Packet Tracer - Network Representation

# Objectives

The network model in this activity incorporates many of the technologies that you will master in your CCNA studies. It represents a simplified version of how a small to medium-sized business network might look. Feel free to explore the network on your own. When you are ready, proceed through the following steps and answer the questions.

**Note**: It is not important that you understand everything you see and do in this activity. Feel free to explore the network on your own. If you wish to proceed more systematically, follow the steps below. Answer the questions to the best of your ability.

# Instructions

## Identify common components of a network as represented in Packet Tracer.

The icon toolbar at the bottom left hand corner has various categories of networking components. You should see categories that correspond to intermediary devices, end devices, and media. The **Connections** category (with the lightning bolt icon) represents the networking media supported by Packet Tracer. There is also an **End Devices** category and two categories specific to Packet Tracer: **Custom Made Devices** and **Multiuser Connection**.

### Questions:

List the intermediary device categories.

Answer: Routers, Switches, Hubs, Wireless Devices, Security, WAN Emulation

Type your answers here.

Without entering into the internet cloud or intranet cloud, how many icons in the topology represent endpoint devices (only one connection leading to them)?

Answer: 15.

Type your answers here.

Without counting the two clouds, how many icons in the topology represent intermediary devices (multiple connections leading to them)?

Answer: 11.

Type your answers here.

How many end devices are **not** desktop computers?

Answer: 8 (not counting Desktop or Laptop).

Type your answers here.

How many different types of media connections are used in this network topology?

Answer: 4. Copper Straight-Through, Coaxial, Serial DTE, Wireless.

Type your answers here.

## Explain the purpose of the devices.

### Questions:

* + 1. In Packet Tracer, only the Server-PT device can act as a server. Desktop or Laptop PCs cannot act as a server. Based on your studies so far, explain the client-server model.
       - 1. The Client-server model involves the user client directly connected to a server, sending or requesting data, which varies between IP addresses of sites or user data, to and from the server. This model could involve multiple users on one server or otherwise.
    2. List at least two functions of intermediary devices.
       - 1. One intermediary device example is a Router and its function is to give end devices an IP Address to end devices connected to it. Instead of having different addresses for a server to handle, using one locally used IP address makes recognizing then sending data to and from a server faster.
         2. Second intermediary device example is a Firewall and its function is to determine whether a connection should be made between the requested device and the server. Using guidelines, a firewall can either give permission or reject the request of connection.

Type your answers here.

* + 1. List at least two criteria for choosing a network media type.
       - 1. Bandwith providing to end devices, and the number of devices to handle considering the bandwith.
         2. Distance between devices.

Type your answers here.

## Compare and contrast LANs and WANs.

### Questions:

* + 1. Explain the difference between a LAN and a WAN. Give examples of each.
       - 1. LAN, a network that covers a small area. An example could be your Home, or a restaurant.
         2. WAN, a network that covers a larger area. An example could be a school or business.
    2. In the Packet Tracer network, how many WANs do you see?
       - 1. 2. Internet, Intranet

Type your answers here.

* + 1. How many LANs do you see?
       - 1. 3. Branch, Home Office, Central.

Type your answers here.

* + 1. The internet in this Packet Tracer network is overly simplified and does not represent the structure and form of the real internet. Briefly describe the internet.
       - 1. Network of networks, or an example of a WAN (Wide Area Network), the internet connects to different networks and handles multiple transactions of data between those networks.
    2. What are some of the common ways a home user connects to the internet?
       - 1. Ethernet, fiber, DSL (think broadband or ISP through telephone lines)

Type your answers here.

* + 1. What are some common methods that businesses use to connect to the internet in your area?
       - 1. Considering it’s a business, fast speeds are essential, especially in situations where you must cover hundreds or thousands of connections between people. Fiber connection and multiple routers which are hard connected to a server.

Type your answers here.

# Challenge Question

Now that you have had an opportunity to explore the network represented in this Packet Tracer activity, you may have picked up a few skills that you would like to try out. Or maybe you would like the opportunity to explore this network in more detail. Realizing that most of what you see and experience in Packet Tracer is currently beyond your skill level, here are some challenges you might want to attempt. Do not worry if you cannot do them all. You will be a Packet Tracer master user and network designer soon enough.

* Add an end device to the topology and connect it to one of the LANs with a media connection. What else does this device need to send data to other end users? Can you provide the information? Is there a way to verify that you correctly connected the device?
* Add a new intermediary device to one of the networks and connect it to one of the LANs or WANs with a media connection. What else does this device need to serve as an intermediary to other devices in the network?
* Open a new instance of Packet Tracer. Create a new network with at least two LANs connected by a WAN. Connect all the devices. Investigate the original Packet Tracer activity to see what else you might need to do to make your new network functional. Record your thoughts and save your Packet Tracer file. You may want to revisit your network later after you have mastered a few more skills.

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