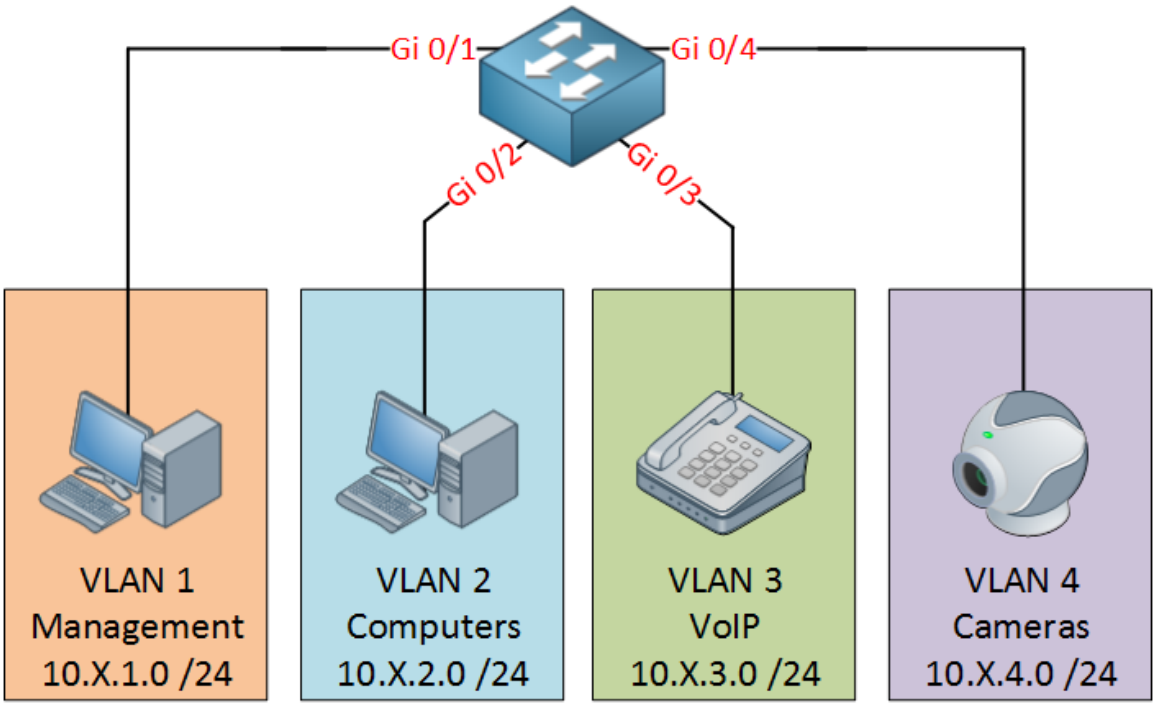

CIE406 Project 1

VLANS

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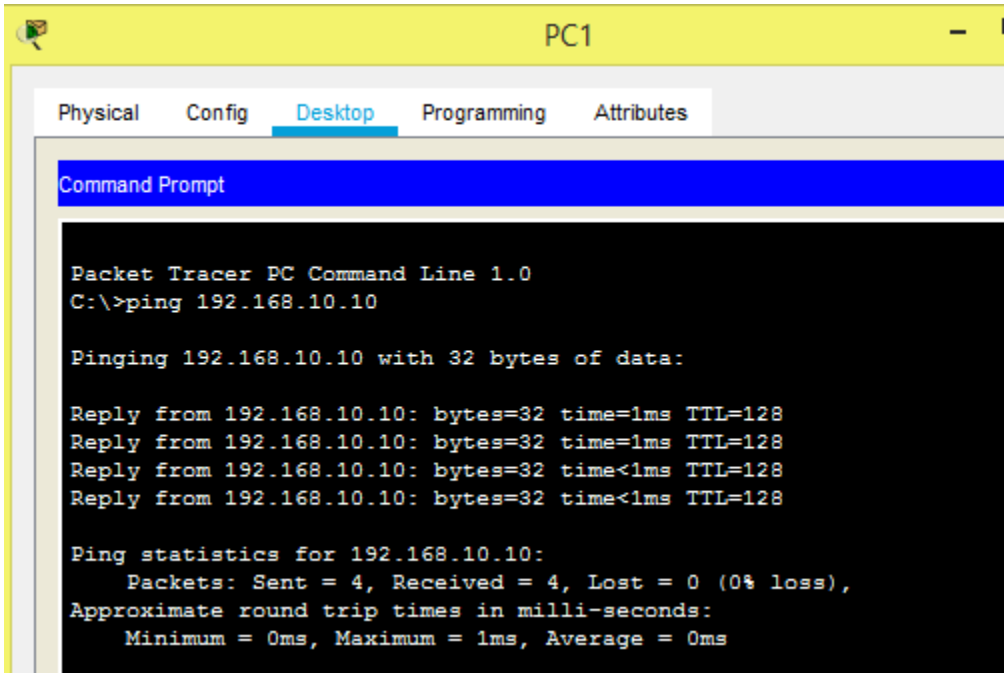
Q1.WHAT BENEFIT WILL BE CONFIGURING VLANS PROVIDE TO THE CURRENT CONFIGURATION?

