

Path Optimization for LAN Extension

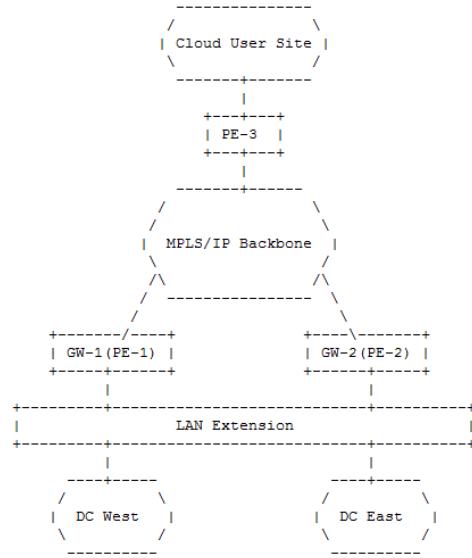
**draft-xu-nvo3-lan-extension-path-
optimization-00**

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Generic Data Center Interconnect Architecture

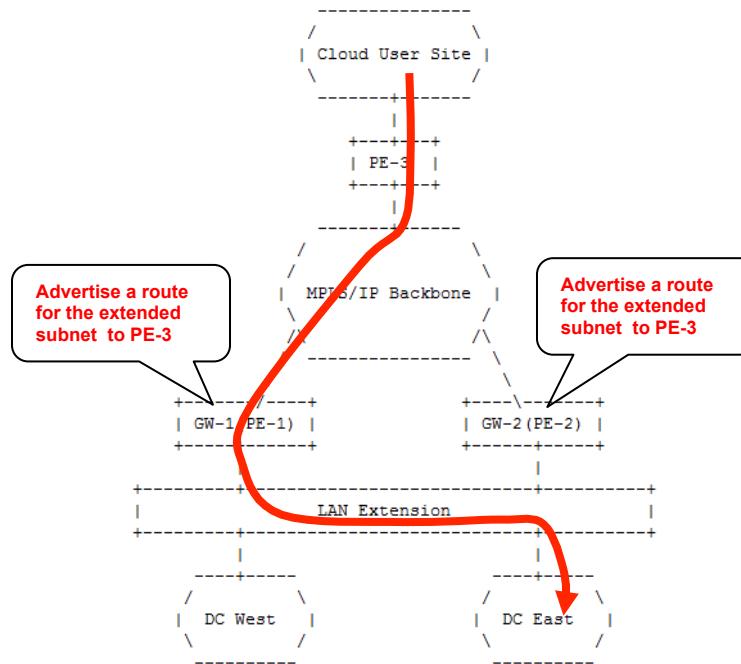


- Assume the existing VPLS solution [RFC4761, RFC4762] is used to achieve LAN extension across multiple data center locations and L3VPN [RFC4364] is used by cloud users to access the computing resources within data centers.
 - Internet gateway is outside of the scope.

Problem Statement

■ Problem 1: Suboptimal Routing for Incoming Traffic.

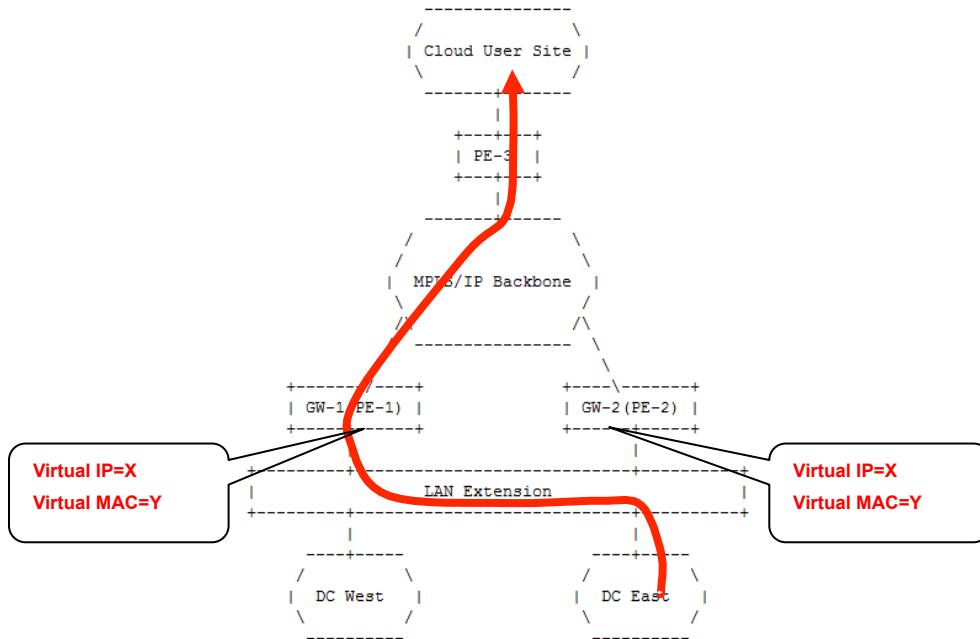
- Since the subnet associated with the extended LAN has also been extended across multiple locations, the subnet no longer retains its location semantics.
- The incoming traffic from cloud users towards a given server within the extended subnet could travel along suboptimal paths.



Problem Statement (cont.)

- **Problem 2: Suboptimal Routing for Outgoing Traffic.**

- To keep the default gateway of the moved VM unchanged, default gateways of different locations are usually configured with identical IP and MAC addresses (e.g., enable VRRP but filter VRRP messages).
 - However, the VPLS forwarding path towards the VRRP virtual MAC could be pointed to a default gateway at the remote data center.



Solution Requirements

- **Solution to Problem 1**

- Each default gateway router acting as a L3VPN PE router should be capable of creating host routes for those local servers within the extended subnet and propagating them to remote PE routers at cloud user sites.

- **Solution to Problem 2**

- To ensure the outgoing inter-subnet traffic to be forwarded to a local default gateway in normal cases, the LAN extension solution should be able to select the best route (i.e., the closest one) for a given MAC address (e.g., the VRRP virtual MAC address) among multiple possible routes on the control plane.

Next-steps

- **Comments and suggestions?**
 - Should the path optimization issue and requirement parts of this draft be incorporated into the problem statement draft and the framework draft respectively?
 - Or should it be adopted as a companion draft to the PS and Framework drafts?