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FICORA'S OPINION ON THE USE OF TELEPHONE NUMBERS IN VOIP SERVICES

## 1. Interpretations of the regulations and instructions concerning VoIP services

The Finnish Communications Regulatory Authority (FICORA) has issued its opinion on the interpretations concerning the numbers used in VoIP services in the memorandum 'Application of the Communications Market Act to VoIP Services in Finland', hereinafter VoIP opinion, published on 23 February 2006. The document is available in English on the Internet at the following address:

[http://www.ficora.fi/suomi/document/Ohje\\_VoIP-palvelujen\\_sääntelystä\\_englanti.pdf](http://www.ficora.fi/suomi/document/Ohje_VoIP-palvelujen_sääntelystä_englanti.pdf)

FICORA set up a working group in spring 2006 to examine the future developments in numbering, and the group considered, for instance, the use of mobile numbers in VoIP services. FICORA has taken the views of the working group into account in preparing this opinion.

## 2. Provisions on numbering and VoIP services

### 2.1 New wireless network technologies and VoIP services in relation to the concepts of network and service in the Communications Market Act

FICORA uses the terms fixed telephone network and mobile network in its regulation on numbering in a telephone network to indicate the purpose of use of the numbers. The deployment of wireless access technologies means that it becomes important to define and interpret the terms fixed telephone network and mobile network in different situations.

According to section 2 of the Communications Market Act (393/2003, amendments included), a mobile network means a communications network primarily used for targeted communications in which the terminal equipment is connected to the communications network by means of freely propagating radio waves. The legislative history of section 2 of the act (detailed preambles to the government bill

112/2002) includes a statement that as distinct from a mass communications network, targeted communications mean telephone communications and other communications that usually have two-way connection.

The regulation in the Communications Market Act that concentrates solely on mobile network covers the frequencies subject to licence (section 4), obligation to relinquish network capacity (provisions in chapter 4) and pricing for interconnection (chapter 5, section 43 in particular). According to section 4 of the Communications Market Act, the construction of a mobile network that practices public telecommunications requires a licence granted by the Finnish Government. FICORA also grants radio licences for these networks as provided in the Act on Radio Frequencies and Telecommunications Equipment (1015/2001).

On the basis of licence regulation and the need to allocate insufficient frequency resources, the mobile network referred to in the Communications Market Act is regarded to mean GSM and UMTS networks and the 450 MHz network that is to be implemented with Flash-OFDM technology. These networks have the Government licence referred to in the act.

On the basis of the grouping of networks in the Communications Market Act, a wireless broadband network implemented with WLAN, WLL or WiMAX technology is merely regarded as a communications network or a public communications network, since it cannot be easily regarded as a telephone network (that comprises fixed telephone networks and mobile networks) or a mass communications network due to the regulation purposes of and definitions in the act. Correspondingly, it is not a mobile network either, since the regulation on licensing of mobile networks and other special provisions concerning mobile networks are not relevant for it in regard to the use of frequencies or market regulation provided by EC legislation.

The Internet access services provided via wireless broadband networks (WLAN, WLL and WiMAX) make it possible to offer also other communications services, such as VoIP. Depending on how the service is implemented, the VoIP service can be a *telephone service* (subscriber connection for a telephone network) or a *communications service* referred to in communications market legislation. If the service does not involve the transmission of messages referred to in the Communications Market Act, it is neither of these but merely some other service that may be covered, for example, by the Act on Provision of Information Society Services (458/2002). The legislative status of the VoIP service has been analysed in more detail in FICORA's VoIP opinion.

## 2.2 Use of numbers and issuing of rights to use numbers

FICORA has, under section 47 of the Communications Market Act, issued a regulation on numbering in a public telephone network<sup>1</sup>. The regulation states which kinds of numbers, prefixes and codes are allowed in

<sup>1</sup> Regulation on numbering in a public telephone network (FICORA 32 I/2006 M), <http://www.ficora.fi/englanti/document/FICORA32I2006Mrev1.pdf>

telecommunications and the purposes for their use. Provisions on issuing of numbers, prefixes and codes and on the contents of the numbering decision are included in section 48 of the Communications Market Act (393/2003, amendments included). FICORA distributes the right to use a number by issuing a numbering decision in which it may order that the number be used to offer a specified service or impose other conditions on the use of the number necessary to ensure the clarity and efficiency of numbering or the benefits of users.

