draft-mcbride-srv6ops-srv6-deployment-02

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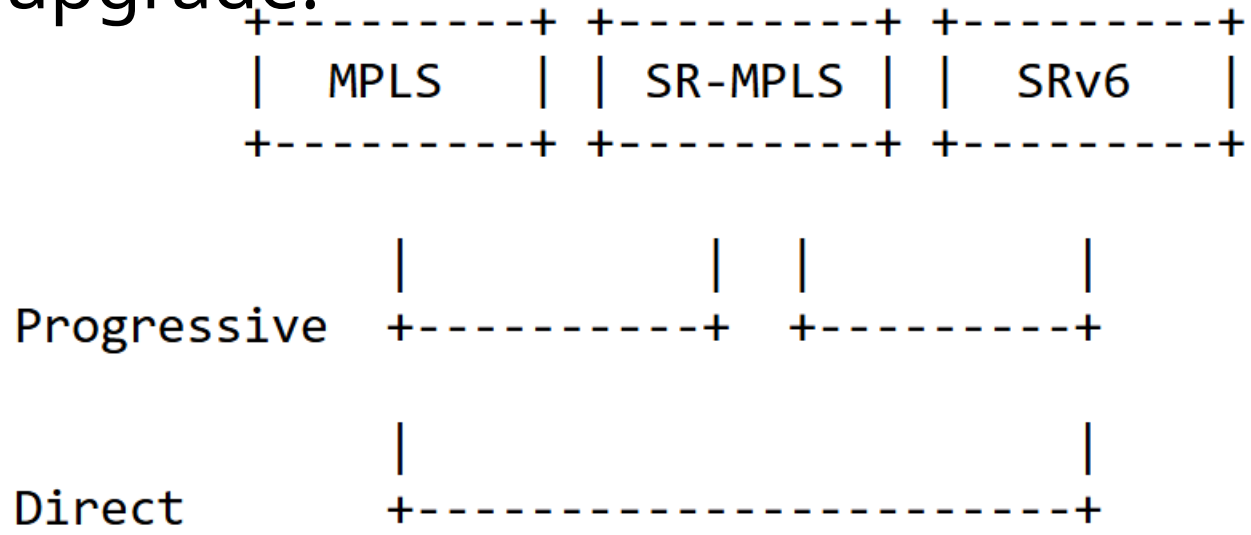
Latest

- Added Mehmet and Ersin from Turkcell
- Presented at Chi-NOG
- Focused in on 3 primary migration options: Overlay, SITN, Interworking

Progressive vs Direct Evolution

A phased, progressive migration approach would involve first transitioning to SR-MPLS before moving to SRv6. Doing so may reduce risks, simplify operations, and ensure a smooth migration.

If a network is already IPv6 ready it may make sense to move directly to SRv6 and leverage an overlay solution for portions of the network net yet ready for an upgrade.



Ships in the Night

Run separate MPLS and SRv6 networks.

- SRv6 and MPLS operate independently in the same network w/o interaction
- They coexist as separate "ships in the night"

