18/9/25

Practical - 9

Aim:

Implementation of subnetting in CISCO PACKET TRACER simulation.

Classless IP subnetting is a technique that allows for more efficient use of IP address by allowing for subnet masks that are not just the default masks for each IP class.

Creating a Network Topology:

The first step is to create a network topology in packet Tracer.

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

Subnetting.

To subnet the network address of 192.168.10.0/24 to provide enough space for at least 5 addresses for end devices, the switch and the router, we can use a 127 subnet mask. This will give us 2 subnets with 30 host each

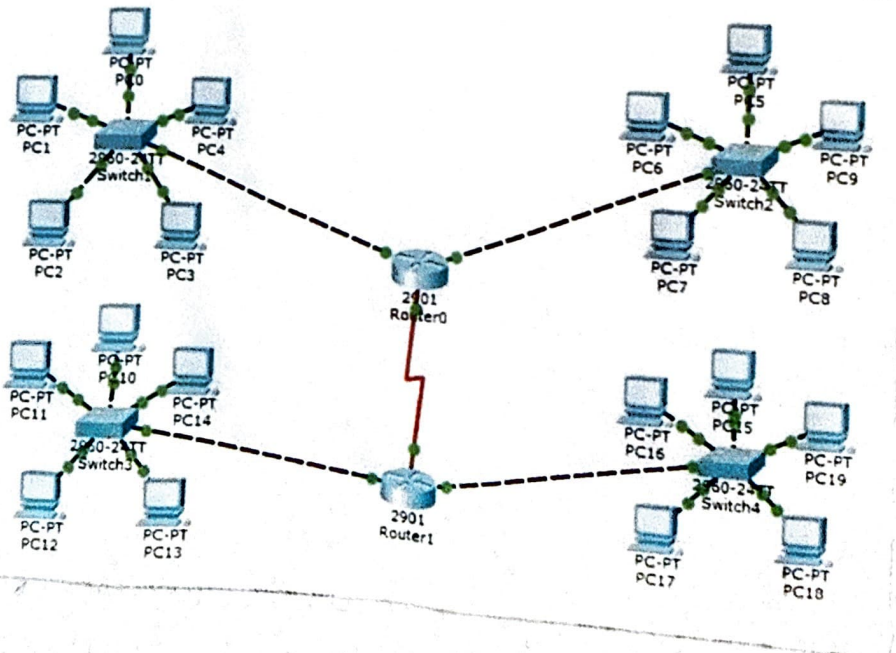
Configuring the Devices.

Now that we have added our devices and connected them, we can start configuring them. We will start by configuring the router. Right clicks on the raiter and click 'CLI'. This will open the CLI for the router Enter the

following commands:

enable
configure terminal
interface Fast Ethernet 0/0
ip address {IP address} {subnet mask}
no shutdown
exit

Interface Fast Ethernet 0/1
ip address {IP address} {subnet mask}
no shutdown
exit.



Test the Network:

Now that our network topology is configured we can test the network. Open a cmd prompt on each PC and try to ping the other PC. If ping is successful then the network is functioning properly.

Student Observation:

1. My understanding of subnetting:

Ans It is the process of diving a single large physical network into multiple smaller, logical networks called subnets

For eg, a simple network 192.168.1.0 might have a sub-net mask of 255.255.255.0, allowing for 254 usable host devices.

2. Advantages of subnetting

Ans
- Improved performance and Reduce congestion
- Enhanced security
- Simplified Administration.

3. Subnetting in college

Ans Yes, subnetting is used in our college as it holds 1000s of PCs. Eg: Idea factory, tech lounge etc, have their unique networks followed by unique subnets.

Result: Hence subnets was implemented successfully.

9/10/25