Technical Specification Group Services and System Aspects
Meeting #8, Düsseldorf, Germany, 26-28 June 2000

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Source: **TSG SA1**

Title: **CRs to Support of Mobile Number Portability (22.066)**

Document for: **Approval**

Agenda Item: **6.1.3**

Doc-1st-Level	Doc-2nd-Level	Spec	CR	Rev	Phase	Cat	Subject	Version-Current	Version-New
SP-000207	S1-000434	22.066	003		R99	F	North American Service Provider Number Portability impacts for Mobile Number Portability	3.1.0	3.2.0

3GPP TSG SA WG1
Taastrup, Denmark 17th to 21st July 2000

Document S1-000434
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

3GPP TSG CN WG4 #2
Rotenburg a.d Fulda, Germany, 22-26 May 2000

Document N4-000333
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CHANGE REQUEST

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22.066	CR	003	Current Version:	3.1.0

GSM (AA.BB) or 3G (AA.BBB) specification number ? *? CR number as allocated by MCC support team*

For submission to:	CN #8	for approval	X	Strategic		*(for SMG use only)*
list expected approval meeting # here ?		for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from:* ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [ ] UTRAN / Radio [ ] Core Network [X]

Source: 3GPP TSG-CN WG4 **Date:** 2000-05-23

Subject: North American Service Provider Number Portability impacts for Mobile Number Portability

Work item: Mobile Number Portability

Category: *(only one category shall be marked with an X)*

F	Correction	X	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	X
				Release 00	

Reason for change: Add information to support North American Number Portability

Clauses affected: 1,3, 4, 5, 6, 8

Other specs affected:

Other 3G core specifications	X	?	List of CRs:	23.018-052 23.066-019
Other GSM core specifications		?	List of CRs:	
MS test specifications		?	List of CRs:	
BSS test specifications		?	List of CRs:	
O&M specifications		?	List of CRs:	

Other comments:

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1 Scope

The present document defines the stage one description of the Support of Mobile Number Portability between networks in the same country as well as ~~PCS-1900~~ North American cross-sector portability (i.e.: number portability between fixed and ~~PCS-1900~~GSM mobile networks). Stage one is an overall service description, primarily from the service subscriber's and user's points of view, but does not deal with the details of the human interface itself.

Mobile Number Portability (MNP) is applicable only to those telecommunication services identified by an MSISDN.

The present document includes information applicable to network operators, service providers and terminal, switch and database manufacturers.

The present document contains the core requirements for the Support of Mobile Number Portability between network operators in the same country as well as ~~PCS-1900~~North American cross-sector portability which are sufficient to provide a complete service.

Other cross-sector portability options (e.g. number portability between fixed and mobile networks outside the North American Region) are outside the scope of this technical specification. It is highly desirable however, that technical solutions for MNP should be sufficiently flexible to allow for possible enhancements, e.g. cross-sector number portability, and MNP between analogue and digital mobile networks. Additional functionalities not documented in the present document may implement requirements which are considered outside the scope of the present document. This additional functionality may be on a network-wide basis, nation-wide basis or particular to a group of users. Such additional functionality shall not compromise conformance to the core requirements of the service.

Porting between Service Providers (i.e. service provider portability) which does not involve a change of Network Operator is outside the scope of the present document.

The relationship between Service Providers and Network Operators is outside the scope of the present document.

The relationship between a Service Provider and subscriber is outside the scope of the present document. The interface between the Mobile Station (MS) and any external applications are outside the scope of the present document. Charging principles are outside the scope of the present document except where explicitly stated in the text.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

[1] GSM 01.04 (ETR 350): "Digital cellular telecommunications system (Phase 2+); Abbreviations and acronyms".

[2] TR 21.905: "Vocabulary for 3GPP Specifications".

3 Definitions and abbreviations

3.1 Definitions

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

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

directory number: any E.164 dialable number assigned to a wireline or a wireless subscriber. A DN can be a 10-digit number in the context of the North American Numbering Plan (without a country code) or up to 15 digits for an international number(country code included).

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

mobile number portability: ability for a mobile subscriber to change digital mobile subscription network within the same country ~~or within an FCC regulated geographical area within North America~~ whilst retaining their original DN(s). Additional regulatory constraints apply in North America.

network operator: PLMN operator.

~~PCS-1900~~ north american GSM number portability: ability for a subscriber to change subscription between ~~PCS-1900~~North American GSM networks and other subscription networks within an FCC regulated geographical area within North America.

originating network: network where the calling party is located.

ported number: is a MSISDN that has undergone the porting process.

ported subscriber: subscriber of a ported number.

porting process: description of the transfer of a number between network operators.

recipient network: network which receives the number in the porting process. This network becomes the subscription network when the porting process is complete.
service provider: entity which offers service subscriptions to individual subscribers and contracts with a network operator to implement services for a specific DN. A service provider may contract with more than one network operator.
service provider portability: transfer of numbers between two unique Service Providers.
subscription network: network with which the customer's Service Provider has a contract to implement the customer's services for a specific DN.

