**Data Communication and Computer Networks**

**EEE314**

Lab # 10



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**Lab #09 Inter VLAN Routing**

**In-Lab Task**

**Diagram

Description automatically generated**

**Packet Switches**

**Graphical user interface

Description automatically generated**

**A picture containing graphical user interface

Description automatically generated**

**Waterfall chart

Description automatically generated with low confidence**

**Home Task**

* **Switch 1:**

**show running-config:**

Switch#show running-config

Building configuration...

Current configuration : 1497 bytes

!

version 12.2

no service timestamps log datetime msec

no service timestamps debug datetime msec

no service password-encryption

!

hostname Switch

!

!

!

no ip domain-lookup

!

!

spanning-tree mode pvst

spanning-tree extend system-id

!

interface FastEthernet0/1

switchport trunk native vlan 99

switchport mode trunk

!

interface FastEthernet0/2

switchport trunk native vlan 99

switchport mode trunk

!

interface FastEthernet0/3

switchport trunk native vlan 99

switchport mode trunk

!

interface FastEthernet0/4

switchport trunk native vlan 99

switchport mode trunk

!

interface FastEthernet0/5

switchport trunk native vlan 99

switchport mode trunk

!

interface FastEthernet0/6

!

interface FastEthernet0/7

!

interface FastEthernet0/8

!

interface FastEthernet0/9

!

interface FastEthernet0/10

!

interface FastEthernet0/11

!

interface FastEthernet0/12

!

interface FastEthernet0/13

!

interface FastEthernet0/14

!

interface FastEthernet0/15

!

interface FastEthernet0/16

!

interface FastEthernet0/17

!

interface FastEthernet0/18

!

interface FastEthernet0/19

!

interface FastEthernet0/20

!

interface FastEthernet0/21

!

interface FastEthernet0/22

!

interface FastEthernet0/23

!

interface FastEthernet0/24

!

interface GigabitEthernet0/1

!

interface GigabitEthernet0/2

!

interface Vlan1

no ip address

shutdown

!

interface Vlan99

mac-address 0004.9aec.4d01

ip address 172.17.99.11 255.255.255.0

!

ip default-gateway 172.17.99.1

!

!

!

!

line con 0

!

line vty 0 4

login

line vty 5 15

login

!

!

!

!

End

* **Switch 2:**

**show running-config:**

Switch#show running-config

Building configuration...

Current configuration : 2029 bytes

!

version 12.2

no service timestamps log datetime msec

no service timestamps debug datetime msec

no service password-encryption

!

hostname Switch

!

!

!

!

!

spanning-tree mode pvst

spanning-tree extend system-id

!

interface FastEthernet0/1

switchport trunk native vlan 99

switchport mode trunk

!

interface FastEthernet0/2

switchport trunk native vlan 99

switchport mode trunk

!

interface FastEthernet0/3

switchport trunk native vlan 99

switchport mode trunk

!

interface FastEthernet0/4

switchport trunk native vlan 99

switchport mode trunk

!

interface FastEthernet0/5

switchport trunk native vlan 99

switchport mode trunk

!

interface FastEthernet0/6

switchport access vlan 30

switchport mode access

!

interface FastEthernet0/7

switchport access vlan 30

!

interface FastEthernet0/8

switchport access vlan 30

!

interface FastEthernet0/9

switchport access vlan 30

!

interface FastEthernet0/10

switchport access vlan 30

!

interface FastEthernet0/11

switchport access vlan 10

switchport mode access

!

interface FastEthernet0/12

switchport access vlan 10

!

interface FastEthernet0/13

switchport access vlan 10

!

interface FastEthernet0/14

switchport access vlan 10

!

interface FastEthernet0/15

switchport access vlan 10

!

interface FastEthernet0/16

switchport access vlan 10

!

interface FastEthernet0/17

switchport access vlan 10

!

interface FastEthernet0/18

switchport access vlan 20

switchport mode access

!

interface FastEthernet0/19

switchport access vlan 20

!

interface FastEthernet0/20

switchport access vlan 20

!

interface FastEthernet0/21

switchport access vlan 20

!

interface FastEthernet0/22

switchport access vlan 20

!

interface FastEthernet0/23

switchport access vlan 20

!

interface FastEthernet0/24

switchport access vlan 20

!

interface GigabitEthernet0/1

!

interface GigabitEthernet0/2

!

interface Vlan1

no ip address

shutdown

!

interface Vlan99

mac-address 0005.5e62.6701

ip address 172.17.99.12 255.255.255.0

!

!

!

