepted by an FD and the number of requests received by that FD.

$$RCA_{FD}[\%] = \frac{\text{Number\_of\_requests\_accepted\_by\_a\_FD}}{\text{Total\_number\_of\_received\_requests}} \times 100$$

This parameter is calculated for each FD and for each category of portable numbering resources.

#### III. Rate of cancelled porting requests (RCP<sub>A</sub>)

This parameter represents the ratio, expressed as a percentage, between the number of the porting requests sent by an FA that were not cancelled by the BDC for exceeding the term  $T_6$  and the total number of requests sent by the FA and accepted by all the FD.

$$RCP_A[\%] = \frac{\text{Number\_of\_cancelled\_requests}}{\text{Total\_number\_of\_requests\_transmitted\_by\_an\_FA\_and\_accepted\_by\_all\_the\_FD}} \times 100$$

This parameter is calculated for each FA and for each category of portable

numbering resources.

#### IV. Rate of porting requests processed within the term $T_1$ ( $RCP_{T1}$ )

This parameter represents the ratio, expressed as a percentage, between the number of the porting requests to which the FD answered within the term  $T_1$  and the total number of requests received by the FD.

$$RCP_{T1}[\%] = \frac{\text{Number\_of\_requests\_accepted\_or\_rejected\_in\_T1 (FD)}}{\text{Total\_number\_of\_received\_requests}} \times 100$$

This parameter is calculated for each FD and for each category of portable numbering resources.

#### V. Rate of porting requests solved by the FD within the term $T_3$ ( $RCP_{T3}$ )

This parameter represents the ratio, expressed as a percentage, between the number of the porting requests for which the FD completed the porting process within the term  $T_3$  and the total number of requests received and accepted by the FD.

$$RCP_{T3}[\%] = \frac{\text{Number\_of\_requests\_for\_which\_porting\_is\_completed\_in\_T3 (FD)}}{\text{Total\_number\_of\_requests\_received\_and\_accepted\_by\_the\_FD}} \times 100$$

This parameter is calculated for each FD and for each category of portable numbering resources.

#### VI. Rate of porting requests solved by the FA within the term $T_4$ ( $RCP_{T4}$ )

This parameter represents the ratio, expressed as a percentage, between the number of porting requests for which the FA completed the porting process within the term  $T_4$  and the total number of requests for which the FD have completed the porting (the FA received the RPD message).

$$RCP_{T4}[\%] = \frac{\text{Number\_of\_requests\_for\_which\_porting\_is\_completed\_in\_T4 (FA)}}{\text{Total\_number\_of\_requests\_received\_and\_accepted\_by\_all\_the\_FD}} \times 100$$

This parameter is calculated for each FA and for each category of portable numbering resources.

#### VII. Rate of porting requests solved by the FA within the term $T_5$ ( $RCP_{T5}$ )

This parameter represents the ratio, expressed as a percentage, between the number of porting requests for which a provider has performed the updating of the BDOp within the term  $T_5$  and the total number of requests for updating the routing information received from the BDC.

$$RCP_{T5}[\%] = \frac{\text{Number\_of\_requests\_for\_which\_a\_provider\_has\_updated\_the\_operational\_databases}}{\text{Total\_number\_of\_requests\_for\_updating\_the\_routing\_information\_received\_from\_the\_BDC}} \times 1$$

This parameter is calculated for each provider AF and for each category of portable numbering resources.

#### 7.2.3. Quality parameters of the BDC

The following parameters shall be observed in order to assess the activity of the BDC:

##### I. Availability of the BDC – the average functioning term of the BDC, expressed

as a percentage, from the measuring period

Specifications on measuring the parameters of the indicator

$$\text{Availability}[\%] = \frac{365 * 24 * 60 - \sum T_n}{365 * 24 * 60} \times 100$$

$T_n$  – the period when the BDC did not function (in minutes).

The periods during which the BDC did not function are considered to be the periods when:

- a) flaws were registered from the providers and were confirmed by tests and investigations;
- b) the BDC signalled improper functioning, which was confirmed by tests and investigations;
- c) planned interruptions occurred (tests, maintenance and repair activities).

II. Maximum repair time following a minor flaw – the maximum period elapsed from the moment of signalling a minor deficiency up to its remedying.

*Minor deficiency – the case when the processing capacity decreases, but not below 50%; the system may be used, but some restrictions must be observed. In this case, the messages shall be processed according to the priority level.*

III. Maximum repair time following a major flaw – the maximum period elapsed from the moment of signalling a major deficiency up to its remedying.

*Major deficiency – the case when the processing capacity of the BDC drops below 50%.*

### **7.3. Objectives for the porting process quality and responsible providers**

Parameters	Objective	Responsible	Remarks
Rate of correctly transmitted porting requests (RCC)	70% - sem.I* 80% - sem.II** 95%	FA	All the porting requests shall be counted
Rate of accepted porting requests (RCAAP, RCAFD )	70% - sem.I* 80% - sem.II** 95%	FA and FD	All the porting requests shall be counted
Rate of cancelled porting requests (RCPA)	5%	FA	All the porting requests shall be counted
Rate of porting requests processed within T1 (RCPT <sub>1</sub> )	80% - sem.I* 95%	FD	Only solved porting requests shall be counted
Rate of porting requests solved within T3 (RCPT <sub>3</sub> )	80% - sem.I* 95%	FD	Only solved porting requests shall be counted
Rate of porting requests solved within T4 (RCPT <sub>4</sub> )	80% - sem.I* 95%	FA	Only solved porting requests shall be counted

Rate of porting requests solved by the FA within T5 (RCPT <sub>5</sub> )	95%	FA	Only solved porting requests shall be counted
BDC availability	99.95%	BDC	
Maximum repair time following a minor deficiency	1 hour	BDC	
Maximum repair time following a major deficiency	8 hours	BDC	

*Note: (\*)- the first semester after the commercial launch of number portability;*

*(\*\*)- the second semester after the commercial launch of number portability.*

#### *Measuring methods*

The quality parameters shall be measured by the BDC on a quarterly basis, for each provider, both FD and FA, according to the applicability scope. The parameters regarding the BDC shall be measured annually (January 1 – December 31).

The values calculated for the quality parameters, for all the providers, shall be communicated to ANRCTI. The values calculated for each provider shall be communicated to the respective provider. The BDC shall communicate the values of the quality parameters within 10 days from the end of each quarter.

The periods shall be measured according to the following principles:

a) each measured event shall be counted based on the completion moment (e.g. a request sent by the FA on March 31, to which the FD answers on April 1, shall be counted in the second quarter);

b) for the parameters of the porting process, the holidays shall not be counted (e.g. the Friday-Monday interval counts for 1 day);

c) for the availability of the database, calendar days shall be counted.

## **8. END-USER INFORMATION METHODS**

### **8.1. Overview**

Number portability is a new service offered to the subscribers by the providers of publicly available telephone services. The implementation of this service affects all the end-users of publicly available telephone services. The successful implementation is associated with adequate mechanisms for ensuring the transparency of the porting process and of the tariffs associated with number portability.

Therefore, information needs arise both for the subscribers, who must be aware of the conditions under which they may benefit from this service, and for the telephony end-users, who must be informed on the tariffs associated to calls made to the ported numbers. The obligation to inform the users on number portability is incumbent, on the one hand, on the providers who offer the portability service and, on the other hand, on the providers who – although do not offer the portability service – initiate calls to ported numbers.

The providers of publicly available telephone services have the obligation to make available to the end-users - upon request - cost-free, detailed, clear and updated information on the number portability service, including on the tariffs charged for the provision of this service and for the calls to ported numbers, both in writing and by calling a customer service centre available at least 40 hours a week.

### **8.2. Informing the end-users on the request for porting a number**

Information on the number portability service shall be offered by each FA during

the procedure of submitting and validating the porting request.

The following information means shall be used:

- a) the portability information service – a cost-free customer service centre;
- b) posting the standard portability request form, as well as the procedure for submitting and validating the porting request, on visible boards, at the provider's commercial premises and publishing them on the provider's website.

The providers of publicly available electronic communications services who do not provide publicly available telephone services, but benefit from the right of using portable numbering resources established by LURN, shall have the obligation to inform their own providers on the fact that they do not offer the number portability service.

### **8.3. Informing the users on the tariffs charged for calls to ported numbers**

So far, the providers of publicly available telephone services charge different tariffs depending on the type of the service called or on the type of network through which the call is performed (public fixed or public mobile network), as well as on the network on which the call is terminated (call terminated on the origination network or on other networks).

The National Numbering Plan (PNN) is structured by numbering domains that offer the end-users information on the type of services provided by means of a certain category of numbering resources. The destination of the numbering resources in one domain is encoded in the OZ sequence of the national number OZABPQMCDU. Thus, fixed telephone services offered by means of public fixed networks are provided through numbers in the OZ=02 and OZ=03 domains, mobile telephone services offered by means of public mobile networks are provided through numbers in the OZ=07 domain, various services (e.g. Green Numbers) are provided through numbers in the OZ=08 domain, whereas Premium Rate services are provided through numbers in the OZ=09 domain.

ANRCTI allotted the providers of publicly available electronic communications services blocks of 1000, 10,000, or 1,000,000 numbers, depending on the numbering domain. Thus, the provider may currently be identified based on the allotted numbers and calls may be charged for depending on the numbering resources.

This mechanism offers the callers the possibility to associate certain numbers both with a certain service type and with a certain service provider (or with a certain network), thus ensuring tariff transparency. This fact is very important for mobile telephone services, where the tariff of a call on the same network is usually lower than on other networks, but it may be also important for fixed telephone services.

Following the implementation of number portability, no number could be further associated with a certain provider of publicly available telephone services.

The set up of the charging method (either tariffs by numbering or tariffs by networks) is determined by different drivers, one of the most important ones being the technical solution for routing calls. The charging method shall be chosen by the provider originating the calls.

Irrespective of the chosen charging method, the providers originating calls to numbers in the PNN have the obligation to make available to the end-users information regarding:

- a) the provider who offers services on a ported number (FA);
- b) the tariff for a call to a ported number.

Information shall be made available to the end-users by means of the portability information service, in writing and by publishing on the providers' website.

The providers originating calls may also use other information means (e.g. information provided through SMS).

There is an additional possibility of informing the end-users, on a call-by-call

basis, in case of originating calls to ported numbers (on-line information). This method may be implemented by the providers that use the ACQ routing method.

If the information means made available by the providers are found not to protect the end-users' rights, ANRCTI may impose the providers who originate calls the obligation to ensure information on a call-by-call basis.

## **9. PROCEDURE FOR AMENDING AND COMPLETING THE TECHNICAL AND COMMERCIAL TERMS**

The technical and commercial terms have been elaborated by the working group before the designation of the BDC provider and of the OpBDC.

The activities related to the establishment and operation of the BDC, as well as the designation of the OpBDC shall be laid down by ANRCTI.

The technical and commercial terms are of importance during the initial stage of number portability implementation and also represent the technical pre-requirements to be considered in the tender for the designation of the BDC provider. As well, BDC shall be established in view of implementing the administrative procedures in the porting process and of performing the functions and requirements provided in the regulation for the organisation and operation of the BDC.

Upon designation of the BDC provider, during the BDC elaboration, as well as during the interoperability tests, the technical and commercial terms could undergo amendments or completions. At this stage, the following may occur: amendment of certain provisions for the purpose of optimising certain technical solutions, correction of errors (technical hindrances), completion or clarification of certain provisions than have not been taken into account by the working group, on the condition that these do not substantially modify the content of this document.

The amendment requests shall be submitted by the BDC provider, during the process of elaborating the BDC, respectively by the OpBDC and by the providers involved in the number portability implementation. ANRCTI may submit the amendment to or the completion of the technical and commercial terms to consultation, *ex officio*. The detailed technical requirements for the BDC provider shall be laid down in accordance with the technical and commercial terms.

The requests for amending the technical and commercial terms shall be sent to ANRCTI, in written form. ANRCTI shall relay these requests to the members of the working group and shall convene the working group in order to decide, whenever necessary, the amending or completing of the technical and commercial terms. The requester shall also submit the draft amendment and the grounds therefor. The BDC provider and the OpBDC shall be invited, as well, in the working group proceedings.

The working group shall assemble on a monthly basis or whenever necessary, in order to analyse the received requests and to assess the progress of the implementation schedule.

The amendments and completions to the technical and commercial terms endorsed by the working group shall be transmitted to the President of ANRCTI. The draft amendment or completion shall be submitted to public consultation.

If deemed necessary, the working group shall send the ANRCTI President for approval, within 3 months from the implementation of number portability, a new version of the technical and commercial terms.

After the implementation of number portability, the technical and commercial terms may be amended or completed in well grounded situations, such as the introduction of new technologies, occurrence of major changes in the electronic communications market, technical hindrances identified as regards the implementation of certain solutions provided by the technical and commercial terms.

The following documents or pieces of information shall be annexed to the requests for amending or completing the technical and commercial terms, as the case may be:

- a) detailed description of the identified problem;
- b) draft amendment or completion to the technical and commercial terms;
- c) risks of non-implementing the suggested solution;
- d) advantages of implementing the suggested solution;
- e) impact analysis;
- f) assessment of costs, necessary resources and duration for the implementation of the suggested solution.

ANRCTI shall invite to a meeting the OpBDC and all the providers of electronic communications services who use the BDC at the moment when the request is received and shall present the suggested solution. Having adopted the proposal, the representatives of ANRCTI, of the OpBDC and of the providers shall submit it to the ANRCTI President, for approval.



## ANNEX 1

### PORTING REQUEST

#### Identification of the request<sup>1</sup>

(entry no., entry date, other details)

#### Identification of the requester

(the requester must be the holder of the contract for the provision of the telephone service through the number/numbers for which the porting was requested)

☐

Natural person

Surname and first name	
ID	
Personal Social Security Number	
Address	
Number of the contract for the provision of telephone services (client code)	
Telephone number	
E-mail <sup>2</sup>	
Legal representative (as the case may be)	
Surname and first name	
ID	
Telephone number	
E-mail <sup>2</sup>	

☐

Legal person

Name	
Unique registration code	
Address	
Number of the contract for the provision of telephone services (client code)	
Telephone number	
Fax <sup>2</sup>	
Legal representative	
Surname and first name	
ID	
Telephone number	
E-mail <sup>2</sup>	

<sup>1</sup> Shall be filled in by the provider of publicly available telephone services to whom the number is ported.

<sup>2</sup> Filling in this information is optional.

## Object of the request

* Number/ numbers for which porting is requested <sup>3</sup>	Address to which the telephone service is provided through the number/numbers for which porting is requested (as the case may be)	Porting term <sup>4</sup>		Remarks <sup>5</sup>	Further details <sup>6</sup>
		Starting date (date, hour)	Completion date (date, hour)		

\* Shall be filled in in case of porting geographic and non-geographic numbers, other than those for mobile telephony, should it be the case.

** Number/ numbers for which porting is requested <sup>3</sup>	SIM series (as the case may be)	Subscription type (monthly rental fee or prepaid card)		Porting term		Remarks <sup>5</sup>	Further details <sup>6</sup>
				Starting date (date, hour)	Completion date (date, hour)		

\*\* Shall be filled in in case of porting non-geographic numbers for mobile telephony services.

<sup>3</sup> For the sets of numbers there shall be specified: the number opening the set and the number closing the set.

<sup>4</sup> Shall be filled in by the provider of publicly available telephone services to whom the number is ported.

<sup>5</sup> If the porting term exceeds 10 working days, the FA shall specify whether this was the subscriber's or the FA's choice.

<sup>6</sup> For example, access type: ISDN-BRA, ISDN-PRA, PABX etc.

Provider currently offering the publicly available telephone service		Provider of publicly available telephone services to which porting is requested	
Name		Name	
The subscriber accepts partial porting <sup>7</sup>			
The subscriber does NOT accept partial porting <sup>7</sup>			

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<sup>7</sup> Shall be filled in in case of porting requests regarding multiple numbers.

## **Terms and conditions**

1. The requester has a valid agreement with the provider requesting the porting (donor provider) for the provision of publicly available services by means of the number or numbers envisaged by this request.
2. The requester does not have other porting requests on the same object, in progress.
3. The provider who will offer the telephone service after the number is ported (acceptor provider) is mandated to take all the steps in order to terminate the contract between the requester and the donor provider, regarding the provision of electronic communications services using the number envisaged by this request. If porting is not possible, the porting request is cancelled. The donor provider will continue providing telephone services, while the porting of the respective number/numbers shall be possible only based upon a new porting request. The acceptor provider shall be deemed responsible in front of the requester as regards the completion of the porting.
4. The contract with the donor provider shall be terminated on the date when the porting is completed. The contract between the requester and the donor provider shall be terminated under the terms provided in the respective contract. The porting of the number/numbers shall not bring prejudice to the obligations of the subscriber and of the donor provider stated in the contract they concluded, born and unaccomplished before termination. In case of the mobile telephone services provided through prepaid cards, the requester shall not be able to retrieve the credit available on the porting date.
5. After porting, the requester shall keep the number, whereas the service shall be provided by .....(*name of the acceptor provider*), according to a contract for the provision of publicly available telephone services, concluded between the acceptor provider and the requester.
6. The requester may withdraw the porting request not later than 24 hours before the starting date of the porting term, as established in the standard porting request. If the requester wishes to withdraw the request after this date, the porting shall be completed and a new porting request must be entered by the requester in order for a new porting process to be initiated.
7. In order to port a number, the requester shall pay a porting tariff amounting to ..... If the requester withdraws the porting request after the deadline established under point 6 and after a new porting is initiated, he shall owe a porting tariff to the acceptor provider and a porting tariff to the donor provider (which, following the requester's giving up the porting, becomes an acceptor provider).
8. The acceptor provider shall communicate the requester the porting date, as well as the date of suspending the service provision, at least 24 hours prior to the starting date of the porting term established in the standard request. If the porting cannot be performed, the acceptor provider shall inform the requester at least 24 hours prior to the starting date of the porting term established in the standard request (including the reason of refusing the porting).
9. The requester undertakes the risk of temporary interruption of the service provision, including call origination and access to emergency calls (112), during the porting process. Usually, this interruption may not exceed 4 hours, in case of mobile, non-geographic numbers, and 5 hours, in case of geographic numbers and non-geographic numbers, other than those for mobile telephone services.
10. The requester agrees that his/her personal data be processed automatically, according to the relevant legislation in force, as necessary for processing the porting request.
11. The requester declares that the data provided within this request are full and accurate.

