

# EVPN and BGP-based L2VPN Seamless Integration

draft-lin-bess-bgp-based-l2vpn-seamless-integ-00

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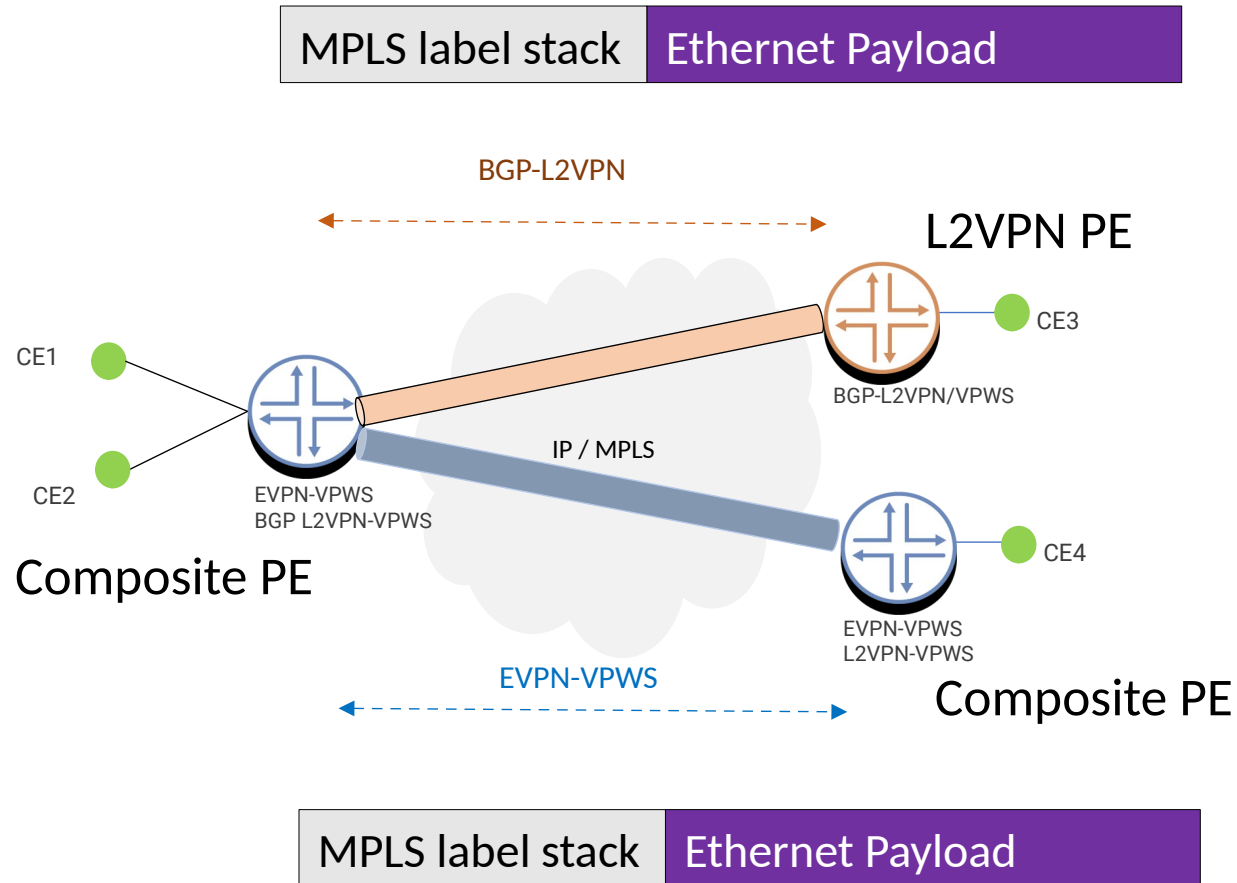
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# Agenda

