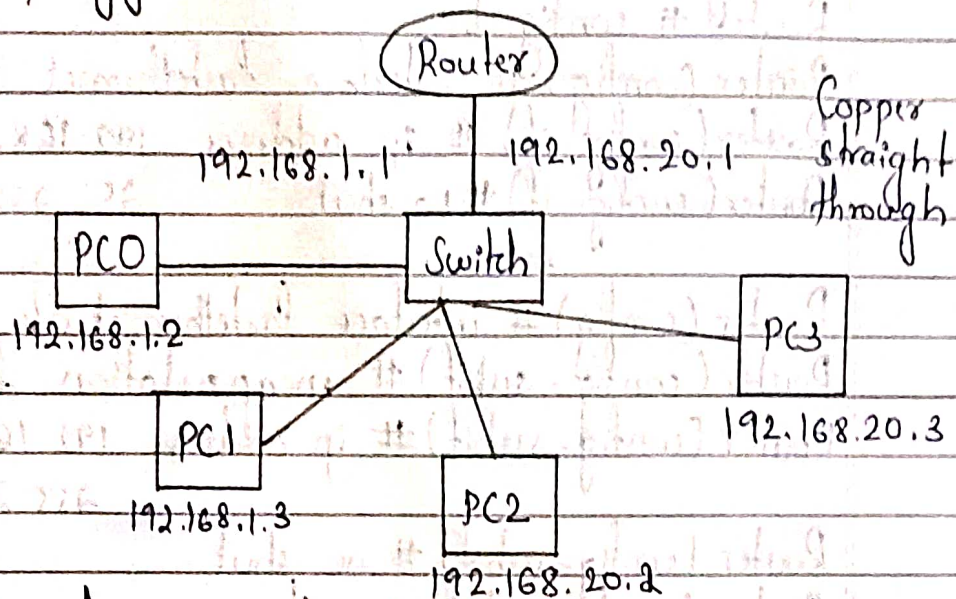


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Aim - To construct a VLAN and make the PC's communicate among a VLAN.

Topology -



Procedure -

- 1) Set up the topology as shown above, use 1891 router
- 2) Add an extra router-port to the switch as its needed
- 3) use copper straight through wire. Set the IP address & gateway
- 4) In switch → config → VLAN Database, give any VLAN numbers, here 20, and VLAN name, here → VLAN
- 5) Select add, select the interface (here - FastEthernet 4/1). (nearest to the switch from router) and make it trunk.
- 6) Look into FastEthernet 2/1 & 3/1 and change VLAN1 to 20: VLAN
- 7) In Router, select VLAN DATABASE, enter the number and name of the VLAN created.

In CLI of router

Router (Vlan) # exit

APPLY completed

Exiting...

Router # config t

Router (config) # interface fastethernet 0/0

Router (config-if) # ip address 192.168.1.1

Router (config-if) # no shut 255.255.255.0

Router (config) # interface fastethernet 0/0.1

Router (config-subif) # encapsulation dot1q 20

Router (config-subif) # ip address 192.168.20.1

255.255.255.0

Router (config-subif) # no shut

Router (config-subif) # exit

Result -

(in PC)

PC > ping 192.168.20.3

pinging 192.168.20.3 with 32 bytes of data

Reply from 192.168.20.3: bytes=32 time=1 ms TTL=128

Reply from 192.168.20.3: bytes=32 time=1 ms TTL=128

Reply from 192.168.20.3: bytes=32 time=0 ms TTL=128

Reply from 192.168.20.3: bytes=32 time=0 ms TTL=128

Ping statistics for 192.168.20.3

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

Approximate round trip time in milliseconds

Minimum = 0 ms, Maximum = 1 ms, Average = 0 ms

Observation-

- 1) VLAN - Virtual local area network is any broadcast domain that is partitioned and isolated in a completed network at the data link layer.
- 2) It is a virtualised connection that converts multiple devices and network nodes from different LANs into one local logical network.

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Logical

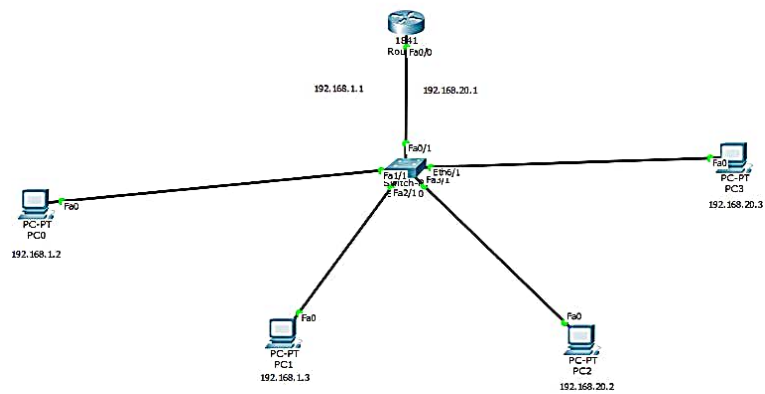
[Root]

