DNSSEC: General Introduction

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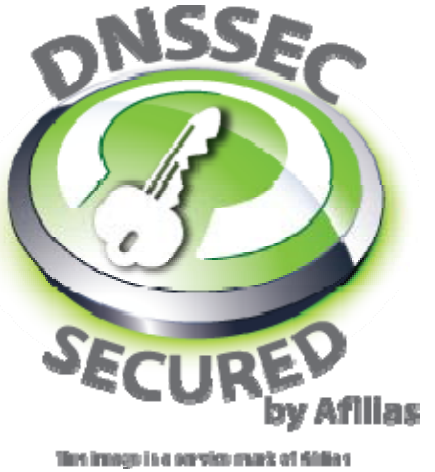
Afilias℠

Who is Afilias?

- **10 years of experience** in critical Internet infrastructure
- Best known for domain name registry services in **support of 15 million domains** across 15 TLDs
- Diverse DNS Network handling **billions of queries** daily
- Launched Managed DNS services in Feb 2009

DNSSEC capable

- Afilias signed the .ORG registry, on behalf of PIR in June 2009.
  - First large generic TLD signed
- Running DNSSEC testbed for registrars and registry customers
- Beta-testing 1-Click DNSSEC product, that would provide managed DNSSEC services for key management, distribution and rollover



Agenda

1. What problems does DNSSEC solve?
2. Industry Context
3. A DNSSEC Primer
4. Key Management Primer

1. What problems does DNSSEC solve?

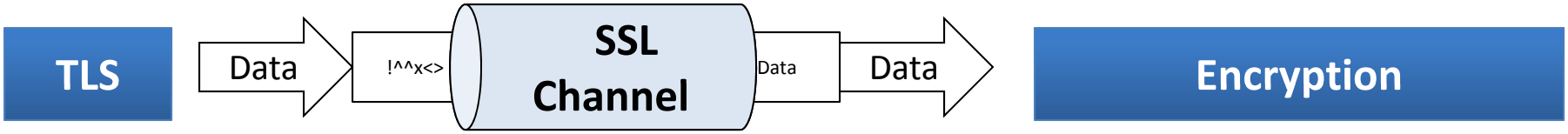
Why Do Domain Name System Security Extensions (DNSSEC) Matter?

Without DNSSEC…

When you visit a web site, or send an email,

can you be sure you are communicating with the server that you think you are?