A numbering decision concerns numbering in *public telephone networks* and the communications services implemented in them. According to the definitions in section 2 of the Communications Market Act, the *telephone network* means a fixed telephone network, a mobile network and a data network used for targeted communications. A *public telephone network* means a network available to a set of users that is not subject to any prior restriction. The regulation also applies to other than public telephone networks, for instance, when the numbering needs to be adapted to the numbering of the public telephone network.

### Use of telephone numbers in VoIP services

The numbering regulation generally applies to telephone networks used for *targeted communications* and to services provided in them. What is significant for the right to use telephone numbers is that they are meant for numbering of *telephone networks* and *communications services* implemented in them in accordance with FICORA's numbering regulation.

The regulation does not restrict the use of fixed telephone network subscriber numbers to a *subscriber connection* for a telephone network which has the same meaning as *telephone service* of the Universal Service Directive<sup>2</sup>. Unlike services provided in mass communications networks, targeted communications mean primarily a two-way connection. However, this does not mean that a service provided in a telephone network must fulfil the prerequisites of a subscriber connection for a telephone network or enable a two-way call establishment. Subscriber numbers may, therefore, be used to provide also *other communications services* than subscriber connections for a telephone network.

Neither the Communications Market Act nor FICORA's regulations provide that terminal equipment receiving calls to a *subscriber number in a numbering area* must physically be located within the specific numbering area or that terminal equipment that has a Finnish mobile number must be located in Finland. The location of the terminal equipment does not restrict the use of the number, but the subscriber number must, however, act like all other subscriber numbers in the numbering area in relation to the telephone network and the person calling the number. The aim of numbering is to steer the service in telephone networks and to show the intended purpose of different types of numbers. Numbering of services, for instance, has an impact on the implementation of barring services.

<sup>2</sup> Publicly available telephone service of the EC Universal Service Directive is a publicly available service that enables users to *make and receive* national and international calls and to use emergency services with a number or numbers included in the national or international numbering plan.

## Number series used in VoIP services

There are no specific numbering areas for VoIP services or specific regulations on the number series used in VoIP services. It is possible to grant subscriber numbers to a VoIP service from the same number ranges as to telephone services in general. These include, among other things, subscriber number ranges specific for a numbering area, nationwide fixed network subscriber number ranges or mobile network number ranges, if the prerequisites presented below are met.

## Fixed-network telephone numbers

It is possible to grant subscriber numbers to a VoIP service from a *number range specific for a numbering area*. There are no provisions requiring that the terminal equipment receiving calls to a subscriber number in a numbering area must physically be located within the specific numbering area, and therefore it is possible to use the subscriber numbers of all numbering areas in the VoIP service even if the service would be nomadic. However, the subscriber number must act like all other numbers in the numbering area in relation to the person calling the number. If a subscriber number specific for a numbering area is used in a VoIP service elsewhere than in the specific numbering area, the subscriber connection provider or service provider must organise interconnection traffic so that the calls to the subscriber connection can be directed and interconnected in the same way as other calls terminated on the numbering area indicated by the number.

*Nationwide fixed network* subscriber number ranges can also be used in VoIP services. They include corporate numbers beginning with 010, 020, 029, 030, 075 and 076, nationwide portable numbers beginning with the 071 and reachability subscriber numbers beginning with the 073.

## Telephone numbers in mobile networks

According to section 12.1 of the numbering regulation, traffic to mobile networks is directed with a mobile area code. The regulation also prescribes the length of subscriber numbers in mobile networks. Numbers starting with 2-8 and dialled without an area code have been reserved for operator-specific services, i.e. for services offered in the network of a certain telecommunications operator, and the numbers beginning with 1 and dialled without an area code have been reserved for emergency traffic (112 and 10022), number inquiry service (118), itemization of a bill provided by a telecommunications operator (151,152 and 153) and operator-specific services (numbers beginning with 100).

