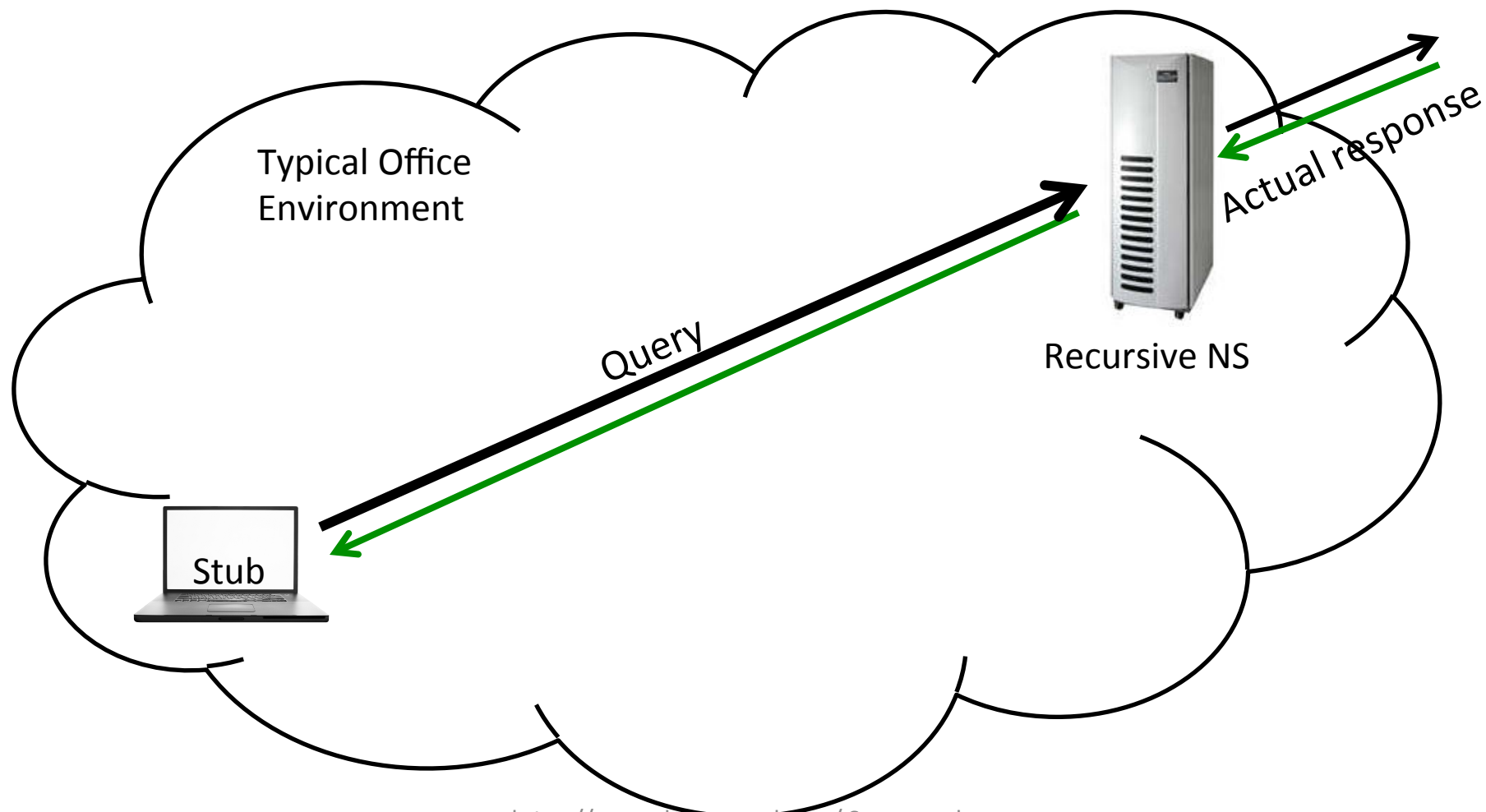


DNSSEC Visualization for the End-User

Russ Mundy
SPARTA, Inc.
(a Parsons Company)
June 27, 2012

