

Ex No: 9
15/09/25

SUBNETTING

Aim: Explain VLSM approach & subnetting.

Implementation of SUBNETTING in CISCO PACKET TRACER Simulator.

classless IP Subnetting is a technique that allows for more efficient use of IP addresses by allowing for subnet masks that are not just default masks for each IP class. This means that we can divide our IP address space into smaller subnets, which can be useful when we have a limited no of addresses but need to create multiple networks.

Creating a Network Topology

The first step is to create a network topology in Packet Tracer. For that, select the "New" button in the top left corner, then select "Network" and "Create". This will create a blank Network topology that we to add devices.

Adding the Devices

Here, we add routers, switches and PCs. Select the device & add it onto the network topology. Then, connect the devices by dragging a cable from one device's port to another device's port.

~~Subnetting is used to divide IP address space~~

To subnet the network address of 192.168.1.0/24 to provide enough space for atleast 5 addresses for end devices, the switch, and routers, we can use a 127 subnet mask.

Configuring the Devices:

Now that we have added our devices and connected them, we can start configure them, we will start by configuring the switch, and then the PCs.

Testing the Network:

Now we can test the network. Open a command prompt on each PC and try to ping the other PC. If the ping is successful, then the network is functioning properly.

Student observation:

I work down your understanding of subnetting

Subnetting is dividing a larger network into smaller sub networks for efficient IP usage and management.

2) what is the advantage of implementing subnetting above within a network

It improves IP utilization, reduces broadcast traffic, enhances security, & makes networks easier to manage.

(00.0.0.0 to 00.0.0.255) for sending broadcast messages

(00.0.0.1 to 00.0.0.254) for sending broadcast messages

so broadcast traffic will be kept off the network.

Result: IP is being forwarded to the correct host.

Subnetting was successfully implemented with Cisco Router Network devices communicating properly using the assigned subnetted IP addresses.

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