

Ethernet VPN Virtual Private Wire Services Gateway Solution

draft-sr-bess-evpn-vpws-gateway-00

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Agenda

1. EVPN VPWS Interconnect and why Service Interworking
2. EVPN VPWS Gateway procedures
3. Next steps

EVPN VPWS Interconnect and why Service Interworking

Requirements and options

EVPN VPWS Interconnect requirements

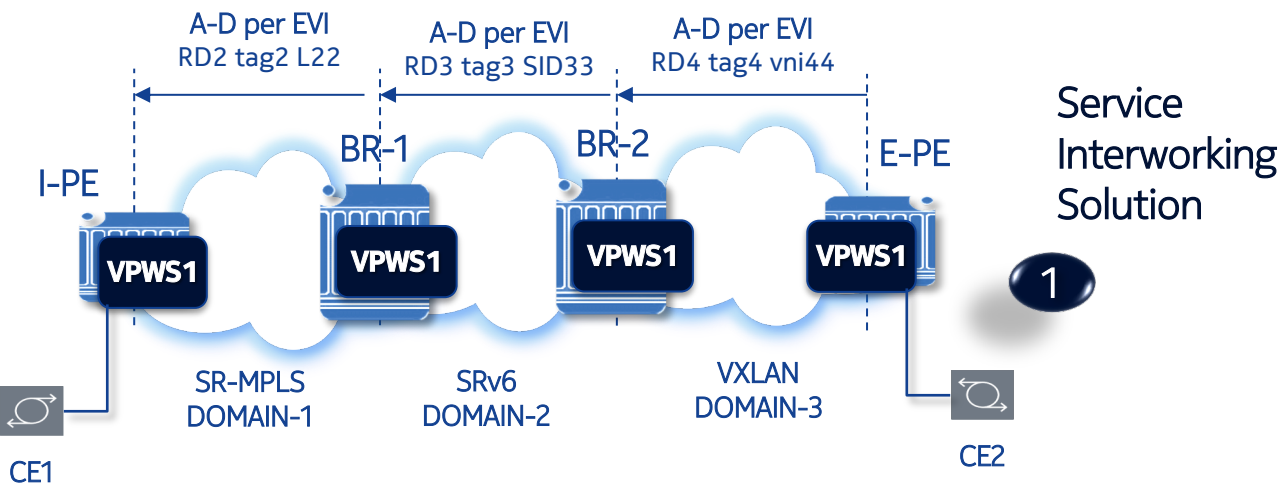
- EVPN VPWS needs to be deployed in high scale multi-domain networks
- Each domain can use a different transport technology (MPLS, VXLAN or Segment Routing with MPLS or IPv6 SIDs)
- EVPN Multi-Homing including mass-withdraw
- Potentially translation of RD/RTs, Ethernet Tag IDs, Layer-2 capabilities (CW, Flow Label, MTU) on Border Routers

