Domain Path (D-PATH) for Ethernet VPN (EVPN) Interconnect Networks
draft-sr-bess-evpn-dpath-01

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Agenda

1. Refresh
2. What’s new
3. Next-steps
D-PATH Attribute Refresh
I-D.ietf-bess-evpn-ipvpn-interworking

Domain PATH Attribute (D-PATH) definition
- Optional, transitive
- Composed of a sequence of domain segments
- Each domain segment defined by length and a sequence of Domains
- Domain is represented by <DOMAIN-ID:ISF_SAFI_TYPE>, where the ISF_SAFI_TYPE can be evpn, ip, vpn-ip, zero
- Each service Gateway with an IP-VRF connecting two domains appends the <DOMAIN-ID:ISF_SAFI_TYPE> of the domain of origin before re-advertising into another domain

D-PATH impacts on BGP procedures
- Control Plane loop protection
- Best path selection
Use of D-PATH in EVPN Interconnect Networks (RFC9014)
Loop Protection and Best Path Selection

**Loop Protection on the DCGWs**
- DGW1 and DGW2 can compare the D-PATH of the incoming routes with their local list of Layer2-Domain-IDs and detect a loop if any of the local Layer2-Domain-IDs matches a domain in the received D-PATH.
- This procedure prevents the re-advertisement of the route back into Layer2-Domain-1.

**Traceability and best path selection on PE2**
- PE2 has the visibility of the Layer2-Domains through which the route has gone, and
- PE2 can also use the D-PATH for best path selection in case PE2 receives a MAC/IP Advertisement route for M1/IP1 by some other means.
What’s New
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New Authors added
- Mallika, Patrice, Wen
- Their contributions are now incorporated

General changes
- Section 1 (Introduction) significantly improved - adding use-cases that justify the use of D-PATH for (non-type 5) EVPN routes
- Terminology clarified
- General clean-up

Changes in the specification (section 4)
- D-PATH used now for IMET routes too (in addition to non-ISF MAC/IP and A-D per EVI routes)
- Loop Detection procedures modified as follows:
  - IMET routes now included
  - MAC/IP routes received with local D-PATH domain-id MAY be installed if selected as best route
Loop protection
- DGW1 receives two routes for M1/IP1 – one with its own local domain and one without D-PATH
- DGW1 only installs the route without D-PATH based on best path selection

Fast convergence in case of failures
- DGW1 peer to domain-1 RR fails
- DGW1 now may install M1/IP1 with next-hop DGW2 so that in-flight packets can be forwarded
D-PATH avoids parallel EVPN multicast paths in an automated way
- D-PATH only added by the GWs on one domain
- Best path selection ensures only one BUM EVPN binding between the two GWs for BD1
Next Steps
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Simplify best path selection section
- The best path selection for EVPN routes will be clarified in I-D.ietf-bess-rfc7432bis
- This document will simply add the D-PATH to the selection and refer to rfc7432bis for the general best path selection

Request more feedback and Working Group Adoption
Thank you