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

3.2 Abbreviations

For the purposes of the present document the following abbreviations apply:

DN	Directory Number
MMI	Man Machine Interface
MNP	Mobile Number Portability
MSISDN	Mobile Station ISDN number
PLMN	Public Land Mobile Network
~~P~~NAGNP	~~PCS 1900~~ North American GSM Number Portability
SIM	Subscriber Identity Module
USIM	Universal Subscriber Identity Module

Further related abbreviations are given in GSM 01.04 [1] and TR 21.905 [2].

4 Applicability

Mobile Number Portability cannot be offered to a subscriber as a stand alone service. Mobile Number Portability is applicable to all teleservices (e.g. SMS, voice, fax) and bearer services (e.g. data), except for TS12 (emergency call).
The implementation of MNP shall be flexible enough to apply to each DN of a subscriber separately. Where the DNs used in the donor network are ported to different recipient mobile networks then a new IMSI (and SIM/USIM) will be required for each recipient network. The basic and supplementary services provisioned in the recipient network shall not be dependent on those that were provisioned in the donor network.

5 Description

Mobile Number Portability (MNP) is the ability for a mobile subscriber to change digital mobile subscription networks within the same counrty~~country or within an FCC regulated geographical area within North America~~ whilst retaining her original DN or DNs. Additional regulatory constraints apply in North America.
~~PCS 1900~~ North American GSM Number Portability (~~P~~NAGNP) is the ability for a subscriber to change subscription between ~~PCS 1900~~North American GSM networks and other subscription networks within an FCC regulated geographical area within North-America.
The IMSI shall not be ported, hence the recipient mobile network of the porting process will issue a new IMSI for the ported subscription. The porting process may, but need not, include a change in service provider.
The ported subscriber can use exactly the same services as non-ported customers in the same subscription network. That is: whether the DN of a subscriber belongs to a subscription network or is ported to the subscription network shall have no influence on the services offered to the customer by that subscription network.
The services offered by the number range owner network and/or the donor network have no influence on the services offered by the subscription network. When a subscriber ports a DN to a new network then the donor network no longer provides support for the services of the ported number (this includes supplementary and value added services).

NOTE: This also implies that if a service supported in the donor network is not available on the recipient network then number portability mechanisms need not provide that service for the ported subscriber.

A network can be a donor of numbers and a recipient of numbers. A DN can be ported more than once; a ported number can be ported back to its number range owner network. Even after multiple portings, the technical solution shall involve only the number range owner network and recipient network.
The solution for MNP/~~P~~NAGNP shall have a minimal adverse effect upon the quality of service offered to ported and non-ported subscribers. It may be the case that the quality of service for ported and non-ported subscribers differs slightly (e.g. due to additional call set-up delay).
Any additional delay in call set-up to ported numbers shall be minimised.
The process of porting a number may involve a disruption in service to the customer. The time that no service is available shall be minimised.
The technical implementation of the support of MNP/~~P~~NAGNP in a network should not impede number availability and efficient use of numbers.

The technical implementation for the support of MNP/~~P~~NAGNP shall not involve loss of functionality in the number range owner, donor or subscription network.
The technical implementation of MNP/~~P~~NAGNP shall support optimisation of the use of network and inter-network resources so as to minimise costs associated with transport of traffic and/or appropriate signalling and/or processing activities (e.g. optimal routing).
In addition, for the porting process an efficient and effective way is needed to exchange porting information between all types of network operators.

6 Normal procedures with successful outcome

Mobile Number Portability is offered to all subscribers of telephone services subject to regulatory requirements.
A porting process is initiated at a subscriber's request on their selected DN(s) with the relevant networks. Initiation of the porting process is an off-line administrative process and cannot be invoked via a specific MMI on the hand-set.
After successful porting the subscriber, is able to use the provisioned telephone services and network specific services of the subscription network as offered to non-ported subscribers on that network. Porting will effectively initiate a new subscription.
As part of the porting process, the donor, number range owner and recipient networks shall update their relevant network elements in order to perform the porting. After the porting process is complete, the subscription details related to the ported DN on the donor network shall not be required and can be deleted. Therefore, only the number range owner network and the recipient network are involved in the MNP/~~P~~NAGNP solution for support of service to the ported subscriber.
The originating network may not be aware of the ported nature of the number; therefore the technical solution shall work even if networks other than the number range owner and recipient have no knowledge of the ported nature of the number.

NOTE: Other networks may be involved to increase the efficiency of call-set-up to ported numbers.

When a ported subscriber takes an additional DN at her subscription network that additional DN should not have to come from the number range owner network(s) of the subscriber's ported numbers.
Where number ranges are assigned to network operators, the number range owner network shall receive the ported number back from the recipient network when the subscriber relinquishes the ported number, i.e. when the ported number ceases to be an active service number.

7 Exceptional procedures

Service related data (e.g. numbers used in the call-forwarding service, etc.) may not be transferred to the recipient network during the porting process.

8 Addressing

As a consequence of MNP, the DN of a subscriber may no longer explicitly identify the subscription network of that subscriber.