RSVP-TE Extensions for Associated Co-routed Bidirectional Label Switched Paths (LSPs)

draft-gandhishah-teas-assoc-corouted-bidir-01

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Outline

• Requirements
• Problem Statement
• Signaling Procedure
• Next Steps
Requirements

• This draft addresses following packet transport network requirements:
  
  - Co-routed Bidirectional LSP, where reverse LSP follows the same path as its forward LSP
  
  - Take advantage of the existing TE mechanisms deployed in the network
  
  - Without having to migrate to GMPLS signaling in the network
Problem Statement

1. Associate two reverse co-routed unidirectional LSPs *unambiguously* to form a co-routed bidirectional LSP

2. Ensure reverse LSP traverses the same path as its forward LSP

3. Fast Reroute mechanisms to ensure traffic flows on a co-routed path after a failure on the LSP
1. Associate two reverse co-routed LSPs using following mechanisms:

- Single-sided provisioning, as defined in RFC7551
  - Remote side triggers the reverse LSP using the Path message received in the forward LSP

- Use of EXTENDED ASSOCIATION Object to associate two LSPs unambiguously at mid-points:
  - Extended Association ID carries originating (forward) LSP source address and source-port (LSP-ID) for unique identification.

    As EXTENDED_ASSOCIATION Object is copied in the reverse LSP, it has a pointer to the originating LSP.

- COROUTED-LSP flag to indicate LSPs are co-routed.
2. Ensure reverse LSP traverses the same path as its forward LSP

- Originating LSP carries an EXPLICIT_ROUTE Object (ERO) for the co-routed reverse LSP in the REVERSE_LSP Object

- When using loose next-hop(s), originating LSP carries RECORD_ROUTE Object (RRO) to record its path, which is then used by the reverse LSP to ensure it is co-routed
3. Fast reroute using mechanisms defined in draft-ietf-teas-gmpls-lsp-fastreroute:

- BYPASS_ASSIGNMENT subobject in RRO is used to coordinate bypass tunnel assignment between forward and reverse direction Point of Local Repair (PLR) nodes.

- After a failure, both sides independently follow the fast reroute procedures defined in RFC4090.

- Re-corouting procedure is used to ensure traffic follows co-routed path after the failure.

- COROUTED-LSP flag is used by the PLR to assign co-routed bypass.
Next Steps

• Small extensions for RFC7551 and draft-ietf-teas-gmpls-lsp-fastreroute
• Welcome review comments and suggestions
• Like to request WG adoption
Thank You.