IETF 102 – Montreal
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Spring Working Group

draft-ali-spring-srv6-oam-01.txt
SRv6 OAM

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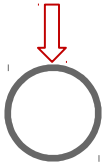
Reference Topology

SRv6 Capable

classic IPv6 Node

classic IPv4 Node



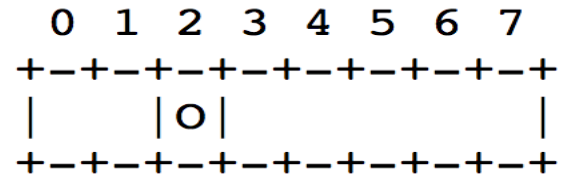
Message Processing Node

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 flag from draft-ietf-6man-segment-routing-header-14
  - Moved OAM SIDs from draft-filsfils-srv6-network-programming-05

OAM Building Blocks

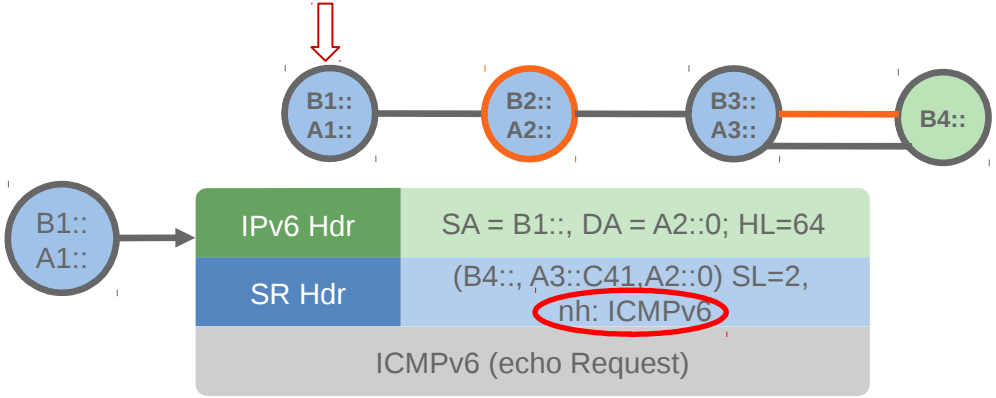
- OAM SIDs
  - END.OP
    - > OAM Endpoint with Punt.
  - END.OTP
    - > OAM Endpoint with Timestamp and Punt.
- SRH.Flags.O-flag
  - O-flag processing
    - > Punt a timestamped copy of the packet and forward
    - > Forward and punt a timestamped copy of the packet



Use Cases (I-D illustrations)

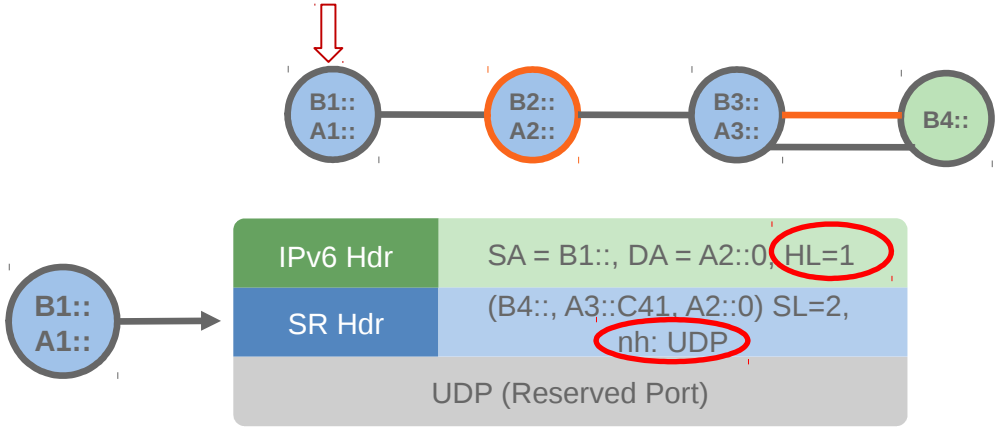
- Classic Ping
- Classic Traceroute
- Use of the existing ICMP mechanisms.
  - ICMPv6 related processing remains unchanged.
  - Works seamlessly with the classic IPv6 nodes.
  - Adds a new ICMPv6 message type for SRv6 OAM.

ICMPv6 Ping Via a SID list



- The originator node constructs an SRH using the segment list specified by the user and adds it to IPv6 packet.
- All other ICMPv6 related processing remains unchanged.
- No changes are required at the transit node.
- No changes are required at the destination node.

