Circuit-style Segment Routing Policies

https://datatracker.ietf.org/doc/html/draft-schmutzer-spring-cs-sr-policy

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IETF114, SPRING WG

Motivation

- Allow a single network to carry both
  - L2/IP/VPN connection-less services
  - Connection-oriented p2p transport services (aka private lines)
- Address the following requirements
  - Persistent traffic engineered paths
  - Strict bandwidth commitment
  - End2end path protection (incl. <50msec) and restoration
 - Path OAM

Circuit-style SR Policy Characteristics

- Bandwidth requested and reserved
- Bi-directional, co-routed paths by associating the SR policy from A to Z and Z to A
- Segment lists have strict hops of unprotected adj-SIDs
- No path reoptimization unless manually requested
- Multiple candidate paths for path protection and restoration
- STAMP loopback mode liveness and performance measurement

PCE

SR policy AZ

A

Z
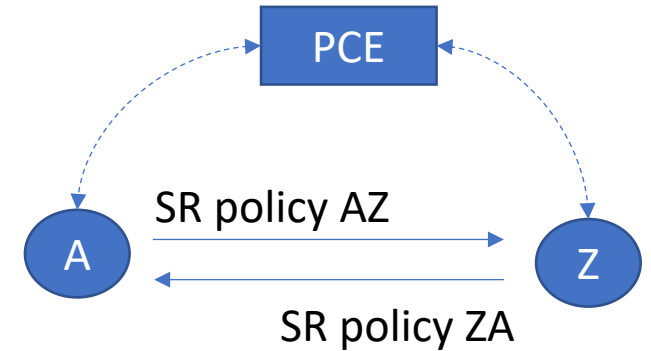
SR policy ZA

Circuit-style SR Policy Creation

- Network Topology
  - Unprotected adj-SIDs allocated persistently
    - IGP and BGP-LS extensions for topology info distribution
  - Bandwidth available for CS-SR per link
  - PHB guaranteeing the provisioned bandwidth is available
- PCC delegates SR policy candidate path computation to PCE
  - BANDWIDTH object (operational & requested bandwidth)
  - LSPA object (enforce no local protection via L=0 E=1)
  - Bidirectional association (co-routing via C=1) [1]
  - SR policy association in case of multiple candidate paths [2]
  - Disjointness association for 1:1 protection [3]
  - Request strict hops and no-reoptimization [4]

PCE

SR policy AZ

A   Z

SR policy ZA
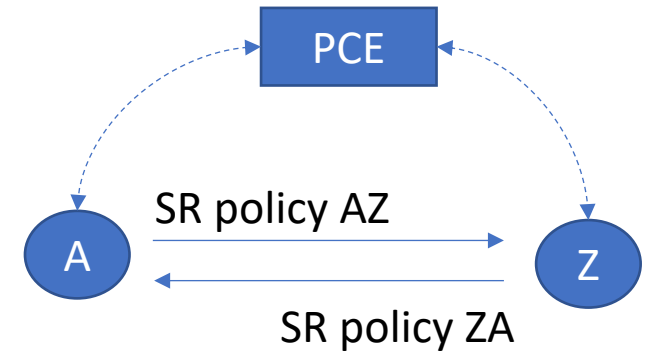
1) draft-ietf-pce-sr-bidir-path
2) draft-pce-segment-routing-policy-cp
3) RFC8800
4) draft-sidor-pce-circuit-style-pcep-extensions

4

Updates and Progress

- First draft presentation @ IETF113 in PCE WG
  - Lots of feedback and input from several people
  - Received detailed review comments
- Document improvements
  - Clarified the role of stateful PCE
  - Added section on maximum segment depth
  - Reshuffled sections to improve the document structure
- Renamed the draft to redirect from PCE to SPRING WG

Next Steps

- Further comments are welcome
- Suggesting WG adoption of the draft