

BGP Flowspec Redirect-to-tunnel

draft-hao-idr-flowspec-redirect-tunnel

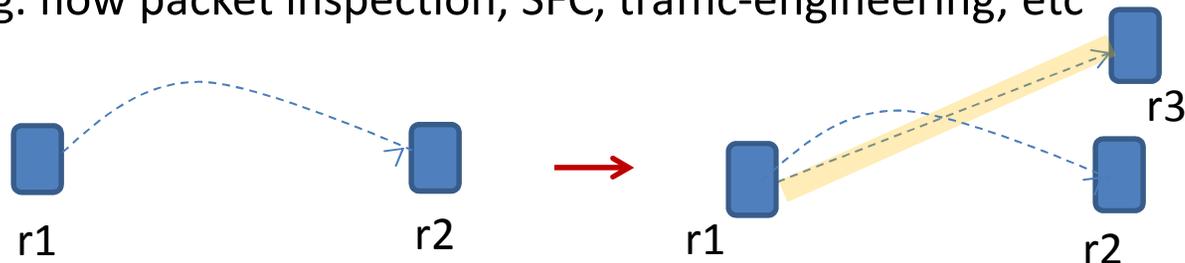
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IP Flow Redirect-to-tunnel

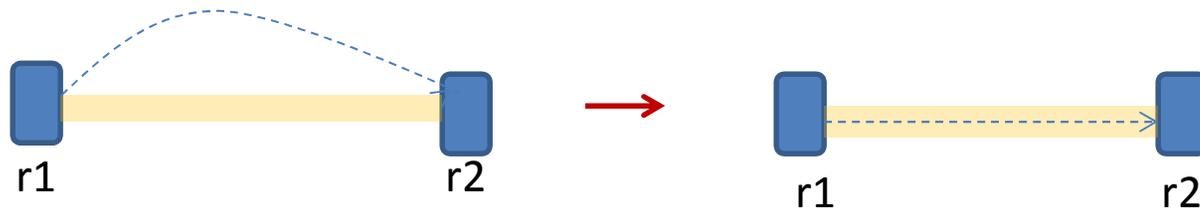
A. IP flow packets are redirected/copied to the third place (i.e. not BGP next hop) via a tunnel

- 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 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 protocols such as RSVP-TE, PCEP, I2RS, etc, (not LDP protocol)
- Question again: will both types of tunnel apply to case A and case B?

BGP Extension - Flow Redirect-to-tunnel

- For a 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 constraint
 - Apply to both case A and case B
- For a non-IP Tunnel: tunnel information can be carried by non-IP tunnel attribute (draft-li-idr-mpls-path-programming)
 - The tunnel is constructed by a control protocol (not BGP) before the flow filter is installed
 - Attribute options: should contain tunnel header info, tunnel logical ID, or control protocol type?
 - People realized that this case need to be thought more

Open Discussions

- How BGP validate the tunnel status upon receiving a flow-spec with non-IP tunnel attribute?
 - The central controller uses BGP to distribute flow-spec with the associated tunnel to routers; a router just encaps. the flow packet with the tunnel header, such as LSP label or a label stack. (draft-li-idr-mpls-path-programming current focuses)
 - In the current distribution case, how should BGP convey non-IP tunnel info. to its peers? Can BGP speaker validate the tunnel status? Can it be done by BGP itself or need some interworking with other protocol on a router?

