

Public hearing

ENUM service in Portugal

Response by Portabil

27.04.2006

Question 1

Sendo o ENUM o mapeamento entre números E.164 e diferentes endereços de serviços de comunicações electrónicas como vê: a) o uso pelo ENUM dos actuais números E.164 já atribuídos (geográficos, móveis e não geográficos) e quais é que deveriam ser eleitos para essa função, b) a criação de uma gama de numeração específica para o serviço ENUM.

English translation: Question 1 - Using ENUM as the mapping between E.164 numbers and different addresses of services of electronic communications, how do you see: a) the use of ENUM for the actual E.164 numbers already attributed (geographic, mobile and non-geographic) and which are the ones that should be selected for this function, b) the creation of a new numberseries for the ENUM service.

Answer 1

- a. The basic rule for resolving an E.164 number via ENUM can be defined as follows: If a DNS (NAPTR) record is found for the actual E.164 number and the required service type (for example SIP) do route (via IP) to the actual destination. The TEL service type will serve as a reference to another ENUM entry (the client will need to make another ENUM request for the new phone number). If no ENUM record is found for the actual E.164 number do route via the PSTN network (IN network).

This means that none of the already attributed E.164 numbers need to be initially stored in the ENUM databases. Depending on the regulations set forth by ANACOM It may then be up to the number holder ("end user") to register ENUM mappings for eventual existing IP services, - typically via its existing Service Provider (i.e. range holder for the actual phone number). It is recommended to always register IP services (primarily VoIP terminals) in ENUM.

Our recommendation is that registering of ENUM entries is to be provided (but not mandatory) for all number types, - geographic, mobile and non-geographic numbers (as also all number types are portable). Non-geographic numbers differ in the sense that they typically are placeholders for geographic numbers ("call center" functionality). Using ENUM, such numbers will typically be mapped to a TEL entry (another phone number). It might be required that the terminating phone number is kept secret for non-geographic numbers, in which case ENUM should not be used for that entry. In fact any E.164 number might be regarded as "non-geographic" by using ENUM as the phone number may point to "any" location.

- b. We recommend creating a new numberseries for ENUM. It will then be possible to allocate "personal" phone numbers that are not bound to the provisioning of a PSTN/Mobile phone access, - encouraging ENUM business competition on equal premises. A number holder ("end user") should have the option to use the services of any service provider or even be her own provider, - and to choose any ENUM registrar to keep the E.164 mapping(s).

Question 2

Que pensa da substituição do TLD ".e164.arpa" pelo TLD ".tel"?

English translation: What do you think of the substitution of the TLD ".e164.arpa" for the TLD ".tel"?

Answer 2

The Tier1 (Registry) nameserver could manage the TLD ".tel" in addition to the TLD ".e164.arpa", assuring that the same set of DNS records exist for both domains. But this complicates the Registry management and a customer may not be willing to pay a "double" registration fee.

Question 3

De que forma a implementação de um protocolo como o ENUM pode influenciar a oferta: a) Nos serviços já existentes, b) Nos novos serviços?

English translation: *In what way will the implementation of a protocol like ENUM influence the offers: a) In the already existing services, b) In the new services?*

Answer 3

- a. VoIP is expected to be the “killer application” for ENUM, also meaning that the implementation of ENUM will boost the deployment of VoIP terminals/applications.
- b. New communication services will certainly appear with the implementation of ENUM, as ENUM is an important driving force for the convergence of telecommunications services and IP services.

Question 4

Que tipo de aplicações ou de serviços, existentes ou novos (tais como suportados em VoIP), poderão beneficiar – e em que termos - das funcionalidades do ENUM e/ou serem potenciados pela sua introdução?

English translation: *What type of applications or services, existing or new (such as supported in VoIP), could benefit - and at what terms - of the functionalities of ENUM and/or gain from its introduction?*

Answer 4

All IP based services involved with interactive services (“telecommunication-like” systems) will benefit from the introduction of ENUM in the sense that signalling and data may use IP all the way, - end-to-end dialling a single E.164 phone number in the case where both originating and terminating terminals are IP based. In the case where originating terminal is PSTN based it can also be possible to use IP all the way from the first signalling point via for example a SIP gateway at the originating central. The gain is both quality of service (no or at most 1 codec conversion) and cost (no or less use of PSTN network traffic).

