Flowspec Extensions for
— Layer 2 VPN
— Tunnels

draft-ietf-idr-flowspec-l2vpn
draft-ietf-idr-flowspec-nvo3
Donald E. Eastlake, 3rd
d3e3e3@gmail.com
draft-ietf-idr-flowspec-l2vpn-12

• Authors: Weiguo Hao, Donald Eastlake, James Uttaro, Stephane Litkowski, Shunwan Zhuang

• Changes from version -11
  – Clarify that spec is for AFI=25/SAFI=134
  – Includes flowspec validation
  – Extended to cover Drop Eligible Indication (DEI) in tags
  – New component types now TBDs rather than values
  – Significant Editorial Changes
flowspec-l2vpn-12 Question

• What AFI/SAFI should be used/allowed?
• Author says
  – AFI 25 = “AFI for L2VPN”
  – SAFI 134 =
    • “VPNv4 dissemination of flow specification rules” (now)
    • “L3VPN dissemination of flow specification rules” (soon)
    • “VPN dissemination of flow specification rules” (suggested)
  so 25/134 is logical and unambiguous
• AFI=6, SAFI=133 easy to add for L2 non-VPN flowspec
• Some commenters say “must have new SAFI”
• WG should decide
Authors: Donald Eastlake, Weiguo Hao, Shunwan Zhuang, Zhenbin Li, Rong Gu

Previous Version -06:
- Focused just on NVO3
- Used existing SAFIs?
- Only supported VXLAN and NVGRE
- Used “Delimiter” component to mark the boundary between the flowspec for a header and the flowspec for the next nested header
Current Version -07:

- Applies to general tunneling/encapsulation
- Uses a new SAFI TBD
- Detailed text for VXLAN, VXLAN-GPE, NVGRE, L2TPv3, GRE, and IP-in-IP.
- Uses New NLRI structure that can contain one or two sequences of flowspec components
  - First flowspec required and applies to outer header
  - Second flow spec (optional) applies to inner header
• **Attribute:** High Level View

<table>
<thead>
<tr>
<th>AFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAFI (TBD, tunneled flowspec)</td>
</tr>
<tr>
<td>Next Hop information</td>
</tr>
</tbody>
</table>

• **New NLRI:**

| Tunnel Type (BGP Tunnel Encapsulation Attribute Tunnel Types) |
| Flags: Routing Discriminator / 2\(^{nd}\) Flowspec / Reserved |
| Routing Discriminator (Optional) |
| Outer Flowspec |
| AFI + Inner Flowspec (Optional) |
**New NLRI:**

- More Detail

<table>
<thead>
<tr>
<th>Overall Length</th>
<th>Tunnel Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Flags: Routing Discriminator / 2\textsuperscript{nd} Flowspec / Reserved</td>
</tr>
<tr>
<td></td>
<td>Routing Discriminator (Optional)</td>
</tr>
<tr>
<td></td>
<td>Outer Flowspec Length</td>
</tr>
<tr>
<td></td>
<td>Outer Flowspec</td>
</tr>
<tr>
<td></td>
<td>AFI for Inner Flowspec</td>
</tr>
<tr>
<td></td>
<td>Inner Flowspec Length (Optional)</td>
</tr>
<tr>
<td></td>
<td>Inner Flowspec</td>
</tr>
</tbody>
</table>
• Version -07 More Details:
  – Add components for tunneling headers.
  – Extends flow spec ordering rule to cover cases where both tunneled and non-tunneled flowspecs apply or two tunneled flowspecs apply.
  – Includes validation based on outer flowspec.
flowspec-nvo3-07 Example

• IP in IP:

- MAC Header
- Possible Tagging
- Outer IP Header
- Inner IP Header
- Possible UDP/TCP/ICMP Information

If L2 VPN

Outer Flowspec

Inner Flowspec
flowspec-nvo3-07 Example

- **VXLAN:**

<table>
<thead>
<tr>
<th>Layer</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAC Header</td>
<td>If L2 VPN</td>
</tr>
<tr>
<td>Possible Tagging</td>
<td></td>
</tr>
<tr>
<td>Outer IP Header</td>
<td></td>
</tr>
<tr>
<td>UDP Header</td>
<td></td>
</tr>
<tr>
<td>VXLAN Header</td>
<td></td>
</tr>
<tr>
<td>Inner MAC Header</td>
<td></td>
</tr>
<tr>
<td>Inner Tagging</td>
<td></td>
</tr>
<tr>
<td>Possible Inner IP Header</td>
<td></td>
</tr>
<tr>
<td>Possible UDP/TCP/ICMP Information</td>
<td></td>
</tr>
</tbody>
</table>

- **Outer Flowspec**
- **Optional Inner Flowspec**
Next Steps

• **draft-ietf-idr-flowspec-l2vpn:**
  – Decide between SAFI=134 and a new SAFI
  – Early allocation of code points for implementation

• **draft-ietf-idr-flowspec-nvo3:**
  – Please look at version -07 and provide feedback
  – Early allocation of code points for implementation
END

draft-ietf-idr-flowspec-l2vpn
draft-ietf-idr-flowspec-nvo3
Donald E. Eastlake, 3rd
d3e3e3@gmail.com