BGP FlowSpec extensions
for
Routing Policy Distribution (RPD)
draft-li-idr-flowspec-rpd-02

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History & Changed from 01 version

History: Presented at the 93\textsuperscript{th}, 94\textsuperscript{th} IETF, idr-interim meeting (2015-12-9)

Changed from 01 version:

- Refine use cases, some related use cases are recorded in the document [draft-luo-grow-ts-use-cases].

- Implemented a prototype, some brief implementation information is documented in [draft-wu-idr-flowspec-rpd-impl].
  - https://tools.ietf.org/id/draft-wu-idr-flowspec-rpd-impl-00.txt
  - The next version will provides more information.
RDP Mechanism in Summary

Processing steps:

1. Effective on which routes → Filtered by Flowspec NLRI
2. Effective on which peers → Filtered by Wide Community Attribute
3. Take the action in Wide Community Attribute

The routing policy can be mapped into the Wide BGP Community Attribute exactly.
Inbound traffic control

Traffic from PE1 to Prefix1

- EBGP peering:
  - Speaker1---L1---IGW1
  - Speaker2---L2---IGW1
  - Speaker1---L3---IGW2
  - Speaker2---L4---IGW2

- Requirement:
  - Administration only on AS100
  - Traffic enter AS100 through L3

Prefix1 advertises from AS100 to AS200
Encodings Example (1)

Inbound Traffic Control encoding example

As required in the case, traffic from PE1 to Prefix1 need to enter through L3, so IGWs except IGW2 should prepend ASN list to Prefix1 when populating to AS100.

As shown in left figure, community "PREPEND N TIMES TO AS" and "Exclude Target(s) TLV" are be used.

EBGP peering:
- Speaker1 ---L1--- IGW1
- Speaker2 ---L2--- IGW1
- Speaker1 ---L3--- IGW2
- Speaker2 ---L4--- IGW2

Requirement:
- Administration only on AS100
- Traffic enter AS100 through L3
Outbound traffic control

Traffic from PE2 to Prefix2

EBGP peering:
• IGW1---L1---Speaker1
• IGW1---L2---Speaker2
• IGW2---L3---Speaker1
• IGW2---L4---Speaker2

Requirement:
• Administration only on AS100
• Traffic exit through L3
Encoding Example (2)

Outbound Traffic Control encoding example

As required in the case, traffic from PE2 to Prefix2 need to exit through L3, so IGWs should prefer the route from IGW2 to Speaker1.

As shown in left figure, community "LOCAL PREFERENCE" and "Target(s) TLV" are be used.
Next step

- Collect feedback and comments.
- Refine this draft according to comments.
- Adding new use cases from operators.
- Ask for early allocation for Wide Community Attribute