3GPP TSG-T (Terminals) Meeting #24 ***TP-040086***
Seoul, Korea
2 - 4 June, 2004

3GPP TSG-T2 #25 ***T2-040254***
Edinburgh, UK
19 -23 April 2004

Title: Short Codes for SMS,MMS and USSD
Response to: Action item from T#23 Phoenix
Release: N.A.

Source: T2
To: T
Cc: -

Contact Person:
Name: Ian Harris
Tel. Number: +44 7764217416
E-mail Address: iharris@rim.net

Attachments: T2-040179 (TP-040046)

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1. Overall Description:

T2 was actioned by TSG T#23 to examine a CEPT ECC WG document concerning Short codes for SMS, MMS and USSD

Extract from TSG T#23 minutes

TP-040046 contains a questionnaire on the need for national co-ordination for the allocation of short codes for SMS, MMS and USSD recently issued by CEPT ECC WG on Numbering Naming and Addressing. Today, exclusive control by operators of the numbering and addressing resources used for the value-added services creates significant problems in relation to: interoperability of services / distortion of competition, Non-discrimination in assignment of numbering and addressing resources, consumer protection, and administration / harmonisation of numbering and addressing resources. The document was forwarded to T2 to make T2 delegates aware of this and to check if the technical assumptions regarding messaging standards made in this document are correct.

T2 has studied the CEPT ECC WG document and makes the following comments

Firstly, very few technical assumptions were identified but to assist any further debate on this document in TSG T, T2 has made some non technical observations which may not necessarily be in agreement with those of TSG T. T2 has not felt empowered to send their comments to CEPT directly and therefore conveys them to T for their further consideration

The numbers below relate to the question numbers of the CEPT document. The technical comments are **highlighted** in T2's comments below

1. This seems to be a marketing matter
2. Operators would have to agree on the common short codes e.g in GSMA. **There would have to be a mandate to support such short codes in all the various formats.**
   It might be possible for a subscriber to have a personal set of short codes **but support for this in various operators networks would be highly complex**
3. If a subscriber had a personal set of short codes then the answer to this question is YES.
   The services behind the keywords / short codes would need to be standardised in order to make them portable. Standardisation could delay the introduction of new services
4. This seems to be a matter between the third party and a network operator (connectivity is not standardised)

Even if a short code was standardised agreement with all other network operators would be necessary for a ubiquitous service

5. There are no such rules and procedures within the 3GPP domain but rules may be imposed by individual network operators
6. See 5 above
7. The telecommunications regulatory body (e.g in the UK – OFTEL) may be the only means to resolve this
8. This is a network operator matter
9. See 5 above
10. See 5 above
11. See 7 above
12. See 7 above
13. Emergency numbers in 3GPP are standardised but for the other issues regarding regulation. See 7 above
14. Yes. It would seem so
15. Assuming there would be a standardised list of short code and keyword mapping the adherence to the standard is discretionary. Once a keyword has been issued then that service cannot be withdrawn and the keyword cannot be re-used for another purpose in order to ensure backwards compatibility
16. If keywords are to be known to the end user then language differences could create a problem**. If keywords are to be known by the terminal then the support of these keywords by the terminal would need to be standardised. The services behind the keywords / short codes would need to be standardised in order to make them portable.** Standardisation could delay the introduction of new services.
17. This seems to be a network operator or regulatory body matter
18. This is all network operator and subscription related
19. This seems to be a regulatory matter and in the absence of any regulation then network operators usually do as they please
20. This seems to be a marketing matter
21. This could be the regulatory body or the standards body
22. There seems to be no need for any difference
23. There seem to be only benefits if done internationally
24. Of course there are benefits but practically it is unlikely ever to be achieved e.g it would need every country to re assign its number plan
25. This seems to be a network operator matter
26. This is an ever present risk particularly when the number of services increase beyond the expectation planned for
27. If this E164 number is the mobile subscribers CLI then yes. Other wise the question is not clear

General observation.
Whilst a common agreement on short codes and indeed the services provided by them has obvious attractions for the subscriber, it is T2's opinion that it is highly unlikely that international agreement would ever be achieved. Short codes are already in widespread use and in many cases network operators have chosen specific short code numbers for their own marketing reasons and are unlikely to want to change them or to change the service they access to align with other network operators. There may however be situations where a new global service could be assigned a common short code provided the operators co-operate.
Any administration process for assigning common short codes would have to be sensitive to the need to respond quickly to meet marketing needs. Given the complexity of communicating with all network operators worldwide, invoking a response from them and reaching a unanimous agreement then this is not likely to be a speedy process. Operators may not willingly agree to the reservation of short codes or groups of short codes for future global assignment.

