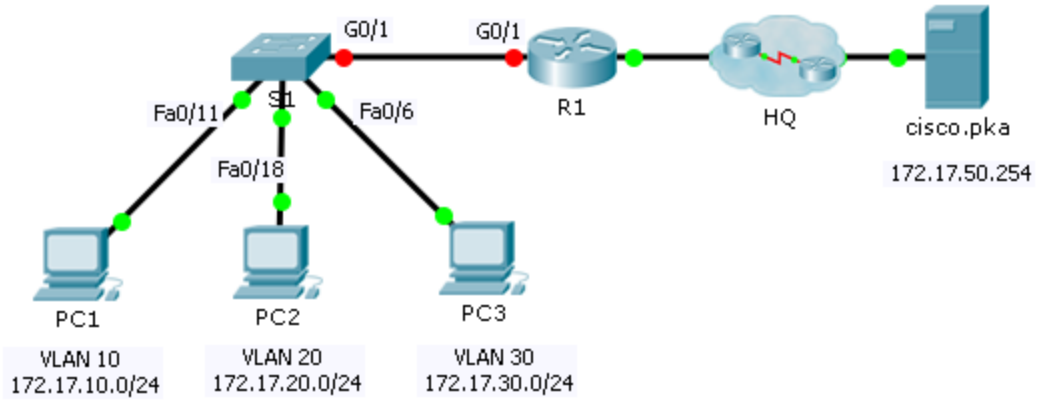
Packet Tracer – Skills Integration Challenge

Topology



Addressing Table

Device	Interface	IP Address	Subnet Mask	Default Gateway
R1	G0/0	172.17.25.2	255.255.255.252	N/A
	G0/1.10	172.17.10.1	255.255.255.0	N/A
	G0/1.20	172.17.20.1	255.255.255.0	N/A
	G0/1.30	172.17.30.1	255.255.255.0	N/A
	G0/1.88	172.17.88.1	255.255.255.0	N/A
	G0/1.99	172.17.99.1	255.255.255.0	N/A
S1	VLAN 99	172.17.99.10	255.255.255.0	172.17.99.1
PC1	NIC	172.17.10.21	255.255.255.0	172.17.10.1
PC2	NIC	172.17.20.22	255.255.255.0	172.17.20.1
PC3	NIC	172.17.30.23	255.255.255.0	172.17.30.1

VLAN and Port Assignments Table

VLAN	Name	Interface
10	Faculty/Staff	Fa0/11-17
20	Students	Fa0/18-24
30	Guest(Default)	Fa0/6-10
88	Native	G0/1
99	Management	VLAN 99

Scenario

In this activity, you will demonstrate and reinforce your ability to implement inter-VLAN routing, including configuring IP addresses, VLANs, trunking and subinterfaces.

Requirements

- Assign IP addressing to **R1**

```
R1>en
R1#conf t
R1(config)#interface gigabitEthernet 0/0
R1(config-if)#ip address 172.17.25.2 255.255.255.252
R1(config-if)#int g0/0
R1(config-if)#no shut
R1(config-if)#int g0/1
R1(config-if)#no shut
R1(config-if)#int g0/1.10
R1(config-subif)#encapsulation dot1q 10
R1(config-subif)#ip address 172.17.10.1 255.255.255.0
R1(config)#int g0/1.20
R1(config-subif)#encapsulation dot1Q 20
R1(config-subif)#ip address 172.17.20.1 255.255.255.0
R1(config-subif)#encapsulation dot1q 20
R1(config-subif)#int g0/1.30
R1(config-subif)#encapsulation dot1q 30
R1(config-subif)#ip address 172.17.30.1 255.255.255.0
R1(config-subif)#int g0/1.88
R1(config-subif)#encapsulation dot1q 88 native
R1(config-subif)#ip address 172.17.88.1 255.255.255.0
R1(config-subif)#int g0/1.99
R1(config-subif)#encapsulation dot1q 99
R1(config-subif)#ip address 172.17.99.1 255.255.255.0
```

and **S1** based on the **Addressing Table**.

```
S1(config)#int vlan 99
S1(config-if)#ip address 172.17.99.10 255.255.255.0
S1(config-if)#no shut
```

- Create, name and assign VLANs on **S1** based on the **VLAN and Port Assignments Table**. Ports should be in access mode.

```
S1(config)#vlan 10
S1(config-vlan)#name Faculty/Staff
S1(config-vlan)#vlan 20
S1(config-vlan)#name Students
S1(config-vlan)#Vlan 30
S1(config)#vlan 30
```

```
S1(config-vlan)#name Guest(Default)
S1(config-vlan)#vlan 88
S1(config-vlan)#name Native
S1(config-vlan)#Vlan 99
S1(config-vlan)#
%LINK-5-CHANGED: Interface Vlan99, changed state to up
S1(config-vlan)#name Management
```

- Configure **S1** to trunk, allow only the VLANs in the **VLAN and Port Assignments Table**.

```
S1(config-if-range)#int g0/1
S1(config-if)#switchport mode trunk
S1(config-if)#switchport trunk native vlan 88
S1(config-if)#exit
```

- Configure the default gateway on **S1.**

```
S1(config-if)#ip default-gateway 172.17.99.1
```

- All ports not assigned to a VLAN should be disabled.

```
S1(config)#int range fa0/1 - 5, g0/2
S1(config-if-range)#shut

%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/2, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/3, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/4, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/5, changed state to administratively down

%LINK-5-CHANGED: Interface GigabitEthernet0/2, changed state to administratively down
```

- Configure inter-VLAN routing on **R1** based on the **Addressing Table**.

Refer to question 1

- Verify connectivity. **R1**, **S1**, and all PCs should be able to ping each other and the **cisco.pka** server.

Packet Tracer wants you to put this but they are wrong:
S1(config)#int g0/1
S1(config-if)#switchport trunk native vlan 88

Use this to make a successful ping from the PC to the Server
S1(config)#int g0/1
S1(config-if)#switchport trunk native vlan 99

PC>ping 172.17.50.254

Pinging 172.17.50.254 with 32 bytes of data:

Reply from 172.17.50.254: bytes=32 time=14ms TTL=126
Reply from 172.17.50.254: bytes=32 time=14ms TTL=126
Reply from 172.17.50.254: bytes=32 time=0ms TTL=126
Reply from 172.17.50.254: bytes=32 time=11ms TTL=126

Ping statistics for 172.17.50.254:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 14ms, Average = 9ms