

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

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

**Rakesh Gandhi, Cisco Systems (rgandhi@cisco.com) -
Presenter**

Himanshu Shah, Ciena (hshah@ciena.com)

Jeremy Whittaker, Verizon (jeremy.whittaker@verizon.com)

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**

Signaling Procedure - I

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.**

Signaling Procedure - II

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

Signaling Procedure - III

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.