

Flexible Algorithms Exclude Node

draft-gong-lsr-flex-algo-exclude-node-00

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Background

Goal:

Optimized traffic routing is essential due to factors like safety, reliability, and position.

Red traffic(Flex-Algo A), must avoid passing through green devices(R4),

Green traffic(Flex-Algo B), must steer clear of red devices(R3)

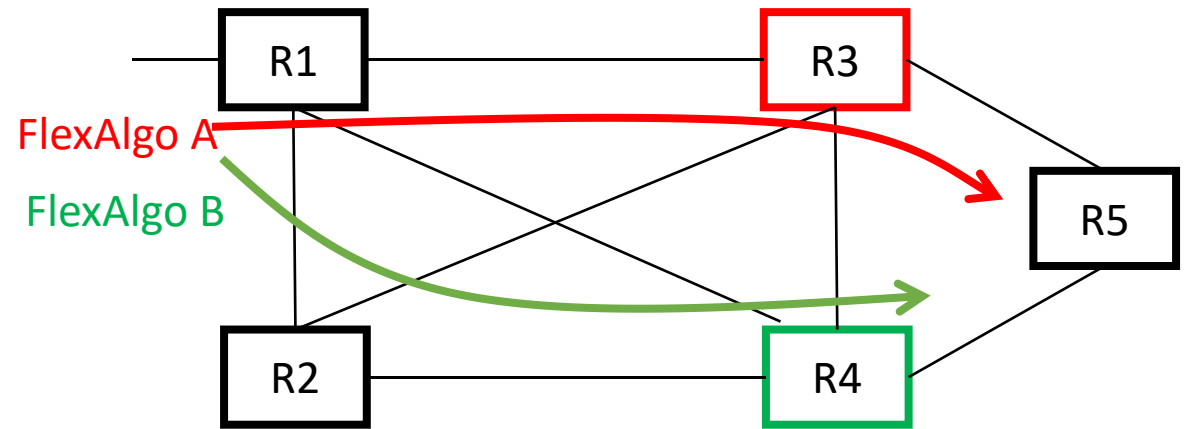
Current FAD:

Exclude Admin Group、SRLG、Definition Flags with metric

Problem:

All links of R3 need to be marked as red, and all links of R4 need to be marked as green.

It is very inconvenient if there are many links.



Idea:

Provide a method to exclude an entire node, rather than just a specific link.

Solution

Define a new FAD: Exclude Admin-Tag Sub-TLV

1. Assign an **admin tag** to each node (RFC7917&7777)
2. Specify the tag value of the nodes to be excluded through the newly defined FAD
3. Apply this exclusion restriction to the route calculation.

Extension

New Type (TBD1) is request for “IS-IS Exclude Admin-Tag sub-TLV” from Flexible Algorithm Definition Sub-TLV.

IS-IS Exclude Admin-Tag sub-TLV [This document] is a sub-TLV of the IS-IS FAD sub-TLV[RFC9350] .

IS-IS Router CAPABILITY TLV-(242)

IS-IS Flexible Algorithm Definition Sub-TLV(26)

[IS-IS Exclude Admin-Tag Sub-Sub-TLV\(TBD1\)](#)

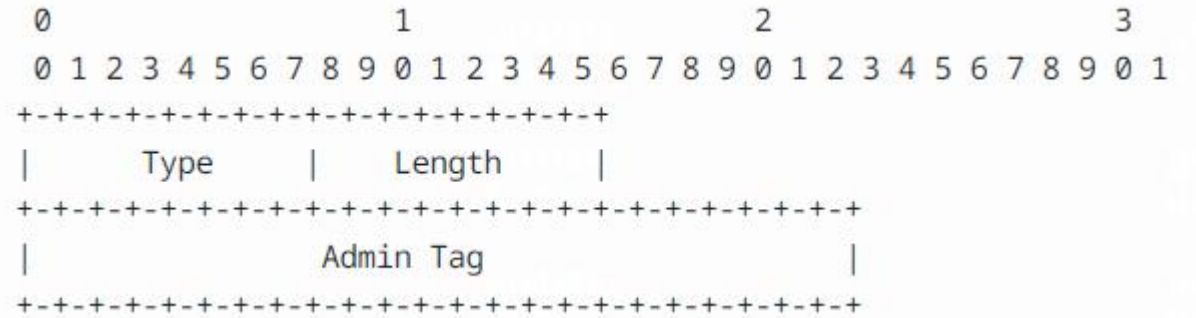
New Type (TBD2) is request for “OSPF Exclude Admin-Tag sub-TLV” from Flexible Algorithm Definition Sub-TLV.

