

Czech registry system

CZ.NIC

Ondrej Filip / ondrej.filip@nic.cz

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<http://www.nic.cz/en/>



Agenda

- **Company introduction**
- Technical solution
- EPP based registry system

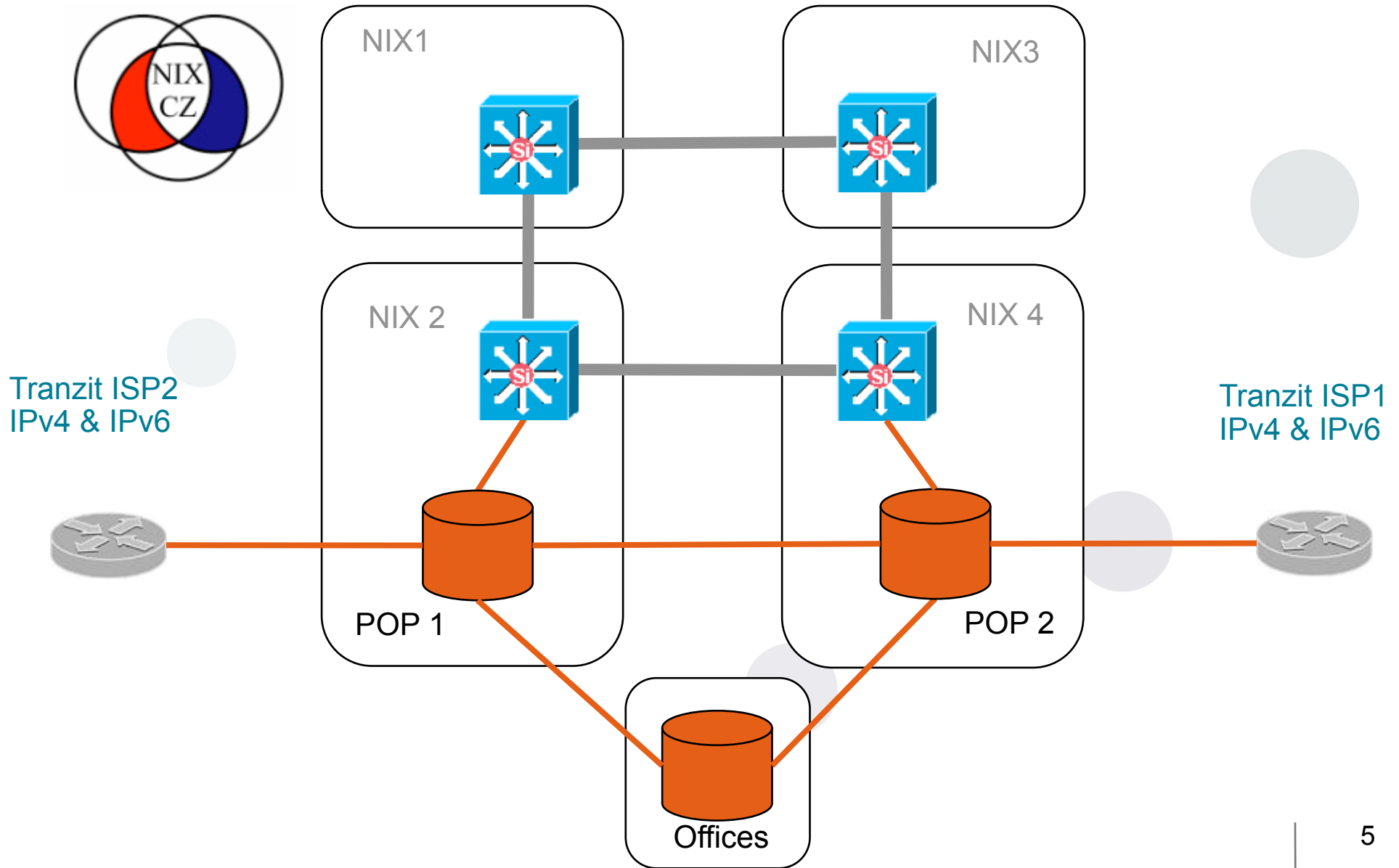
CZ.NIC

- Open not-for-profit association
- Registry for TLD .cz
- About 280.000 domains
- 20% growth each year
- Three tiers model
- Liberal registration model
- <http://www.nic.cz/en/>
- ENUM registry for 0.2.4.e164.arpa - <http://enum.nic.cz/en/>

