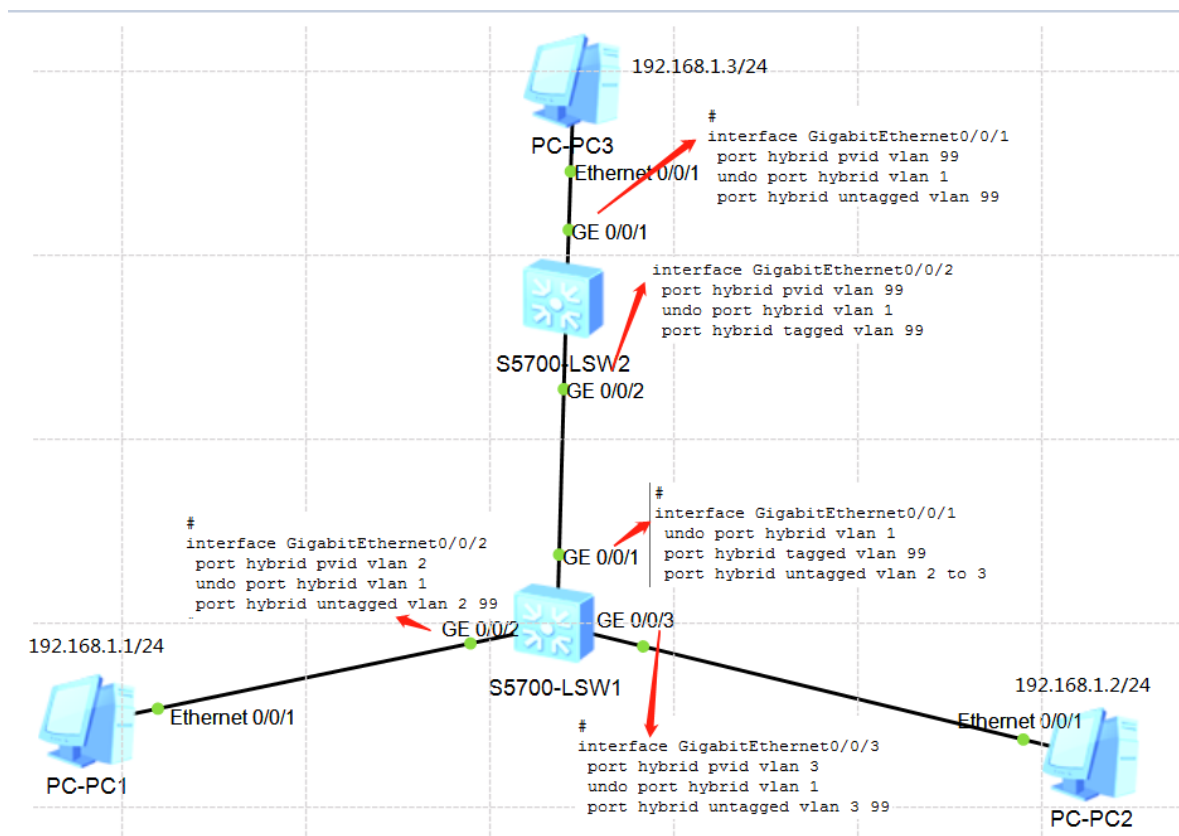


# 实验三：在 eNSP 上进行 Hybrid 链路类型端口实验

## 1 配置图



## 2 配置命令

LSW1 的命令配置如下：

<Huawei>system-view	进入特权模式
[Huawei]vlan batch 2 3 99	创建 vlan2、vlan3、vlan99
[Huawei]int g0/0/1	进入端口模式，配置 g0/0/1 端口
[Huawei-GigabitEthernet0/0/1]undo port hybrid vlan 1	取消配置信息，移除 vlan 1
[Huawei-GigabitEthernet0/0/1]port hybrid tagged vlan 99	设置端口为 hybrid 模式，并将 vlan 99 加入到 tagged 表中
[Huawei-GigabitEthernet0/0/1]port hybrid untagged vlan 2 3	设置端口为 hybrid 模式，并将 vlan 2、vlan 3 加入到 untagged 表中
[Huawei-GigabitEthernet0/0/1]int g0/0/2	进入端口模式，配置 g0/0/2 端口
[Huawei-GigabitEthernet0/0/2]undo port hybrid vlan 1	取消配置信息，移除 vlan 1
[Huawei-GigabitEthernet0/0/2]port hybrid pvid vlan 2	设置 hybrid 模式，并将 pvid 设置

	为 vlan 2
[Huawei-GigabitEthernet0/0/2]port hybrid untagged vlan 2 99	设置 hybrid 模式，并将 vlan2、vlan99 加入到 untagged 表中
[Huawei-GigabitEthernet0/0/2]int g0/0/3	进入端口模式，配置 g0/0/3 端口
[Huawei-GigabitEthernet0/0/3]undo port hybrid vlan 1	取消配置信息，移除 vlan 1
[Huawei-GigabitEthernet0/0/3]port hybrid pvid vlan 3	设置 hybrid 模式，并将 pvid 设置为 vlan 3
[Huawei-GigabitEthernet0/0/3]port hybrid untagged vlan 3 99	设置 hybrid 模式，并将 vlan3、vlan99 加入到 untagged 表中

