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SERIES E: OVERALL NETWORK OPERATION,
TELEPHONE SERVICE, SERVICE OPERATION AND
HUMAN FACTORS

International operation – Numbering plan of the
international telephone service

The international public telecommunication
numbering plan

Supplement 2: Number portability

Recommendation ITU-T E.164 – Supplement 2

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Recommendation ITU-T E.164

The international public telecommunication numbering plan

Supplement 2

Number portability

Summary

Supplement 2 to Recommendation ITU-T E.164 defines standard terminology for a common understanding of the different aspects of number portability within an ITU-T E.164 numbering scheme. It identifies numbering and addressing formats, call flows, network architectures and routing approaches that will provide alternative methods of implementation. It also proposes some examples of the administrative and operational processes required for the successful implementation of number portability.

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6.3	ITU-T E.164 Suppl. 2	2014-06-06	2	11.1002/1000/12307
6.4	ITU-T E.164 Suppl. 3	2004-05-28	2	11.1002/1000/7392
6.5	ITU-T E.164 Suppl. 3 (2004) Amd. 1	2009-11-24	2	11.1002/1000/10691
6.6	ITU-T E.164 Suppl. 4	2004-05-28	2	11.1002/1000/7393
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6.8	ITU-T E.164 Suppl. 5	2009-11-24	2	11.1002/1000/10693
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* To access the Recommendation, type the URL <http://handle.itu.int/> in the address field of your web browser, followed by the Recommendation's unique ID. For example, <http://handle.itu.int/11.1002/1000/11830-en>.

FOREWORD

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Recommendation ITU-T E.164

The international public telecommunication numbering plan

Supplement 2

Number portability

1 Scope

This Supplement defines standard terminology for a common understanding of the different aspects of number portability within an ITU-T E.164 numbering plan. This Supplement identifies numbering and addressing formats, call flows, network architectures, database structures, and routing approaches that will provide alternative methods of implementation. It also proposes some examples of the administrative and operational processes required for the successful implementation of number portability.

2 References

- [ITU-T E.101] Recommendation ITU-T E.101 (2009), *Definitions of terms used for identifiers (names, numbers, addresses and other identifiers) for public telecommunication services and networks in the E-series Recommendations*.
- [ITU-T E.129] Recommendation ITU-T E.129 (2009), *Presentation of national numbering plans*.
- [ITU-T E.164] Recommendation ITU-T E.164 (2010), *The international public telecommunication numbering plan*.
- [ITU-T Q-Sup.3] ITU-T Q-series Recommendations – Supplement 3 (1998), *Number portability – Scope and capability set 1 architecture*.
- [ITU-T Q-Sup.4] ITU-T Q-series Recommendations – Supplement 4 (1998), *Number portability – Capability set 1 requirements for service provider portability (All call query and Onward routing)*.
- [ITU-T Q-Sup.5] ITU-T Q-series Recommendations – Supplement 5 (1999), *Number portability – Capability set 2 requirements for service provider portability (Query on release and Dropback)*.
- [ETSI TR 101 698] ETSI TR 101 698 V1.1.1 (1999), *Number Portability Task Force (NPTF); Administrative support of service provider portability for geographic and non-geographic numbers*.
- [ETSI TR 184 003] ETSI TR 184 003 V3.1.1 (2010), *Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Portability of telephone numbers between operators for Next Generation Networks (NGNs)*.
- [ETSI TS 184 011] ETSI TS 184 011 V3.1.1 (2011), *Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Requirements and usage of E.164 numbers in Next Generation Network (NGN) and Next Generation Corporate Network (NGCN)*.
- [IETF RFC 5067] IETF RFC 5067 (2007), *Infrastructure ENUM requirements*.

3 Definitions

The following terms used in this Supplement are to apply within the context of number portability.

3.1 Terms defined elsewhere

This Supplement uses the following terms defined elsewhere:

3.1.1 address [ITU-T E.101]: An address identifies a specific network termination point and can be used for routing to this physical and logical termination point inside a public or private network.

3.1.2 geographic number [ITU-T E.101]: An E.164 number which corresponds to a discrete geographic area.

3.1.3 non-geographic number [ITU-T E.101]: An E.164 number which has no geographic significance.

