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Management of the European Telephony Numbering Space (ETNS)

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Management of the European Telephony Numbering Space (ETNS)

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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Services and Protocols for Advanced Networks (SPAN).

National transposition dates	
Date of adoption of this EN:	18 January 2002
Date of latest announcement of this EN (doa):	30 April 2002
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Introduction

ETSI, under a mandate from the CEU, has been requested to produce a standard for the number structure, possible evolution of ETNS numbers (Ens) towards a global scheme, and framework of functions regarding ETNS numbering conventions. ETO has, on behalf of ECTRA for the CEU, produced proposals for the management of the ETNS, and developed ETNS numbering conventions that have been agreed by ECTRA. The studies made in ETSI and the standards produced are a prerequisite to the necessary commercial agreements between the parties willing to participate in the ETNS.

The present document is based on the results of the ETSI studies on the topic, based on the prime requirement of the ETNS which is the ability to introduce services in an open competitive environment.

ECTRA having decided in November 1996 to base the ETNS on Country Code (CC) 388. At the March 2000 meeting of ITU-T Study Group 2, it was decided that the Country Code 388 and a one digit Identification Code whose current value is 3, was assigned to ETNS.

The present document has been designed for an early implementation of the ETNS. Improvements of the ETNS architecture may occur later and result in revisions of the present document.

1 Scope

The present document specifies the management of ETNS, including the number structure, the allocation of codes to the service described, number length and evolution from National numbers to pan-European to global numbers. It also describes the reference model for the ETNS and specifies the methods for routeing a call from the calling party to the called party and the management methods to be used for controlling such procedures.

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 and/or edition number or version number) or non-specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies.

[1]   ITU-T Recommendation E.164: "The international public telecommunication numbering plan".

[2]   ETSI EN 301 160 (V1.1.1): "Routeing of calls to European Telephony Numbering Space (ETNS) services".

[3]   ETSI TR 101 073 (V1.1.1): "Number portability for pan-European services".

[4]   ETSI TR 101 079 (V1.1.1): "Network Aspects (NA): Routeing of calls to pan-European services using European Telephony Numbering Space (ETNS)".

[5]   Void.

[6]   ETO Report: "Management, Routeing and Portability aspects of the European Telephony Numbering Space (ETNS)".

[7]   Void.

[8]   Void.

[9]   ITU-T Recommendation E.353: "Routing of calls when using international routing addresses".

3 Definitions, symbols and abbreviations

3.1 Definitions

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

administrator: responsible for the high level management of the ETNS

assisted network: network which routes a call to an ETNS number towards a serving network it has agreement with in order to complete the call

called party: entity that terminates a call to an ETNS number

calling party: entity that dials a ETNS number

ETNS country: CEPT member country participating in the ETNS

ETNS Registrar database: database maintained by the Registrar where all data, both administrative and operational, for each ETNS number are registered

ETNS routeing number: an ITU-T Recommendation E.164 number used to route to the service exchange

NOTE: It can also identify the called party, the ETNS service provider/producer, and/or the originating network. ITU-T Recommendation E.353 [9] is an alternative in the future.

ETNS signalling address: standardized address used to route signalling messages over the interface, that is not in the call path, between any pair of ETNS entities

NOTE: An example may be the use of SCCP Global Titles.

ETNS service producer: functional entity producing the ETNS service(s) in question, having real-time control of the service(s).

NOTE: See clause 4 for the relationship between service producer and service provider.

ETNS service provider: functional entity that provides one or more ETNS service(s) to its ETNS subscribers on a contractual basis and is not involved in real-time control of the service

ETNS service: service that has been assigned an ESI

ETNS subscriber: entity that requests a ETNS number from a ETNS service provider in order to offer access from a calling party to a ETNS service

ETNS translation database: capability, which in the call process, translates the ETNS number into a routeing number

ETNS: numbering resource identified by E.164 country code 388 and a one digit identification code whose current value is 3, used for the provisioning of the ETNS services

originating network: network, either assisted or serving, to which the calling party is connected

registrar: responsible for the day-to-day management of the ESNs behind each ESI

service exchange: exchange of the service network that triggers the provision of the service on reception of the routeing number, and then forwards the call

service network: network that operates one or more service exchange(s)

serving exchange: exchange, in the serving network, that can interrogate directly or indirectly an ETNS translation database to obtain a routeing number related to the ETNS number, and then forwards the call to the service network

serving network: network, with one or more serving exchange(s)

terminating number: number containing explicit information on the terminating point of the called party

NOTE: The number is used to route towards the called party.