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Network solution



Network solution

- Registry in 2 independent telehouses (power)
- IPv4 and IPv6
- Independent international connections
- Independent connections to Prague peering point – NIX.CZ
- Different network platforms (Cisco/Juniper,Extreme)
- Different server platforms
- 7x24

Secondary servers

- Hidden primary server(s)
- Some IPv4 and IPv6
- Almost all self-maintained (plan is 100%)
- Placed in Internet Exchange Points – about EUR 2000/year in EU (e.g. NIX.CZ - .cz .be, .eu, .at, ...)
- IPv4 and IPv6 anycast (First RIPE allocation)
- Redundant servers in each POP
- Different server and OS platforms (Linux/FreeBSD/Solaris)
- Different DNS implementations (BIND/NDS/PowerDNS)

Agenda

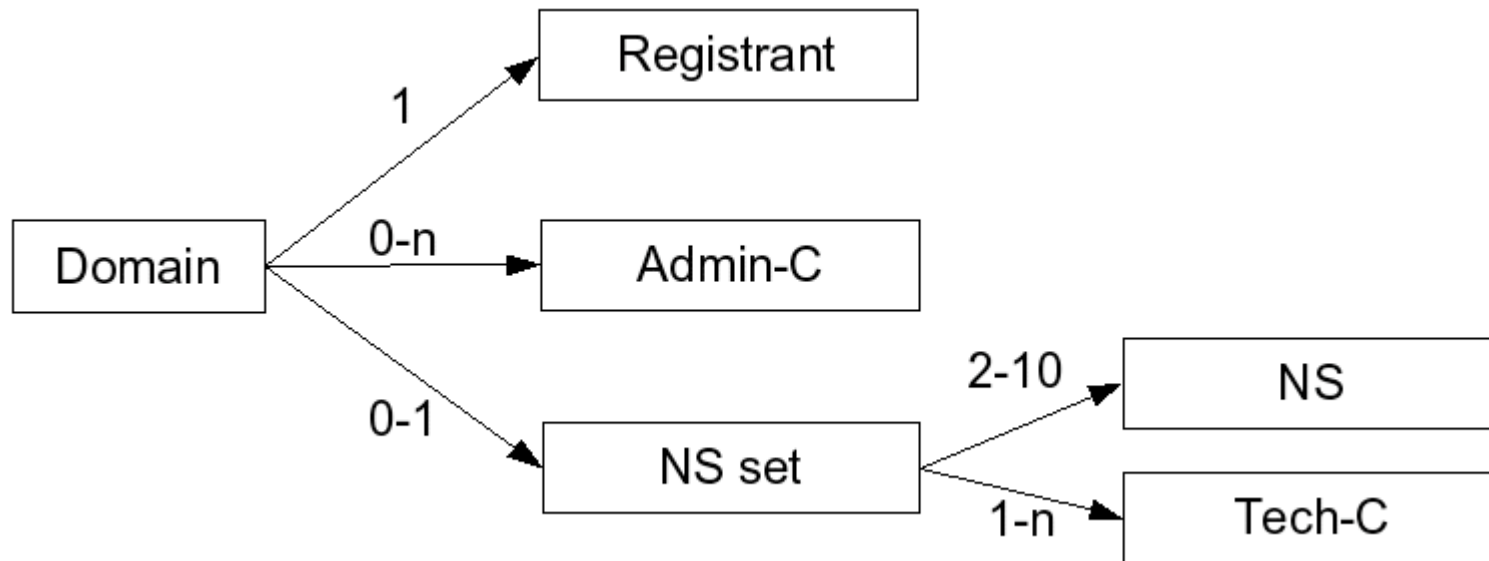
- Company introduction
- Technical solution
- **EPP based registry system**

