

Understanding ENUM and its Different Aspects (WORKSHOP)

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Number Portability

For Fixed, Mobile, FMC and VoIP Networks

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User ENUM

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- *User ENUM in e164.arpa allows end-users to link either existing E.164 phone numbers or phone numbers assigned specifically for this purpose to applications reachable via URIs on the Internet.*
- *The decision to request the domain associated to the E.164 number (opt-in) and to fill the domain with resource records of choice is with the end-user.*
- *If an existing E.164 number is used, the end-user must prove the right to use this number with the request of the associated domain*

Richard Stastny:

<http://voipandenum.blogspot.com/2005/07/faqs-definition-of-user-and-carrier.html>

Carrier ENUM

Carrier ENUM

- *Carriers use E.164 numbers currently as their main naming and routing vehicle. Carrier ENUM in e164.arpa or another public available tree allows Carriers to link Internet based resources such as URIs to E.164 numbers. This allows Carrier in addition to the interconnect via the PSTN (or exclusively) to peer via IP-based protocols.*
- *Carriers may announce all E.164 numbers or number ranges they host, regardless if the final end-user device is on the Internet, on IP-based closed NGNs or on the PSTN, provided an access (e.g. SBC or gateway) to the destination carriers network is available on the Internet*

Richard Stastny:

<http://voipandenum.blogspot.com/2005/07/faqs-definition-of-user-and-carrier.html>

Carrier ENUM (2)

- *There is also no guarantee for the originating carrier querying Carrier ENUM that he is able to access the ingress network element of the destination carriers network.*
- *Additional peering and accounting agreements requiring authentication may be necessary. The access provided may also be to a shared network of a group of carriers, resolving the final destination network within the shared network*

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User ENUM and Carrier ENUM –
how they can co-exist?

Introducing a branch into the e164.arpa

- *The method most easily fulfilling the above mentioned requirements is to branch off the e164.arpa tree into a subdomain at a given point below e164.arpa, and deploy a Carrier ENUM subtree underneath without touching User ENUM semantics at all. For readability, we will use the label 'carrier' for this subdomain from now on, while in practice any label will suffice, e.g. a single character label like 'c' or 'i'.*

Combined User and Carrier ENUM
in the e164.arpa tree
draft-haberler-carrier-enum-02

Where?

- *above the country code delegation level, directly below e164.arpa e.g. '4.9.7.1.carrier.e164.arpa' or*
- *below the country code delegation level, e.g. '4.9.7.carrier.1.e164.arpa' or 'carrier.4.9.7.1.e164.arpa'*

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How?

- *subdomain location is documented in the e164.arpa tree proper by inserting a special DNS record into the country code zone*
- *Branch location record (BLR) carries three values for maximum flexibility:*
 - *an integer value which points to the level in the tree where the carrier subtree branches off.*
 - *an alphanumeric value containing the name of the label of the branch*
 - *an alphanumeric value containing the apex of the tree where the tree is contained*

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Example

; +43 country code zone

\$ORIGIN 3.4.e164.arpa.

@ IN NS ns1.enum.at.

@ IN NS ns2.enum.at.

; Branch location record in e164.arpa at CC level

@ IN BLR 2 "carrier" "e164.arpa"

Note: or with TXT RR according to RFC1464:

@ IN TXT "blr-level=2"

@ IN TXT "blr-label=carrier"

@ IN TXT "blr-apex=e164.arpa"

; carrier subtree starts here

carrier IN NS ns1-ce.enum.at.

carrier IN NS ns2-ce.enum.at.

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