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

Part 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**.

Questions:

List the intermediary device categories.

→ Routers, Switches, Hubs, Wireless Devices, Security, and WAN Emulation

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

→ 15 Icons

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

→ 11 Icons

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

→ 8 End Devices

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

→ 4 Media Connections

Part 2: Explain the purpose of the devices.

Questions:

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.

→ The client-server model is a distributed application structure that partition tasks between hosts that are clients, servers, or both. This role is determined based on the software installed on the host. The server are hosts that provides the network services to the other computers or clients and perform some user-based tasks such as email or provide information such as web pages. Clients are hosts that request and display information that were obtained from the server using software installed, for example browsers to display web pages. Clients do not share any of their data but rather sends requests through the network which the server process and delivers the requested data packet back to the client.

b. List at least two functions of intermediary devices.

→ Primary source and providers of information and services to end devices.

→ Direct data along alternate pathways when there is a link failure and ensures data flows along the network.

→ Permit or deny flow of data, based on security settings.

→ Interconnect the devices.

c. List at least two criteria for choosing a network media type.

→ Data size and required speed it must be transmitted.

→ The distance the media can successfully carry a signal without loss.

→ Hardware and environment in which the media is to be installed.

Part 3: Compare and contrast LANs and WANs.

Questions:

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

→ LAN is an area network in a small geographical area. WAN is a network that spans a wide geographical area over long distances, stretching across cities and/or countries. An example of LAN is a small home office or a local computer shop while an example of a WAN is the internet.

b. In the Packet Tracer network, how many WANs do you see?

→ 2. The Internet and the Intranet.

c. How many LANs do you see?

→ There are 3 LANs in the example network. Home Office, Branch, and Central.

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 global system that provides interconnectivity for millions of other, smaller networks using standardized communication protocols. In simpler terms it is a worldwide network of networks.

e. What are some of the common ways a home user connects to the internet?

→ Users can connect to the internet their ISP connection (cable, DSL, fiber) or cellular and satellite connections.

f. What are some common methods that businesses use to connect to the internet in your area?

→ Businesses have the option for a dedicated connection provided by their ISP which is not shared with anyone else. Other options include DSL, cable, and fiber connections as well.

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?

→ The device needs to set its IP address, mask the default gateway, etc. The connection is verified with a green triangle in the line.

- 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?

  → It must be configured properly for it to start serving 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.

  → Creating LANs with end point devices and switches is simple but interconnecting two routers and their respective switches require knowledge on configuration.

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