Lab Report :06

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Tittle: Configuring and Verifying VLAN Segmentation Across Two Switches

Objective:

The objective of this lab is to configure two switches to segment a network of 18 PCs into two separate VLANs using Cisco Packet Tracer. The VLAN configuration ensures traffic isolation between the groups, providing better security and traffic management. This report outlines the stepbystep procedures for configuring the network using Cisco CLI commands.

Tools and Equipment:

1.Cisco Packet Tracer: Network simulation software used for creating and testing network topologies.

2. Cisco 2960 Switches: Switch0 and Switch1 are used for VLAN configuration.

3. 18 PCs: Labeled as PC0 to PC17, connected to the switches via Ethernet cables.

4. Ethernet Cables: To connect the PCs to the switches and for trunking between the switches.

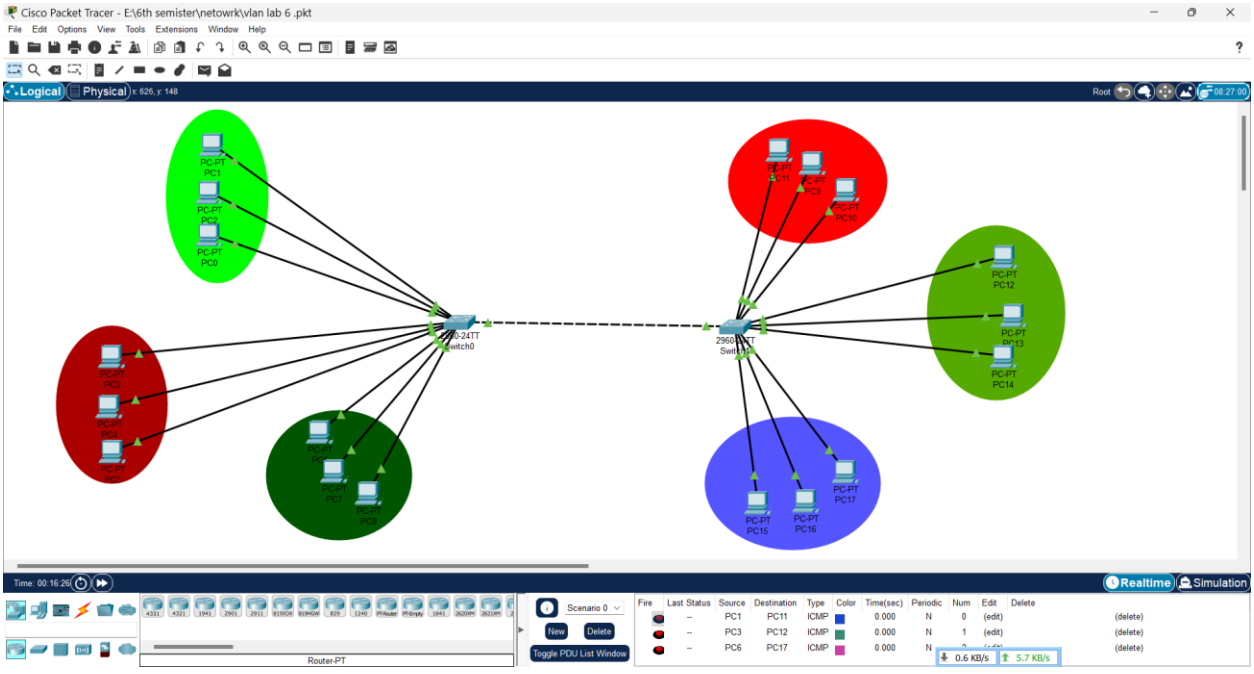

Figure 1: VLAN Segmentation and Trunk Configuration

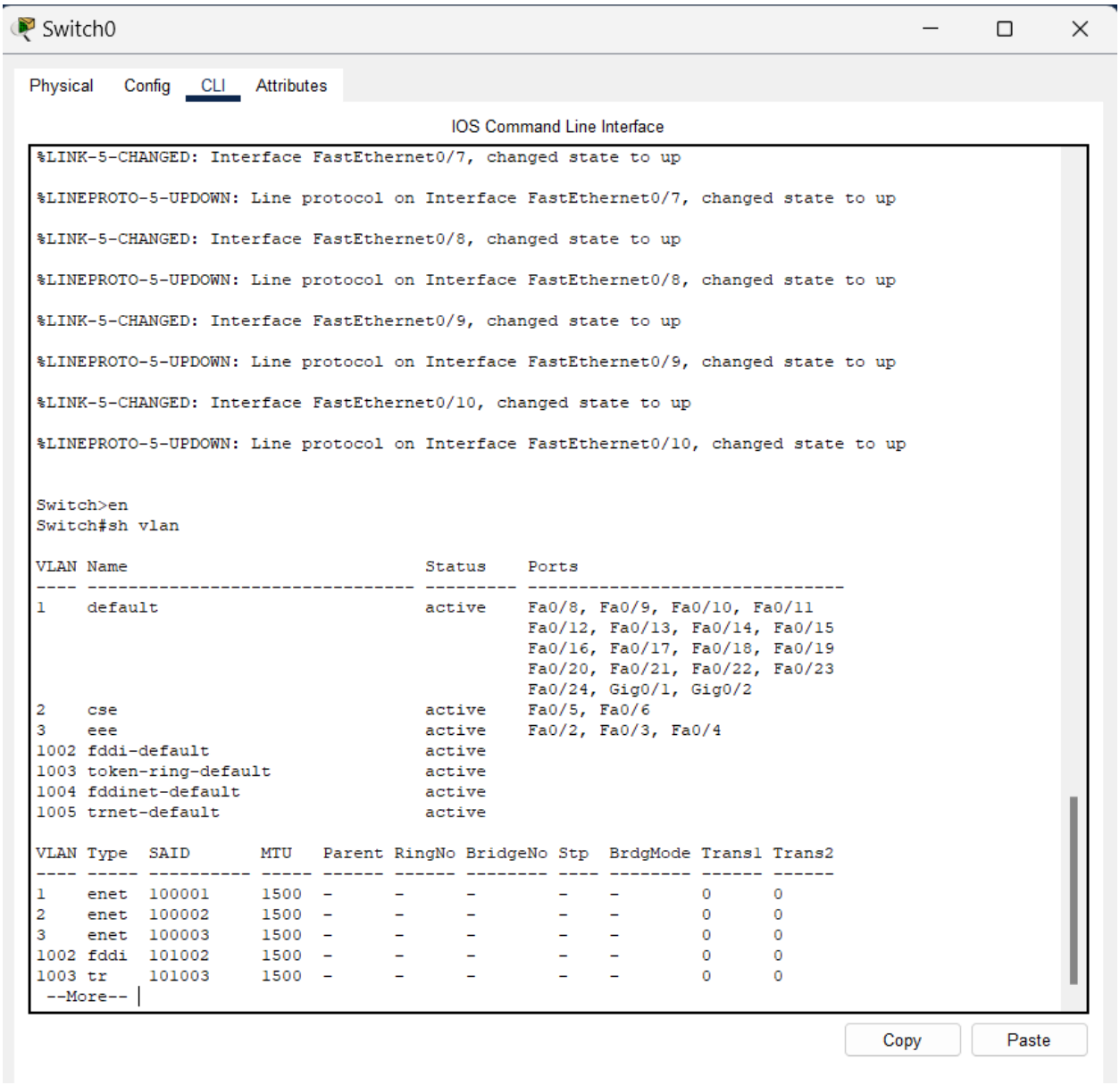

Figure 2: CLI Commands

Procedures:

Step 1: Network Setup in Cisco Packet Tracer

1. Open Cisco Packet Tracer and create a topology with:

Two Cisco 2960 Switches.

18 PCs named PC0 to PC17.

2. Connect:

PC0 to PC8 to Switch0 using Ethernet cables (connected to ports Fa0/1 to Fa0/9).

PC9 to PC17 to Switch1 using Ethernet cables (connected to ports Fa0/1 to Fa0/9).

3. Connect Switch0 to Switch1 using a crossover Ethernet cable between their Fa0/24 ports. This

will serve as a trunk link for interswitch communication.

Step 2: VLAN Configuration on Switches

1. Configure Switch0 (296024TT Switch0):

Create VLAN 10 for the PCs connected to Switch0 (PC0 to PC8).

Commands:

Switch0> enable

Switch0# configure terminal

Switch0(config)# vlan 10

Switch0(configvlan)# name VLAN_10

