PCE-initiated IP Tunnel

draft-chen-pce-pce-initiated-ip-tunnel-00

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Introduction

• This document specifies a set of extensions to PCEP to support PCE-initiated IP Tunnel to satisfy the requirement which is introduced in draft-li-spring-tunnel-segment-00.
Requirement

• draft-li-spring-tunnel-segment-00 introduces a new type of segment, Tunnel Segment, for the segment routing.
• Tunnel segment can be used to reduce SID stack depth of SR path, span the non-SR domain or provide differentiated services.
• The tunnel segment can be allocated for
  – MPLS RSVP-TE tunnel
  – SR-TE tunnel
  – IP Tunnel.
• Two ways to set up the tunnel:
  – configure tunnel on the device
  – PCE-initiated tunnel.
Overview of Procedures

- Capability advertisement
  - PCE Initiated Tunnel Capability for specific tunnel types.
- Set up, maintain and tear down PCE-initiated IP Tunnels
- Not include tunnel state synchronization, PCC local policy and timeout process, the session failure process, etc.
PCEP Messages

• Open Message
  – To negotiate the PCE Initiated Tunnel Capability for tunnel types according to PCE-INITIATE-TUNNEL-CAPABILITY TLV
PCEP Messages

• PCTunnelInitiate Message
  - To instantiate or remove a tunnel, a PCE sends a PCTunnelInitiate message to a PCC.

• PCTunnelUpd Message
  - To modify the parameters of a tunnel, a PCE sends a PCTunnelUpd message to a PCC.

• PCTunnelRpt Message
  - To report the state of a tunnel, a PCC sends a PCTunnelRpt message to a PCE.

• Message comprise:
  - SRP Object
  - TUNNEL Object
PCEP Objects

• SRP Object
  – defined in [I-D.ietf-pce-stateful-pce]
  – used to correlate PCTunnellInitiate and PCTunnelRpt or PCErr message
  – Value of 'R' Flag means instantiation or deletion
PCEP Objects

• TUNNEL Object
  – Tunnel Identifier TLV
    • contains the source address, destination address, tunnel type, tunnel ID.
  – Tunnel Name TLV
  – Tunnel Parameter TLV
    • specifies information needed to construct the encapsulation header when sending packets through that tunnel.
  – Tunnel Attribute TLV
    • specifies some of the information of the tunnel such as metric or TE metric which are carried in sub-TLVs.
Next Steps

• Solicit comments.
• Revise the draft.
• Step by step supplement and improve other process such as tunnel state synchronization, PCC local policy and timeout process, the session failure process.