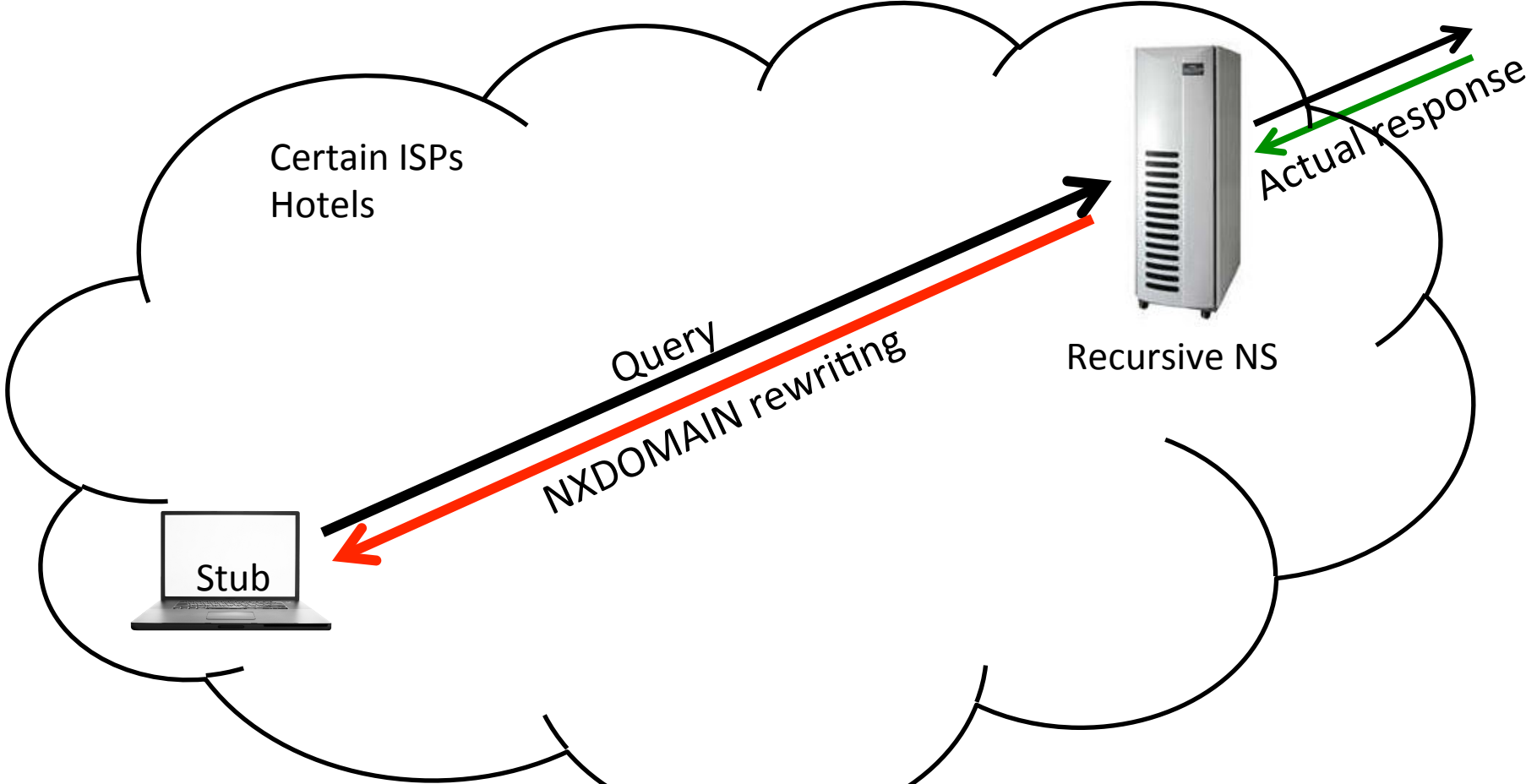
Is This “Last Mile” Okay?

(in most cases, “Yes”)



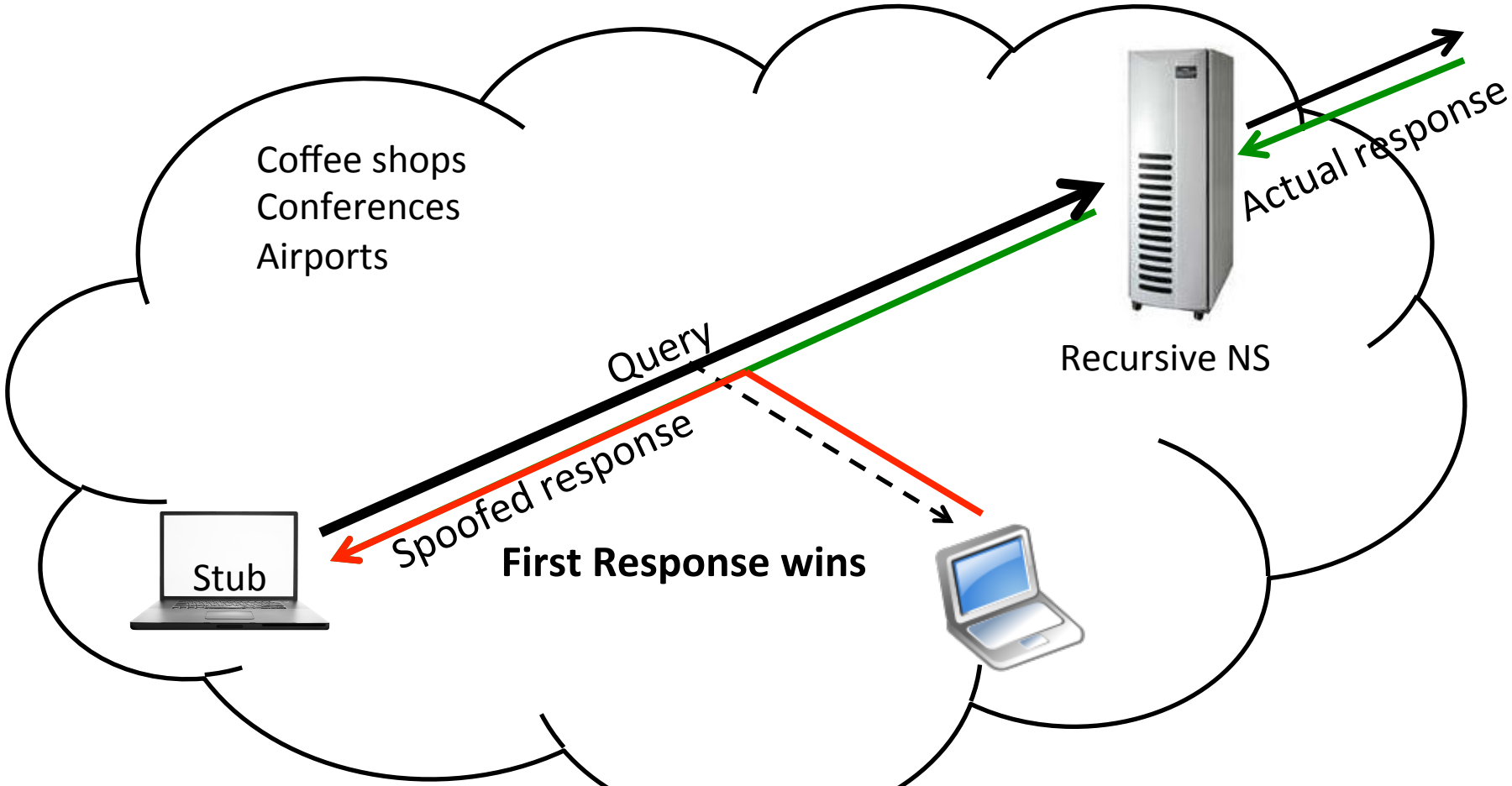
Is This “Last Mile” Okay?

