Assignment

Network Systems Assignment 4

Objective:

Design and configure a network in Cisco Packet Tracer with two separate LANs, each containing six PCs connected to a switch. Connect these two LANs using a router and ensure successful communication between devices in different networks. Configure DHCP on the router to dynamically assign IP addresses to PCs in both LANs.

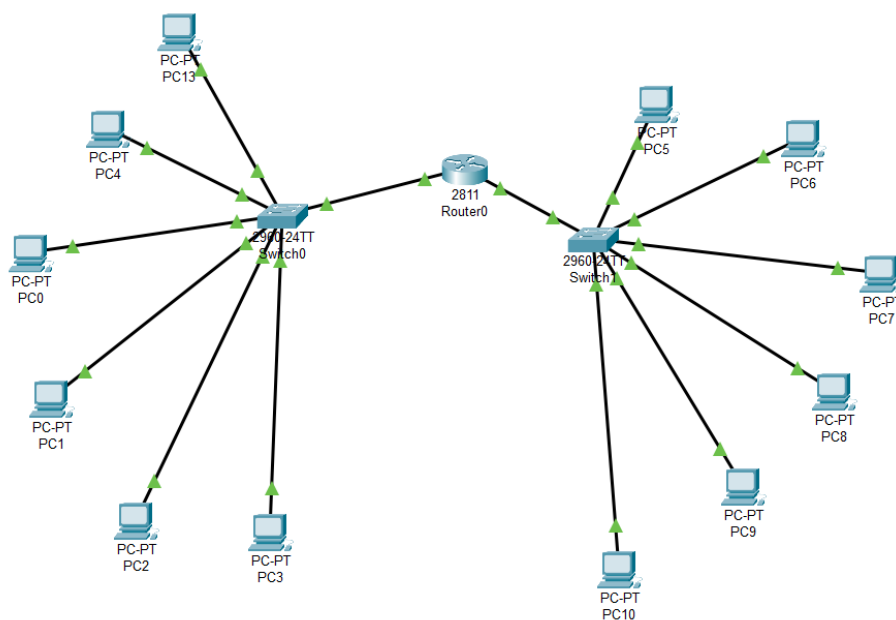Following are the network details;

1. Network 1 :
   Starting IP Address: 192.168.15.10

2. Network 2 :
   Starting IP Address: 192.168.16.10

Establish success connection and send messages between devices in the same network, as well as devices in different networks. Attach all screenshots (including DHCP configuration on Router, IP configuration, Network Structure) and description in a pdf file and submit.

