

# VPWS interworking; VPLS Topologies

## Essentials: VPLS Topologies

### Agenda

- Notice: **Post-lab #12** will be due @ 11:59pm on **Wed Apr 10** for everyone
- Review: Topology for Post-Lab 9 which uses spoke-terminated VPLS
- Complete SA Module 2 – x-Pipe interworking (slides 70-74)
- Complete SA Module 3 – VPLS (slides 34-55)
- Lab prep: SA Module 5 – L3 services (slides 15-27, or 1-27 if time permits)
- Coming next:
  - back to MPLS: Module 6 on Resiliency: Secondary LSPs and FRR

### Assignments and Lab work

- Read NRS-II book: Chapter 19 on VPLS; due today!
- Read: NRS-II Ch 16 and MPLS Module 6 slide deck; due by next Mon
- Lab 9 post-lab: due by 11:59pm on your lab section's assigned due date
- Lab #10: VPLS spoke-terminated to an IES = SA Lab guide, lab #8

### References

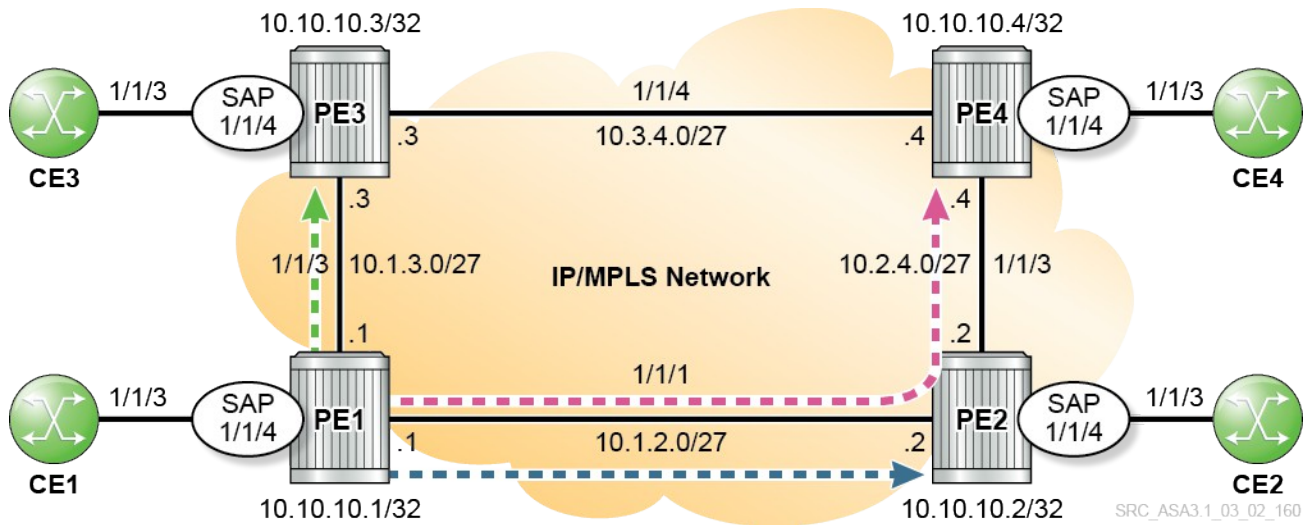
- NRS-II Chapter 18: VPWS Services, p. 1018-1066
- Inter-dependencies of MTU values: SA Module 2.24-25; NRS-II p. 1046-7

### Summary of VPLS Topologies

1. Full-mesh: reliable, requires full mesh or get disconnections
2. Hub-and-spoke: least configuration (fewer LSPs) but single point of failure
3. Hierarchical (H-VPLS): good for scalability, eg. metro-area VPLS
4. Spoke termination onto VPWS: hybrid of full-mesh and hub-and-spoke

## Compare Full-Mesh Connectivity vs mesh-SDP

Don't confuse full-mesh connectivity with SDPs used in mesh mode! Compare the two definitions below: one using spoke-sdps and the other using mesh-sdps.



From: *Nokia SA Mod 3.26*

```
configure service vpls 1 customer 1 create
  spoke-sdp 0102:1 create
  exit
  spoke-sdp 0103:1 create
  exit
  spoke-sdp 0104:1 create
  exit
no shutdown
```

```
configure service vpls 2 customer 1 create
  mesh-sdp 0102:2 create
  exit
  mesh-sdp 0103:2 create
  exit
  mesh-sdp 0104:2 create
  exit
no shutdown
```

- In the supporting infrastructure, how many SDPs are defined? 3 for each PE, 12 for the entire topology
- Assuming equivalent definitions on PE2-4, are both full-mesh? Yes
- Will BUM traffic be flooded everywhere? (What are the rules?) Yes, definitely
- **Will both work equivalently?** No! VPLS2 works properly; VPLS 1 has a forwarding loop which results in a (endless) broadcast storm