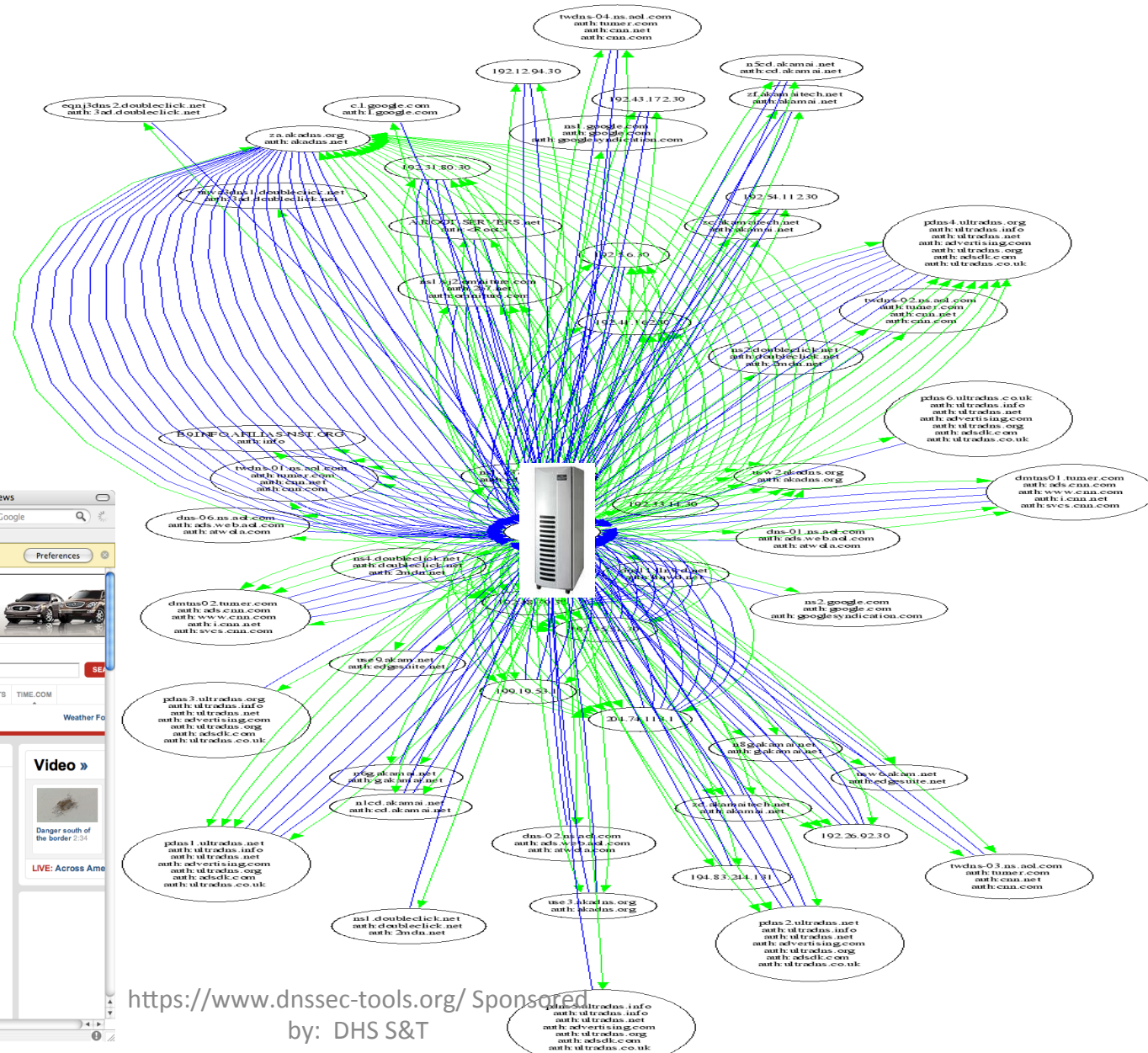
(Perhaps)



