

Label Information for BGP FlowSpec

draft-liang-idr-bgp-flowspec-label-01

Qiandeng Liang (liangqiandeng@huawei.com)

Jianjie You (youjianjie@huawei.com)

Robert Raszuk (robert@raszuk.net)

Dan Ma (danma@cisco.com)

Status of this I-D

- ◆ First presented in IETF 93, Prague meeting
 - Would “link FlowSpec to RFC3107” satisfy the requirements?
 - Though FlowSpec rule could use the label(s) bound with the best-match route to the target IP in the 'redirect to IP' action, in order to differentiate FlowSpec rules, each rule needs to be assigned a unique IP address. This would consume too much IP address resources.

- ◆ The update compared to v-00
 - Label encoded in ACTIONS section of RFC5575
 - Extend the match criteria to the label within the packet header

FlowSpec Label Action

A new label-action is defined as BGP extended community value based on Section 7 of [RFC5575].

```

+-----+-----+-----+
| type   | extended community | encoding |
+-----+-----+-----+
| TBD1   | label-action       | MPLS tag |
+-----+-----+-----+

```

Label-action is described below:

```

      0                1                2                3
      0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
|      Type   (TBD1)                | OpCode |      Reserved                |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+ Label
|                Label                | Exp | S |                TTL                | Stack
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+ Entry

```

- Type: indicates the label action
- OpCode: operation code; 0: Push; 1: Pop; 2: Swap; 3-15: Reserved
- Label Stack Entry: the same as defined in RFC3032

FlowSpec Label Action

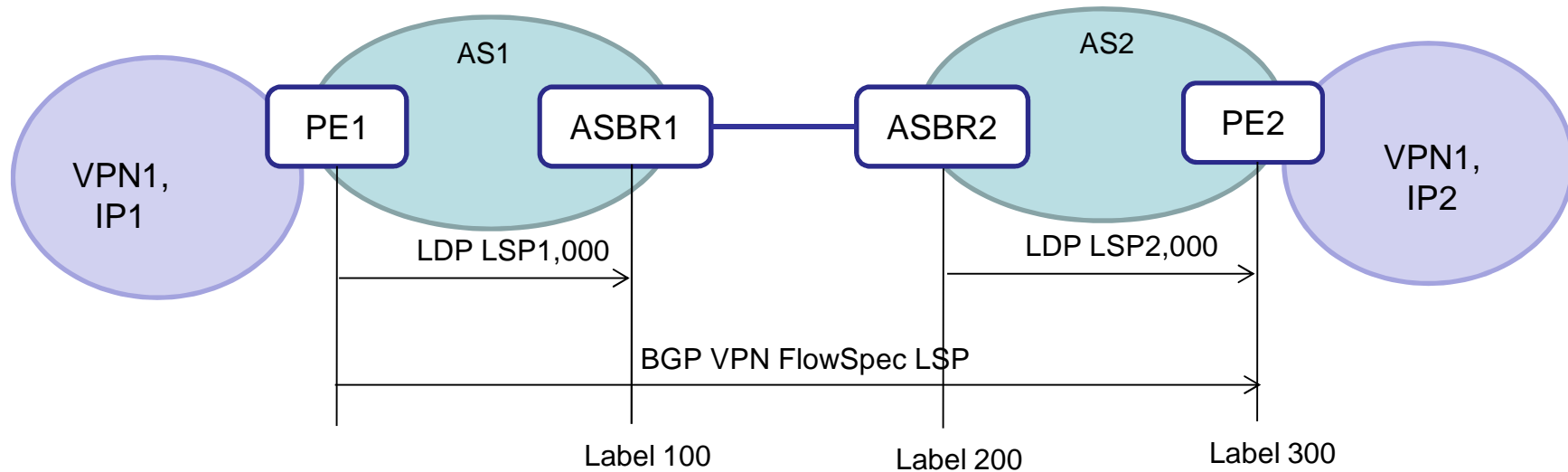
- ◆ If the BGP router allocates a label for a FlowSpec rule and disseminates the labeled FlowSpec rule to the upstream peers, it can use the label to match the traffic identified by the FlowSpec rule in the forwarding plane.
- ◆ A FlowSpec rule MAY include one or more ordering label-action(s). The arrival order of the label-actions decides the action order.

Next Step

- Accepted as WG doc?
- Solicit more comments and suggestions on the mailing list

Thank You!

Scenario



- FlowSpec Rule 1 (injected in PE2)
 - Filters: Destination IP prefix:IP2/32; Source IP prefix:IP1/32
 - Actions: traffic-marking: 1 (DSCP value)
- Forwarding Process on PE1 when receiving traffic from IP1 to IP2
 - PE1: Push 1,000 and 100
 - ASBR1: Pop 1,000, and then swap 100 to 200
 - ASBR2: swap 200 to 300, and then push 2,000
 - PE2: Pop all labels