

BGP Flowspec v1 Extensions

- Layer 2 / L2VPN
- Tunneled Traffic

draft-ietf-idr-flowspec-l2vpn-23

draft-ietf-idr-flowspec-nvo3-19

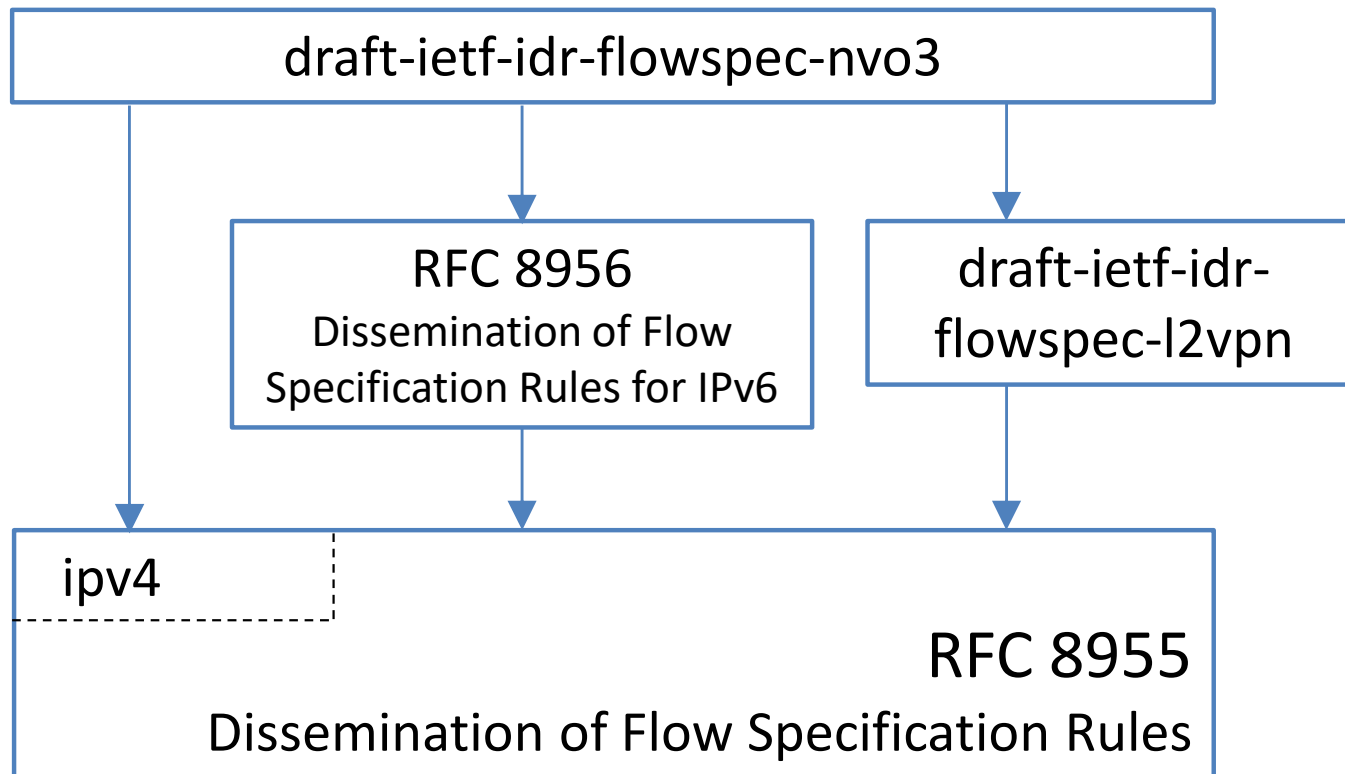
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L2 and Tunneled Flowspec Extensions

Document Dependencies



draft-ietf-idr-flowspec-l2vpn-23

- Despite file name, covers both non-VPN and VPN cases.
- Extends SAFI 133 (Dissemination of Flow Specification rules) to AFI 6 (802)
- Extends and renames SAFI 134 (~~L3VPN~~ VPN Dissemination of Flow Specification rules) to AFI 25 (AFI for L2VPN information)
- Provides for optional matching on L3 headers that appears after the L2 headers.
- Defines 13 match components in a new registry and 2 new action as extended communities.
- Passed WG LC, Awaiting Implementations

