



IETF 125 – Online
PCE Working Group

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

draft-sidor-pce-lsp-state-reporting-extensions-06

Samuel Sidor – Cisco Systems (ssidor@cisco.com) – Presenter

Zafar Ali – Cisco Systems (zali@cisco.com)

Cheng Li – Huawei Technologies (c.l@huawei.com)

Mike Koldychev - Ciena Corporation (mkoldych@ciena.com)

Andrew Stone – Nokia (andrew.stone@nokia.com)

Problem & Solution

- **Two gaps in PCEP, two new flags in LSP-EXTENDED-FLAG TLV (RFC 9357):**
- **X — Explicit Path flag**
 - Problem: A PCE receiving LSP delegation cannot tell if the path was operator-specified or dynamically computed → may recompute an intentional explicit path
 - Solution: X=1 signals operator-specified path
- **T — Transit Eligible flag**
 - Problem: PCE has no standard way to discover which LSPs expose a Binding Label/SID (RFC 9604) for use as a transit segment → blocks standardized inter-domain LSP stitching
 - Solution: T=1 signals the Binding SID may be used in paths computed for other LSPs
- Both flags are capability-negotiated (STATEFUL-PCE-CAPABILITY TLV). Unsupported peers receive PCErr (Error-Type 10).

Updates since IETF 123

- **X flag is independent of strict/loose ERO subobjects (clarified in -06):**
 - Explicit/Dynamic = **path-level** (who decided: operator vs. algorithm)
 - Strict/Loose = **hop-level** (how precisely each hop must be followed, RFC 5440)
- *Example:* Operator specified "strictly via R2, loosely to R4" → **X=1**, even with a loose hop. PCE computes all-strict path algorithmically → **X=0**, even with no loose hops.
- **Other changes:**
 - Added guidance for backward compatibility handling
 - Clarification for Multi-SL CPs: path type is per Candidate Path; mixing explicit/dynamic SLs within one CP not allowed
 - Added example for both extensions
 - Expanded security considerations and terminology

Next Steps

- Comments and discussion are welcome
- WG adoption