FRED

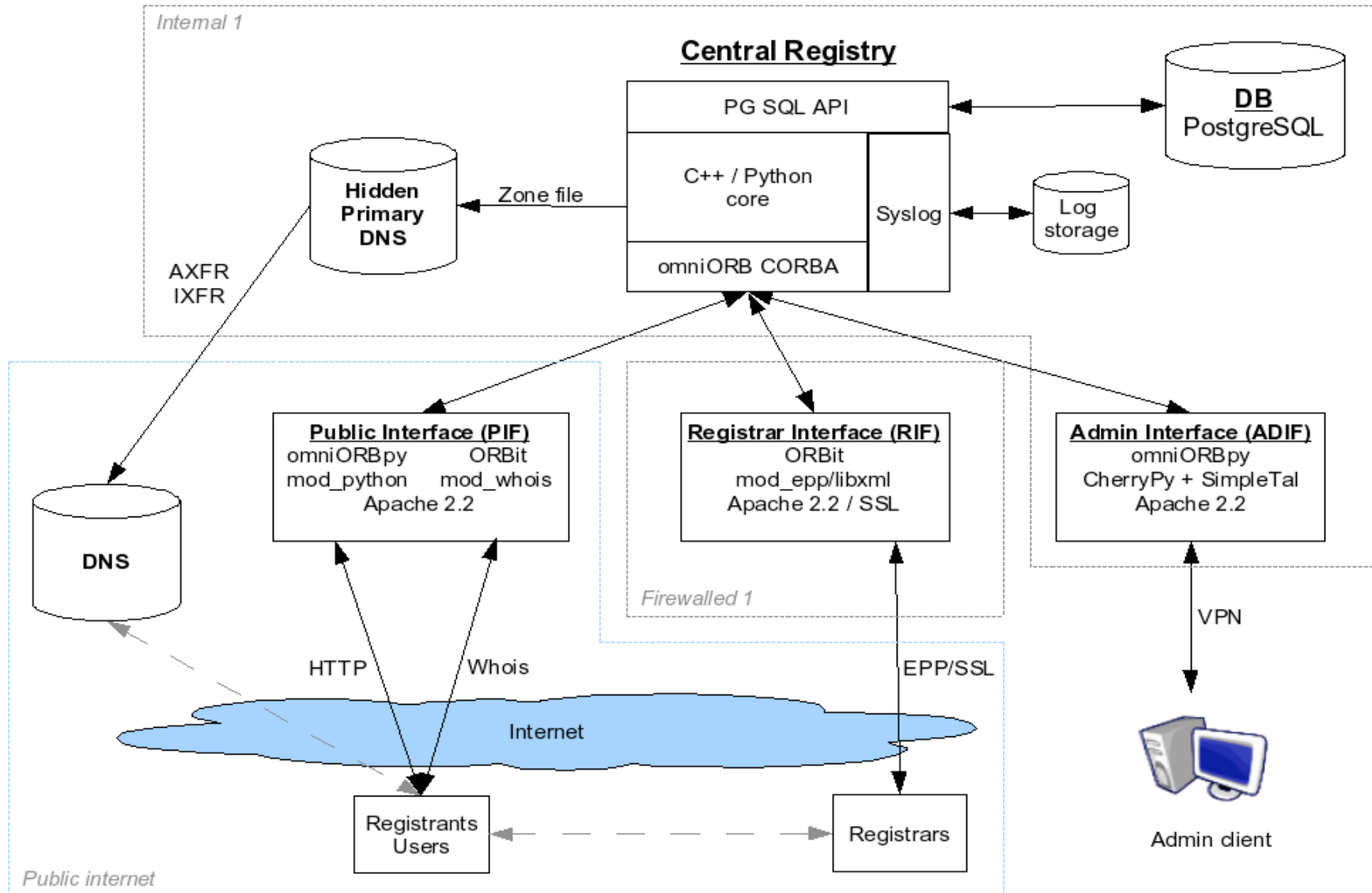
- **Free Registry for ENUM and Domains**
- Software for running domain registry
- Any domain / any level
- Distributed management (registry → registrars → registrants)
- Written from scratch
- GNU General Public License
- Used for:
 - 0.2.4.e164.arpa since 9/2006
 - .cz planned for 8/2007

Data model

- Based on best practices
- Name server sets



Architecture



General features

- Simple & user friendly
- Focus on modularity & configurability
- 100% open source components



- High performance – 15 000 write ops per minute (250/s)

Central registry features

- Multiple domains with objects sharing
- Invoicing & banking (plug-ins)
- Technical checks
- Zone file generator
- Protection period & expiration handling
- Notifications
- Data cleaning & quarantine
- Full history with rollback

