A Lightweight Looking Glass for Flexible DNS Diagnostics and Measurement

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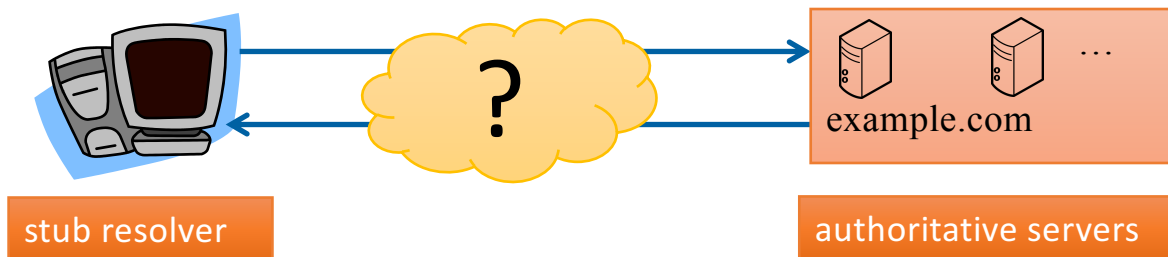
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BYU

The Problem: Diverse Paths, Middlebox Issues
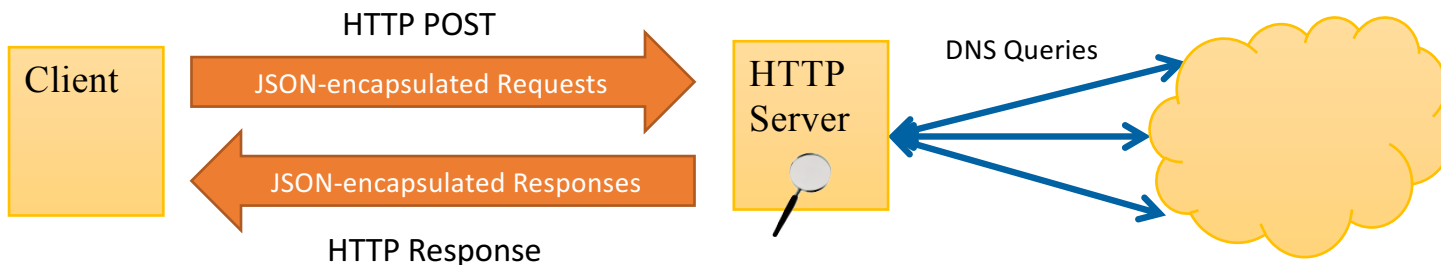

stub resolver

authoritative servers

Paths

- Recursive resolver(s), firewalls, NATs
- IPv4/IPv6 network paths / anycast

Potential Issues

- TCP/UDP connectivity, latency
- EDNS, DNSSEC, fragmentation

The Solution: DNS Looking Glass

HTTP POST

JSON-encapsulated Requests

Client

JSON-encapsulated Responses

HTTP Response

HTTP Server

DNS Queries

DNS Looking Glass Implementation

- Client/server components included with DNSViz source
  - **Source:** https://github.com/dnsviz/dnsviz
  - **Server:** `contrib/dnsviz-lg.cgi`
  - **Client:** `contrib/digviz`
- Web-based interface with looking glass
  - http://dnsviz.net/

- Looking glass **requests** include:
  - DNS query message
  - Destination IP/port
  - TCP/UDP
  - Timeout

- Looking glass **responses** include:
  - DNS response message
  - Source IP/port
  - Error information
  - Time elapsed
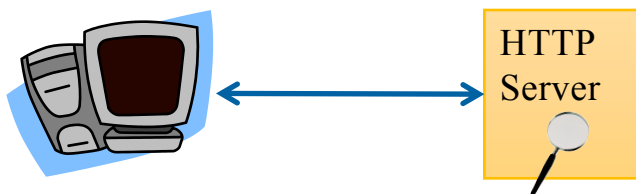
HTTP
Server

```
$ digviz +lg=http://dns-lg-example.com/dnsviz-lg.cgi @192.0.2.1
```