

# TR 101 073 V1.1.1 (1997-06)

---

*Technical Report*

## **Number portability for pan-European services**

---



*European Telecommunications Standards Institute*

---

---

Reference

DTR/NA-021409 (9xo00ics.PDF)

---

Keywords

Portability

***ETSI Secretariat***

---

Postal address

F-06921 Sophia Antipolis Cedex - FRANCE

---

Office address

650 Route des Lucioles - Sophia Antipolis  
Valbonne - FRANCE  
Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16  
Siret N° 348 623 562 00017 - NAF 742 C  
Association à but non lucratif enregistrée à la  
Sous-Préfecture de Grasse (06) N° 7803/88

---

X.400

c= fr; a=atlas; p=etsi; s=secretariat

---

Internet

secretariat@etsi.fr  
<http://www.etsi.fr>

---

***Copyright Notification***

No part may be reproduced except as authorized by written permission.  
The copyright and the foregoing restriction extend to reproduction in all media.

---

# Contents

Intellectual Property Rights.....	4
Foreword .....	4
1 Scope.....	5
2 References.....	5
3 Definitions and abbreviations .....	5
3.1 Definitions .....	5
3.2 Abbreviations.....	7
4 Executive summary .....	7
5 Background .....	8
6 General assumptions and requirements on number portability.....	8
7 Reference model for the ETNS.....	9
7.1 Requirements .....	9
7.2 Key features of the model .....	9
7.3 Call-related part .....	9
7.4 Non call-related part .....	10
8 ETNS schemes and impacts on number portability .....	11
9 Routeing aspects .....	12
10 Number portability of a European Number .....	13
10.1 Change of the routeing number.....	13
10.2 No change of the routeing number.....	14
11 Considerations on the technical management of the number portability for the ETNS .....	14
12 Provision of ETNS number portability .....	16
13 Technical solutions for the communication between the ETNS translation database and the ETNS routeing/portability database.....	17
History .....	18

---

## Intellectual Property Rights

ETSI has not been informed of the existence of any Intellectual Property Right (IPR) which could be, or could become essential to the present document. However, pursuant to the ETSI Interim IPR Policy, no investigation, including IPR searches, has been carried out. No guarantee can be given as to the existence of any IPRs which are, or may be, or may become, essential to the present document.

---

## Foreword

This Technical Report (TR) has been produced by ETSI Technical Committee Network Aspects (NA).

---

# 1 Scope

The scope of the present document is to investigate aspects related to number portability for pan-European services using a European Telephony Number Space (ETNS). In this study the focus is on the number portability between Service Providers (SP) i.e. a customer can move from one pan-European Service Provider (SP) to another and retain a European Number for that service.

The present document describes the main technical requirements and features of number portability in the context of an ETNS and discusses the technologies available today and in the near future for realizing number portability in an efficient way whilst trying as much as possible to minimize the impacts on the network.

---

# 2 References

References may be made to:

- a) specific versions of publications (identified by date of publication, edition number, version number, etc.), in which case, subsequent revisions to the referenced document do not apply; or
- b) all versions up to and including the identified version (identified by "up to and including" before the version identity); or
- c) all versions subsequent to and including the identified version (identified by "onwards" following the version identity); or
- d) publications without mention of a specific version, in which case the latest version applies.

A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

- [1] ITU-T Recommendation E.164: "Numbering plan for the ISDN era".
- [2] DEN/NA-021407: "Creation of a European Telephony Numbering Space (ETNS)".
- [3] TR 101 074 (1997): "European Telephony Numbering Space (ETNS); Management of the European telephony numbering space".
- [4] TR 101 079 (1997): "Routing of calls using a pan-European numbering scheme".

---

# 3 Definitions and abbreviations

## 3.1 Definitions

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

**assisted network:** A network which routes all the calls to European Numbers towards a serving network with which it has agreement.

**called party:** A party that terminates a call involving a European Number. The called party may be the subscriber to the European Number itself, or a terminating equipment of the service network.

**Calling Party:** A party that dials a European Number.

**ETNS administrative database:** A part of the ETNS registrar database where administrative data for each European Number is registered.

**ETNS registrar database:** A database where all administrative and operational data for each European Number are registered.

**ETNS routing/portability database:** A part of the ETNS registrar database where all operational data necessary to routing and portability e.g. routing numbers for each European Number is registered.

