EVPN Anycast Multi-Homing

draft-rabnag-bess-evpn-anycast-aliasing-05

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Shenzhen

Agenda

- Changes in revision 05
- Next Steps

Anycast Multi-Homing Solution

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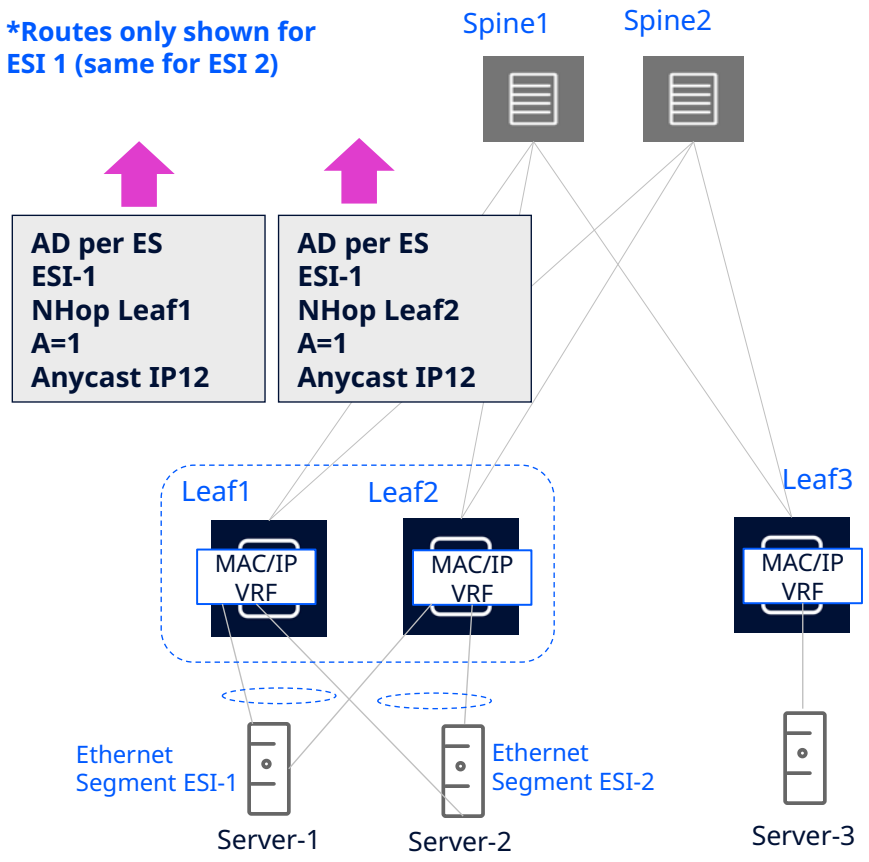

Egress Leaf new behavior (Leaf1/Leaf2)

No changes to:

- DF election
- ESI advertisement in EVPN routes
- IMET routes processing and BUM forwarding

Ingress VNI:

- Both Leaf1 and Leaf2 must use the same ingress VNI for the network instance

Control Plane:

- Suppress AD per-EVI routes
- Advertise AD per-ES routes with: A=1 flag (ESI label ext community), Anycast VTEP in BGP TEA
- MAC/IP routes: ESI included, “unicast” VTEP as next-hop

Data Plane:

- Traffic sourced from unicast VTEP
- Anycast VTEP as source IP used only for FRR traffic

Ingress Leaf new behavior (Leaf3)

Control Plane Behavior

- ES destination:
  - creation based on AD per-ES routes with A=1
  - Single VTEP used (the anycast VTEP from AD per-ES)
  - VNI derived from the MAC/IP route
- MAC entries:
  - Installed against the ES destination as usual
- Mass withdrawal per ES supported (upon reception of the last MP_UNREACH_NLRI A-D per ES for the ESI)
- OPTIONAL: when only one egress NVE remains active in the ES, the ingress NVE reprograms the ES destination from using the Anycast VTEP to using the unicast VTEP of the remaining egress NVE

No Data Plane changes

Changes in rev 05

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BGP EVPN extensions – section 2

- Clarifies which EVPN routes use the new BGP extensions
- Specifies that the BGP Encapsulation Extended Community is advertised with the Anycast VTEP

Anycast Multi-Homing Solution – section 3

- Defines error-handling procedures when A-D per-ES routes for an Anycast ES are received with inconsistent A-flag or Anycast VTEP information