New Cluster

Move Object

Set Titled Background

Viewport



Time: 00:23:15 Power Cycle Devices Fast Forward Time



Scenario 0

New Delete

Toggle PDU List Window

Fire Last Status Source Destination Type Color Time(sec) Periodic Num Edit Delete

Realtime

Cisco Packet Tracer Student

File Edit Options View Tools Extensions Help

Logical [Root] New Cluster

```
graph TD
    Router[Router0] --- PC0[PC-PT PC0]
    Router --- PC1[PC-PT PC1]
    Router --- PC2[PC-PT PC2]
```

192.168.1.1 192.168.20.1 192.168.1.2 192.168.1.3

Time: 00:22:22 Power Cycle Devices Fast Forward Time

Connections

Automatically Choose Connection Type

Router0

Physical Config CLI

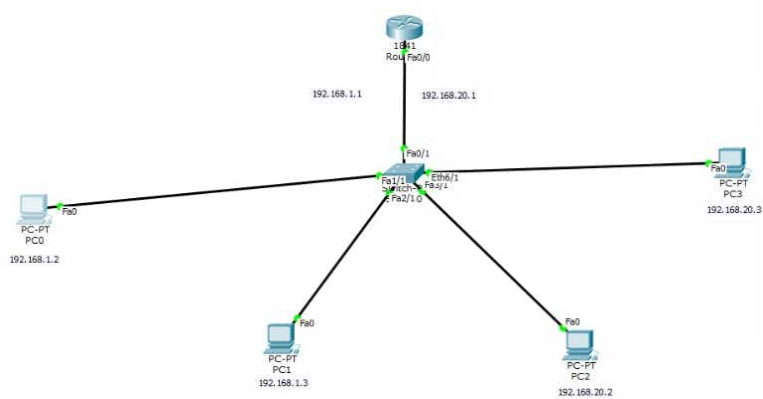
IOS Command Line Interface

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
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-S-CONFIG_I: Configured from console by console
vlan 20 name NEW_VLAN
VLAN 20 modified:
Name: NEW_VLAN
Router(vlan)#exit
APPLY completed.
Exiting....
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet 0/0
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#no shut
Router(config-if)#
Router(config-if)#
$LINK-S-UPDOWN: Interface FastEthernet0/0, changed state to up
$LINK-S-CHANGED: Interface FastEthernet0/0, changed state to up
Router(config)#interface FastEthernet 0/0.1
Router(config-subif)#
$LINK-S-CHANGED: Interface FastEthernet0/0.1, changed state to up
$LINEPROTO-S-UPDOWN: Line protocol on Interface FastEthernet0/0.1, changed state to up
Router(config-subif)#encapsulation dot1q 2
Router(config-subif)#ip address 192.168.20.1 255.255.255.0
Router(config-subif)#no shut
Router(config-subif)#exit
Router(config)#exit
Router#
$SYS-S-CONFIG_I: Configured from console by console
Router#enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet 0/0.1
Router(config-subif)#encapsulation dot1q 20
Router(config-subif)#ip address 192.168.20.1 255.255.255.0
Router(config-subif)#no shut
Router(config-subif)#exit
Router(config)#exit
Router#
$SYS-S-CONFIG_I: Configured from console by console
```

Copy Paste

Toggle PDU List Window

Realtime



PC0

Physical Config Desktop Custom Interface

Command Prompt

```
PC>ping 192.168.1.3
Pinging 192.168.1.3 with 32 bytes of data:
Reply from 192.168.1.3: bytes=32 time=1ms TTL=128
Reply from 192.168.1.3: bytes=32 time=0ms TTL=128
Reply from 192.168.1.3: bytes=32 time=0ms TTL=128
Reply from 192.168.1.3: bytes=32 time=0ms TTL=128

Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

PC>ping 192.168.20.3
Pinging 192.168.20.3 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.20.3:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

PC>ping 192.168.20.3
Pinging 192.168.20.3 with 32 bytes of data:
Request timed out.
Reply from 192.168.20.3: bytes=32 time=1ms TTL=127
Reply from 192.168.20.3: bytes=32 time=0ms TTL=127
Reply from 192.168.20.3: bytes=32 time=0ms TTL=127
Reply from 192.168.20.3: bytes=32 time=0ms TTL=127

Ping statistics for 192.168.20.3:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

PC>
```