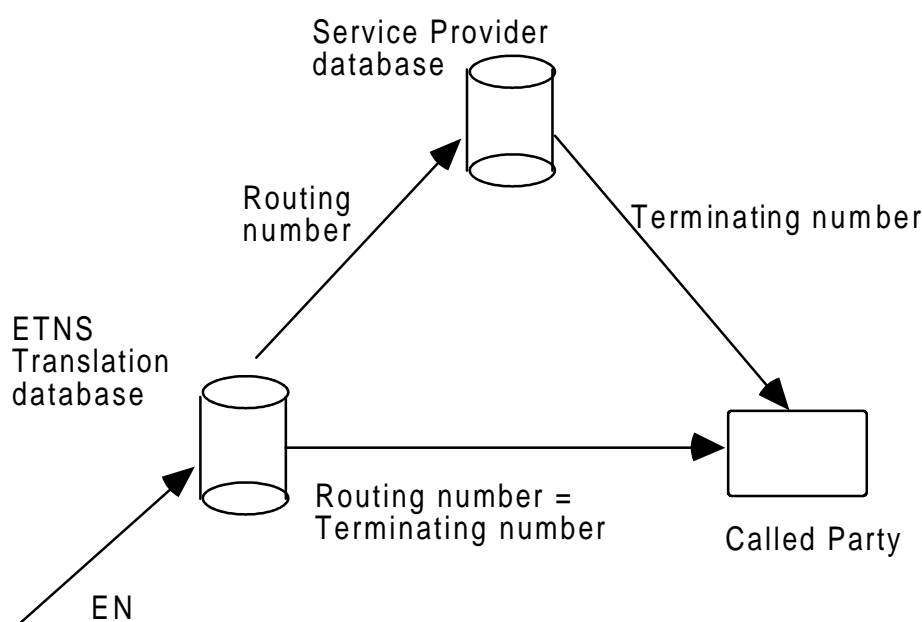
**ETNS translation database:** A database which, in the call process, translates the European Number into the routing number.

**ETNS:** European Telephony Numbering Space, created through the use of national resources or a regional Country Code (388), to provide a set of pan-European services.

**European Number (EN):** A E.164 number that is part of the ETNS.

**location independent number:** A number without any geographic information on the physical location of the called party i.e. European Number (EN).

NOTE 1: A location independent number like EN cannot be used directly to route the call towards the physical location of the called party. To perform the routing the location independent number is translated into a routing number. Figure 1 shows the logical relationship between the terminating number, the routing number and the EN that is a specific location independent number.



**Figure 1: Relationship between EN, routing number and terminating number**

**number portability for pan-European services:** Number portability for pan-European services is a feature that allows a customer of a pan-European service to change the provider of this specific service whilst retaining the same EN. This definition of number portability does not include the possibility of changing pan-European service whilst retaining the same number. If a customer moves from service A to service B in general he may be requested to change his EN. Geographic portability is also not considered.

**originating network:** A network, either assisted or serving, to which the Calling Party is connected.

**routing number:** An E.164 number specified by the service network which can be used to identify and reach the service exchange. It can also identify the Service Provider, the called party, or the originating network.

NOTE 2: In the case where the routing number is a terminating number the routing number does not need to be translated but can be directly used to route the call towards the termination. In the case where the routing number addresses a Service Provider, the routing number cannot be used to terminate the call. It is responsibility of the Service Provider to identify the terminating number used to reach the physical location of the called party.

**service exchange:** An exchange which triggers the provision of the service from the Service Provider on reception of the routing number and then forwards the call.

**service network:** A network which operates the service exchange(s).

**service provider database:** A database from which the requested pan-European service is provided. The Service Provider database can either translate the routing number or a European Number into a terminating number or terminate the call without translation.

**service provider:** An entity which is contracted to provide a pan-European service to its subscriber.

**serving exchange:** An exchange, in the serving network, which can interrogate directly or indirectly an ETNS translation database to obtain a routing number related to the European Number, and then forward the call.

**serving network:** A national or multi-national network, with one or more serving exchanges.

**tariff:** A set of data used for the determination of utilization charges for used services.

**terminating number:** A number containing explicit information on the termination point of the called party. The terminating number is used to route the call towards the physical location of the called party.

## 3.2 Abbreviations

For the purposes of the present document, the following symbols and abbreviations apply:

CC	Country Code
CP	Calling Party
CSSC	Country Specific Service Code
DSP	Donor Service Provider
ECC	European Country Code
EN	European Number
ESC	European Service Code
ESI	European Service Identity
ESN	European Subscriber Number
ETNS	European Telephony Number Space
IN CS1	Intelligent Network Capability Set 1
IN CS2	Intelligent Network Capability Set 2
NDC	National Destination Code
SCF	Service Control Function
SCP	Service Control Point
SDF	Service Data Function
SMF	Service Management Function
SN	Subscriber Number
SP	Service Provider
SSF	Service Switching Function

---

## 4 Executive summary

The portability of European Numbers between Service Provider for the same service is one of the first requirements that the ETNS must satisfy.

Two schemes have been defined for the creation of the ETNS. The first one is based on the use of a specific Country Code assigned to Europe whereas the second one requires the use of spare national number resources. In both schemes the European Number does not contain a Service Provider indication allowing the support of the number portability between Service Providers.