-improved security

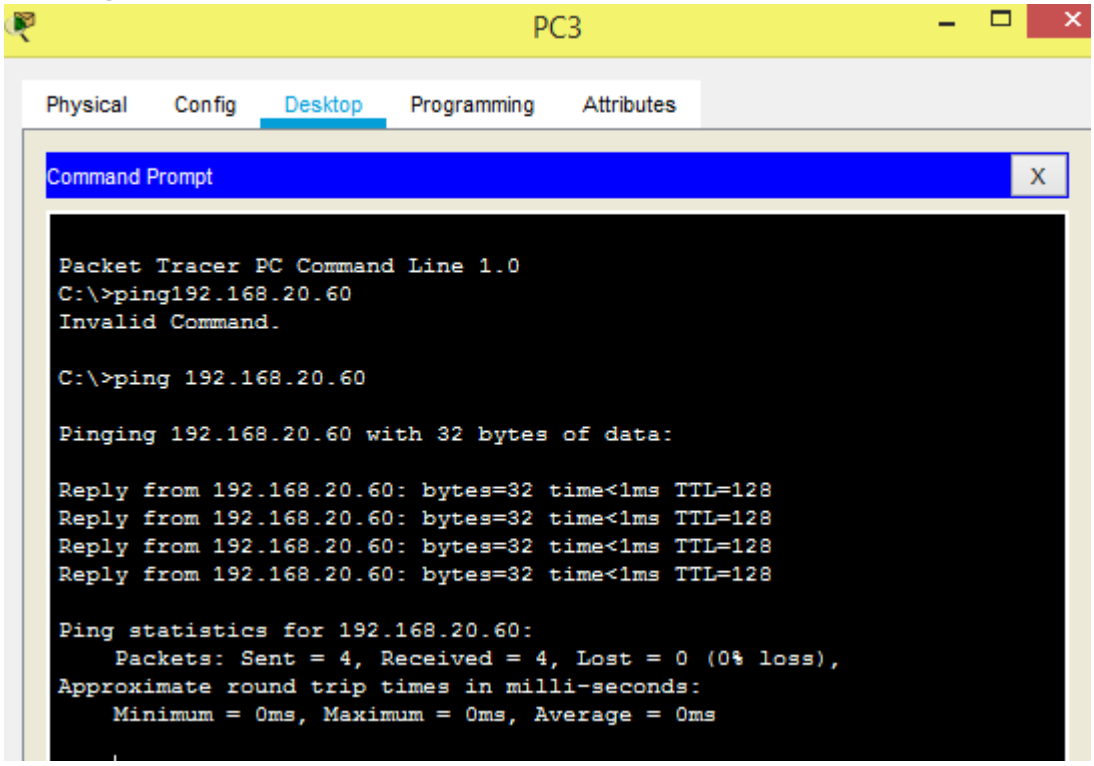
- more management efficiency

Step 1: Verify connectivity between PCs on the same network
1) Can PC1 ping PC2?
2) Can PC3 ping PC4?
3) Can PC0 ping PC5?

