

Export BGP community information in IP Flow Information Export (IPFIX)

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Background

- Traffic Engineering/Traffic Steering/Traffic load balancing
 - Network administrators need to get the flow information with amount and direction of traffic in their network in order to realize the network optimization.
- IPFIX is designed for exporting formatted IP flow information
 - Flow information is transferred from an exporter to a collector with information elements defined in [IANA-IPFIX]
 - sourceIPv4Address / destinationIPv4Address
 - sourceTransportPort / destinationTransportPort
 - bgpSourceAsNumber / bgpDestinationAsNumber
 - etc.

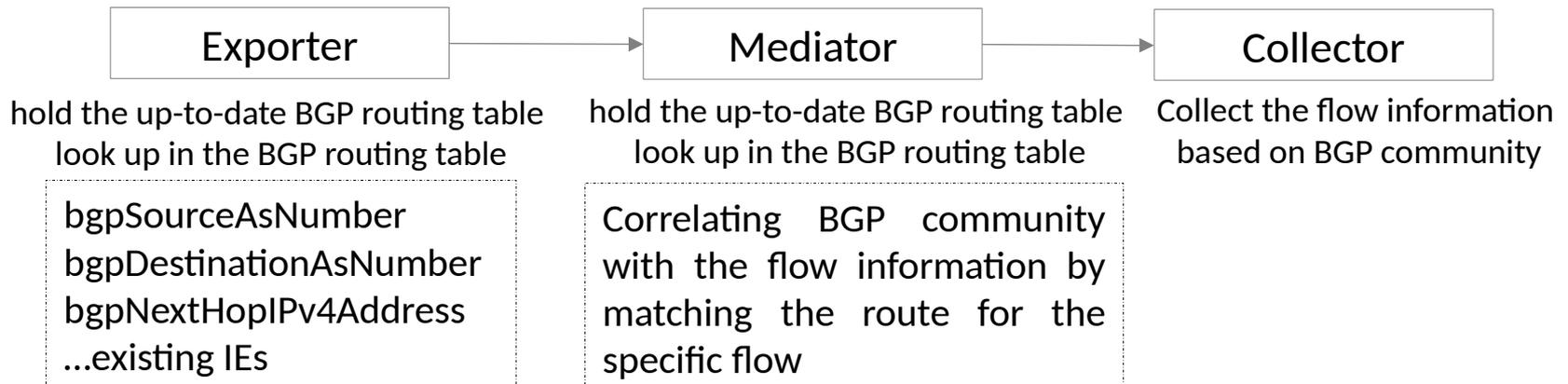
BGP Community Based Flow Information

- For traffic engineering in operators' backbone networks, flow information based on the existing IEs is not always suitable
 - Flow information based on IP address or IP prefix is meticulous.
 - Flow information based on AS numbers is too coarse.
- BGP community can provide the suitable flow granularity
 - Describes a group of routes sharing some common properties
- Flow information based on BGP community needs to be exported using IPFIX

⚭ Up to now, no existing IE is defined for BGP community information.

Application

- Architecture 1



- Architecture 2



New IEs for BGP community

IE definition

- Two information elements are defined in order to export the BGP community information.
 - bgpSourceCommunityList
 - bgpDestinationCommunityList
- Both IPv4 and IPv6 traffic are applicable.
- Both exporter and mediator can use these two IEs to export BGP community information in IPFIX.

IE definition: bgpSourceCommunityList

- bgpSourceCommunityList with its data type semantics listed as follows.

ElementID	to be assigned by IANA, 458 is suggested
Name	bgpSourceCommunityList
Data Type	basicList, as specified in [RFC6313]
Data Type Semantics	list
Description	BGP community information corresponding with source IP address
Units	not needed

Figure 1: bgpSourceCommunityList

IE definition: bgpDestinationCommunityList

- bgpDestinationCommunityList with its data type semantics listed as follows.

ElementID	to be assigned by IANA, 459 is suggested
Name	bgpDestinationCommunityList
Data Type	basicList, as specified in [RFC6313]
Data Type Semantics	list
Description	BGP community information corresponding with destination IP address
Units	not needed

Figure 2: bgpDestinationCommunityList

Next steps

- See if other operators have similar requirements
- Solicit comments and contributions to improve this draft
- Work group adoption ?

MANY THANKS

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