3.2 Symbols

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

◁ calling party

◁ called party

3.3 Abbreviations

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

CC	E.164 Country Code
CEPT	Conférence Européenne des Postes et Télécommunications
CEU	Commission of the European Union
ECC	ETNS Country Code
ECTRA	European Committee for Telecommunications Regulatory Affairs
En	ETNS number

ESC	European Service Code
ESI	European Service Identity
ESN	European Subscriber Number
ETNS	European Telephony Numbering Space
ETO	European Telecommunications Office
GSN	Global Subscriber Number
NNA	National Numbering Authority
SgN	Serving Network
R	Registrar
Rn	Routeing number

4   Reference model for the ETNS

This clause provides a conceptual description of the implementation of the European Telephony Numbering Space (ETNS). Figure 1 shows the actors involved in the ETNS, and their relationship with each other. Also shown in figure 1 are the relevant reference points for the ETNS that are described in clauses 4.2 and 4.3. Figure 1 is divided into call-related and non call-related parts in order to clearly show the distinction between the routeing functions and the management functions. The following Reference Model reflects only the management and routeing aspects of the non-call and call related parts, respectively.
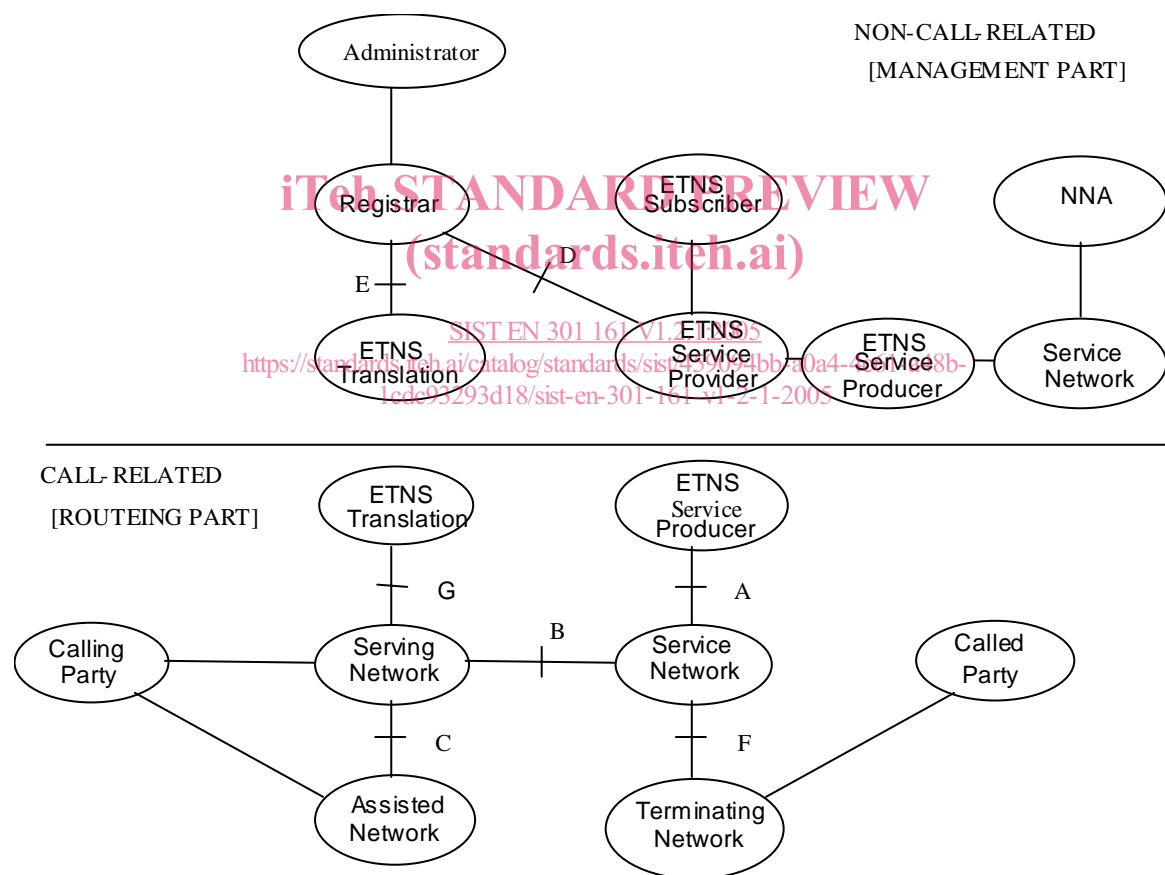