2. Actions:

To **TSG T**

ACTION: **T2 asks TSG T to consider T2's comments above in any further debate on this subject in TSG-T and response to CEPT ECC.**

3. Date of next T2 Meetings:

T2#26	23 – 27 Aug 2004	Montreal, Canada
T2#27	8 – 12 Nov 2004	tbd

3GPP TSG-T2 #25
Edinburgh, UK
19 -23 April 2004

T2-040179

Technical Specification Group Services and System Aspects
Meeting #23, Phoenix, USA, 15 - 18 March 2004

TSGS#23(04)0055

Technical Specification Group Terminal
Meeting #23, Phoenix, USA, 15 - 18 March 2004

TSGT#23(04)0046

Source:	**Chairman ETSI TB MSG**
Title:	**CEPT/ECC consultation on use of short codes**
Document for:	**Information**
Agenda Item:	**6.3/9**

CEPT/ECC consultation on use of short codes

Recently CEPT ECC WG on Numbering Naming and Addressing has issued a questionnaire on the need for national co-ordination for the allocation of short codes for SMS, MMS and USSD.

To ensure a full consideration by all involved parties in Europe it is felt useful that such a document be considered by the relevant working groups in TSG SA and TSG T i.e. TSG SA WG1 and TSG T WG2 respectively. See Attachment in the zip file.

CEPT ECC
Electronic Communications Committee

Numbering for Services Based on SMS, MMS and USSD, and International Inbound Roaming Services

A Consultation Paper of the Numbering Naming & Addressing Working Group of the CEPT/Electronic Communications Committee

1. Background

Today, two main messaging systems are available in mobile networks: the ***Short Messaging Service*** (SMS) and the ***Multimedia Messaging Service*** (MMS). Both are standardised services which allow the transmission of messages.

In the initial stages of development of the messaging market, text messages were sent exclusively between mobile phone subscribers, and between the Internet and mobile phone subscribers, using public mobile numbers from national numbering plans. In subsequent stages, businesses started to offer value-added services based on SMS to end users, usually at a higher charge than normal SMS. The information provided by these services is supplied on request or periodically as part of a subscription. The most popular applications include downloading of ring tones, voting, and sports information. M-commerce applications – for example, paying a parking meter – have also started to emerge using SMS. Increasing numbers of fixed network operators are also starting to offer SMS to their customers.

In Europe, value-added services based on SMS most commonly use 3-5 digit short codes. Initially, operators assigned these numbers to content providers independently of each other. These codes were considered by operators to be specific to their networks. In many countries, however, a need has been identified for coordination of the assignment of these codes in order to prevent different network-specific numbers being assigned by different operators for the same service.

Unstructured Supplementary Service Data (USSD) is a bearer service specifically developed for GSM which allows the support of supplementary services other than those which are implemented via GSM functional signalling, and which facilitates easier use of mobile supplementary services. The codes used for accessing services based on USSD take the form of ∗1*nn*#, where "∗" and "#" are, respectively, the star and hash keys on a telephone handset and "1*nn*" is a series of three decimal digits beginning with 1. USSD services can, for example, be used to access pre-configured operator-specific services.

An ***international inbound roaming service*** offered on mobile networks enables users, when roaming on other networks, to use the familiar (short) numbers available on their home networks for services such as access to voicemail. Although this is a user-friendly service, this facility could have effects on the national numbering plan of the country visited or on other numbers normally accessible on the visited network.

In three European countries – Austria, Finland and Ireland – the use of numbers for these services offered on mobile networks is regulated. In all other European countries, the numbering arrangements described above were introduced without any consultation or explicit authorisation from Public Authorities.

2. Introduction

Although, from a commercial point of view, the take-off of messaging services has been extremely successful, it cannot be said that there are no problems with the numbers used for these services.

Public Authorities in Europe are faced on a regular basis with complaints from users of value-added services, services accessed via SMS or MMS, services based on USSD, and international inbound roaming services.