TLS and DNSSEC benefits

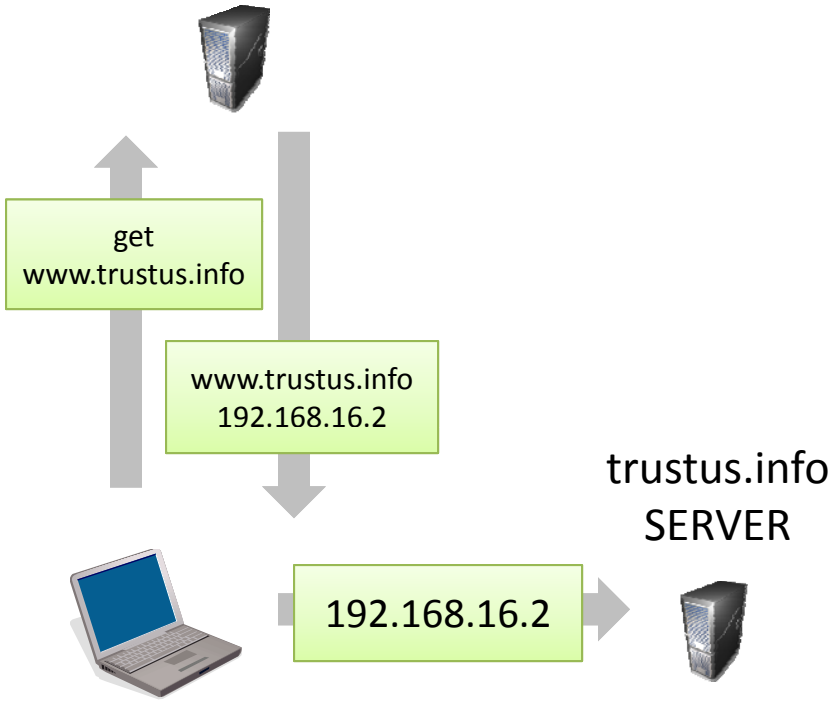


DNSSEC protects…

Users from **DNS data** tampered by
or originating from malicious actors

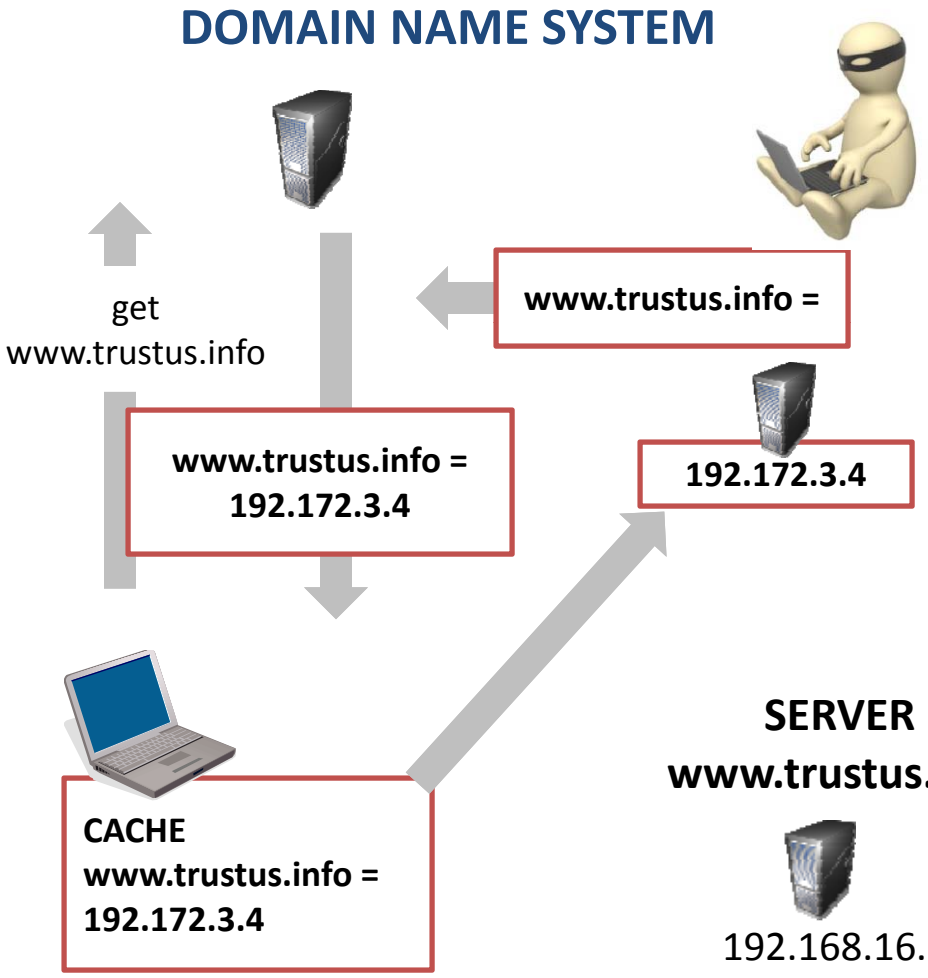
DNS resolution

DOMAIN NAME SYSTEM



1. A DNS resolver sends a DNS query and accepts the first response it receives.

