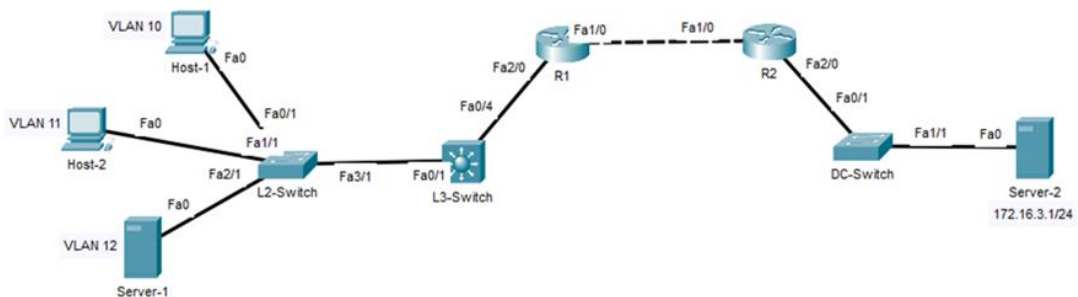


Multi-Layer Switching

Lab Summary

Configure Layer 2 and Layer 3 switch for connectivity of hosts to both servers.

Figure 1 Lab Topology



Lab Configuration

Start Packet Tracer File: **multilayer switching.pkt**

Click on *L2-Switch* icon and select *CLI* folder. .

Step 1: Enter global configuration mode

```
L2-Switch> enable  
L2-Switch# configure terminal
```

Configure VLANs on Layer 2 Switch

Step 2: Configure interface Fa0/1 as an access port and assign it to VLAN 10.

```
L2-Switch(config)# interface fastethernet 0/1  
L2-Switch(config-if)# switchport mode access  
L2-Switch(config-if)# switchport access vlan 10
```

Step 3: Configure interface Fa1/1 as an access port and assign it to VLAN 11.

```
L2-Switch(config)# interface fastethernet 1/1  
L2-Switch(config-if)# switchport mode access  
L2-Switch(config-if)# switchport access vlan 11
```

Step 4: Configure interface Fa2/1 as an access port and assign it to VLAN 12.

```
L2-Switch(config)# interface fastethernet 2/1  
L2-Switch(config-if)# switchport mode access
```

```
L2-Switch(config-if)# switchport access vlan 12  
L2-Switch(config-if)# exit
```

Step 5: Configure trunk interface on Layer 2 switch to Layer 3 switch.

```
L2-Switch(config)# interface fastethernet 3/1  
L2-Switch(config-if)# description link to L3-Switch  
L2-Switch(config-if)# switchport mode trunk  
L2-Switch(config-if)# switchport trunk allowed vlan 10-12  
L2-Switch(config-if)# end  
L2-Switch# copy run start
```

Click on *L3-Switch* icon and select *CLI* folder. .

Step 6: Enter global configuration mode

```
L3-Switch> enable  
L3-Switch# configure terminal
```

Step 7: Configure trunk interface on Layer 3 switch to Layer 2 switch.

```
L3-Switch> enable  
L3-Switch# configure terminal  
L3-Switch(config)# interface fastethernet 0/1  
L3-Switch(config-if)# description link to L2-Switch  
L3-Switch(config-if)# switchport mode trunk  
L3-Switch(config-if)# switchport trunk allowed vlan 10-12  
L3-Switch(config-if)# exit
```

Step 8: Enable IP routing on Layer 3 switch.

```
L3-Switch(config)# ip routing
```

Step 9: Configure an SVI for each host VLAN on Layer 3 switch.

```
L3-Switch(config)# interface vlan 10  
L3-Switch(config-if)# ip address 172.16.10.254 255.255.255.0  
L3-Switch(config-if)# no shut
```

```
L3-Switch(config-if)# interface vlan 11  
L3-Switch(config-if)# ip address 172.16.11.254 255.255.255.0  
L3-Switch(config-if)# no shut
```

```
L3-Switch(config)# interface vlan 12  
L3-Switch(config-if)# ip address 172.16.12.254 255.255.255.0  
L3-Switch(config-if)# no shut  
L3-Switch(config-if)# exit
```

Step 10: Configure default gateway on hosts.

host-1: Config Folder
host-1: Gateway/DNS IPv4
host-1: **172.16.10.254**

host-2: Config Folder
host-2: Gateway/DNS IPv4
host-2: **172.16.11.254**

server-1: Config Folder
server-1: Gateway/DNS IPv4
server-1: **172.16.12.254**

Step 11: Configure uplink interface on Layer 3 switch to R1

```
L3-Switch(config)# interface fastethernet0/4  
L3-Switch(config)# description link to R1  
L3-Switch(config-if)# no switchport  
L3-Switch(config-if)# ip address 172.16.1.1 255.255.255.0  
L3-Switch(config-if)# no shut  
L3-Switch(config-if)# exit
```

Step 12: Configure interface on R1 to L3-Switch

```
R1(config)# interface fastethernet0/2  
R1(config-if)# description link to L3-Switch  
R1(config-if)# ip address 172.16.1.2 255.255.255.0  
R1(config-if)# no shut  
R1(config-if)# exit
```

Step 13: Configure default route on Layer 3 switch to R1

```
L3-Switch(config)# ip route 0.0.0.0 0.0.0.0 172.16.1.2  
L3-Switch(config)# end  
L3-Switch# copy run start
```

Step 14: Verify Lab

Ping server-1 and server-2 from host-1 and host-2 to verify network connectivity.

host-1: **ping 172.16.12.1**
host-1: **ping 172.16.3.1**
host-2: **ping 172.16.12.1**
host-2: **ping 172.16.3.1**