!

line con 0

!

line vty 0 4

login

line vty 5 15

login

!

!

!

!

* **Switch 3:**

**Show running-config:**

Switch#show running-config

Building configuration...

Current configuration : 1444 bytes

!

version 12.2

no service timestamps log datetime msec

no service timestamps debug datetime msec

no service password-encryption

!

hostname Switch

!

!

!

!

!

spanning-tree mode pvst

spanning-tree extend system-id

!

interface FastEthernet0/1

switchport trunk native vlan 99

switchport mode trunk

!

interface FastEthernet0/2

switchport trunk native vlan 99

switchport mode trunk

!

interface FastEthernet0/3

switchport trunk native vlan 99

switchport mode trunk

!

interface FastEthernet0/4

switchport trunk native vlan 99

switchport mode trunk

!

interface FastEthernet0/5

switchport trunk native vlan 99

switchport mode trunk

!

interface FastEthernet0/6

!

interface FastEthernet0/7

!

interface FastEthernet0/8

!

interface FastEthernet0/9

!

interface FastEthernet0/10

!

interface FastEthernet0/11

!

interface FastEthernet0/12

!

interface FastEthernet0/13

!

interface FastEthernet0/14

!

interface FastEthernet0/15

!

interface FastEthernet0/16

!

interface FastEthernet0/17

!

interface FastEthernet0/18

!

interface FastEthernet0/19

!

interface FastEthernet0/20

!

interface FastEthernet0/21

!

interface FastEthernet0/22

!

interface FastEthernet0/23

!

interface FastEthernet0/24

!

interface GigabitEthernet0/1

!

interface GigabitEthernet0/2

!

interface Vlan1

no ip address

shutdown

!

interface Vlan99

mac-address 000d.bd9a.6301

ip address 172.17.99.13 255.255.255.0

!

!

!

!

line con 0

!

line vty 0 4

login

line vty 5 15

login

!

!

!

!

end

* **Router 1:**

**Show ip route:**

Router#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

172.17.0.0/24 is subnetted, 6 subnets

C 172.17.1.0 is directly connected, FastEthernet0/1.1

C 172.17.10.0 is directly connected, FastEthernet0/1.10

C 172.17.20.0 is directly connected, FastEthernet0/1.20

C 172.17.30.0 is directly connected, FastEthernet0/1.30

C 172.17.50.0 is directly connected, FastEthernet0/0

C 172.17.99.0 is directly connected, FastEthernet0/1.99

**Show running-config:**

Router#show running-config

Building configuration...

Current configuration : 1055 bytes

!

version 12.4

no service timestamps log datetime msec

no service timestamps debug datetime msec

no service password-encryption

!

hostname Router

!

!

!

!

!

!

!

!

ip cef

no ipv6 cef

!

!

!

!

!

!

!

!

!

!

!

!

spanning-tree mode pvst

!

!

!

!

!

!

interface FastEthernet0/0

description server interface

ip address 172.17.50.1 255.255.255.0

duplex auto

speed auto

!

interface FastEthernet0/1

no ip address

duplex auto

speed auto

!

interface FastEthernet0/1.1

encapsulation dot1Q 1

ip address 172.17.1.1 255.255.255.0

!

interface FastEthernet0/1.10

encapsulation dot1Q 10

ip address 172.17.10.1 255.255.255.0

!

interface FastEthernet0/1.20

encapsulation dot1Q 20

ip address 172.17.20.1 255.255.255.0

!

interface FastEthernet0/1.30

encapsulation dot1Q 30

ip address 172.17.30.1 255.255.255.0

!

interface FastEthernet0/1.99

encapsulation dot1Q 99 native

ip address 172.17.99.1 255.255.255.0

!

interface Vlan1

no ip address

shutdown

!

ip classless

!

ip flow-export version 9

!

!

!

!

!

!

!

!

line con 0

!

line aux 0

!

line vty 0 4

login

!

!

!

end

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

## Critical Analysis / Conclusion

|  |
| --- |
| In this lab we learnt about Inter-VLAN Routing. It is a way to forward traffic between different VLAN by implementing a router in the network.  Moreover, we implemented this on a topology given to us and successfully sent Packet between and we were unable to send packets between PC’s connect and the server as well. |

|  |  |  |
| --- | --- | --- |
| **Lab Assessment** | | |
| **Pre Lab** | **/5** | **/25** |
| **Performance** | **/5** |
| **Results** | **/5** |
| **Viva** | **/5** |
| **Critical Analysis** | **/5** |
| **Instructor Signature and Comments** | | |