Router Information (RI) LSA

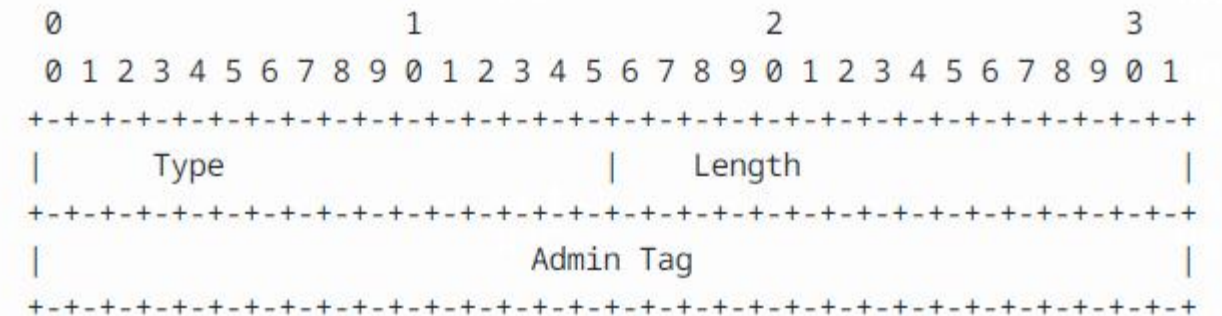
OSPF FAD TLV(16)

[OSPF Exclude Admin-Tag sub-TLV.\(TBD2\)](#)

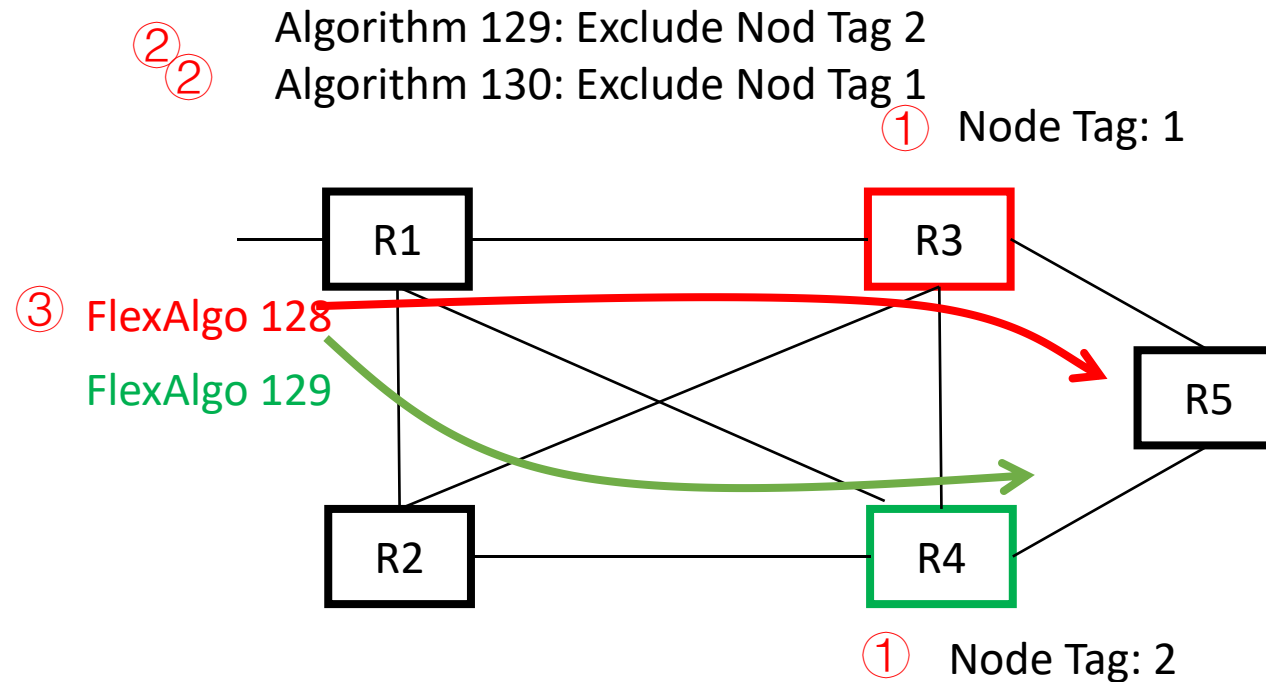
Format of ISIS Exclude Admin-Tag Sub-TLV



