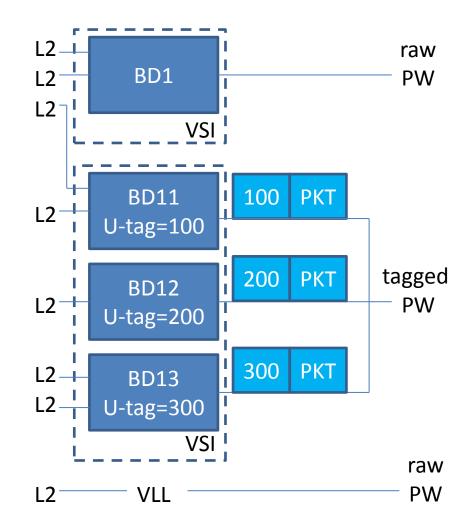# Tagging Customer Bridge Domains in VPLS

draft-zhang-l2vpn-vpls-bd-tagging-01.txt

Mingui Zhang

Bin Wang

Liang Xia

Jie Hu

Overview model

- Multiple customer BDs are integrated into a single VSI while their traffic is segregated.

- The Customer VLAN ID (U-tag) is used as the service discriminator.
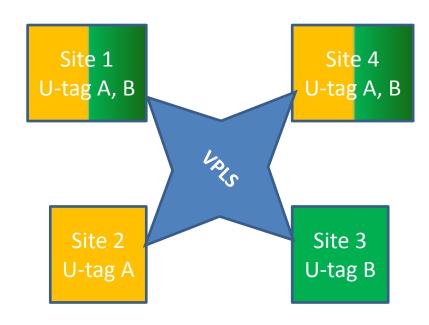
No duplicated MAC address

- One MAC address may be used in multiple Customer VLANs. (Especially in the virtualization environment.)

- If MAC addresses of these VLANs are handled by one VPLS instance, PEs will see MAC duplication.

- If U-tag is used as the discriminator, the duplication can be avoided.

Scalable provision

- Qualified learning [RFC4762] requires one VPLS instance per C-VLAN.

- In the environment (e.g., data center networks) where there are lots of tenants and each may own a number of broadcast domains, a mass of PWs need be provisioned.

- If U-tag is used for traffic isolation, one VPLS can provide qualified learning for multiple C-VLANs.

- Provisioning overhead can be greatly reduced.

BUM traffic scoped per BD

- Four sites are in one VPLS instance. BUM traffic of site 2 will pollute site 3, vice versa.
- If U-tag is used, VPLS can build bridge domains per U-tag. Site 2 and site 3 will not hear from each other.

Site 1
U-tag A, B

Site 4
U-tag A, B

VPLS

Site 2
U-tag A

Site 3
U-tag B

Per C-VLAN MAC withdraw

- Since PEs can recognize the U-tag, it allows a PE to flush MAC addresses per C-VLAN.
  - E.g., a VLAN vector TLV is defined in [draft-cai-l2vpn-vpls-vlan-aware-bundling], a PE can have this TLV in an LDP message to flush all MAC addresses of a C-VLAN.

Options arising from the industry

- Service providers hope to have the U-tag recognition feature in VPLS. Two options arising from the industry:
  - Advertising interested VLANs in LDP
    - E.g., PW VLAN Vector TLV defined in [draft-cai-l2vpn-vpls-vlan-aware-bundling]
  - Dynamic VLAN registration protocol
    - E.g., PEs exchange C-VLANs configuration using Multiple VLAN Registration Protocol (MVRP)

Next steps

- Call for WG adoption as informational
- On basis of this ID, solutions can be fostered thereafter.

Thanks!