CZ.NIC, .cz and DNSSEC

CZ.NIC
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25 Jul 2012 – Prague / ICANN, Tech Day

cz
nic
cz domain registry

Agenda

- A few words about company

- Czech domain

- Our software

- DNSSEC.cz

About CZ.NIC

- Founded in 1998 by group of 16 ISPs

- Main focus – TLD .cz ... and ENUM +420

- Special interest association of legal entities

- Open membership - 103 members - growing

- Registry-Registrar model (46 registrars)

- ~50 people, strong R&D part

- Based in Prague and Brno (2nd largest Czech City)
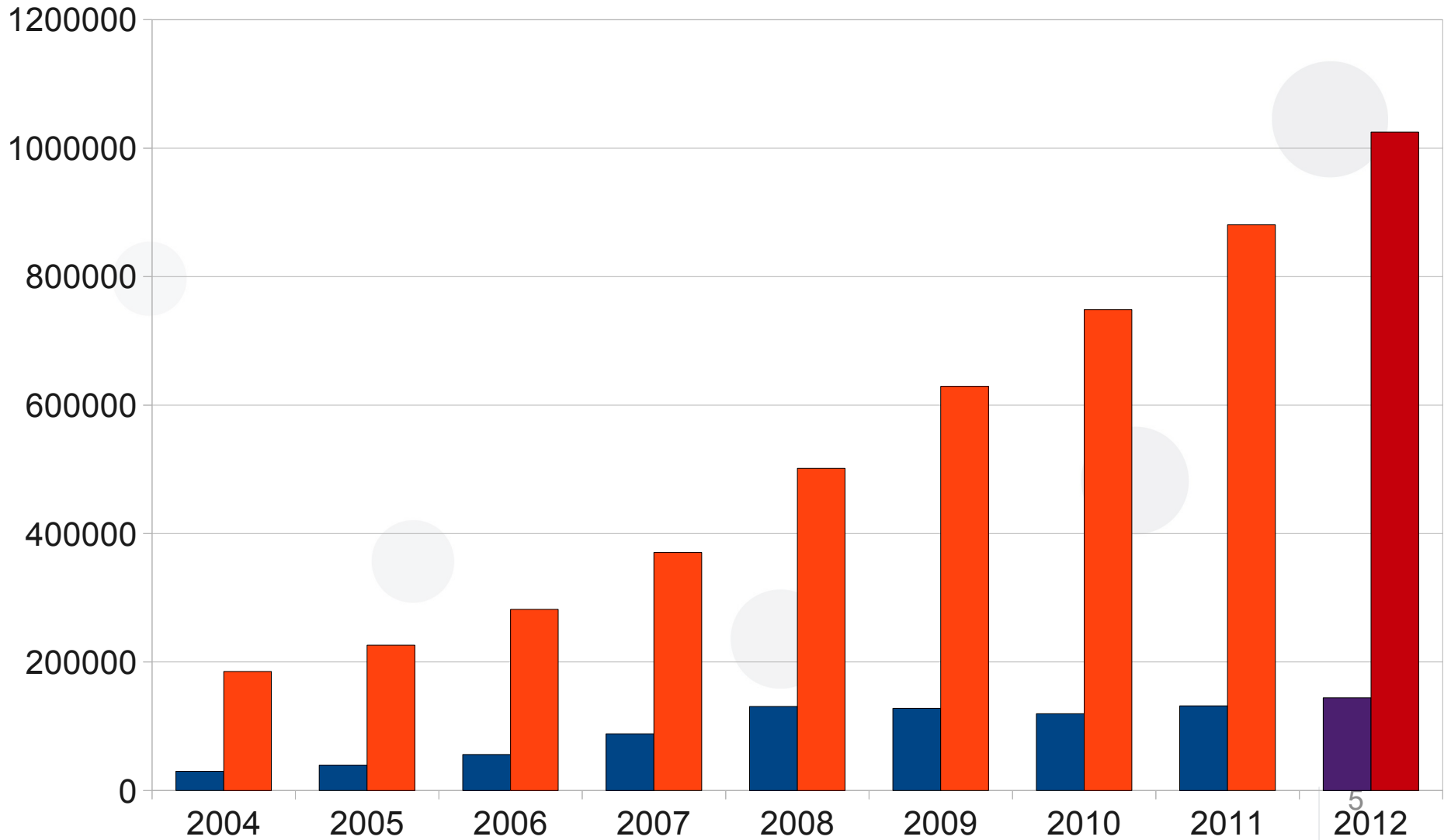
- Not for profit