EVPN VPWS Interconnect options

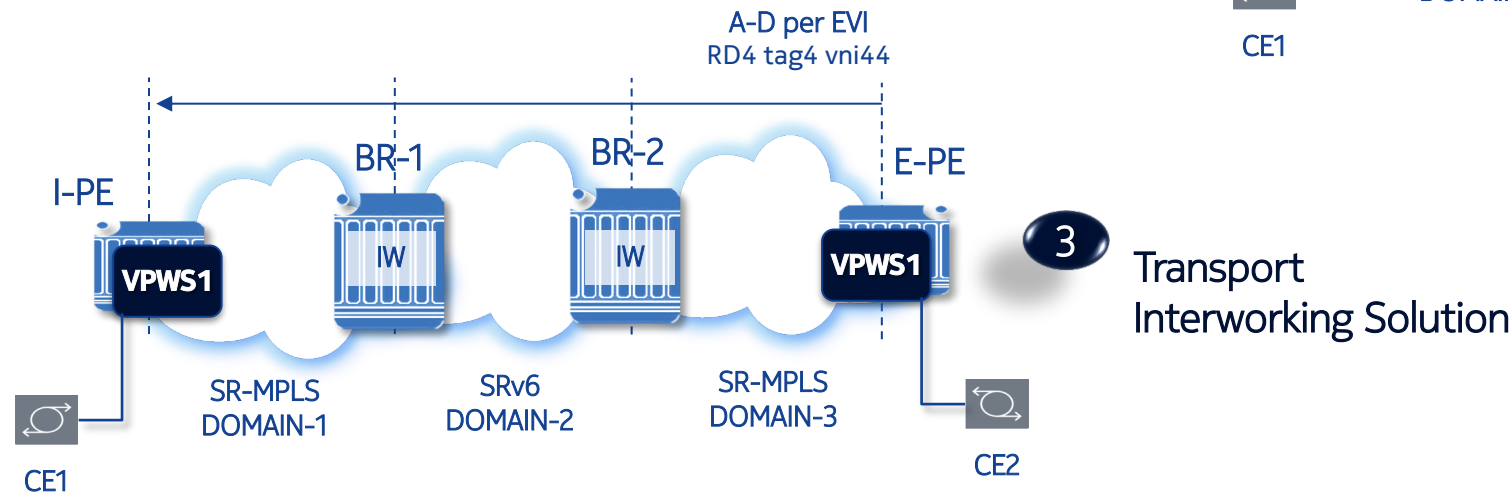
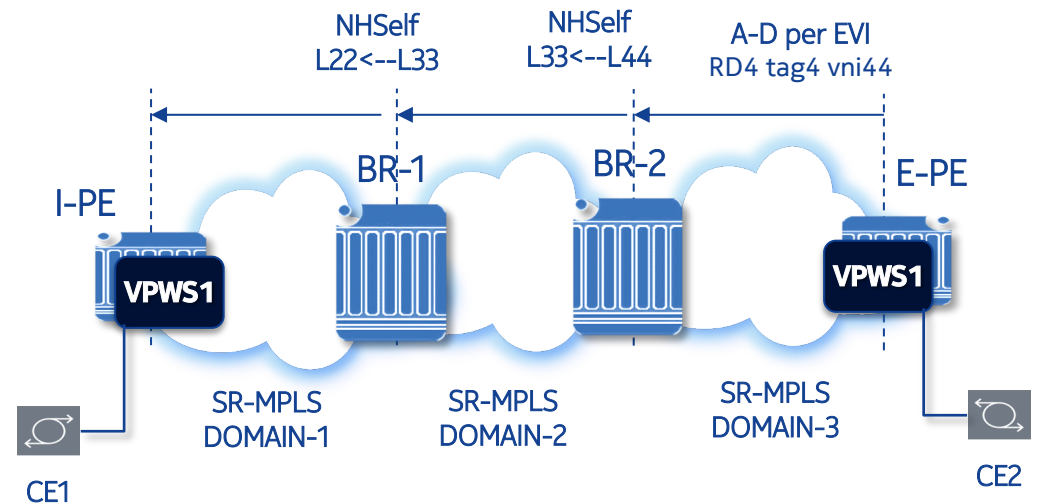
1. Service Interworking Solution
2. Inter-domain 'Option-B' Solution
3. Transport Interworking Solution

EVPN VPWS Interconnect and why Service Interworking

Options described



2 Option-B Solution



EVPN VPWS Interconnect and why Service Interworking

When is the Service Interworking Solution Required for EVPN VPWS

Requirement	Service Interworking	Inter-Domain Option-B	Transport Interworking
Per-Domain EVPN Multi-Homing	Yes	No	No
Per-Domain Mass Withdrawal	Yes	No	Yes
Per-Domain RD/RTs	Yes	Yes*	No
Per-Domain Ethernet Tag IDs	Yes	No	No
L2 attributes per Domain (CW, FAT, MTU)	Yes	No	No
Heterogeneous Encapsulation	Yes	No	Yes**
Per-Domain EVPN Service OAM	Yes	No	No

Service Interworking Procedures for EVPN VPWS

Redistribution of EVPN Routes Across Domains

“Redistribution”

All the procedures in the Gateway that involve

- a) reception and process of the (source domain) EVPN route
- b) programming of the forwarding path
- c) readvertisement of the route to a different domain (the next destination domain)

a

Reception and Process

Follows RFC8214 and I-D.sr-bess-evpn-dpath

b

Forwarding state programming

Using received Label/VNI/SID

Allocation of the Label/VNI/SID of the next destination domain and switching operation