### **Enclosed documents, as the case may be:**

1. Copy of ID document;
2. Copy of the last invoice issued by the donor provider;
3. Original mandate, in case of natural persons' representation.

#### **Requester/Mandated person**

Surname/First name:

Signature:

Seal (for legal persons):

Date:

#### **Representative of the acceptor provider**

Surname/First name:

Signature:

Seal:

Date:

This document was completed in 2 copies, one for the requester and one for the acceptor provider.

## ANNEX 1A

### REQUEST FOR PORTING CANCELLATION

#### Identification of the request<sup>1</sup>

(entry no., entry date, other details)

#### Identification of the requester

(the requester must be the holder of the contract for the provision of the telephone service through the number/numbers for which the porting was requested)

☐

Natural person

Surname and first name	
ID	
Personal Social Security Number	
Address	
Number of the contract for the provision of telephone services (client code)	
Telephone number	
E-mail <sup>2</sup>	
Legal representative (as the case may be)	
Surname and first name	
ID	
Telephone number	
E-mail <sup>2</sup>	

☐

Legal person

Name	
Unique registration code	
Address	
Number of the contract for the provision of telephone services (client code)	
Telephone number	
Fax <sup>2</sup>	
Legal representative (as the case may be)	
Surname and first name	
ID	
Telephone number	
E-mail <sup>2</sup>	

<sup>1</sup> Shall be filled in by the provider of publicly available telephone services to whom the number is ported.

<sup>2</sup> Filling in this information is optional.

## Object of the request

Number/ numbers for which the porting cancellation is requested <sup>3</sup>	Address where the telephone service is provided through the number/numbers for which porting is requested/SIM series (as the case may be)	Identification data of the porting request	Remarks	Further details

Provider currently offering the publicly available telephone service		Provider of publicly available telephone services to which porting was requested	
Name		Name	

## Terms and conditions

1. The acceptor provider is mandated to take all the necessary steps in order to cancel the porting request.
2. Following the cancellation of the porting request, the requester may keep the number, whereas the donor provider will continue offering the respective service.
3. The requester may submit the request for porting cancellation at least 24 hours prior to the starting date of the porting term established in the standard porting request.
4. The requester agrees that his/her personal data be processed automatically, according to the relevant legislation in force, as necessary for processing the request.
5. The requester declares that the data provided in this request are full and accurate.

### Enclosed documents, as the case may be:

1. Copy of ID document;
2. Copy of the last invoice issued by the donor provider;
3. Original mandate, in case of natural persons' representation.

#### Requester/Mandated person

Surname/First name:

Signature:

Seal (for legal persons):

Date:

#### Representative of the acceptor provider

Surname/First name:

Signature:

Seal:

Date:

This document was completed in 2 copies, one for the requester and one for the acceptor provider.

<sup>3</sup> For the sets of numbers there shall be specified: the number opening the set and the number closing the set.

## ANNEX 2

### REFERENCE CONFIGURATIONS FOR CALL ROUTING

Call routing to the ported numbers requires the involvement of several providers of publicly available electronic communications networks and services. Usually, these are: the originating provider, the FDi, the FA and – as the case may be – one or several transit providers. The originating provider may be the FD or the FA. As well, the originating provider may be a provider of incoming international traffic, or a carrier.

These providers must have the data required for the adequate routing of calls or messages, as the case may be.

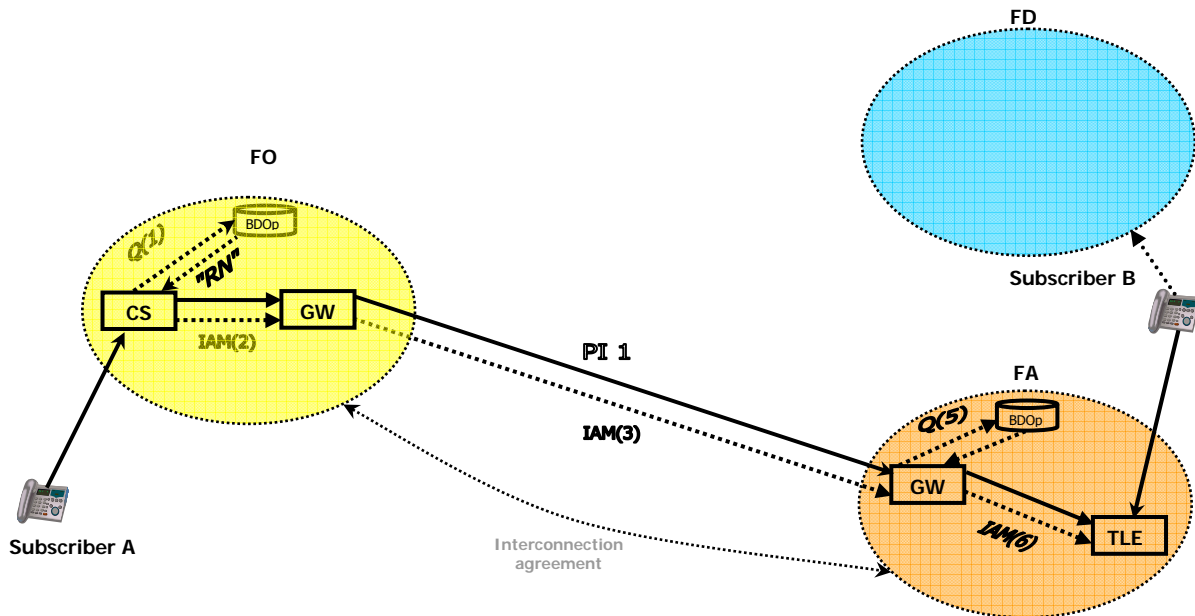
Moreover, we presume that these providers have concluded interconnection agreements that provide the routing of the categories of portable numbering resources.

The annex specifies the configurations that can be used by the providers in view of routing calls or other messages to the ported numbers, as well as the signalling information required for routing calls to the ported numbers. The who originating a call has the obligation to decide which of the configurations presented below is to be used for call routing.

#### 1.1. Technical options for routing calls originated from geographic numbers to ported geographic numbers

##### 1.1.1. The FO uses the ACQ routing method

##### *1.1.1.1. Direct interconnection FO-FA (Diagram 17)*



**Diagram 17**

$CdPN(IAM3) = RN + DN$

##### *1.1.1.2. Interconnection FO-FA using FT's services (Diagram 18)*

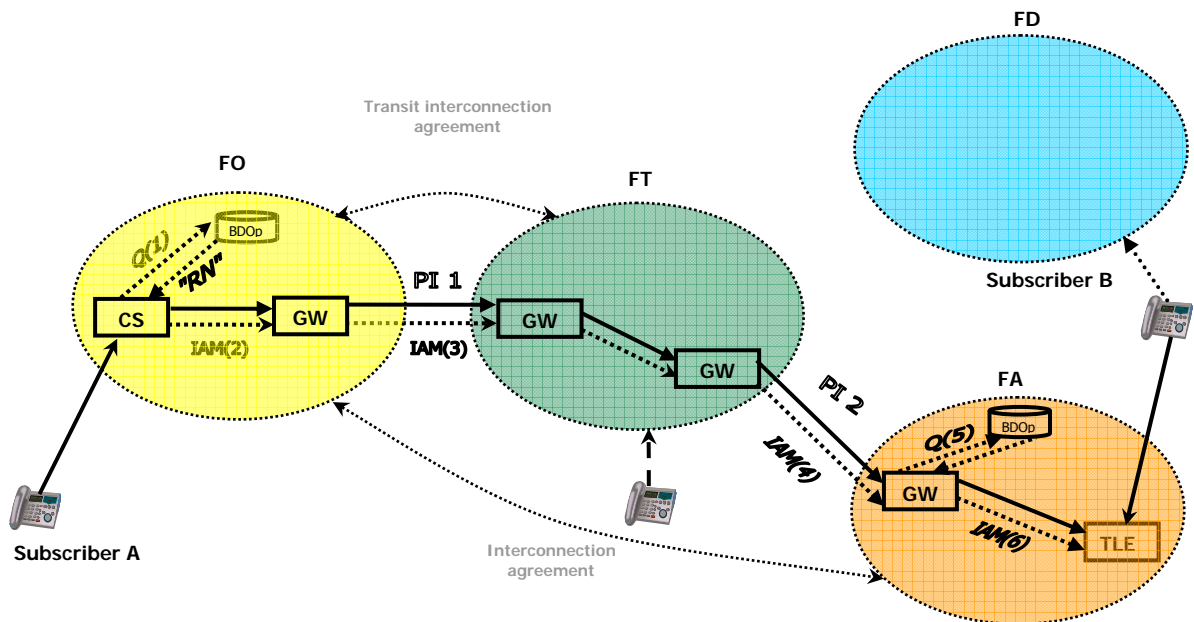


Diagram 18

CdPN (IAM3)=RN+DN

CdPN (IAM4)=RN+DN

### 1.1.2. The origination provider uses the routing services of a third party (Diagram 19)

The third party is the FT

FT uses ACQ

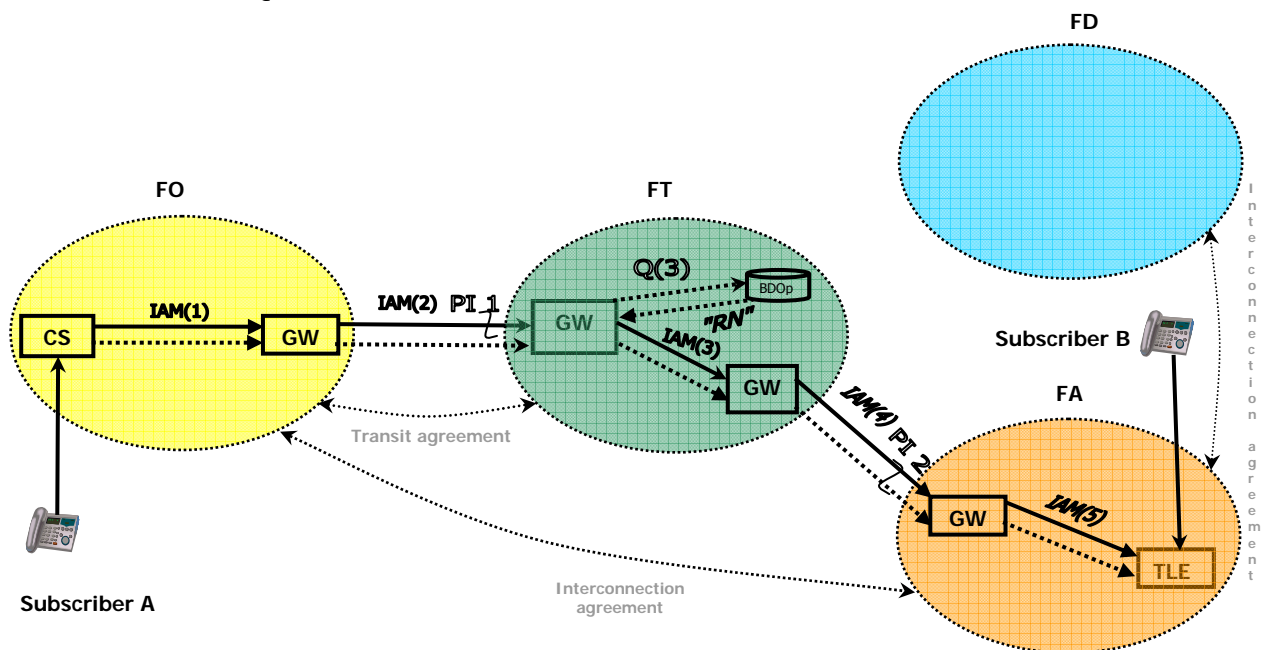


Diagram 19

CdPN(IAM2)=DN

CdPN(IAM4)=RN+DN

### 1.1.3. The FO uses the OR routing method

#### 1.1.3.1. Direct interconnection FO-FDi and FDi- FA (Diagram 20)



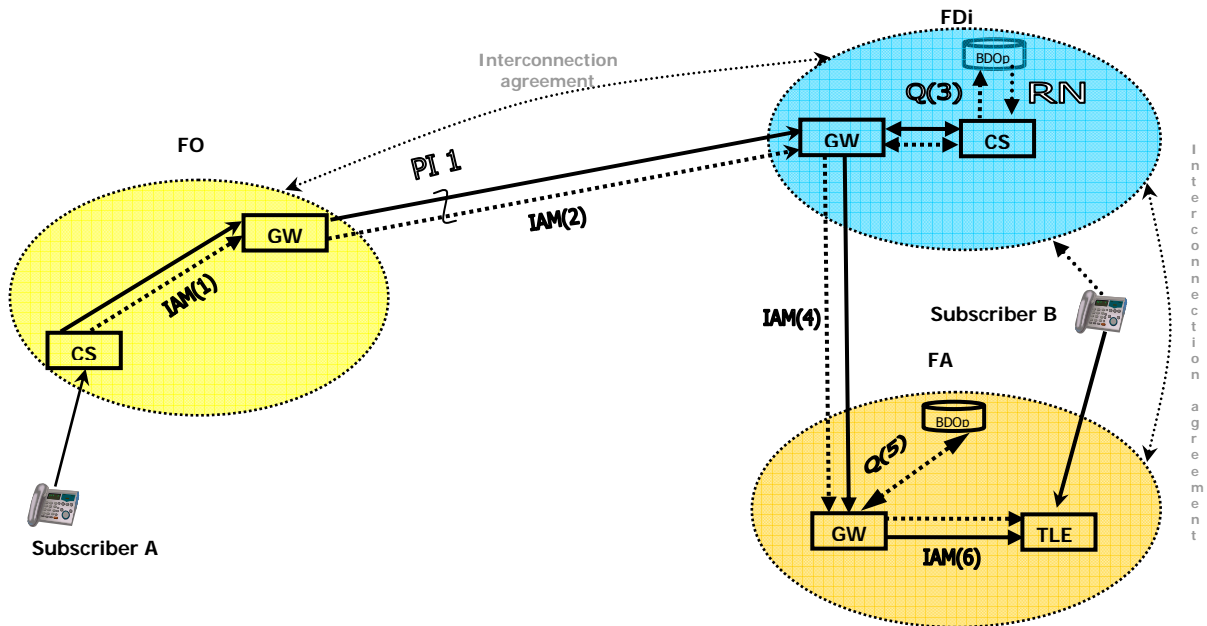


Diagram 20

CdPN (IAM2) = DN  
CdPN (IAM4) = RN+ DN

### 1.1.3.2. Direct interconnection FO-FDi and FO-FA (Diagram 21)

FDi-FA interconnection using FT's services (FT is FO)