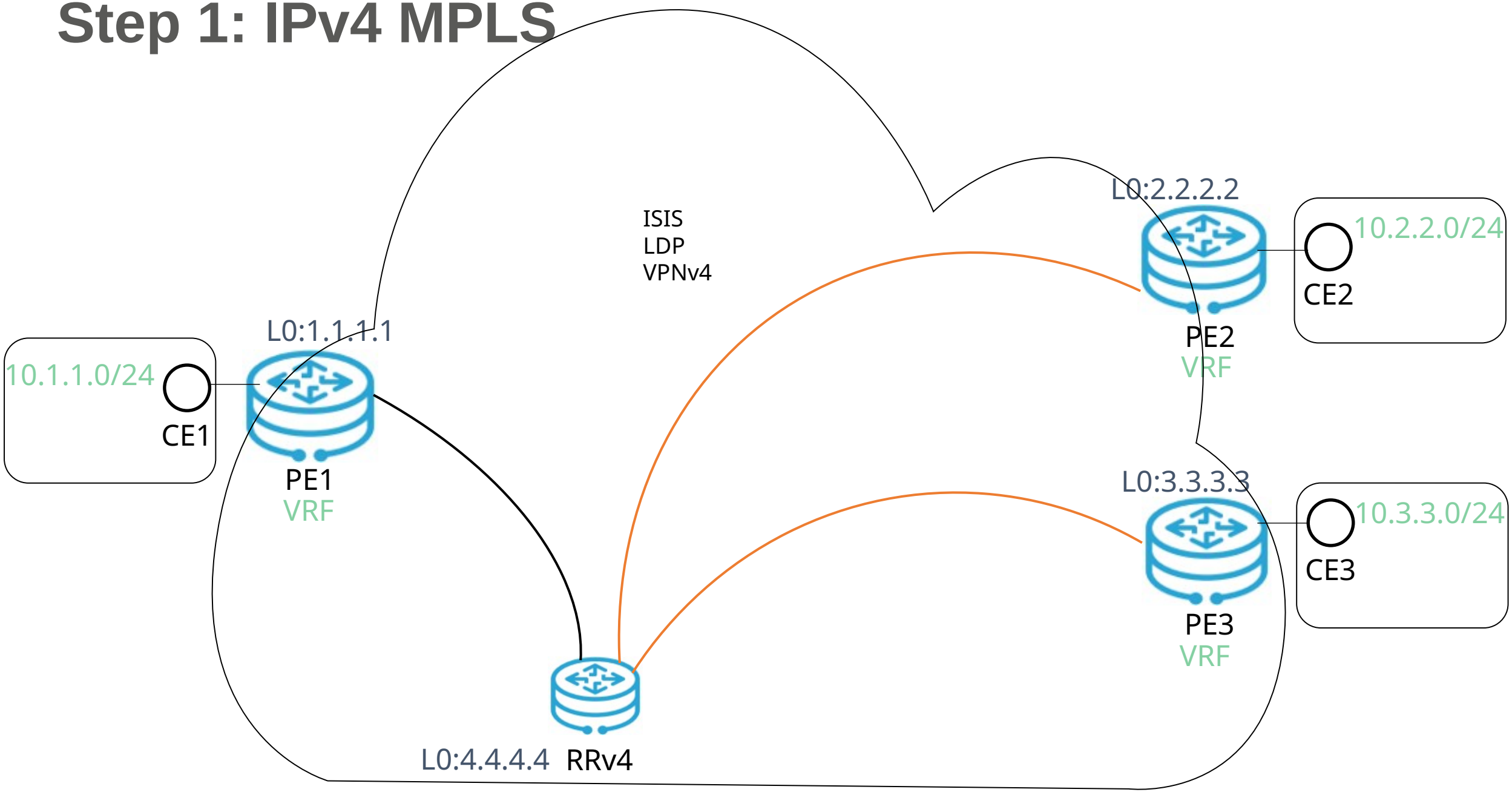
Drawbacks to running ships-in-the-night:

