Applicability of EVPN to NVO3 Networks

draft-rabadan-nvo3-evpn-applicability-00

Jorge Rabadan (Nokia)
Matthew Bocci (Nokia)
Sami Boutros (VMware)

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Introduction

• What it is:
  – Informational / Applicability document that intends to describe how to use EVPN as a control-plane protocol to address the requirements of NVO3 networks (at a high level)
  – A Reference Guide that points at the right document in BESS for the implementation details

• What it is not:
  – A Standards Track document
  – A document that specifies a protocol or protocol extension

• The assumptions it makes:
  – The NVEs exchange information via control-plane
  – That control-plane is based on EVPN
Why is EVPN needed
In NVO3 networks

• A control-plane is needed in NVO3 networks for:
  a) Auto-discovery of the remote NVEs that are attached to the same BD
  b) Dissemination of the MAC/IP host information (mapping tables on remote NVEs)
  c) Advanced features (MAC Mobility, MAC Protection, BUM traffic reduction/suppression, Multi-homing, etc.)

• Comparing “Flood and Learn” and EVPN
EVPN provides the basic Control Plane needs...

- Auto-Provisioning of NVEs
- Auto-discovery of remote VTEPs through Inclusive Multicast Routes (IMET)
- Distribution of MAC/IP information in order to reduce/suppress flooding through MAC/IP routes

Reference documents
RFC7432
draft-ietf-bess-evpn-overlay
EVPN Basic Applicability For Layer-3 Services

EVPN provides two basic models

- **Asymmetric**
  - All NVEs are attached to all subnets
  - At the egress NVE only MAC lookup is needed
- **Symmetric**
  - NVEs are attached to only subnets with connected hosts
  - Ingress/Egress NVE need (tenant) IP lookup.

Reference documents

draft-ietf-bess-evpn-prefix-advertisement
draft-ietf-bess-evpn-inter-subnet-forwarding
Other Topics
In NVO3 networks

- Support for NVO3 encapsulations, in particular GENEVE
- OAM on NVO3

Reference documents Encaps
draft-ietf-bess-evpn-overlay
draft-ietf-nvo3-geneve
draft-ietf-idr-tunnel-encaps

Reference documents EVPN OAM
draft-jain-bess-evpn-lsp-ping
Advanced EVPN features
For NVO3 networks

- VM Mobility, MAC protection, Duplication Detection and Loop Protection
- Reduction / Suppression of BUM traffic in Broadcast Domains:
  - Proxy-ARP/ND
  - IGMP-MLD-PROXY
  - IGMP-PROXY
- Ingress Replication Optimization for BUM traffic
- EVPN Multi-Homing
- Recursive Resolution for Inter-Subnet Forwarding
- Optimized Inter-Subnet Multicast
- Data Center Interconnect

Reference documents - advanced EVPN
RFC7432
draft-ietf-bess-evpn-proxy-arp-nd
draft-snr-bess-evpn-loop-protect
draft-ietf-bess-evpn-igmp-mld-proxy
draft-skr-bess-evpn-pim-proxy-01
draft-ietf-bess-evpn-optimized-ir
draft-ietf-bess-evpn-overlay
draft-ietf-bess-evpn-df-election
draft-ietf-bess-evpn-pref-df
draft-ietf-bess-evpn-ac-df
draft-lin-bess-evpn-irb-mcast
draft-ietf-bess-dci-evpn-overlay
draft-rabadan-sajassi-bess-evpn-ipvpn-interworking
Next steps

The Authors would like to request feedback and discussion from the Working Group
Thank you