Figure 1: Actors and reference points

The reference points in the management (non call-related) part of the figure 1 are used in the present document, while the reference points in the call-related part are used in TR 101 079 [4].

The ETNS Service Provider is the entity that is relevant in the process of number assignment. The service network is the entity that is relevant in call processing. One single entity may be both the ETNS Service Producer and the service network, or they may be different entities; in the latter, the entity that assumes the function of ETNS Service Producer may or may not participate in the call process. Such a distinction leads to recognize two concepts under the word "service provision": the function of the first is to sell a service to a ETNS subscriber, and to be the sole interface with this ETNS subscriber, this is the role of the ETNS Service Provider; the function of the second is to operate the call, this is the role of the Service Producer.

The Serving Network (SgN) is responsible for routeing a call from the calling party to the service network. The service network (and potentially the Service Producer) is (are) responsible for providing the service itself.

ETNS numbers (Ens) are managed by independent authorities which are identified as the registrar and the administrator in figure 1.

4.1 Call-related [Routeing part]

This clause describes the principles for routeing a call from the calling party to the called party. This is studied in detail in TR 101 079 [4] and EN 301 160 [2]. A call to a ETNS number (En) can be divided in two parts.

4.1.1 First leg: getting the routeing number

The calling party shall dial the En in its international format.

Based on the European Service Identifier (ESI), clause 5, the call is routed to the serving exchange in the SgN. Potentially, this exchange may not be located in the calling party's network. The originating network is then called an assisted network, interconnected to the SgN through reference point C. An assisted network can be connected to different SgNs, e.g. for routeing differently depending on the ESI, or it can redirect all ETNS calls to one SgN.

The serving exchange, analysing the ESI, triggers the ETNS translation database to translate the incoming En into an outgoing Routeing number (Rn). The ETNS translation database can be inside or outside the SgN, e.g. when several SgNs share the same ETNS translation database. The Rns can vary from a SgN to another.

Whether the area from which a single En is accessible relies on a subscription or not, is service dependent.

This ends the first leg of the call which consists of routeing the call to the service exchange.

4.1.2 Second leg: providing the ETNS service

The proceeding of the call set up in the service network and beyond depends on the nature of the service on the one side, and on the relationship between the ETNS Service Producer and the service network on the other side.

The nature of the service will determine the path of the call, whether it terminates to the subscriber or to a recorded announcement, whether it needs a second number translation or not, etc. These features are service dependent and are outside the scope of the present document.

The relationship between the ETNS Service Producer and the service network will determine the responsibilities of each actor as regards service provision. The two actors can be the same entity which operates the service, or the ETNS Service Producer can rely upon the telecommunication infrastructure of a different service network and only operate e.g. a database when a double translation is required. The implementation of reference point A between the service network and the Service Producer depends on the technical constraints related to the service, and on the regulatory environment.