Question 5

Como é que vê a forma de validação do utilizador final do número E.164 de forma a garantir o princípio de Opt-in?

English translation: *How do you see the form of validation of the end-user of the E.164 number to guarantee the principle of Opt-in?*

Answer 5

Validation is a specific and important part of the ENUM system. The validation entity can be regarded as a separate function, - operated by a third party or operated as part of the Registry.

Any registrar request involving the modification of an ENUM entry must contain a validation “signature”, proving that the provision has been approved by a validation entity (which is also authorized as a validation entity by the Registry/Regulator).

By approving the provision the validation entity assures that the holder of the ENUM domain is identical with the number holder. This can for example be accomplished by acquiring a copy of the last invoice from the number holder (“subscriber”). It is also possible to specify a machine-to-machine interface where a request is sent to the holding service provider. This service provider can be found from the national numbering plan/porting table (ER).

To guarantee Opt-in the validation entity must also assure that the number holder is willing to perform the provision. Some sort of statement from the number holder is necessary. This can for example be a written statement sent by fax or an SMS "handshake" (provisioning a mobile number). A similar or the same practise as for Number Portability may also be used.

Question 6

A que nível acha que deve haver concorrência na administração dos dados ENUM (nível comercial e/ou implementação técnica)?

English translation: *At what level should it be competition in the administration of the ENUM data (commercial level and/or implementation technique)?*

Answer 6

A single party should be selected to be in charge of the Registry. We see no benefits from implementing competition at the ENUM Registry level. This would lead to a complicated organisation and administrative tasks would be more costly to perform. ENUM is incorporated in DNS where one single manager for each TLD is recommended. Nor is dividing the ENUM namespace recommended.

Competition should be encouraged on the Registrar level, - the party actually holding the ENUM record for the number holder. Value-added services could be provided by the Registrar and the number holder should select the Registrar which suits his needs best (and not necessarily the telephone access provider). The Tier1 nameserver will point to the actual Tier2 nameserver(s) for a specific ENUM record, of which any registrar could be in charge.

Question 7

Qual dos modelos de implementação previstos parece ser a solução mais indicada para o estabelecimento do ENUM ou prevê ainda um modelo que melhor se adapte ao mercado das comunicações em Portugal?

English translation: *Which of the foreseen models of implementation seem to be the most adequate solution for the establishment of the ENUM or do you think there is a model that can be even better adapted to the communications market in Portugal?*

Answer 7

We recommend model A for the establishment of the ENUM. Tier2 nameserver should not be maintained by the same entity as the one managing Tier1 (model B), as The Registrar should have full and exclusive access to the NAPTR records. Registry should not be splitted (model C), - see also comment for question 6. Regarding model D: The ENUM nameserver provider (Tier2) should be defined separately from the Registrar (as in model A), but this should however not prevent a merging of the two functions if the Registrar does also provide nameserver services (less complicated management, for example with respect to security issues).

Question 8

Que entidades devem assumir as várias funções previstas nesse modelo?

English translation: *What entities should assume the different functions foreseen in this model?*

Answer 8

We suggest the following entity allocations:

Registry (Tier1): Independent third party, based on contract with the Regulator

Nameserver Provider (Tier2): Regular DNS provider. Might be the same as the Registrar. Delegations from Registry

Registrar: Telecommunications service provider (including VoIP provider and not a range holder).

Contract with the Registry

Validation: Independent third party (eventually the same as the Registry entity)

Question 9

Qual é o papel apropriado dos prestadores de serviços de comunicações electrónicas na administração do ENUM?

English translation: *Which is the appropriate role of the electronic communications service providers with respect to the administration of ENUM?*

Answer 9

Registrar is the appropriate ENUM role for electronic communications service providers.

Question 10

Quem deve controlar e ter capacidade de aceder, modificar ou transferir os registos dos recursos NAPTR?