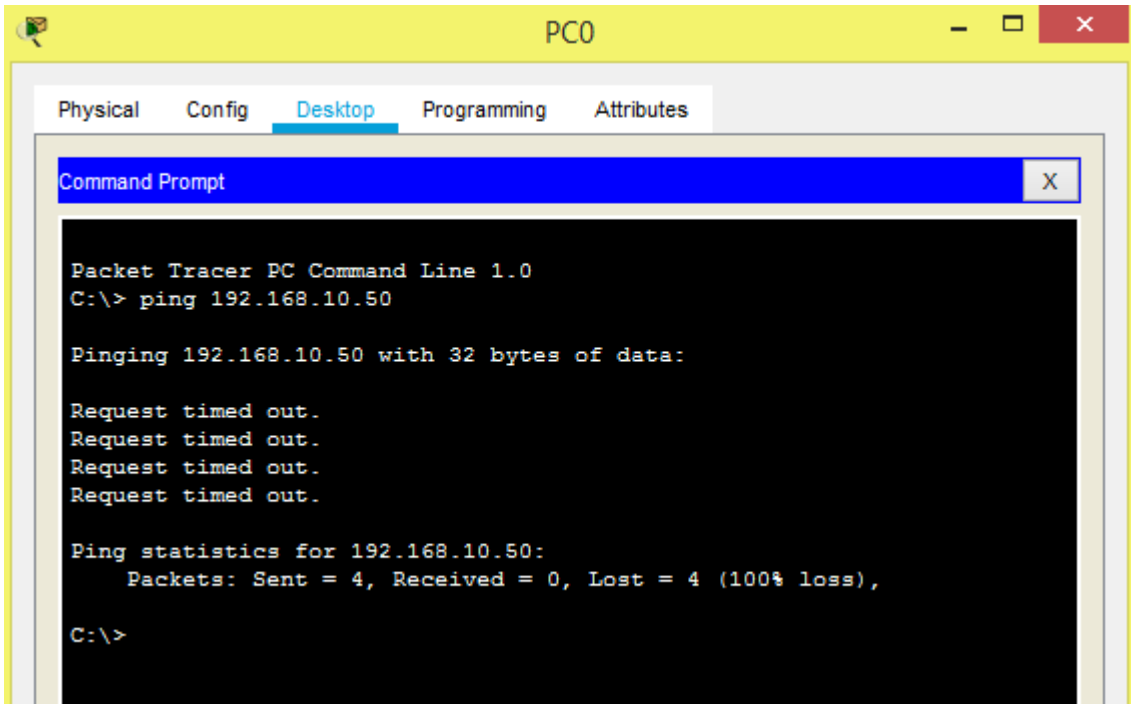
PC1 pings PC2



PC3 pings PC4



PC0 CAN NOT ping PC5



They do not belong to same subnet .

Q2: WHICH COMMAND WILL ONLY DISPLAY THE VLAN NAME, STATUS, AND ASSOCIATED PORTS ON A SWITCH
S1?

show vlan

```
10   Faculty/Staff                    active
20   Students                         active
99   Management                       active
1002 fddi-default                     active
1003 token-ring-default               active
1004 fddinet-default                  active
1005 trnet-default                    active
```

Q3. WHICH COMMAND WILL ONLY DISPLAY THE VLAN NAME, STATUS, AND ASSOCIATED PORTS ON A SWITCHES
S0 AND S1?

show vlan

```
10   Faculty/Staff                    active
20   Students                         active
1002 fddi-default                     active
1003 token-ring-default               active
1004 fddinet-default                  active
1005 trnet-default                    active
```

