

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

Step 1: 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**.

List the intermediary device categories.

Wireless Router, LAN Switch, Router, Multilayer Switch

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

15

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

11

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

8

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

4

Step 2: Explain the purpose of the devices.

- a. 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.

Servers are computers with software that allow them to provide information to other end devices on the network. Clients have software for requesting and displaying the information obtained from the server. Requests from clients are sent to the server via the Internet and processed by it. Then the server sends results back to the client which display them.

- b. List at least two functions of intermediary devices.

1. Maintain information about what pathways exist through the network and internetwork;
2. Notify other devices of errors and communication failure;
3. Direct data along alternate pathways when there is a link failure.

- c. List at least two criteria for choosing a network media type.
 - 1. What is the maximum distance that the media can successfully carry a signal;
 - 2. What is the environment in which the media will be installed

Step 3: Compare and contrast LANs and WANs.

- a. Explain the difference between a LAN and a WAN. Give examples of each.

LANs interconnect end devices in a limited area such as a home, school. WANs interconnect LANs over wide geographical areas such as between cities, countries. A LAN is usually administered by a single organisation or individual, but WANs are usually administered by multiple service providers. And LANs provide high-speed bandwidth to internal end devices, WANs typically provide slower speed links between LANs.
LANs: Home Office, Small Home Networks;
WANs: The Internet.
- b. In the Packet Tracer network, how many WANs do you see?

2
- c. How many LANs do you see?

3
- d. 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.

The Internet is a worldwide collection of interconnected networks. The Internet is not owned by any individual or group.
- e. What are some of the common ways a home user connects to the internet?

Cable, DSL (ADSL), Cellular, Satellite, Dial-Up Telephone
- f. What are some common methods that businesses use to connect to the internet in your area?

Dedicated Leased Line, Metro Ethernet, Business DSL (SDSL), Satellite

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.