Encapsulation of BFD for SRv6 Policy

draft-liu-bfd-srv6-policy-encap-01

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Monitoring SRv6 Policy

- BFD session associated with segment list
  - BFD session down $\rightarrow$ segment list fail $\rightarrow$ stop forwarding packet with this segment list
  - All segment list fail of active Candidate Path $\rightarrow$ switchover to backup Candidate Path
  - All Candidate Path fail $\rightarrow$ SRv6 Policy fail

Choice of Address

- **S-BFD**
  - **Headend Address:** IPv6 Address of headend
  - **Tailend Address:** endpoint of SRv6 Policy or specified by local configuration or network controller (when the endpoint of SRv6 Policy is the unspecified address)

- **U-BFD** (for echo packet's U-turn on the reflector)
  - **Headend Address:** IPv6 address of headend (routable or non-routable)
  - **Tailend Address:** routable IPv6 address of headend

![Diagram showing SRv6 Policy with BFD sessions and segment lists](image-url)
Encapsulation of BFD packet

BFD packet needs to carry a Segment Routing Header (SRH), which contain a list of SRv6 SID associated with the BFD session.

There are two encapsulation mode:

- **transport mode**
  - the SRH is inserted after the IPv6 header

- **tunnel mode**
  - an outer IPv6 header with an SRH is encapsulated, which looks like an BFD packet for plain IPv6 is steered into an SRv6 Policy.
S-BFD (Control Packet) Encapsulation

**transport mode**
- Encapsulate one IPv6 header and SRH.
- Segment List[0] should be the SRv6 SID or IPv6 address of the tail-end node.

**tunnel mode**
- Encapsulate inner IPv6 header and Outer SRv6 Encapsulation
- Segment List[0] should be the SRv6 SID or IPv6 address of the tail-end node.

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**Transport mode**
- End.x segment of penultimate hop.
- Binding SID

**Tunnel mode**
- End.x segment of penultimate hop without USD flavor
- Binding SID

In such cases:
- Segment List[0] = IPv6 address or SID of the tail-end node
- Segment List[1] = the last segment of the SRv6 Policy Segment-List
For Tunnel mode:

If the Last segment of SRv6 Policy segment list is:
- End.x segment of penultimate hop without USD flavor
- Binding SID

In this Case

segment list[0] = IPv6 address or SID of the tail-end node
segment list[1] = the last segment of the SRv6 Policy Segment-List

Transport mode:
- Encapsulate one IPv6 header and SRH.
- Segment List[0] should be SRv6 SID or IPv6 address of the Headend

Tunnel mode:
- Encapsulate inner IPv6 header and Outer SRv6 Encapsulation
- The DA of the inner payload is the address of the headend node
- Segment List[0] should be the SRv6 SID or IPv6 address of the tail-end node.
Next Steps

• Questions or comments are welcomed
• Seeking for feedback