BFD in Segment Routing Networks Using MPLS Dataplane

draft-mirsky-spring-bfd-mpls-demand-00

Greg Mirsky
Jeff Tantsura
Mach Chen
Ilya Varlashkin

IETF-99  July 2017, Prague
Problem statement

- RFC 5884 has defined use of BFD Asynchronous mode over MPLS LSP
- Ingress LER A periodically transmits BFD control messages over MPLS LSP
- Egress LER B periodically transmits BFD control messages over IP network
- Failure in the reverse path of the BFD session may be interpreted as LSP failure
Control BFD Reverse path

- New optional BFD Reverse Path TLV
- Used with BFD Discriminator TLV
- Instructs egress BFD to transmit BFD control packets over the specified MPLS LSP
- Re-use sub-TLVs defined in draft-ietf-mpls-spring-lsp-ping
- BFD Reverse Path TLV may contain none, one or more sub-TLVs
- If none sub-TLV has been found in the BFD Reverse Path TLV, then the egress BFD MUST transmit BFD control packets over IP network
New Segment Routing Static MPLS Tunnel sub-TLV

- Ordered list of Label Stack Elements with the top of the stack label as Label Entry 1 and the bottom of the stack label – Label Entry N
- BFD Reverse TLV MAY include zero or one SR Static MPLS Tunnel sub-TLV
- If no sub-TLVs present in the BFD Reverse Path TLV – the egress MUST switch the reverse BFD session to be transmitted over IP network
- If more then one SR Static MPLS Tunnel sub-TLVs present in the BFD Reverse Path TLV, the remote peer MUST send MPLS LSP Echo Reply with Return Code value set to “Too Many TLVs Detected” (new code)

<table>
<thead>
<tr>
<th>SegRouting MPLS sub-TLV Type</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Label Entry 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Label Entry N</td>
<td></td>
</tr>
</tbody>
</table>
Next steps

• Your comments, suggestions, questions always welcome and greatly appreciated
• Which WG to anchor – MPLS or SPRING?