Thoughts on A RFC6514bis

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IETF119, Brisbane
RFC6514 & Relevant RFCs

- RFC6514 is an enormous spec itself for BGP-MVPN with a lot of follow-up specifications
- Clarifications
  - RFC6515: IPv4/IPv6 Infrastructure Addresses in BGP-MVPN routes
- Feature Extensions
  - RFC6625: wildcard A-D routes
  - RFC7899: state damping
  - RFC7988: ingress replication tunnels
  - RFC9081: MVPN-MSDP SA route interaction
  - RFC7441: mLDP FEC encoding
  - RFC7582: bidirectional provider tunnels (PIM-bidr, MP2MP LSP)
  - RFC7900: extranet
  - RFC8534: Explicit Tracking in wildcard A-D routes
  - RFC7740: IR optimization for C-BIDIR
  - RFC7716: Global Table Multicast with BGP-MVPN
  - RFC7024: Virtual Hub and Spoke
  - RFC7524: Inter-area segmentation
  - RFC9026: upstream redundancy
  - RFCxxxx: mvpn-evpn aggregation label
Outstanding Protocol Issues

• MVPN Inter-AS Upstream PE Selection based on unicast routes
  • Traffic blackholes may happen with selective tunnels
  • Traffic duplications may happen with inclusive tunnels
  • Section 1.4 of draft-zzhang-bess-mvpn-evpn-cmcast-enhancements

• Non-segmented Inter-AS support with IPv6 infrastructure
  • The Source AS field in the C-Multicast Route encodes the UMH PE’s IPv4 Address
    • Used to propagate the C-Multicast route along the reverse path of the UMH’s I-PMSI route
    • This does not work for an IPv6 infrastructure
  • Different solutions proposed in:
    • Section 2.2 of draft-zzhang-bess-mvpn-evpn-cmcast-enhancements
    • Section 3.2 of draft-duan-bess-mvpn-ipv6-infras
  • Debates between the authors of the two drafts
Desired Enhancements

- draft-zzhang-bess-bgp-mvpn-source-active-route
- Inter-area segmentation enhancements
  - Remove area restriction/assumption
  - A draft is in the work – including another enhancement
- C-multicast enhancements
  - draft-zzhang-bess-mvpn-evpn-cmcast-enhancements
- Other enhancements in various drafts
RFC6514bis?

• The thought of a RFC6514bis was brought up when the chairs were considering the adoption requests for:
  • draft-zzhang-bess-mvpn-evpn-cmcast-enhancements
  • draft-duan-bess-mvpn-ipv6-infras

• The solutions to the two protocol issues would be the main driver for a RFC6514bis
  • Though they could be addressed by separate specifications as well
  • Either way, we first need to decide which solution we should adopt
Potential Additions in RFC6514bis

• Add solutions for the two protocol issues
• Fold draft-zzhang-bess-bgp-mvpn-source-active-route to RFC6514bis
• Fold the following RFC content to RFC6514bis
  • RFC6515: IPv4/IPv6 Infrastructure Addresses in BGP-MVPN routes
  • RFC6625: wildcard A-D routes ???
  • RFC9081: MVPN-MSDP SA route interaction
  • RFC7441: mLDP FEC encoding
  • RFC8534: Explicit Tracking in wildcard A-D routes ???
  • RFCxxxx: mvpn-evpn aggregation label ???
• Other issues/enhancements TBD
Next Steps

• WG discussions!
  • Especially the two outstanding protocol issues and proposed solutions
• Other issues/enhancements that may be added to RFC6514bis?