Switch0(configvlan)# exit

2. Assign VLAN 10 to ports Fa0/1 to Fa0/9 for PCs on Switch0.

Commands:

Switch0(config)# interface range fa0/1 9

Switch0(configifrange)# switchport mode access

Switch0(configifrange)# switchport access vlan 10

Switch0(configifrange)# exit

Step 3: Trunk Link Configuration Between Switches

1. Configure Fa0/24 interface on Switch0 to enable trunking, allowing traffic from VLAN 10 and

VLAN 20 to pass between the switches.

Commands:

Switch0(config)# interface fa0/24

Switch0(configif)# switchport mode trunk

Switch0(configif)# switchport trunk allowed vlan 10,20

Switch0(configif)# exit

2. Configure Fa0/24 interface on Switch1 to enable trunking.

Commands:

Switch1(config)# interface fa0/24

Switch1(configif)# switchport mode trunk

Switch1(configif)# switchport trunk allowed vlan 10,20

Switch1(configif)# exit

Step 4: Verification of VLAN Configuration

1. Check VLANs on Switch0:

Switch0# show vlan brief

2. Check VLANs on Switch1:

Switch1# show vlan brief

3. Verify Trunk Configuration:

Switch0# show interfaces trunk

This command ensures that the trunk link between the switches is active and allows traffic for VLAN 10 and VLAN 20.

Result: The configuration of the two switches was completed successfully, and the network was segmented into two VLANs as planned. VLAN 10 was assigned to PCs connected to Switch0 (PC0 to PC8), while VLAN 20 was assigned to PCs connected to Switch1 (PC9 to PC17). The trunk link between the two switches was also correctly configured, allowing communication between the VLANs across the two switches. The VLAN assignment was confirmed using the show vlan brief command, and the trunking was verified using the show interfaces trunk command, indicating that the configuration is functioning as expected.