University of Ain Temouchent Belhadj Bouchaib
Faculty of Science and Technology
Department of Mathematics and Computer Science

Academic Year 2025–2026

Virtual LANs (VLANs)

Instructor: Mr. A. BENZERBADJ

1 Objective

Create and configure Virtual Local Area Networks (VLANs).

2 Background

- One or several switch ports can be assigned to a specific VLAN.
- Ports assigned to different VLANs can communicate only through a router (or a layer-3 switch).
- By default, all ports are in VLAN 1, which is considered the management VLAN.

Some advantages of VLANs include:

- Control of *broadcast* domains,
- Logical separation of users and departments (security perspective),
- Flexibility and scalability — network boundaries are not physical.

3 Exercise

Given the network topology shown in Figure 1:

1. Configure the IP addresses of all PCs.
2. Enter the switch configuration mode (CLI) and type the following commands to verify the existing VLANs (the default VLAN 1 should be present):

```
Switch> enable
Switch# configure terminal
Switch(config)# do show vlan
```

3. Create three VLANs: Accounts (`vlan 2`), HR (`vlan 3`), and Sales (`vlan 4`):

```
Switch(config)# vlan 2
Switch(config-vlan)# name Accounts
Switch(config)# vlan 3
Switch(config-vlan)# name HR
Switch(config)# vlan 4
Switch(config-vlan)# name Sales
```

4. Display the VLANs that have been created:

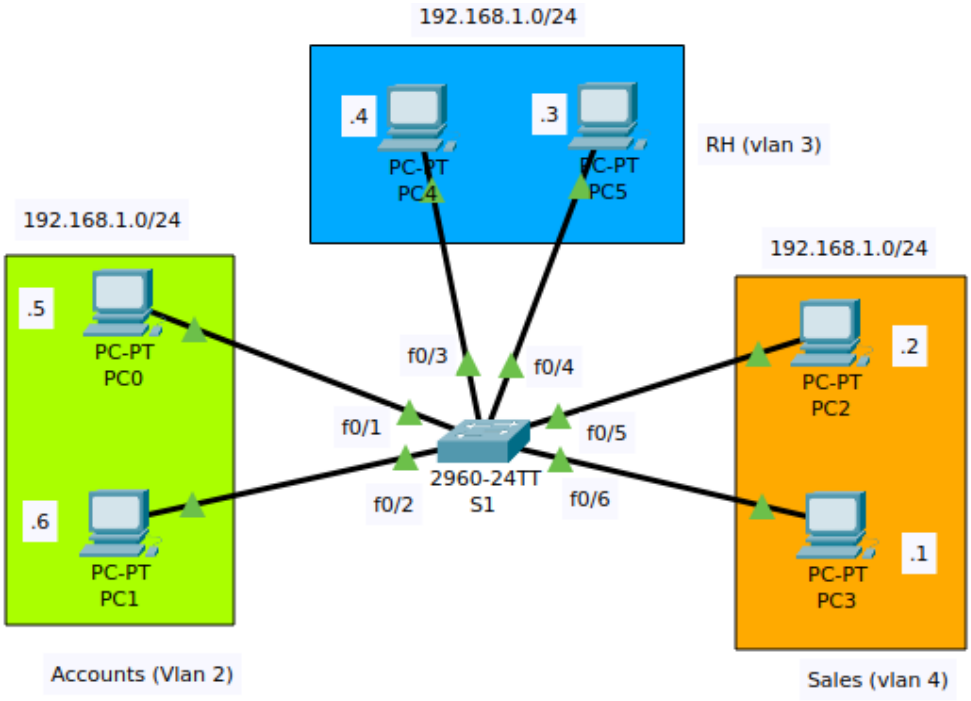

Figure 1: Network topology.

```
Switch(config-vlan)# do show vlan
```

5. Assign switch ports to the VLANs:

```
Switch(config)# interface range f0/1-2
Switch(config-if-range)# switchport access vlan 2
```

6. Do the same for VLANs 3 and 4.
7. Verify the configuration using the `show vlan` command.
8. Check that PCs in different VLANs cannot communicate directly.