Domain .CZ

- Fully liberalized, simple pricing model
- No restriction on numbers, presence etc.
- Strictly first come first serve
- ADR – Czech Arbitration Court (.eu, UDRP)
- DNSSEC, IPv6 – no fees
- End user domain locking
- 24x7 end user support, comfort notification
- Database cleaning
- No IDN

Number of domains

Internet

Anycast DNS

a.ns.nic.cz
Location: Chile, Santiago
Czech Republic, Prague

b.ns.nic.cz
Location: USA, Florida, Miami
Sweden, Stockholm (NETNOD)

c.ns.nic.cz
Location: UK, London (LINX)

d.nd.nic.cz
Location: USA, California, RedWood City
Germany, Frankfurt am Main (DE-CIX)
Czech Republic, Prague

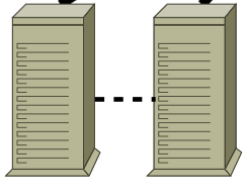f.ns.nic.cz (unicast)
Location: Austria, Vienna

Casablanca

Interoute

NIX

1Gb UTP

1Gb UTP

DC GTS

Vinohradská 190
Prague 3

AS25192

Juniper M7i

Cisco 7204VXR (NPE-G2)

DC SITEL

Nad Elektrárnou 411
Prague 10

AS25192

Juniper EX4200

Cisco 3750-24
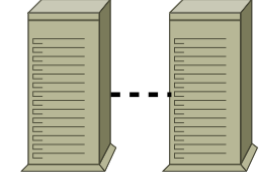
2x 1Gb fibre

1Gb fibre

100Mb UTP

100Mb UTP

FRED
+
Anycast DNS
a.ns, d.ns

Cisco 2960G-8TTC

Cisco 7204VXR (NPE-G2)

FRED
+
Anycast DNS
a.ns, d.ns

VIX

Americká 23
Prague 2

OFFICE

DNS system - anycasting

Other activities

- Registration system FRED
- Security
- Edification – books, conferences
- Training – CZ.NIC Academy
- Support of new technologies
- Support of Internet infrastructure
- Identify provider – mojeID (myID) - OpenID
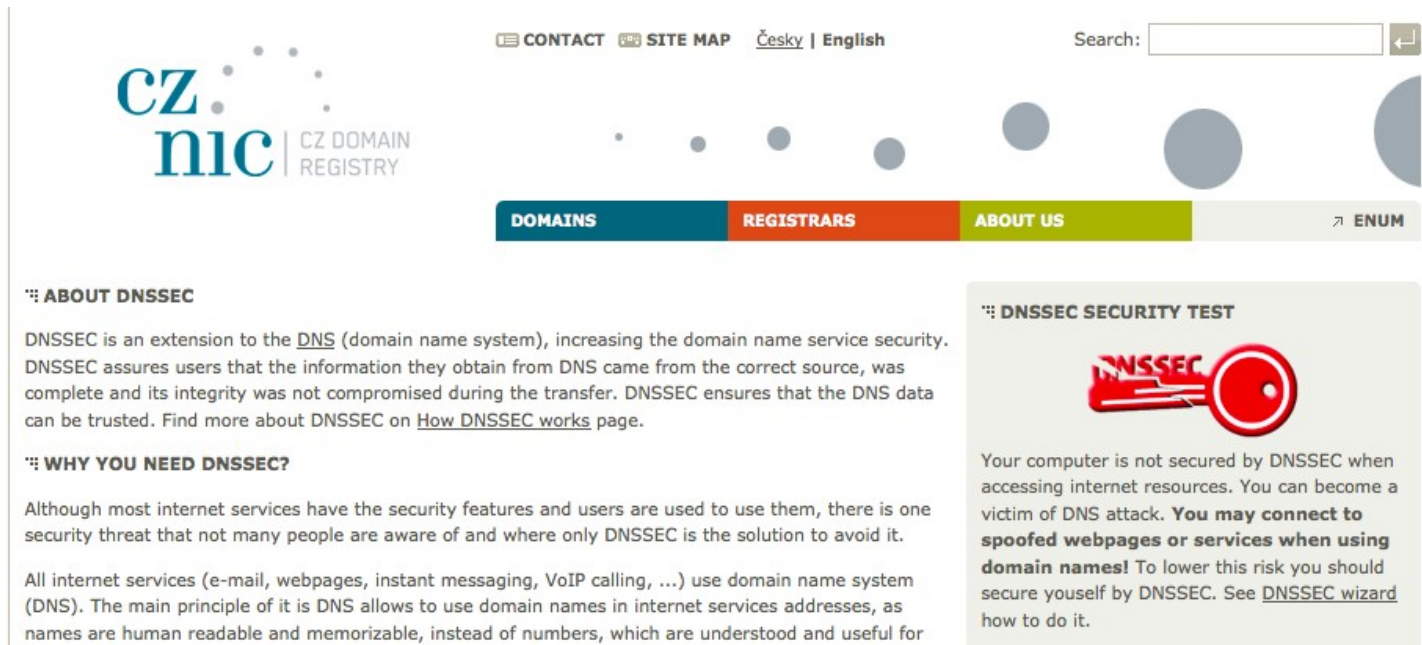
Good of Internet

Internet infrastructure

- Free NTP server

- Mirror of root server F

- Mirror of root server L – first node outside US, main distribution node for Europe

- Anycasting – change of RIPE policy

- Hosting of foreign secondary servers - .tz, .cl (mutual exchange)

- Mirrors of Linux distributions etc.

