

Local Protection Enforcement in PCEP

draft-stone-pce-local-protection-enforcement

IETF 108 - Online

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Changes since IETF 106

draft-stone-pce-local-protection-enforcement-02

- 2 new co-authors
- Draft renamed from 'path' to 'local'
- Added more text for various use cases and comparison between them
- Added text discussing use cases where there is no preference / "do not care"
- Implementations

Changes not yet posted

- *Formatting nits*
- *Change recommended bit to <TBD> until IANA allocation*

Use case

Influence path computation for expanded use cases

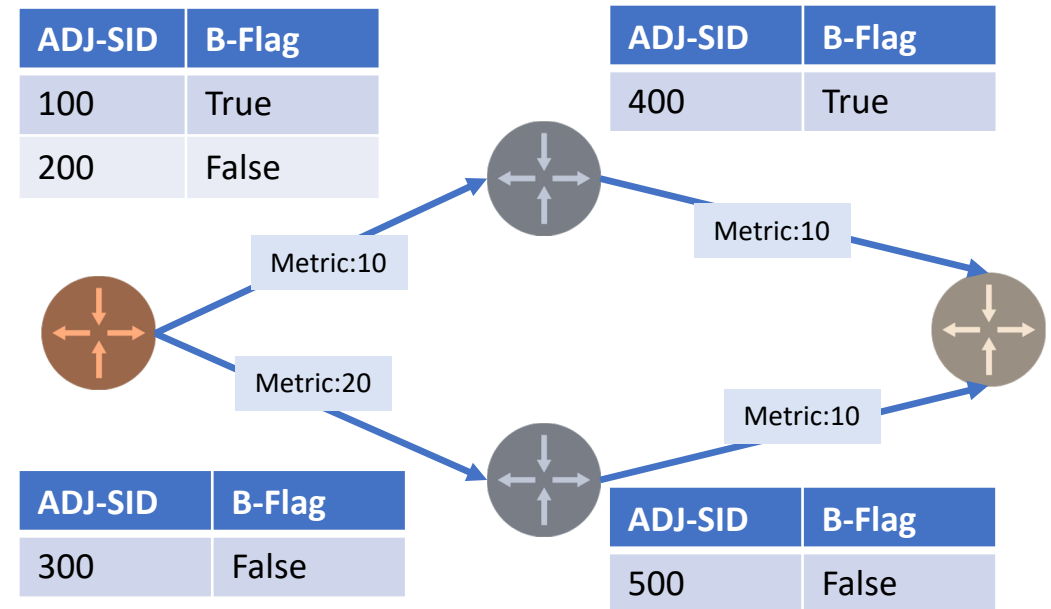
- Segment IDs (ADJ-SIDs specifically) may be protected.
- The protection status is advertised in IGP extensions with the B-Flag.
- The selection of a SID has implications during failure scenarios.
- A PCE can consider this backup flag:
 1. A constraint per path calculation to influence shortest path
 2. Deterministic selection of a SID along a shortest path when multiple options are available

Improve interoperability

- Existing implementations have interpreted 'Local Protection Desired' (L-Bit) differently (*hard vs soft constraint*)
- Experienced at EANTC interop testing and Service Provider trials

Use case

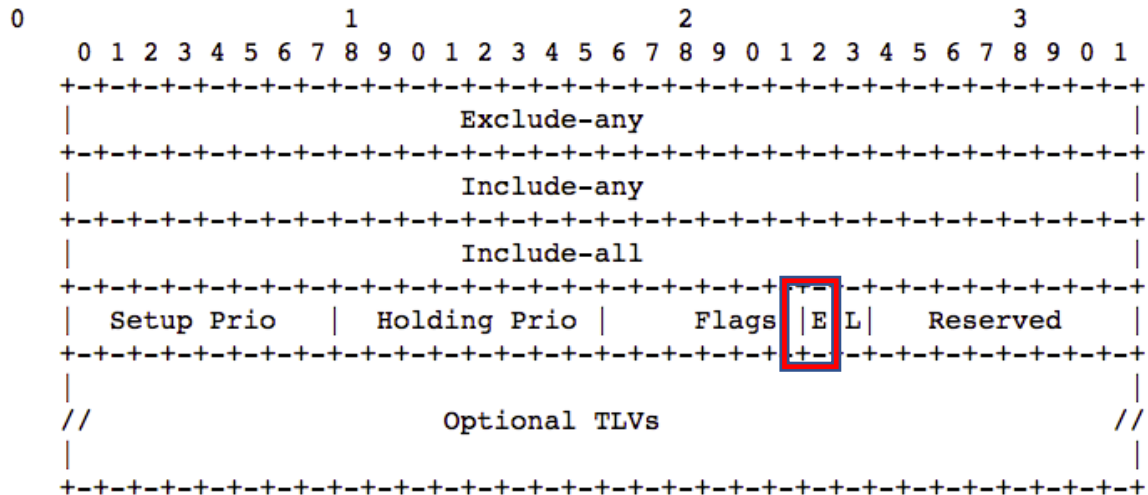
- LSP 1 : must have a protected path
 - Feasible Result:
 - Path (100, 400); Cost 20
- LSP 2 : must not have a protected path
 - Feasible result:
 - Path (300, 500); Cost 30
- LSP 3 : no enforcement, but deterministic SID selection
 - Feasible result:
 - Path (100, 400); Cost 20
 - Path (200, 400); Cost 20
 - Path (300, 500); Cost 30
 - Shortest path:
 - Protection Preferred: Path (100, 400); Cost 20
 - Unprotected Preferred: Path (200, 400); Cost 20



LFA Links/Paths not shown

Proposal

1. Wording and statements around the usage of existing Local Protection Desired Bit, while attempting to be *generally* backwards compatible with existing PCC and PCE implementations
2. New Flag: Enforcement (E-Flag) to accompany the L-Flag in the LSP Attributes object



Flags (8 bits)

- o L flag: As defined in [\[RFC5440\]](#) and further updated by this document. When set, protection is desired. When not set, protection is not desired. The enforcement of the protection is identified via the E-Flag.
- o E flag (Protection Enforcement): When set, the value of the L-Flag MUST be treated as a MUST constraint where applicable, when protection state of a SID is known. When E flag is not set, the value of the L-Flag MUST be treated as a MAY constraint.

Implementation Status

Nokia (demo)

- PCC: SROS
- PCE: Network Services Platform (NSP)

Cisco (demo)

- PCC: IOS-XR 7.4.1
- PCE: IOS-XR 7.4.1

Next step

1. Requesting working group adoption
2. Requesting early IANA code points so that implementations may proceed further

Thank you