

HVPLS OAM

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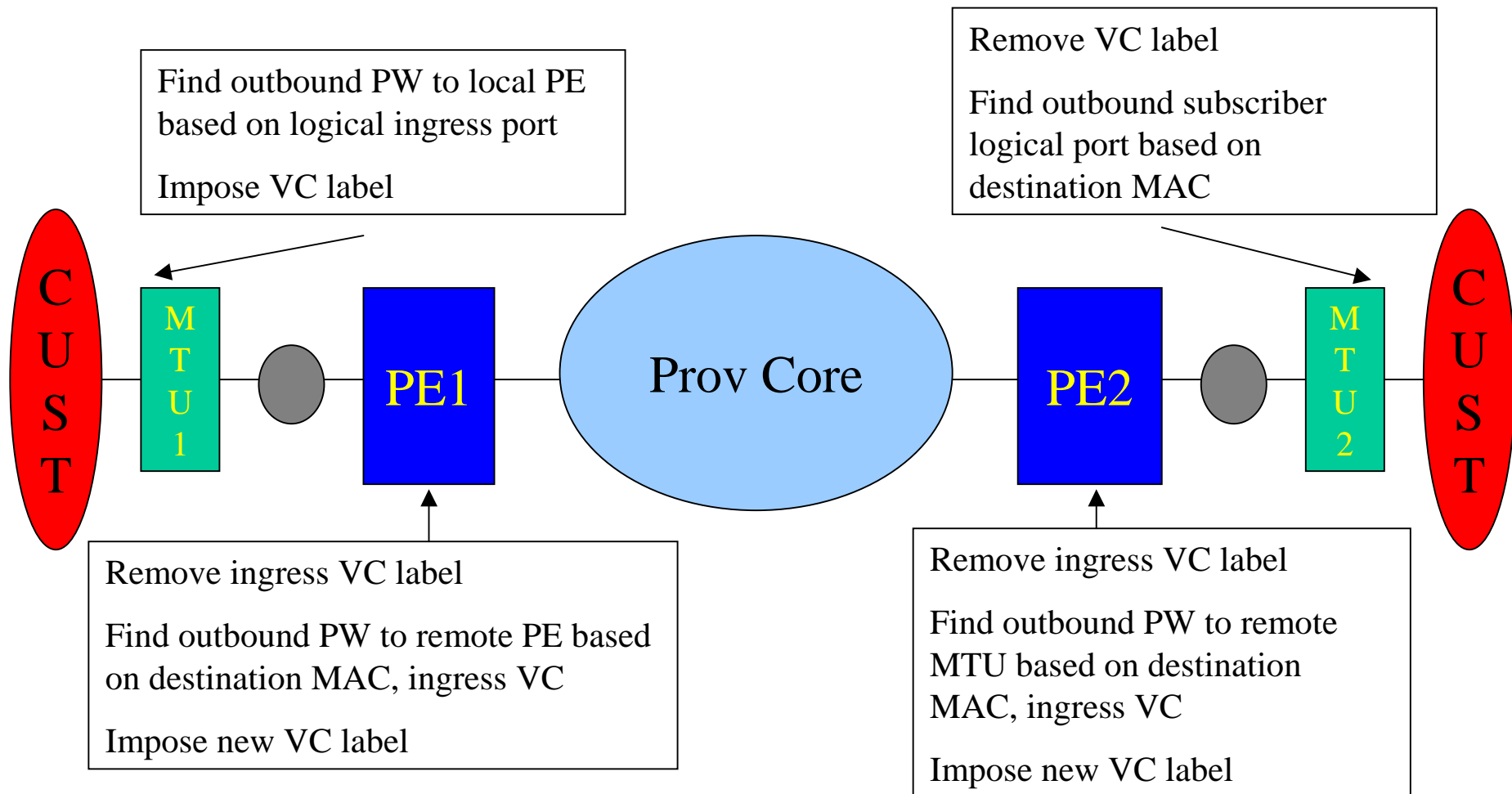
Problem Statement

- How does a service provider monitor or debug connectivity of an HVPLS?
 - Check transport tunnel connectivity
 - Use transport tunnel methods, e.g., LSP Ping
 - Check “VC LSP” connectivity
 - Need something like our draft

Requirements

- Check the health of an HVPLS
 - Ping: end-to-end
 - Traceroute: hop-by-hop
- Check if the FIBs are correctly maneuverable
 - MUST have attributes of a customer packet
 - MUST use same path as customer packet, as far as possible (i.e., service aware nodes and their FIBs)
 - MUST NOT impose on subscriber network
 - SHOULD NOT impose on fast path
- (Other VPNs have similar requirements)

Example



Issues

- How to identify a ping packet
 - The packet looks like a cust packet, else can't behave like one through prov network
 - Can't let it reach the customer
 - Therefore it isn't exactly a cust pkt
 - Don't want to take a fast path hit
 - So keep the identification to fields already being examined

Potential solutions

- Packet description

Tunnel Label (BoS = 0) or other tunnel header
VC Label (BoS = ?)
OAM Label (?)
Ethernet DLC (customer src and dst MAC)
IP Hdr
UDP Hdr
Ping/traceroute/TLVs

Potential solutions (2)

- Traversal of HVPLS
 - Use VC TTL
 - Requires carrying TTL across FIBs
 - Invoke Pipe model
 - Each VC is a pipe in a thicker (transport) pipe, with its own TTL, EXP
 - Use customer MACs
 - Look up outbound path using VC label and destination MAC, just like regular packets

Potential solutions (3)

- Solution should not slow down fast path (cust packets)
 - VC EXP
 - Use this for preserving customer's 802.1p bits
 - TTL
 - Varying values of TTL at different points in HVPLS
 - Ethertype
 - Overhead of looking at DLC ethertype in fast path for cust pkts
 - BoS bit of VC label, and OAM label
 - Requires looking at BoS on fast path before sending to cust

Future steps

- More input from providers on VPN testing
- Mailing discussions on the suggested solutions

IPR Issues

- Potential IPR issues
 - Need clarification on claims of IPR from Extreme