Open validating resolvers

- Public DNSSEC validating resolvers
- Integrated into browser add-ons

- Using anycast technology
- http://labs.nic.cz/odvr

Our software

- Main page – http://labs.nic.cz

- FRED – http://fred.nic.cz

- Knot DNS – http://www.knot-dns.cz

- BIRD – http://bird.network.cz

  - Routing daemon – similar functions to e.g. Quagga

  - RIP, OSPF, BGP, v4 & v6

  - Fast, efficient, light-weight

  - Most popular as route server in IXP world
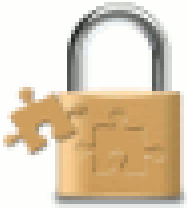
DNSSEC HARDWARE TESTER

- Test DNSSEC compatibility – device (and network)
- On-line database - EN/CZ/HU

ZYXEL – LIST OF DEVICES

Device	Reports	Score	CZ.NIC score	DNSSEC compatibility	Last test
ZyXEL P-320W	1	102	0	52%	06-12-2009
ZyXEL P-660HW	4	574	0	72%	08-12-2009
ZyXEL P-660RU	1	182	0	92%	08-12-2009
ZyXEL P-660R-63	1	182	0	92%	02-01-2010
ZyXEL P-661HW	0	0	0	—	—
ZyXEL USG 200	0	0	0	—	—

- Windows / Linux / Mac OS supported
- Download at http://www.dnssectester.cz

DNSSEC Validator

- Firefox/Chrome/IE add-ons - Shows icon similar to 'https'
- Validates domain name in the address bar
- No DNSSEC, broken DNSSEC, functional DNSSEC
- Download at: http://labs.nic.cz
- (Or search for DNSSEC at browser Add-ons)

DNSSEC HTML Widget

- Informs about DNSSEC validation and IPv6 support of connection (on http://www.nic.cz)

Your Internet connection
- DNSSEC protection
- IPv6 protocol
- IPv4 ▼ : 4.9 Mbps
- IPv4 ▲ : 306.7 kbps
- IPv6 ▼ : 4.9 Mbps
- IPv6 ▲ : 302.6 kbps

- Measures speed of IPv4 and IPv6
- http://labs.nic.cz/widget

Short history of DNSSEC.CZ

- April 4, 2008 - ENUM (0.2.4.e164.arpa) zone signed – first signed ENUM

- September 2, 2008 – .CZ signed (5th)

- September 30, 2008 - .CZ open for end-user public key registration (DS records)

- Started with NSEC – NSEC3 not deployed

- July 15, 2010 – root zone signed

- Key Rollover – (Aug 3 – Aug 24 2010) – 1st change of algorithm -> NSEC3

DNSSEC penetration

- About 36,5% domains is signed
- That means ~ **348.000** domains! (of ~ 955.000)
- Check numbers at http://www.nic.cz
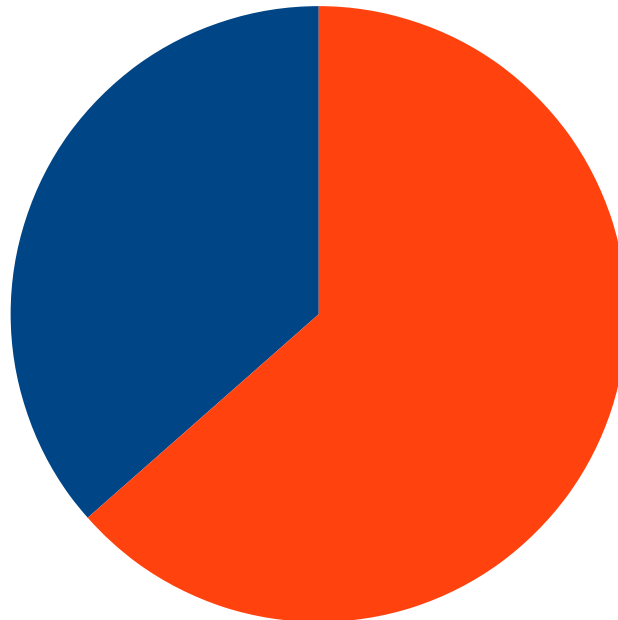
Communication