Traceroute
Via a SID list

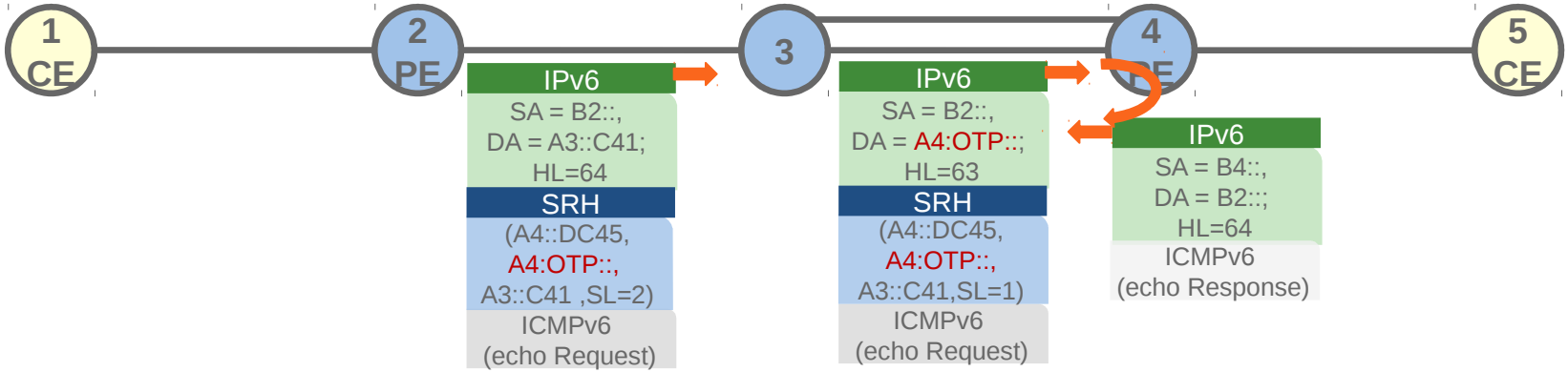


- The originator node constructs an SRH using the segment list specified by the user and adds it to traceroute probe packet.
- All other IPv6 traceroute related processing remains unchanged.
- No changes are required at the transit node.
- No changes are required at the destination node.

Use Cases (I-D illustrations – cont'ed)

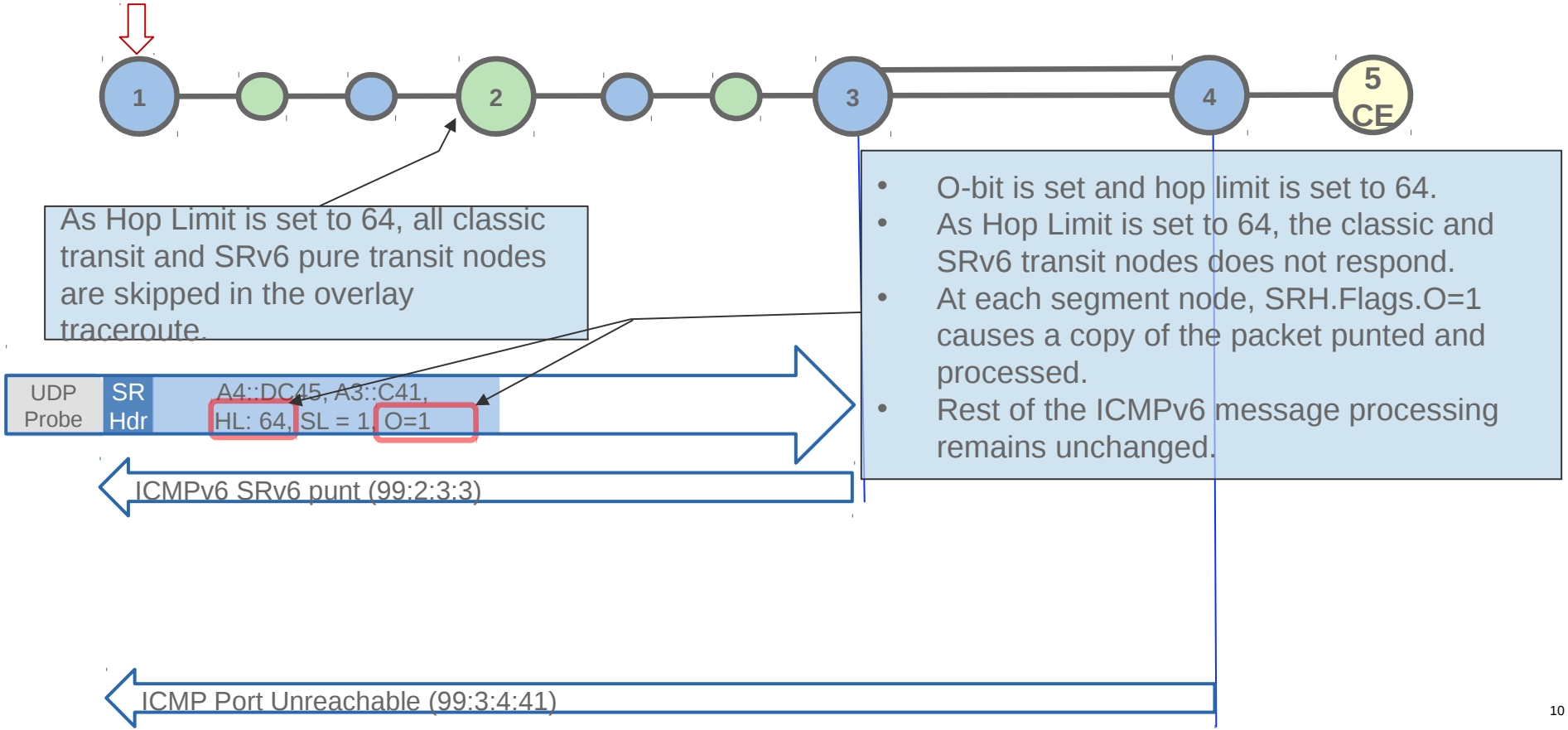
- SRv6 Ping
  - End-to-end
  - Segment-by-segment
- SRv6 Traceroute
  - Hop-by-hop
  - Segment-by-Segment (Overlay Traceroute)
- SRv6 Paths Monitoring
  - Applicability of draft-ietf-spring-oam-usecase-10 to SRv6 Networks
- In-situ OAM
  - Applicability of ietf-ippm-ioam-data to SRv6 Networks

Pinging a SID Function



- An:OTP:: SID is instructed in front of the target SID where punt behavior needs to be programmed. E.g., A4::C45 in this example.

SRv6 Overlay Traceroute



Next Steps

- The draft has been stable for quite sometime.
- The authors request WG adoption.