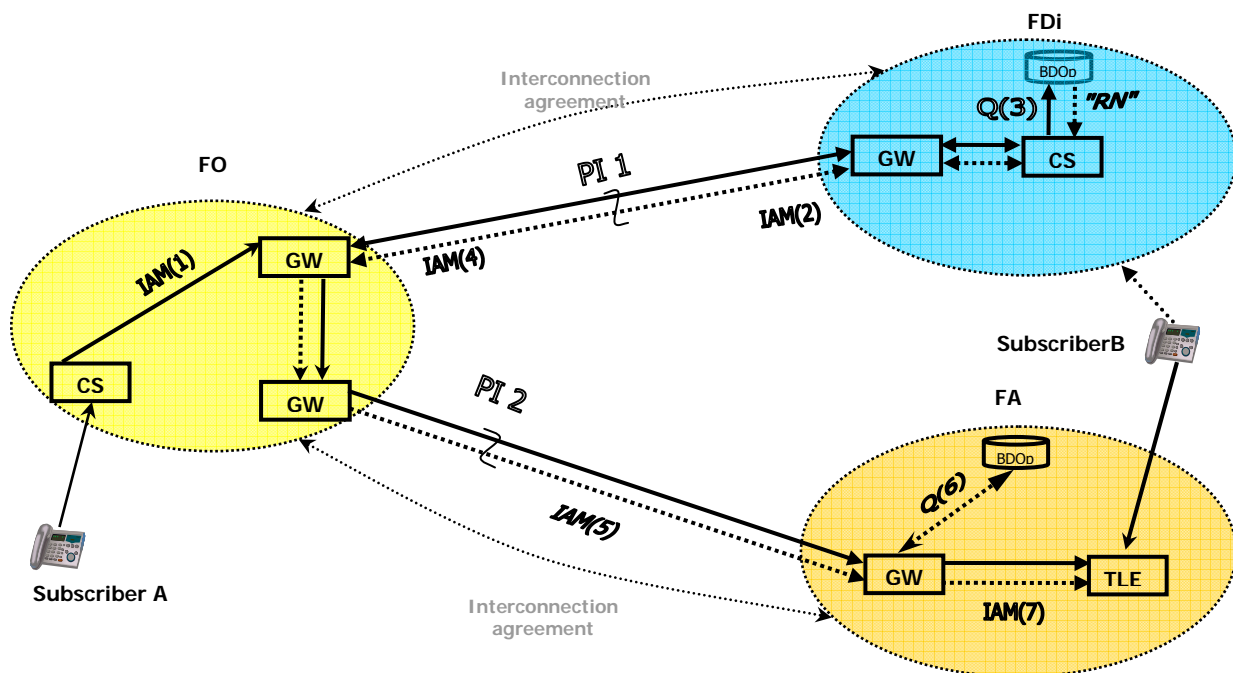


Diagram 21

CdPN (IAM2) = DN  
CdPN (IAM4) = RN+ DN  
CdPN (IAM5) = RN+DN

1.1.3.3. FO-FDi interconnection using FT's services (Diagram 22)  
FDi-FA direct interconnection

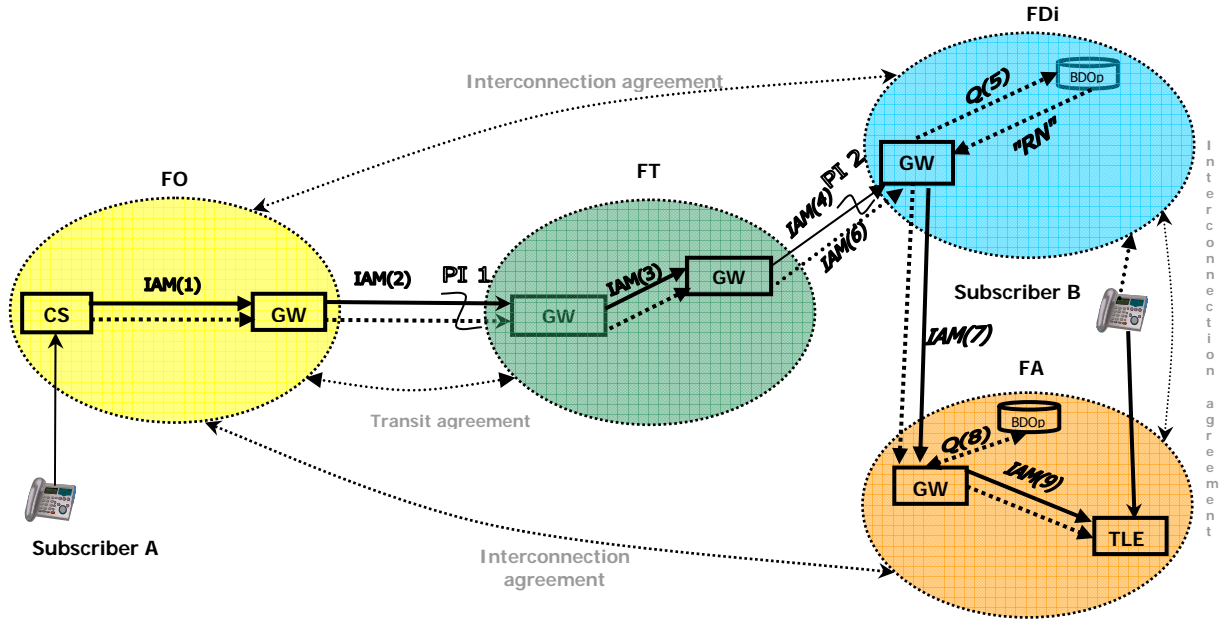


Diagram 22

CdPN (IAM2) = DN  
CdPN (IAM4) = DN  
CdPN (IAM7) = RN+DN

1.1.3.4. FO-FDi direct interconnection (Diagram 23)  
FDi-FA interconnection using FT's services

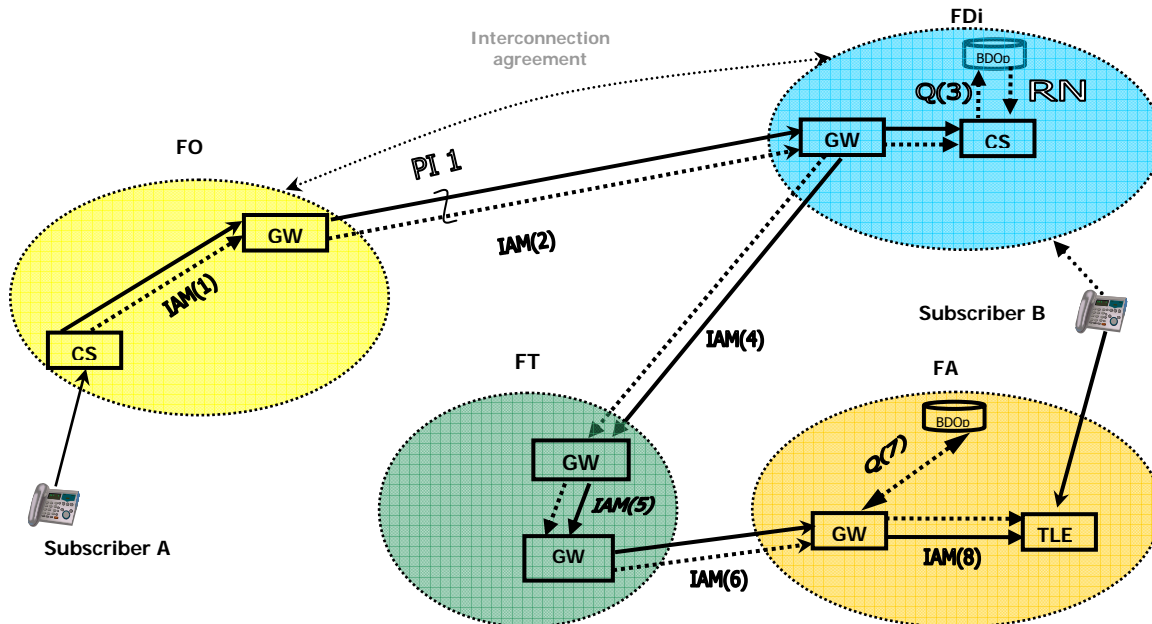


Diagram 23

CdPN (IAM2) = DN  
CdPN (IAM4) = RN+DN  
CdPN (IAM6) = RN+DN

1.1.3.5. FO-FDi interconnection using FT's services (Diagram 24)

## FDi-FA interconnection using FT's services

FT is one and the same, both for the FO and for the FDi

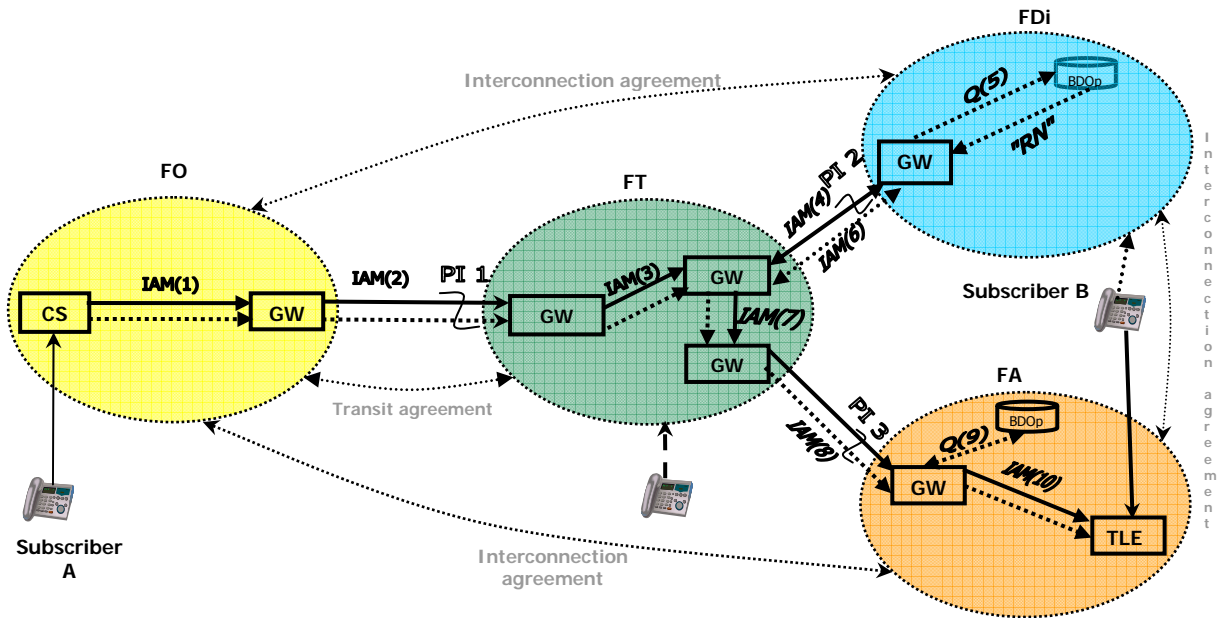


Diagram 24

CdPN (IAM2) = DN

CdPN (IAM4) = DN

CdPN (IAM6) = RN+DN

CdPN (IAM8) = RN+DN

### 1.1.3.6. FO-FDi interconnection using FT's services (Diagram 25)

FDi-FA interconnection using FT's services

FT is different for the FO and for the FDi

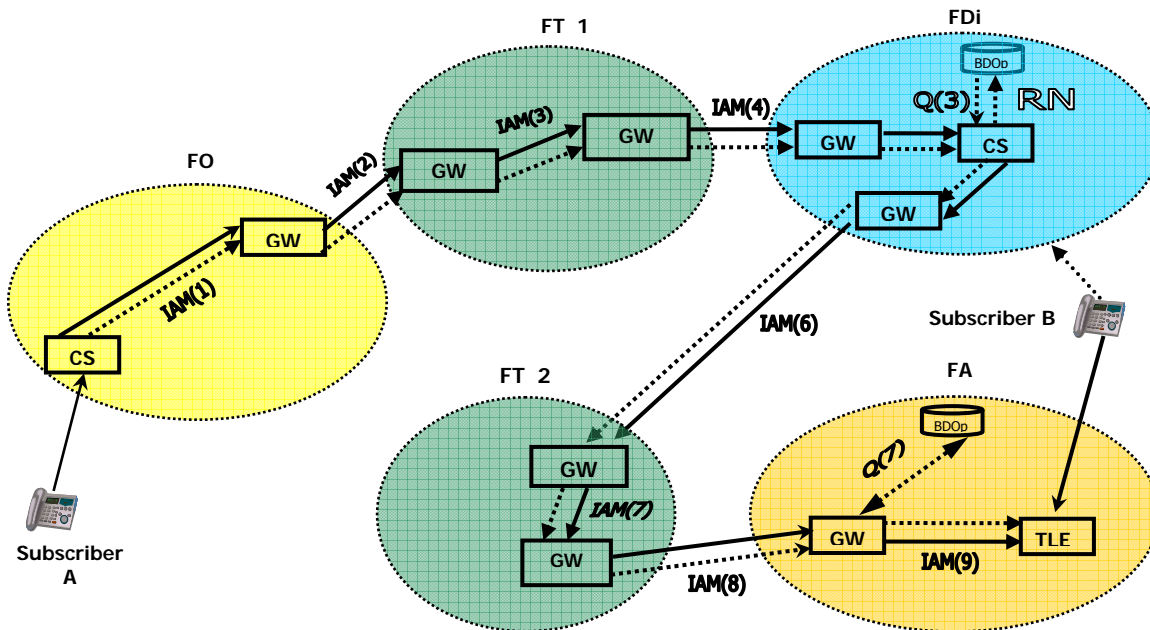


Diagram 25

CdPN (IAM2) = DN

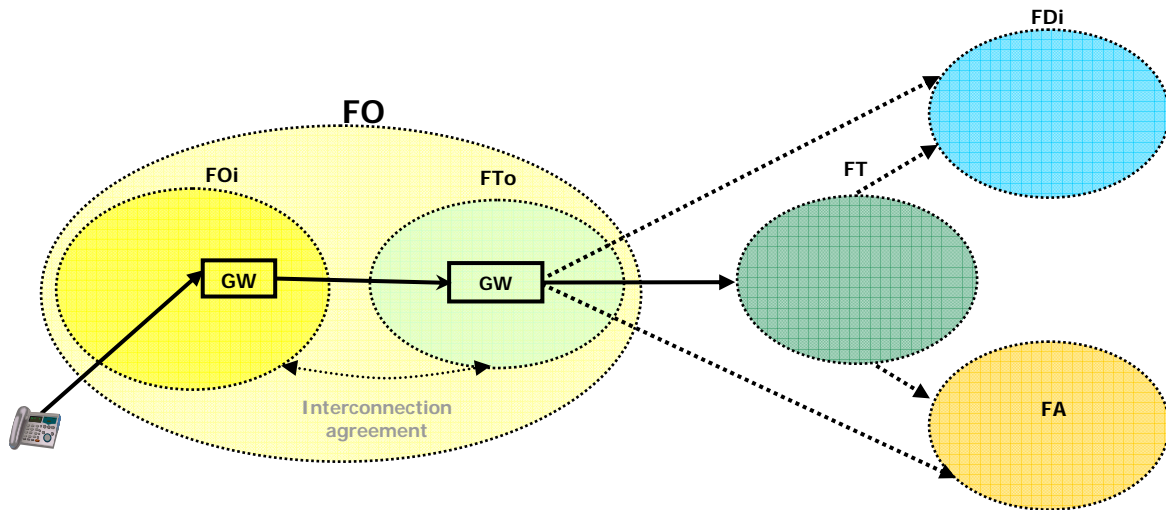
CdPN (IAM4) = DN

CdPN (IAM6) = RN+DN

CdPN (IAM8) = RN+DN

Note:

*In the situations presented at point 1.1.1., a special case of call routing between networks is the case when the origination provider FOi uses the routing services of one transit provider FT<sub>0</sub>. Interconnection with the rest of the providers is performed by means of the FT<sub>0</sub> (indirect interconnection with the other providers). FT<sub>0</sub> interconnects with the FA or the FDi either directly or through another FT. In this case, between the FOi and the FDi or the FA there may be two cascading transit networks. In this situation, the FT<sub>0</sub> and the FOi shall be assimilated by the other providers with one FO.*



**Diagram 26**

## **1.2. Technical options for routing the calls originated from mobile non-geographic numbers for mobile telephone services to non-geographic numbers for mobile telephone services**

The routing solution agreed is ACQ. Alternatives for implementing number portability for mobile telephone services are presented in standard ETSI EN 301 716. Some of these technical options are briefly presented below.

Routing is different for:

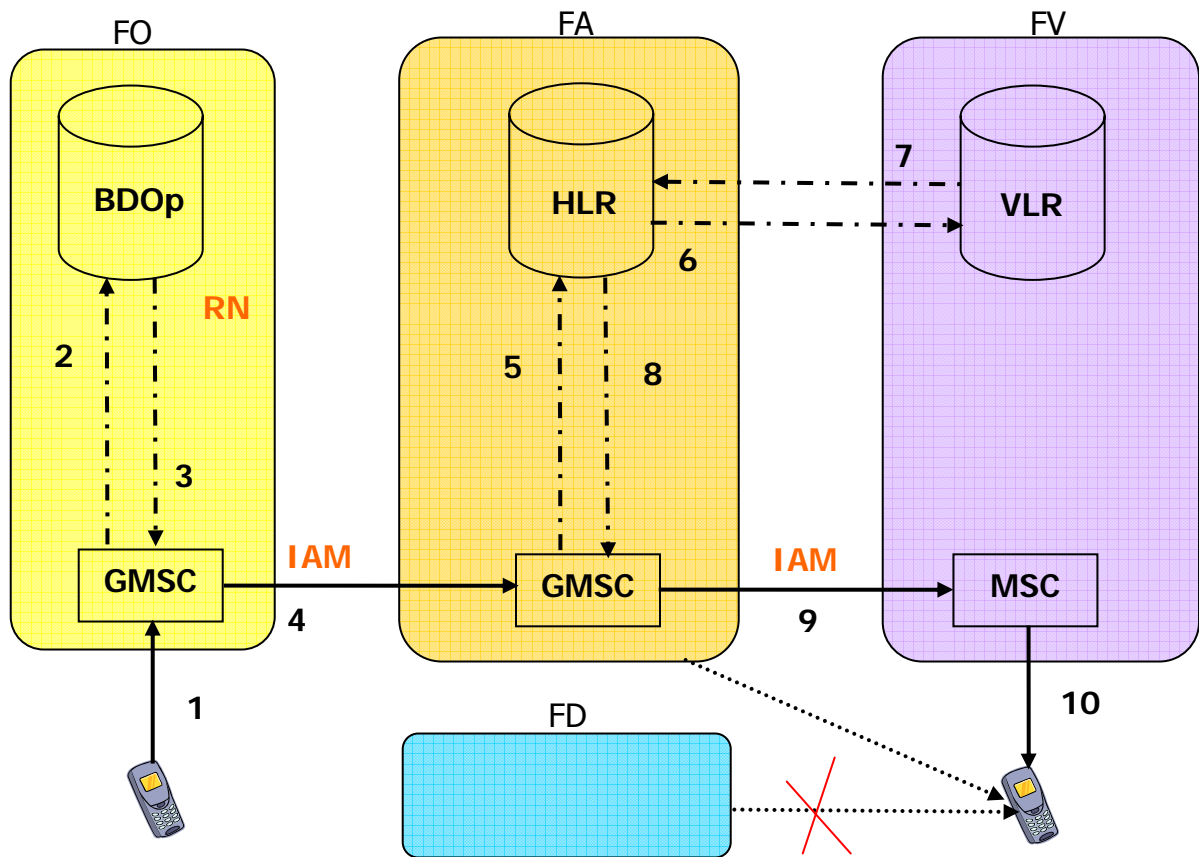
- a) calls and call-related signalling messages;
- b) non-call-related messages.