From the point of view of the technical management of the ETNS resource number portability has some impacts. In particular the registrar that is responsible for the handling of the Subscriber Number in the EN must manage a database (called the ETNS registrar database) to register the status of European Numbers including some information such as the routing number, the subscriber and Service Provider identity, etc. When an EN is ported the Service Providers involved in the number portability must communicate to inform the registrar that a new EN number has been acquired from the recipient Service Provider and a number has been deallocated from the Donor Service Provider. The allocation/deallocation of an EN must be recorded in the ETNS administrative database. The ETNS administrative database is the portion of the ETNS registrar database which contains only administrative information. In the starting phase the interactions between the registrar (ETNS administrative database) and the Service Providers may not be

automatic requiring the involvement of a human operator. In the second phase to avoid an unsatisfactory quality of service it would be convenient to adopt fully automatic transactions between the registrar and the Service Providers.

The EN is a location independent number that needs to be translated into a routing number to properly route the ETNS call. This translation is performed by a network element called the ETNS translation database. When an EN number is ported between two Service Providers, the routing number associated with the EN number usually changes. Supporting number portability from the routing point of view means updating the associated EN<->routing number performed by the ETNS translation database. In the updating of the ETNS translation database a key role is played by the ETNS routing/portability database that is the portion of the ETNS registrar database which contains some administrative information and routing information. The communication between the ETNS routing/portability database and the ETNS translation database can be based in the introductory phase on the use of manual procedures.(e.g. fax, e-mail, etc.). In the second phase there is the need to investigate the use of automatic updating capabilities without human involvement. In the long term we can investigate the updating of the ETNS translation database including the potential use of IN Capability Set 2. The availability and above all the suitability of IN CS2 to support the communication between the ETNS routing/portability database and the ETNS translation database must still be proven.

---

## 5 Background

The new emerging market developments and the EU indications are determining new requirements on the numbering of telecommunication services. One of the most important requirements is the creation, in parallel to the present national numbering plans, of ETNS to provide pan-European services.

The ETNS can be implemented either by using national numbering resources or an additional Country Code (388) reserved for pan-European services.

Regardless of the specific solution chosen to implement the ETNS, the provision of number portability between Service Providers for pan-European services is widely recognized as a key factor to develop and strengthen a competitive service market on an European basis. The entrance and the development of new Service Providers will be facilitated by the possibility for a customer to change Service Provider whilst keeping his own European Number. Many entrant Service Providers feel the lack of number portability as an important barrier to their entrance and success in the service market.

Implementing number portability requires changes and investments in the network and this process is expected to take a certain amount of time. The fact that in other parts of the world where competition exists, like the United States, some forms of number portability are already in place should stimulate studies by all the European parties concerned (network operators, Service Providers, regulatory bodies, etc.) to undertake appropriate actions. The aim of the present document is to make a contribution in this direction describing what number portability for pan-European services means and trying to identify possible technical solutions for realizing it.

---

## 6 General assumptions and requirements on number portability

This clause lists some general assumptions and requirements related to the portability of numbers belonging to the ETNS.

- 1) Only the European Number (not including prefixes and suffixes) is eligible to be ported.
- 2) Only the entire European Number is portable i.e. not a portion of it.
- 3) The privacy of a customer who has ported his number should be guaranteed.
- 4) The Calling Party should not be able to recognize that it is calling a ported number.
- 5) Normally number portability should not influence the charge to the calling user.

It is recognized that the provision of ETNS number portability within the newly created number space can not be compared with the provision of number portability within a national numbering scheme.



---

## 7 Reference model for the ETNS

This clause provides a conceptual description of the implementation of the ETNS. Its aim is to explain the relationship between DEN/NA-021407 [2], TR 101 074 [3] and TR 101 079 [4].

### 7.1 Requirements

Provision of services in the ETNS is an open and competitive area, which means that any subscriber can select a specific Service Provider from one among all the service providers within Europe offering the service identified by the European Service Identity (ESI). A Service Provider should treat all requests for subscription from European customers in a non-discriminatory manner.

In order to understand and develop issues pertaining to the management of an ETNS, it is necessary to understand what a pan-European call is. A pan-European call can originate outside Europe, terminate outside Europe, but the intelligence (the serving exchange, the ETNS translation database, the service exchange and the Service Provider) of the call must be located inside Europe.

### 7.2 Key features of the model

Two key features characterize the model.

The model has to enable the connection of any new authorized service provider and/or service operator. As a consequence, there must be a clear distinction between the serving network and the service network. The serving network is responsible for routing a call towards the service network. The service network is responsible for the service itself. This distinction makes necessary the use of an intermediary number (routing number) for the serving network to address the service network.

The second feature is that the European Numbers are portable between service providers. This implies they are managed by an independent centralized authority, the registrar. This authority keeps a database for all the European Numbers and distributes the routing information to the serving networks.

**NOTE:** Regarding the updating of the ETNS translation databases, the reference model has been developed for a centralized approach; other variants, e.g. decentralized, will also be studied during the standardization process.

### 7.3 Call-related part

This subclause describes the principles for routing a call from the Calling Party to the called party. This is studied in detail in TR 101 079 [4].

The Calling Party dials the European Number in its international format.