Format of OSPF Exclude Admin-Tag Sub-TLV



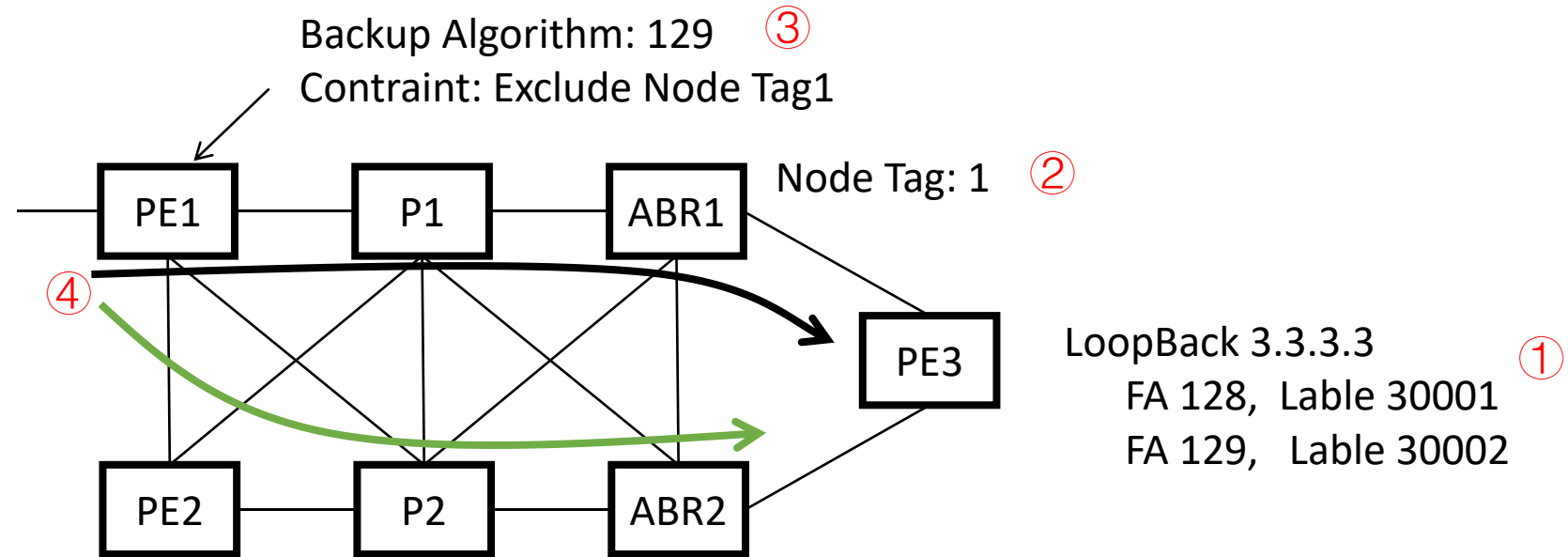
Usecase1



Process:

- ① R3 advertise Node Tag 1, R4 advertise Node Tag 2.
- ② Specifies Algorithm 128 constraint **FAD exclude Node Tag 2**, and Algorithm 129 constraint **FAD exclude Node Tag 1**.
- ③ Exclude node R4 when calculating FlexAlgo 128, and exclude node R3 when calculating FlexAlgo 129.

Usecase2



Process:

- ① PE3 has an IP address of 3.3.3.3 assigned to loopback1, with Label 30001 as the primary label in Public FlexAlgo 128, and Label 30002 as the backup label, advertised under FlexAlgo 129.
- ② ABR1 advertises Node Tag as 1.
- ③ Designates Algorithm 128 for primary path routing and Algorithm 129 exclusively for backup path calculation, with the constraint FAD set to **exclude nodes with Tag 1**.
- ④ When calculating routes, Algorithm 129 excludes tag1 (ASBR1) and selects ASBR2.

Next Steps

- Any questions or comments are Welcome

THANKS