Registrar interface features

- EPP over TCP/SSL
- Registrar bundle:
 - Specification & other docs
 - API library (Python)
 - Full featured command line client (Unix/Windows)
- PHP integration experimental
- GUI planned

Fred client GUI preview



Public interface features

- WHOIS service (web, unix)
 - CAPTCHA
 - Data access control (originally for ENUM, per domain)
- Statistics
- Authentication info manipulation

Public interface preview

- NEWS
- WHAT IS ENUM?
- WHY ENUM?
- REQUIREMENTS
- REGISTRATION
 - RULES AND CONDITIONS
 - REGISTRARS LIST
 - VOIP OPERATORS LIST
 - WHOIS
- FAQ
- CONTACT

Test ENUM

Call quality test

Connection latency test

DTMF tones test

Registry statistics
ENUM domains 175
Phone numbers 419764



[e.num](#) | WHOIS

Browsing ENUM domain

Number 222745113 forms ENUM domain 3.1.1.5.4.7.2.2.2.0.2.4.e164.arpa

| | |
|-----------------|---------------------------------|
| Domain name | 1.1.5.4.7.2.2.2.0.2.4.e164.arpa |
| Registered from | 19.09.2006 |
| Last update | 19.09.2006 |
| Expiration | 19.09.2007 |

| | | |
|------------------|---------------------------|------------|
| Registrar | NIC-handle | From |
| CZ.NIC, z.s.p.o. | REG-CZNIC | 19.09.2006 |

Name server set / NSSet

| | |
|------------|--------------|
| NIC-handle | NSSID:CZ.NIC |
|------------|--------------|

| | | |
|------------------|---------------------------|------------|
| Registrar | NIC-handle | From |
| CZ.NIC, z.s.p.o. | REG-CZNIC | 19.09.2006 |

| | |
|----------------|-----------|
| DNS | IP Adresa |
| b.ns.nic.cz | |
| a.ns.nic.cz | |
| c.ns.cznic.org | |

| | |
|------------------|---------------------------------|
| Technical admin. | NIC-handle |
| Ondrej Sury | CID:SURY-CZ.NIC |

Administrative interface features

- Tool for registry management
- Web application
- User access levels
- Manual operations on all objects
- Manual zone administration
- Virtual registrar

Administrative interface preview

Searching Username: **superuser** | [Logout](#) | Database: **epp-test.ccreg.nic.cz** | Table as [TXT](#) [CSV](#)

- Domains
- Contacts
- Nameservers
- Received requests
- Requests
- Registrars
 - Searching
 - Create new

