BGP Flowspec Redirect-to-tunnel
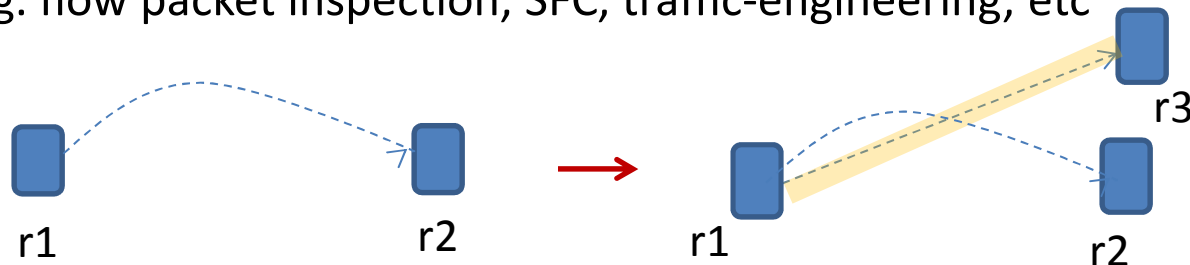
draft-hao-idr-flowspec-redirect-tunnel

Presenter: Lucy Yong   lucy.yong@huawei.com

November 2015 , Yokohama Japan
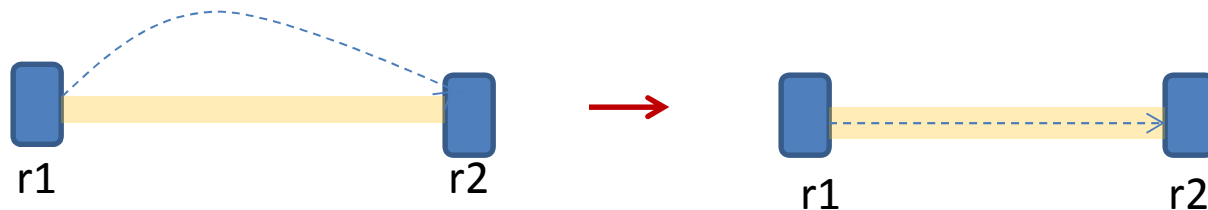
IP Flow Redirect-to-tunnel

A. IP flow packets are redirected/copied to the third place (i.e. not BGP next hop) via a tunnel
   - E.g. flow packet inspection, SFC, traffic-engineering, etc

B. IP flow packets are redirected to the BGP next hop via a tunnel
   - E.g. configuration automation, differentiated services, traffic-engineering

Question: What kind of tunnels make a sense to be used in case A and case B?

Two Types of Tunnel

- IP Tunnel: a tunnel whose endpoints are identified by IP address. Tunneled flow packets are carried as a regular IP packets over IP network

- Non-IP Tunnel: a tunnel that is implemented by non-IP data plane, tunneled packets are carried by non-IP data plane, e.g. MPLS data plane.
    – The tunnel is constructed by other control protocol such as RSVP-TE, LDP, etc

- Question again: will both types of tunnel apply to case A and case B?

Tunnel Policy

A. A tunnel can be identified by the tunnel type and criteria; e.g. IP tunnel, MPLS LSP (e.g. LDP RSVP-TE, SR-BE, SR-TE)

B. A tunnel is identified by a tunnel identifier such as [RFC3209]

These policies are specified in BGP attributes (draft-ietf-idr-tunnel-encap; draft-li-idr-mpls-path-programming)

BGP Extension - Flow Redirect-to-tunnel

- For IP Tunnel: tunnel encapsulation attribute (draft-ietf-idr-tunnel-encaps) is used to convey IP tunnel info. for a flow-spec,
  - Extend the attribute to SAFI 133,134
  - Specify the semantics for the SAFIs and usage constraints

- For MPLS Tunnel with tunnel type: mpls tunnel type and criteria carried by tunnel encapsulation attribute (draft-li-idr-mpls-path-programming)
  - Extend MPLS tunnel types and sub-TLV

- For MPLS tunnel with tunnel identifier: tunnel identifier carried in BGP extended unicast tunnel attribute (draft-li-idr-mpls-path-programming)

The BGP extension is used for tunnel selection for the flow spec, not for tunnel construction.

Next Steps

- Update the draft to clarify the semantics and usage constraint for a flow carried via an IP tunnel

- Clarify the semantics and usage for a flow carried via MPLS tunnel

- Solicit comments

- Work with the community for flowspec redirect integrity (redirect vrf, redirect ip, redirect tunnel)