



IETF 116 – Online  
PCE Working Group

# Carrying SID 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

# Current state

- SR-ERO and SRv6-ERO sub-objects extended with Algorithm field to encode SID-algorithm in ERO
- SID Algorithm TLV in LSPA object to specify SID algorithm constraint
  - PCE is allowed to use only SIDs with specified algorithm
  - L (loose) flag – PCE to prefer SIDs with specified algorithm
- Even if specified SID Algorithm is Flex-algo, PCE is not enforced to use constraints from Flex-algo Definition (FAD)

# Problem definition

- For Flex-algo
  - If additional constraints or metric-type are specified in FAD, then PCE will not respect them
  - Computed path may be unusable, because traffic forwarding by IGP may follow different path

SR-TE Policy

SID-algorithm 128

Metric-type IGP

Flex-algo Definition - Algo 128

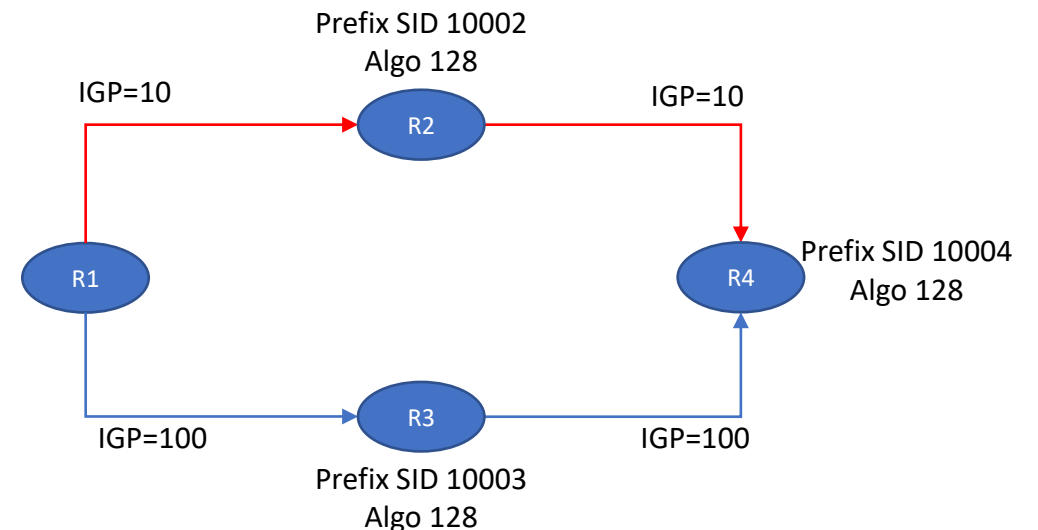
Admin Group

Exclude "red"

Computed path:

10002

10004



# Proposed solution

- Consider constraints and metric-type from FAD in path-computation if Flex-algo constraint was specified
- FAD is already available in PCE topology from IGP or BGP-LS
- Other constraints from PCRpt SHOULD be ignored by PCE considering other flags in PCEP object
- PCE implementation can decide to honor additional constraints
- If combination of constraints is not supported PCE SHOULD respond with empty ERO
- New flag in SID-algorithm TLV to control if FAD SHOULD be considered

# Next steps

- Comments and discussion are welcome
- Update draft based on the discussion on this call and based on any other comments received