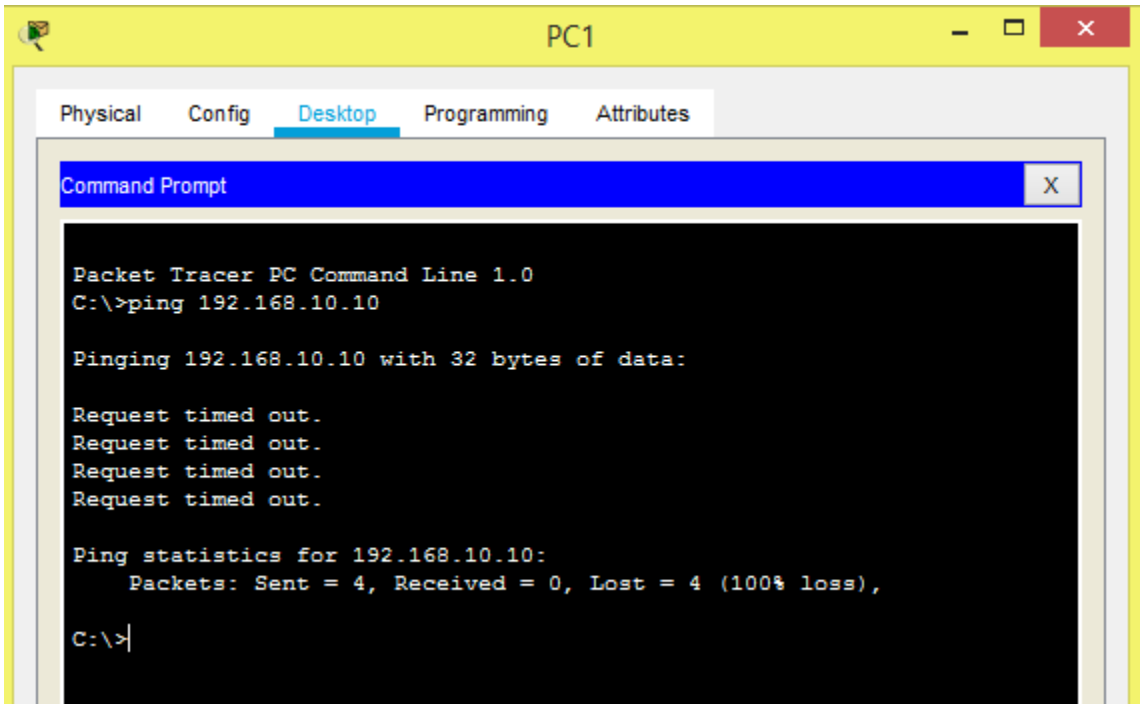
ASSIGNING VLAN TO PORTS

```
10   Faculty/Staff                    active    Fa0/1
20   Students                         active    Fa0/2
```

VERIFY LOSS OF CONNECTIVITY

Q4. ARE THE PINGS SUCCESSFUL? WHY?

No, the pings are not successful.



Q5. WHAT COULD BE DONE TO RESOLVE THIS ISSUE?

The problem could be solved with the help of trunks.

PART 5 CONFIGURE TRUNKS

```
Switch#show interface trunk
Port        Mode         Encapsulation  Status        Native vlan
Gig0/1      on           802.1q         trunking      1
Gig0/2      on           802.1q         trunking      1

Port        Vlans allowed on trunk
Gig0/1      1-99
Gig0/2      1-99

Port        Vlans allowed and active in management domain
Gig0/1      1,10,20,99
Gig0/2      1,10,20,99

Port        Vlans in spanning tree forwarding state and not pruned
Gig0/1      1,10,20,99
Gig0/2      1,10,20,99

Switch#
```

```
                                                Fa0/23, Fa0/24
10   Faculty/Staff                      active    Fa0/1
20   Students                           active    Fa0/2
99   native                             active
1002 fddi-default                       active
1003 token-ring-default                 active
1004 fddinet-default                    active
1005 trnet-default                      active

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode
Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- --------
------ ------
1    enet  100001     1500  -      -      -        -    -        0
0
10   enet  100010     1500  -      -      -        -    -        0
0
20   enet  100020     1500  -      -      -        -    -        0
0
 --More--
```

Q6. PINGS BETWEEN PCS ON THE SAME VLAN ARE NOW SUCCESSFUL. WHY?

Now, it works because of the trunk link we have just configured. As trunk links carry traffic for all the VLANs that are accessible by a specific switch.

```
C:\>ping 192.168.10.10

Pinging 192.168.10.10 with 32 bytes of data:

Reply from 192.168.10.10: bytes=32 time<1ms TTL=128
Reply from 192.168.10.10: bytes=32 time<1ms TTL=128
Reply from 192.168.10.10: bytes=32 time<1ms TTL=128
Reply from 192.168.10.10: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.10.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

Q7. VERIFY TRUNKING IS ENABLED ON S0 AND S2

On S0, Gig 0/1 is automatically set to trunk as S1's Gig 0/1 is set to trunk.

