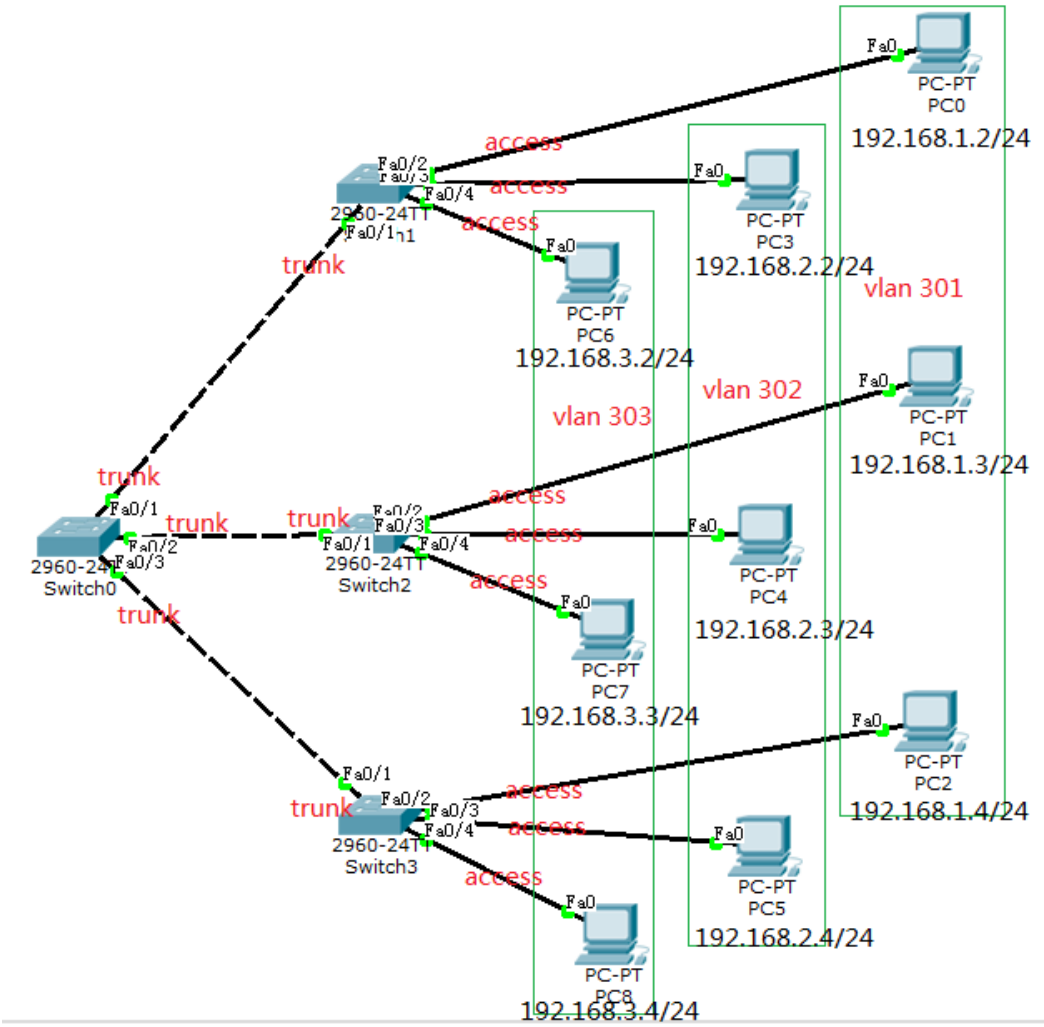
实验四：划分多个 VLAN

1 配置图



2 配置命令

Switch1、Switch2、Switch3 的配置是一样的，如下所示：（可直接复制交换机，可以只配置一次）

```
Switch#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#vlan 301
Switch(config-vlan)#interface fa0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 301
Switch(config-if)#exit
```

配置fa0/2端口为Access，并属于vlan 301

```
Switch(config)#vlan 302
Switch(config-vlan)#interface fa0/3
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 302
Switch(config-if)#exit
```

