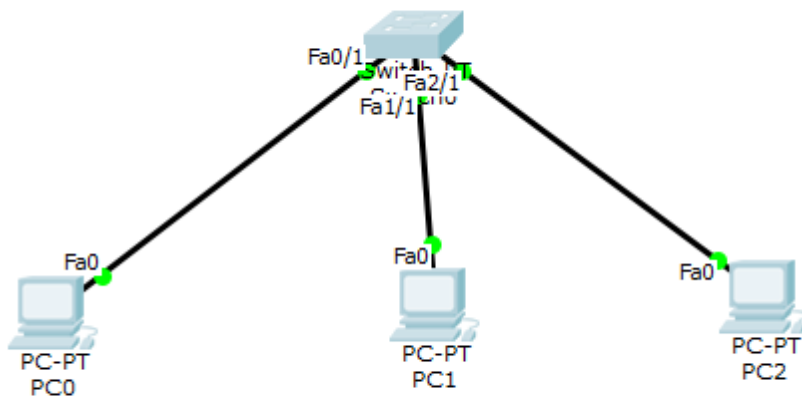


## WEEK 7

1. To construct simple LAN and understand the concept and operation of Address Resolution Protocol (ARP).

Topology:



1. Configure IP addresses
2. Go to command prompt of PC0

PC0

Physical Config Desktop Custom Interface

```
Command Prompt

Packet Tracer PC Command Line 1.0
PC>arp -a
No ARP Entries Found
PC>ping 10.0.0.3

Pinging 10.0.0.3 with 32 bytes of data:

Reply from 10.0.0.3: bytes=32 time=7ms TTL=128
Reply from 10.0.0.3: bytes=32 time=0ms TTL=128
Reply from 10.0.0.3: bytes=32 time=1ms TTL=128
Reply from 10.0.0.3: bytes=32 time=0ms TTL=128

Ping statistics for 10.0.0.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 7ms, Average = 2ms

PC>arp -a
Internet Address      Physical Address      Type
10.0.0.3              0002.1778.eb26        dynamic
```

Physical Config Desktop Custom Interface

### Command Prompt

Minimum = 0ms, Maximum = 7ms, Average = 2ms

```
PC>arp -a
Internet Address      Physical Address      Type
10.0.0.3              0002.1778.eb26        dynamic

PC>ping 10.0.0.2

Pinging 10.0.0.2 with 32 bytes of data:

Reply from 10.0.0.2: bytes=32 time=1ms TTL=128
Reply from 10.0.0.2: bytes=32 time=0ms TTL=128
Reply from 10.0.0.2: bytes=32 time=0ms TTL=128
Reply from 10.0.0.2: bytes=32 time=0ms TTL=128

Ping statistics for 10.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

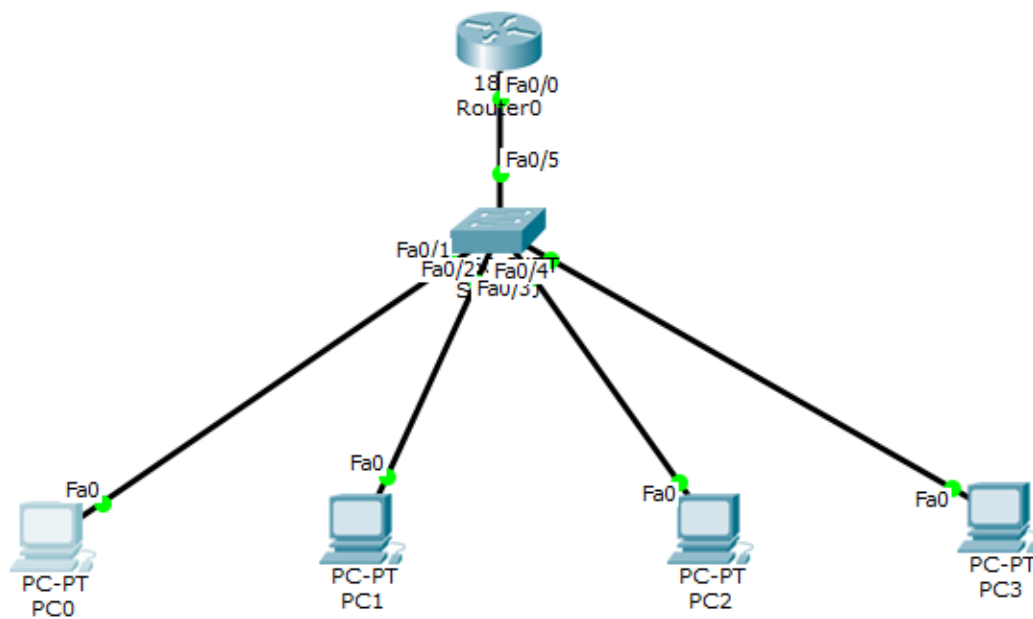
PC>arp -a
Internet Address      Physical Address      Type
10.0.0.2              0060.4775.706d        dynamic
10.0.0.3              0002.1778.eb26        dynamic

PC>arp -d
PC>arp -a
No ARP Entries Found
PC>
```