According to FICORA's regulation, mobile network subscriber numbers are always used with the mobile area code, and therefore their purpose of use is, in accordance with section 12.1, to direct traffic to mobile networks. Thus, for the time being, it is not possible to use mobile numbers for an Internet access service implemented with a wireless broadband technology (WLAN, WLL, WiMAX) or for other communications services offered via the Internet access service, such as VoIP. Therefore, FICORA regards it reasonable, for now, to restrict the use of mobile

numbers to VoIP services only available in mobile networks. Because the service is nomadic, it can be provided in other networks as well.

Reason for the regulation of numbering in a mobile network in relation to numbering in a fixed network is not only the users' need to receive information on call types and thereby on call tariffs, but also the ability to control *interconnection pricing* between telecommunications operators. The use of numbers that overlap and converge can therefore cause needs for change in the contractual relations between telecommunications operators. This seeks to avoid, for instance, unfounded collection of cost-oriented charges for call termination between telecommunications operators in situations where a corresponding performance is not actually available or necessary, although such charges are included in the Communications Market Act and significant market power (SMP) regulation.

### **Right to use a number**

The right to use a number, code or prefix is usually granted directly to a telecommunications operator. The right to use a number can also be granted to others than operators if the purpose of use of a number, code or prefix requires that; for example, the right to use a nationwide portable fixed-network number can be granted directly to end user.

In addition, telecommunications operators transfer the numbers to their clients as a part of their subscriber connection agreement or service agreement to be used for identifying the offered subscriber connection or service. A telecommunications operator may also relinquish the right to use a number to another telecommunications operator. The transferring operator must inform FICORA about the transferred number range in accordance with section 3.3 of the regulation on numbering.

The right to use a number granted by FICORA to a telecommunications operator is exclusive in that other actors cannot adopt the number without an agreement with the holder of the right. Thus, an operator does not have a right to use the numbers of another operator in its services or subscriber connections without an agreement. The operators' freedom of contract is restricted by the regulations on use of numbers and provision of services. In other words, a telecommunications operator cannot use an agreement to relinquish a wider right of use of a number than what the operator itself has on the basis of FICORA's decision and regulations.

### **Joint use of numbers**

With the consent of the holder of the right to use a number, the numbers of a fixed network or a mobile network can be used in parallel in VoIP services. However, the service must then meet the prerequisites mentioned in this opinion for telephone number portability, routing of emergency traffic, positioning, and telecommunications interception.

## **2.2 Number portability**

Provisions on telephone number portability are included in section 51 of the Communications Market Act. The section provides that a telecommunications operator in a telephone network shall ensure without

delay that a user who has entered into a subscriber connection agreement with it may, if he or she wishes, retain his or her telephone number when changing his or her fixed-connection telecommunications operator in the same telecommunications area or his or her mobile operator. However, the telecommunications operator does not have this obligation when the user changes his or her fixed network subscriber connection to a mobile subscription or vice versa.<sup>3</sup>

Thus, portability is restricted either to a fixed network or a mobile network on the basis of the type of number; for example, the regional mobile network numbers that are specific for a numbering area are covered by the portability of fixed-network numbers specific for a numbering area. Correspondingly, numbers for nationwide mobile networks are covered by mobile number portability.

FICORA may, under section 52 of the Communications Market Act, issue technical orders on telephone number portability which may concern, for instance, telephone numbers that for technical reasons are exempted from the portability obligation. FICORA has issued a regulation on telephone number portability<sup>4</sup> which defines the numbers covered by portability.

The following numbers have been exempted from the portability obligation for technical reasons:

- televoting numbers beginning with 0700, specified more closely in the numbering regulation
- nationwide service numbers in number series beginning with 010, 020, 030 and 075
- service numbers specific for a numbering area.

In addition to the above-mentioned numbers, operator-specific service numbers are not, according to their definition, covered by portability.