In some countries, third parties which offer value-added services based on SMS – that is, entities which want to sell SMS services under their own trademark, sometimes using their own equipment linked to networks – complain about interconnection and revenue sharing agreements with operators.

For the provision of these services, operators in Europe generally employ numbering and addressing resources which, in most countries, have been defined neither in the national and international numbering and addressing plans, nor in national legislation.

At the same time, we notice an increasingly frequent use by operators of proprietary addressing and numbering resources which are not specified in national legislation. These resources are consequently not subject to control or influence by the National Regulatory Authority, which severely restricts the possibilities of intervention in the event of abuse.

Article 10 of Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services stipulates that National Regulatory Authorities must control the assignment of all national numbering resources and the management of the national numbering plans. The Numbering Naming & Addressing Working Group of the CEPT/Electronic Communications Committee is of the opinion that, as these numbers can be used by the public to access services, the numbering resources used may fall within the scope of Article 10.

The Mobile Market Working Group of the Independent Regulators Group has recommended that valued-added SMS numbering should be coordinated by the National Regulatory Authority or other bodies responsible for numbering administration in each country, for example in the national numbering plan.

3. Objective of Consultation

This consultation aims to study the arrangements now used to manage the numbering and addressing resources used for services based on SMS, MMS and USSD, and resources used within international inbound roaming services, the legal consequences of Article 10, and the creation, if needed, of a transparent and equitable framework for management of these numbers.

One should not forget that the basic issue is the extent to which numbering will help telephone users to understand the type of service being accessed and the likely charge for a call.

4. Scope

4.1 SMS and MMS

SMS was primarily developed to allow short text messages (up to 160 characters) to be exchanged between users of mobile telephone networks. MMS, for its part, allows the exchange of larger messages, accompanied by files of varying formats. For simplicity, the following discussion refers to SMS, although the description and the issues raised also apply, in most cases, to MMS.

From the technical viewpoint of addressing, transmission of SMS uses a two-stage routing procedure consisting of sending the message accompanied by the recipient's address to an SMS Service Centre (SMSC), the address of which is programmed into a user's terminal equipment. The SMSC then analyses the recipient's address and delivers the message to the recipient. This entire procedure is totally transparent to the user.

There are two main ways in which SMS is used:

(a) For exchange of messages between users

(b) For access to third party services provided via SMS; examples include pull SMS, push SMS, and micro-payment services. These services are known as value-added SMS

services. In this case, the exchange of SMS takes place between users and content providers.

For exchange of messages between users, the E.164 telephone number is used, for practical reasons, as the recipient's address. Given that every user of a telephone network has an E.164 number, the use of this resource conforms entirely to the relevant legal provisions and is not further considered in this paper.

For access to third party services provided via SMS, operators frequently specify numbers (often short 3-5 digit numbers) which they make available to content providers. In the majority of cases, these numbers are valid only on the network in which they have been defined. Thus each operator is free to define its own set of access numbers. In mobile networks, moreover, it is possible to allow the use of a number whose initial digits are identical to a second number – e.g. 123 and 1234.

The use of SMS for access to third party value-added services is illustrated in figure 1.

