

Export of BGP VPN Information in IPFIX

draft-liu-opsawg-ipfix-bgp-vpn

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Background and Motivation

➤ BGP VPN is a wide-deployed network technology

- MPLS VPN: BGP is used to exchange the routes of a particular VPN among the PE routers that are attached to that VPN. Each route within a VPN is assigned an MPLS label. BGP next hop is set as the egress PE address.
- SRv6 VPN: SRv6 Service SID is used to associate with the service-specific SRv6 Endpoint Behavior on the advertising PE router, the SRv6 Service SID is advertised via the BGP-VPN route.

➤ When monitoring traffic flows on the ingress PE in a network with BGP VPN deployed, we want to know:

- Which egress PE is the flow forwarded to ?

➤ Existing IPFIX IEs are not enough

- **If we want to get the next hop address advertised by the egress PE:** IE “[bgpNextHopIPv4Address](#)”(18) and “[bgpNextHopIPv6Address](#)”(63) define the IPv4/IPv6 address of the next (adjacent) BGP hop. **But** when there’s more than one type of BGP route used in the network(e.g., BGP VPN is used together with BGP-LU), it is not clear which type of the BGP route the next BGP hop carried in IE18/IE63 belongs to.
- **If we want to get the SRv6 locators of the service SID on the egress PE:** IE “[srhSegmentIPv6](#)”(494) and “[srhSegmentIPv6LocatorLength](#)”(501) enables the calculation of the SRv6 Locator. **But** there's no mechanism yet to solely export Segment List[0](the location where the SRv6 VPN SID is placed in the SR-TE scenario) in the SRH.

New IEs for Egress PE Info in BGP VPN

The generic IEs to obtain egress PE info

➤ IE TBA1: bgpVpnNextHopIPv4Address

The 32-bit IPv4 address which is used as the next hop address of the BGP VPN route

➤ IE TBA2: bgpVpnNextHopIPv6Address

The 128-bit IPv6 address which is used as the next hop address of the BGP VPN route

Limitation: In the multi-as backbones, if inter-AS option A or option B with BGP next-hop changed are used, the address of the final egress PE can't be obtained.

For SRv6 VPN, another choice is to export the locator information of the SRv6 service SID

➤ IE TBA3: srv6ServiceSid

The SRv6 Service SID received via the SRv6-based BGP service route [RFC9252]

➤ IE TBA4: srv6ServiceSidLocatorLength

The length of the SRv6 Locator of the SRv6 service SID specified as the number of significant bits.

Next Steps

- Welcome feedback and comments!

Thank You !