Routing calls and call-related signalling messages may be done either using the capabilities of the intelligent network, or using the SRF.

### 1.2.1. Routing calls and call-related signalling messages

#### 1.2.1.1. IN-based solution (Diagram 27)

The relevant situation in Romania is described in paragraph A.1.4 (NP Query in Originating Network) of the standard ETSI EN 301 716. The message sequence is described in Diagram 27; roaming has been taken into account.



**Diagram 27**

IAM (4)= RN+DN

IAM (9)= MSRN

#### 1.2.1.2. SRF-based solution

In this alternative solution, a function (SRF) is used to interrogate the BDOp, which modifies the SCCP messages accordingly. The SRF uses the MATF function.

Direct routing, which is to be used in the public mobile networks in Romania, corresponds to the scenarios described by the standard ETSI EN 301 716 in paragraphs C.3.1-C.3.3. The message sequence is described in the following diagrams, if a call is originated in the acceptor network or in another network. The interface between MNP\_SRF/MATF and BDOp is not standardized.

*A. Originating network and acceptor network are not the same (Diagram 28)*

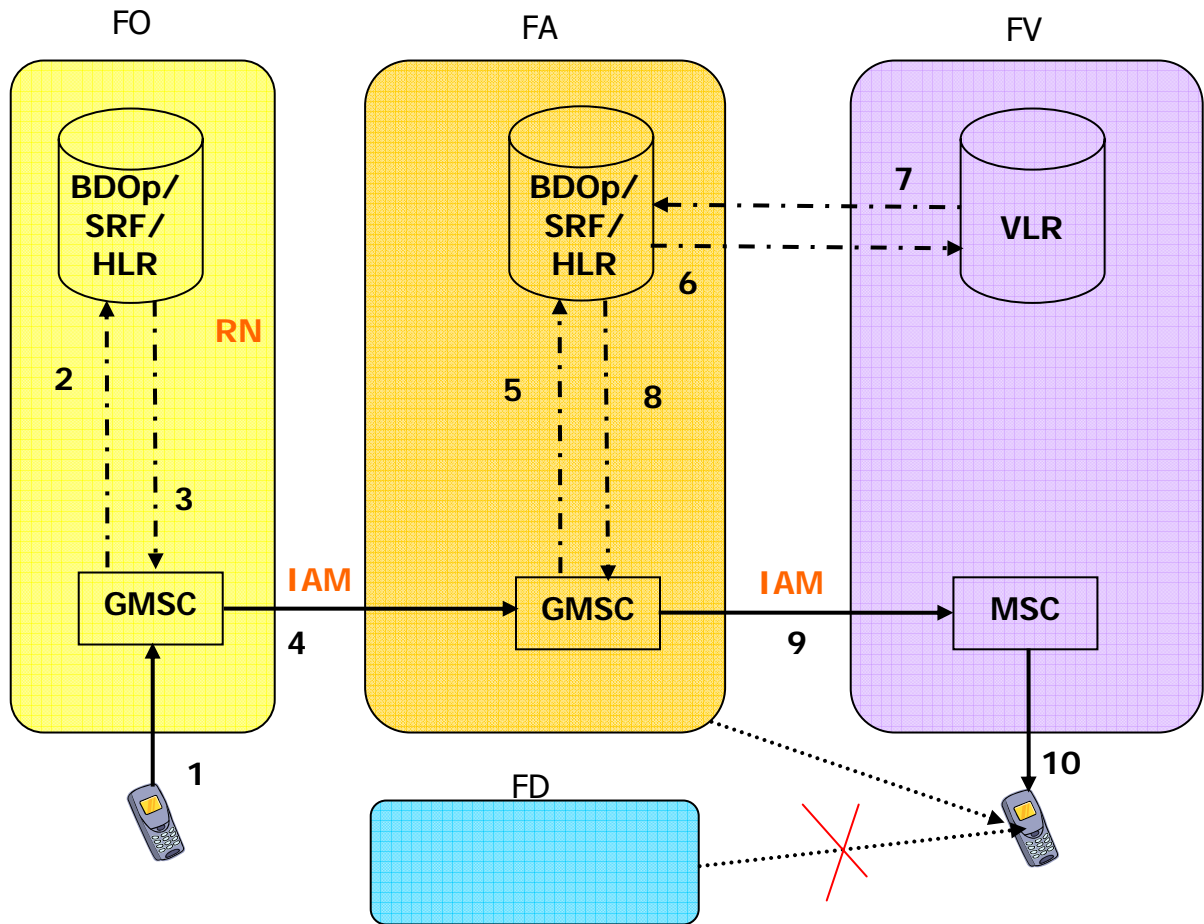


Diagram 28

IAM (4) = RN+DN  
IAM (9) = MSRN

*B. Originating network and acceptor network are the same (the call is originated in the acceptor network) (Diagram 29)*

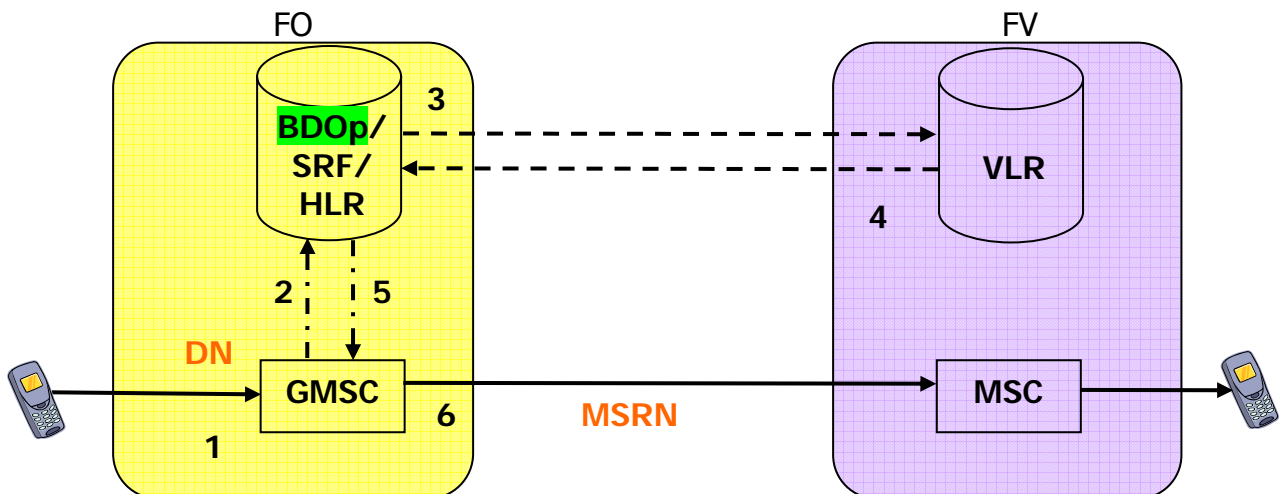


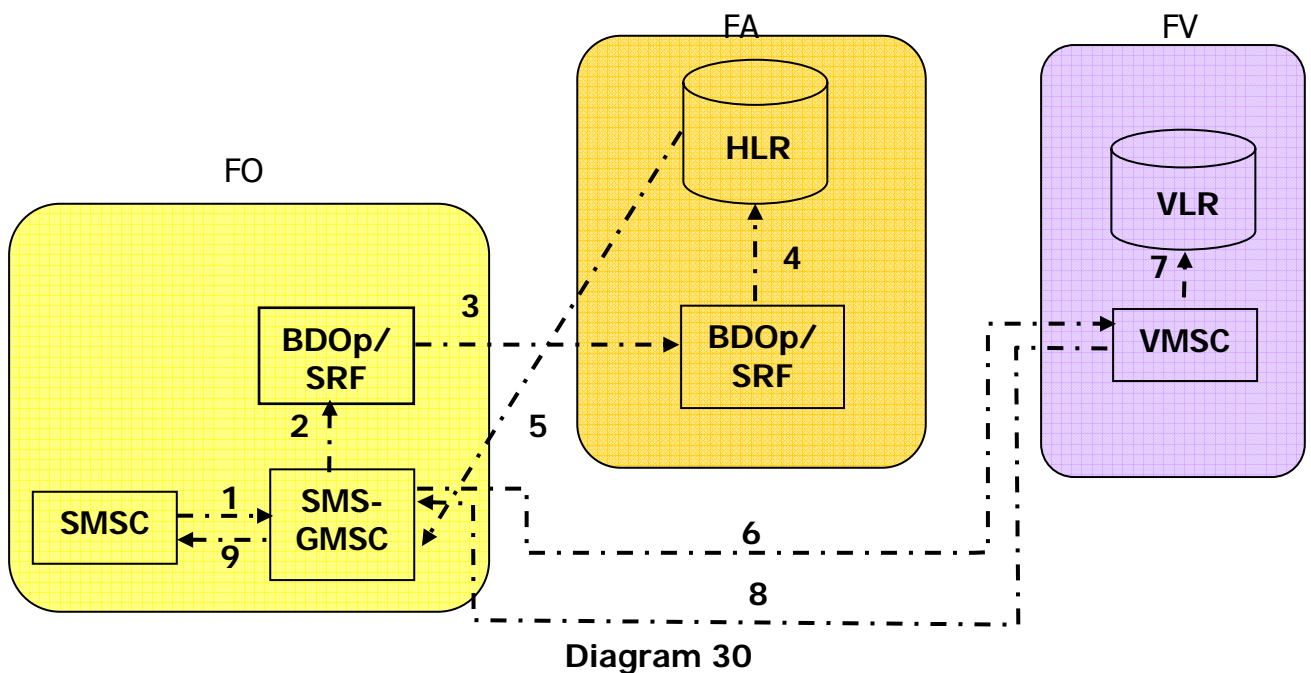
Diagram 29

For non-ported non-geographic numbers for mobile telephone services, the same scheme applies, but the acceptor network is replaced by the network of the provider holding a LURN corresponding to the dialled number (initial donor network). The IAM (4) message shall include an indication that the portability database has been interrogated, respectively it shall contain the FDi's routing number.

### 1.2.2. Routing non-call related messages

Routing is described in paragraph B.2.2 of the ETSI EN 301 716 standard and is presented in the following diagrams.

#### *1.2.2.1. SMS (national) routing (Diagram 30)*



Signalling messages

1 – Forward\_SM (MSISDN)

2 – SRI\_for\_SM (MSISDN) ; CdPA=MSISDN,TT=0; CgPA=address SMS-GMSC

3 – SRI\_for\_SM (MSISDN) ; CdPA=RN+MSISDN,TT=0; CgPA=address SMS-GMSC

4 – SRI\_for\_SM (MSISDN) ; CdPA=address HLR; CgPA=address SMS-GMSC

5 – SRI\_for\_SM ack(address VMSC,IMSI) ; CdPA= address SMS-GMSC; CgPA=address

HLR

6 – Forward\_SM (address VMSC)

#### *1.2.2.2. MMS (national) routing*

##### *A. Direct routing (Diagram 31)*

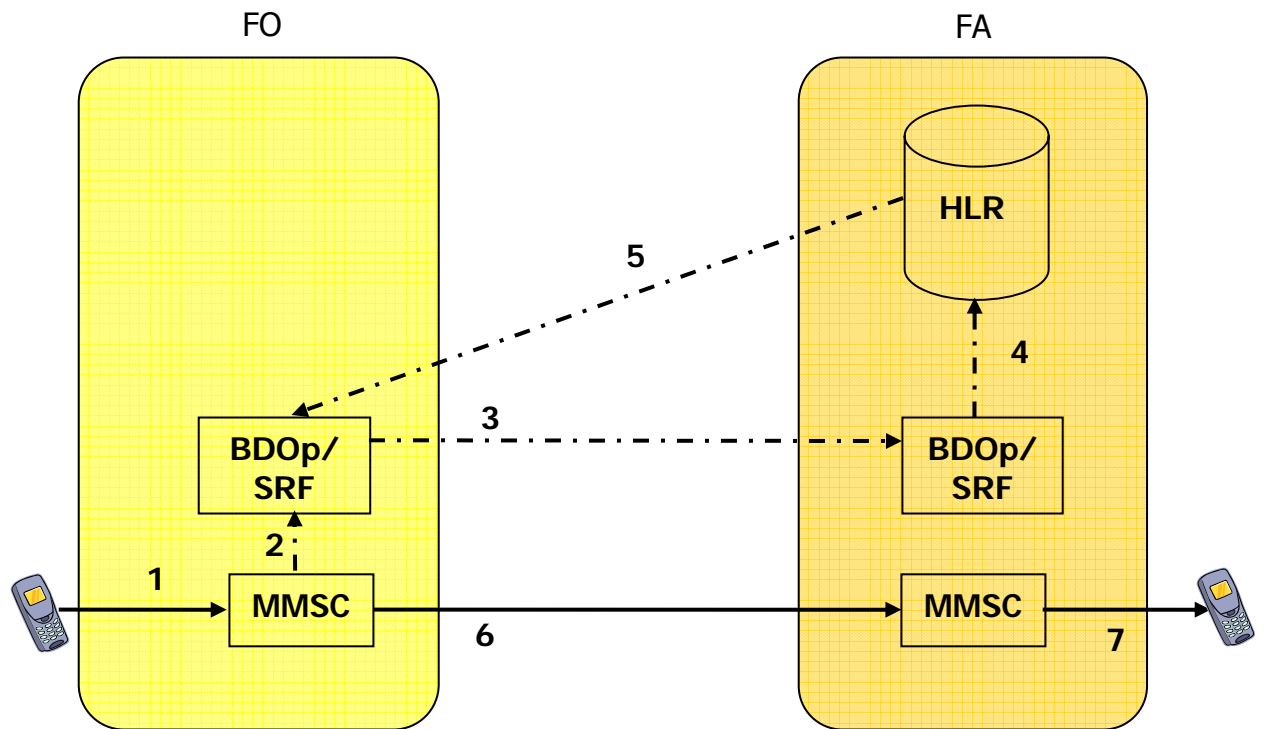


Diagram 31

Signalling messages

- 1 – MMS (MSISDN)
- 2 – SRI\_for\_SM (MSISDN) ; CdPA=MSISDN,TT=0; CgPA= address MMSC
- 3 – SRI\_for\_SM (MSISDN) ; CdPA=RN+MSISDN,TT=0; CgPA= address MMSC
- 4 – SRI\_for\_SM (MSISDN) ; CdPA= address HLR; CgPA= address MMSC
- 5 – SRI\_for\_SM ack(IMSI) ; CdPA= address SMS-GMSC; CgPA= address HLR
- 6 – MM4\_FW.REQ

*B. Indirect routing (Diagram 32)*

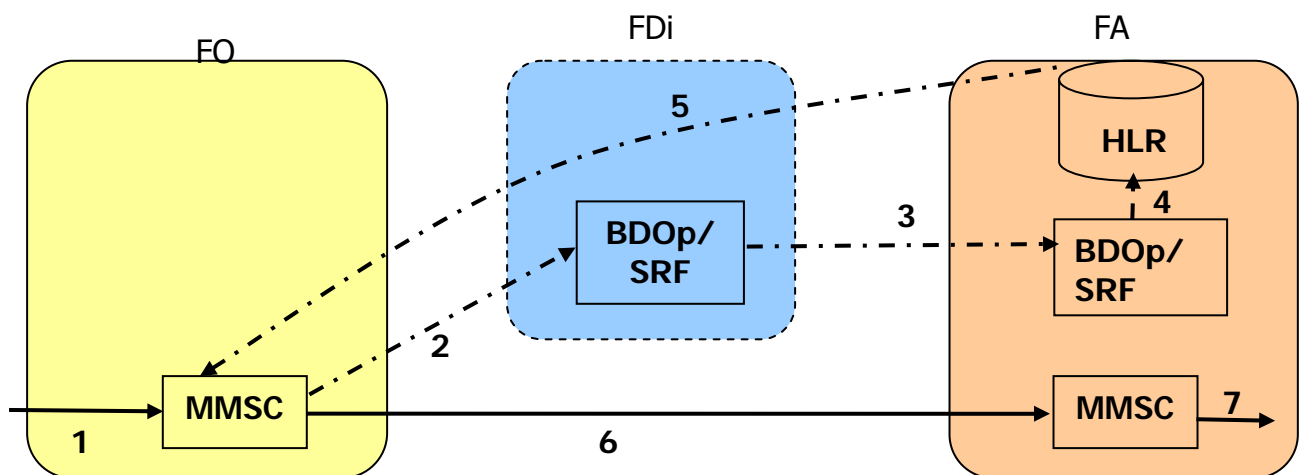


Diagram 32

Signalling messages



- 1 – MMS (MSISDN)
- 2 – SRI\_for\_SM (MSISDN) ; CdPA=MSISDN,TT=0; CgPA= address MMSC
- 3 – SRI\_for\_SM (MSISDN) ; CdPA=RN+MSISDN,TT=0; CgPA= address MMSC
- 4 – SRI\_for\_SM (MSISDN) ; CdPA= address HLR; CgPA= address MMSC
- 5 – SRI\_for\_SM ack(IMSI) ; CdPA= address MMSC; CgPA= address HLR
- 6 – MM4\_FW.REQ

### 1.3. Technical options for routing calls originated from geographic numbers to non-geographic numbers for mobile telephone services

#### 1.3.1. The FO uses the ACQ routing method (Diagram 33)

This diagram depicts both the direct interconnection and the indirect interconnection (through the transit network) between the FO and the FA.