配置fa0/3端口为Access，并属于vlan 302

```
Switch(config)#vlan 303
Switch(config-vlan)#interface fa0/4
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 303
Switch(config-if)#interface fa0/1
```

配置fa0/3端口为Access，并属于vlan 303

```
Switch(config-if)#switchport mode trunk

Switch(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state t
o down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state t
o up

Switch(config-if)#switchport trunk allowed vlan 301,302,303
Switch(config-if)#
```

配置fa0/1端口为Trunk，并将vlan 301、vlan302、vlan303加入allow表中。

通过命令查看配置：

```
Switch>show vlan brief

VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    Fa0/5, Fa0/6, Fa0/7, Fa0/8
                                                Fa0/9, Fa0/10, Fa0/11, Fa0/12
                                                Fa0/13, Fa0/14, Fa0/15, Fa0/16
                                                Fa0/17, Fa0/18, Fa0/19, Fa0/20
                                                Fa0/21, Fa0/22, Fa0/23, Fa0/24
                                                Gig1/1, Gig1/2
301  VLAN0301                         active    Fa0/2
302  VLAN0302                         active    Fa0/3
303  VLAN0303                         active    Fa0/4
1002 fddi-default                     active
1003 token-ring-default               active
1004 fddinet-default                  active
1005 trnet-default                    active
Switch>show interfaces trunk
Port        Mode         Encapsulation  Status        Native vlan
Fa0/1       on           802.1q         trunking      1

Port        Vlans allowed on trunk
Fa0/1       301-303

Port        Vlans allowed and active in management domain
Fa0/1       301,302,303

Port        Vlans in spanning tree forwarding state and not pruned
Fa0/1       301,302,303
Switch>
```

Switch0 的配置如下：

```
Switch(config)#interface fa0/1
Switch(config-if)#switchport mode trunk
Switch(config-if)#switchport trunk allowed vlan 301,302,303
Switch(config-if)#interface fa0/2
Switch(config-if)#switchport mode trunk
Switch(config-if)#switchport trunk allowed vlan 301,302,303
Switch(config-if)#interface fa0/3
Switch(config-if)#switchport mode trunk

Switch(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state t
o down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state t
o up

Switch(config-if)#switchport trunk allowed vlan 301,302,303
Switch(config-if)#
```

通过命令查看 trunk 配置

```
Switch#show interfaces trunk
Port        Mode         Encapsulation  Status        Native vlan
Fa0/1       on           802.1q         trunking      1
Fa0/2       on           802.1q         trunking      1
Fa0/3       on           802.1q         trunking      1

Port        Vlans allowed on trunk
Fa0/1       301-303
Fa0/2       301-303
Fa0/3       301-303

Port        Vlans allowed and active in management domain
Fa0/1       none
Fa0/2       none
Fa0/3       none

Port        Vlans in spanning tree forwarding state and not pruned
Fa0/1       none
Fa0/2       none
Fa0/3       none
```

3 实验现象

配置完成后，测试 vlan 301 的结果如下，可以看出，只有在用一个局域网中的主机之间才能通信，不同局域网的主机之间是不能通信的。

```
PC>ping 192.168.1.3

Pinging 192.168.1.3 with 32 bytes of data:

Reply from 192.168.1.3: bytes=32 time=12ms TTL=128
Reply from 192.168.1.3: bytes=32 time=1ms TTL=128
Reply from 192.168.1.3: bytes=32 time=2ms TTL=128
Reply from 192.168.1.3: bytes=32 time=0ms TTL=128

Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 12ms, Average = 3ms

PC>ping 192.168.1.4

Pinging 192.168.1.4 with 32 bytes of data:

Reply from 192.168.1.4: bytes=32 time=11ms TTL=128
Reply from 192.168.1.4: bytes=32 time=1ms TTL=128
Reply from 192.168.1.4: bytes=32 time=0ms TTL=128
Reply from 192.168.1.4: bytes=32 time=0ms TTL=128

Ping statistics for 192.168.1.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 11ms, Average = 3ms

PC>ping 192.168.2.2

Pinging 192.168.2.2 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.2.2:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

PC>ping 192.168.3.2

Pinging 192.168.3.2 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.3.2:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```