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ICANN Meeting #38
PIR – DNSSEC Chain of Trust

Overview of Comcast's DNSSEC Work

http://www.dnssec.comcast.net

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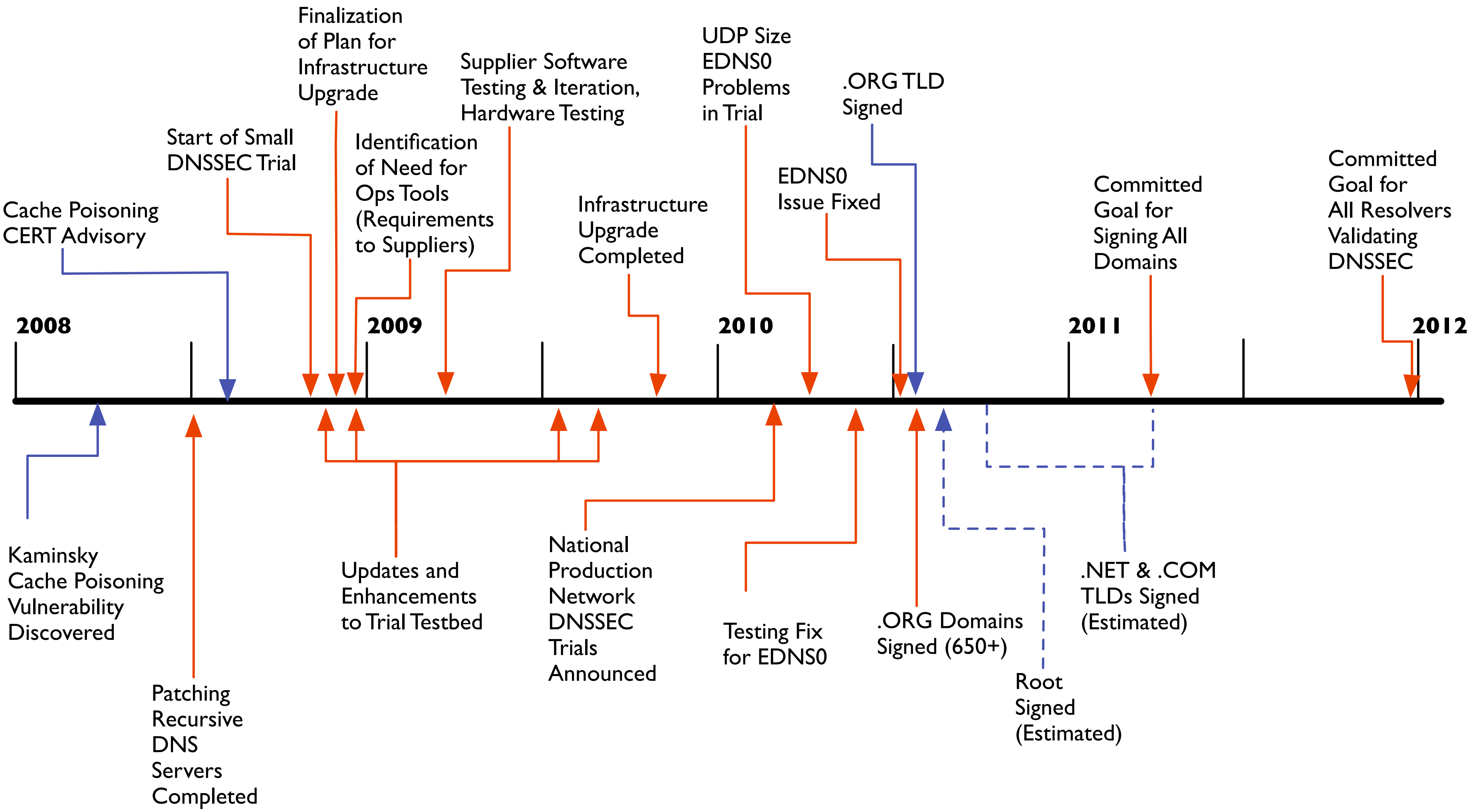
Comcast®

NATIONAL ENGINEERING & TECHNICAL OPERATIONS

The Role of an ISP in DNSSEC Validation

- ISPs act in two different DNSSEC roles, both signing and validating
  - *Signing*: authoritative infrastructure domains & customer domains
  - *Validating*: recursive resolvers operating across the ISP network
- ISPs operate the majority of resolvers that end users query
  - It is relatively rare for most residential end users to operate their own DNS, or to change their DNS settings to use a third-party DNS
  - In most cases, ISPs can automatically update DNS server IP addresses, such as via DHCP lease updates
- As such, good DNSSEC adoption by end users hinges on ISP adoption of DNSSEC
- ISPs rely on a chain of trust:
  - a signed root (or ITAR)
  - a signed TLD
  - a signed domain
- Approach is:
  - ISP recursive resolver sets DNSSEC OK (DO) bit = 1
  - If validation fails for some reason, the end user’s stub resolver receives a SERVFAIL response
- Comcast publicly announced our plans for DNSSEC in February 2010
  - Other ISPs need a similar plan

Timeline of Comcast’s DNSSEC Work



Cache Poisoning
CERT Advisory

Start of Small
DNSSEC Trial

Finalization
of Plan for
Infrastructure
Upgrade

Identification
of Need for
Ops Tools
(Requirements
to Suppliers)

Supplier Software
Testing & Iteration,
Hardware Testing

Infrastructure
Upgrade
Completed

UDP Size
EDNS0
Problems
in Trial

EDNS0
Issue Fixed

.ORG TLD
Signed

Committed
Goal for
Signing All
Domains

Committed
Goal for
All Resolvers
Validating
DNSSEC

Kaminsky
Cache Poisoning
Vulnerability
Discovered

Patching
Recursive
DNS
Servers
Completed

Updates and
Enhancements
to Trial Testbed

National
Production
Network
DNSSEC
Trials
Announced

Testing Fix
for EDNS0

.ORG Domains
Signed (650+)

Root
Signed
(Estimated)

.NET & .COM
TLDs Signed
(Estimated)

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Thank You!

More info at:

http://www.dnssec.comcast.net

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