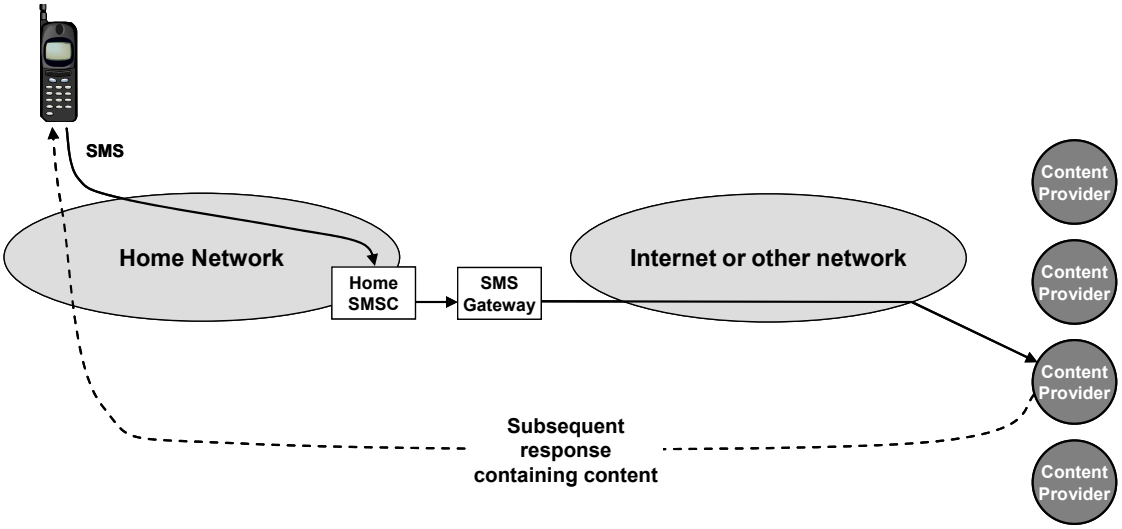

Figure 1: Use of SMS for access to third party value-added services

4.2 USSD-Based Services

USSD is a bearer service specifically developed for GSM which is intended to make mobile supplementary services simpler to use.

The numbering for USSD-based services is defined by ETSI in Technical Specification 100 625, which specifies that access to these services is via codes in the format ∗1XX#. Operators may deploy supplementary services using access codes in the range ∗100# to ∗149#; when such a code is dialled by a user, the USSD messages are transmitted to the user's home network. Codes in the range ∗150# to ∗199# are reserved for supplementary services provided by a visited mobile network. The codes used for services based on USSD are not comparable to E.164 numbering resources.

The provision of USSD-based services is illustrated in figure 2.

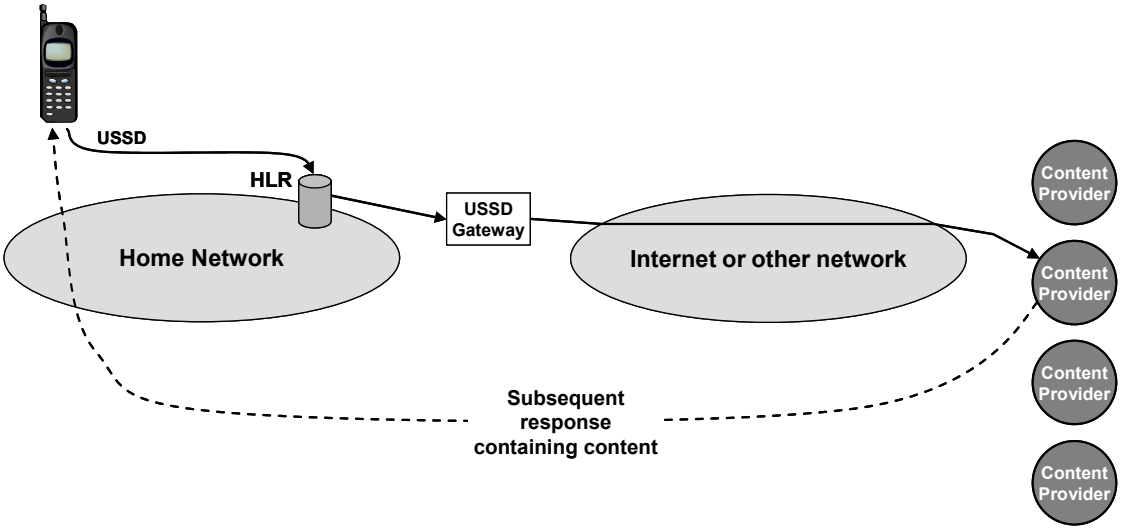

Figure 2: Provision of USSD-based services

Interoperability of USSD services is not supported; these services are therefore available only to subscribers to GSM networks. Access to these services is, however, available to roaming users.

4.3 International Inbound Roaming Services

Some mobile operators have defined short numbers on their networks which may be accessed by roaming users to reach their familiar services – such as customer care, voicemail, etc. – using numbers normally available on their home network. This service is known as a Virtual Home Environment, and is defined by 3GPP in Technical Report 22.121 and Technical Specification 23.127. The provision of international inbound roaming services via a Virtual Home Environment is illustrated in figure 3.

