



IETF 117 – Online
PCE Working Group

Carrying SR Algorithm information in PCE-based Networks

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Motivation

- A PCE can compute SR-TE paths using SIDs with different Algorithms depending on the use-case, constraints, etc. While this information is available on the PCE, there is no method of conveying this information to the headend router
- An operator may also want to constrain the path computed by the PCE to a specific SID Algorithm
- SID Algorithm covers
 - SPF (Algo 0)
 - Strict SPF (Algo 1)
 - Flex-Algo (Algo 128-255)
- Computing path with a fewer SIDs

Latest changes

- Version change - 00 -> 03
- Extended use of **S flag capability** in SR PCE Capability Sub-TLV and SRv6 PCE Capability sub-TLV to indicate support for **SR Algorithm constraint** for LSPs with specific Path Setup Type
- SID Algorithm renamed to SR Algorithm
- Added details for processing of SR Algorithm TLV, SR-ERO and SRv6-ERO sub-objects
 - Multiple instances included, inconsistent length,...
- Allowed use of **Adjacency** and **Binding SIDs** in paths computed with SR Algorithm constraint
- SR Algorithm constraint is applied to end-to-end SR policy path

Flexible Algorithm Path Computation

- PCE must follow IGP Flexible Algorithm path-computation logic, that includes:
 - Tie-breaking logic for FAD selection
 - Topology pruning – Existence of ASLA specific link attributes, SR Algorithm node participation
 - Usage of Flex-algo ASLA specific link in the path-computation, like metric values, admin-groups,...
- Metric type from FAD used as optimization metric
- Constraints PCEP messages from PCC and from FAD **MUST** be used
 - PCE can ignore constraints from PCEP messages based on existing flags in PCEP objects
 - PCE can respond with empty ERO if specific combination of constraints is not supported

Extensions to Metric Object

- New metric types introduced
 - Path Min Delay Metric
 - P2MP Path Min Delay Metric
- The Path Min Delay metric type of the METRIC object in PCEP represents the sum of the minimum link delays of all links along a P2P path
- The P2MP Path Min Delay metric type of the METRIC object in PCEP encodes the Path Min Delay metric for the destination that observes the worst delay among all destinations of the P2MP tree
- "Min Unidirectional Link Delay" from RFC7471 and RFC8570
- Existing "Path Delay metric" in PCEP is using **average** link delay
- New types required for alignment with IGP Flex-algo metric types

Next steps

- Comments and discussion are welcome
- Request early IANA codepoints allocation