2. To construct a VLAN and make the PC's communicate among a VLAN (Virtual LAN).

Procedure:

1. Construct the topology as shown, with switch -2960, router 1841



2. Configure the IP addresses and gateway of PCs.
3. In router configure the left side network (fa 0/0)- 192.168.1.1
4. Go to switch -> config -> VLAN-database -> set VLAN name (lab1) and number (20) -> click on Add

Vlan name can be anything, vlan number is based on the right side network (192.168.20.2) vlan number is 20.

5. Click on Switch->config>fast ethernet 5->trunk(dropdown menu)
6. (For right side systems)  
Click on Switch ->config->fast ethernet 3->vlan 20  
Click on Switch->fast ethernet 4-> vlan 20

## 7. Go to Router CLI and type the following commands.

```
Router(config)#interface fastEthernet 0/0.1
Router(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/0.1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.1, changed state
to up

Router(config-subif)#encapsulation dot1q 20
Router(config-subif)#ip address 192.168.20.1 255.255.255.0
Router(config-subif)#no shutdown
Router(config-subif)#exit
Router(config)#exit
```

## 8. Ping the PC.

```
PC>ping 192.168.20.2

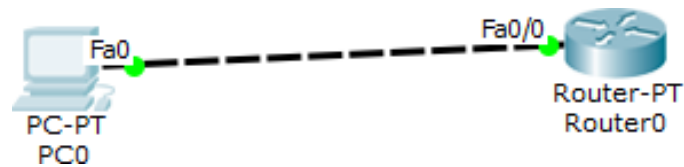
Pinging 192.168.20.2 with 32 bytes of data:

Reply from 192.168.20.2: bytes=32 time=0ms TTL=127
Reply from 192.168.20.2: bytes=32 time=0ms TTL=127
Reply from 192.168.20.2: bytes=32 time=0ms TTL=127
Reply from 192.168.20.2: bytes=32 time=0ms TTL=127

Ping statistics for 192.168.20.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

3. To understand the operation of TELNET by accessing the router in server room from a PC.

Topology:



```
PC0
Physical Config Desktop Custom Interface
Command Prompt
Packet Tracer PC Command Line 1.0
PC>ping 10.0.0.1

Pinging 10.0.0.1 with 32 bytes of data:

Reply from 10.0.0.1: bytes=32 time=0ms TTL=255
Reply from 10.0.0.1: bytes=32 time=0ms TTL=255
Reply from 10.0.0.1: bytes=32 time=0ms TTL=255
Reply from 10.0.0.1: bytes=32 time=0ms TTL=255

Ping statistics for 10.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

PC>telnet 10.0.0.1
Trying 10.0.0.1 ...Open

User Access Verification

Password:
rl>enable
Password:
rl#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

C    10.0.0.0/8 is directly connected, FastEthernet0/0
rl#
```