DNSSEC Visualization for the End-User

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(a Parsons Company)
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Is This “Last Mile” Okay?

(in most cases, “Yes”)
Is This “Last Mile” Okay?

(Perhaps)

Certain ISPs
Hotels

Stub

Recursive NS

Query
NXDOMAIN rewriting

Actual response

https://www.dnssecc-tools.org/ Sponsored by: DHS S&T
Is This “Last Mile” Okay?
(I hope everyone said “NO!!!”)
1 Webpage = Multiple Name Resolutions

https://www.dnssec-tools.org/ Sponsored by: DHS S&T
1 address = multiple DNS lookups

www.weather.com

www.foxnews.com

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Valid Web Site Content

DNSSEC Deployment Initiative

.org shares Comcast DNSSEC advice for ISPs

Rome DNSSEC awareness and planning workshop this week
INVALID Web Site Content From DNS Based Attack
DNSSEC-enabled Firefox

About DNSSEC-Tools

The goal of the DNSSEC-Tools project is to create a set of software tools, patches, applications, wrappers, extensions, and plugins that will help ease the deployment of DNSSEC related technologies.

- Read the Tutorials
- Explore the wiki
- See the Tool Descriptions and ScreenShots
- Download and Install

To contact the project developers, please write the users AT dnssec-tools.org mailing list or submit bugs to the bug database.

https://www.dnssec-tools.org/ Sponsored by: DHS S&T
The Positive Negative
SPARTA, Inc.

The (readable) Positive Negative

- **Unsecured**
- **Address Not Found**
- Did you make a mistake while typing?
- Are you certain the domain address exists?
- Are you able to browse other sites?
- Is your computer or network protected by a firewall?

- **DNSSEC Secured**
- **Server Does Not Exist**
- Did you make a mistake typing?
- The domain address does not exist.

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“Seeing” DNSSEC Better

DNSSEC-Tools

Is your domain secure?

Sign Your Zone  Tutorials  Install

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https://www.dnssec-tools.org/  Sponsored by: DHS S&T
Help Us Measure the World!
Questions for the Panel and Discussion Time
Backup Slides
Do Applications Need DNSSEC?

• If my recursive name server is doing validation, isn’t that enough??
  – Maybe
  – Maybe NOT!!

• Depends on “The Last Mile”
  – Should “The Last Mile” be trusted?
Where Are The Users?

- At work:
  - Generally safe behind a secured resolver
- Until they:
  - Go home
  - Go to a coffee shop
  - Check email via their phone
  - Go to a convention without a secured resolver
- Thus, the best long-term solution:
  - Validate at the end-host or end-application
Resolver vs Application Validation

- Near by validating resolvers:
  - Refuse to relay bad/insecure answers
  - Can still be spoofed locally
  - Provide no validation results to the end-application

- End-application validation:
  - Provides security all the way to the application
    - Important for key (auto)-acceptance
  - Provides useful error codes
    - This domain doesn't exist. **At all!**
Automating & Visualizing DNSSEC

• Tools for network and name server providers & operators
  – Automated key management & monitoring

• Tools for end-users including several mobile platforms
  – DNSSEC is available on the phone