IETF 104 – Prague
6man Working Group

draft-ali-6man-spring-srv6-oam-00.txt
SRv6 OAM

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History of the Draft

- draft-ali-6man-srv6-oam-00 was published in July 2017.
  - Main draft describing use-cases including classic ping and traceroute in SRv6 networks.
- draft-ali-6man-srv6-oam-01 was published in October 2017.
  - Revision with editorial changes.
- draft-ali-spring-srv6-oam-00.txt was published in Feb 2018.
  - Added SRv6 ping and traceroute.
  - Added SRv6 segment-by-segment ping and overlay traceroute.
  - Presented in IETF101 (London, March 2018).
- draft-ali-spring-srv6-oam-01.txt was published in July 2018.
  - Moved O-bit from SRH draft to this draft.
  - Presented in 6man at IETF102.
- draft-ali-spring-srv6-oam-02.txt was published in October 2018.
  - Presented at IETF103 (6man and Spring).
- draft-ali-6man-spring-srv6-oam-00.txt
  - Added IOAM Support.

Deployment Status

- Deployed in a nation-wide network at Softbank.
- Deployed in a multi-city network at China Telecom.
- Additional deployments are in preparation.

Implementation and Interoperability Status

- Supported by at least 10 platforms with shipping implementation:
  - Cisco ASR 9000 running IOS XR shipping code
  - Cisco NCS 5500 running IOS XR shipping code
  - Cisco NCS 540 running IOS XR shipping code
  - Cisco ASR 1000 running IOS XE engineering code
  - Huawei ATN with VRPV8 shipping code
  - Huawei CX600 with VRPV8 shipping code
  - Huawei NE40E with VRPV8 shipping code
  - Huawei ME60 with VRPV8 shipping code
  - Huawei NE5000E with VRPV8 shipping code
  - Huawei NE9000 with VRPV8 shipping code
  - Huawei NG-OLT MA5800 with VRPV8 shipping code
- Results for Multi-vendor Interoperability Testing will be showcased at MPLS World congress in April 2019.

Draft Summary

- The document describes how existing ICMP mechanisms can be used in SRv6 Network.
- The document defines SRH.Flags.O-bit
  - The O-bit is used to implement “timestamp, punt and forward” behavior.
  - SRH.Flags.O-bit was originally defined in SRH draft.
- The document defines two OAM SIDs for programmable OAM:
  - END.OP (OAM Endpoint with Punt)
  - END.OTP (OAM Endpoint with Timestamp and Punt)
- The document describes procedure for In-situ OAM (IOAM) in SRv6 network.

Use Cases (I-D illustrations)

- Ping
  - End-to-end
  - Segment-by-segment
- Traceroute
  - Hop-by-hop
  - Segment-by-Segment (Overlay Traceroute)
- SRv6 IOAM
- SRv6 Paths Monitoring
  - Applicability of RFC8403 to SRv6 Networks

OAM Data Piggybacked in Data traffic (SRv6 IOAM)

- IOAM data is encapsulated using encoding defined in [I-D.ietf-ippm-ioam-data].
- IOAM data is carried in SRH TLV.
- If IOAM data is in the SRH, only segment capable of adding IOAM data needs to modify the TLV and write the IOAM data.

Next Steps

- Draft has been deployed in multiple production networks.
- Multiple interoperable implementations exist.
- The authors like to request 6man WG for adoption of this work.