- Cost, Complexity, Processing power, Security…

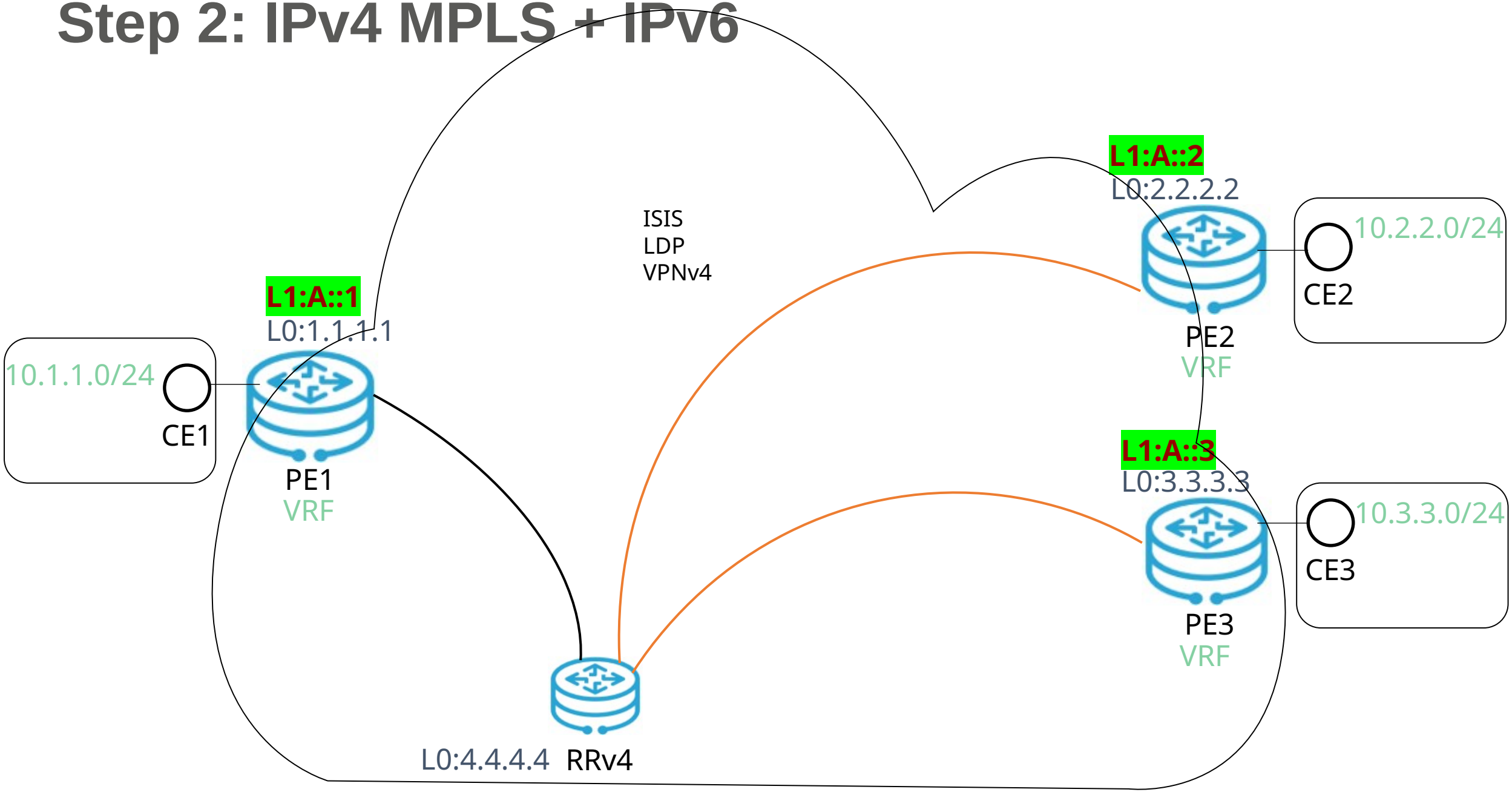
Migration can be performed gradually w/o a flag day:

1. MPLS transport and overlay services
2. Enable IPv6 and SRv6 parallel to MPLS
3. Migrate services from MPLS to SRv6
4. Disable MPLS transport

