

# Packet Tracer - Compare Layer 2 and Layer 3 Devices

#### **Objective**

Part 1: Compare Layer 2 and Layer 3 Switches

Part 2: Compare a Layer 3 Switch and a Router

### **Background**

In this activity, you will use various commands to examine three different switching topologies and compare the similarities and differences between the 2960 and 3650 switches. You will also compare the routing table of a 4321 router with that of a 3650 switch.

**Note:** Search the internet for more details about the WS-C3650-24PS-L Layer 3 switch and the ISR 4321/K9 router.

#### Instructions

## **Step 1: Compare Layer 2 and Layer 3 Switches**

a. Examine the physical aspects of D1 and ASw-1.

Each individual switch has how many physical switchports?

How many Fast Ethernet and Gigabit Ethernet switchports does each switch have?

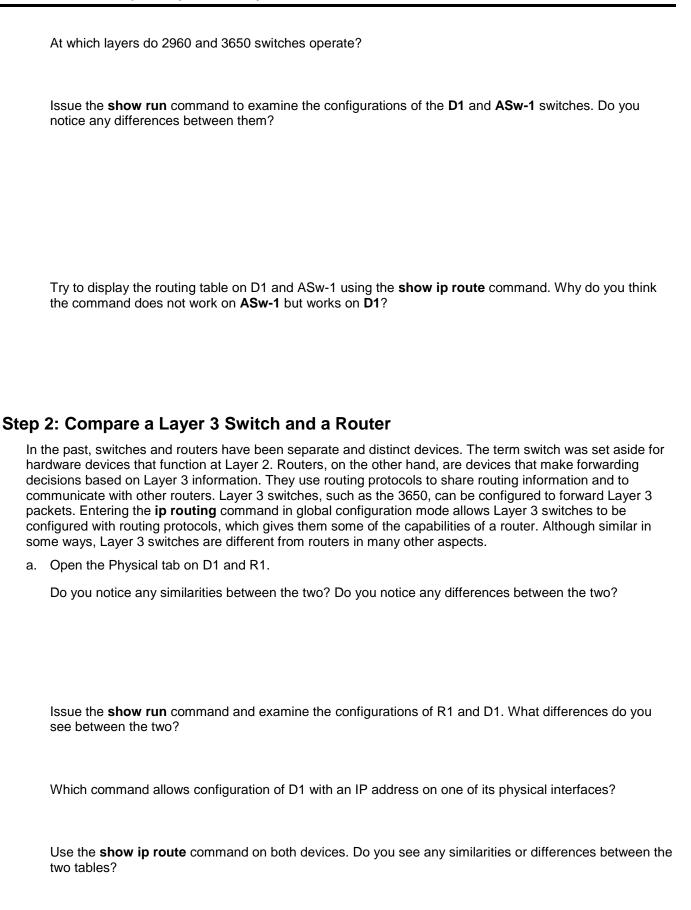
List the transmission speed of the Fast Ethernet and Gigabit Ethernet switchports on each switch.

Are either of the two switches modular in design?

b. The switchports of a 3650 switch can be configured as Layer 3 interfaces by entering the **no switchport** command in interface configuration mode. This allows technicians to assign an IP address and subnet mask to the switchport in the same way that they are configured on a router interface.

What is the difference between a Layer 2 switch and a Layer 3 switch?

What is the difference between a switch's physical interface and the VLAN interface?



Now, analyze the routing table of R2 and D2. What is present now that was not present in the configuration of R1 and D1?

Which network is in the routing table of D2 that was learned from R2?

- b. Verify that each topology has full connectivity by completing the following tests:
  - Ping from PC1 to PC2
  - Ping from PC3 to PC4
  - Ping from PC5 to PC6 and PC7

In all three examples, each PC is on a different network.

Which device is used to provide communication between networks?

Why were we able to ping across networks without there being a router?

**Bonus question:** We say that routers are Layer 3 devices and conventional (non-Layer 3) switches are Layer 2 devices. However, we can assign an IP address to a management (SVI) interface of a Layer 2 switch. How is this possible if switches are Layer 2 devices?