Deep Dive into IPv6 Extension Header Testing: Standalone Client / Server
## IETF 115

draft-elkins-v6ops-eh-deepdive-cs

N. Elkins, M. Ackermann, D. Dhody

Topologies

- Client – Internet – Server

- Client – Internet – CDN Cache Server – CDN network – Origin Server
  - (Internal to CDN may have multiple more complex topologies)

- Client – Internet – Edge of Cloud Provider – Origin server hosted by cloud provider

Simplest: Client – Internet -- Server

Client   Internet   Server
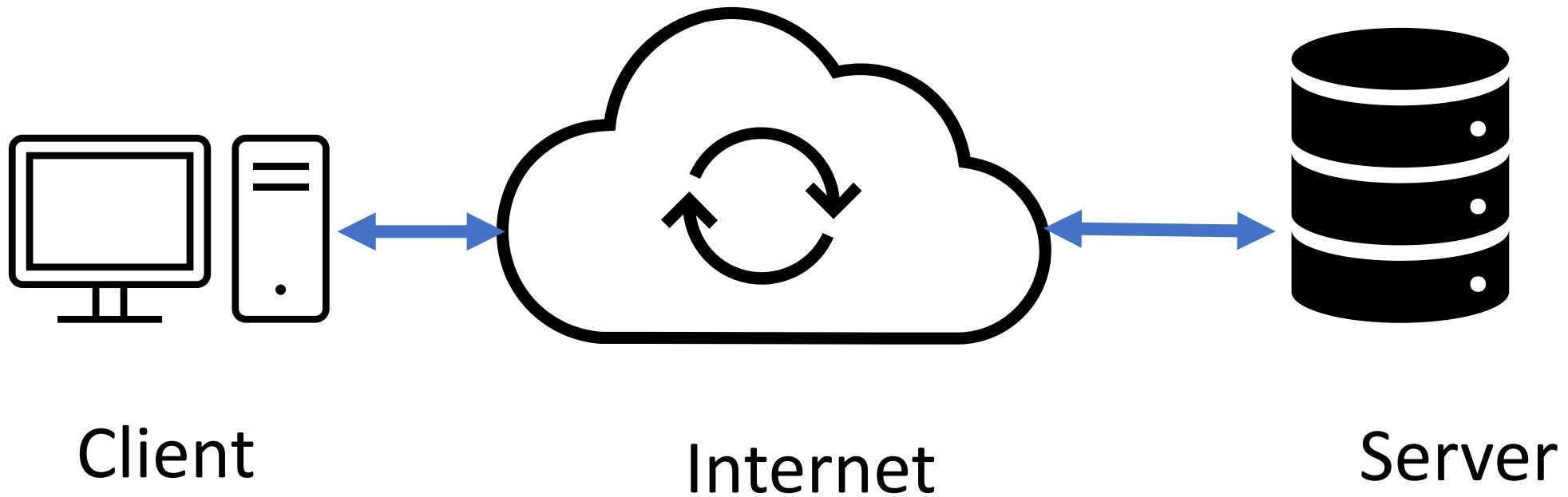
Initial Setup (From FW draft)

- How to EH enable server / client / router
- How to send EH
  - Send EHs with application data
  - Crafting packets with EH headers
  - How to add EH
  - Which EH to use
- Rate of sending and sampling

. Diagnostic Methodology

The following methodology assumes that the operator has:

- a test server enabled to send EH with every packet
- an IPv6 enabled web server (Apache / NGINX / Tomcat, et al)
- a packet trace capture tool such as TCPDump, WireShark, etc.

Initial Test: CURL to IP Address of Server without EH

1. Bring up the web server on the server. Configure it to NOT send EHs

2. Start a TCPDump / Wireshark packet trace on the server

3. Start a TCPDump / Wireshark packet trace on the client

4. Do an HTTP CURL from the client to the IP address of the server. You may wish to use HTTP rather than HTTPS to avoid problems with TLS or certificate issues. You may also wish to use the explicit IP address rather than a domain name to eliminate the complexity associated with DNS.

Next Test: CURL to IP Address of Server with EH

1. Enable EH on the server hosting the web server

2. Start a TCPDump / Wireshark packet trace on the server

3. Start a TCPDump / Wireshark packet trace on the client

4. Do an HTTP CURL from the client to the IP address of the EH enabled test server.

Problem Diagnosis

- Are client packets not received by server?

- Are server packets not received by client?

- With or without EH?

Next Steps

- More discussion of crafted packets

- More discussion of troubleshooting if problems arise

- Refer to upcoming drafts

Comments

- Thoughts???

- Questions???