```
Switch>show interface trunk
Port        Mode         Encapsulation  Status        Native vlan
Gig0/1      auto         n-802.1q       trunking      1

Port        Vlans allowed on trunk
Gig0/1      1-1005

Port        Vlans allowed and active in management domain
Gig0/1      1,10,20

Port        Vlans in spanning tree forwarding state and not pruned
Gig0/1      10,20
```

On S2, Gig 0/2 is automatically set to trunk as S1 's Gig 0/2 is set to trunk .

```
Switch>show interface trunk
Port        Mode         Encapsulation  Status        Native vlan
Gig0/1      auto         n-802.1q       trunking      1

Port        Vlans allowed on trunk
Gig0/1      1-1005

Port        Vlans allowed and active in management domain
Gig0/1      1,10,20

Port        Vlans in spanning tree forwarding state and not pruned
Gig0/1      10,20
```

Q8. WHICH ACTIVE VLANS ARE ALLOWED TO ACROSS THE TRUNK?

I have made them from vlan 1-99 through this command

switchport trunk allowed vlan 1-9

Q9. CORRECT THE NATIVE VLAN MISMATCH ON S0 AND S2

ON SWITCH 2 , the same is with switch 0

```
Switch>show interfaces G0/2 switchport
Name: Gig0/2
Switchport: Enabled
Administrative Mode: dynamic auto
Operational Mode: trunk
Administrative Trunking Encapsulation: dot1q
Operational Trunking Encapsulation: dot1q
Negotiation of Trunking: On
Access Mode VLAN: 1 (default)
Trunking Native Mode VLAN: 1 (default)
Voice VLAN: none
Administrative private-vlan host-association: none
Administrative private-vlan mapping: none
Administrative private-vlan trunk native VLAN: none
Administrative private-vlan trunk encapsulation: dot1q
Administrative private-vlan trunk normal VLANs: none
Administrative private-vlan trunk private VLANs: none
Operational private-vlan: none
Trunking VLANs Enabled: All
Pruning VLANs Enabled: 2-1001
