CEPT ECC
Electronic Communications Committee

ECC Recommendation (12)04

Numbering for Nomadic Voice Services

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INTRODUCTION

The proliferation of services based on Internet Protocol (IP) led to an evolution in the electronic communications industry. For example, circuit-switched networks traditionally used for voice services have evolved to managed IP networks (e.g. IMS-based). Besides voice services that rely on the traditional circuit-switched networks or managed IP networks, for some time now, one can also avail of innovative number-based voice services[1] that use the internet via fixed, mobile or satellite connections. These services are commonly referred to as nomadic voice services and are offered by service providers that do not necessarily control the underlying network (i.e. the Network Termination Point) typically over both fixed and mobile broadband internet access services. Accordingly, access to nomadic voice services is location independent and is therefore not a reliable indication of the actual location of the end-user.

It should also be considered that in many countries regulation requires that national numbers assigned to operators are assigned to end-users inside the country, except when there are agreements between different operators and countries for extra-territorial assignment of national numbers. When operators intend to offer the service in more countries, global E.164 numbers, assigned by the ITU, may be used.

For many of these new services the interoperability with traditional number-based voice services is a critical success factor and this means that these nomadic voice services also need adequate access to numbers of the National Numbering Plan (NNP) for their end-users. Although many of these nomadic voice services started by offering outgoing calls only, some nomadic voice service providers are increasingly requesting access to numbers to support incoming calls.

Existing numbering ranges of the NNP facilitate easy and quick implementation of the nomadic voice services which is needed to ensure interoperability with other number-based voice services. Today end-users are using different kinds of applications and underlying networks. From a market and competition point of view, the end-users with numbers from the NNP have the right to retain their numbers independently of the service provider providing the service and so, they should be able to port their numbers between different service providers, noting that there are national limitations within number portability, e.g. fixed-mobile portability may not be allowed. Where technically feasible, national limitations should be technologically neutral and avoid creating unnecessary hurdles.

The primary assignment of numbers is an administrative act of the Numbering Plan Administrator (NPA) that subsequently entitles the service provider to secondarily assign these numbers to their own end-users according to the specific conditions attached when granting rights of use for numbering resources. The end-user might want to use the secondarily assigned number outside the original service, or with alternative providers, possibly outside of any associated specific conditions. This flexibility given to end-users may be subject to the scrutiny of the corresponding NPA. In other words, this could mean that an end-user may be allowed to use a number for a number-based interpersonal communication service for which the number was originally not assigned, provided this conforms with current numbering policy. Moreover, this flexibility should carefully be considered given the associated risks such as misuse, unauthorised and/or fraudulent use of numbers. To safeguard against such risks, it should be ensured that all providers, regardless of the underlying technology, implement robust subscriber validations such that numbers are correctly used by the respective end-user. Measures as proposed in ECC Report 248 [1] and ECC Recommendation (23)03 [2] could be introduced.

In this Recommendation, nomadic voice service is understood as a service which is not linked to a particular physical location. From a technical point of view the service can be used from any internet connection for incoming and outgoing communication. Moreover, due to handover, the end-user experience for nomadic voice services over mobile connections could be the same as for any mobile voice communication.

[1] Non number based voice services are outside of the scope of this ECC Recommendation

ECC RECOMMENDATION (12)04 OF 5 DECEMBER 2012 ON NUMBERING FOR NOMADIC VOICE SERVICES, AMENDED 19 JUNE 2025

"The European Conference of Postal and Telecommunications Administrations,

considering

a) that nomadic voice services from service providers that do not necessarily control the underlying network may have characteristics that correspondingly merit specific attention;

b) that the network termination point (NTP) is defined in the EECC (Article 2(9)) as "*the physical point at which an end-user is provided with access to a public electronic communications network, and which, in the case of networks involving switching or routing, is identified by means of a specific network address, which may be linked to an end-user's number or name*";

c) that, from a technical point of view, such services can be used from any NTP with internet access, which is typically a broadband connection;

d) that many providers of these services aim to offer innovative applications in competition with traditional number-based voice services;