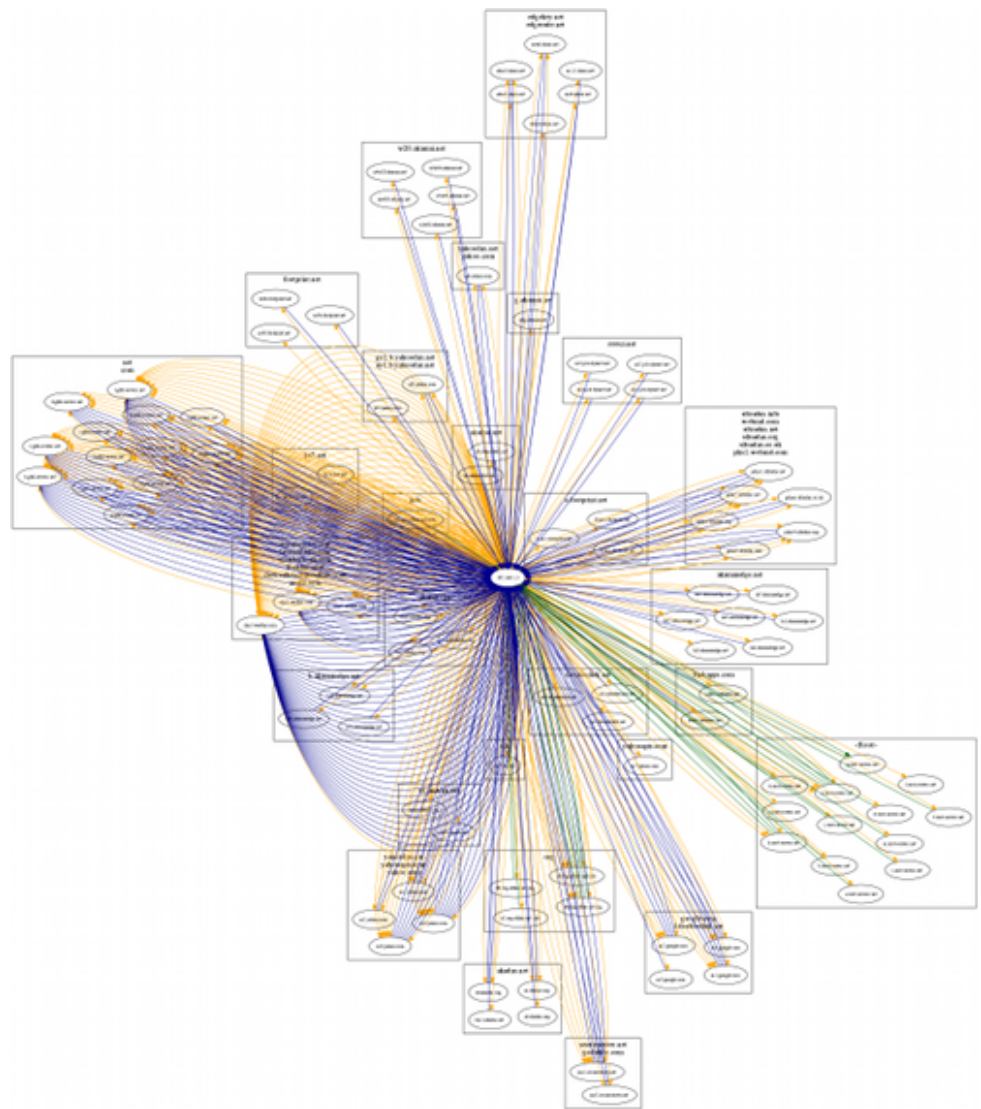
Is This “Last Mile” Okay?

(I hope everyone said “NO!!!”)