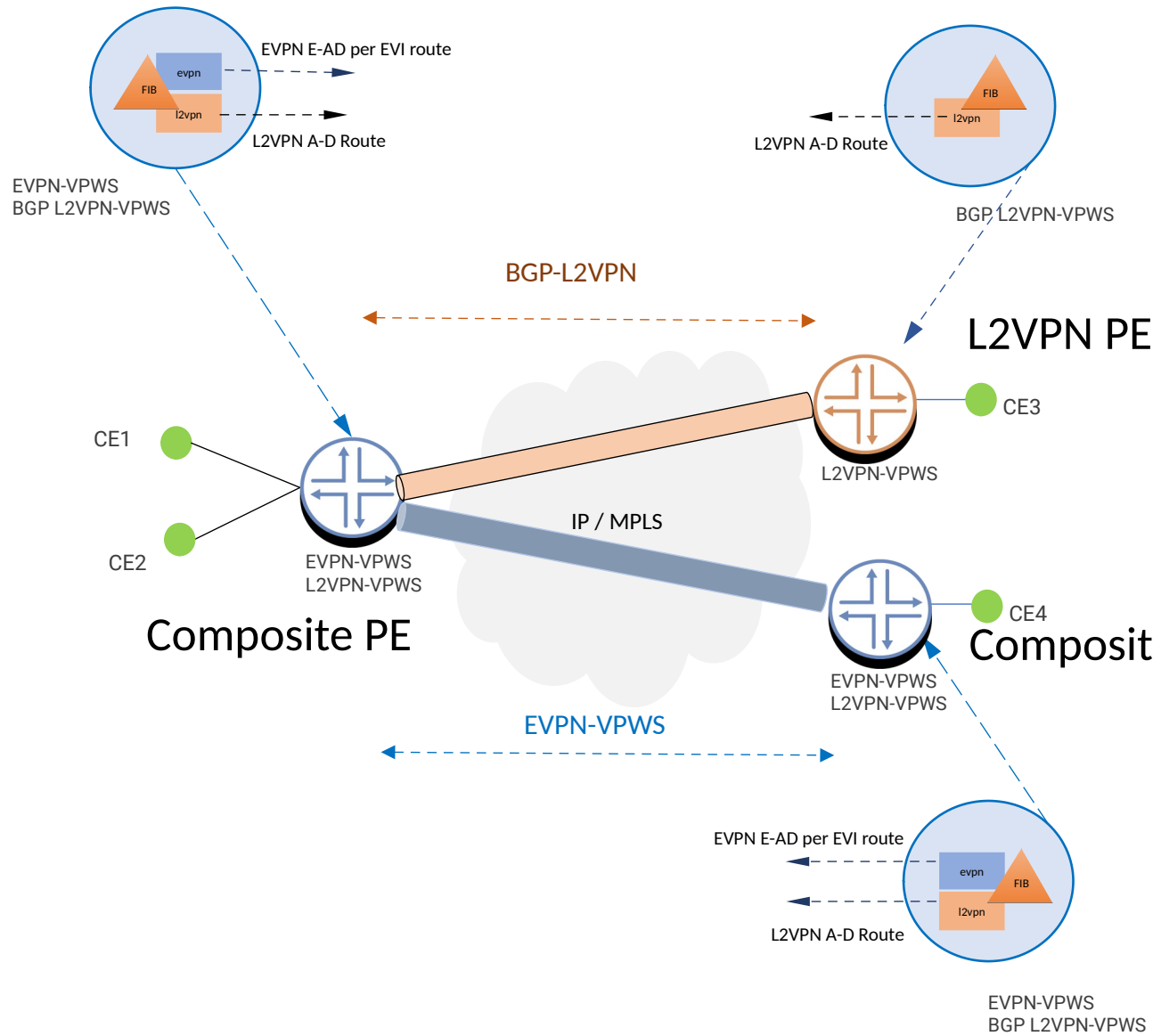
- **EVPN VPWS and BGP-based L2VPN (RFC 6624) Seamless Integration**
  - Covers single home, single-active, port-active and all-active support
- **Extension to EVPN and VPLS Seamless Integration with All-active Support**

