

AIM:

Implementation of subnetting in Cisco packet tracer simulator.

Step 1:

- creating a network topology
- The first step in implementing classless IP subnetting is to create a network topology in packet tracer.
- To create a network topology in packet tracer, select the "New" button in the top left then select "Network" and "Generic". This will create a blank network topology that we can use to add device.

Step 2:

Adding the devices.

- Once we have created our network topology, we can add devices to it. Here, we will be adding routers, switches and PCs.
- Select the device from the bottom left corner and drag it onto the network topology and connect the devices by dragging a cable from one device to another.

Step 3:

Subnetting.

- To subnet the network address of 192.168.1.0/24 to provide enough space for at least 5 addresses.
- Using /27 subnet mask, we will give us 8 subnets with 30 host addresses each.

CONFIGURING THE DEVICES.

(34)

25

- * Right-click on router and select "CLI".
- * Enter the following commands in CLI
 - # Enable.
 - # Configure terminal.
 - # Interface Fast Ethernet 0/0
 - # ip address {IP address} {Subnet Mask}
 - # no shutdown
 - # Exit .
- * Right-click on the switch and Select "CLI" in the "CLI" enter the following commands.
 - # Enable
 - # Configure Terminal # interface Fast Ethernet 0/2
 - # interface Fast Ethernet 0/1. # Switchport mode access.
 - # Switchport Mode access . # exit .
 - # exit .
- * Right-click on each pc and select "config"
 - ↳ In configuration window, enter the IP address, Subnet mask, default gateway, and DNS server information.
- * Configure the Gigabit Ethernet interface on the router.
 1. Right-click on the router and Select "CLI".
 2. Enter the following commands .
 - # Enable
 - # interface Gigabit Ethernet 0/0
 - # ip address {IP Address} {Subnet Mask}
 - # no shutdown
 - # exit .

34

TESTING THE NETWORK:

Ques. No. 35

257

257

Open the command prompt on PC and try to ping the other PC. If the ping successful then the network is functioning properly.

Student observation:

- Write down your understanding of subnetting.

Subnetting is the technique of dividing a single IP network (like 192.168.1.0) into multiple smaller networks.

Each smaller network (subnet) can function independently but still be part of the larger main network.

- What is the advantage of implementing subnetting within a network?

- * Efficient address utilization.
- * Improved Network Management.
- * Enhanced Security.
- * Better performance.
- * Segmentation.

RESULT:

The Subnetting was implemented successfully.

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9/10