Overview of Tethering

• A non-BFR may have one or more designated helper “tethered to it”
  • Could be via a tunnel
  • A helper advertises that it is the helper of a helped node

• Update to Section 6.9 procedure of RFC 8296, for post-SPF handling of non-BFRs:
  • Instead of replacing a non-BFR on the tree with its BFR children, replacing it with its helper – if that does not introduce loop
  • Traffic tunneled to the helper, who then tunnel to downstream BFRs

• -01 revision introduces egress protection
Tethering Applied to Egress Protection

• For egress protection, a BFER may have a designated protector BFER
• A failed BFER (BFER1) can be considered as a non-BFR, its protector BFER (BFER2) considered as the helper
• No additional signaling besides existing tethering signaling
  • The fact that the helped node is capable of BIER indicates it is for egress protection

![Diagram of BFR1, BFER1, BFER2, CE1, CE2, PLR, Protector/Helper, Protected/Helped]
Tethering Applied to Egress Protection

- On PLR, for the BIFT entry for a protected BFER, if the primary path is not through another BFR, its node-protection path is to tunnel to the protector/helper BFER.
- On protector/helper BFER, for the BIFT entry for the protected BFER, the node-protection path is to decap and send to protected BFER’s flow overlay receivers.
A Few Notes

• Even if both CE1 and CE2 needs to receive traffic, if the FRR’ed packet only has BFER1 bit set, it is only sent to CE1 after decap
  • This is why PLR should not flip the BFER1-bit to BFER2-bit
• For the backup path of the BFER1 entry on BFER2, the F-BM only includes BFER1 itself
  • This is actually not a special rule – any decap branch’s F-BM is like that
  • This ensures that if PLR sends one copy to BFER2 with BFER1+BFER2 bits set, one decap’ed copy is sent to CE2 and one decap’ed copy is sent to CE1
• The primary path for the BFER1 entry on BFER2 is through BFR1
  • This may cause loop if PLR detects BFER1 failure before BFER2 does
  • This can be avoided if BFER2 always uses the backup path for BFER1
Comments?