Benchmarks and Methods for Multihomed EVPN
draft-morton-bmwg-multihome-evpn-03

Abstract

Fundamental Benchmarking Methodologies for Network Interconnect Devices of interest to the IETF are defined in RFC 2544. Key benchmarks applicable to restoration and multi-homed sites are in RFC 6894. This memo applies these methods to Multihomed nodes implemented on Ethernet Virtual Private Networks (EVPN).
Comments from Sudhin Jacob

• Thanks! Detailed Reply on the BMWG-List.
• Summary of Changes in 03 follows:
  • Retained Figure 1 for minimal Throughput Setup
  • Many additional details on Setup Configuration
  • Details on flows and calculations discussed
Figure 2 SUT with BGP & MPLS interconnecting multiple PE-ESI-CE locations

PE1 learns MAC A via data plane learning, PE1 and PE2 share ESI 1 (Ethernet Segment Identifier) and advertise an Ether A-D route with ESI 1 to PE3, PE1 also advertises MAC A to PE3. PE3 instantiates either Active/Backup or Active/Active towards PE1 and PE2 (Assume PE1 is Active in Active/Backup scenario) for MAC A.
4.1. Basic Configuration

This configuration serves as the base configuration for all test cases.

All routers except CE are configured with OSPF/IS-IS, LDP, MPLS, BGP with EVPN address family.

All routers except CE must have IBGP configured.

PE1, PE2, PE3 must be configured with an EVI context (EVI 1).

PE1 and PE2 must be configured with a non-zero ESI indicating that the two VLANs coming from CE1 belong to the same ethernet segment (ESI 1).

PE1 and PE2 are running Single Active mode of EVPN.

CE1 and CE2 are acting as bridges configured with VLANs that are configured on PE1, PE2, PE3.

In [RFC2889] procedures that follow, the test traffic will be bidirectional.
5. Procedure for Full Mesh Throughput Characterization

Objective: To characterize the ability of a DUT/SUT to process frames between CE and one or more PEs in a multihomed connectivity scenario. Figure 1 gives the least-complex test setup. Figure 2 gives a possible alternative with full BGP and MPLS interconnection.

The Procedure follows.

5.1. Address Learning Phase

"For every address, learning frames MUST be sent to the DUT/SUT to allow the DUT/SUT to update its address tables properly." [RFC2889]

5.2. Test for a Single Frame Size and Number of Unicast Flows

Each trial in the test requires configuring a number of flows (from 100 to 100k) and a fixed frame size (64 octets to 128, 256, 512, 1024, 1280 and 1518 bytes, as per [RFC2544]). Frame formats MUST be specified, they are as described in section 4 of [RFC2889]. Only one of frame size and number of flows SHALL change for each test.
Other Comments

• Calculations for Statistics are clear.
Thanks for your attention today!

- Please review!