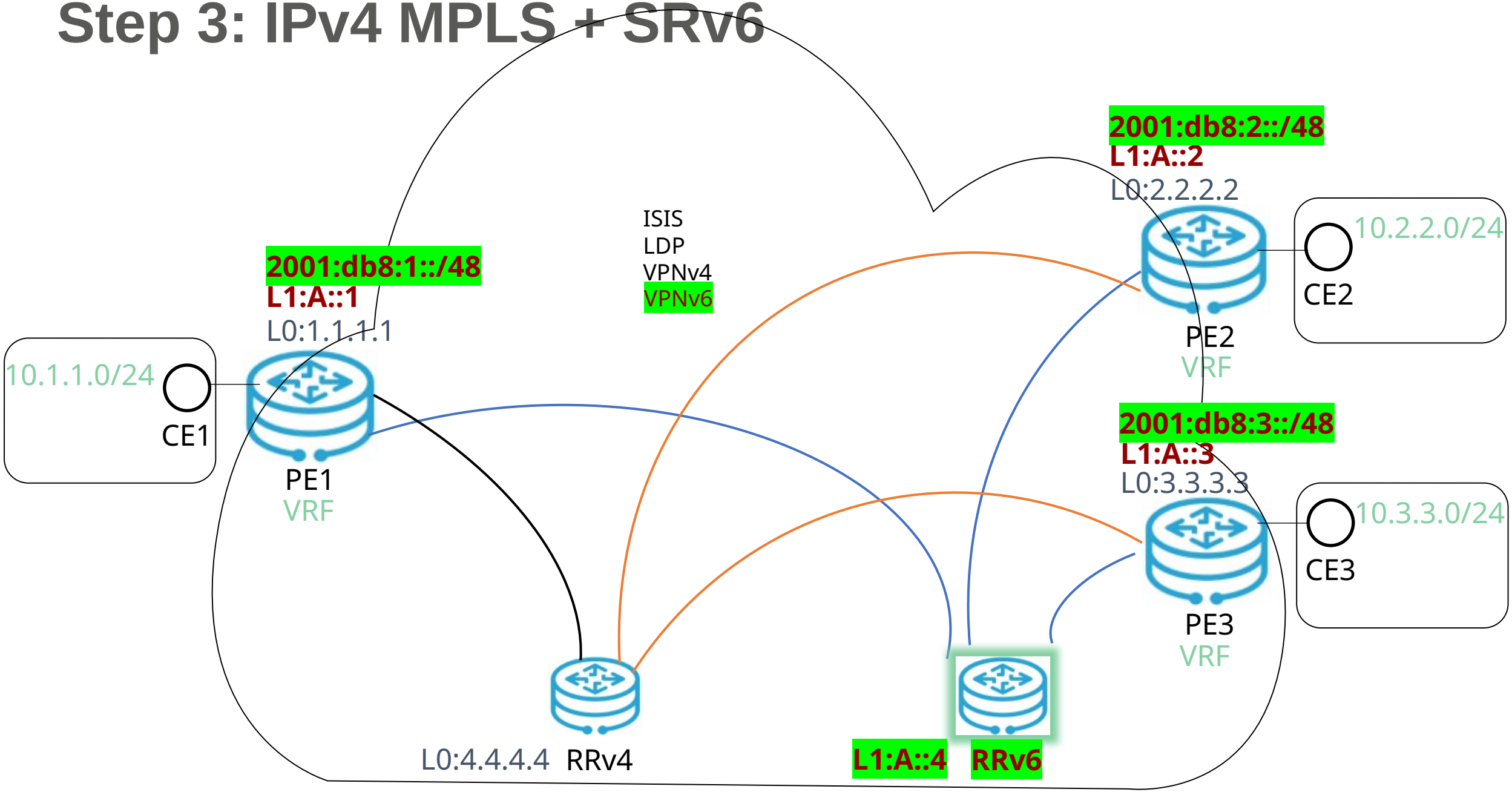
Step 1: IPv4 MPLS



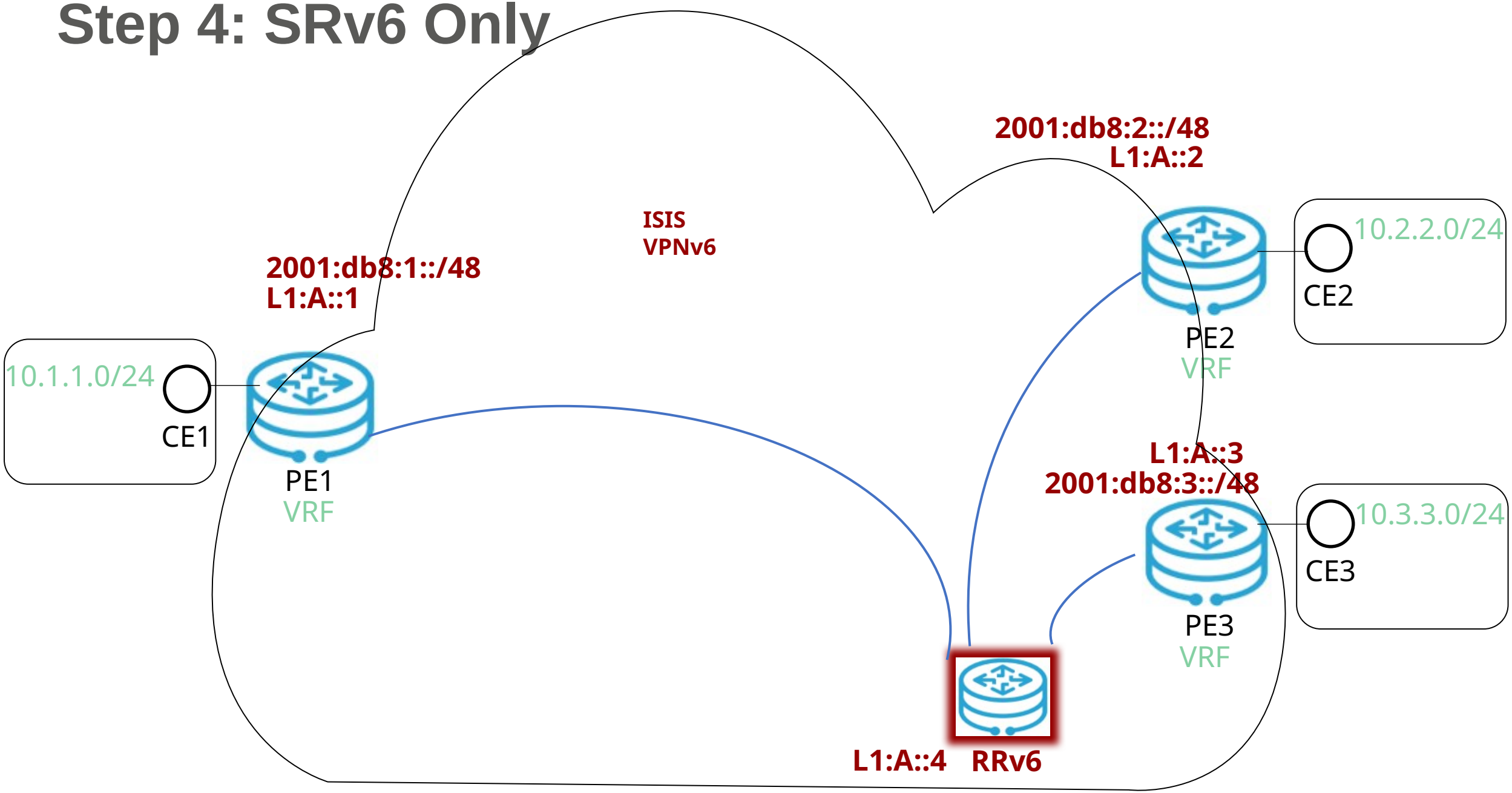
Step 2: IPv4 MPLS + IPv6



Step 3: IPv4 MPLS + SRv6



Step 4: SRv6 Only

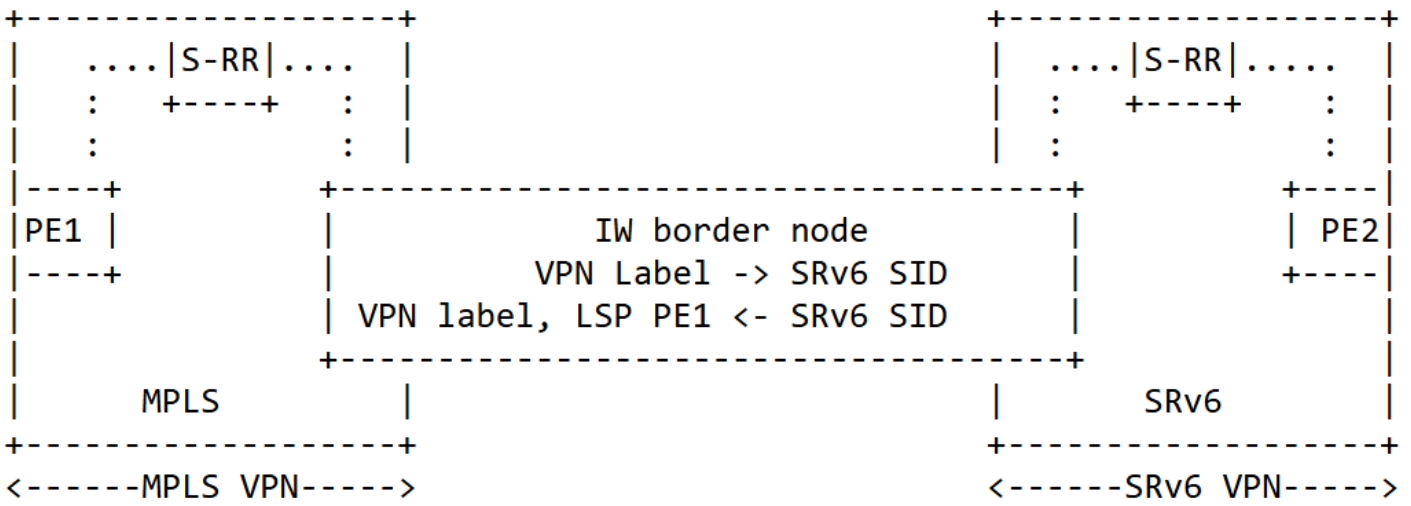


MPLS and SRv6 Interworking

Existing MPLS network interworks with SRv6. **ietf-spring-srv6-mpls-interworking** describes SRv6 and MPLS/SR-MPLS interworking procedures.

New SRv6 behaviors, and MPLS labels, stitch the E2E path across different data planes.

