ENUM in LITHUANIA

or how we started ENUM registry because I wanted my NAPTRs published

ENUM-WG RIPE 61 @ Rome

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About the company

- We are sort of telco sector oriented company
- We develop software for regulators/telcos
- We run centralised number portability database in Lithuania
- The company now also runs Lithuanian ENUM registry

Bits of history I am aware of

Inception

2006 06 - after receiving my inquiry about ENUM service The Communications Regulatory Authority of the Republic of Lithuania started investigating possible uses of ENUM technology

2006 10 - I attended RIPE 53 and had a chance to talk with people involved with the ENUM and relay information to regulator

2006 12 - The Communications Regulatory Authority convinced the Ministry of transportation and communication to conduct trial

2007 08 - RIPE NCC delegated 0.7.3.e164.arpa

Bits of history I am aware of

Trial

Our company approached regulator with the offer to provide registry software and human, technical resources for the trial

2007 10 – Start of the public trial operations of ENUM was publicly announced during ICT trade show Infobalt.

~600 users registered, most registered to opt-out ...???

2009 09 – public consultation on rules for ENUM service started

2009 10 – after public consultation finished the rules of ENUM operations in Lithuania was announced by The Communications Regulatory Authority

Bits of history I am aware of

Commercial operations

2009 12 14 - concession to operate Tier 1 Registry was announced

2010 03 16 - JSC „Mano numeris“ and The Communications Regulatory Authority signed contract

2010 03 17 – I had great birthday :-)

2010 04 16 - JSC „Mano numeris“ started operating Tier 1 registry and took over maintenance of trial Registry (used in public trials and now integrated with the Registry)

2010 05 07 0.7.3.e164.arpa re-delegated and DS records placed in upstream zone

From this point any company can apply to act as registrar !!!

Environment

- Lithuania has population of 3.5×10^6
- Ministry of transportation and communications is ITU contact organisation
- Communication regulatory authority manages numbering plan and rules for number allocation
- 8 digit closed numbering plan
- Telephone number allocations:
  - Geographical: 1.164.850 allocated ; 64% in active use (767.762)
  - Mobile: 7.543.875 allocated ; 63% in active use (4.825.407)

Telephone number resource management rules

- Almost any company can become telephone service provider just by notifying regulator
- You must be fixed service provider to get right to use geographical numbers
- You must be mobile service provider to get right to use mobile numbers
- Any company can apply for service numbers
- Any person can apply for personal(subtype of service numbers) number but it costs too much (30€ once, ~1€ per month)
- **Allocations has granularity of single number**
- Number portability for geo/mobile/service numbers allocated to telephone service providers

Rules of ENUM operations

- Two tier model with registry and registrars
- DNSSEC at least for registry (enabler)
- Registry is allowed to act as a registrar
- Registry must automatically remove delegations if number gets unallocated by regulator
- Registrars are responsible for authentication of users by any means deemed necessary
- Only user supplied data in public tree
- Subscriber is responsible for providing correct registration data and obligated to notify registrar when looses right to use number

Registry as it is now

- One flat zone with delegations to tier-2 providers
- One delegation per number
- Zone signed and DS in parent zone, no NSEC3
- No WHOIS
- Two fronted DNS servers with hidden master
- Separate box for zone signing
- Redundant boxes to run registry database and registrar interfaces

Interfaces for registrars

- WebGUI and SOAP, no EPP
- user/password and certificate auth
- Asynchronous message based communication
- Basic operations:
  - register
  - unregister
  - setNS
  - setDS
- Can be applied on multiple numbers in one operation

The sad part ...

- No one is willing to act as a commercial registrar
- We still run system used for trials adapted to use registrar interface
- SMS + manual subscriber authentication
- No support for DNSSEC in trial system
- ~700 registered users
- ~300 opted out
- ~100 with NAPTR records
- ~20 NS points to users name servers

Dear Killer application,

WHERE/WHO/HOW ARE YOU ?

Sincerely yours,
ENUM users

What can be done ?

- Publish allocated/ported number database in branch of public ENUM (iENUM tree branching again ???)
- VoIP with personal numbers:
  - Convince some VoIP provider to terminate calls to ingress defined in NAPTRs (SIP/IAX/jingle)
  - Convince VoIP provider to implement SMPP->IM
  - Use number portability database to steer incoming traffic (opt-in users) to this carrier
  - Registrars provide NAPTR manipulation tools, zone hosting, SIP proxy/asterisk/jabber services
- Include ENUM lookup in Linux Telepathy framework

What can be done ?

- Introduce simple standard user <–> tier-2 interfaces (secure DNS updates RFC3007)
- Target mobile platform users (LTE is coming)
  - Easy to authenticate (number/IMSI) but needs cooperation with mobile service providers
  - Introduce support for ENUM lookup natively
  - Hide complexity from user
  - Allow/reject changes coming from applications

What we are planning to do?

- New telephone number resource management system is in process of development. It will reduce administrative costs for personal number allocations:
  - User authentication with national ID cards (smartcards) / e-banks / mobile phone certificates
  - Charging directly from bank account
- System may be made to be capable to work as ENUM registrar oriented towards ordinary users
- Users can be provided with capability to “install” their number in any network (with permission of provider)
- Provider can terminate call/SMS to ingress defined in NAPTRs

Lets discuss

Thank you !