

Cisco Packet Tracer Lab Document

VLAN and Inter-VLAN Routing Using Multilayer Switch

1. Objective

គោលបំណងនៃការអនុវត្តនេះគឺ៖

- បង្កើត VLAN ចំនួន 2។
 - កំណត់ Port របស់ Switch ទៅតាម VLAN នីមួយៗ។
 - កំណត់ Trunk Link រវាង Access Switch និង Multilayer Switch។
 - ប្រើ Cisco 3560 Multilayer Switch ដើម្បីធ្វើ Inter-VLAN Routing។
 - សាកល្បងការទំនាក់ទំនងរវាង PCs ក្នុង VLAN ផ្សេងៗ។
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2. Network Topology

Devices Used

Device	Quantity
Cisco 2911 Router	1
Cisco 3560 Multilayer Switch	1
Cisco 2960 Switch	2
PC	12

Connection

- Router 2911 ភ្ជាប់ទៅ Multilayer Switch។

- Multilayer Switch ភ្ជាប់ទៅ Access Switch 1 ។
- Multilayer Switch ភ្ជាប់ទៅ Access Switch 2 ។
- Access Switch 1 ភ្ជាប់ PC0–PC5 ។
- Access Switch 2 ភ្ជាប់ PC6–PC11 ។

3. VLAN Plan

VLAN Name	PCs	Network
10	SALES PC0–PC5	192.168.10.0/24
20	IT PC6–PC11	192.168.20.0/24

4. IP Addressing Table

VLAN 10

PC	IP Address	Gateway
PC0	192.168.10.10	192.168.10.1
PC1	192.168.10.11	192.168.10.1
PC2	192.168.10.12	192.168.10.1
PC3	192.168.10.13	192.168.10.1
PC4	192.168.10.14	192.168.10.1
PC5	192.168.10.15	192.168.10.1

VLAN 20

PC	IP Address	Gateway
PC6	192.168.20.10	192.168.20.1
PC7	192.168.20.11	192.168.20.1
PC8	192.168.20.12	192.168.20.1
PC9	192.168.20.13	192.168.20.1
PC10	192.168.20.14	192.168.20.1
PC11	192.168.20.15	192.168.20.1

Subnet Mask សម្រាប់ PCs ទាំងអស់៖

255.255.255.0

5. Configuration

5.1 Multilayer Switch (3560)

enable

configure terminal

hostname MLS1

vlan 10

name SALES

exit

vlan 20

name IT

exit

interface vlan 10

ip address 192.168.10.1 255.255.255.0

no shutdown

exit

interface vlan 20

ip address 192.168.20.1 255.255.255.0

no shutdown

exit

ip routing

interface range fa0/1 - 4

switchport mode trunk

no shutdown

exit

end

write memory

5.2 Access Switch 1

enable

configure terminal

hostname S1

vlan 10

name SALES

exit

interface range fa0/1 - 6

switchport mode access

switchport access vlan 10

no shutdown

exit

interface fa0/24

switchport mode trunk

no shutdown

exit

end

write memory

5.3 Access Switch 2

enable

configure terminal

hostname S2

vlan 20

name IT

exit

```
interface range fa0/1 - 6  
  
  switchport mode access  
  
  switchport access vlan 20  
  
  no shutdown  
  
exit
```

```
interface fa0/24  
  
  switchport mode trunk  
  
  no shutdown  
  
exit
```

```
end
```

```
write memory
```

6. Verification Commands

Check VLANs

```
show vlan brief
```

Check Trunk

```
show interfaces trunk
```

Check IP Interfaces

show ip interface brief

Check Routing Table

show ip route

7. Testing

Test within VLAN 10

From PC0:

ping 192.168.10.15

Expected result:

Reply from 192.168.10.15

Test between VLANs

From PC0:

ping 192.168.20.10

Expected result:

Reply from 192.168.20.10

បើ Ping ទទួលបាន Reply មានន័យថា Inter-VLAN Routing ដំណើរការត្រឹមត្រូវ។

8. Conclusion

ក្នុង Lab នេះ យើងបានបង្កើត VLAN 10 និង VLAN 20 ដើម្បីបែងចែក Network ជាពីរ Broadcast Domains ផ្សេងគ្នា។ Access Switch ទាំងពីរត្រូវបានកំណត់ជា Access Ports សម្រាប់ PCs និង Trunk Ports សម្រាប់ភ្ជាប់ទៅ Cisco 3560 Multilayer Switch។ បន្ទាប់ពីកំណត់ SVI (interface vlan 10 និង interface vlan 20) និងបើក ip routing លើ Multilayer Switch រួច PCs ក្នុង VLAN 10 និង VLAN 20 អាចទំនាក់ទំនងគ្នាបានដោយជោគជ័យតាមរយៈ Inter-VLAN Routing។