# EVPN VPWS and BGP-L2VPN Seamless Integration



- Allow the co-existence of BGP-L2VPN VPWS and EVPN VPWS in the same VPN over the same IP/MPLS network
- Requires no software upgrade of legacy BGP based L2VPN PE (RFC 6624)

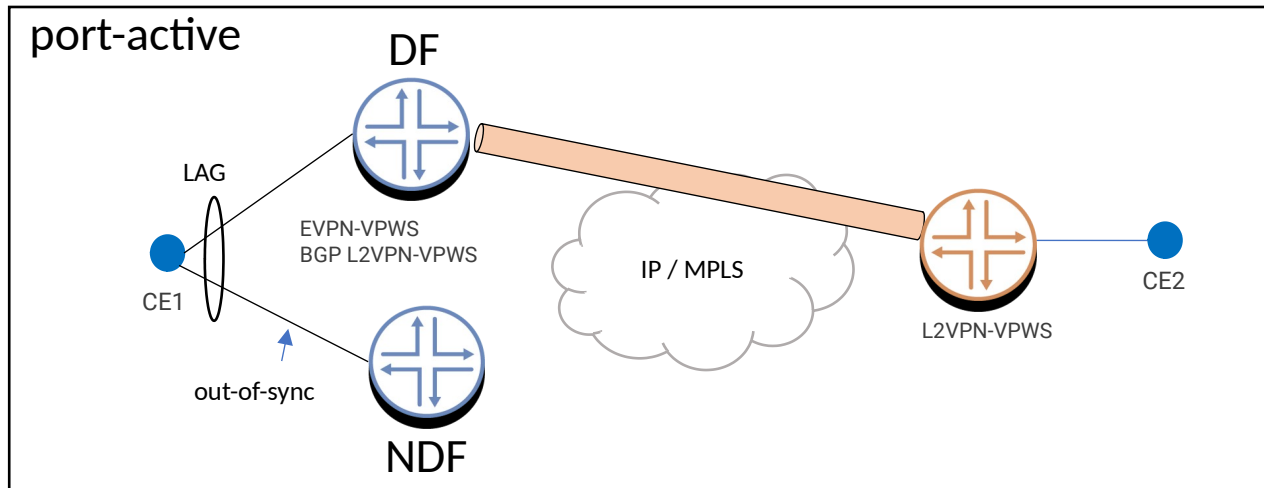
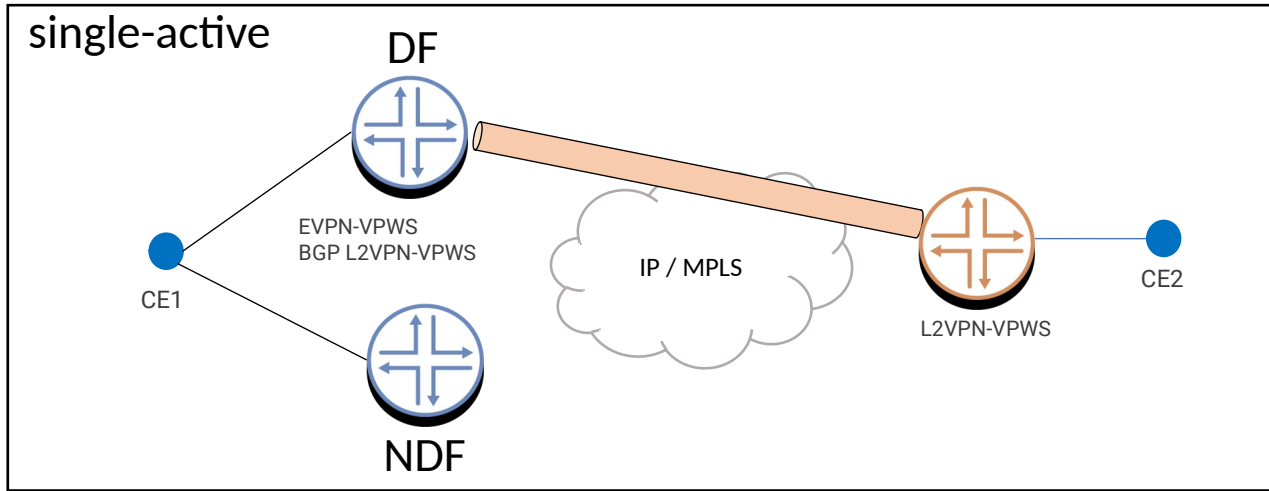
# Control Plane / Data Plane Behavior for VPWS