According to section 52 of the Communications Market Act, telephone number portability concerns only a user who has entered into a *subscriber connection agreement* with the telecommunications operator, that is, a number for which a subscriber connection agreement has been made. Thus, the telecommunications operator's passive numbers and technical control numbers, numbers of prepaid subscriptions, and voice, data and fax service numbers included in a mobile subscription are exempted from the portability obligation unless a separate subscriber connection agreement has been made on them.

### Number portability with regard to VoIP services

<sup>3</sup> If the use of a fixed telephone network number and a subscriber connection and the use of a mobile network number and a subscriber connection have somehow been connected by an agreement, interpretation criteria for the portability obligations can be found, for example, in FICORA's decision on number portability in the Saunalahti Lanka service (1310/532/2004, 24 February 2005). The decision concerned a service in which a fixed network subscriber connection and its number were mainly used as a routing number for routing calls to a mobile subscription, and it was not possible to make calls from the fixed subscriber connection according to the service agreement. FICORA regarded that the portability obligation did not apply to the fixed telephone network number, since the service did not fulfil the requirement referred to in section 51 of the Communications Market Act that the change shall be between fixed subscriber connections. A service that cannot be used for making calls was not considered to be a subscriber connection referred to in this section of the act.

<sup>4</sup> Regulation on telephone number portability (FICORA 46 D/2006 M),

<http://www.ficora.fi/englanti/document/FICORA46D2006Mrev1.pdf>

FICORA has considered in its VoIP opinion that the portability obligation of a number covers a telephone number used in a VoIP service when the service complies with the definition of the *subscriber connection for a telephone network*. In its interpretation practice, FICORA has defined the subscriber connection for a telephone network on the basis of the definition of a publicly available telephone service of the Universal Service Directive. In order to fulfil the definition, the VoIP service must enable users both to make and receive national and international calls with a number included in the national or international numbering plan. However, the Communications Market Act does not restrict porting a number even if the service does not fulfil the definition of the subscriber connection.

If the VoIP service fulfils the definition of the telephone network subscriber connection and uses fixed-network numbers specific for a numbering area, the service number or line number is covered by the portability of numbers specific for a numbering area. On the other hand, if the VoIP service uses a mobile number, the number is covered by mobile number portability. VoIP services provided in a mobile network can, thus, be covered by either the portability of fixed-network numbers or mobile number portability depending on the type of number.

### 2.3 Emergency traffic and positioning

Section 55 of the Communications Market Act imposes an obligation to telecommunications operators in a telephone network to provide emergency services. According to the provision, the telecommunications operators shall, for their part, ensure that users are able to access the universal emergency call number 112 and the emergency call number 10022 specified by FICORA for the police free of charge.

FICORA has also issued a regulation on routing and ensuring emergency traffic<sup>5</sup> that includes provisions on routing of emergency calls to the right emergency response centre, on ensuring emergency calls and on the priority route dedicated to the calls. According to the regulation on emergency traffic, traffic to the general emergency number 112 and to the police emergency number 10022 from each geographical area shall be routed to the emergency response centre prescribed for this area regardless of the area code possibly dialled by the caller.

According to section 97 of the Communications Market Act, a telecommunications operator shall without charge supply a public authority with any information in its possession necessary for the public authority to discharge duties prescribed to it for maintaining rescue activities as provided for separately. Provisions on disclosing information to emergency services authorities are provided in section 35 of the Act on the Protection of Privacy in Electronic Communications (516/2004). Under this section, a telecommunications operator is obliged to disclose the following information to emergency services authorities: identification data and location data of the subscriber connection and terminal device from which an emergency call is placed, and information on the subscriber, user and installation address; and identification data and location data showing the location of the user terminal device and

<sup>5</sup> Regulation on routing and ensuring emergency traffic (FICORA 33 B/2005 M), <http://www.ficora.fi/englanti/document/Regulation33B2005M.pdf>

subscriber connection to which the emergency call applies if, in the considered opinion of the authority receiving the emergency call, the user is in obvious distress or immediate danger.