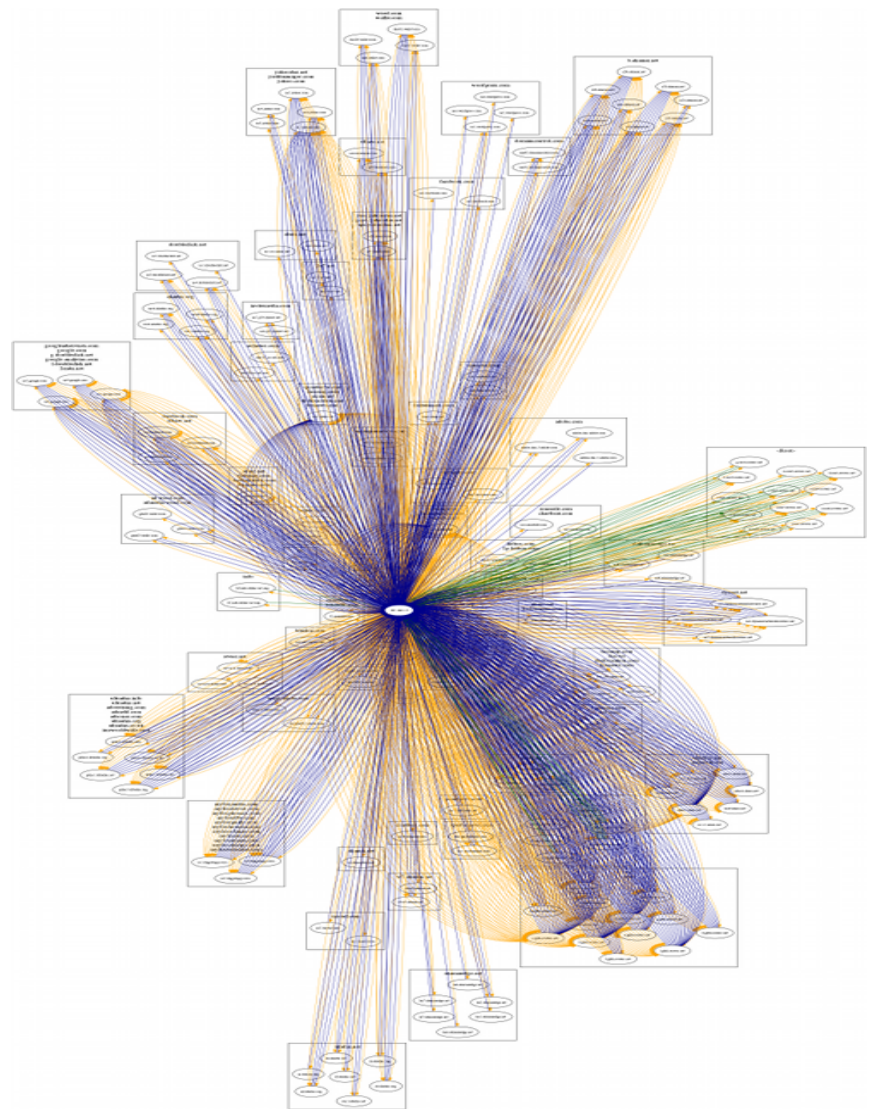




1 address = multiple DNS lookups

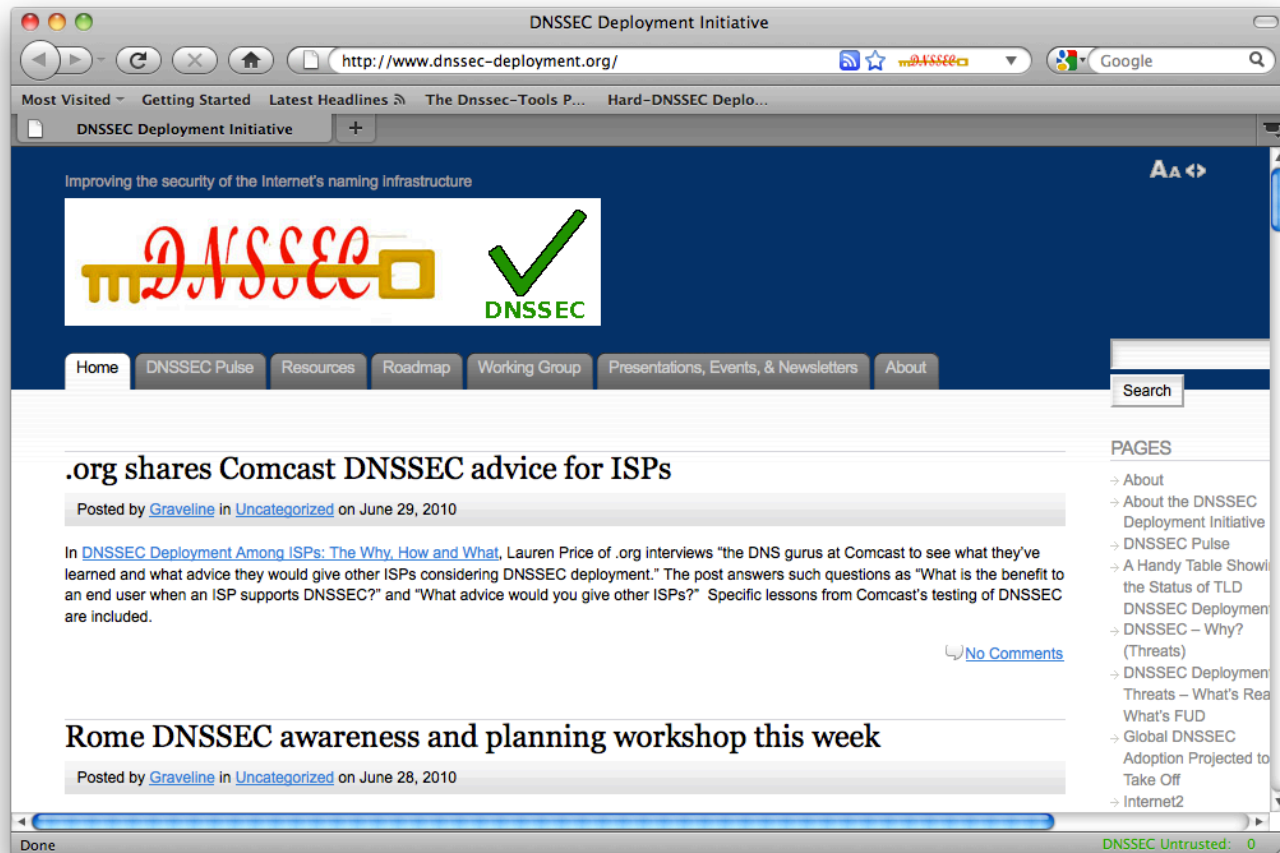


www.weather.com

