The PCEP extensions for SR-TP networks
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draft-xiong-pce-pcep-extension-sr-tp

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Overview

• [I-D.hu-spring-sr-tp-use-case] describes the use case of SR tunnel to be deployed in MPLS Transport Profile (SR-TP) networks.

• Define a general mechanism to create the bi-directional SR tunnel in SR-TP networks with PCE.

• Propose a set of extensions to PCEP for SR-TP networks.
The SR-TP Scenario with PCE

- The PCE may calculate the end-to-end SR paths, assign the ordered segment list and initiate a SR path on a PCC (SR node).
Co-Routed Bi-directional SR-TP LSP

- The PCE assigns a global unique SID for each SR node and a path label to bind the forward and reverse directional path.
- The PCE creates a Co-Routed Bi-directional SR-TP LSP from PCE-Initial message on Ingress and Egress SR nodes (PCC) respectively.
The forward and reverse directional LSPs transit through different paths and initiated by PCC or PCE.

The two directional SR-TP LSPs may be associated by Association Object as defined in [I-D.barth-pce-association-bidir].
Bi-directional LSP Extension

- The B flags of SRP object (section 4.3.3 of draft-ietf-pce-pcep-stateful-pce-gmpls-08) is defined to indicate a bi-directional LSP operation initiated by the PCE.

```
+---------------------------------+   +-----------------------------+
| Flags                           |   | SRP-ID-number                |
+---------------------------------+   +-----------------------------+
| Optional TLVs                   |   |                             |
+---------------------------------+   +-----------------------------+
```

SRP Object format
SR-TP ERO Extension

- This document proposes the extension of the SR-ERO Subobject to carry the bi-directional tunnel information as defined in [I-D.cheng-spring-mpls-path-segment].

  |L| Type | Length | ST | Flags | R | F | S | C | M |
  +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
  |                              SID                              |
  +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
  //            Path Label information (variable)                //

The extension of SR-ERO Format

  | Path Label               | TC | S | TTL |
  +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+

Path Label information Format

- **ST** (SID Type -- 4 bit): indicates the type of information associated with the Path Label contained in the object body.
- **R** (Reverse Flag -- 1 bit): indicates the SR path direction.
Next Step

- Further research directions:
  - More extensions for Bi-directional SR-TP LSP
  - Extensions for other use cases in SR-TP

- Comments and discussion
Thanks!