Based on the European Service Identifier (ESI), the call is routed to the serving exchange in the serving network. Potentially, this exchange is not in the Calling Party's network, but is located in an assisting network (e.g. in figure 2 assisted network 5 does not wish - or is unable - to handle calls to European Numbers, and routes all these calls to serving network 3). The Calling Party's network is then called an assisted network, interconnected to the serving network through interface C.

The serving exchange, analysing the ESI, triggers the ETNS translation database to translate the incoming European Number into an outgoing routing number. The ETNS translation database can be inside or outside the serving network. The routing number need not to be the same for each serving network (e.g. networks 2 and 3 route the calls to EN1 using routing numbers 1a and 1b respectively).

This ends the first leg of the call which consists of routing the call to the service exchange. This leg, including interface B between the serving exchange and the service exchange, has to be standardized.

A second translation can take place at the service exchange to redirect the call to the subscriber, or the call can be terminated on an answering machine.

Note that one network operator can have several of the following functions:

- The service network and the Service Provider are the same, so that interface A is internal.
- The serving network and the service network are the same (e.g. network 4). In which case the same switch can be used as a serving and service exchange. Interface B is internal for a call originating from this network, and external elsewhere; the routing number being necessary only in the latter case.
- The serving network, the service network and the Service Provider are the same, so that both interfaces A and B are internal.

## 7.4 Non call-related part

This subclause describes the organization of the databases that contain the association of routing numbers to European Numbers. The main one is the ETNS registrar database; the others are the serving networks' partial copies of it, i.e. the ETNS translation databases.

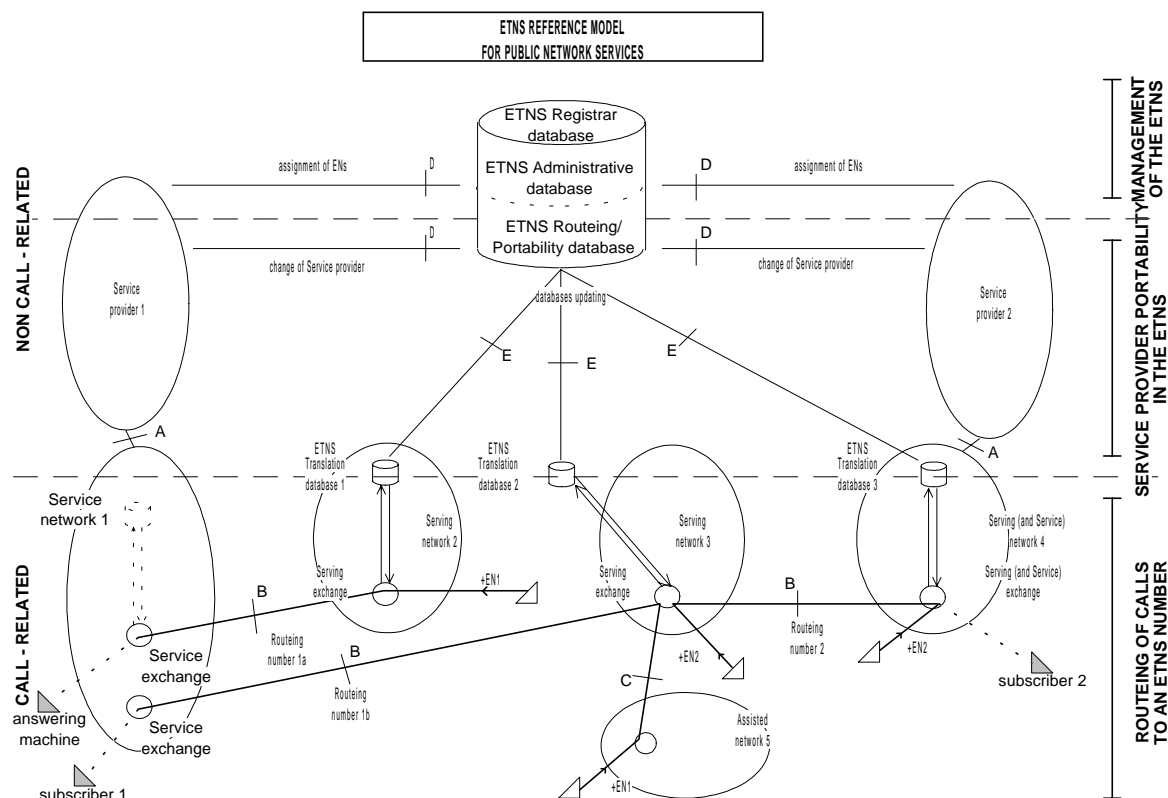
The ETNS registrar database can be logically split into two databases.

The first one is the ETNS administrative database, which interacts with the Service Providers through interface D, for EN request and attribution, and for change of Service Provider. The interaction between the registrar and the Service Provider could be a manual interface, e.g. using phone and fax, but should be an automatic interface, e.g. using the Internet.