English translation: *Who should control and have the capacity to access, modify or transfer the registers of the NAPTR resources?*

Answer 10

The Registrar that operates on behalf of the number holder (for which the Registrar accomplished the ENUM provision) should have exclusive right to access and modify the NAPTR resources. But the Registrar must not be allowed to directly transfer (or create/modify/delete) an ENUM provision. The registrar will then need to use a specific protocol against the Registry. We recommend that the Registry implements the EPP protocol (Extensible Provisioning Protocol) to manage ENUM provisioning.

Question 11

Qual é o modelo de tarifação que considera mais apropriado ao serviço ENUM, atendendo à necessidade de garantir uma informação clara sobre os preços de comunicação para os utilizadores finais? Propõe ou identifica outros modelos possíveis?

English translation: *Which is the tariff model that is considered most appropriate for the ENUM service, taking into account the necessity to guarantee clear information about the communication prices for the end users? Propose or identify other possible models?*

Answer 11

There is not necessarily no direct link between the price of the ENUM services to the service provider and the end user tariffs. The service provider will have the ENUM services as one of its cost elements and have to make sure that its costs are covered when making the end-user tariff structure. The way the service provider bills the end-user for possible ENUM services should be entirely up to the service provider in order to ensure an open market.

With respect to the tariff model used between the operator of the ENUM server and the service providers, this can be based on a subscription fee, a lookup fee or a combination of the two. There might also be a fee related to entering or changing data in the register as well.

Question 12

Quais os mecanismos a implementar de forma a garantir a prestação de uma efectiva informação sobre o preço da comunicação para o cliente originador da comunicação ao estabelecer a comunicação e, caso se aplique, para o destinatário ao receber a comunicação?

English translation: *What are the mechanisms that should be implemented in order to guarantee effective information regarding the price of the communications service to the originating customer and, if applicable, the receiving customer?*

Answer 12

The tariff model used by the service providers towards the end users will most probably be of a nature that make it independent of the ENUM information the service provider might use to set up a communications channel, hence no special measures should be taken but ensure a variety of service providers and leave the pricing to the market.

Question 13

Como vê a utilização do serviço Infrastructure ENUM em conjunção com o User ENUM, tendo em vista a flexibilização e rentabilidade das estruturas a disponibilizar e a transparência e independência face a prestadores de serviços globais ou globalizantes?

English translation: *How do you see the use of the ENUM service infrastructure in conjunction with the ENUM user, in view of the flexibility and rentability of the structures to be made available and the transparency and independence face the providers of global or globalised services?*

Answer 13

No answer.

Question 14

Como é que poderá ser implementada a portabilidade a nível do ENUM, considerando a definição de Tier 2?

English translation: *How could portability be implemented by means of ENUM considering the definition of Tier 2?*

Answer 14

If the NAPTR record was to contain routing information ENUM could also be used for number portability. The service field of the NAPTR record could be used for that purpose, containing the routing prefix. ENUM is not recommended to replace the administrative procedures for number portability, however, as those are more complex than for plain ENUM provisioning. More interaction between service providers is needed and a proper protocol other than EPP (which is the preferred one for ENUM). On the other side it could be possible to use ENUM as a porting/routing table if all routing updates were replicated from the number portability solution (ER).

Question 15

Quais os procedimentos a serem executados para actualizar a base de dados dos nomes de domínio, para incluir ou remover os dados de um determinado assinante no enquadramento da portabilidade?

English translation: *What are the procedures that should be used to update the domain name database, to add or to remove data related to a specific subscriber within the framework of portability?*

Answer 15

Procedures according to the EPP protocol (Extensible Provisioning Protocol) should be used (RFC 3730), with possible extensions to comply with eventual specific requirements. EPP provides commands for authentication (login), information request (check, info, poll) and to modify DNS records (transfer, create, delete, renew and update).

Question 16

Como é que prevê a forma de proteger os dados pessoais nas bases de dados ENUM?

English translation: *How do you foresee to protect personal data in the ENUM databases?*

Answer 16

Only registrars should have access and only to their own customer's data.

Question 17

Como se poderá prevenir actos de pirataria dos nomes de domínio correspondentes aos números de telefone?