| Id | FQDN | Create date | Delete | Registrant | Registrant name | Registrar | In zone | Expiration | Cancel | Out Zone | Validation |
|---|------|---------------------|--------|----------------------------------|---------------------|------------------------------|---------|------------|--------|----------|------------|
| test.cz | | 25.08.2006 14:20:15 | | CID:TEST | řehoř žižala | REG-LRR | | 25.08.2021 | | | |
| feela.cz | | 01.09.2006 13:15:43 | | CID:JARA | ěščřžýáí | RFG-LRR | | 01.09.2010 | | | |
| 2.1.1.5.4.7.2.2.2.0.2.4.e164.arpa | | 01.09.2006 13:25:22 | | CID:FEELA | Ondřej Filip | REG-LRR | | 01.09.2009 | | | |
| voloda.cz | | 01.09.2006 15:02:42 | | CID:IGNUM-V2 | Vladimír Kloz | REG-IGNUM_A | | 01.09.2007 | | | |
| 1.1.1.7.4.5.2.2.2.0.2.4.e164.arpa | | 06.09.2006 13:17:29 | | CID:NICCZ | CZ NIC | RFG-TEST020b | | 06.09.2008 | | | 07.09.2006 |
| 5.3.1.3.2.1.3.2.1.0.2.4.e164.arpa | | 07.09.2006 12:53:42 | | CID:IGNUM-VOLODA | Vladimír Kloz | REG-IGNUM_A | | 07.09.2007 | | | |
| 7.6.0.5.9.4.0.2.4.e164.arpa | | 12.09.2006 12:22:04 | | CID:CESNET | CESNET, z.s.p.o. | REG-MAPET_A | | 12.09.2007 | | | |
| 6.1.8.5.9.4.0.2.4.e164.arpa | | 13.09.2006 08:23:50 | | CID:CESNET | CESNET, z.s.p.o. | REG-MAPET_A | | 13.09.2007 | | | 31.12.2006 |
| 1.9.1.2.2.0.2.4.e164.arpa | | 13.09.2006 08:25:12 | | CID:CFSNET | CESNET, z.s.p.o. | RFG-MAPET_A | | 13.09.2007 | | | 10.03.2007 |
| 5.3.4.2.2.0.2.4.e164.arpa | | 13.09.2006 08:35:49 | | CID:CZNIC | CZ NIC, z.s.p.o. | REG-MAPET_A | | 13.09.2007 | | | 10.03.2007 |
| 1.2.3.1.2.3.1.2.3.0.2.4.e164.arpa | | 13.09.2006 11:02:20 | | CID:IGNUM-VOLODA | Vladimír Kloz | REG-IGNUM_A | | 13.09.2007 | | | |
| 0.2.5.6.7.8.3.0.6.0.2.4.e164.arpa | | 16.09.2006 18:25:10 | | CID:POKUS | Jiří Kubiček | REG-KRAXNET | | 16.09.2007 | | | |
| 0.4.3.9.9.0.4.3.2.0.2.4.e164.arpa | | 17.09.2006 01:01:28 | | CID:ECISLO-3611 | Jiří Kubiček | RFG-KRAXNET | | 17.09.2007 | | | |
| 0.2.2.0.2.4.e164.arpa | | 18.09.2006 14:31:23 | | CID:CESNET | CESNET, z.s.p.o. | REG-MAPET_A | | 18.09.2007 | | | 10.03.2007 |
| 9.8.7.6.5.4.3.2.1.0.2.4.e164.arpa | | 19.09.2006 00:21:06 | | CID:ECISLO-7252 | a | RFG-KRAXNET | | 19.09.2007 | | | 17.03.2007 |
| 8.8.7.6.5.4.3.2.1.0.2.4.e164.arpa | | 19.09.2006 00:53:22 | | CID:ECISLO-6402 | j | RFG-KRAXNET | | 19.09.2007 | | | 17.03.2007 |
| 7.8.7.6.5.4.3.2.1.0.2.4.e164.arpa | | 19.09.2006 00:55:54 | | CID:ECISLO-6042 | j | REG-KRAXNET | | 19.09.2007 | | | 17.03.2007 |
| 6.8.7.6.5.4.3.2.1.0.2.4.e164.arpa | | 19.09.2006 00:57:52 | | CID:ECISLO-2802 | j | REG-KRAXNET | | 19.09.2007 | | | 18.03.2007 |
| 1.4.3.9.9.0.4.3.2.0.2.4.e164.arpa | | 19.09.2006 01:54:35 | | CID:ECISLO-5581 | Jiří Kubiček | RFG-KRAXNET | | 19.09.2007 | | | 18.03.2007 |
| 2.4.3.9.9.0.4.3.2.0.2.4.e164.arpa | | 19.09.2006 02:05:32 | | CID:ECISLO-4434 | Jiří Kubiček | REG-KRAXNET | | 19.09.2007 | | | 18.03.2007 |
| 9.4.3.9.9.0.4.3.2.0.2.4.e164.arpa | | 19.09.2006 15:36:54 | | CID:ECISLO-4861 | Alois První | REG-KRAXNET | | 19.09.2007 | | | 18.03.2007 |
| 7.4.3.9.9.0.4.3.2.0.2.4.e164.arpa | | 19.09.2006 18:41:49 | | CID:ECISLO-2818 | a | RFG-KRAXNET | | 19.09.2007 | | | 18.03.2007 |
| 9.5.8.2.7.0.6.7.7.0.2.4.e164.arpa | | 19.09.2006 22:06:00 | | CID:IGN-542881E5 | Michal Sindler | REG-IGNUM_A | | 19.09.2007 | | | 19.09.2006 |
| 6.9.1.0.4.3.4.2.7.0.2.4.e164.arpa | | 20.09.2006 00:08:09 | | CID:IGN-542894PN | Vladimír Kloz | REG-IGNUM_A | | 20.09.2007 | | | 19.09.2006 |
| 3.9.2.8.8.3.2.3.7.0.2.4.e164.arpa | | 27.10.2006 18:30:00 | | CID:MVALOUSEK | Michal Valoušek | REG-GENREG_A | | 27.10.2007 | | | 27.04.2007 |
| 4.9.2.8.8.3.2.3.7.0.2.4.e164.arpa | | 03.11.2006 18:14:56 | | CID:MVALOUSEK | Michal Valoušek | RFG-GENREG_A | | 03.11.2007 | | | 04.05.2007 |
| 5.9.2.8.8.3.2.3.7.0.2.4.e164.arpa | | 03.11.2006 18:24:03 | | CID:MVALOUSEK | Michal Valoušek | REG-GENREG_A | | 03.11.2007 | | | 04.05.2007 |
| 6.9.2.8.8.3.2.3.7.0.2.4.e164.arpa | | 03.11.2006 18:26:19 | | CID:MVALOUSEK | Michal Valoušek | RFG-GENREG_A | | 03.11.2007 | | | 04.05.2007 |
| 7.9.2.8.8.3.2.3.7.0.2.4.e164.arpa | | 03.11.2006 18:33:06 | | CID:MVALOUSEK | Michal Valoušek | REG-GENREG_A | | 03.11.2007 | | | 03.05.2007 |
| 8.9.2.8.8.3.2.3.7.0.2.4.e164.arpa | | 03.11.2006 18:33:15 | | CID:MVALOUSEK | Michal Valoušek | REG-GENREG_A | | 03.11.2007 | | | 02.05.2007 |
| 9.9.2.8.8.3.2.3.7.0.2.4.e164.arpa | | 03.11.2006 18:33:22 | | CID:MVALOUSEK | Michal Valoušek | RFG-GENREG_A | | 03.11.2007 | | | 01.05.2007 |
| 0.0.0.4.4.8.4.4.8.0.2.4.e164.arpa | | 07.11.2006 22:41:33 | | CID:JKAD123 | Jaroslav Kadlecěk | REG-IPEX_A | | 07.11.2007 | | | 01.01.2007 |
| ipex.cz | | 07.11.2006 22:42:24 | | CID:IPX32 | Ing. Josef Nechleba | REG-IPEX_A | | 07.11.2007 | | | |
| 1.1.1.5.4.7.2.2.2.0.2.4.e164.arpa | | 08.11.2006 18:15:34 | | CID:JARA | ěščřžýáí | RFG-LRR | | 08.11.2007 | | | 31.12.2006 |
| 2.3.4.7.3.6.5.7.7.0.2.4.e164.arpa | | 13.11.2006 17:02:26 | | CID:IGN-8315719T | Testtttt Kloz | REG-IGNUM_A | | 13.11.2007 | | | 12.05.2007 |