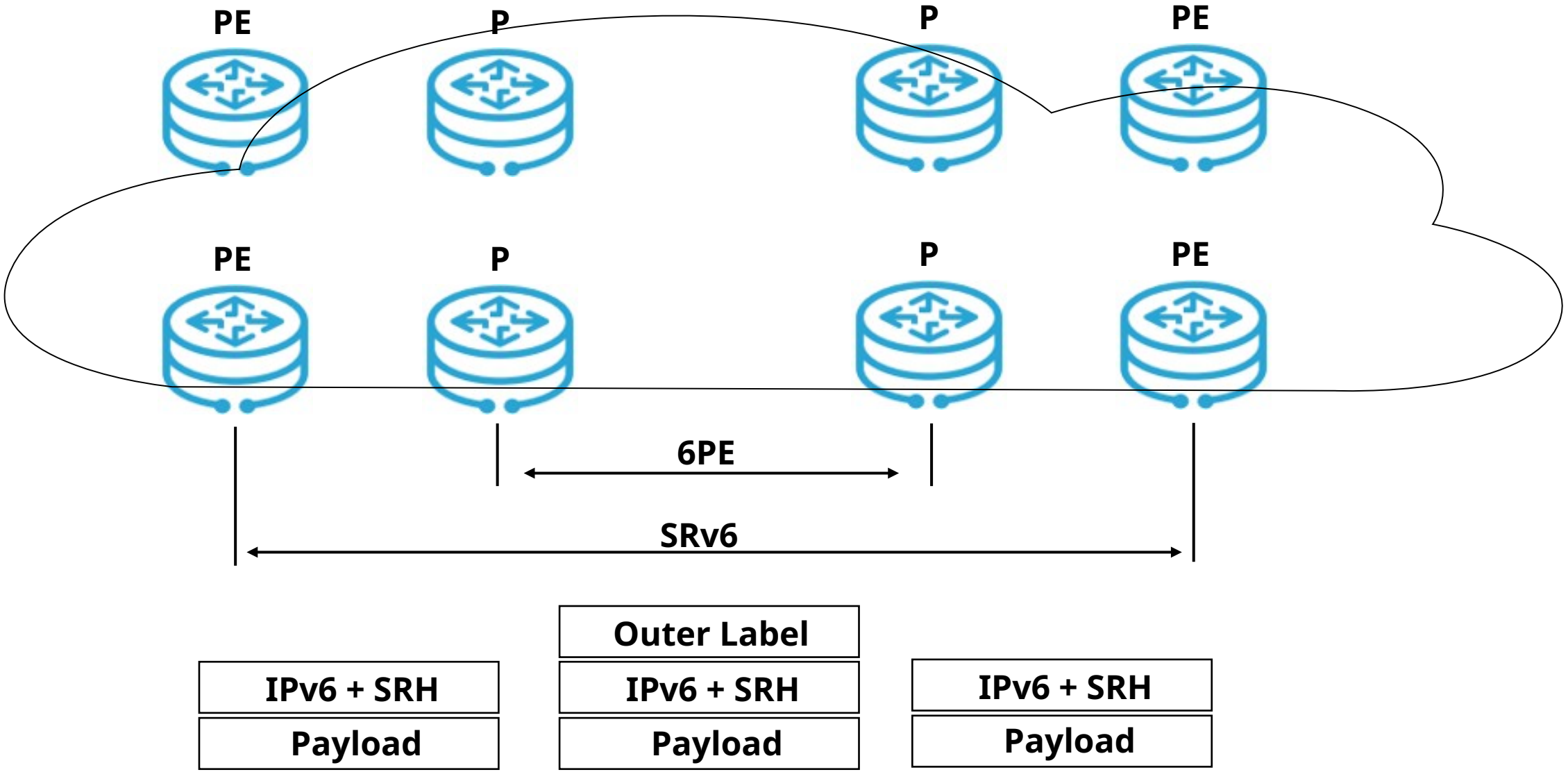
SRv6 to MPLS (6toM) and MPLS to SRv6 (Mto6): Converting between SRv6 and MPLS packet formats.



Overlay

One technology runs on top of the other (e.g., SRv6 over MPLS).
The underlying network provides transport, while the overlay provides services.
SRv6 over MPLS: SRv6 packets are encapsulated in MPLS (e.g., in a brownfield migration scenario).
Various scenarios covered: Native IPv6, 6PE, L3VPN, L2VPN.

Overlay – 6PE


PE
P
P
PE
PE
P
P
PE
6PE
SRv6
Outer Label
IPv6 + SRH
Payload
IPv6 + SRH
Payload
IPv6 + SRH
Payload

Next steps

- Requesting adoption.
- Update with Dhruv suggestions.