## Composite PE

- Supports both EVPN-VPWS and BGP-based L2VPN (RFC 6624)
- For each point-to-point VPWS service
  - One L2VPN Auto-discovery route, RFC 6624 procedure
  - One EVPN per E-AD per EVI route, RFC 8214 procedure
- Establish EVPN-VPWS PW when receiving both L2VPN auto-discovery route and EVPN per E-AD per EVI route for the same point-to-point service.
- Data Plane - make before break in the migration phase

# VPWS - Composite PE Single-active / port-active Multihoming



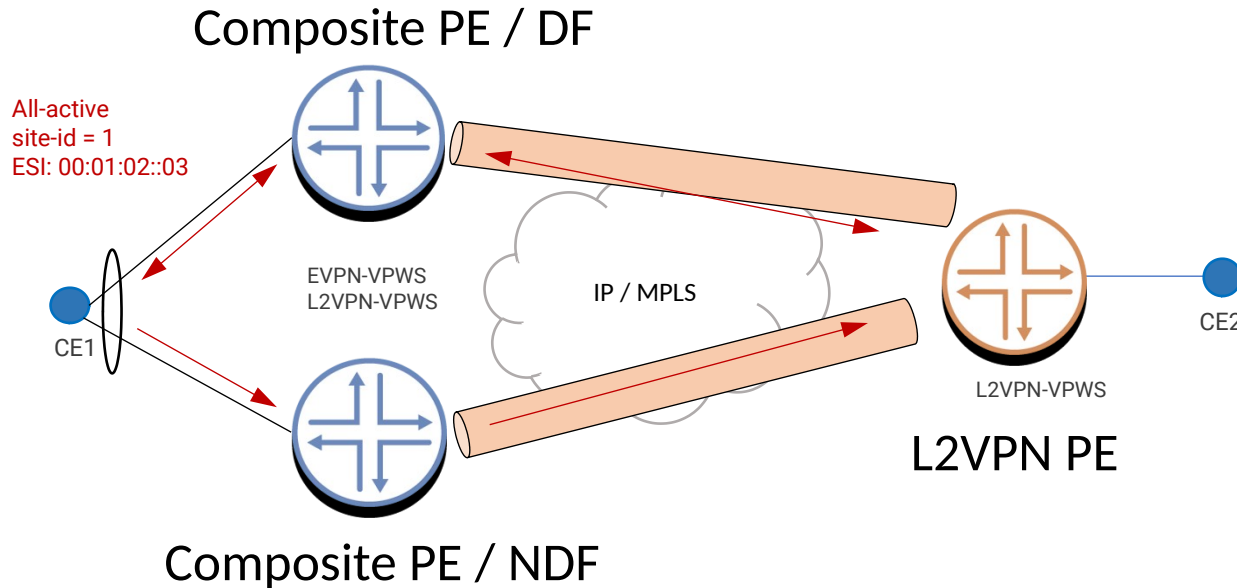
LAG interface from CE1 to PE1/PE2

