

VPLS Topologies

Essentials: mesh-SDPs, spoke-SDPs, and VPLS spoke-terminations

Agenda

- Zoom URL for this lecture: <https://algonquincollege.zoom.us/j/443940587>
- mp4 file and audio-only .m4a posted on BrightSpace, in Content section, Weekly Learning Materials sub-section.
- Updates on changes due to covid19
 - All classes continue but conducted 100% online (mostly via Zoom)
 - Labs are already online, so we just change the method of interaction
 - Will start to transition to a Q&A style of interaction [probably easy for this group; you're already doing an excellent job. Really! :-)]
 - You may find that <http://jitsi.org> is the easiest & best conferencing tool
- Notice: **Post-lab #12** likely due @ 11:59pm on **Tue Apr 7** for everyone (except that I'm willing to bet \$1 that Carleton extends the term!)
- Review PostLab 9 topology
- Reminder of SAP definitions: Null encap (1), Dot1Q (3); QinQ (4)
- Complete SA Module 3 – VPLS (slides 34-55)
- Lab prep: SA Module 5 – L3 services (slides 15-27); easy – it's a SVI
- Fri lecture: <https://algonquincollege.zoom.us/j/560097971>
 - Complete Module 2 – MTU, and *some* details of x-Pipe interworking
- Material for remainder of term:
 - dip back to MPLS Module 6: Resiliency - Secondary LSPs and FRR
 - complete SA Module 5 on L3 services
 - SA Module 4: OAM and Mirroring service (easy)

Assignments and Lab work

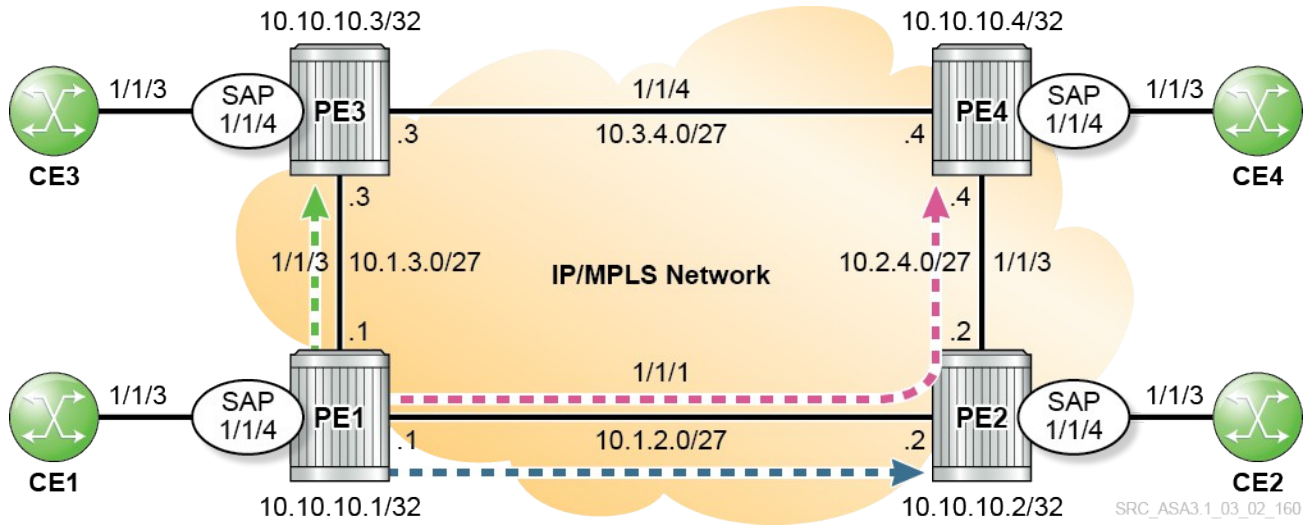
- Read SA Module 2;
- **Exercise 2** due **8:00am** Fri Mar 20th
- Lab 9 post-lab: due by **11:59pm** on Sun Mar 15th for *everyone*
- Lab #10: SA Lab 8: VPLS Spoke Termination on IES
Fri Mar 20: <https://algonquincollege.zoom.us/j/666767948>
Mon Mar 23: <https://algonquincollege.zoom.us/j/634032980>

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