English translation: *How would it be possible to prevent acts of piracy of the domain names corresponding to the telephone numbers?*

Answer 17

Mechanisms as used for other types of domain names. Domain names are delegated to nameserver providers, transferred or modified according to a strict protocol (EPP) involving security mechanisms as authentication (certificates), authorization (validation) and encryption (TCP/SSL).

Question 18

Como vê a possibilidade de evitar traduções/encaminhamentos fraudulentos no ENUM?

English translation: *How do you see the possibility to prevent fraudulent translations/routing in ENUM?*

Answer 18

A specific protocol (EPP) should be used to update the Tier1 database (Registry), requiring validation of each "transactional" request. Only registrars are allowed to modify the ENUM database and need to authenticate themselves against the Registry. All interaction will be logged. The actual NAPTR records are maintained by the Registrars and security must be taken care of by the Registrar (and nameserver provider). Any change of a NAPTR record must be confirmed by the number holder (assuring Opt-in).

Question 19

Que riscos ou obstáculos impeditivos do correcto funcionamento do ENUM podem desde já ser identificados e que soluções entrevê para serem os mesmos ultrapassados?

English translation: *What risks or obstacles to the correct functioning of ENUM can already be identified and what solutions do you see that can resolve these?*

Answer 19

- A telecommunications customer might want to continue using his existing phone number for ENUM purposes when terminating his subscription with a telecommunications service provider, registering the number with a registrar that is not connected to the ER. We believe that this should be allowed in order for the (ENUM) service providers to compete on equal premises as the telecommunications service providers. The case is similar to number portability between telecommunications service providers where a user can always take his number with him to a new service provider. It may not be a viable option for the customer to get a new phone number from the dedicated ENUM number range. In this case, if the customer shall be allowed to register his phone number in ENUM, some kind of interaction between the ENUM registry and the ER may be needed. For example to issue a porting request for the phone number and, when the customer eventually terminates his ENUM provision, the number has to be returned to the range holder which should be informed about the return. The range holder may in this case be a provider that is not a registered ENUM Registrar and connected to the EPP interface and has to be informed through the ER
- "Spitting" – voicemail spamming – may be a problem, as well as other internet and e-mail related problems. To resolve or avoid this the same mechanisms as else in the internet world have to be used.

Question 20

Como vê a implementação do ENUM em Portugal, tendo em conta: a) o interesse dos agentes de mercado, b) a tecnologia disponível, c) a normalização existente?

English translation: *How do you see the implementation of ENUM in Portugal, taking into account: a) the interest of the market agents, b) the available technology, c) the existing normalization?*

Answer 20

- a) Implementation of ENUM should not be carried out without a clear interest in the industry
- b) The technology for implementing ENUM is not new technology and is readily available.
- c) No answer.

Question 21

Como deverá encarar-se a realização de uma fase experimental em Portugal: a) Quais os seus objectivos? b) Em que aspecto(s) se justifica maior incidência: operacionais, administrativos ou de mercado? c) Quem deve tomar a iniciativa dos testes? d) Vê com interesse a participação da sua organização, quer nos testes, quer no processo de implementação do ENUM em Portugal, com a consequente assunção de funções? e) Que acha da criação de um grupo de trabalho incentivador desta actividade?

English translation: *What should the realisation of an experimental phase in Portugal be faced: a) What are its objectives? b) Which aspect(s) justifies greater prevalence: operational, administrative or market? c) Who should take initiative to the testing? d) Does your organisation look with interest into the participation in the tests, the process of implementation of ENUM in Portugal, or the consequent installation of functions? e) How do you look at the creation of a work group initiating this activity?*

Answer 21

- a) The objective of a trial phase should be an opportunity for the market players to test out the use of ENUM to see whether there is an actual use of the concept and what are the opportunities as well as drawbacks/problems.
- b) With respect to a trial the investigation of the administrative and market aspects should prevail.
- c) Dominant market players or the regulator may take the initiative to the trial, but if there is no interest among the market players there is no real need for such a trial.
- d) Portabil may be interested in setting up, operating and maintaining the ENUM Registry and/or Validation entity for the Portuguese market.

- e) A workgroup consisting of interested market players and Anacom may be a good idea in order to check the interest and define the way forward.