Anycast Multi-Homing Solution and Multi-Homed IP Prefixes – section 5.1

- Clarifies that egress PEs advertise the same router's MAC

New section 7 – Applicability of Anycast Multi-Homing to Inter-Domain Service Gateways

- Broadcast Domains: RFC 9014 I-ES concept extended to support Anycast Multi-Homing
- Inter-Subnet Forwarding: draft-ietf-bess-evpn-ipvpn-interworking extended to support Anycast MH on Gateway PEs

Anycast Multi-Homing Solution on Service Gateways

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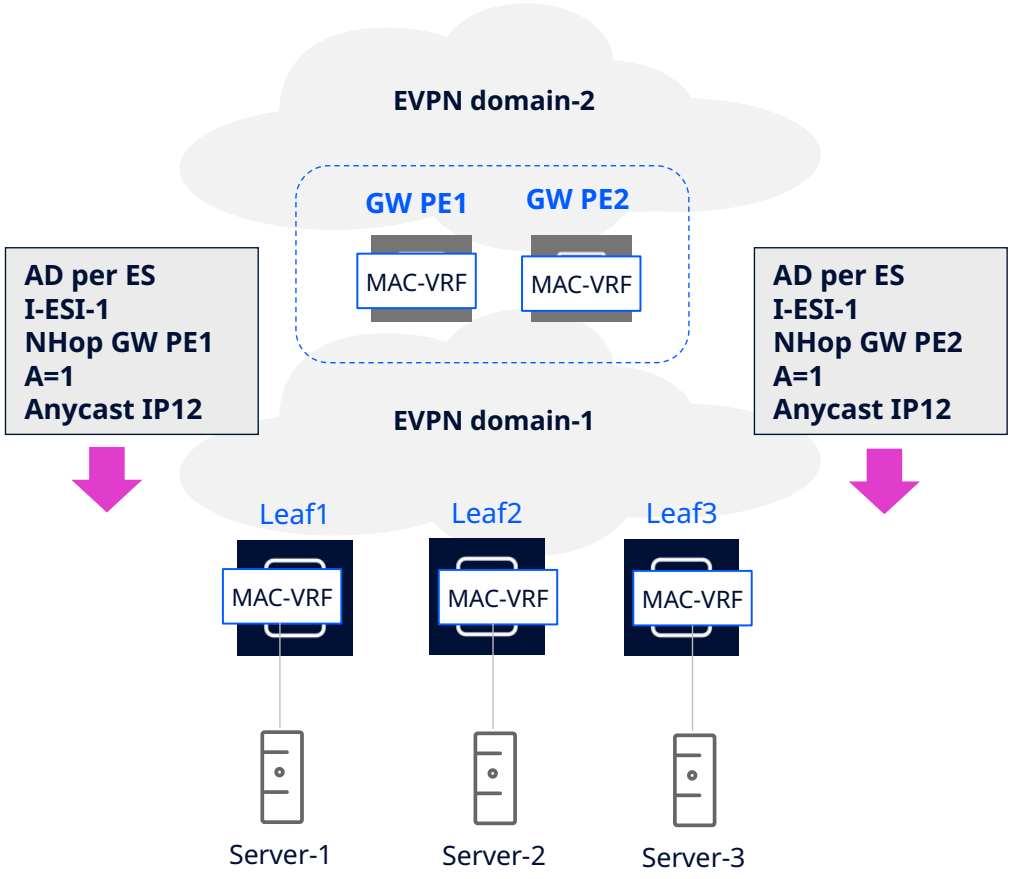

RFC9014 - GW PE extensions (represented in the diagram)

- Gateway PEs act as egress NVEs for the interconnect ES
- Follow Section 3 Anycast MH procedures for the interconnect
- Applied per-domain capability
  - If Domain-1 supports Anycast MH → Section 3 procedures apply
  - If Domain-2 does not → standard RFC9014 behavior
- Compatible with UMR (Unknow MAC Route) and D-PATH extensions

draft-ietf-bess-evpn-ipvpn-interworking - GW PE extensions

- Gateway PEs act as egress NVEs
- Follow Section 5 procedures
- Applies when:
  - Domains support Anycast Multi-Homing
  - EVPN domains interconnected via IP tunnels

Next Steps

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- **Feedback** from WG
- The Authors Solicit **WG Adoption**

Thank you