Cache poisoning risk

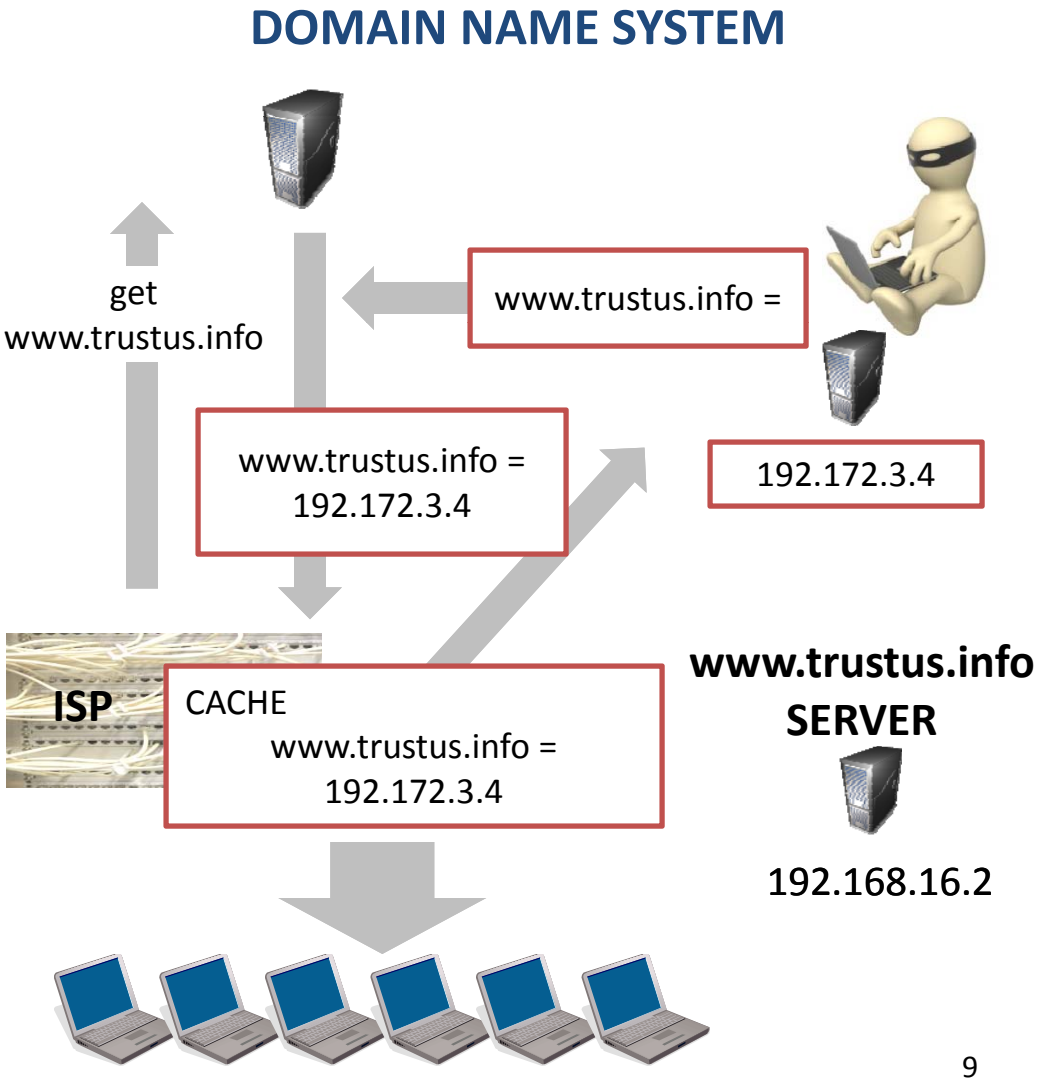


1. A DNS resolver sends a DNS query and accepts the first response it receives.
2. If a malicious system returned an incorrect response, any resolver will use until its cache expired

