

+420 ENUM implementation

CZ.NIC

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Telco market overview

- Prefix +420
- Closed numbering plan
 - 9 digits
 - 1 range reserved for VoIP (100 000 numbers)
- Number portability
- Fixed market
 - strong incumbent operator – Telefonica/O2
 - slow unbundling – other operators target enterprise segment only
- Mobile market
 - 3 GSM + 1 CDMA operators
 - Very high mobile phone penetration (over 120%)

Telco market overview

- VoIP market
 - VoIP operators – small but many
 - With own IP networks – few stronger (UPC)
 - Using public Internet – the rest
- Geographical and non-geographical numbers
- Usual VoIP service has
 - free on-network calls
 - free calls to few peering networks (less than 1% of traffic)
- Open SIP accounts – not a standard :(
- About 100 000 VoIP users

0.2.4.e164.arpa history

2003	0.2.4.e164.arpa delegated to CZ.NIC
2003-2006	Pre-trial (manually, >100 EUR fee)
	75 domains
4/2006 ENUM	Agreement with government to deploy
4/2006	New registry software development started
20.9.2006	Trial launched
	2000 domains
22.1.2007	Full commercial operation launched

Lessons learned

- No technical testing required
- Use trial for administrative background tuning
 - Rules and policies
 - Validation
 - Registrar
- Keep trial as short as possible
 - Very few technology testers out there
 - Businesses are not interested in trials
- Keep the domains from trial

ENUM conditions

- Allowed numbers:
 - Geographical numbers
 - Non-geographical numbers (VoIP range)
 - Cellular numbers
 - Toll-free / split costs lines numbers
 - Premium services numbers
- Single numbers or blocks
 - End user only!
 - Semi automatic process of block break-ups

ENUM conditions

- 1 to 10 years registration
- Validation once per 6 months :(
 - Via OTP (SMS / voice call), invoice or contract
- Promo price 1 CZK (0,04 EUR)
 - 2007 and 2008
 - later expected at about 120 CZK (5 EUR) - BUT

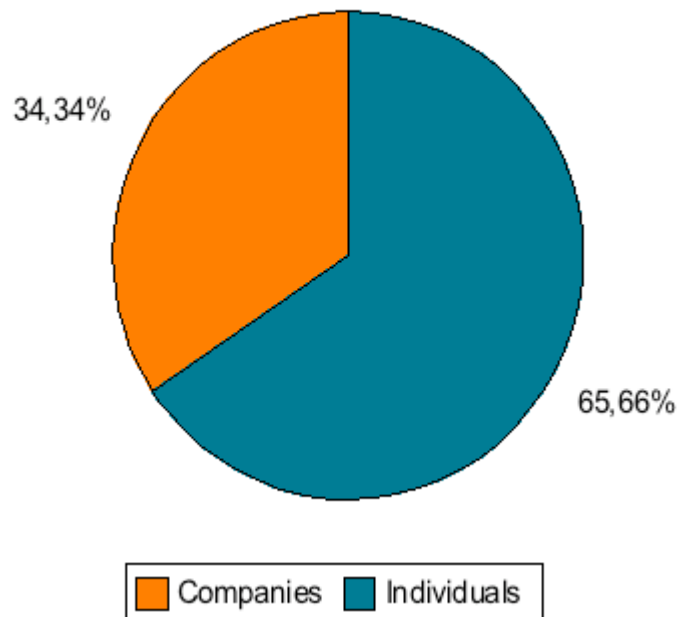
Current situation

- 17 registrars
 - benefit from .cz and 0.2.4.e164.arpa in same registry system
 - Free Registry for ENUM and Domains (<http://fred.nic.cz>)
- 4 telco operators supporting ENUM
 - ENUM lookup on outgoing calls (covers about 23 500 users)
 - ENUM domain registration
 - More on the way ... but no big player yet
- Some others support unofficially