c

Re-advertised routes rules

Different RDs

Same or different RTs, Ethernet Tag IDs

ESI=0 unless I-ES is defined

L2 Attributes and encapsulation regenerated

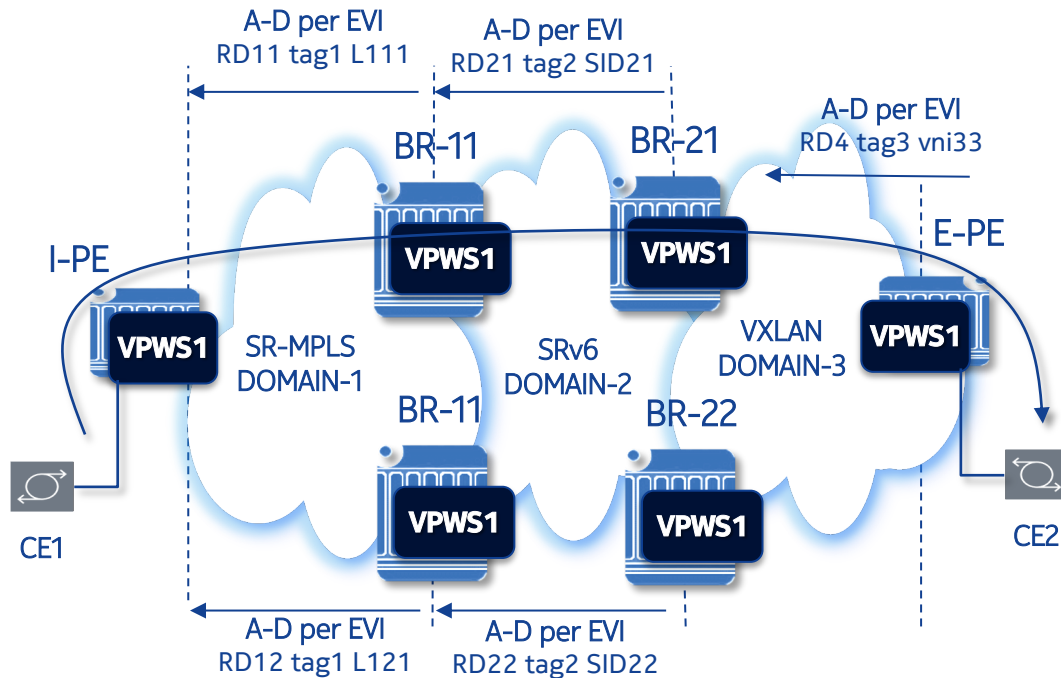
P/B flags not propagated but set based on I-ES

Communities, non-evpn extended communities, large communities propagated

D-PATH updated

Service Interworking Procedures for EVPN VPWS

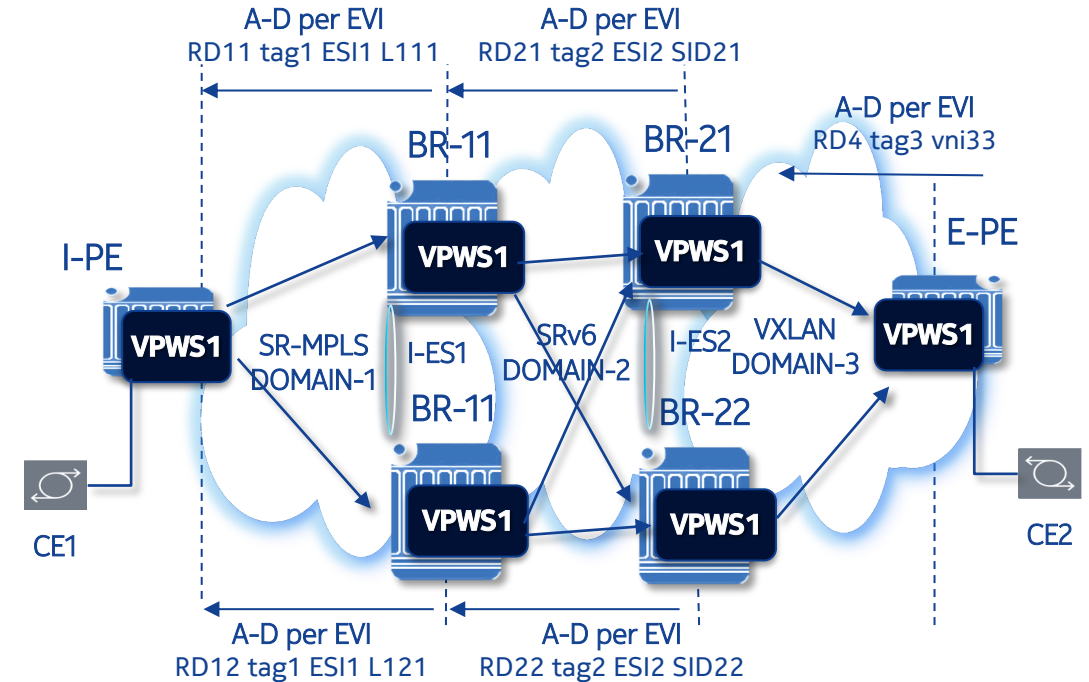
Service Gateway Redundancy



1

Anycast Gateways

Each anycast pair advertise the same Tag
ESI=0
D-PATH is used to avoid loops if the same tag is used across domains



2

EVPN Multi-Homing with I-ES

I-ESI as in RFC9014 is used for EVPN VPWS
All-active or single-active
Mass withdrawal

Next Steps

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Request more feedback from the Working Group

Thank you