non-MPLS BIER LSR Extensions

draft-ietf-bier-lsr-non-mpls-extensions

Senthil Dhanaraj, Gang Yan, IJsbrand Wijnands
Peter Psenak, Zhaohui Zhang, Jingrong Xie

IETF113, Vienna
History

• 2018/11: draft-dhanaraj-bier-isis-non-mpls-extensions-00
  • Non-MPLS, but Ethernet-only scope
• 2019/1: draft-dhanaraj-bier-lsr-ethernet-extensions
  • Name reflects Ethernet-only scope
• 2019/4: why should we limit it to Ethernet-only?
  • Work stalled since then (besides WG adoption)
• 2022/2: draft-ietf-bier-lsr-non-mpls-extensions-00
Domain-wide Unique BIFT-IDs?

• RFC8296 says that for non-MPLS, BIFT-IDs are domain-wide unique
  • Two ways in draft-ietf-bier-non-mpls-bift-encoding
    • Hard encoding of <BSL, SD, SI> as BIFT-ID – no provision/signaling needed
    • Encoding of <IBU, SI> as BIFT-ID – provisioning of IBU needed
      • IBU is just an opaque number to provide flexibility as with MPLS

• RFC8279 does not mandate domain-wide unique BIFT-IDs
  • draft-zzhang-bier-rift argues that non-MPLS BIFT-IDs can be like MPLS labels
    • No provisioning of “IBU” needed yet still has the flexibility as with MPLS
    • BIFT-IDs are just 20-bit opaque numbers like MPLS labels but not called labels
      • They can be locally assigned independently or coordinated so that consistent values are used
        • Just like SRLB and SRGB labels
BIFT-ID Approach in This Document

• Update RFC8296 that domain-wide unique BIFT-IDs not mandated even for non-MPLS BIER

• Either of the following are allowed:
  • draft-ietf-bier-non-mpls-bift-encoding approaches
  • Signaled BIFT-IDs that can be local or domain-wide unique
Signaling

- ISIS/OSPFv2/OSPFv3 signals dynamic/local non-label BIFT-IDs
  - Mirrors RFC8401/8444 (ISIS/OSPF BIER-MPLS signaling)
  - BIER Info TLV with non-MPLS Encapsulation sub-TLV

<table>
<thead>
<tr>
<th>Type</th>
<th>Length</th>
<th>BAR</th>
<th>IPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>subdomain-id</td>
<td>BFR-id</td>
<td>sub-sub-TLVS</td>
<td></td>
</tr>
<tr>
<td>~</td>
<td>sub-sub-TLVs (variable)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max SI</td>
<td>BIFT-id</td>
</tr>
<tr>
<td>BS Len</td>
<td>Reserved</td>
</tr>
</tbody>
</table>
Changes in Latest Revision

• Name & scope change
  • Non-MPLS BIER with anything

• Editorial changes

• Leaking between areas/levels
  • BIER Info (sub-)TLV do not need to be leaked if BFR-id is 0
  • BIER encapsulation info do not need to be leaked
BIER Info Leaking across Area/Level

- Only \(<\text{subdomain/MT, BAR/IPA, BFER-IDs}>\) need to be leaked
  - BIER routers in one area do not care about BFRs in another area
  - BIER routers in one area do not care about encapsulation in another area
Next Steps

• Comments?
  • This unblocks IDR/BGP-LS extensions

• Ready for WGLC