flowspec-l2vpn-23 NLRI

Overall Length
Routing Discriminator If SAFI = 134, omitted if SAFI=133
L3 AFI (0 = no L3 match)
L2 Flowspec Length
L2 Flowspec (may be null)
L3 Flowspec (may be null)

flowspec-l2vpn-23 Components

- EtherType
- Source MAC
- Destination MAC
- DSAP
- SSAP
- VLAN ID
- VLAN PCP
- Inner VLAN ID
- Inner VLANPCP
- VLAN DEI
- Inner VLAN DEI
- Source MAC Special Bits
- Destination MAC Special Bits

flowspec-l2vpn-23 Actions

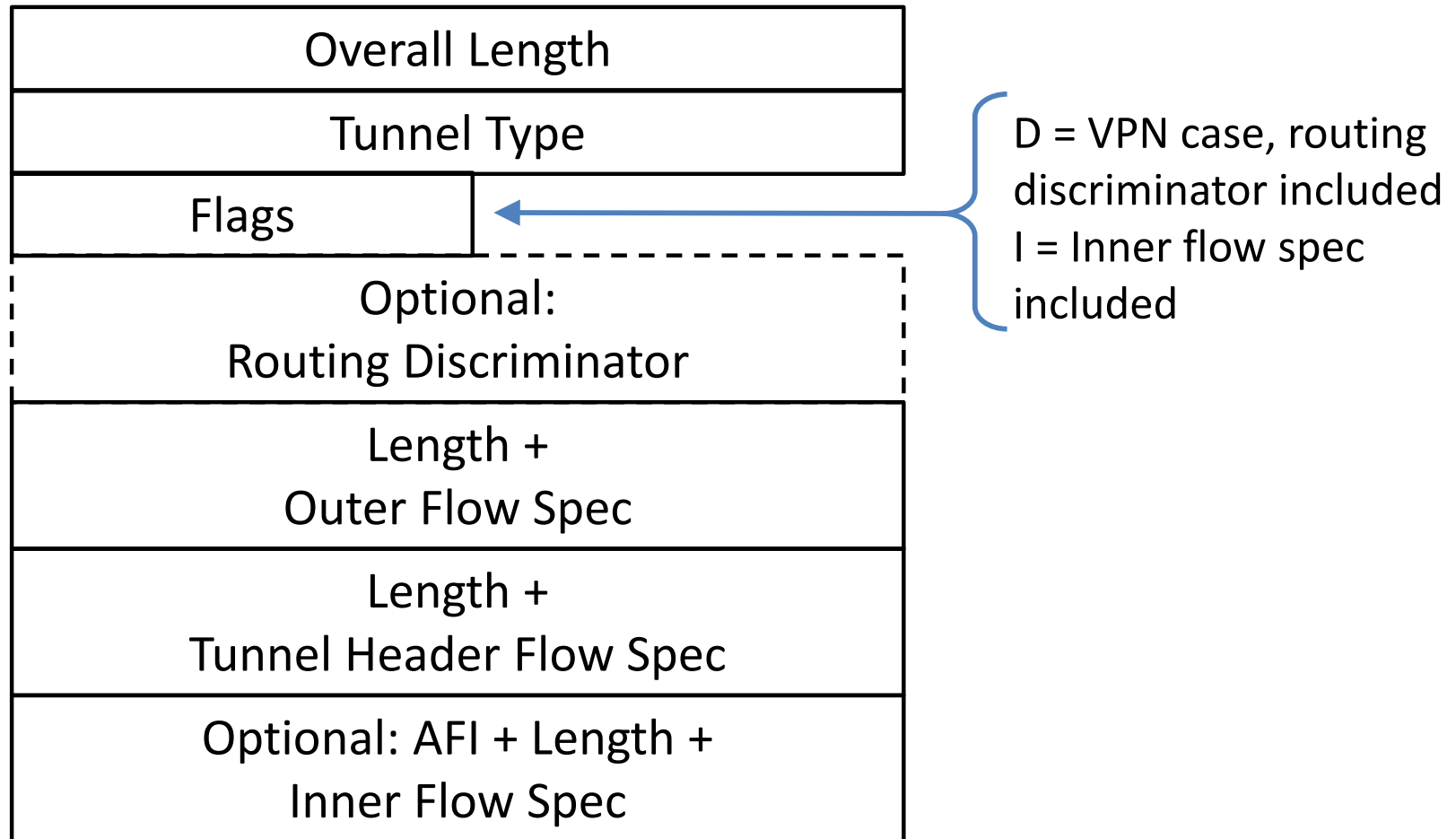
Additional Actions available:

- VLAN-action
 - Extended community that permits a wide variety of operations on two successive VLAN tags in a frame.
- TPID-action
 - Extended community that permits changing the inner and outer tag protocol identifier (C-VLAN, S-VLAN, TRILL-FGL, ...)

draft-ietf-idr-flowspec-nvo3-19

- Despite the file name, covers many tunnel types:
 - VXLAN, VXLAN-GPE, NVGRE, L2TPv3, GRE, IP-in-IP, and GENEVE.
- Provides for flow specification based on
 - tunneling header fields and
 - inner headers beyond the tunnel header.
- Indicated by an AFI/SAFI pair using
 - an AFI indicating the outer header to match = 1 (IPv4), 2 (IPv6), or 6 (L2)
 - SAFI = 77.
- Creates a new registry to tunnel header components
- Passed WG LC, Awaiting Implementations

flowspec-nv03-19 NLRI

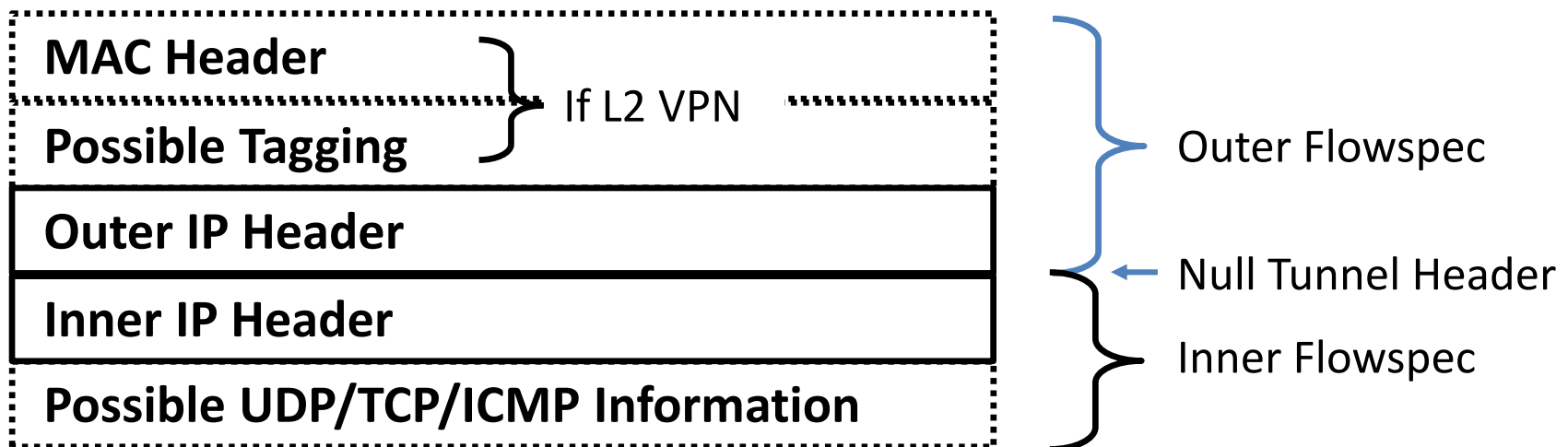


flowspec-nv03-19 Components

- VN ID (VSID/VNI)
- Flow ID (NVGRE)
- Session/Key (L2TPv3/GRE)
- Cookie (L2TPv3)
- Tunnel Header Flags
- L2TP Control Version
- L2TPv3 Control Conn. ID
- L2TPv3 Ns
- L2TPv3 Nr
- Protocol Type (GRE, GENEVE)
- GRE Sequence