The second one is the ETNS routing/portability database, which interacts with the ETNS translation databases through interface E in updating procedures, occurring when:

- A new EN has been assigned together with one or more routing numbers; only the originating networks where the service is opened should be updated with the right routing information.
- A change of Service Provider has occurred, entailing new routing numbers.
- An ETNS translation database failure has occurred, erasing all or part of the data.
- The Service Provider has decided to change any parameter present in the ETNS translation database.

In any case, the registrar should be informed first of the change.



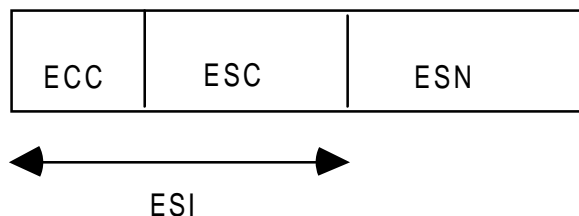
**Figure 2: ETNS reference model**

## 8 ETNS schemes and impacts on number portability

Two schemes need to be considered to create the ETNS:

- 1) The use of a specific Country Code assigned to Europe (ECC-388).
- 2) The use of national numbering resources.

To implement the first scheme the allocation of a specific Country Code is required. The Country Code is one used to identify not a specific country but a set of services provided on a pan-European basis (ECC). Figure 3 illustrates the structure of the European Number based on the Country Code scheme.

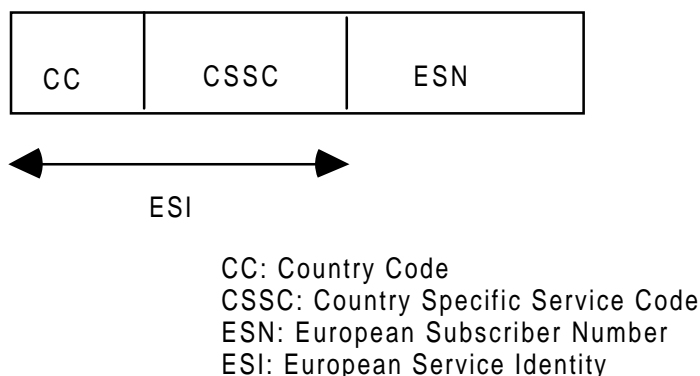


ECC: European Country Code  
 ESC: European Service Code  
 ESN: European Subscriber Number  
 ESI: European Service Identity

**Figure 3: European Number - CC scheme**

The national numbering resource scheme is based on the use of the national numbering resources of various European countries to create a common European Numbering plan to be used for the provision of pan-European services.

Figure 4 shows the possible structure of the European Number based on the national numbering scheme. The CSSC is a spare National Destination Code used in conjunction with the CC to identify a specific pan-European service.



**Figure 4: European Number - NDC scheme**

In both the schemes described the ESN is the Subscriber Number and it is used to identify the user of the pan-European service. The structure of the SN is dependent on the specific pan-European service considered. This implies that ENs of different pan-European services may have different structures to deal with the different characteristics of the services (e.g. number and distribution of the subscribers).

As no Service Provider indication is contained within the number, number portability is allowed in both schemes.

## 9 Routing aspects

In general terms the implementation of number portability affects the routing procedures. When a number is ported it cannot be used as "a routing number" to reach the destination identified by the number itself. In other words the ported number is a location independent number which cannot be used to route the call towards the physical location of the called party. This location is reached by using another number, the routing number, which contains explicit or implicit routing information on the physical location of the customer.

Looking at the routing aspects to support number portability means defining how and where the association between the ported number, that is a location independent number, and the routing number is realized. There are various ways and mechanisms (signalling capabilities, IN capabilities, etc.) to perform this association. The different mechanisms have different features, costs and fields of applicability.

It should be noted that regardless of number portability the European Number according to its definition is a location independent number. This means that to properly route an ETNS call the EN must be translated into a routing number. IN capabilities represent today one of the most promising solutions to perform this translation. However the use of another solutions cannot be excluded.

In the case where the European Number is based on a European Country Code the following two options exist to route an ETNS call:

- 1) The ETNS call is routed to the serving node that resides in the network where the call is originated. The serving node triggers the ETNS translation database that converts the European Number (388+ESC+ESN) (note) into a routing number (CC+NDC+ESN). The routing number can either be directly used to route the call to the called party or can be used to identify the Service Provider database that is responsible to route the call to the physical location of the called party. In this case the network where the call is originated acts as a serving network and there is no assisted network.

NOTE: The symbol "+" is not dialled by the user.

- 2) The ETNS call is routed to either a specific or a limited set of serving nodes within Europe. The serving node triggers the ETNS translation database that converts the EN (388+ESC+ESN) into a routing number (CC+NDC+ESN). The routing number can either be directly used to route the call to the called party or can be used to identify the Service Provider database that is responsible to route the call to the physical location of the called party. In this case the network where the serving node resides acts as a serving network and the network where the call originates is the assisted network.

