PCEP Extensions for remote-initiated GMPLS LSP Setup

draft-ali-pce-remote-initiated-gmpls-lsp-00.txt

Author list:
Zafar Ali (zali@cisco.com) - Presenter
Siva Sivabalan (msiva@cisco.com)
Clarence Filsfils (cfilsfil@cisco.com)
Robert Varga (Pantheon Technologies)
Victor Lopez (vlopez@tid.es)
Oscar Gonzalez de Dios (ogondio@tid.es)
Outline

• **Scope**
• **Use cases**
• **Requirements**
• **Solution**
• **Next Steps**
### Scope

- **PCEP Extensions for PCE-initiated GMPLS LSP Setup in a Stateful PCE Model.**

- **Extends** draft-crabbe-pce-pce-initiated-lsp **for GMPLS LSPs and multilayer networks.**

- **When an active stateful PCE is used for managing remote-initiated LSP, the PCC may not be aware of the intended usage of the remote-initiated LSP.**

  - This draft also addresses the requirement to specify how PCC should use the PCEP initiated MPLS or GMPLS LSPs.
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The active PCE can dynamically create or delete L0 services between client interfaces.

New connections or reoptimization is controlled by stateful PCE(s).
Bandwidth-on-demand for multi-layer networks

- A multilayer stateful PCE(s) establishes L0 circuits based on L3 demands.
- PCE computes the L0 Paths and triggers L0 circuit creation.
- Bandwidth on demand and spare bandwidth is shared.
Higher Layer Signaling Trigger

- Similar to the previous use case but in this scenario a L3 PCE is used.
- PCE triggers L0 circuit creation but GMPLS signaling takes care of path computation and establishment of the LSP.
NMS-VNTM cooperation model

- NMS does not have information about all network information, so it consults L3 PCE.
- In case of there is no path in L3; NMS sends a message to the VNTM to create a GMPLS LSP at the lower layer.
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GMPLS Requirements for Remote-Initiated LSPs

- Support for multiple switching capabilities.
- Support for encoding type to be used by the LSP.
- Support for G-PID to be carried by the LSP.
- Technology specific Traffic Parameters.
- Support for Asymmetric Bandwidth.
- Support for unnumbered interfaces [RFC3477].
- Explicit label control.
- GMPLS protection and restoration [RFC4872], [RFC4873], etc.
Remote Initiated LSP Usage Requirement

- The target IGP instance for the Remote-initiated LSP.
- In the target IGP instance, should the PCE-initiated LSP be advertised as a forwarding adjacency and/or routing adjacency and/or to be used locally by the PCC?
- If Remote-initiated LSP is to be advertised an IPv4 FA/RA, IPv6 FA/RA, what is the local and remote IP address is to be used for the advertisement
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PCEP Extensions for Remote-Initiated GMPLS LSPs

- LSP create message defined in [I-D. draft-crabbe-pce-pce-initiated-lsp] is extended to include GMPLS specific PCEP objects.
- Minor misc. changes to support GMPLS initiated LSPs.
PCEP extension for PCE Initiated LSP Usage Specification

- [RFC6107] defines LSP_TUNNEL_INTERFACE_ID Object for communicating usage of the forwarding or routing adjacency from the ingress node to the egress node.
- This document extends the LSP Create Message to include LSP_TUNNEL_INTERFACE_ID object defined in [RFC6107].
Communicating LSP usage to Egress node

- PCE does not need to send LSP Create message to egress node to communicate LSP usage information.
- Instead PCC uses RSVP-TE signaling mechanism specified in [RFC6107] to send the LSP usage to Egress node.
Outline

• Requirements and Scope
• Problem Statement
• Solution
• Next Steps
Next Steps

• We would like to request PCE WG Charter to include this work.
Thank You.