3.1.4 E.164 numbering plan [ITU-T E.101]: A type of numbering plan that specifies the format and structure of the numbers used within that plan. It typically consists of decimal digits segmented into groups in order to identify specific elements used for identification, routing and charging capabilities, e.g., to identify countries, national destinations and subscribers. An E.164 numbering plan does not include prefixes, suffixes, and additional information required to complete a call. The national numbering plan (NNP) is the national implementation of the international E.164-numbering plan (also called the international public telecommunication numbering plan)..

3.1.5 routing number [ITU-T E.101]: An address/number, only used for routing purposes and not known by end users, that is derived and used by the public telecommunication network to route the call/session towards the network termination point. This address/number can also be used to route calls towards a ported number..

3.1.6 service number [ITU-T E.101]: A non-geographic E.164 number allocated to a specific category of services.

3.1.7 number portability (NP) query [ETSI TR 184 003]: A query to OpDB.

3.2 Terms defined in this Supplement

This Supplement defines the following terms:

3.2.1 central reference database: A non-real time database that is used to store a country's number portability routing data. The data contained in the central reference database (CRDB) usually consist of a list of ported telephone numbers with associated domain names, routing numbers and optionally further information of an administrative nature required to support the processing of a ported telephone number from one service provider to another service provider. These data can directly provide routing information (i.e., routing number) or are stored in a format which requests further processing in order to render routing information.

It is a national decision if there is to be a unique administrative CRDB and/or whether there is to be a physical CRDB system or a logical one, which may be distributed or replicated among the service providers involved.

3.2.2 directory number: See end user's number.

3.2.3 donor network: The initial network where a number was located before ever being ported.

3.2.4 donor service provider: The service provider from whom the number was initially ported.

3.2.5 end user's number: The ITU-T E.164 number, also referred to as the telephone number from [ITU-T E.101] for telephone calls, used by the calling party to establish a call/session to the end user. This number is also used for presentation services such as calling line identification (CLI) and connected line identification presentation (COLP).

The end user's number is equivalent to a directory number.

3.2.6 ENUM query: Query made using ENUM in order to resolve a specific ITU-T E.164 number to a routable URI.

3.2.7 location portability: The ability of an end user to retain nationally the same national ITU-T E.164 public telecommunication number when moving from one location to another.

3.2.8 network operator: An entity that operates a network infrastructure for call establishment and routing.

3.2.9 operational database: An operational database (OpDB), as defined in [ETSI TR 184 003], is a real time database, typically operated by each operator, that stores number portability (NP) data that are updated from a number portability database (NPDB), that is a non-real time database, that is the same as a central reference database (CRDB), including in principle the number portability routing information (NRI) to be used for routing.

3.2.10 originating network: The network serving a calling end user.

3.2.11 portable number: A complete E.164 number identified by an appropriate authority which is subject to number portability.

3.2.12 ported number: An end user's E.164 number that has been subject to number portability.

3.2.13 recipient network: The network where a number is located after being ported.

3.2.14 recipient service provider: The service provider to whom the number is ported and which typically operates the recipient network.

3.2.15 triggering network(s): The network(s) that have the role of determining the status of a number in an environment capable of supporting number portability and, if necessary, obtaining the routing information for ported numbers. The functionality to provide these capabilities may reside in the originating, donor or recipient network or in a transit network.

3.2.16 service provider: An entity that offers services to users involving the use of network resources.

3.2.17 service provider portability: The ability of an end user to retain nationally the same ITU-T E.164 national number when changing from one service provider to another inside the same location and service category, as it is defined in the national numbering plan (NNP).

3.2.18 service provider portability for geographic numbers: The ability of an end user to retain nationally the same geographic ITU-T E.164 national number when changing from one service provider to another without changing their location and without changing the nature of the service offered.

3.2.19 service provider portability for non-geographic numbers: The ability of an end user to retain nationally the same non-geographic E.164 national number when changing from one service provider to another without changing the nature of the service offered.

3.2.20 transit network: A network between two networks that handles transparently the call/session.

4 Abbreviations and acronyms

This Supplement uses the following abbreviations and acronyms: