draft-ietf-bfd-large-packets

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Problem Statement

- Large packet unable to be transmitted on WAN circuit due to Telco issue
- Interface and Protocol status remain active as keepalive packets are small
- No network alarms
- Time consuming to troubleshoot due to ECMP
### bfd.PaddedPduSize

#### Current

<table>
<thead>
<tr>
<th>Layer2</th>
<th>IP Hdr</th>
<th>UDP Hdr</th>
<th>BFD</th>
</tr>
</thead>
<tbody>
<tr>
<td>ip len</td>
<td>x</td>
<td>udp src</td>
<td>udp dst 3784</td>
</tr>
<tr>
<td>52</td>
<td>8</td>
<td>24</td>
<td>24</td>
</tr>
</tbody>
</table>

udp len=32

ip len=52

#### Proposal

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<tr>
<td>ip len</td>
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<td>52+p</td>
<td>8</td>
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</tbody>
</table>

udp len=32

p=bfld.PaddedPduSize

ip len=52+p=bfld.PaddedPduSize

<table>
<thead>
<tr>
<th>Sample User Cases</th>
<th>Max IP Payload</th>
<th>Bfd.PaddedPduSize (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet Core</td>
<td>1,500</td>
<td>1,448 (1,500-52)</td>
</tr>
<tr>
<td>MPLS VPN Core</td>
<td>1,500</td>
<td>1,460 (1,512-52)</td>
</tr>
</tbody>
</table>
bdf.PaddedPduSize

- Enable on a per-interface basis
- Padding is enabled at IP layer
  - No change in "BFD/UDP" packet format
- Padded size need not match Link MTU
  - E.g. Link mtu may be 9k, but only need to detect link can carry 1,512 bytes payload
- Problem has only been observed on commercial WAN links
  - Need not enable this on intra-site links (e.g. DC)
Protocol Hello Padding?

- ISIS is only protocol that supports Hello Padding
- Disadvantages:
  - Not supported by common protocols such as OSPF, BGP
  - Long detection time
    - Unacceptable in modern network (e.g. 40s/90s/180s)
  - Protocol Detection via control plane can be unreliable
- BFD implementation on modern network vendors are control plane independent – reliable and deterministic
Questions?