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.

Step 1: Identify common components of a network as represented in Packet Tracer.

1. 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.
2. List the intermediary device categories.

* Intermediary devices include Wireless Routers, Multilayer Switches, LAN switches, Firewall Appliances, and Routers.

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

* Only one connection leads to each of the 15 endpoint devices in the topology

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

* There are 11 icons in the topology that represent intermediary devices connected to multiple devices

1. How many end devices are not desktop computers?

* There are 8 end devices that are not desktop computers

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

* This network topology uses three types of media connections.

Step 2: Explain the purpose of the devices.

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.

* Hosts in modern networks can act as clients, servers, or both. A host's role on a network is determined by the software it runs. A server is a host that is equipped with software that provides information and services to other hosts on the network, such as email and web pages. Clients are hosts with software that allows them to request and display information from servers. Clients can also be configured as servers by installing server software.

1. List at least two functions of intermediary devices.

* Retransmit and regenerate data signals; maintain information about the routes that exist through the network and internetwork; notify other devices of errors and communication failures; Direct data along alternate pathways when there is a link failure; Classify and direct messages based on Quality of Service priorities; Permit or deny the flow of data, based on security settings.
* Selecting the type of network media. A medium's ability to carry a signal over a long distance. The environment in which the media will be installed. Transmitting data at a fast rate and the amount of data. Costs associated with media and installation.

Step 3: Compare and contrast LANs and WANs.

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

* End users can access LANs in a small geographical area. An example of a LAN is a home office or a school campus. WANs provide access to users in a wide geographical area over long distances spanning a few miles to thousands of miles. A Metropolitan WANs include the Internet and local area networks. WANs can also be used to connect multiple remote sites via an intranet.

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

* Two WANs

1. How many LANs do you see?

* Three LANs

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.

* The Internet is mostly used when we need to communicate with a resource on another network. The Internet is a global mesh of interconnected networks (internetworks).

1. What are some of the common ways a home user connects to the Internet?

* Cable, DSL, dial-up, cellular, and satellite

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

* Dedicated leased line, Metro-E, DSL, Cable, Satellite