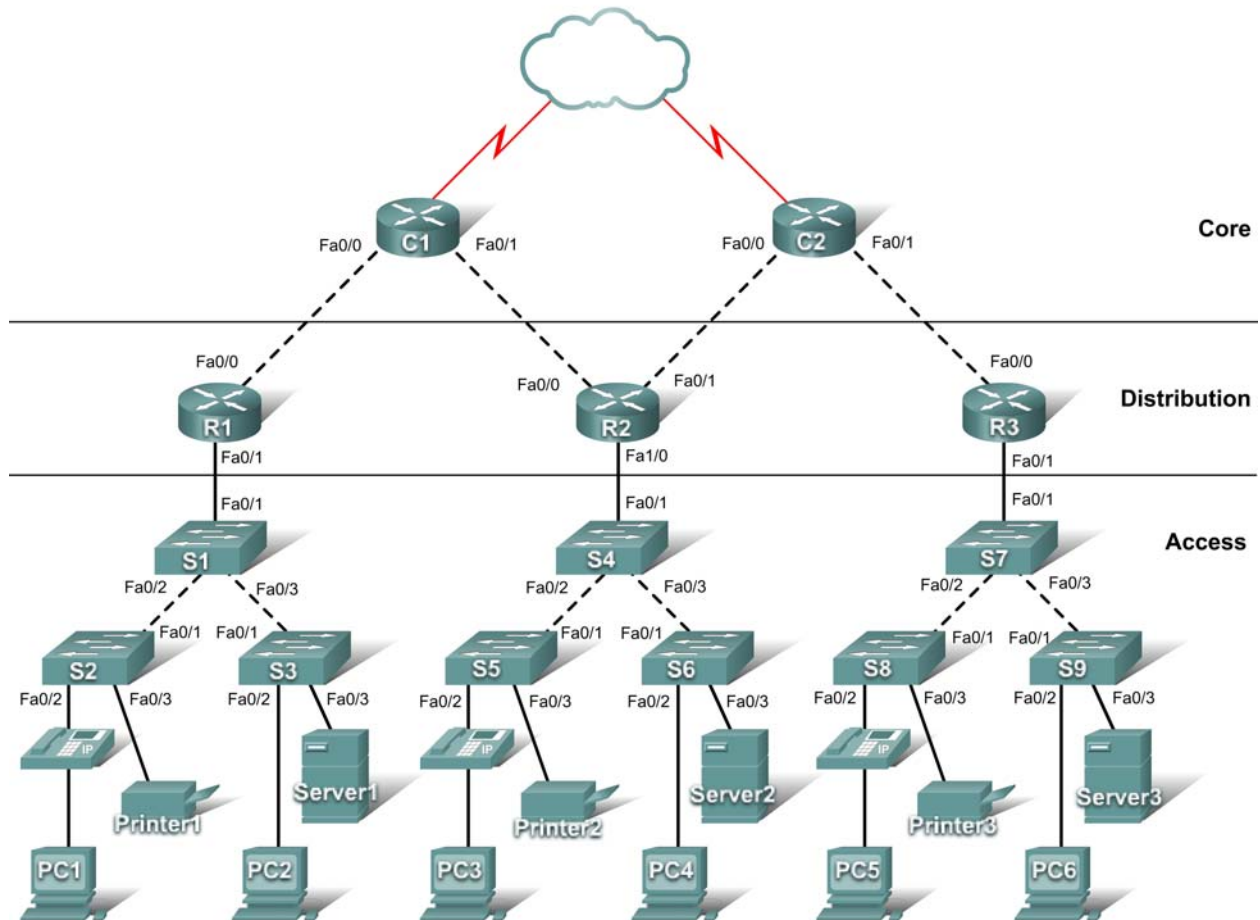# PT Activity 1.2.4: Build a Hierarchical Topology

Topology Diagram

Learning Objectives

- Add devices to a topology.
- Connect the devices.

Introduction

Packet Tracer is integrated throughout this course. You must know how to navigate the Packet Tracer environment to complete this course. Use the tutorials if you need a review of Packet Tracer fundamentals. The tutorials are located in the Packet Tracer **Help** menu.

This activity focuses on building a hierarchical topology, from the core to the distribution and access layers.

Task 1: Add Devices to the Topology

Step 1. Add the missing distribution layer routers.

The routers you need are located in **Custom Made Devices**. R1 and R3 are 1841 routers. **Ctrl-click** the 1841 router to add more than one. Press **ESC** to cancel. R2 is a 2621XM router.

Step 2. Add the remaining access layer switches.

Following the topology diagram, add nine 2960-24TT switches to complete the rest of the access layer. Remember you can use press **Ctrl-click** to add multiple devices of the same type.

Step 3. Change the display name for each new device.

- Click a device to open its configuration window.
- Select the **Config** tab to access the basic configuration options.
- In **Global Settings** under **Display Name** and **Hostname**, type the name for the device shown in the topology diagram.
- Repeat the process for all the new devices that you added.

Although Packet Tracer does not score adding the display names, this step must be completed to successfully complete this activity.

Step 4. Check results.

Your completion percentage should be 14%. If not, click **Check Results** to see which required components are not yet completed.

Task 2: Connect the Devices

Pay close attention to the topology diagram and the labeled interfaces when connecting the devices. You are graded on the connections. For instance, in the topology diagram switch S1 is connected to R1 through interface Fa0/1 on both sides. This connection is scored on both the cable type and interface designation. Do not use the **Smart Connection** utility to make these connections because you have no control over which interface is selected.

Step 1. Cable the core layer routers to the distribution layer routers.

- Using copper crossover cables, connect the core layer routers, C1 and C2, to the distribution layer routers, R1, R2, and R3.
- C1 connects to both R1 and R2, and C2 connects to both R2 and R3.
- As with devices, you can **Ctrl-click** the cable type to make multiple connections without having to re-select the cable.
- Remember to refer to the topology diagram to determine which interfaces to use for these connections.

Step 2. Cable the distribution layer routers to the access layer switches.

Connect the distribution layer routers to the access layer switches using copper straight-through cables. R1 connects to S1, R2 connects to S4, and R3 connects to S7.

Step 3. Cable the access layer switches.

Connect the access layer switches using copper crossover cables. Follow the topology diagram for the correct connections.

Step 4. Cable the end devices.

Connect the remaining end devices (IP phones, printers, PCs, and servers) to the correct switch using copper straight-through cables. When connecting a switch to a PC, remember to connect to the Fast Ethernet port of the PC.

Step 5. Check results.

Your completion percentage should be 100%. If not, click **Check Results** to see which required components are not yet completed.

Note: A bug in Packet Tracer may cause your percentage to show only 99% even though all the required components are complete. If you wait long enough, Packet Tracer eventually catches up and gives you the full 100%.

Step 6. Reflection.

Notice that the link lights for ports between switches and between a switch and an end device eventually transition from amber to green. Why are the link lights for ports between routers and for ports between routers and switches red?

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