Port based DF election

NDF sends out-of-sync to the multihomed CE

# VPWS - Composite PE All-active Multihoming

All-active

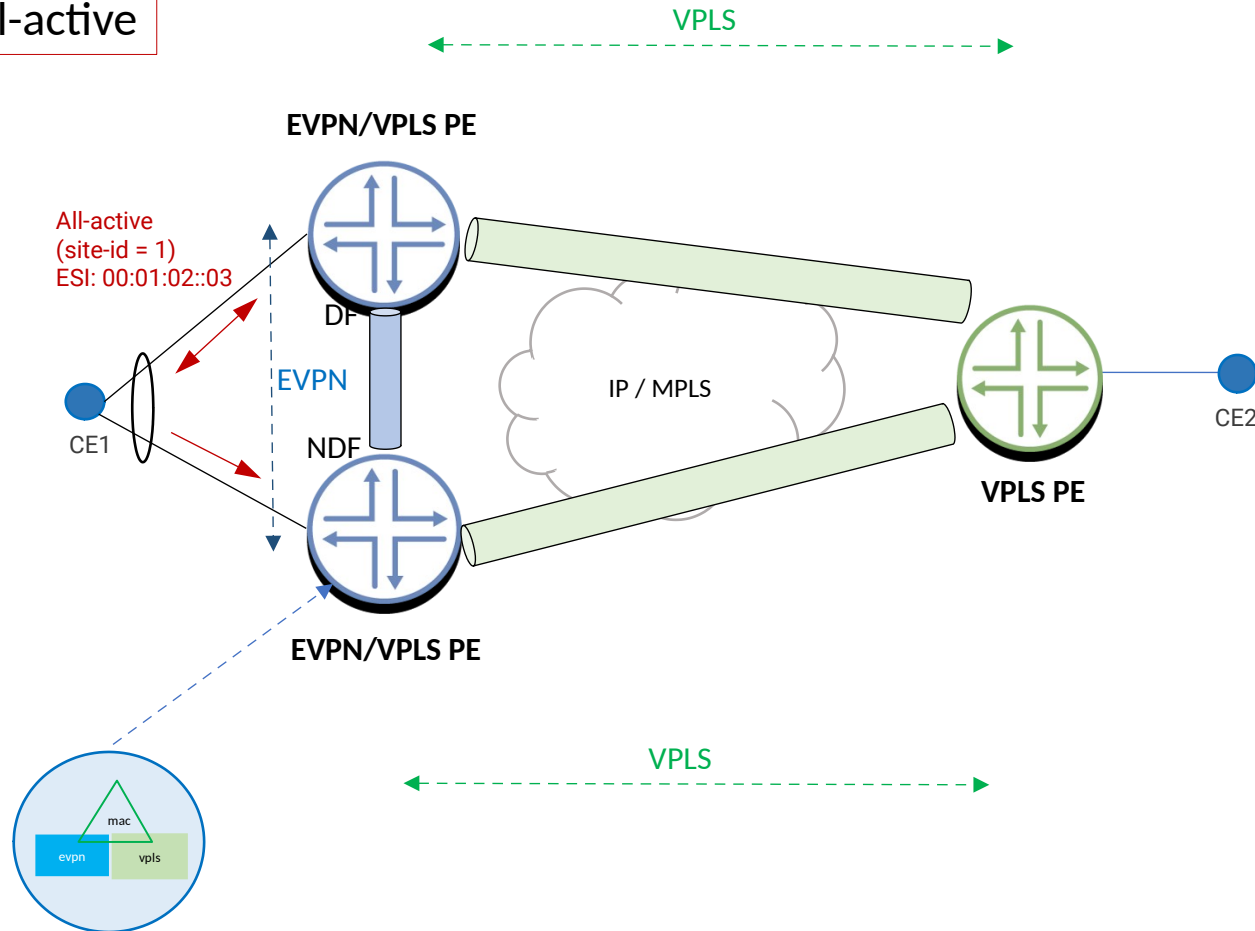


## All-active support:

- Control Plane
  - Based on seamless integration without the need for additional procedure
- Data Plane
  - Bidirectional forwarding between composite PE's DF and L2VPN PE
  - Unidirectional forwarding from composite PE's NDF to L2VPN PE

# Extension for EVPN and BGP-VPLS Seamless Integration

All-active



RFC 8560: EVPN and VPLS seamless integration with single-active multihomed support