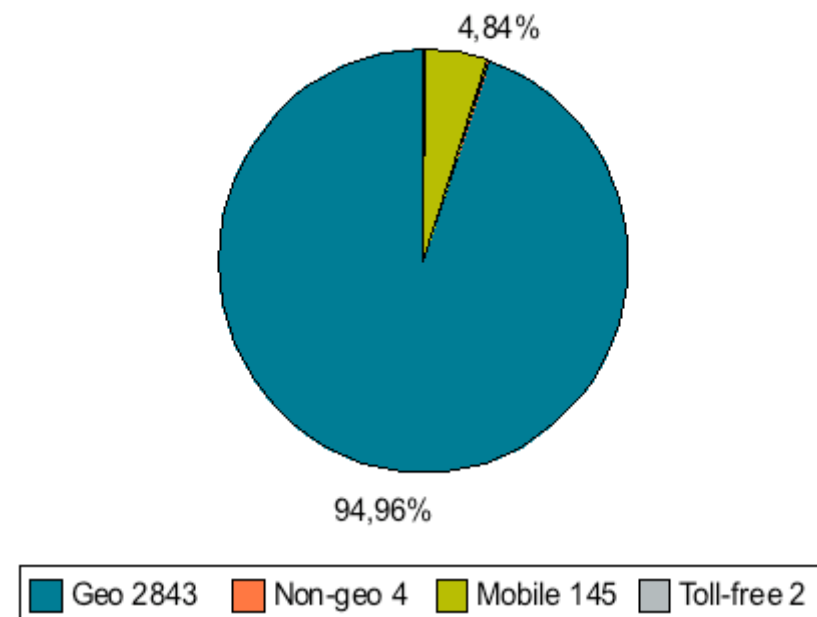
Current situation

- 3 000 domains registered / 560 000 numbers covered
- Most registrations done by operators

Registrants



Registered numbers



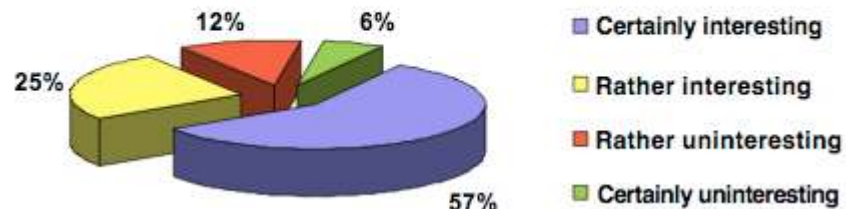
Issues

- ENUM awareness is still low among end-users
- ENUM is too complicated
 - “all-inclusive” VoIP service
 - Open SIP VoIP service w/ ENUM lookup & manual domain registration
 - Open SIP VoIP service & ENUM ready phone & manual domain registration
- Chicken-egg problem – who will start first?
- Small VoIP operators can not “afford” ENUM
- Validation
- QoS concerns when routing through public Internet

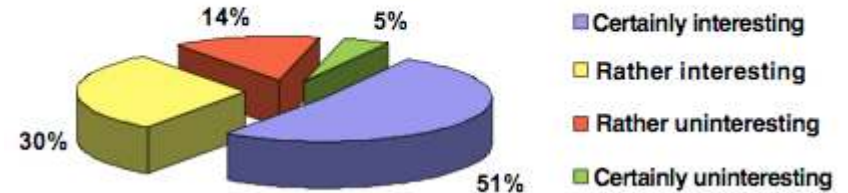
Future plans

- Continue discussion with telco operators, but **move focus on end-users** (both enterprise and individual)
 - Digimark – VoIP market research (January 2007)
 - 80% of companies interested in ENUM application

Incoming calls to regular numbers for free to caller



Calls via combined GSM and Wifi/SIP phones



- Goal: create demand from end-users side

Future plans

- New message: “Telephony without minute fees”
 - term “free” is usually misunderstood
 - parallels with ISP market few years ago
 - new **non-technical** website
- Marketing communication
 - ATL / BTL
 - Co-operate with ENUM supporting telcos
 - Promote ENUM enabled phones
- ENUM federation
 - “Powered by ENUM” brand (like Bluetooth, WiFi or Intel inside)
 - International activity

Infrastructure ENUM

- Prepared to start working group
 - should define the conditions
- Waiting for VoIP operators
- VoIP operators association established
 - covering roughly 50% of VoIP market

Thank you

Questions ?

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<http://enum.nic.cz>