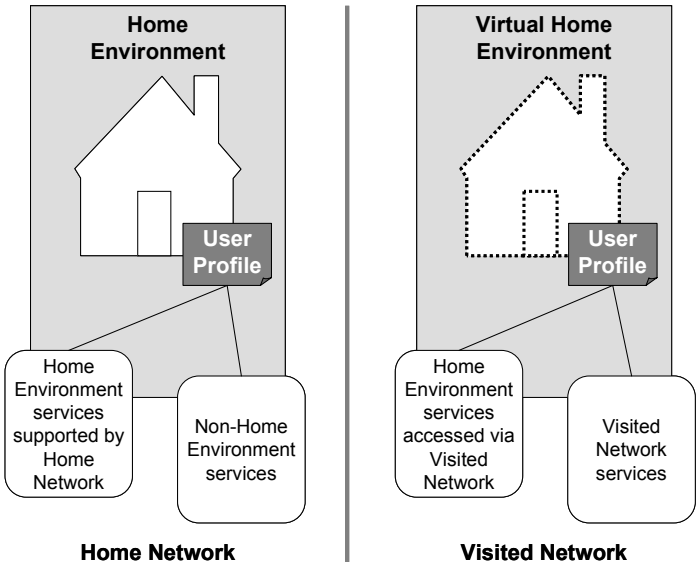

Figure 3 – Provision of international inbound roaming services via Virtual Home Environment

It is recognised that short numbers associated with a Virtual Home Environment are intended to be accessed only by users roaming on a visited network and would not be accessible by the home subscribers. Nevertheless, some of the short numbers implemented for this purpose may conflict with

numbers defined in the national numbering plan of the visited country or other numbers normally accessible on the visited network.

5. The Problems Posed

As indicated in the introduction to this paper, the number of complaints related to the services described above is increasing. To this must be added (both now and in the future) the problems generated by the use by operators of new numbering and addressing resources (such as access codes for services based on USSD) in order to offer new services to the public. This trend will certainly not decline with the forthcoming appearance of third generation mobile services and voice over IP applications.

The trend is not confined to mobile networks; operators deploying Next Generation networks, among others, wish to define and manage themselves their own addressing resources and methods of access to their infrastructure.

Today, exclusive control by operators of the numbering and addressing resources used for the services mentioned above creates significant problems in relation to:

- Interoperability of services / distortion of competition
- Non-discrimination in assignment of numbering and addressing resources
- Consumer protection
- Administration / harmonisation of numbering and addressing resources.

Moreover, the lack of control or influence by National Regulatory Authorities over these numbering and addressing resources severely restricts the possibilities of intervention in cases of inappropriate resource management or market failure.

5.1 Interoperability of services / distortion of competition

The principle of interoperability of services requires that a given service is accessible irrespective of the network to which an end user is connected. However, some market conditions or technical implementations may hinder or prevent the achievement of such interoperability. An obligation on operators to ensure interoperability of services based on SMS, MMS and USSD does not exist in most European countries. It is possible that the absence of such an obligation discourages genuine competition in the market for these services.

For example, in the absence of an interoperability obligation, operators are free to make access to third-party services difficult or unduly expensive, or even to block access. Moreover, an independent content provider which wishes to make a service accessible from all networks in a given country may find it necessary to contract individually with each of the operators, accept each operator's tariff conditions, and possibly obtain a separate number from each operator. This scenario is illustrated in Figure 4.

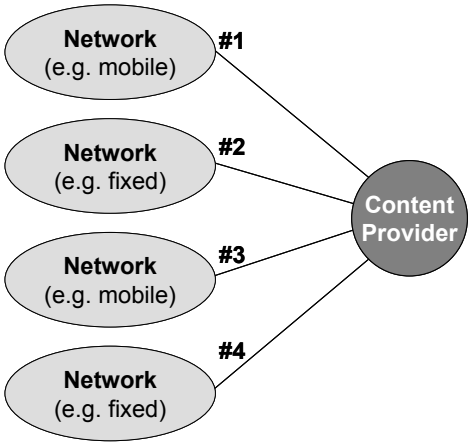

Figure 4 – Content service interconnected separately with each access network & assigned separate numbers for each network

An alternative implementation of services based on SMS, MMS and USSD would allow a third party content provider to interconnect with one operator only, but have access to its services from any access network in a given country. This approach would mean that the network with which a third party content provider is connected would use its interconnection arrangements with other national access networks to ensure the content provider's services are generally accessible. This scenario is illustrated in figure 5. A version of this scenario is planned for implementation in at least one European country.

