



IETF 121 – Online
PCE Working Group

LSP State Reporting Extensions in Path Computation Element Communication Protocol (PCEP)

draft-sidor-pce-lsp-state-reporting-extensions

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Motivation

- **Enhanced LSP State Reporting**

- Introduced extensions to improve the accuracy of LSP state reporting with new LSP attributes
- Enable more efficient network operations through detailed state information, facilitating better path computation results

- **PCEP Extensions for various attributes**

- Consolidate PCEP extensions for various attributes to avoid the need for multiple drafts
- Support fallback to dynamic Binding label/SID in case of failed allocation
- Enable marking LSP as transit-eligible
- Type of path - Explicit or Dynamic

Binding Label/SID

- **Binding Label/SID Dynamic Fallback**

- Existing behavior - RFC9604:
 - Binding label allocation can be performed by either PCC or PCE
 - The role of the PCEP peer specifying the label to be allocated does not have to align with the PCEP peer performing the allocation (e.g., PCE specifies the label value, and PCC performs the allocation).
 - If such allocation fails, a PCErr MUST be sent, and the complete PCEP message will be rejected
- Fallback Mechanism specified in RFC9256
 - Describes an alternative of fallback to dynamic BSID allocation if the specified BSID is not available
- Requires reporting of two TE-PATH-BINDING TLV instances
 - Requested binding label value
 - Allocated binding label value
 - A new A-Flag is introduced to indicate that the TLV contains the allocated Binding value
- A new F-Flag is introduced in STATEFUL-PCE-CAPABILITY TLV to indicate support

- **Transit Eligible Flag**

- Introduced T flag in LSP-EXTENDED-FLAG TLV to mark LSPs as eligible for use as transit LSPs
- The Binding label of such LSPs can be used in the path of other LSPs

Explicit or Dynamic Path

- **SR Policy Candidate Path Types**

- Sections 5.1 and 5.2 of RFC9256 are describing explicit and dynamic candidate paths

- **Limitation in PCEP**

- There is currently no method to encode whether an LSP path is explicit or dynamic
- Affects LSPs across various path setup types

- **Proposed Extension**

- A new E-Flag introduced in LSP-EXTENDED-FLAG TLV
- When set, indicates that the path in the ERO is explicitly specified and not dynamically computed by the PCEP peer

- **Use Case**

- PCE-Initiated LSP with an Explicit Path
- The path is encoded in the ERO object of the PCInitiate message and sent to the PCC
- Upon delegation transfer to another PCE, the new PCE should know whether the path was explicitly specified or dynamically computed

Next steps

- Comments and discussion are welcome
- Continue working on the draft to add more details