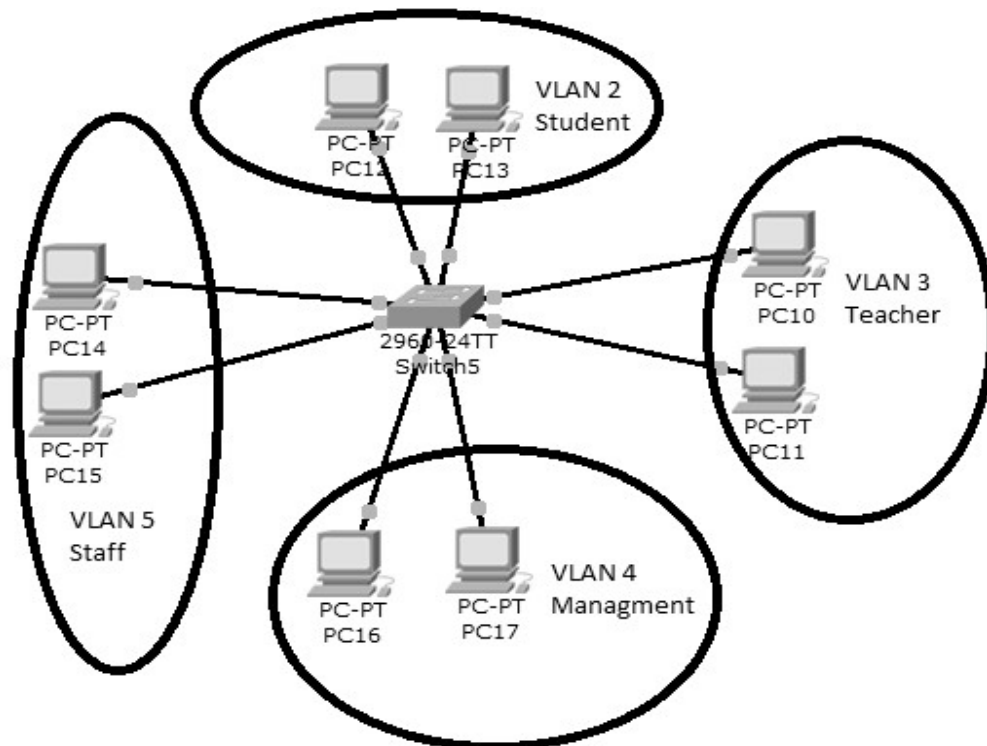


LAB 9:

Building and Testing VLAN

Introduction:

A VLAN is a switched network that is logically segmented by functions, project teams, or applications without regard to the physical location of the users. For example several end stations might be grouped as a department, such as engineering or accounting. When the end stations are physically located close to one another, you can group them into a LAN segment. If any of the end stations are in different buildings (not the same physical LAN segment), you can group them into a VLAN.



Objectives:

To familiarize students with the design and construction of VLAN, and also with the tools that can be used to check the network.

PROBLEM:

Designing of VLAN

Equipment:

1. Straight Cable
2. Switch

Procedure:

Step 1: Create VLANs on switch S1.

Use the **vlan *vlan-id*** command in global configuration mode to add a VLAN to switch S1. There are four VLANs configured for this lab: VLAN 2 (Student); VLAN 3 (Teacher); VLAN 4 (Management); and VLAN 5 (Staff). After you create the VLAN, you will be in vlan configuration mode, where you can assign a name to the VLAN with the **name *vlan name*** command.

```
S1(config)#vlan 2
S1(config-vlan)#name Student
S1(config-vlan)#vlan 3
S1(config-vlan)#name Teacher
S1(config-vlan)#vlan 4
S1(config-vlan)#name management
S1(config-vlan)#vlan 5
S1(config-vlan)#name staff
S1(config-vlan)#end
S1#
```

Step 2: Verify that the VLANs have been created on S1.

Use the **show vlan brief** command to verify that the VLANs have been created.

```
S1#show vlan brief
```

```
VLAN Name Status Ports
```

```
-----
1 default active Fa0/1, Fa0/2, Fa0/4, Fa0/5
Fa0/6, Fa0/7, Fa0/8, Fa0/9
Fa0/10, Fa0/11, Fa0/12, Fa0/13
Fa0/14, Fa0/15, Fa0/16, Fa0/17
Fa0/18, Fa0/19, Fa0/20, Fa0/21
Fa0/22, Fa0/23, Fa0/24, Gi0/1
Gi0/2
2 student active
3 teacher active
4 management active
5 staff active
```

Step 3: Assign switch ports to VLANs

Refer to the port assignment table on page 1. Ports are assigned to VLANs in interface configuration mode, using the **switchport access vlan *vlan-id*** command. You can assign each port individually or you can use the **interface range** command to simplify this task, as shown here. Save your configuration when done.

```
S1(config)#interface range fa0/1-4
S1(config-if-range)#switchport access vlan 2
S1(config-if-range)#interface range fa0/5-8
S1(config-if-range)#switchport access vlan 3
S1(config-if-range)#interface range fa0/9-12
S1(config-if-range)#switchport access vlan 4
S1(config-if-range)#interface range fa0/13-16
```

```
S1(config-if-range)#switchport access vlan 5

S1(config-if-range)#end
S1#copy running-config startup-config
Destination filename [startup-config]? [enter]
Building configuration...
[OK]
```

Step 4: Assign IP to all PC

Assign IP address to PC with same network address in same VLAN

Step 5: verify connection

Use command prompt to verify connection. Apply ping command to computer in same VLAN and in different VLAN. Which one is not successful?