In the case where the European Number is based on the use of national number resources and in particular on the National Destination Code scheme the following three options exist to route an ETNS call:

- 1) The ETNS call is routed to a network of the country from which the CSSC is reserved. A serving node of this network triggers the ETNS translation database that translates the EN (CC+CSSC+ESN) into a routing number (CC+NDC+ESN). The routing number can either be directly used to route the call to the called party or can be used to identify the Service Provider database that is responsible to route the call to the physical location of the called party. In this case the network where the call originates is the assisted network and the network hosting the serving node is the serving network.
- 2) The ETNS call is routed to a serving node that resides in the network where the call is originated. The serving node triggers the ETNS translation database that converts the European Number (CC+CSSC+ESN) into a routing number (CC+NDC+ESN). The routing number can either be directly used to route the call to the called party or can be used to identify the Service Provider database that is responsible to route the call to the physical location of the called party. In this case the network where the call is originated acts as serving network and there is no assisted network.
- 3) The ETNS call is routed to either a specific or a limited set of serving nodes within Europe. The serving node triggers the ETNS translation database that converts the European Number (CC+CSSC+ESN) into a routing number (CC+NDC+ESN). The routing number can either be directly used to route the call to the called party or can be used to identify the Service Provider database that is responsible to route the call to the physical location of the called party. In this case the network where the serving node resides acts as serving network and the network where the call originates is the assisted network.

---

## 10 Number portability of a European Number

As described in clause 8 the European Number defined by using a specific Country Code or a national numbering resource is not directly usable to get the physical location of the called party. To route a call the EN is translated into a routing number used to route the call.

When the European Number is ported from Service Provider A to Service Provider B two different cases can occur:

- The change of Service Provider implies a new routing number.
- The change of Service Provider does not imply a new routing number.

The fact that the changing of Service Providers impacts on the routing number associated to the EN depends on the pan-European service considered.

In the following we make the assumption that a European Number may be ported without affecting the corresponding routing number only when the routing number associated to the EN is a terminating number. In this case the routing number is the number used to directly route the call to the called party.

To summarize, EN portability usually requires a change of the routing number. The fact that the same routing number is used after an EN number has been ported is a kind of exception that can take place only when the routing number is a terminating number.

### 10.1 Change of the routing number

In most of cases portability of the European Number between Service Providers implies the use a new routing number to properly route the ETNS call. The change of the number used to identify directly or indirectly the physical location of the ETNS user has impacts on the routing.

Two possible approaches can be taken into consideration to perform correctly the routing to the final destination:

- 1) Modifying the association between European Number and routing number.

This solution requires that the ETNS translation database in charge of managing the association between ETNS number and routing number is informed that the EN has been ported and a new routing number corresponds to the European Number. Clause 12 describes the capabilities involved in the updating of the association between EN and the routing number.

- 2) Not modifying the association between European Number - routing number.

This solution is not taken into consideration. The basic assumption is that every time an EN is ported the ETNS translation databases of the originating networks responsible to route the specific call are informed of the number portability. Then the association between EN and routing number is modified accordingly to new routing number (case 1).

The fact that an EN has been ported has impacts on the management of the ETNS numbering resources. The technical management aspects relating to number portability are discussed in clause 11.

## 10.2 No change of the routing number

If an EN is ported between Service Providers without requiring to change the routing number associated to the European Number, number portability has no impact on the routing procedures. In both the options described to route an ETNS call (see clause 9) the ETNS translation database used to translate the European Number into the routing number operates in the same way regardless of whether the number has been ported or not.

As mentioned before the fact that the routing number does not change when the EN is ported must be regarded as an atypical case that may occur only when the routing number is a terminating number.

---

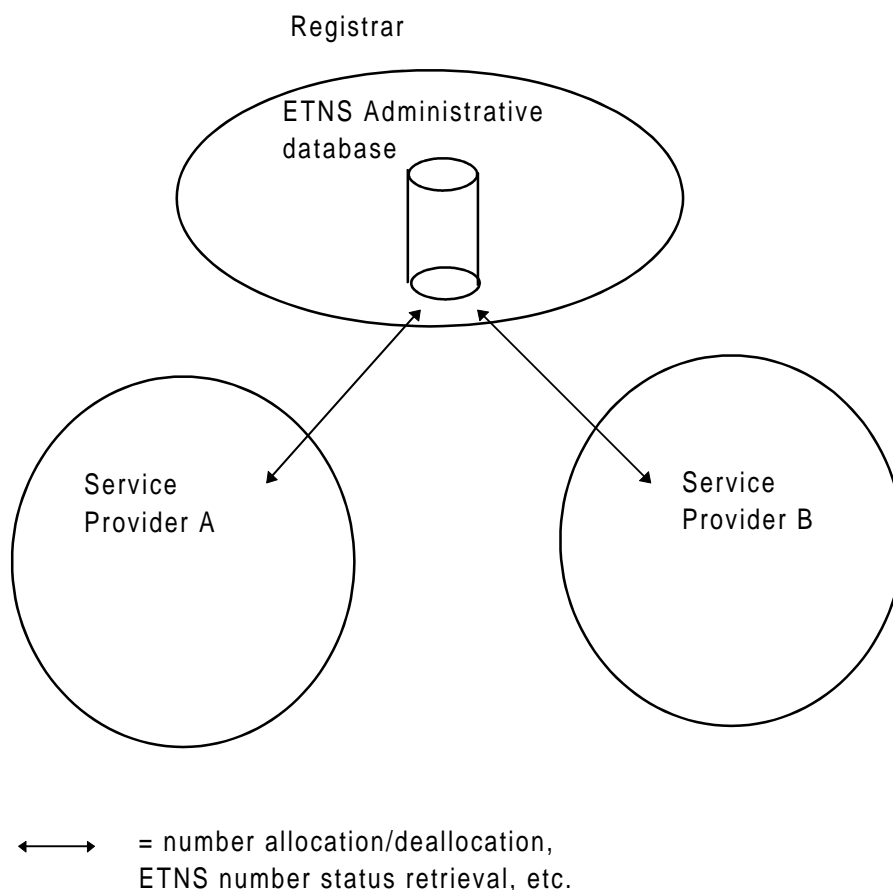
# 11 Considerations on the technical management of the number portability for the ETNS

