**Net 1061 Switching, Routing, and Wireless Essentials**

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**Lab: # Yes**

**Follow the instructions down below for the lab itself. For this lab, all answers need to be in blue font. For the questions right below, answer in complete sentences. If this is a self-grading packet tracer. Ensure you paste the screen shot of your score page at the bottom of the document. You will upload both this document and the pkt file regardless if it is self-grading or not. Let the instructor know if you have any questions.**

***Lab Analysis Report***

1. Using complete sentences summarize work you completed during the lab.

I observed spanning tree states in a network

2. Using complete sentences describe what you learned from the lab. Hint; look at the lab objectives listed at the top of the lab section.

I learned how spanning tree states prevent switch loops in a network

***Problems Encountered***

1. Using complete sentences describe any problem(s) experienced during lab.

No problems

2. Using complete sentences describe how you solved your problem(s).

No problems

3. Using complete sentences explain if you needed any assistance with the lab; then list what you learned from that assistance. No problems

Packet Tracer - Investigate STP Loop Prevention

# Objectives

In this lab, you will observe spanning-tree port states and watch the spanning-tree convergence process.

* Describe the operation of Spanning Tree Protocol.
* Explain how Spanning Tree Protocol prevents switching loops while allowing redundancy in switched networks.

# Background / Scenario

In this activity you will use Packet Tracer to observe the operation of Spanning Tree Protocol in a simple switched network that has redundant paths.

# Instructions

## Observe a Converged Spanning-Tree Instance

### Verify Connectivity.

Ping from PC1 to PC2 to verify connectivity between the hosts. Your ping should be successful.

### View spanning-tree status on each switch.

Use the **show spanning-tree vlan 1** command to gather information about the spanning tree status of each switch. Complete the table. For the purposes of the activity, only consider information about the Gigabit trunk ports. The Fast Ethernet ports are access ports that have end devices connected and are not part of the inter-switch trunk-based spanning tree.

Open configuration window

| Switch | Port | Status (FWD, BLK…) | Root Bridge? |
| --- | --- | --- | --- |
| S1 | G0/1 | FWD | No |
| S1 | G0/2 | FWD | No |
| S2 | G0/1 | FWD | Yes |
| S2 | G0/2 | FWD | Yes |
| S3 | G0/1 | FWD | No |
| S3 | G0/2 | Blk | No |

Packet Tracer uses a different link light on one of the connections between the switches.

#### Questions:

What do you think this this link light means?

It does this to show that port isn’t forwarding frames since the port is in a BLK state

What path will frames take from PC1 to PC2?

Type your PC1,S1,S2,PC2 here.

Why do the frames not travel through S3? Spanning tree blocks frames from going through the G0/2 port, so packets would never make it to PC2 by going through S3

Type your answers here.

Why has spanning tree placed a port in blocking state?

If it could forward frames through that port, a switching loop could happen which can be bad for performance.

Close configuration window

## Observe spanning-tree convergence

### Remove the connection between S1 and S2.

* + - 1. Open a CLI window on switch S3 and issue the command **show spanning-tree vlan 1**. Leave the CLI window open.

Open configuration window

* + - 1. Select the delete tool from the menu bar and click the cable that connects S1 and S2.

### Observe spanning-tree convergence.

* + - 1. Quickly return to the CLI prompt on switch S3 and issue the **show spanning-tree vlan 1** command.
      2. Use the up-arrow key to recall the **show spanning-tree vlan 1** command and issue it repeatedly until the orange link light on the cable turns green. Observe the status of port G0/2.

#### Question:

What do you see happen to the status of the G0/2 port during this process?

Typeit switched from BLK, to LSN, to LRN, and now it’s at FWD your answers here.

You have observed the transition in port status that occurs as a spanning-tree port moves from blocking to forwarding state.

* + - 1. Verify Connectivity by pinging from PC1 to PC2. Your ping should be successful.

Are any ports showing an orange link light that indicates that the port is in a spanning-tree state other than forwarding? Why or why not? No, because there are no redundant paths in the network anymore, so it’s not necessary.

Type your answers here.

Close configuration window

End of document Graphical user interface, application

Description automatically generated