A Framework for L3VPN Performance Monitoring

draft-dong-l3vpn-pm-framework-00

Jie Dong, Zhenbin Li (Huawei)

IETF85 Nov. 2012 Atlanta
Background

- Performance Monitoring (PM) in BGP MPLS L3VPN is desired
  - Meet SLA of services which are sensitive to loss, delay, jitter.
  - Provide operators with visibility to the performance of the VPN network

- Challenges for performance monitoring in existing L3VPN
  - Identifying the source VPN instance of received packets
  - Detailed analyses are provided in accompany draft: 
    draft-zheng-l3vpn-pm-analysis-00

- This document describes the framework of providing PM in L3VPN
New concept for L3VPN PM

- VRF-to-VRF Tunnel (VT)
  - point-to-point connection between two VRFs in a VPN
  - VT is used by the egress PE to identify the ingress VRF
  - Essential for PM in L3VPN
Control Plane Mechanisms

• Step1: VPN membership auto-discovery
  – Mechanism similar to BGP AD in RFC 6074
  – PEs obtain VPN membership information of the remote PEs/VRFs

• Step2: VRF-to-VRF Label Allocation
  – PE-1 allocates unique MPLS label for each remote VRF to identify the VRF-to-VRF tunnel
Data Plane Mechanisms

• Packet Encapsulation with VT label
  
  – Approach 1: additional VT label for Ingress VRF identification

  ![Diagram 1]

  – Approach 2: replace VPN label with VT label

  ![Diagram 2]

• VT label identifies the connection between source VRF and destination VRF
• VPN route lookup in the destination VRF is required
Performance Monitoring in L3VPN

- PM mechanisms in RFC 6374 can be used for L3VPN
  - Loss & Delay measurement
  - Format of source and destination addresses in the Addressing Object are defined for L3VPN
    - source address: (RD + PE address) of source VRF
    - destination address: (RD + PE address) of destination VRF
Next Steps

- Solicit comments & feedbacks
- Revise the draft