Extension to RFC 8560 for all-active support

No software upgrade on VPLS PE

Avoid BUM Looping on EVPN/VPLS PEs

- EVPN all-active MH with Split Horizon label

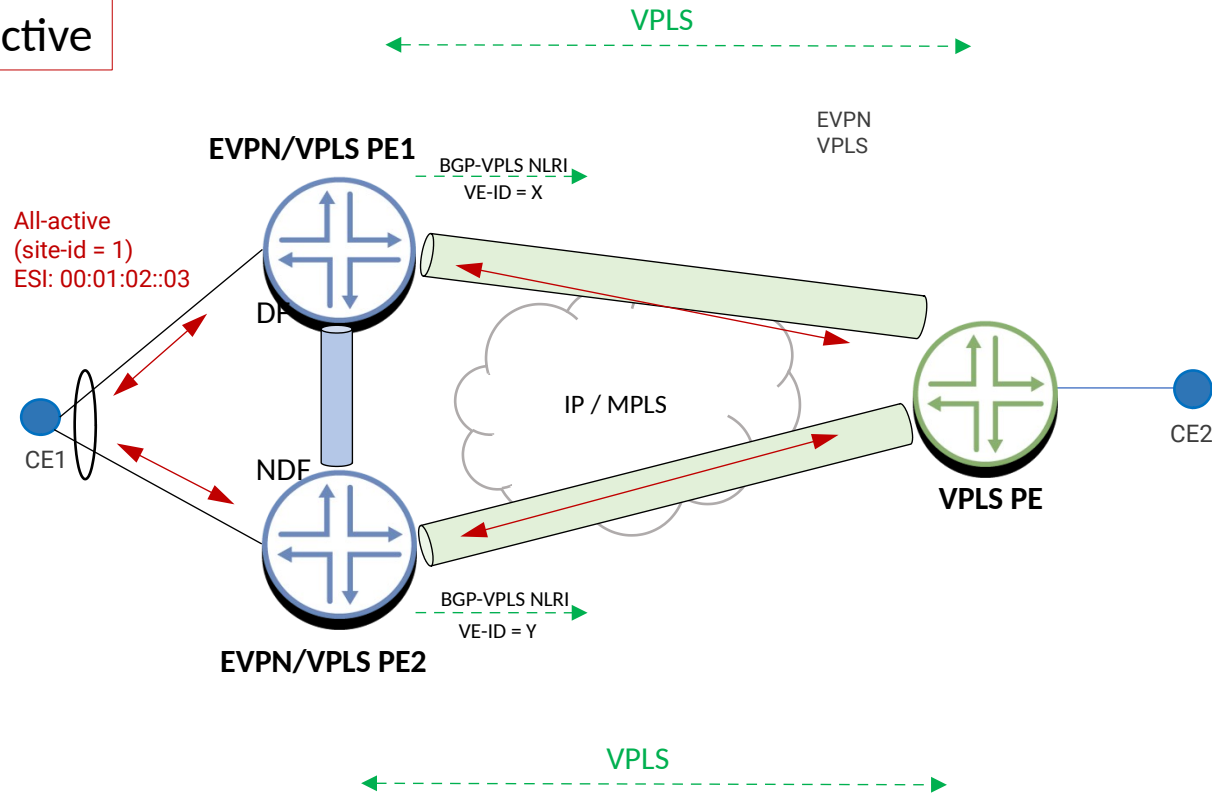
Avoid Duplicated BUM traffic to multihomed CE

- NDF blocks the BUM traffic from VPLS PE

# Extension for EVPN and BGP-VPLS Seamless Integration

## Known Unicast Traffic in All-active Multihoming

All-active



Symmetric Forwarding for known unicast traffic

- EVPN/VPLS PEs advertise BGP-VPLS NLRIs with different VE-IDs respectively

Avoid MAC flip-flop on VPLS PE

- L2VPN PE with PW MAC pinning

EVPN/VPLS node failure or access link failure

- Triggers MAC flush on VPLS PE
- VPLS PE re-learns the multihomed MAC from other PW



# Next Step

EVPN and VPLS seamless integration with all-active support

- Work in Progress for document mac-flushing procedure upon EVPN/VPLS PE node or local access interface failure

VPWS seamless integration can be extended for

- Other types of point-to-point Ethernet service if it is needed

Seek and address comments from the WG.

Will seek WG adoption afterwards