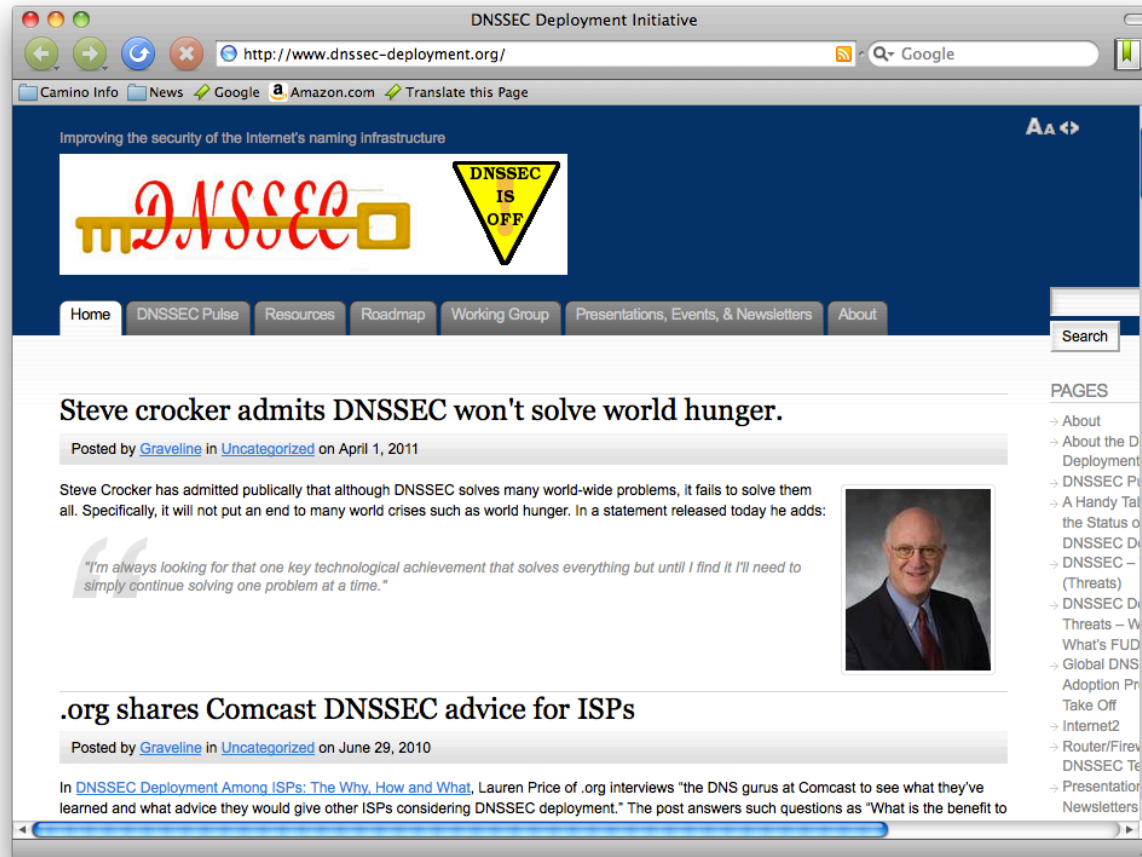


www.foxnews.com

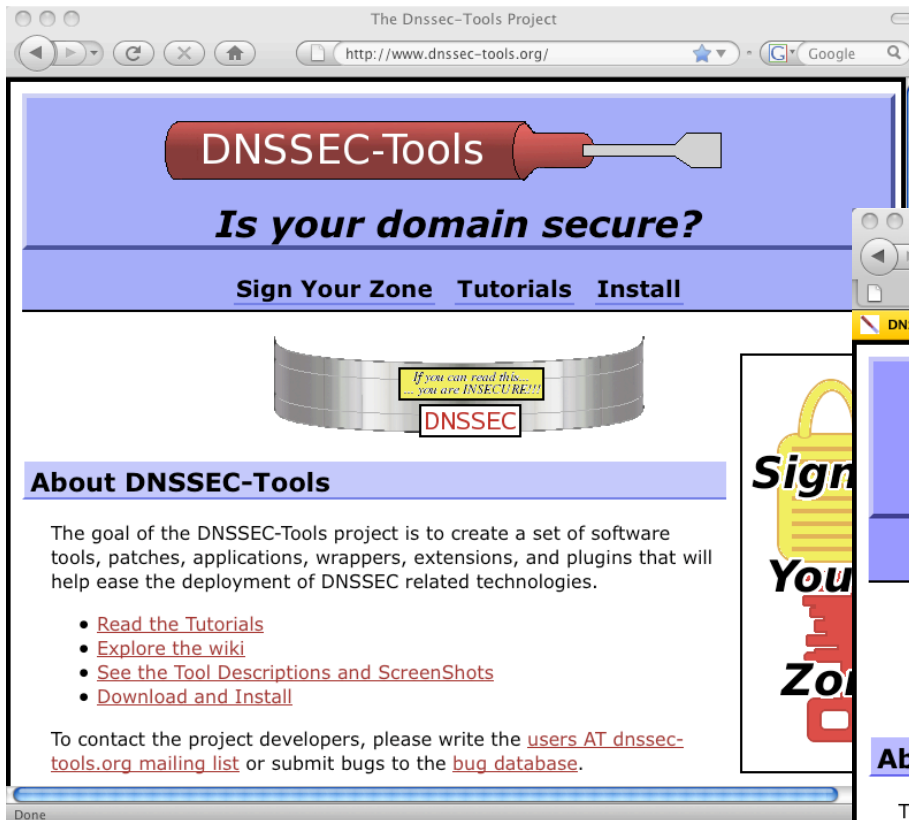
Valid Web Site Content