4.1.3 Service provision by the Serving network

Figure 2 depicts some examples of call configurations. Where the SgN and the service network are the same, the serving exchange and the service exchange can also be the same, and reference point B is then internal.
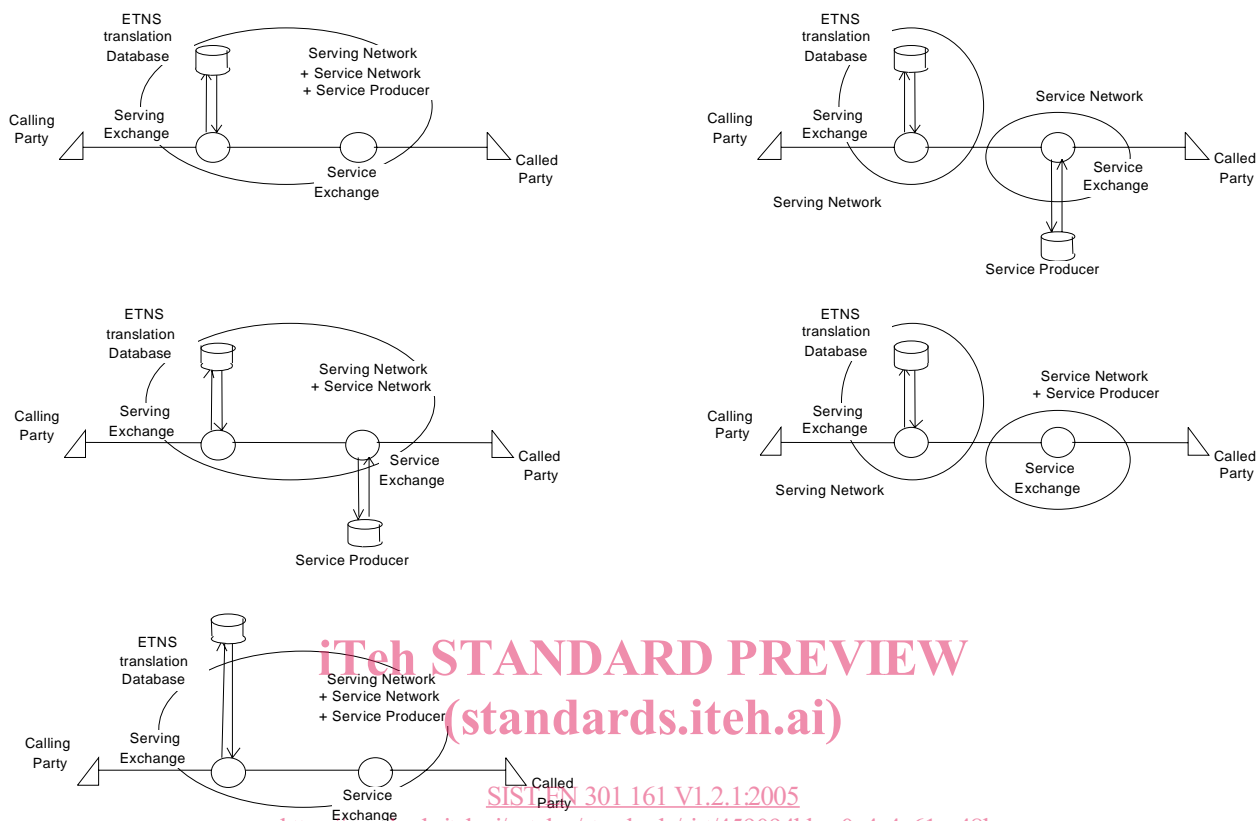
Figure 2: Examples of call configurations

Note that in figure 2, the calling and the called parties do not need to be directly connected to the serving and the service networks respectively. It should be noted that the translation database should provide the capability to translate the ETNS number into a routeing number. The translation database capability can be provided in a number of ways, e.g. Intelligent Network or internal switch translations.

4.2 Non-call related [Management part]

Two functions are performed in the management process. The first is the number assignment process. The second is the distribution of ETNS routeing numbers to SgNs.

4.2.1 ETNS number assignment

The ETNS registrar database is primarily used in the interaction between the registrar and the Service Providers for number assignment. Procedures are outlined in the ETO Report [6].

4.2.2 Obtaining Routeing numbers (Rns)

ETNS Service Providers will have to negotiate with the Service Producer and Service Network to obtain Routeing numbers, Rns.