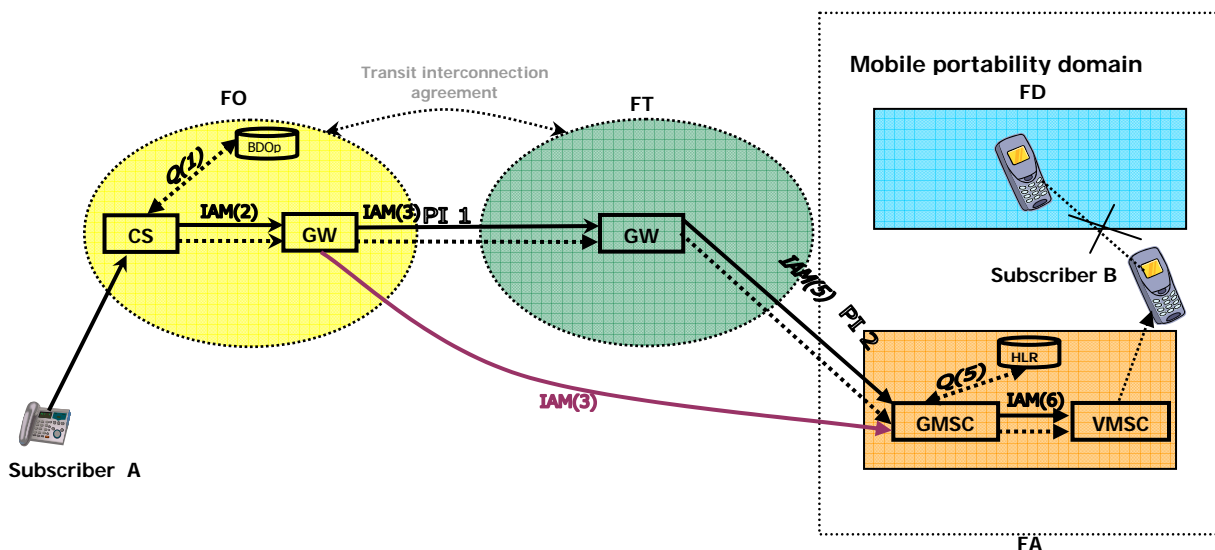


Diagram 33

$CdPN(IAM3) = RN + DN$

$CdPN(IAM5) = RN + DN$  or  $CdPN(IAM5) = 17xy + RN + DN$

Subscriber A (fixed) initiates a call to subscriber B (mobile).

The transit provider will add the code for identifying the network initiating the call (17xy) and, at the interconnection interface PI2, the parameter CdPN in IAM(4) will contain the code for identifying the network and the routing information (17xy+RN+DN), if the existing interconnection agreements provide for this marking.

#### 1.3.2. The origination provider uses the OR routing method (Diagram 34)

This diagram presents both direct interconnection and interconnection through a transit network between the FO and the FDi. The FDi shall also become a transit provider for routing the call to the FA.

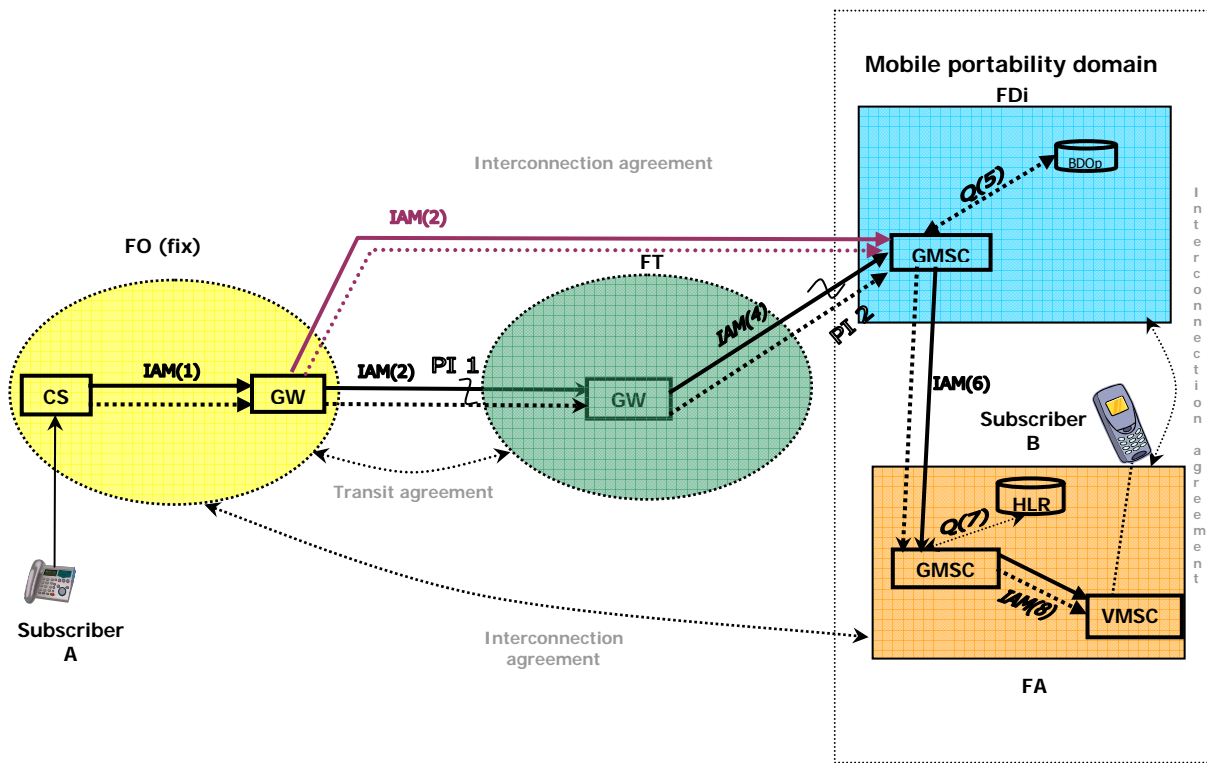


Diagram 34

$CdPN(IAM2) = DN$   
 $CdPN(IAM) = DN$  or  $CdPN(IAM5) = 17xy + DN$   
 $CdPN(IAM6) = RN + DN$   
 $CdPN(IAM6) = 17xy + RN + DN$

The FT shall add the code for identifying the network initiating the call ( $17xy$ ), and, at the interconnection interface  $PI_2$ , the parameter  $CdPN$  in  $IAM(4)$  shall contain the code for identifying the network and the routing information ( $17xy + RN + DN$ ), to the extent that the existing interconnection agreements provides for this marking.

At the interface with the FA, the code for identifying the origination network shall be kept.

#### 1.4. Technical options for routing calls originated at non-geographic numbers for mobile telephone services to geographic numbers

##### 1.4.1. The FO (mobile telephone services) uses the ACQ routing method

##### 1.4.1.1. FO-FA direct interconnection (Diagram 35)

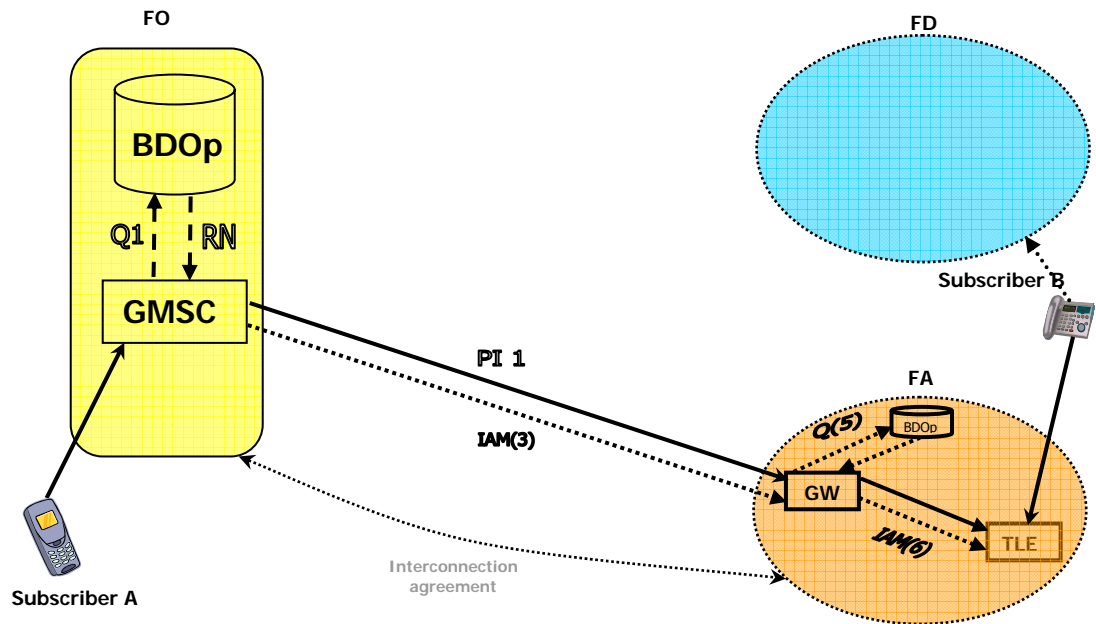


Diagram 35

$CdPN(IAM3) = RN + DN$

#### 1.4.1.2 FO-FA interconnection using FT's services (Diagram 36)

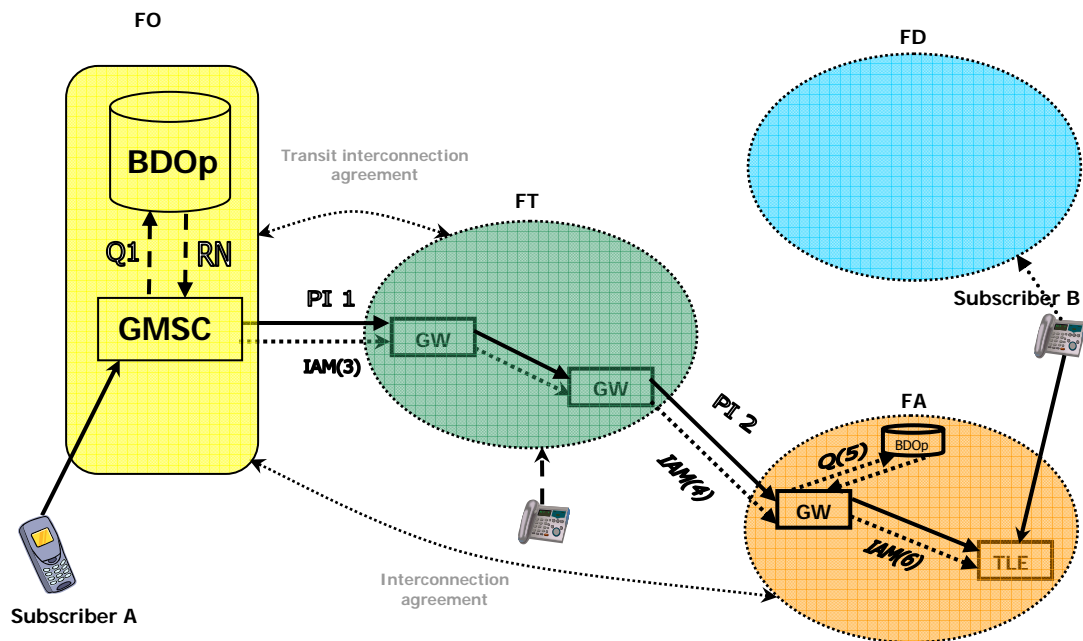


Diagram 36

### 1.5. Technical options for routing calls originated through carrier selection codes to ported geographic and non-geographic numbers (Diagram 37)

If national calls are originated through carrier selection codes (10xy(z), 16xyz), through the carrier selection or pre-selection procedures, or through non-geographic numbers for various services (0Z=08), the obligation of routing calls to ported numbers is incumbent on the selected or pre-selected provider or to the provider offering services through the non-

geographic number.

The selected (pre-selected) provider shall use one of the call routing solutions presented at points 1.1. or 1.3 under this annex.

A call shall be routed to the selected or pre-selected carrier based on the selection code or on the respective non-geographic number.

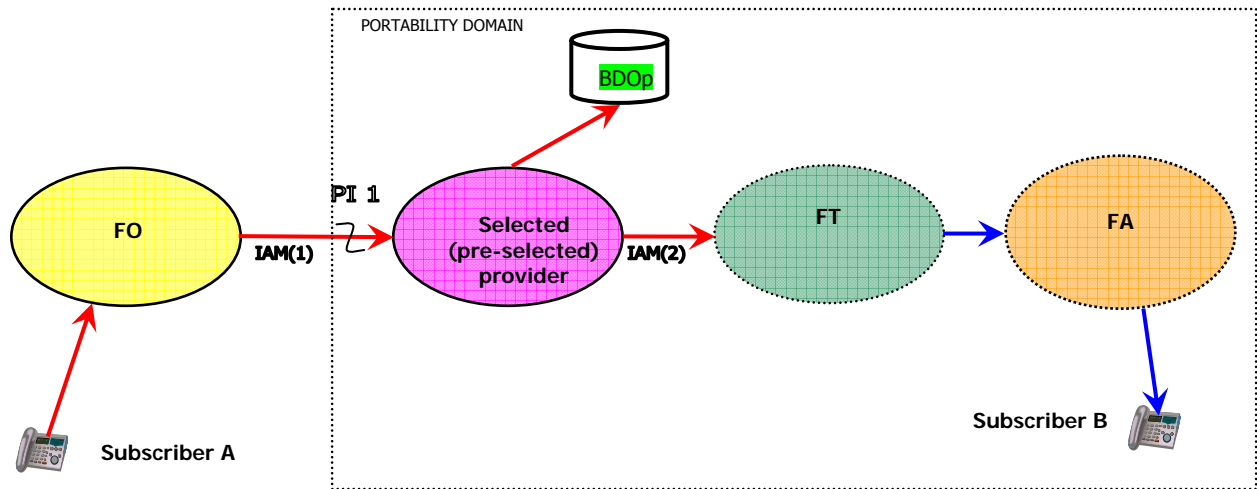


Diagram 37

$CdPN(IAM1)=10xy$  or  
 $CdPN(IAM1)=16xy+ND$  or  
 $CdPN(IAM1)=080xxxxxxx$

## 1.6. Technical options for routing calls to ported numbers, originated outside Romania

The FO for international calls is considered to be the provider operating the exchange or the equivalent gateway used for international traffic belonging to the first public electronic communications network in Romania where the international call arrives (FTI).