The portability of European Numbers impacts on the management of the ETNS resource. In particular the registrar that is responsible for the handling of the Subscriber Number behind the ESI plays an important role in the management of the ported European Numbers. The registrar must keep track of the status of the European Numbers allocated to the various Service Providers and then document whether a number has been ported or not.

To provide in an efficient way number portability, the following points should be taken into consideration:

- 1) For each pan-European service there should be a unique European database in the following called ETNS registrar database. The ETNS registrar database contains for each European Number the administrative information and the requested information to route the ETNS call and support number portability. From a functional point of view we can split the ETNS registrar database into two databases. The first one called the ETNS administrative database contains for each EN only administrative information. The second one called the ETNS routing/portability database for each EN contains part of the administrative information and the requested operational information (i.e. routing number) necessary to support number portability.
- 2) The implementation and the handling of the ETNS administrative database and the ETNS routing/portability database are under the responsibility of the registrar. In particular it is highly desirable that the ETNS administrative database should be electronically accessible by the registrar and by all the Service Providers providing the specific pan-European service.
- 3) Access to the ETNS administrative database by the Service Providers must be secured. Only the Service Providers recognized by the registrar must have access to the ETNS portability database.
- 4) The customer's information must be protected. A Service Provider can obtain only information related to the number status for the EN assigned to another Service Provider.
- 5) The availability of the pan-European service should not depend on the real time availability of the ETNS administrative database.

Figure 5 shows the interaction for a specific pan-European service between the ETNS administrative database managed by the registrar and two Service Providers providing the service. With respect to the ETNS reference model described in clause 7 the interactions shown in figure 5 are the interactions that take place at the D interface. These interactions include the allocation/deallocation of a European Number to/from a Service Provider, the retrieval by the Service Provider of information on the status of an EN portable number, etc.



**Figure 5: Interactions between ETNS administrative database and Service Provider**

To allow the communication between the Service Providers and the ETNS administrative database managed by the registrar it is necessary to define the appropriate interfaces. The interfaces can be either standardized or proprietary interfaces. In particular the urgency of creating in a short period of time an ETNS administrative database accessible by the Service Providers can in a first phase imply the use of proprietary interfaces. In the medium term the use of standardized interfaces is recommended.

In addition in an initial phase in order to provide as soon as possible number portability the interfaces and more in general the "interactions" between the Service Providers and the ETNS administrative database may not be fully automatic requiring an involvement of human operators. This means for example that the procedures of number request and number allocation can be performed by sending fax messages or electronic mails. In the long run with the increase of the "interactions" between the ETNS administrative database and the Service Providers it will be useful to limit as much as possible the involvement of the human operators by using automatic transactions based on standardized interfaces.

From the management point of view when an EN number is ported from the Service Provider A (Donor SP) to the Service Provider B (recipient SP) some actions take place between the two Service Providers and the registrar. These actions can be summarized in three steps:

- 1) The recipient SP has the responsibility to inform the registrar that he has acquired a new customer with a ported EN.
- 2) The registrar must keep track that the EN indicated by the recipient Service Provider is now a EN ported number from Service Provider A to Service Provider B.
- 3) The registrar must deallocate the ported EN from the Donor Service Provider.