Capture Mode Disabled
Capture VLANs Allowed: ALL
Protected: false
```

Q10 .WHY IS PORT G0/1 ON S2 NO LONGER ASSIGNED TO VLAN 1?

// EDIT PORT G0/2

To Correct the native VLAN mismatch on S0 and S2, I have run the following commands

-enable

-conf t

-vlan 99 (99 is example of your wanted vlan number)

-name native

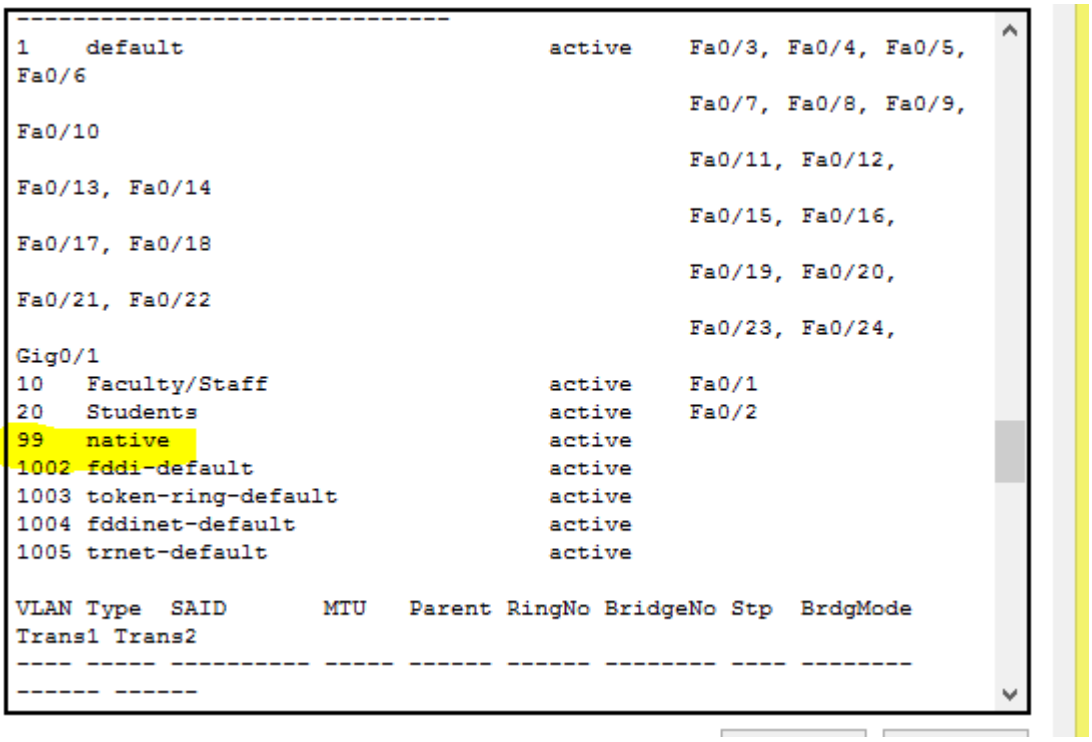
-exit

-conf t

-int + Go/2 (e.g fao/1)

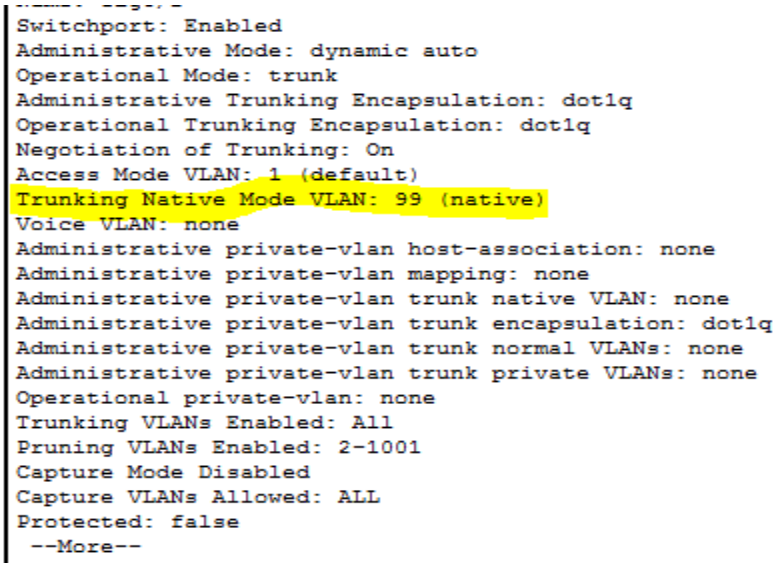
-switchport trunk native vlan 99

NOW



By running , “show interfaces Go/2 switchport” to check

- we can see



APPENDIX : PACKET TRACER USED COMMANDS

HOW TO MAKE A CERTAIN SWITCH INTERFACE BELONGS TO CERTAIN VLAN ?

Switch : en (enable)

Show vlan

How to create and name vlan

```
Switch#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#vlan 10
Switch(config-vlan)#name Faculty/Staff
Switch(config-vlan)#vlan 20
Switch(config-vlan)#name Students
Switch(config-vlan)#exit
```

How to make a switch interface belongs to certain vlan ?

```
Switch(config)#interface fastEthernet 0/1
Switch(config-if)#switch
% Incomplete command.
Switch(config-if)#swit
Switch(config-if)#switchport mode
Switch(config-if)#switchport mode acc
Switch(config-if)#switchport mode access
Switch(config-if)#swit
Switch(config-if)#switchport access vlan 10
Switch(config-if)#
```

HOW TO MAKE A LINK TRUNK ?

-enable

- conf t

- int + interface number (e.g. fao/1)

-switchport mode trunk

-switchport trunk allowed vlan 1-99

-end

// for illustration

-show run (to show running configuration)

- show interface trunk

HOW TO MAKE A NATIVE VLAN ?

-enable

-conf t

-vlan 99 (99 is example of your wanted vlan number)

-name native

-exit

-conf t

-int + interface name (e.g fa0/1)

-switchport trunk native vlan 90

// to illustrate

- show interfaces G0/2 switch port