### 1.6.1. Routing calls to ported non-geographic numbers for mobile telephone services

#### *1.6.1.1. Routing calls and call-related messages*

*A. FTI is a mobile telephone services provider (Diagram 38)*

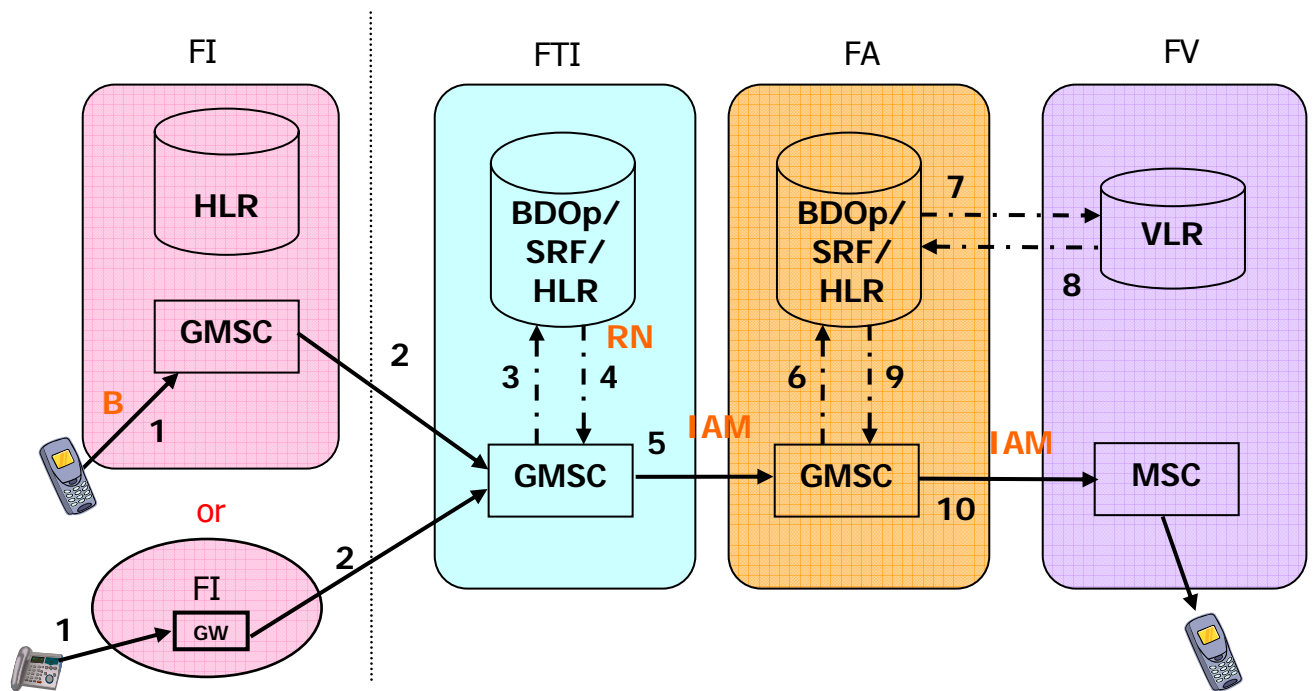


Diagram 38

CdPN (IAM2) = DN (international format)  
 CdPN (IAM 5)= RN+DN  
 CdPN (IAM 10)= MSRN

B. FTI is a fixed telephone services provider using the OR routing method (Diagram 39)

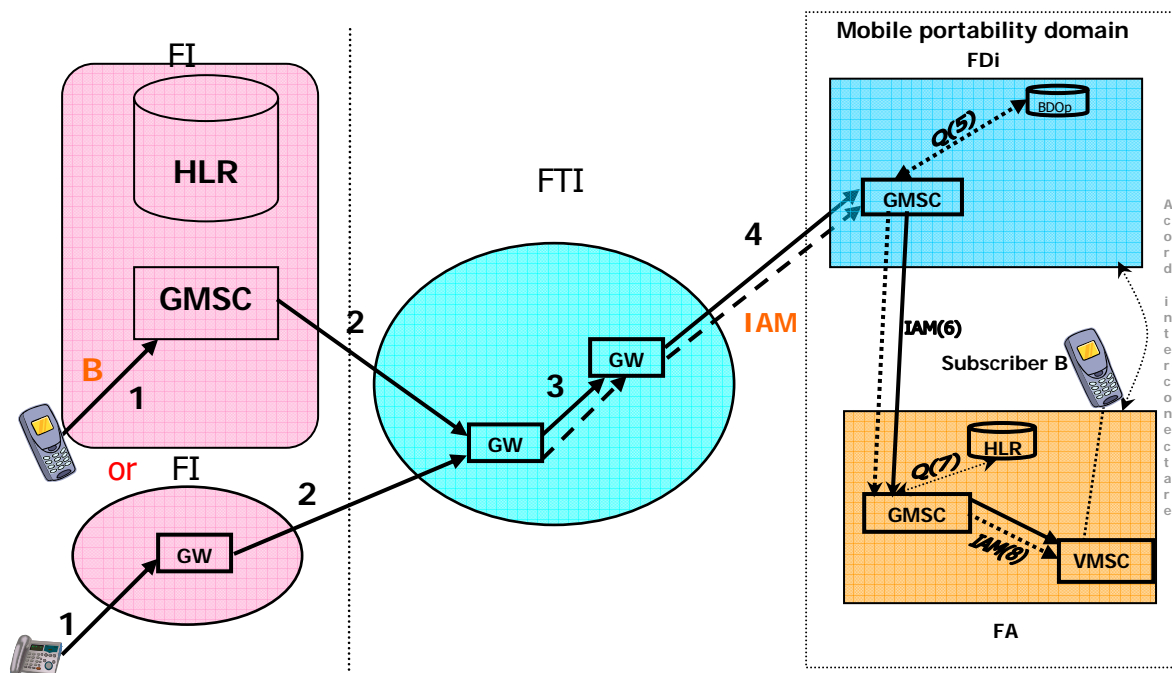


Diagram 39

40) C. FTI is a fixed telephone services provider using the ACQ routing method (Diagram

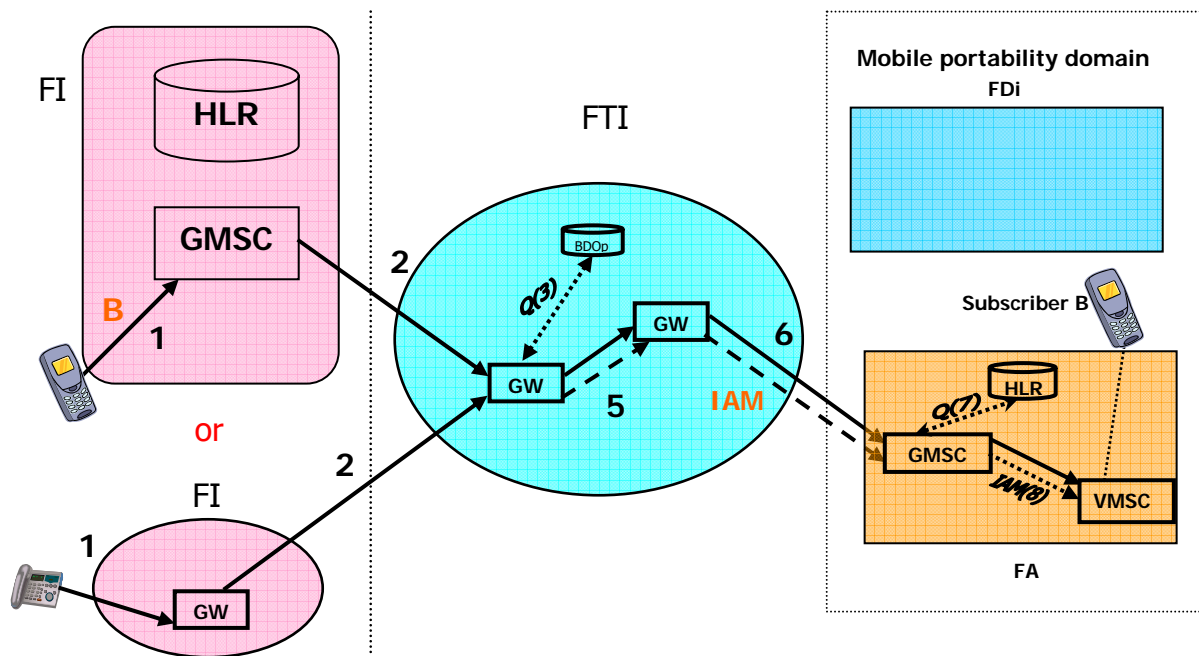


Diagram 40

#### 1.6.1.2. Routing non-call related messages

##### A. Routing (international) SMS (Diagram 41)

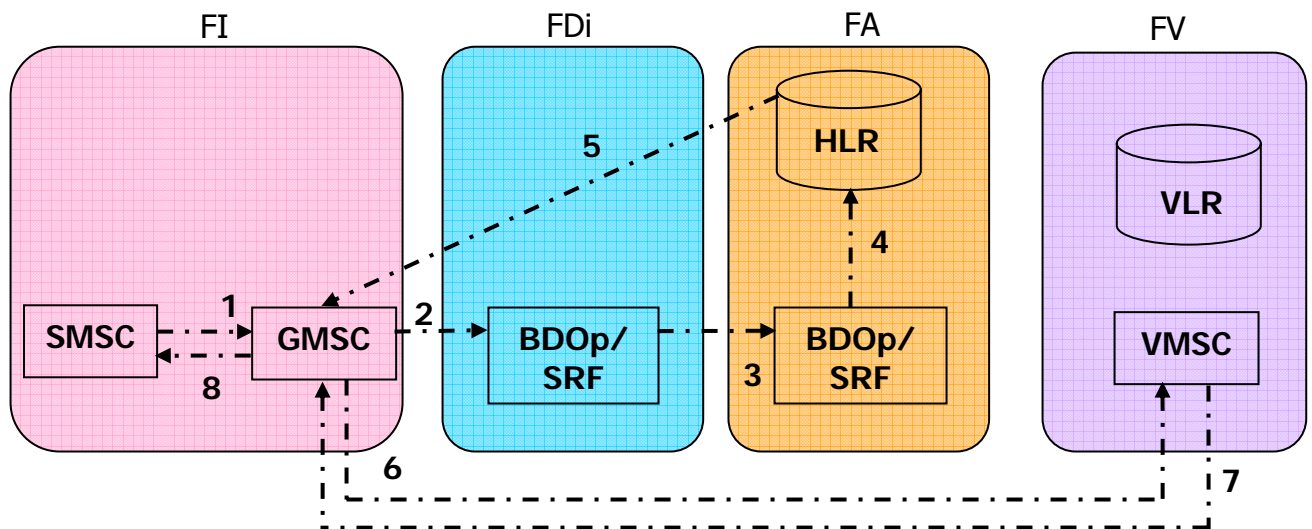


Diagram 40

#### Signalling messages

1 – Forward\_SM (MSISDN)

2 – SRI\_for\_SM (MSISDN) ; CdPA=MSISDN,TT=0; CgPA= address SMS-GMSC

3 – SRI\_for\_SM (MSISDN) ; CdPA=RN+MSISDN; CgPA= address SMS-GMSC

4 – SRI\_for\_SM (MSISDN) ; CdPA= address HLR; CgPA= address SMS-GMSC

5 – SRI\_for\_SM ack(address VMSC,IMSI) ; CdPA= address SMS-GMSC; CgPA= address

6 – Forward\_SM (address VMSC)

HLR

## B. Routing (international) MMS

### B.1 Direct routing (Diagram 42)

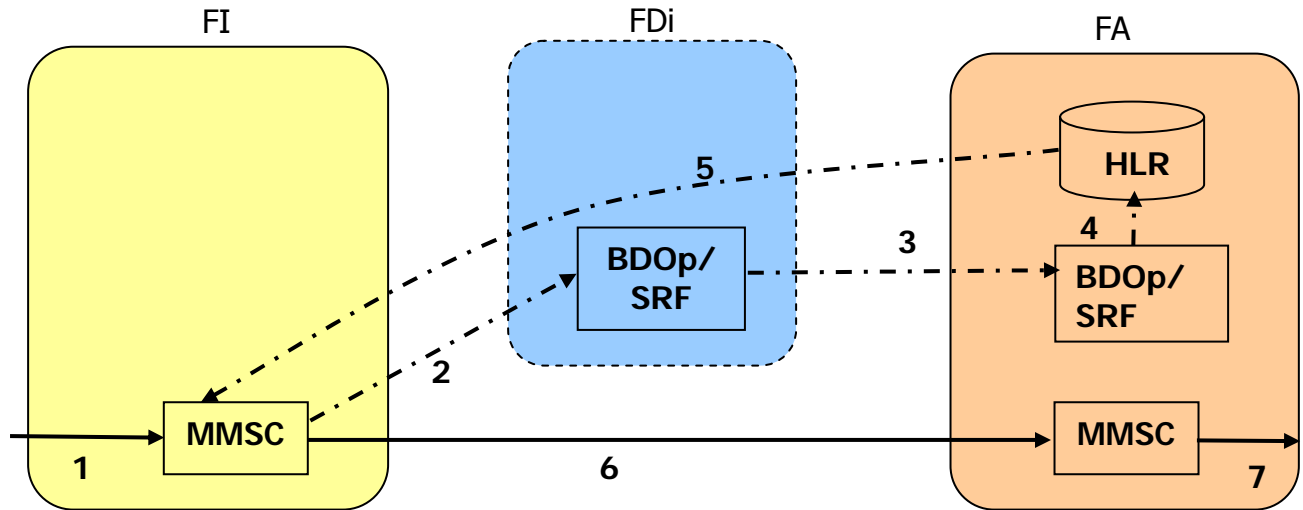


Diagram 42

#### Signalling messages

- 1 – MMS (MSISDN)
- 2 – SRI\_for\_SM (MSISDN) ; CdPA=MSISDN,TT=0; CgPA=address MMSC
- 3 – SRI\_for\_SM (MSISDN) ; CdPA=RN+MSISDN,TT=0; CgPA=address MMSC
- 4 – SRI\_for\_SM (MSISDN) ; CdPA= address HLR; CgPA=address MMSC
- 5 – SRI\_for\_SM ack(IMSI) ; CdPA= address MMSC; CgPA=address HLR
- 6 – MM4\_FW.REQ

### B.2 Routing through a HUB MMSC (Diagram 43)

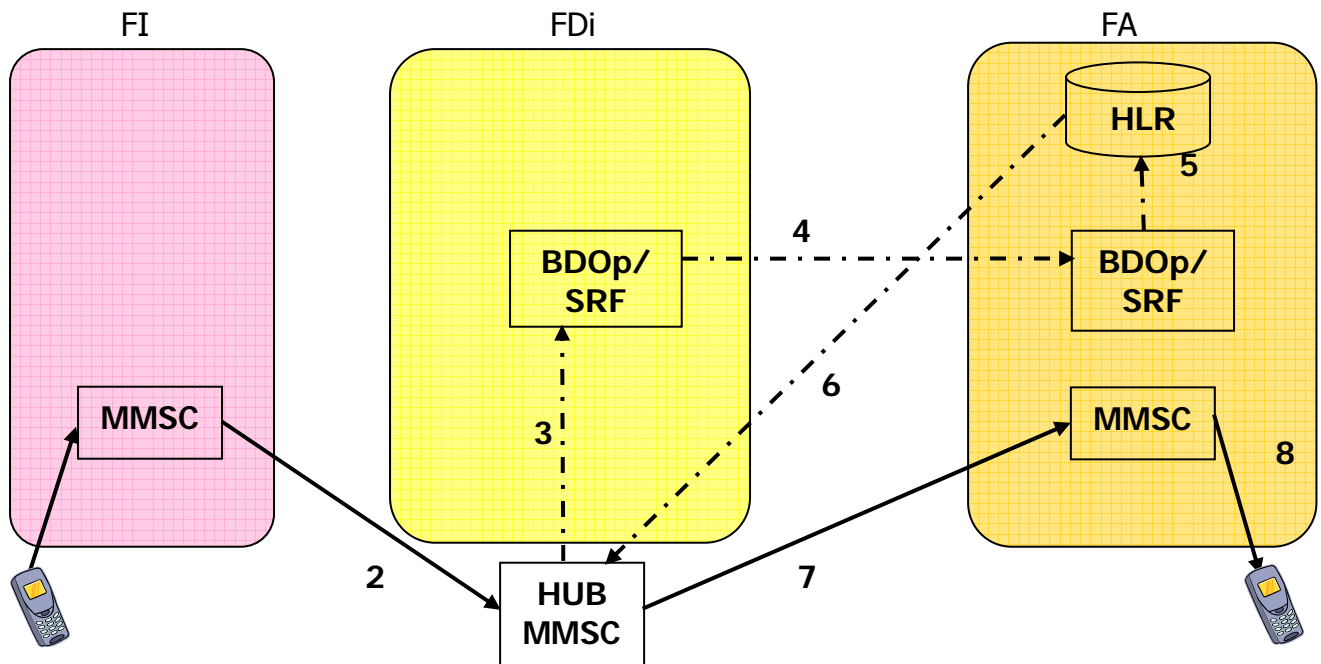


Diagram 43

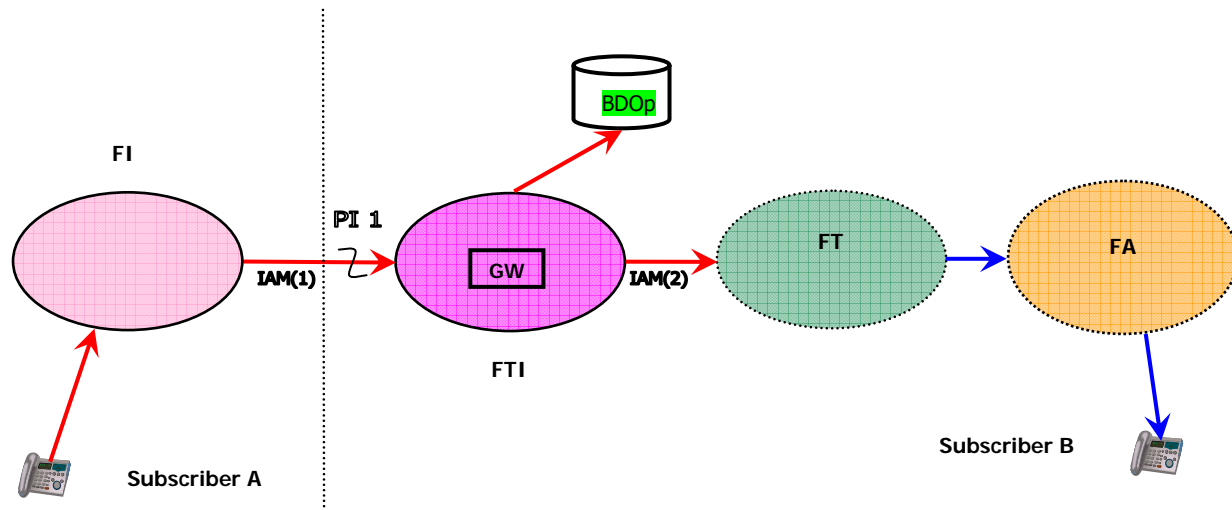
#### Signalling messages

- 1 – MMS (MSISDN)
- 2 – MM4\_FW.REQ\_1

- 3 – SRI\_for\_SM (MSISDN) ; CdPA=MSISDN,TT=0; CgPA= address MMSC
- 4 – SRI\_for\_SM (MSISDN) ; CdPA=RN+MSISDN,TT=0; CgPA= address MMSC
- 5 – SRI\_for\_SM (MSISDN) ; CdPA= address HLR; CgPA= address MMSC
- 6 – SRI\_for\_SM ack(IMSI) ; CdPA= address MMSC; CgPA= address HLR
- 7 – MM4\_FW.REQ\_2

#### 1.6.2. Routing calls to ported geographic numbers (Diagram 44)

The provider operating the exchange or the equivalent gateway used for international traffic shall use, for call routing, one of the solutions presented at points 1.1. or 1.4. under this annex.