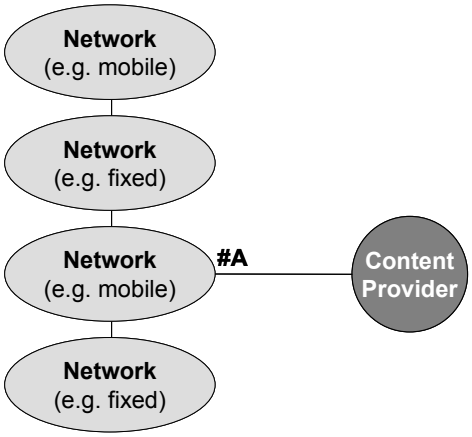

Figure 5 – Content service interconnected with only 1 access network & assigned only 1 number

This second scenario requires a synchronised approach to numbering of services based on SMS, MMS and USSD. This may be achieved by:

(a) Operators sharing information on their assignments of numbers for these services, and refraining from assigning numbers on their networks that are identical to numbers assigned on other operators' networks; or

(b) Operators actively coordinating their respective assignments of numbers for these services; or

(c) A body independent of operators (the National Regulatory Authority or another independent body) assigning numbers either to operators or directly to content providers.

As is the case with an obligation to ensure interoperability of services based on SMS, MMS and USSD, we are not aware of an obligation in any country to provide portability of the numbers used for these services. The absence of such an obligation may result in customer lock-in for third parties which rely on these services.

Questions about interoperability of services / distortion of competition:

(1) Is interoperability of services based on SMS, MMS and USSD between networks necessary to ensure proper competition in access to networks by content providers or other third party providers?

(2) How can interoperability between networks be achieved, in order to avoid the need for content providers or other third party providers to make multiple arrangements with networks? For example, in what way could numbering play a role in improving interoperability?

(3) Should portability of numbering resources used for services based on SMS, MMS and USSD be required?

5.2 Non-discrimination in assignment of numbering and addressing resources

Numbering resources for services based on SMS, MMS and USSD may be assigned to content providers by:

(a) Each operator acting independently of all other operators; this approach is incompatible with support for interoperability of content services across all access networks

(b) Each operator coordinating its actions with other operators so that, for example, the same number is automatically assigned to a content provider across all access networks or, at a minimum, cannot be assigned for another purpose on other networks

(c) A body independent of operators in such a way that the number may be used on all networks.

The chief risk under the first approach is that operators will be tempted to reserve the most attractive resources ("golden" numbers) to themselves, or restrict the assignment of numbering resources to competing content providers and thereby hinder the latter in offering services on their networks. Such restrictions currently occur in the case of assignment of numbering resources for services based on USSD.

Moreover an independent content provider which wishes a service to be accessible on multiple networks is obliged to obtain numbers separately from each operator. It is unlikely that a content provider would be able to obtain the same number on all networks for a given service.

Anti-discrimination provisions in general competition law may, in part, reduce these risks, but would do little to eliminate structural problems associated with the management and assignment of numbering resources for services based on SMS, MMS and USSD.

The chief risk under the second approach is that there may be no incentives on operators to ensure that synchronisation or coordination of assignments of numbering resources is implemented in a reliable and timely manner, nor any sanctions if the synchronisation or coordination process fails. It may also be difficult to ensure a transparent process under this approach. However, countries in which operators have a history of cooperating on operational processes and procedures may find that such risks are low.

The third approach reduces operators' flexibility in assigning numbering resources, and may increase the length of time required to obtain numbering resources. The trend among European National Regulatory Authorities towards introducing electronic processing of applications for resources may reduce the disadvantages of this approach.

Questions about non-discrimination in assignment of numbering and addressing resources:

(4) Is access by third party providers to USSD service offerings possible? If not, why?

If operators assign numbering resources for services based on SMS, MMS and USSD:

(5) Do the current rules and procedures for assignment of these numbering resources avoid discrimination between operators and third party providers? If so, how?

(6) Are these rules and procedures transparent, equitable and publicly available to all interested parties?

(7) Is appeal against refusal of assignment of these numbering resources possible?

(8) What are the rules for assignment of “golden” numbers and numbers of different lengths?

(9) How long does assignment of these numbering resources take?

(10) What are the costs associated with assignment of these numbering resources?