e) that the numbering policy must serve the interest of the subscribers and end-users and be transparent, objective and non-discriminatory between service providers while adhering to the principle of technology neutrality;

f) that the existing approach in countries having a specific numbering range for nomadic voice services appears to have had a limited commercial success;

g) that Article 109 of Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 [3], establishing the European Electronic Communications Code, establishes that Member States should ensure that providers of publicly available number-based interpersonal communication services ensure access to emergency services, and enable caller location information when an emergency call is placed;

h) that nomadic voice services do not always comply with the requirements related to the availability, precision and reliability of caller location information (addressed in ECC Report 361 [4]) which is required for emergency communications and may be required by relevant competent authorities, such as for law enforcement or national security;

i) Commission Delegated Regulation (EU) 2019/320 of 12 December 2018 [5] supplementing of Directive 2014/53/EU of the European Parliament and of the Council with regard to the application of the essential requirements referred to in Article 3(3)(g) of that Directive in order to ensure caller location in emergency communications from mobile devices and for caller location also Commission Delegated Regulation (EU) 2023/444 supplementing Directive (EU) 2018/1972 of the European Parliament and of the Council with measures to ensure effective access to emergency services through emergency communications to the single European emergency number '112' [6];

j) that virtual Private Branch Exchange (PBX) or other enterprise applications, typically offered over IP trunks, sometimes allow users of nomadic voice services to also use geographic numbers, in conjunction with their service, and this may therefore dilute the geographic significance of such geographic numbers;

k) that, depending on what is allowed by national numbering policies and regulation, nomadic voice services may make use of numbers that are either directly assigned to the providers of such services, numbers sub-assigned to them by other providers, or numbers that were assigned by other providers to their end-users who then avail of decoupling as discussed in ECC Report 248 [1];

l) that, when an end-user terminal accesses nomadic voice services via the Internet using virtual private network (VPN) or IP trunks, the NTP remains the physical point of access to the Internet;

m) that the use of virtual PBX or other enterprise applications, typically offered over IP trunks, that allow end-users to make calls and/or to receive calls through these applications even if their location is outside the national territory is forbidden by some CEPT administrations, in particular for national geographic numbers;

n) ECC Recommendation (23)03 [2] and that implementing the recommended measures to calling line identification (CLI) spoofing may be more challenging in cases where nomadic communications are incoming from outside the country;

o) that where providers of nomadic voice services implement minimal or limited validation of the end-user's right to use the number specified in the CLI, this may also create problems, such as the use of a number that is not anymore or has never been assigned to the end-user or the continued use of a terminated number through a nomadic voice service.

recommends

1. that the NPAs should ensure that nomadic voice services can preferably be provided using existing numbering ranges of the national numbering plan;

2. that CEPT administrations should ensure that nomadic voice services are provided in compliance with national or international standards, recommendations and regulations, in particular to safeguard end-user rights, fair competition, correct use of CLI and compliance with policies to combat CLI spoofing;

3. that the NPAs should specify obligations on providers of nomadic voice services regarding both initial as well as periodic validations of the end-user’s right to use numbers in the NNP.

ANNEX 1: LIST OF REFERENCES

[1] ECC Report 248: “Evolution in CLI usage – decoupling of rights of use of numbers from service provision”, approved April 2016

[2] ECC Recommendation (23)03: “Measures to handle incoming international voice calls with suspected spoofed national E.164 numbers”, approved November 2023

[3] Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018, establishing the European Electronic Communications Code

[4] ECC Report 361: “Next Generation Emergency Communications – transition from circuit-switched to packet-switched networks, services and PSAPs”, approved November 2024

[5] Commission Delegated Regulation (EU) 2019/320 of 12 December 2018 supplementing Directive 2014/53/EU of the European Parliament and of the Council with regard to the application of the essential requirements referred to in Article 3(3)(g) of that Directive in order to ensure caller location in emergency communications from mobile devices

[6] Commission Delegated Regulation (EU) 2023/444 of 16 December 2022 supplementing Directive (EU) 2018/1972 of the European Parliament and of the Council with measures to ensure effective access to emergency services through emergency communications to the single European emergency number ‘112’