

BGP Extensions for Inter-Domain Flexible Algorithm with Segment Routing over IPv6 (SRv6)

draft-gong-idr-inter-domain-srv6-flex-algo-00

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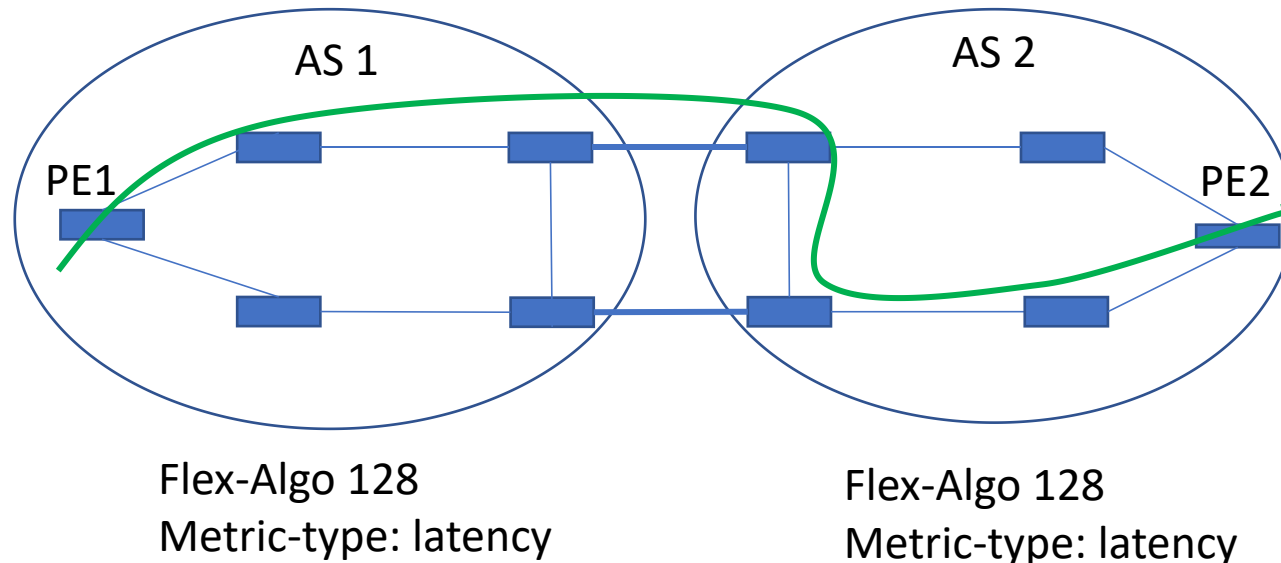
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Background

- IGP Flexible Algorithm (Flex-Algo) provides a mechanism for IGP nodes to compute the best paths according to a set of constraints (e.g. topology and metrics)
 - SRv6 can be used as the data plane of IGP Flex-Algo
- In SRv6 networks, services may be carried across multiple network domains under the same administration
 - It is expected that the end-to-end inter-domain paths can be computed according to the same constraints (such as low-latency) defined by a Flex-Algo
- This document describes BGP extensions to advertise SRv6 locators together with the associated algorithm ID across the AS boundaries

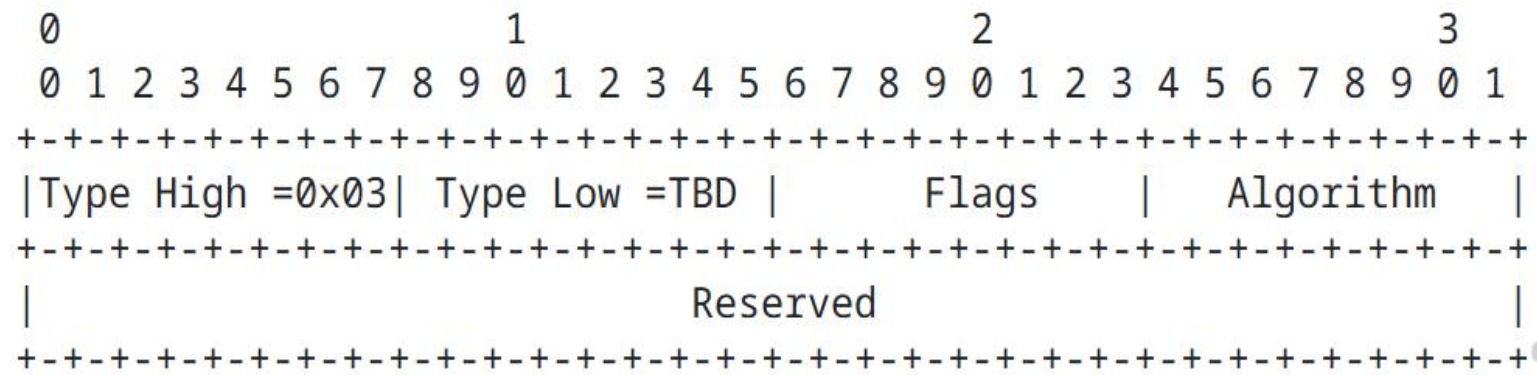
The Scenario

- AS1 and AS2 belongs to the same network operator
- An inter-domain low-latency path between PE1 and PE2 is required for particular services
- In both domains, Flex-Algo 128 is defined with metric-type latency
- In AS2, the SRv6 locator of PE1 is advertised in IGP, and is redistributed into BGP unicast across the AS boundary between AS1 and AS2
- The routers in AS1 do not know the Flex-Algo associated with PE2' s SRv6 locator (prefix)
- PE1 will only use the shortest IGP path to forward traffic to PE2



Proposed Solution

- A new extended community is defined to carry the algorithm information associated with the prefix carried in the IPv6 Unicast NLRI
- The Flex-Algo extended community is a transitive Opaque Extended Community used to carry the Algorithm ID
- The Flex-Algo extended community can be carried with IPv6 Unicast prefixes to indicate the algorithm associated with the IPv6 Prefix (which can be an SRv6 locator)



- Type High: 0x03
- Type Low: TBD
- Flags: for future use
- Algorithm: 1-octet algorithm ID

Next Steps

- Comments and feedbacks are appreciated
- Update the draft accordingly

Thank You!