The University of New Hampshire InterOperability Laboratory

(UNH-IOL)

6MAN Working Group
IPv6 Update/Change Implementation report

Implementation Report

- IOL gathered 10 routers and 10 hosts from 10 different companies with unique implementations.
- Routers were typically Enterprise/Core Routers, Switches, and Firewalls.
  - Included a Virtual Router.
- Hosts were Operating Systems, Data Storage, and Printers.
  - Included an NTP Server.

Testing Types

- For each device, we looked at two areas Interoperability and Conformance to the standard.

- Interoperability
  - For each Major change we determined if there was Interoperability issue between devices.
  - Includes older implementations.

- Conformance
  - Looked at results from IPv6 Ready testing (ie. IOL INTACT) to determine if there are potential issues.

RFC 6437

- Does the Flow Label get forwarded by default?
- All the Routers we looked at were both Conformant and Interoperated.
  - In the past, say 10 years ago, we found other Routers just cleared the flow label that seems to no longer be the case.

Errata 4279

- IPv6 Ready Logo already requires this errata.

- The Errata was due to a vendor not agreeing with the test case as written. (IPv6 Ready brought this issue to 6MAN).

- All implementations were both Conformant and Interoperate.

PMTU < 1280

- The text for what to do in the case of receiving an MTU less then 1280 was removed.

- No Conformance issue since there is no text.

- Every implementation we looked at drops the link MTU to 1280.
  - The Packet the test sends is 1280 so they all include a fragment header.

Hop-by-Hop SHOULD

- 2460bis changed Hop-by-Hop from a MUST to SHOULD

- IPv6 Ready Logo requires support for HOP-by-Hop.

- All implementations support Hop-by-Hop therefore are Conformant and Interop.

Overlapping Fragments

- Checks overlapping fragments and drops them.
- There isn't any existing test for this.
- Will need to create a test for checking duplicate and overlapping fragments.
- The limited device we did test, didn't show any sign of dropping the overlapping fragments.

EUI-64 Interface IDs

- 4291-bis updates to recommend not using EUI-64.
- Devices that base the Interface ID on the eui-64.
    - Router's doesn't apply since it's manually configured.
- 2 Operating Systems support private address by default.
- 8 Other Host always used the EUI-64.

1981-bis Updates

- 1981bis updates
- Removed the less then 1280 note, so the issue described above in 2460bis applies here also.