

BFD in Segment Routing Networks Using MPLS Dataplane

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What BFD Monitors in SR-MPLS?

- RFC 5880 defines the scope of monitoring using BFD as follows:
a protocol intended to detect faults in the bidirectional path between two forwarding engines, including interfaces, data link(s), and to the extent possible the forwarding engines themselves.
- SR Policy, according to RFC 8402, is composed of:
an ordered list of instructions called "segments".
A segment can represent any instruction, topological or service based.
- The topological component of an SR Policy is a Candidate path, defined in RFC 9256.
- BFD-based mechanism monitors a candidate path of the particular SR Policy, rather than that SR Policy.

S-BFD Applicability in SR-MPLS

- S-BFD could be used to monitor candidate paths of a p2p SR Policy.
- S-BFD Initiator uses My Discriminator advertised by S-BFD Reflector as Your Discriminator in the BFD Control message.
- It could be beneficial to monitor each candidate's path in the given SR Policy. If so, the S-BFD Reflector returns BFD Control messages as IP/UDP encapsulated packets. All these packets likely traverse the same set of links and nodes.
- To minimize the probability of detecting defects in the IP network rather than the monitored candidate path, the BFD detection interval should be larger than the expected convergence in the IP network.

Next steps

- Your comments, suggestions, questions always welcome and greatly appreciated
- The authors think this work is complete
- It is time for WGLC

Thank you!