(11) Are there any rules and procedures for reclaiming these numbering resources? If so, please describe them.

5.3 Consumer protection

It is possible that the implementation of a Virtual Home Environment may result in access to numbers that are normally available in a visited network being blocked. Although a Virtual Home Environment is intended to make it easier for roaming users to access and use the services normally available in their home network, it is not apparent how this objective is balanced against access by roaming users to services normally available on the visited network, in cases where these two forms of access conflict.

For example, a number that is used to access a voicemail service on a roaming user’s home network may be used on a visited network to access public transport information. Plainly, a roaming user may wish to access both services in his or her home environment and services in the visited network. In this situation, it is not clear which service would be available to the roaming user, what mechanisms would be offered to the roaming user to call a service which is blocked due to a number conflict, and how the limitations and complexities of this situation would be conveyed to the roaming user.

Third party SMS and MMS services are frequently activated and deactivated via the use of keywords embedded in a short message; for example, the keyword “on mail” may be used to activate an SMS-based mail notification service. These keywords are not, however, standardised, nor are we aware of the existence of any central collection of keyword details for services based on SMS and MMS in a European country. This lack may cause considerable inconvenience – and expense – to users, for example if they wish to deactivate a service but are unable to determine or obtain the appropriate keyword.

Arrangements to regulate content and ensure transparency of prices for premium rate telephony services – which have some features in common with services based on SMS, MMS and USSD – are well established and rigorously applied in many European countries. Because services based on SMS, MMS and USSD are relatively new, equivalent content regulation and price transparency arrangements do not always exist. The absence of content regulation and price transparency arrangements may be a consequence of the National Regulatory Authority’s lack of influence over the numbering resources for services based on SMS, MMS and USSD where these numbering resources are controlled by operators.

If content regulation and price transparency arrangements for services based on SMS, MMS and USSD do not exist, and no satisfactory arrangement has voluntarily been implemented by the relevant market parties:

(a) It may be possible to access content, which would normally be subject to strict controls, without restriction

(b) Prices for services based on SMS, MMS and USSD may be difficult to determine, leaving users confused and, in some cases, exposed to high costs.

Both problems relating to knowledge of keywords and transparency of prices may be lessened if users have the ability to bar incoming and outgoing access to messages associated with services based on SMS, MMS and USSD. Such a form of barring is not included in the standardised call barring feature set for mobile services, nor are we aware of any fixed or mobile operator which has implemented such a facility independent of the existence of relevant standards.

Questions about consumer protection:

(12) Are operators legally entitled to block access by roaming users to national numbers in favour of numbers applying in a roaming user’s home network?

(13) Should national numbers normally accessible in a visited network – especially emergency numbers – prevail over home network numbers accessible in a virtual home environment?

(14) Is it more difficult to enforce content regulation and price transparency rules if numbering resources for services based on SMS, MMS and USSD are under the direct control of an operator?

(15) Are rules needed for the use and publication of keywords to start and stop individual services based on SMS, MMS and USSD?

(16) Is there a need for harmonisation of keywords used to start and stop individual services based on SMS, MMS and USSD between different countries?

(17) How should complaints be handled regarding content, price transparency and the use of keywords for starting and stopping individual services based on SMS, MMS and USSD?

(18) Should users be able to request selective barring of outgoing and incoming messages associated with SMS, MMS and USSD services? How readily could selective call barring functionality be implemented in networks? What are your views of the implications for numbering arrangements of introducing selective call barring for these services?

5.4 Administration / harmonisation of numbering and addressing resources

A basic principle of the administration of numbering and addressing resources is that the interests of all parties involved in the supply of telecommunication services and content services over telecommunication infrastructure must be taken into account. Amongst these are not only operators, but also intermediate service providers like content aggregators, and above all the users. One of the implications of this principle include that access to numbering and addressing resources is open to any entitled applicant in a non-discriminatory manner, another is that the resources are managed responsibly taking particular account of the potential risks of conflict in their use (e.g. with E.164 numbering resources).

The first implication has been discussed in the earlier section on non-discrimination in assignment of numbering and addressing resources.

Any dilution of the goal of responsible resource management may lead to assignment of numbering and addressing resources which are not in the long-term interest of market parties. This may be caused by disadvantaging particular market parties, or generating uncertainty or confusion among users about the use of particular numbers or the pricing associated with numbers.