- Registrars – seminars, training, financial incentives, direct, conferences, technical support

- Important web sites (government, news, e-shops) – direct, conferences

- ISPs – campaign (via end users) and direct
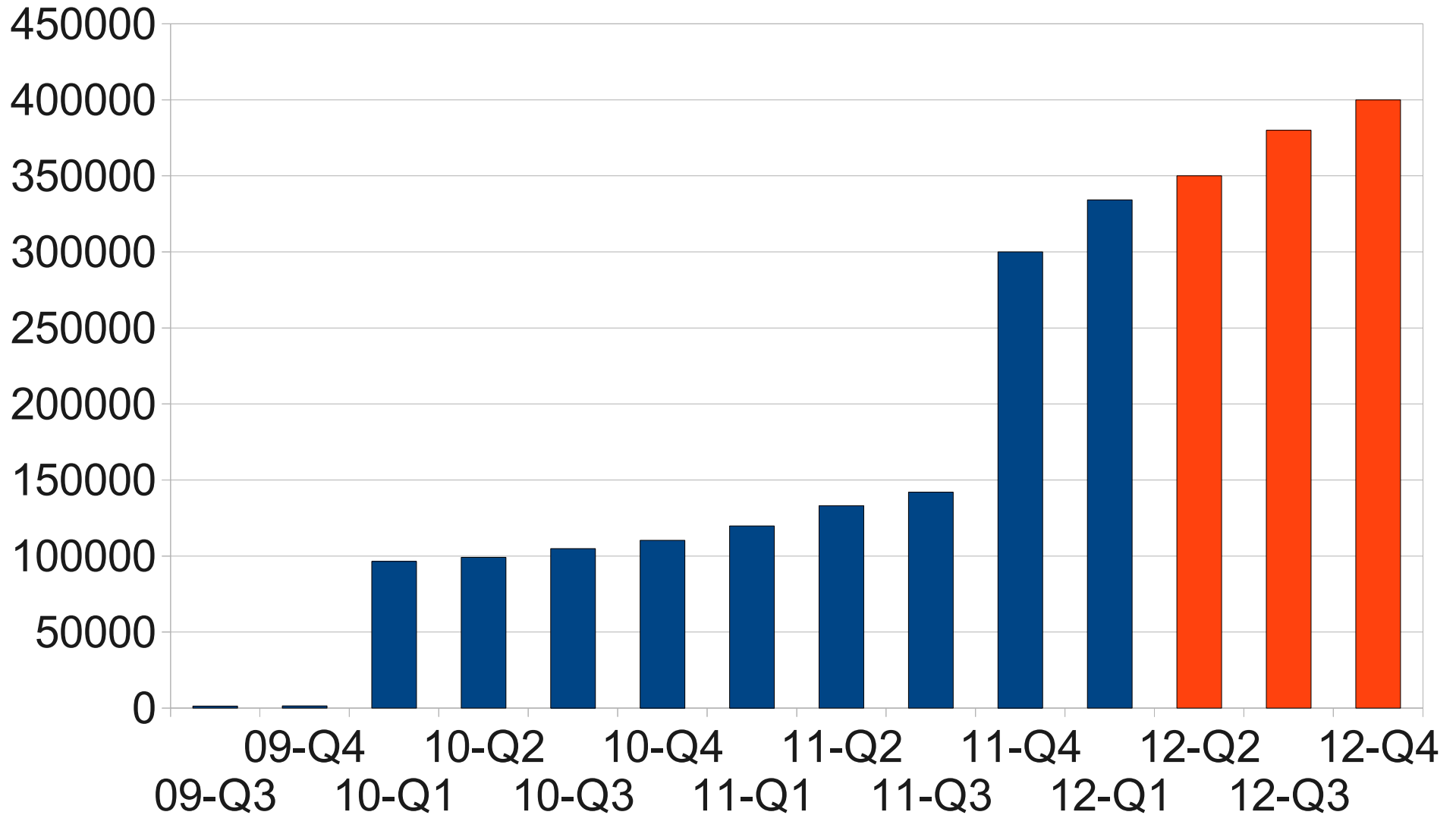
- End users – campaigns

- Tools

Current situation

- 36,5% of all Czech domains – growing

- All major registrars (with 90% of market share) support DNSSEC – many of them by sign default – big thank to them!

- Many major ISPs validate (2 of 3 cell phone operators – Telefonica and Vodafone; majority of B2B; major xDSL provider

- Many important sites signed – news, magazines, e-shops, etc.

Forecast (in Qs)

¿Questions?

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