**Diagram 44**



## ANNEX 3

### CONTENT OF THE MESSAGES SENT DURING THE ADMINISTRATIVE PROCESSES

#### 1. Pre-defined messages - Priority level

Process/Sub-process/Phase	Message	Message priority
Porting / Porting validation phase	CPF – Provider's porting request	Medium
	ACP – Donor's acceptance of the CPN	Medium
	RCP – Donor's rejection of the CPN	Medium
	ACPF – BDC's acceptance of the CPN	Low
	RCPF – BDC's rejection of the CPN	Low
Porting / Actual porting phase	IPN – Initiate porting	High
	RPD – Porting accomplished by the FD	High
	RPA – Porting accomplished by the FA	Medium
	AIR – Update routing information	Medium
	IRA – Updated routing information	Low
	AIPN – BDC's acceptance of the IPN	Low
	RIPN – BDC's rejection of the IPN	Low
Porting / Cancellation sub-process	CAF – Provider's cancellation request	Medium
	CA-BDC – BDC's cancellation request to the FD and FA	Medium
	ACAF – BDC's acceptance of the CPF	Low
	RCAF – BDC's rejection of the CPF	Low
	CAD – Donor's cancellation request	Medium
	ACAD – BDC's acceptance of the CAD	Low
Porting / Sub-process interruption	RCAD – BDC's rejection of the CAD	Low
	CSF – Provider's interruption request	High
	ACSF – BDC's acceptance of the CSF	Low
	RCSF – BDC's rejection of the CSF	Low
	SPP – Stop porting process	Medium
Disconnection process	SP-BDC – Stop porting process by the BDC	Medium
	NDN – Notify number disconnection	Medium
	ANDN – BDC's acceptance of the NDN	Low
	RNDN – BDC's rejection of the NDN	Low
	AND – Accept number disconnection	Low
	RND – Reject number disconnection	Low
	NPD – Deactivated ported number	Low
	SIR – Delete routing information	Low
Process of modifying the routing information	IRS – Deleted routing information	Low
	MIR – Modify routing information	Medium
	AMIR – BDC's acceptance of the MIR	Low
	RMIR – BDC's rejection of the MIR	Low
Synchronizing process	IRM – Modified routing information	Low
	VSF – Integrity check requested by a provider	Low

	R <sub>BDC</sub> – BDC reply	Low
	CDS – Synchronizing data request	Low
	RDS – BDC's reply to CDS	Low
Process of transferring numbering blocks	ISD <sub>i</sub> – Information on initial donor change	Low
	MIR – Modify routing information	Medium
Process of informing on system status	DSF/RSF – Flaw/Recovery of system status, from the provider	Medium
	DSF/RSF <sub>BDC</sub> – Information on system status, from the BDC to the participants	Low
	BDI – BDC non-functioning	Medium
	BDF – BDC functioning	Medium
	DBD – BDC technical flaw	High

## 2. Message content (fields)

### 2.1. Common fields

Message field	Field definition reference	Field type	Comments
Message identification number (NIM)	c.1	P	Generated by the BDC.
Message type (TM)	c.2	P	
Sender ID (IE)	c.3	P	
Addressee ID (ID)	c.4	P	
Date&hour of recording a message (DOM)	c.5	P	
Operator's registration number (NIO)	c.6	P	
Message version number (NVE)	c.7	P	
Remarks (optional)	c.8	Op	
Message length (LM)	c.9	Op	

*Note:*

*P - Permanent (mandatory)*

*Op – Optional.*

### 2.2. Validation of the porting request

#### CPF

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Request identification number (NIC)	c.11	P	
Identification number of the correlated set of requests (NIOP)	c.12	P	Only for one set of correlated requests

Sequence number of a correlated request (NOC)	c.13	P	Only for one set of correlated requests
Total number of correlated requests (NTC)	c.14	P	Only for one set of correlated requests
Numbering type (TN)	c.15	P	
Individual number (Starting number in a set)	c.16	P	
Ending number in a set	c.17	Op	
Main number (NP)	c.18	Op	
Total ported numbers (TNP)	c.19	P	
Routing number (RN)	c.20	P	
Number of the request for access to the local loop (NBL)	c.21	Op	
Address for service provision (AFS)	c.22	P	Geographic numbers/non-geographic numbers for various services and Premium Rate services
Acceptor ID (IDA)	c.23	P	
Donor ID (IDD)	c.24	P	
Subscriber's name and surname (NPAb)	c.25	P	For post-paid services
Subscriber ID	c.26	P	
Subscriber account (CA)	c.27	P	For post-paid services
SIM code	c.28	P	Mobile GSM telephone services
Subscriber type (TA)	c.29	P	
Subscriber address (AAb)	c.30	P	Post-paid services
Initial date (D&O)	c.31	P	
Final date (D&O)	c.31	P	
Acceptance of partial porting (APP)	c.51	Op	Only for sets of correlated requests

#### ACP

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Request identification number (NIC)	c.11	P	
Identification number of set of correlated requests (NIOP)	c.12	P	

Sequence number of a correlated request (NOC)	c.13	P	
Total number of correlated requests (NTC)	c.14	P	
Individual number (Starting number in a set)	c.16	P	
Ending number in a set	c.17	Op	
Main number (NP)	c.18	Op	
Total ported numbers (TNP)	c.19	P	
Routing number (RN)	c.20	P	
No. of the request for access to the local loop (NBL)	c.21	Op	
Acceptor ID (IDA)	c.23	P	
Donor ID (IDD)	c.24	P	
Subscriber's name and surname (NPAb)	c.25	P	For post-paid services
Porting date accepted by the FD (TEXP)	c.32	P	

### RCP

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Request identification number (NIC)	c.11	P	
Identification number of the set of correlated requests (NIOP)	c.12	P	
Sequence number of a correlated request (NOC)	c.13	P	
Total number of correlated requests (NTC)	c.14	P	
Request rejection code (CDC)	c.34	P	
Description of rejection cause (DCR)	c.35	P	
Acceptor ID (IDA)	c.23	P	
Donor ID (IDD)	c.24	P	

### ACPF

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Request identification number (NIC)	c.11	P	
Identification number of the set of correlated requests (NIOP)	c.12	P	
Sequence number of a correlated request (NOC)	c.13	P	
Total number of correlated requests (NTC)	c.14	P	
Date of sending the CPF from the BDC to the FD (DTC)	c.52	P	

### RCPF

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Request identification number (NIC)	c.11	P	
Identification number of the set of correlated requests (NIOP)	c.12	P	
Correlated request number	c.13	P	
Total number of correlated requests (NTC)	c.14	P	
Request error code (CEC)	c.36	P	
Description of CPN error cause (DBR)	c.37	P	

### 2.3. Actual porting phase

#### **IPN**

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Request identification number (NIC)	c.11	P	
Numbering type (TN)	c.15	P	
Individual number (Starting number in a set)	c.16	P	
Ending number in a set	c.17	Op	
Main number (NP)	c.18	Op	
Total ported numbers (TNP)	c.19	P	
Routing number (RN)	c.20	P	
Acceptor ID (IDA)	c.23	P	
Donor ID (IDD)	c.24	P	
Subscriber's name and surname (NPAb)	c.25	P	
Subscriber ID	c.26	P	
Subscriber account (CA)	c.27	P	
SIM code	c.28	P	
Porting date accepted by the FD (TEXP)	c.32	P	

#### **RPD**

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Request identification number (NIC)	c.11	P	

#### **RPA**

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	

Request identification number (NIC)	c.11	P	
Numbering type (TN)	c.15	P	
Individual number (Starting number in a set)	c.16	P	
Ending number in a set	c.17	Op	
Main number (NP)	c.18	Op	
Total ported numbers (TNP)	c.19	P	
Routing number (RN)	c.20	P	
Acceptor ID (IDA)	c.23	P	
Donor ID (IDD)	c.24	P	
Initial donor ID (IDDi)	c.47	P	
Porting completion date	c.33	P	

## AIR

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Request identification number (NIC)	c.11	P	
Numbering type (TN)	c.15	P	
Individual number (Starting number in a set)	c.16	P	
Ending number in a set	c.17	Op	
Main number (NP)	c.18	Op	
Total ported numbers (TNP)	c.19	P	
Routing number (RN)	c.20	P	
Acceptor ID (IDA)	c.23	P	
Donor ID (IDD)	c.24	P	
Initial donor ID (IDDi)	c.47	P	
Porting completion date	c.33	P	

## IRA

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Request identification number (NIC)	c.11	P	
Numbering type (TN)	c.15	P	
Individual number (Starting number in a set)	c.16	P	
Ending number in a set	c.17	Op	
Main number (NP)	c.18	Op	
Total ported numbers (TNP)	c.19	P	
Routing number (RN)	c.20	P	
Date of information updating (DAI)	c.39	Op	

## AIPN

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Request identification number (NIC)	c.11	P	

#### **RIPN**

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Request identification number (NIC)	c.11	P	
Initiation error code (CEC)	c.36	P	
Description of rejection code (DBR)	c.37	P	

### 2.4. Cancellation of a porting request

#### **CAF**

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Request identification number (NIC)	c.11	P	
Individual number (Starting number in a set)	c.16	P	
Ending number in a set	c.17	Op	
Main number (NP)	c.18	Op	
Total ported numbers (TNP)	c.19	P	
Acceptor ID (IDA)	c.23	P	
Donor ID (IDD)	c.24	P	
Porting date accepted by the FD (TEXP)	c.32	P	

#### **CA-BDC**

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Request identification number (NIC)	c.11	P	
Individual number (Starting number in a set)	c.16	P	
Ending number in a set	c.17	Op	
Main number (NP)	c.18	Op	
Total ported numbers (TNP)	c.19	P	
Acceptor ID (IDA)	c.23	P	
Donor ID (IDD)	c.24	P	

#### **ACAF**

Message field	Field definition reference	Field type	Comments
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Process identification number (NIP)	c.10	P	
Request identification number (NIC)	c.11	P	

#### **RCAF**

<b>Message field</b>	<b>Field definition reference</b>	<b>Field type</b>	<b>Comments</b>
Process identification number (NIP)	c.10	P	
Request identification number (NIC)	c.11	P	
Request error code (CEC)	c.36	P	
Description of rejection code (DBR)	c.37	P	

#### **CAD**

<b>Message field</b>	<b>Field definition reference</b>	<b>Field type</b>	<b>Comments</b>
Process identification number (NIP)	c.10	P	
Request identification number (NIC)	c.11	P	
Individual number (Starting number in a set)	c.16	P	
Ending number in a set	c.17	Op	
Main number (NP)	c.18	Op	
Total ported numbers (TNP)	c.19	P	
Acceptor ID (IDA)	c.23	P	
Donor ID (IDD)	c.24	P	
Porting date accepted by the FD (TEXP)	c.32	P	

#### **ACAD**

<b>Message field</b>	<b>Field definition reference</b>	<b>Field type</b>	<b>Comments</b>
Process identification number (NIP)	c.10	P	
Request identification number (NIC)	c.11	P	

#### **RCAD**

<b>Message field</b>	<b>Field definition reference</b>	<b>Field type</b>	<b>Comments</b>
Process identification number (NIP)	c.10	P	
Request identification number (NIC)	c.11	P	
Request error code (CEC)	c.36	P	
Description of rejection code (DBR)	c.37	P	

### 2.5. Stop Porting Process

#### **CSF**



Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Request identification number (NIC)	c.11	P	
Individual number (Starting number in a set)	c.16	P	
Ending number in a set	c.17	Op	
Main number (NP)	c.18	Op	
Total ported numbers (TNP)	c.19	P	
Porting date accepted by the FD (TEXP)	c.32	P	
Subscriber name and surname (NPAb)	c.25	P	
Subscriber ID	c.26	P	
Subscriber account (CA)	c.27	P	
SIM code	c.28	P	
Subscriber address (AAb)	c.29	P	
Subscriber type (TA)	c.30	P	

### SPP

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Request identification number (NIC)	c.11	P	
Individual number (Starting number in a set)	c.16	P	
Ending number in a set	c.17	Op	
Main number (NP)	c.18	Op	
Total ported numbers (TNP)	c.19	P	
Porting date accepted by the FD (TEXP)	c.32	P	

### SP-BDC

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Request identification number (NIC)	c.11	P	

### ACSF

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Request identification number (NIC)	c.11	P	

### RCSF

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Request identification number (NIC)	c.11	P	

Request error code (CEC)	c.36	P	
Description of rejection code (DBR)	c.37	P	

## 2.6. Disconnect ported number

### **NDN**

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Individual number (Starting number in a set)	c.16	P	
Ending number in a set	c.17	Op	
Main number (NP)	c.18	Op	
Total disconnected numbers (TND)	c.19	P	
Acceptor ID (IDA)	c.23	P	
Initial donor ID (IDDi)	c.47	P	
Date of ceasing service provision to a ported subscriber (D&O)	c.40	P	

### **AND**

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Individual number (Starting number in a set)	c.16	P	
Ending number in a set	c.17	Op	
Total disconnected numbers (TND)	c.19	P	

### **RND**

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Individual number (Starting number in a set)	c.16	P	
Ending number in a set	c.17	Op	
Total disconnected numbers (TND)	c.19	P	
Disconnection rejection code (CDC)	c.34	P	
Description of rejection cause (DCR)	c.35	P	

### **NPD**

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Individual number (Starting number in a set)	c.16	P	
Ending number in a set	c.17	Op	
Total disconnected numbers (TND)	c.19	P	
Date of deactivation (DOD)	c.41	P	

**SIR**

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Individual number (Starting number in a set)	c.16	P	
Ending number in a set	c.17	Op	
Total disconnected numbers (TND)	c.19	P	
Date of deactivation (DOD)	c.41	P	

**IRS**

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Individual number (Starting number in a set)	c.16	P	
Ending number in a set	c.17	Op	
Total disconnected numbers (TND)	c.19	P	
Date of deleting the routing information	c.39	P	

**ANDN**

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	

**RNDN**

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
CDF error code (CEC)	c.36	P	
Description of rejection code (DBR)	c.37	P	

2.7. Modify Routing Information**MIR**

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Individual number (Starting number in a set)	c.16	P	
Ending number in a set	c.17	Op	
Main number (NP)	c.18	P	
Total numbers for which modification of the routing information is requested (TNM)	c.19	P	
Current routing number	c.20	P	

New routing number	c.20	P	
Acceptor ID (IDA)	c.23	P	
Donor ID (IDD)	c.24	P	
Date of modifying the routing information (DMI)	c.38	P	

### IRM

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Individual number (Starting number in a set)	c.16	P	
Ending number in a set	c.17	Op	
Main number (NP)	c.18	P	
Total numbers for which modification of the routing information is requested (TNM)	c.19	P	
Date of modifying the routing information	c.39	P	

### AMIR

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	

### RMIR

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
MIR rejection code (CRM)	c.36	P	
Description of rejection code (DRM)	c.37	P	

## 2.8. Synchronizing process

### *I. Checking a number (Audit)*

### VSF

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Ported number for which checking is requested (NM)	c.16	P	

### RBDC

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	

Ported number for which checking is requested (NM)	c.16	P	
Routing number (RN)	c.20	P	
Acceptor ID (IDA)	c.23	P	
Donor ID (IDD)	c.24	P	
Porting completion date	c.33	P	

## *II. Partial or total synchronizing*

### **CDS**

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Synchronizing type	c.42	P	
Initial synchronizing date	c.45	Op	
Final synchronizing date	c.45	Op	
Information transfer manner (MTI)	c.44	P	

### **RDS**

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Date of sending the data (DTI)	c.43	P	