In one country, a USSD-based service using code ∗147# was found to be confused by users with the number ‘147’ used for a helpline service for children and young people, in that a large number of users intending to use the USSD-based service instead dialled 147. This caused severe difficulties to the provider of the helpline service.

Codes used for services based on USSD may, without appropriate care, also be confused with codes for “teleservices”, such as ∗21# for call diversion, ∗33# for barring outgoing calls, etc, which are defined by ETSI in European Telecommunications Standard 300 738.

If numbering resources for services based on SMS, MMS and USSD are not under the control or influence of the National Regulatory Authority, such problems can both readily occur and be difficult to resolve.

In addition, a lack of harmonisation at national level makes any future harmonisation at supranational level (at European level, for example) very difficult.

Questions about administration / harmonisation of numbering and addressing resources:

(19) Should network operators be allowed to assign network-specific codes with values that are used for other purposes on other national networks? Examples include assignment of a code on a mobile network for an SMS-based service which has the same value as an emergency number used on another network in the same country; and access by a roaming user to a home network voicemail number which has the same value as an emergency number normally accessible from the visited network.

(20) Is there a need to establish a national numbering plan for services based on SMS, MMS and USSD?

(21) Who should administer numbering resources for services based on SMS, MMS and USSD?

(22) Why should the administration of numbering resources for services based on SMS, MMS and USSD numbers be different from that of PSTN numbers?

(23) Do you see any benefits in the National Regulatory Authority managing the assignment of numbering resources for services based on SMS, MMS and USSD numbers? Do you see any disadvantages in the National Regulatory Authority managing the assignment of these resources? Please describe these benefits or disadvantages.

(24) Do you see any benefits in harmonisation of the national numbering plans for services based on SMS, MMS and USSD, or portions of these numbering plans, between different countries?

(25) In cases where operators assign numbering resources for services based on SMS, MMS and USSD, is efficiency (i.e. number conservation) a consideration in the assignment? If so, how and what criteria are used?

(26) Is a shortage of numbering resources for services based on SMS, MMS and USSD likely to happen in the foreseeable future?

(27) Should the allocation of any E.164 number for the provision of voice-based services automatically give the owner of this number the right to use it also for the provision of services based on SMS and MMS? If yes, under what conditions?

6. Responses

Responses to this discussion paper are invited, and should be forwarded to the European Radiocommunications Office by e-mail (humphries@ero.dk), fax (+45 33 89 63 30) or mail (ERO, Nansensgade 19, DK-1366 Copenhagen K, Denmark), by ***Friday, 30 April 2004***. Responses should address the questions contained in this consultation paper.

Enquiries may be directed to Vince Humphries by e-mail (humphries@ero.dk) or telephone (+45 33 89 63 03).

7. Glossary

Content Aggregator: An entity that is linked to an operator and delivers content for a content provider

Content Provider: An entity which delivers content

E.164: A Recommendation of the International Telecommunication, entitled “The International Public Telecommunication Numbering Plan”

HLR: Home Location Register

Home Network: A network to whose services a user subscribes

Keyword: A word or set of words used to activate, modify or deactivate a content service based on SMS, MMS or USSD

M-commerce: The use of mobile devices, including mobile telephones, to conduct business online

MMS: see Multimedia Messaging Service

Multimedia Messaging Service: A messaging service available on some mobile networks for sending and receiving text, images, graphics, voice, audio and other types of content on a telephone handset

Operator: An undertaking which operates a fixed or mobile network, including a mobile virtual network

PSTN: Public Switched Telephone Network

Short Message Service: A messaging service available on mobile networks and, more recently, some fixed networks, for sending and receiving text messages of up to 160 characters on a telephone handset

SMS: see Short Message Service

SMSC: Short Message Service Centre

Unstructured Supplementary Service Data: A facility being implemented in some GSM networks which permits an operator to offer supplementary services, other than those which are part of the GSM functional signalling, using short codes combining ∗, **#** and decimal digits

USSD: see Unstructured Supplementary Service Data

Virtual Home Environment: A service concept in which users are consistently presented with the same personalised features, user interface customisation and services in whatever network and whatever terminal (within the capabilities of the terminal and the network), wherever the user may be located

Visited Network: A network whose services are used by a user who is temporarily visiting that network

VLR: Visitor Location Register

8. References

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