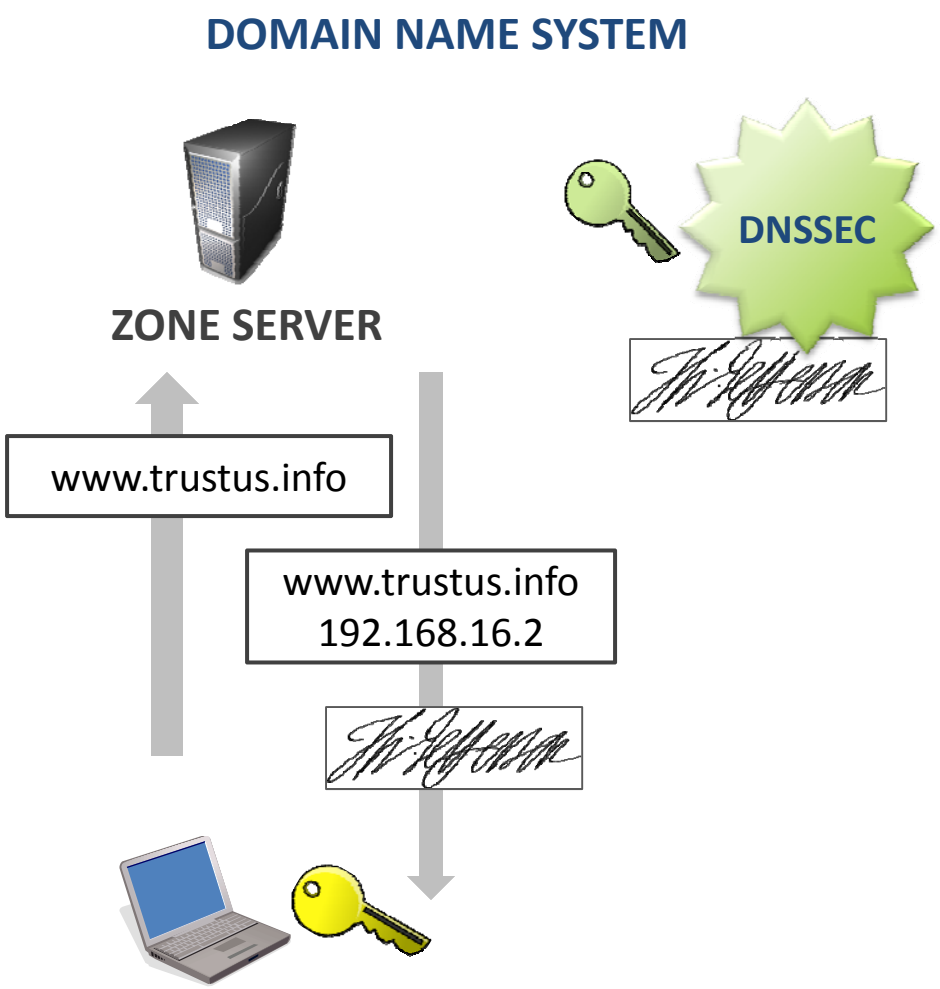
ISP risks

A broader-based attack

When a malicious agent attacks your ISP's iterative resolver it affects all users of the ISP



DNS Resolution + DNSSEC



- DNSSEC adds security to the DNS
  - Signatures
  - Keys to validate them
- Keys exist at various levels
  - Root key is the trusted authority
  - Registries and registrants have own keys to sign data
  - Resolvers retrieve keys to check signatures
- DNS data is protected
  - It does not matter what server or resolver provides the data

2. Industry Context

What are the Benefits?

What is the demand?

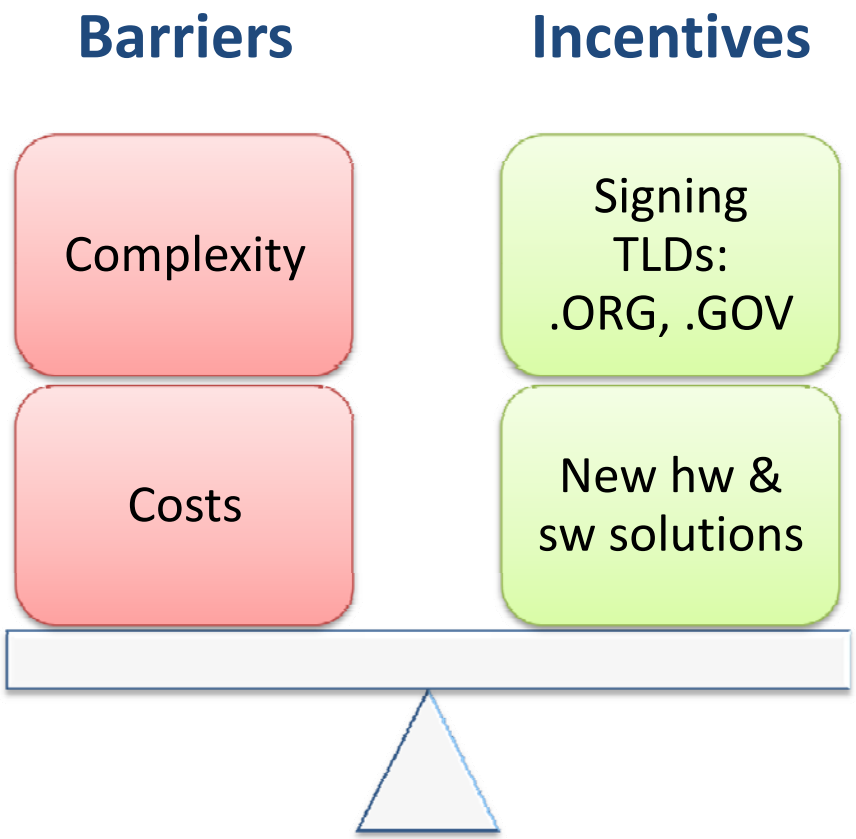
What is the Industry context?

DNSSEC benefits by role

End –User	Registrant	Registrar	Registry
Gain confidence of reaching the intended website	Fraud mitigation	Comply with new industry standards	Meet new industry standards
Backwards compatible with those not using DNSSEC but they continue to be at risk	Greater brand protection	Meet Registrant demands for increased domain security	Meet Registrar demands for increased security of their registrants' domains

The demand for DNSSEC?

- A mix of pioneers, early adopters and legislated compliance
- In the early stages for user awareness



The industry context

Recent news reports of DNS attack events ask:

“ Would DNSSEC have mitigated the attack?”