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CN LAB 9

AIM: TO CREATE A VIRTUAL LAN ON TOP OF THE PHYSICAL LAN AND ENABLE COMMUNICATION B/W PHYSICAL LAN AND VIRTUAL LAN

OBSERVATION:

Lab-09

3/12/24

→ PC0 & PC1:

PC0 : ip address 192.168.10.2
PC1 : ip address 192.168.10.3

Set gateway for both PC's as 192.168.10.1

→ Switch-0: config

- Select Fa0/5 to make the switch a trunk
- Choose Trunk
- Select VLAN Database
- Add ; VLAN Number: 20
- VLAN Name: VLAN1
- Select Fa0/3 & Fa0/4
- Choose VLAN [20: VLAN1]

→ PC2 & PC3 for VLAN interface

PC2 : ip address 192.168.20.1
Gateway 192.168.20.3

PC3 : ip address 192.168.20.2
Gateway 192.168.20.3

→ Select Router0: C1T

- Test fa 0/0/4
- encapsulation dot1q [20: VLAN number]
- ip address 192.168.20.3
- no shutdown
- exit

Topology:

Configurations:

Router: 1841
Switch: 2950T-24

→ Router 0: Router in C1T

Router> enable
Router# configure
Router(config)# int fa0/0
Router(config-if)# ip address 192.168.10.1 255.255.255.0
no shutdown

Observation

- Now the message packets can be sent from Physical LAN devices to Virtual LAN devices or vice-versa.
- ping Select PC0 > distop > command prompt

ping 192.168.20.2 # PC3

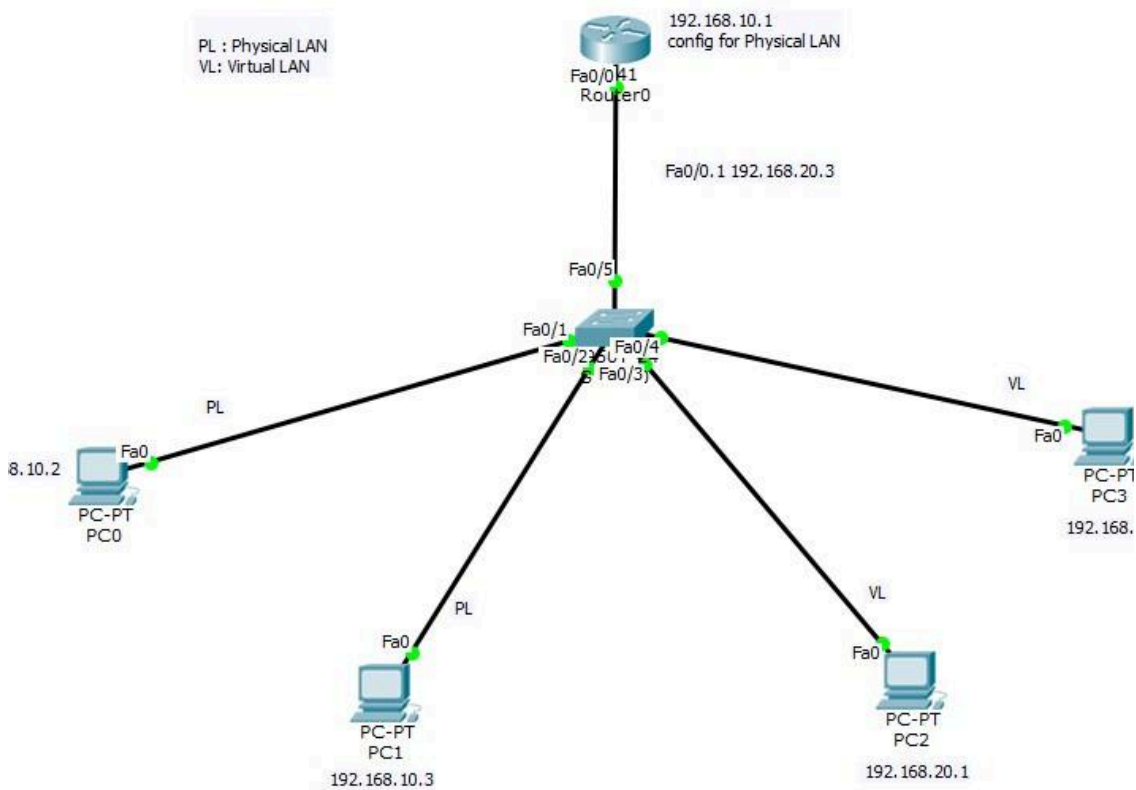
Pinging with 192.168.20.2 32 bytes of data:

Reply from 192.168.20.2: bytes=32 TTL=122

Ping statistics for 192.168.20.2

Packets: Sent=4, Received=4, Lost=0.

TOPOLOGY:



PC0 CONFIGURATION:

PC0

Physical Config Desktop Custom Interface

GLOBAL

Settings

Algorithm Settings

INTERFACE

FastEthernet0

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0090.0CB8.BD6D

IP Configuration

☐ DHCP

☒ Static

IP Address 192.168.10.2

Subnet Mask 255.255.255.0

IPv6 Configuration

☐ DHCP

☐ Auto Config

☒ Static

IPv6 Address

Link Local Address: FE80::290:CFF:FE88:BD6D

PC2 CONFIGURATION:

PC2

Physical Config Desktop Custom Interface

GLOBAL

Settings

Algorithm Settings

INTERFACE

FastEthernet0

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0090.0C54.884E

IP Configuration

☐ DHCP

☒ Static

IP Address 192.168.20.1

Subnet Mask 255.255.255.0

IPv6 Configuration

☐ DHCP

☐ Auto Config

☒ Static

IPv6 Address

Link Local Address: FE80::290:CFF:FE54:884E

PC2 Gateway CONFIGURATION:

The screenshot shows the 'Global Settings' window for PC2. The 'Display Name' is 'PC2'. Under 'Gateway/DNS', 'Static' is selected. The 'Gateway' is '192.168.20.3' and the 'DNS Server' is '0.0.0.0'. Under 'Gateway/DNS Ipv6', 'Static' is also selected. The 'IPv6 Gateway' and 'IPv6 DNS Server' fields are empty.

ROUTER0 CONFIGURATION:

The screenshot shows the 'IOS Command Line Interface' for Router0. The configuration commands entered are:

```
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int fa0/0
Router(config-if)#ip address 192.168.10.1 255.255.255.0
Router(config-if)#ip address 192.168.10.1 255.255.255.0ip address 192.168.10.1 255.255.255.0no 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
```

SWITCH Fa 0/3 configuration

The screenshot shows the configuration for FastEthernet0/3 on Switch0. The port status is 'On'. Bandwidth is '100 Mbps' and Duplex is 'Full Duplex'. The port is configured as 'Access' type, assigned to 'VLAN 20', and has a 'Tx Ring Limit' of '10'.

Equivalent IOS Commands:

```
Switch(config)#exit
Switch(config)#interface FastEthernet0/3
Switch(config-if)#
Switch(config-if)#exit
Switch(config)#interface FastEthernet0/4
Switch(config-if)#
Switch(config-if)#exit
Switch(config)#interface FastEthernet0/3
Switch(config-if)#
```

SWITCH Fa 0/5 configuration

The screenshot shows the configuration for FastEthernet0/5 on Switch0. The port status is 'On'. Bandwidth is '100 Mbps' and Duplex is 'Full Duplex'. The port is configured as 'Trunk' type, assigned to 'VLAN 2-1001', and has a 'Tx Ring Limit' of '10'.

