IETF 123 – Online
PCE Working Group

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

draft-sidor-pce-lsp-state-reporting-extensions-04

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Motivation

- **More Accurate 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
  - Consolidate PCEP extensions for various attributes to avoid the need for multiple drafts
- **Key Focus Areas**
  - Differentiate between explicit and dynamic path types
  - Enable marking LSP as transit-eligible

Transit Eligibility

- **Definition**
  - Transit LSP is an LSP whose binding label/SID can be used in the path of another LSP
  - See section 8.3 of RFC9256 for steering into a transit LSP
- **T-Flag in LSP-EXTENDED-FLAG TLV**
  - Used to mark LSP as transit-eligible
- **TRANSIT-ELIGIBLE-CAPABILITY in STATEFUL-PCE-CAPABILITY TLV**
  - Indicates a PCEP peer's support for the T-Flag
  - If the capability is not advertised, the PCE implementation MAY use a local policy to determine the value of the Transit Eligible flag

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**
  - Lack of encoding mechanism to encode whether an LSP path is explicit or dynamic
  - Affects LSPs across various path setup types
- **Proposed Extension**
  - A new X-Flag in LSP-EXTENDED-FLAG TLV to indicate path type
  - 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
  - During delegation transfer to a new PCE, the X-Flag provides context preventing the new PCE from incorrectly re-computing an explicit path.

Recent updates

- Moved Binding SID related extensions to I-D.sidor-pce-binding-label-sid-extensions.
- E (Explicit) flag renamed to X (Explicit) flag to avoid conflict with I-D.ietf-pce-entropy-label-position.
- Clarified that both Explicit (X-flag set) and Dynamic paths can contain a mix of strict and loose hops.
- Cleanup in multiple sections

Next steps

- Comments and discussion are welcome
- WG adoption