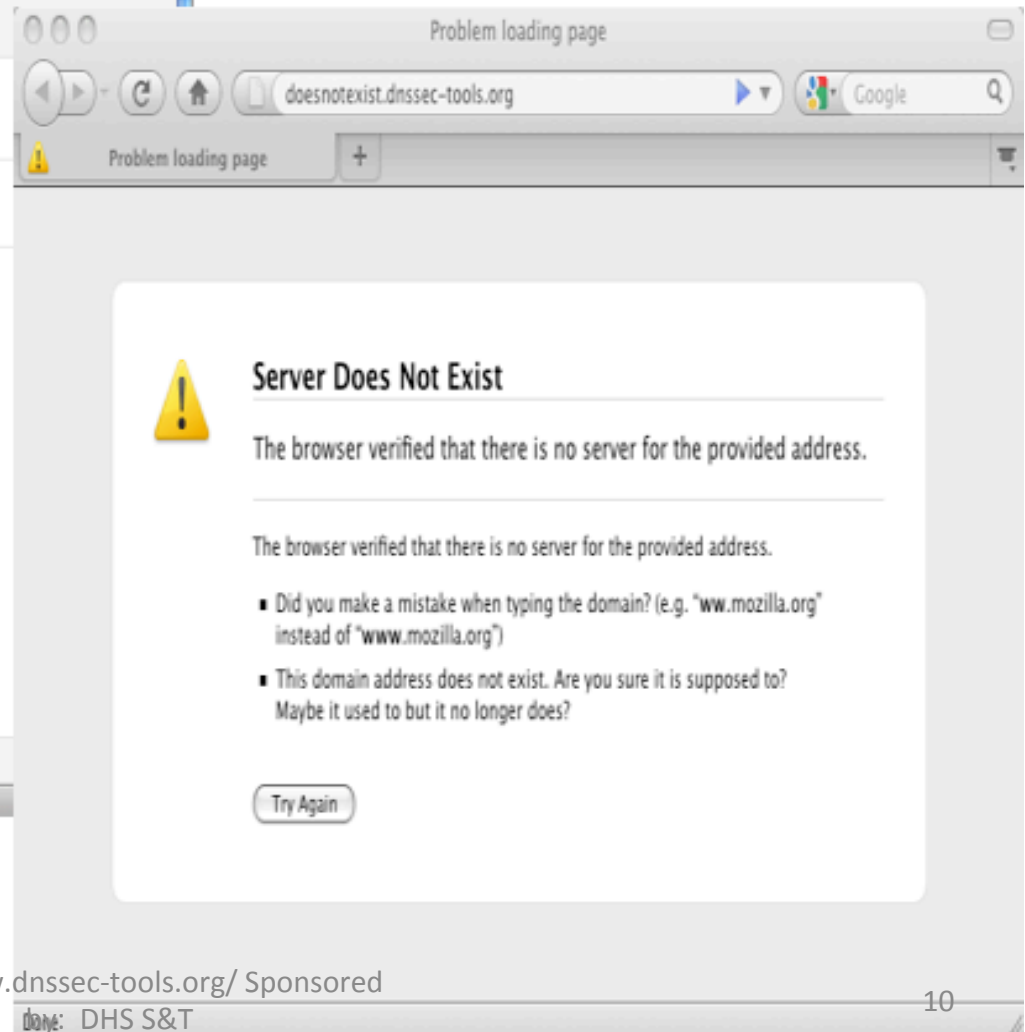
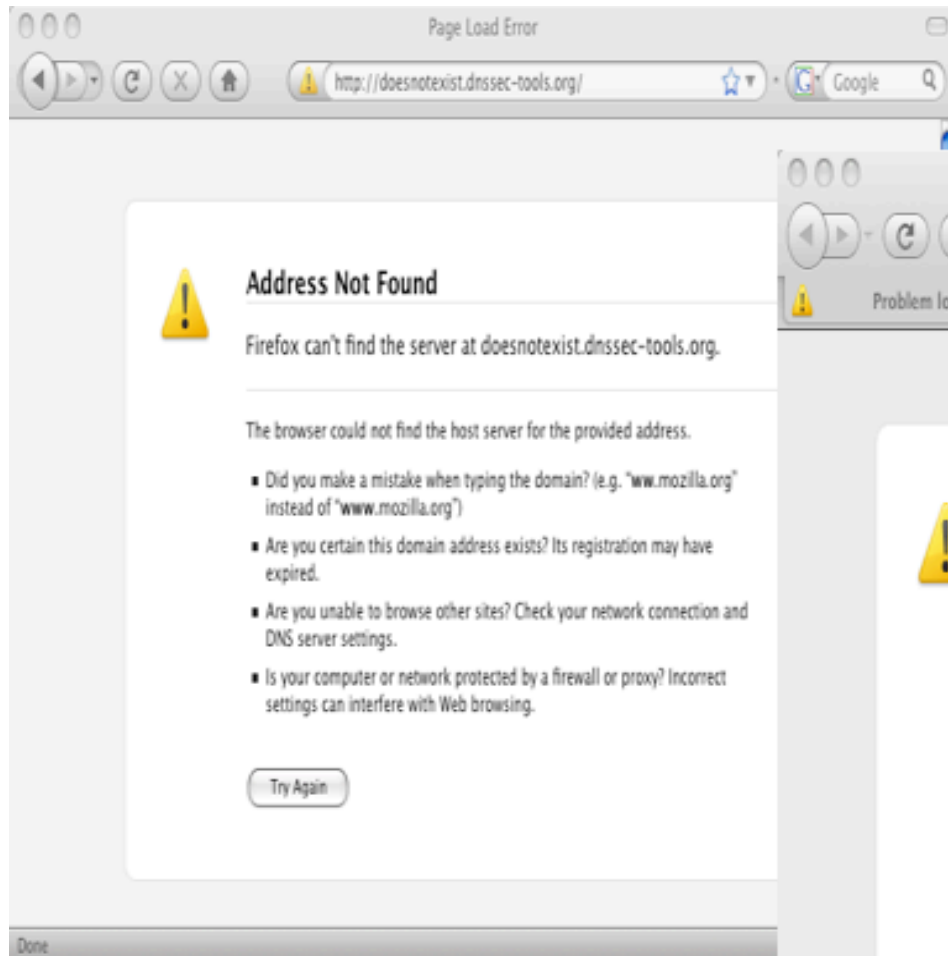
INVALID Web Site Content From DNS Based Attack