Equivalent IOS Commands:

```
Switch(config)#
Switch(config-if)#switchport trunk allowed vlan remove 1003
Switch(config-if)#
Switch(config-if)#
Switch(config-if)#switchport trunk allowed vlan remove 1004
Switch(config-if)#
Switch(config-if)#
Switch(config-if)#switchport trunk allowed vlan remove 1005
Switch(config-if)#
```

SWITCH VLAN Database

GLOBAL

- Settings
- Algorithm Settings

SWITCH

- VLAN Database

INTERFACE

- FastEthernet0/1
- FastEthernet0/2
- FastEthernet0/3
- FastEthernet0/4
- FastEthernet0/5
- FastEthernet0/6
- FastEthernet0/7
- FastEthernet0/8
- FastEthernet0/9
- FastEthernet0/10

VLAN Configuration

VLAN Number:

VLAN Name:

VLAN No	VLAN Name
1	default
20	VLAN1
1002	fddi-default
1003	token-ring-default
1004	fddinet-default
1005	trnet-default

Equivalent IOS Commands

```
Switch(config-if)#exit
Switch(config)#interface FastEthernet0/4
Switch(config-if)#
Switch(config-if)#exit
Switch(config)#interface FastEthernet0/3
Switch(config-if)#
Switch(config-if)#exit
Switch(config)#
```

Creation of Fa 0/0.1

Encapsulating Fa 0/0.1

Router0

Physical Config CLI

IOS Command Line Interface

```
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int fa0/0.1
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)#ip address 192.168.20.3 255.255.255.0

% Configuring IP routing on a LAN subinterface is only allowed if that subinterface is already configured as part of an IEEE 802.1Q, IEEE 802.1Q, or ISL VLAN.

Router(config-subif)#exit
Router(config)#
Router(config)#exit
Router#vlan database
% Warning: It is recommended to configure VLAN from config mode, as VLAN database mode is being deprecated. Please consult user documentation for configuring VTP/VLAN in config mode.

Router(vlan)#
%SYS-5-CONFIG_I: Configured from console by console

Router(vlan)#vlan 20 name VLAN1
VLAN 20 modified:
```