### **Possibility to make emergency calls in a VoIP service**

The nature and characteristics of the offered VoIP service have an impact on whether the service must enable users to make emergency calls. If it is possible to make calls from the VoIP service, the user must also be able to call the universal emergency call number free of charge. Correspondingly, if the offered service only comprises receipt of calls, provision of the possibility to make emergency calls is not necessary. According to FICORA's regulation on routing and ensuring emergency traffic, the operator must, however, inform its customers of possible telephone service-related restrictions concerning the requirements for emergency calls laid down in the regulation.

### **Routing of emergency traffic and positioning of emergency calls in a VoIP service**

A telecommunications operator providing a VoIP service must disclose the location data of the user to emergency authorities within the limits of the used technology and the emergency authorities' systems. FICORA regards that, for example, the mobile operator must seek to ensure the same location accuracy for emergency calls from VoIP based mobile subscriptions as for GSM.

FICORA regards that if it is impossible to locate the subscriber by means of network technology, the operator must offer the user a possibility to notify the position at each phase at least with the municipality's accuracy and then route the emergency calls to the emergency response centre based on this notification. Location information given by the user is not necessarily correct, which means that the system is not as reliable as when location data is received from the network. A telecommunications operator in the telephone network, including operators offering a VoIP service, should, within technical limits, try to construct the systems so that automatic location of the subscriber is possible.

If a VoIP service number is the same as a mobile subscriber number, the emergency call from such a number shall be primarily routed through the mobile network. Only if this is not possible, the call can be routed to the emergency response centre through an IP network (VoIP service).

## **2.4 Telecommunications interception and monitoring**

Section 95 of the Communications Market Act provides that all telecommunications operators providing a network service and a communications service, including a VoIP service, are obliged to assist authorities to carry out telecommunications interception and monitoring. The operators must equip their communications networks and communications services with technical instruments and features that

allow the interception of electronic communications and telecommunications monitoring.

According to section 96, a public authority performing interception of the content of communications or of intercept-related information (The National Bureau of Investigation) must submit to FICORA a proposal on the operational requirements that the communications network and communications services have to meet. In individual cases FICORA decides on the technical requirements imposed on an instrument or feature used in interception of the content of communications or intercept-related information after consulting the telecommunications operator and the public authority performing interception of the content of communications or of intercept-related information. The operator must seek to ensure that the technical instruments and features are installed in the communications network or communications service before the introduction of the communications network or communications service.

According to section 97, a telecommunications operator must without charge supply a public authority with any information in its possession necessary for the public authority to discharge duties prescribed to it for maintaining public order and security and rescue activities as provided for separately. Provisions on certain other authorities' right of access to information are provided in section 36 of the Act on the Protection of Privacy in Electronic Communications.

### **Telecommunications interception and monitoring in regard to VoIP services**

VoIP services shall be equipped with technical instruments and features that allow the interception of electronic communications and telecommunications monitoring. The operators shall seek to install the necessary technical instruments and features in the communications network or communications service before the introduction of the communications network or communications service. If a VoIP service number is common to a subscriber or service number in another network, the public authority performing interception of the content of communications or of intercept-related information shall determine beforehand whether permission is needed for one or both subscriber connection types. The VoIP service provider must, for its part, ensure that the public authority can perform such duties smoothly.

## **3. Summary**

*Fixed-network* subscriber numbers that are nationwide or specific for a numbering area can be used in all VoIP services provided in telephone networks.

For now, *mobile numbers* can only be used in VoIP services that are offered in mobile networks referred to in the Communications Market Act. Such mobile networks include, at the moment, GSM and UMTS networks and the 450 MHz network that is to be implemented with the Flash-OFDM technology. Wireless subscriber networks implemented with the WLAN, WLL or WiMAX technology are not included in the mobile networks referred to in the Communications Market Act, and therefore it is not possible to use mobile numbers in them for the time being.

The number to be used in a VoIP service is determined by the network for which the VoIP service agreement has been made. Because the service is nomadic, it can be provided in other networks as well.

Requirements for number portability, joint use of numbers, emergency traffic, positioning, and telecommunications interception and monitoring in regard to VoIP services have been presented in section 2.

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