Number of pages: 2, entries: 37

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Roadmap

- **3/2006** **Development started**
- **9/2006**
0.2.4.e164.arpa **Version 1 launched for**
- **11/2007** **Currently version 1.2+**
- **1/2007** Version 2 launch for 0.2.4.e164.arpa
- **Q1/2007** Public release
- **Q1,2/2007** Nice to have features implementation (GUIs,
DNSSEC AJAX), usability improvement,
- **8/2007** Version 3 launch for .cz

FRED benefits

Free
!
A
d
O
p
e
ns



Comm
unity



Any
hard
ware
OK



Plug &
play
for
regist
rars

Further information

- No FRED website yet :(
- But you still can now:
 - Get and read the documentation
 - Testdrive FRED
 - Report bugs, send comments & feature requests, etc.
- **fred@nic.cz**

Testdriving FRED

Long & painless way – test as a registrar

- Contact CZ.NIC
- Get registrar package (docs, client, access)
- Test .cz & 0.2.4.e164.arpa registrations

Quick & hope not so painful way – Live CD

- Get FRED Live CD <http://fred.nic.cz/live/fred-0.2.iso>
- Try to run it on your (PC) hardware
- Test any domain



Thank you

CZ.NIC
Ondrej Filip / ondrej.filip@nic.cz
<http://www.nic.cz/en/>
fred@nic.cz