PLATINUM JUBLEE

Celebrating 75 years of WCE & 20 years of Department

20 YEARS OF EXELLENCE

Walchand College of Engineering, Sangli

(Government Aided Autonomous Institute)

Department of Information Technology

Computer Networks Lab

EVEN SEMESTER AY 2021-22

Submitted by

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Experiment Number: 3

Experiment Name: Subnetting

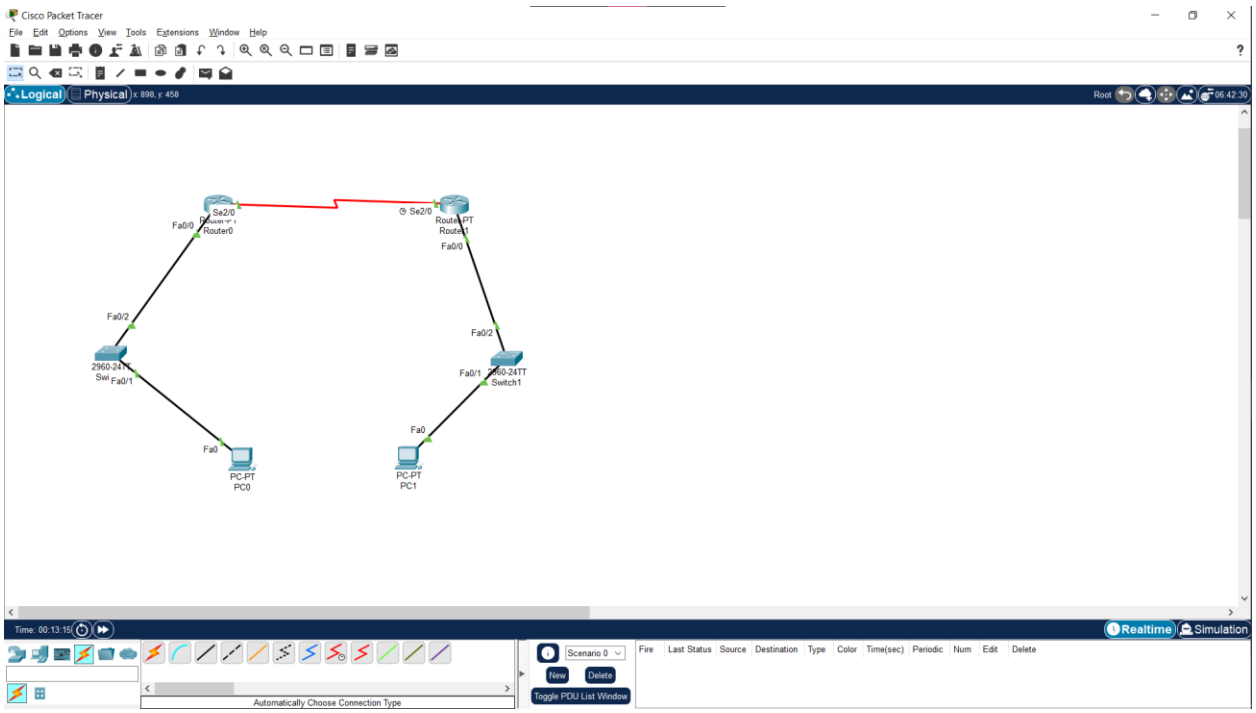
Contents:

Problem Statement:

To divide the network into three parts and perform packet transferring.

Devices Required: PC, Switch, Router

Design:



Implementation:

1. Arrange components as shown in above diagram and assign IP to each PC
2. Configure the router and the switch

   Commands:

   enable

   config t

   interface fastEthernet 0/1

   switchport mode trunk

```
Switch>
Switch>
Switch>enable
Switch#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#interface fa
Switch(config)#interface fastEthernet 0/2
Switch(config-if)#switchport mode trunk
Switch(config-if)#no shutdown
Switch(config-if)#exit
Switch(config)#
%LINK-5-CHANGED: Interface FastEthernet0/2, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed
state to up
```

Similarly do the same for other

```
Switch>
Switch>enable
Switch#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#interface fa
Switch(config)#interface fastEthernet 0/1
Switch(config-if)#switchport mode trunk
Switch(config-if)#no shutdown
Switch(config-if)#exit
Switch(config)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed
state to up
```

3. For configuring router use command “ip address ip_to_be_set”

```
Router>
Router>enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface fa
Router(config)#interface fastEthernet 0/0
Router(config-if)#ip address 192.168.1.129 255.255.255.192
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed
state to up

Router(config-if)#
Router(config-if)#exit


Router>
Router>enable
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface fa
Router(config)#interface fastEthernet 0/0
Router(config-if)#ip address 192.168.1.129 255.255.255.192
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed
state to up

Router(config-if)#
Router(config-if)#exit
```

4. Next step is to interface the serial port using the command ● “interface serial 2/0” > “ip address new_ip_of_router subnet_Mask”

```
Router(config)#
Router(config)#interface se
Router(config)#interface serial 2/0
Router(config-if)#ip address 192.168.1.65 255.255.255.192
Router(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial2/0, changed state to down
Router(config-if)#
Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to
up
```

```
Router(config)#
Router(config)#interface ser
Router(config)#interface serial 2/0
Router(config-if)#ip address 192.168.1.66 255.255.255.192
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

Router(config-if)#
Router(config-if)#exit
```

5. To set the ip route between both the networks use the command “ip route dest_net_id subnet_mask ip_next_hop”

```
Router(config)#interface Serial2/0
Router(config-if)#exit
Router(config)#ip route 192.168.1.128 255.255.255.192 192.168.1.66
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
```

```
Router(config)#
Router(config)#interface ser
Router(config)#interface serial 2/0
Router(config-if)#ip address 192.168.1.66 255.255.255.192
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up
```

6. Subnetting is completed

Results:

Communication between two systems present in the different subnets is possible using routers

Dr. P. K. Kharat

(Course Teacher)