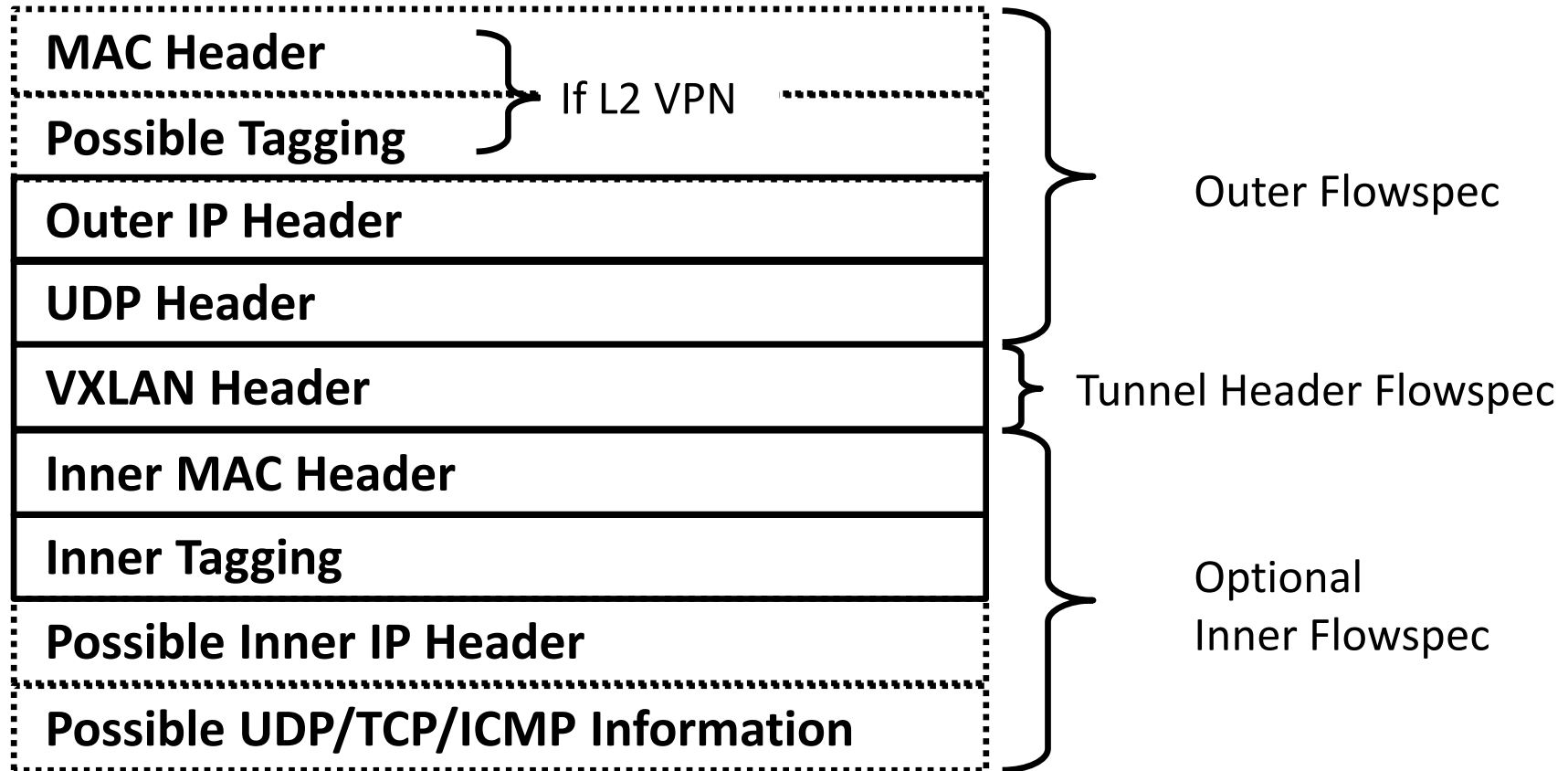
flowspec-nvo3-19 Example

- **IP in IP:**



flowspec-nvo3-19 Example

- VXLAN:**



L2 and Tunneled Flowspec Extensions

SAFI / AFI Summary

Draft	SAFI=133 Flow Spec	SAFI=134 VPN Flow Spec (includes Routing Discriminator)	SAFI=77 Tunneled Flow Spec (optional Routing Discriminator for VPN)	Registry
RFC 8955	AFI=1 IPv4	AFI=1 IPv4	—	Flow Spec Component Types
RFC 8956	AFI=2 IPv6	AFI=2 IPv6	—	Flow Spec IPv6 Component Types
draft-ietf-idr- flowspec-l2vpn	AFI=6 L2 (inner AFI = 1, 2 IPv4, IPv6)	AFI=25 L2 (inner AFI = 1, 2 IPv4, IPv6)	—	L2 Flow Spec Component Types
draft-ietf-idr- flowspec-nvo3	—	—	AFI = 1, 2, 6 outer IPv4, IPv6, L2 (inner AFI = 1, 2, 6 IPv4, IPv6, L2)	Tunnel Header Flow Spec Component Types

END

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