The interactions above described between the Service Providers and the registrar may take a certain amount of time especially in the first phase where these interactions will not be fully automatic. The use of non-automatic interactions based on the involvement of human operators may affect in a negative way the quality of the service offered to the customers of pan-European services. For example when the customer moves from Service Provider A to Service

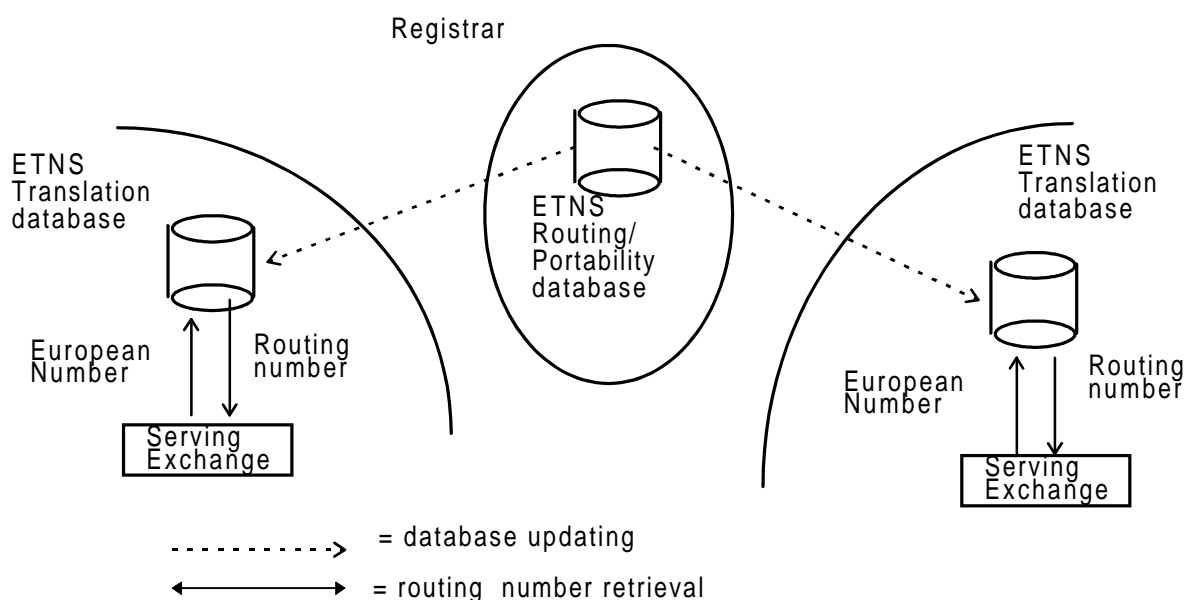
Provider B it is possible to have a period of time where the service is not available due to the allocation/deallocation procedures of the ported European Number.

## 12 Provision of ETNS number portability

In the clause describing the technical management of the ported European Numbers for each pan-European service there is a database (the ETNS routing/portability database) that contains both administrative and operational data pertinent to the ENs. These data comprise information on the Service Provider and on the status of the EN including the routing number associated.

The portability of an EN between two Service Providers usually implies a change of the routing number associated to the ported European Number. It is the responsibility of the ETNS routing/portability database to inform the appropriate ETNS translation databases of the various serving networks that the EN number has been ported and a new routing number is associated to the ported European Number.

Figure 6 shows the interaction (dotted lines) between the ETNS routing/portability database and the ETNS translation databases. Bearing in mind the ETNS reference model, the interactions described in figure 6 are the interactions corresponding to the E interface.



**Figure 6: Interaction between registrar and ETNS translation database**

In particular the ETNS routing/portability database updates the ETNS translation databases that are the databases containing the association between the EN and the routing number. The updating of the ETNS translation databases by the ETNS routing/portability database consists of communicating the new association between the ported EN and the "new" routing number. It is worth noting that the ETNS routing/portability database has not to directly access the ETNS translation databases to communicate the new association between EN and routing number. More simply this new association can be communicated to the serving networks involved that take care to update in a consistent way their own ETNS translation databases. In other words it not necessary to define a direct communication between the ETNS routing/portability database and the ETNS translation databases.

The location and the number of the ETNS translation databases for a specific pan-European service depends on which of the routing alternatives described in clause 8 has been chosen to route the ETNS call. The alternatives vary from one single ETNS translation database to a number of ETNS translation databases (one in each European network from where an ETNS call is originated).

It is important to note that the ETNS routing/portability database is not interrogated on a per call basis by the serving network. In fact the ETNS translation database contains a copy of the ETNS routing/portability database for the data relevant from the numbering and routing point of view. Every time data relevant to a European Number are changed the ETNS routing/portability database is responsible for updating the appropriate ETNS translation databases. In this



way only the ETNS translation database is asked on a per call basis by the serving exchange to get the routing number associated to the EN.

---

## 13 Technical solutions for the communication between the ETNS translation database and the ETNS routing/portability database

The communication between the ETNS routing/portability database and the ETNS translation database (E interface) can be based in a introductory phase on the use of manual procedures (e.g. fax, e-mail, etc.). In a second phase there is the need to investigate the use of automatic updating capabilities without human involvement. In the long term we can investigate the updating of the ETNS translation database including the potential use of IN Capability Set 2. The availability and above all the suitability of IN CS2 to support the communication between the ETNS routing/portability database and the ETNS translation database must still be proven.

---

## History

<b>Document history</b>		
V1.1.1	June 1997	Publication