Router0

Physical Config CLI

IOS Command Line Interface

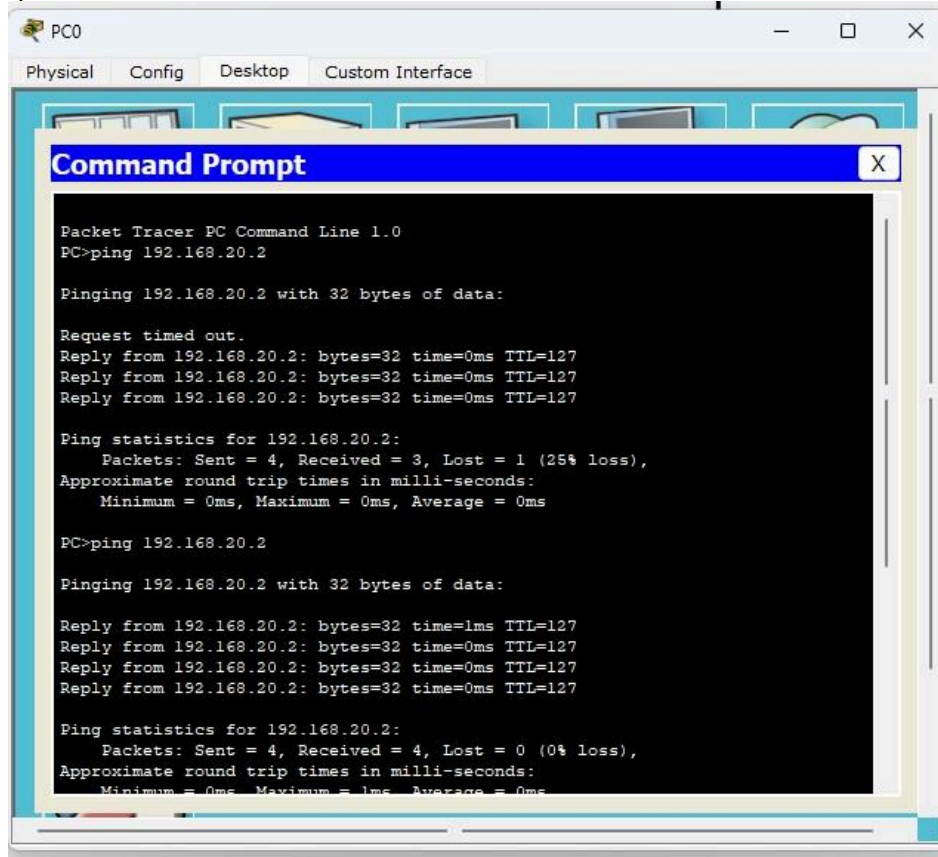
```
as VLAN database mode is being deprecated. Please consult user documentation for configuring VTP/VLAN in config mode.

Router(vlan)#
%SYS-5-CONFIG_I: Configured from console by console

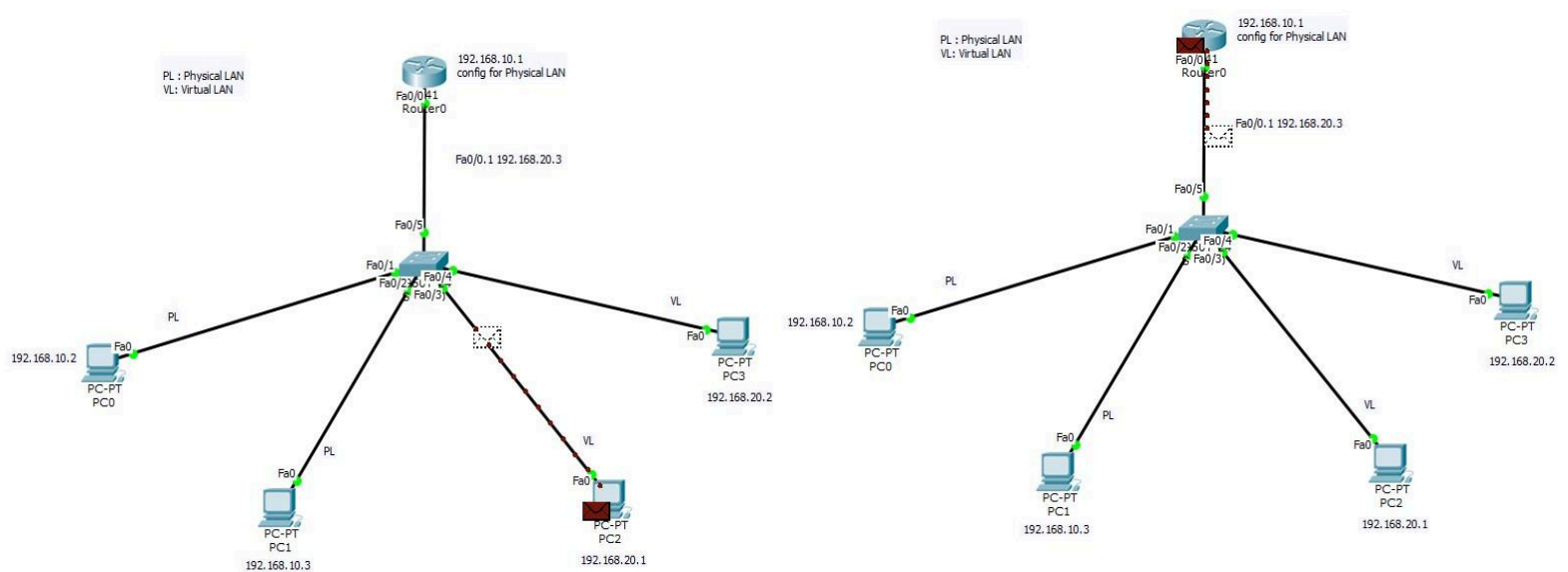
Router(vlan)#vlan 20 name VLAN1
VLAN 20 modified:
  Name: VLAN1
Router(vlan)#exit
APPLY completed.
Exiting...
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int fa0/0.1
Router(config-subif)#encapsulation dot1q 20
Router(config-subif)#ip address 192.168.20.3 255.255.255.0
Router(config-subif)#no shutdown
Router(config-subif)#exit
Router(config)#

Router con0 is now available
```


Ping message packet from PC0 to PC2



PDU



PDU Received