## 2.9. Reallocation of a numbering block

### **ISD<sub>i</sub>**

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Starting number in a numbering block (NM)	c.16	P	
Ending number in a numbering block (NM)	c.17	P	
Former initial donor ID (IDD <sub>iV</sub> )	c.47	Op	
New initial donor ID (IDD <sub>iN</sub> )	c.47	P	
Date of reallocation (transfer) of a numbering block	c.49	P	

## 2.10. System status information process

### *I. Status of a provider's IT system*

#### **ISF**

#### **DSF/RSF**

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	

Provider ID (IDF)	c.46	P	
Date on which the flaw occurred (PeN)	c.48	Op	
Date on which the functioning was restored (PeN)	c.48	Op	

#### **DSF/RSFBDC**

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.9	P	
Provider ID (IDF)	c.48	P	
Date on which the flaw occurred (PeN)	c.49	Op	
Date on which the functioning was restored (PeN)	c.49	Op	

### *II. BDC status*

#### **BDI – BDC is non-functioning**

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Non-functioning time-frame (PeN)	c.48	P	
IP modification (MoIP)	c.50	Op	

#### **BDF – BDC is functioning**

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
IP modification (MoIP)	c.50	Op	

#### **DBD**

Message field	Field definition reference	Field type	Comments
Process identification number (NIP)	c.10	P	
Error code	c.36	P	
Error description	c.37	Op	

### **3. Message field definitions**

No.	Fields	Definition	Message form/length*
c.1	Message identification number (NIM)	Number generated by the BDC upon receiving and transmitting a message by which the sent/received messages are identified as unique within the system	String x

c.2	Message type (TM)	Message type identification code	Predefined (string 7)
c.3	Sender ID (IE)	Unique code identifying an entity that sends a certain message	Predefined (string 4)
c.4	Addressee ID (ID)	Unique code identifying an entity to which a message is to be sent	Predefined (string 4)
c.5	Date&hour of recording a message (DOM)	Identifies the moment when a certain message is sent	Date &time
c.6	Operator registration number (NIO)	Unique code generated by the provider in view of identifying the processes it initiates. The manner of generating the NIO parameter shall be established by each provider.	String x
c.7	Version number (NVE)	Number identifying the version of a certain message. The first message shall have NVE=1.	String x
c.8	Remarks (Obs)	Comments on the message or the content of the message (may include specifications on certain documents or additional information regarding the message sent)	String x
c.9	Message length (LM)	Additional information on the message dimension	String x
c.10	Process identification number (NIP)	Process identification code, unique within the system, generated by the BDC	String x
c.11	Request identification number (NIC)	A number, unique within the system, generated by the BDC, identifying a porting request. It ensures the end-to-end identification of the porting process	String x
c.12	Identification number of a set of correlated requests (parent)-NIOP	Identification code of a set of correlated porting requests. It shall have the same value for all the requests in the set of correlated requests and shall be identical with the NIO of the first request in the set	String x
c.13	Sequence number of a correlated request (NOC)	Sequence number of a request in a set of correlated requests	Integer x
c.14	Total number of correlated requests (NTC)	Number of requests in a set of correlated requests	String x
c.15	Numbering type (TN)	Code identifying the category of numbering resources for which a certain portability-related process is requested	String x

c.16	Individual number (Starting number of a set)	Number for which porting or other porting-related process is requested. In case of porting a set of numbers, this shall represent the first number in the set. The number shall be presented in national format (0ZABPQMCDU)	Integer 10(14)
c.17	Ending number of a set	The last number of a set of numbers for which porting or other porting-related process is requested. In case of porting one number only, the field shall not be filled in.	Integer 10(14)
c.18	Main number (NP)	The directory number associated with multiple subscriber numbers (MSN) or with a set of numbers (PBX/PABX) for which porting or other porting-related process is requested (the CLI-related number)	Integer 10
c.19	Total ported numbers (TNP)	Total number of telephone numbers for which porting or other porting-related process is requested	Integer 5
c.20	Routing number (RN)	Routing number associated with the number or set of numbers envisaged by a porting request or by other associated process.	Predefined (Integer 5)
c.21	Number of a request for access to the local loop (NBL)	Identification number of a request for access to the local loop associated with a porting request	String x
c.22	Address for service provision (AFS)	Address to which the service is provided by means of the number/s for which porting is requested	String x
c.23	Acceptor ID (IDA)	Unique code identifying an FA	Predefined (string 4)
c.24	Donor ID (IDD)	Unique code identifying an FD	Predefined (string 4)
c.25	Subscriber name/surname (NPAb)	Name of the subscriber to whom the respective number (set of numbers) has been assigned	String x
c.26	Subscriber ID (IDAb)	Code identifying the subscriber who requested the porting (format: B.I./C.I./Passport, CNP/CUI)	String x
c.27	Subscriber account (CAb)	Unique code identifying the subscriber who requested the porting (for billing purpose), as allotted by the FD. It shall be transmitted only for post-paid services	String 10
c.28	SIM code (SIM)	Number of the SIM card corresponding to the number (numbers) for which porting is requested. Shall be sent only for mobile subscribers using a SIM card.	Integer 15-20



c.29	Subscriber type (TAAb)	Code identifying the status of the subscriber who requested the porting (PF/PJ)	Predefined (string x)
c.30	Subscriber address (AAb)	Address of the residence/headquarters of the subscriber requesting the porting (format: Street, No., Block, Entrance, Town/City, County/Sector)	String x
c.31	Initial date/Final date	Dates established by the FA, which indicate the period when porting could be realised (format year:month:day:hour)	String x
c.32	Porting date accepted by the FD (TEXP)	Date agreed by the FA and the FD for performing the porting. (format year:month:day:hour)	String x
c.33	Porting completion date	Date on which the FA checked the service functioning in the donor network and in the acceptor network and sends the RPA message (format year:month:day:hour)	String x
c.34	Error code generated by the FD (CDC)	Error code generated by the FD in the rejection message (RCP, RND) of a received message, identifying the rejection cause	Predefined (Integer 3)
c.35	Description of rejection cause (DCR)	Description of the reason for which the FD rejected a message	String 60-90
c.36	Error code generated by the BDC (CEC)	Error code generated by the BDC, identifying the reason for rejecting a CPF, CAF, CSF, CDF, MIR or sent within the DBD message. Where several errors have been identified, all the detected error codes shall be transmitted	Predefined (Integer 3)
c.37	Description of error cause (DBR)	Description of the reason for which the BDC generated an error code	String 60-90
c.38	Date of modifying the routing information	Date on which the FA requests a change in the routing information regarding a ported number (format year:month:day:hour)	Date &time
c.39	Date of updating, modifying, deleting the routing information (DAI/DMI)	Date and hour when the providers update, change or delete the routing information (format year:month:day:hour)	String x
c.40	Date of ceasing service provision by means of a ported number	Date on which the FA ceased service provision by means of a ported number (format year:month:day:hour)	String x
c.41	Date of deactivating (releasing) a ported number (DOD)	Date from which service provision by means of a ported number cannot be resumed	Date &time
c.42	Synchronizing type	Type of requested synchronizing (total, partial)	Predefined (String x)

c.43	Date of sending the data (DTI)	Date established by the BDC for sending the requested synchronizing data	Date &time
c.44	Information transfer method (MTI)	Code identifying the method by which information is transmitted (BDC files or reports - magnetic support, FTP or as reports)	Predefined (String x)
c.45	Initial synchronizing date /Final synchronizing date (PSI)	Time-frame for which information synchronization is requested	Date &time
c.46	Provider ID	Code identifying a provider (pre-established by a providers' table)	Predefined (String 4)
c.47	Initial donor ID (ID FDi)	Code identifying the initial donor provider	Predefined (String 4)
c.48	Date on which the flaw occurred/date of recovery of the functioning status (PeN)	The two dates indicate the time-frame within which the system (the BDC or the provider's IT system) has been non-functional	Date &time
c.49	Date of reallocation (transfer) of a numbering block	Date on which ANRC has re-allotted (transferred) a numbering block (format year:month:day:hour)	Date &time
c.50	IP modification	Alternative IP address where the participants may address if the BDC is non-functional	String x
c.51	Accept partial porting (APP)	A subscriber's choice, in case of sets of correlated porting requests, to accept or decline partial porting of the numbers envisaged by the respective porting requests	Predefined (YES/NO)
c.52	Date of sending the CPF from the BDC to the FD (DTC)	Date on which the BDC sends a porting request to the FD	Date &time
c.53	Auxiliary	Auxiliary information	String x

*Note: \*Message form and length shall be established by the BDC provider in the detailed specification related to the implementation of number portability.*

## ANNEX 4

### ERROR CODES

Error codes are fields inserted in the rejection messages generated either by the BDC, or by the providers involved in the porting process, mainly by the FD.

The BDC may send a rejection message due to one of the following causes:

- a) certain message-specific parameters are missing or are wrong;
- b) the sender does not have the right to send the respective message;
- c) the message is sent outside the time-frame provided for sending such messages;
- d) porting-related data in the received messages are not valid;
- e) the FD's processing capacity has been exceeded for 2 days (the current day and the following day).

The rejection messages generated by the BDC are the following: RCPF, RIPN, RCAF, RCSF, RNDN, RMIR, RCAD.

The FD may generate a message rejecting the porting request, if the porting cannot be performed, for one of the rejection reasons provided under art.8(2) of the ANRC President's Decision no.144/2006.

The following table presents the main error codes identified\*.

Error	Definition	Error code
<b>Error codes generated by the BDC</b>		
<i>Non-valid data</i>	The data do not fit the specified format or the fields of the received message.	Code #205
<i>Incomplete message</i>	Certain fields in the received message are empty or incomplete	Code #210
<i>Incorrect message format</i>	The received message does not comply with the specified format	Code #215
<i>Improper message for the current process</i>	The received message does not correspond to the porting process/sub-process in progress	Code #220
<i>Wrong message sequence</i>	The received message is not allowed at this stage of the porting process/sub-process	Code #225
<i>Missing request from the set of correlated requests</i>	This code is generated by the BDC if a request is missing from a set of correlated requests	Code #230
<i>Incomplete set of requests</i>	Code generated by the BDC if a request is rejected due to the rejection of at least one of the requests in a set	Code #235
<i>Non-existent request identification number (NIC)</i>	This code is generated when the NIC code is not registered in the BDC	Code #240
<i>Incorrect identification number of a set of requests (NIOP)</i>	This code is generated when the NIOP code does not match the existing BDC records regarding the set of requests	Code #245
<i>Non-existent process identification number (NIP)</i>	The NIP code of the received message is not recognised by the BDC	Code #250

<i>Porting has been previously cancelled</i>	The porting cancellation message received for a number or a set of numbers for which porting has already been cancelled by the FA	Code #255
<i>Number format error (DN)</i>	The format of the individual number (or the starting number in a set), of the ending number in a set or of the main number does not match the specified format	Code #260
<i>Number not allotted</i>	The individual number (set of numbers) is not registered in the BDC as part of the table of numbering resources allotted by ANRC	Code #265
<i>Number non-portable to the FA</i>	FA has not been allotted by LURN blocks of numbers in the format of the number (numbering set) for which porting is requested	Code #270
<i>Non-portable number</i>	The number (set of numbers) for which porting is requested is not part of the portable categories of numbering resources	Code #275
<i>Number under porting</i>	The individual number (set of numbers) for which porting is requested is already involved in a porting process in progress	Code #280
<i>Number set error</i>	This code is generated in the following cases: a) the value of the starting number in the respective set is higher than the value of the ending number in the set; b) only the field corresponding to the ending number is filled in, while the field corresponding to the starting number in the respective set is empty	Code #285
<i>Incorrect routing number</i>	The routing number is incorrect, as compared to the routing numbers registered in the BDC	Code #290
<i>Cancellation deadline expired</i>	FA sends a porting cancellation request outside the regular interval (e.g. after the expiry of the T <sub>10</sub> term)	Code #295
<i>T6 term expired</i>	FA and FD send messages regarding the porting process for a certain number after the expiry of the T <sub>6</sub> term	Code #300
<i>Incorrect porting date&amp;hour</i>	Porting date&hour are prior to the date of sending the porting request or exceeds the maximum acceptable term (30 working days)	Code #305
<i>Invalid cancellation request</i>	This code is generated by the BDC upon receiving a cancellation request from other provider than the FA	Code #310
<i>Non-existent provider ID</i>	The ID of the providers in the received message (sender, addressee, acceptor, donor) is not found in the providers' table in the BDC	Code #315
<i>Acceptor ID is identical with Donor ID</i>	This code is generated when the FA and FD IDs are identical	Code #320

<i>Unauthorised provider</i>	This code is generated if the person initiating a process is not authorised to make such a request	Code #325
<i>BDC technical flaw</i>	This code is generated if the BDC cannot conduct the current processes due to technical flaws	Code #330
<i>Technical flaw in the provider's IT system</i>	This code is generated by the BDC if a provider cannot conduct the current processes due to technical flaws	Code #335
<i>Processing capacity exceeded</i>	This code is generated by the BDC if the capacity for processing the porting requests has been exceeded and it cannot take further requests (for 2 days)	Code #340
<b>Error codes generated by the FD</b>		
<i>Non-existent SIM</i>	This code is generated when the SIM number specified in the porting request does not exist	Code #505
<i>SIM does not match the number</i>	This code is generated if the specified SIM number does not correspond to the number (numbers) envisaged by the porting request	Code #510
<i>Inactive number</i>	This code is generated if the number for which porting is requested has not been activated. Exception: quarantined numbers	Code #515
<i>Subscriber-number inconsistency</i>	This code is generated if the subscriber does not hold the number (numbers) for which porting is requested	Code #520
<i>Stolen SIM or CDMA terminal</i>	This code is generated if the terminal or the SIM card corresponding to the number for which porting is requested have been reported stolen or lost	Code #525
<i>Non-valid subscriber data</i>	This code may be generated if the data do not correspond to the FD data regarding the respective subscriber	Code #530
<i>Incomplete message</i>	This code may be generated when some of the message fields are not filled in or are incomplete	Code #535
<i>This number does not belong to the FD</i>	This code may be generated when the FA requests porting for a number (numbers) that are not used by the FD	Code #540
<i>Already ported number</i>	This code is generated when a new porting request is received regarding numbers that have already been ported	Code #545
<i>Non-portable numbers (for reasons of national security and defence, public order)</i>	This code is generated when a porting request is received for non-portable numbers reserved for reasons of national security and defence or public order	Code #550
<i>Non-portable numbers</i>	This code is generated if a porting request is received for non-portable numbers	Code #555

<i>Incoherent numbers</i>	This code is generated if a porting request is received for numbers that cannot be included in one porting request for reasons such as: the numbers are assigned to terminal points placed in different locations, the numbers fall under different categories of numbering resources, one of the numbers is non-portable etc.	Code #560
<i>Porting denied by the subscriber</i>	This code is generated if the subscriber denies the porting request for the respective number (numbers or set of numbers)	Code #565
<i>Timers conflict</i>	This code is generated if the BDC cannot detect any timer infringement which is detected by the FD	Code #570
<i>Wrong installation address</i>	This code is generated if a porting request is received for numbers assigned to certain terminal points, the address of which is different from the address specified in the porting request	Code #575
<i>Wrong subscriber code (CAb)</i>	This code is generated if the subscriber's account is wrong	Code #580
<i>Incomplete set of requests</i>	Code generated if a request in a set is rejected due to the rejection of at least one request in the set and partial porting has not been specified by the subscriber.	Code #585

*Note:*

*\*The errors and their encoding shall be established by the BDC provider in the detailed specification related to the implementation of number portability.*

## ANNEX 5

### TYPES OF STANDARD REPORTS

#### 1) Statistic reports:

##### I. Statistic volume reports, related to:

a) the total number of porting requests sent to the BDC, accepted or rejected (for each FA);

b) the number of porting cancellation requests (for each FA or FD);

c) the number of porting requests rejected by the OpBDC or the FD (for each FA);

d) the number of porting interruption requests (for each FA);

e) the number of requests for the deactivation of the ported number (for each FA);

f) the number of requests for changing the routing information (for each FA);

##### II. General statistic reports, related to:

a) the number of ported geographic numbers (for each FA);

b) the number of ported non-geographic numbers, other than those for mobile telephone services (for each FA);

c) the number of ported non-geographic numbers for mobile telephone services (for each FA);

d) the total number of numbers received following the porting (for each FA);

e) the total number of numbers transferred through porting (for each FD);

f) numbers disconnected and transferred to the FDi (for each FA);

#### 2) Reports on the progress of the porting process:

a) reports on the exceeded terms (for each FA or FD);

b) reports on the list of messages (that allow the monitoring of the history of a certain porting, based upon the list of messages exchanged during the respective process);

c) reports on the average processing time in view of introducing information through various interfaces;

d) reports on the monitored quality parameters of the porting process;

#### 3) Reports on the BDC functioning, related to:

a) total duration when the BDC was not functioning;

b) the scheduled interruption periods throughout one year;

c) the non-scheduled interruption periods throughout one year;

d) the average time for restoring the functioning of the BDC after non-scheduled interruption

e) total duration when BDC was not functioning, during the normal working program;

f) the total duration when the communication links were not functioning;

g) users' complaints as regards the functioning of the BDC and the manner for solving these complaints;

#### 4) Reports related to the detection of unauthorised access attempts.