Network Structure

Router Configuration using CLI

```
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ip dhcp pool FastEthernet0/0
Router(dhcp-config)#network 192.168.15.0 255.255.255.0
Router(dhcp-config)#default-router 192.168.15.1
Router(dhcp-config)#lease 0 0 30
                         ^
% Invalid input detected at '^' marker.

Router(dhcp-config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ip dhcp pool FastEthernet0/1
Router(dhcp-config)#network 192.168.16.0 255.255.255.0
Router(dhcp-config)#default-router 192.168.16.1
Router(dhcp-config)#lease 0 0 30
                         ^
% Invalid input detected at '^' marker.

Router(dhcp-config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#
```
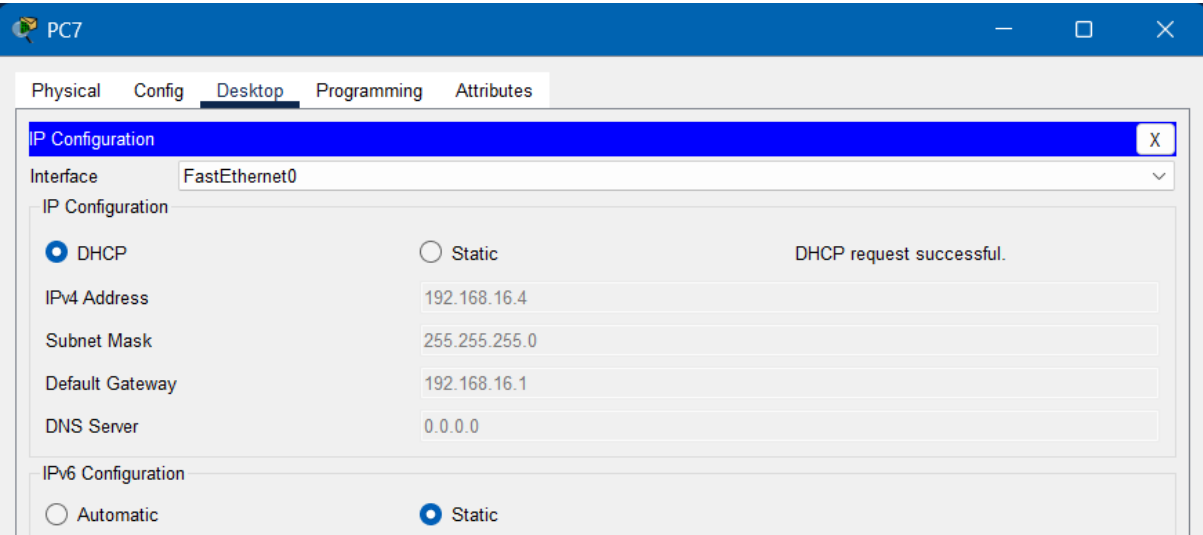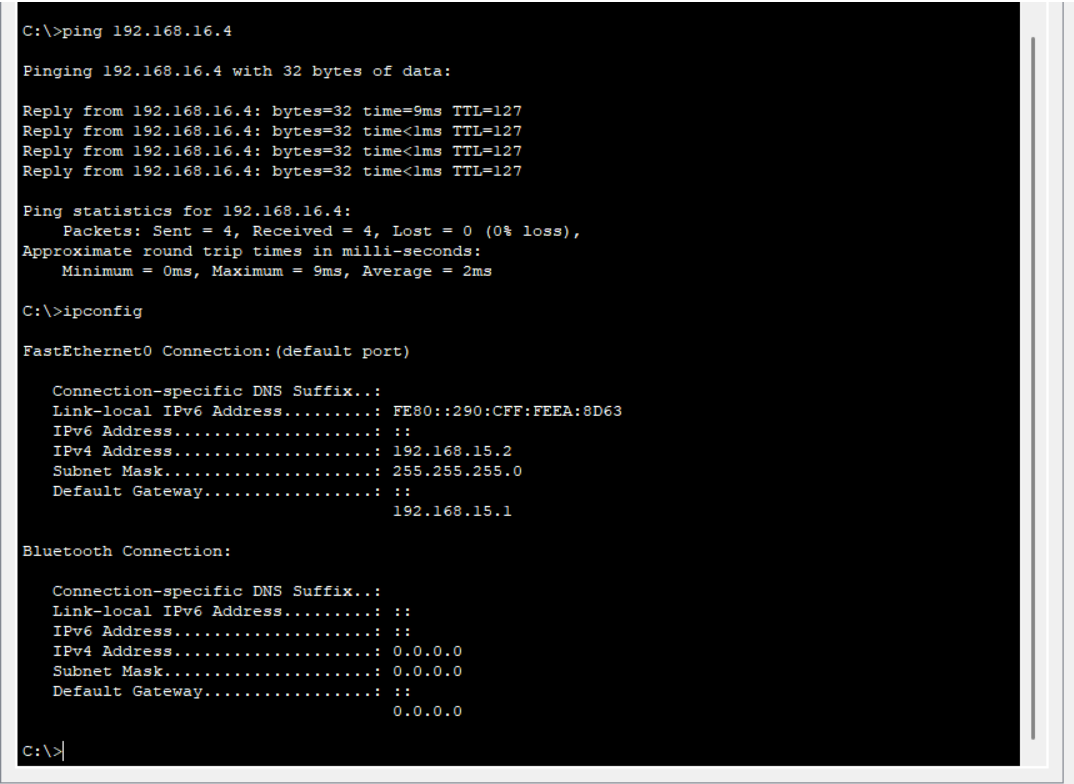
IP configuration of Network 1 (FastEthernet0/0)

PC13   — ☐ ✕

| Physical | Config | Desktop | Programming | Attributes |

IP Configuration   X

Interface   FastEthernet0   ⌄

IP Configuration

⦿ DHCP   ○ Static   DHCP request successful.

IPv4 Address   192.168.15.7

Subnet Mask   255.255.255.0

Default Gateway   192.168.15.1

DNS Server   0.0.0.0

IPv6 Configuration

○ Automatic   ⦿ Static

IPv6 Address   _____ / ___

Link Local Address   FE80::210:11FF:FE76:3731

Default Gateway

DNS Server

802.1X

IP configuration of Network 2 (FastEthernet0/1)

Pinging 192.168.15.2 → 192.168.16.4

Ping status

Description:

- First connect all the devices in the provided network structure
- Take Router CLI terminal and configure the DHCP in the router with the following commands

  Router> enable

  Router# configure terminal

  Router(config)# interface FastEthernet0/0

  Router(config-if)# ip address 192.168.15.1 255.255.255.0

  Router(config-if)# no shutdown

  Router(config-if)#end

  Router(config)# ip dhcp pool FastEthernet0/0

  Router(dhcp-config)# network 192.168.15.0 255.255.255.0

  Router(dhcp-config)# default-router 192.168.15.1

  For Both Networks

- This enables the DHCP mode for the router and automatically assigns IP addresses for the PCs
- Change the Static → DHCP in all the connected PCs

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SOCSE 241037