DNSSEC-enabled Firefox



The Positive Negative



The (readable) Positive Negative

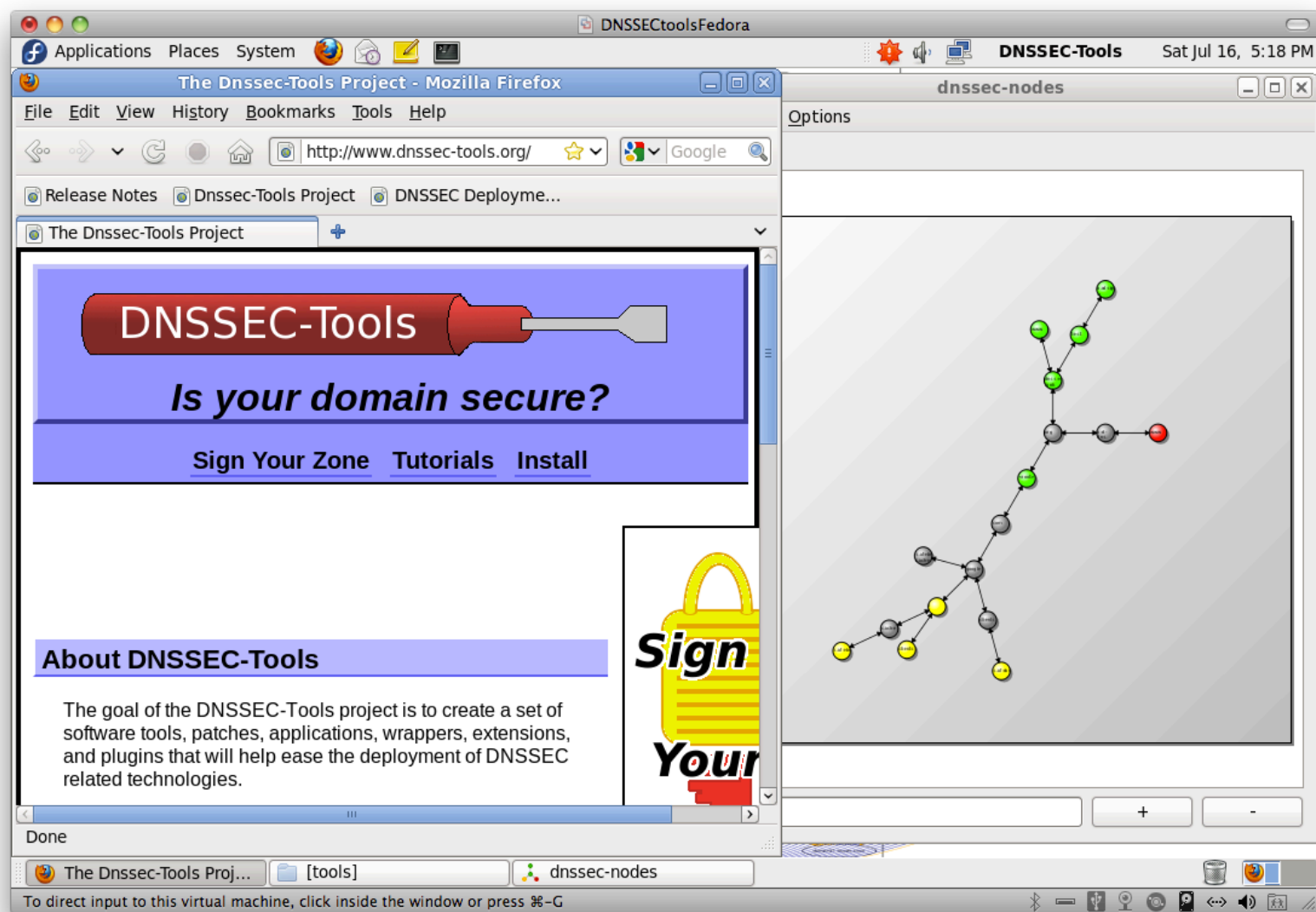
- **Unsecured**

- 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.**

“Seeing” DNSSEC Better



Help Us Measure the World!

Help

DNSSEC-Check

Is your world ready?

Version 1.12.1

Host	Grade	DNS	TCP	DO	AD	RRSIG	EDNS0	NSEC	NSEC3	DNSKEY	DS
10.0.0.1	B										
127.0.0.1	A										
8.8.8.8	C										

Click to add a new resolver address

Run Tests

Reset

Submit Results

Resolvers

Quit

All tests have completed; Click on a bubble for details

Status: idle

<http://www.dnssec-tools.org/>

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