LSW2 的命令配置同 LSW1 的配置类似。

### 3 实验现象

PC3 同时对 PC1 和 PC2 进行 ping 操作

```
PC>ping 192.168.1.1

Ping 192.168.1.1: 32 data bytes, Press Ctrl_C to break
From 192.168.1.1: bytes=32 seq=1 ttl=128 time=62 ms
From 192.168.1.1: bytes=32 seq=2 ttl=128 time=78 ms
From 192.168.1.1: bytes=32 seq=3 ttl=128 time=78 ms
From 192.168.1.1: bytes=32 seq=4 ttl=128 time=47 ms
From 192.168.1.1: bytes=32 seq=5 ttl=128 time=78 ms

--- 192.168.1.1 ping statistics ---
 5 packet(s) transmitted
 5 packet(s) received
 0.00% packet loss
 round-trip min/avg/max = 47/68/78 ms

PC>ping 192.168.1.2

Ping 192.168.1.2: 32 data bytes, Press Ctrl_C to break
From 192.168.1.2: bytes=32 seq=1 ttl=128 time=62 ms
From 192.168.1.2: bytes=32 seq=2 ttl=128 time=78 ms
From 192.168.1.2: bytes=32 seq=3 ttl=128 time=63 ms
From 192.168.1.2: bytes=32 seq=4 ttl=128 time=62 ms
From 192.168.1.2: bytes=32 seq=5 ttl=128 time=62 ms

--- 192.168.1.2 ping statistics ---
 5 packet(s) transmitted
 5 packet(s) received
 0.00% packet loss
 round-trip min/avg/max = 62/65/78 ms
```

PC1 同时对 PC2 和 PC3 进行 ping 操作

```
PC>ping 192.168.1.2
```

```
Ping 192.168.1.2: 32 data bytes, Press Ctrl_C to break  
From 192.168.1.1: Destination host unreachable  
From 192.168.1.1: Destination host unreachable  
From 192.168.1.1: Destination host unreachable  
From 192.168.1.1: Destination host unreachable  
From 192.168.1.1: Destination host unreachable
```

```
--- 192.168.1.2 ping statistics ---  
    5 packet(s) transmitted  
    0 packet(s) received  
  100.00% packet loss
```

```
PC>ping 192.168.1.3
```

```
Ping 192.168.1.3: 32 data bytes, Press Ctrl_C to break  
From 192.168.1.3: bytes=32 seq=1 ttl=128 time=47 ms  
From 192.168.1.3: bytes=32 seq=2 ttl=128 time=63 ms  
From 192.168.1.3: bytes=32 seq=3 ttl=128 time=63 ms  
From 192.168.1.3: bytes=32 seq=4 ttl=128 time=62 ms  
From 192.168.1.3: bytes=32 seq=5 ttl=128 time=47 ms
```

```
--- 192.168.1.3 ping statistics ---  
    5 packet(s) transmitted  
    5 packet(s) received  
    0.00% packet loss  
 round-trip min/avg/max = 47/56/63 ms
```

PC2 同时对 PC1 和 PC3 进行 ping 操作

```

PC>ping 192.168.1.1

Ping 192.168.1.1: 32 data bytes, Press Ctrl_C to break
From 192.168.1.2: Destination host unreachable
From 192.168.1.2: Destination host unreachable
From 192.168.1.2: Destination host unreachable
From 192.168.1.2: Destination host unreachable
From 192.168.1.2: Destination host unreachable

--- 192.168.1.1 ping statistics ---
  5 packet(s) transmitted
  0 packet(s) received
 100.00% packet loss

PC>ping 192.168.1.3

Ping 192.168.1.3: 32 data bytes, Press Ctrl_C to break
From 192.168.1.3: bytes=32 seq=1 ttl=128 time=62 ms
From 192.168.1.3: bytes=32 seq=2 ttl=128 time=63 ms
From 192.168.1.3: bytes=32 seq=3 ttl=128 time=63 ms
From 192.168.1.3: bytes=32 seq=4 ttl=128 time=47 ms
From 192.168.1.3: bytes=32 seq=5 ttl=128 time=63 ms

--- 192.168.1.3 ping statistics ---
  5 packet(s) transmitted
  5 packet(s) received
  0.00% packet loss
 round-trip min/avg/max = 47/59/63 ms

```

#### 4 过程分析如下

##### (1) PC1 ping PC2 过程分析

PC1 发送普通报文→经过 GE0/0/2 打上 pvid vlan 2 标签→往 vlan 2 洪泛  
→G0/0/3 端口属于 vlan3 和 vlan99→PC2 收不到 PC1 发送的报文；

##### (2) PC1 ping PC3 过程分析

PC1 发送给 PC3 过程:PC1 发送普通报文→经过 LSW1 的 GE0/0/2 打上 pvid  
vlan 2 标签→往 vlan 2 洪泛→ G0/0/1 端口属于 vlan2 和 vlan3,数据包通过 G0/0/1  
并 untag 掉 vlan 2 标签→经过 LSW2 的 GE0/0/2 打上 pvid vlan 99 标签→转发到  
GE0/0/1, 去掉 tag 标签→转发给 PC3

PC3 回包给 PC1 过程:PC3 发送帧到 GE0/0/1 端口并打上 tag vlan 99→LSW2

根据 MAC 和 vlan 把帧从 GE0/0/2 转发出去(不会去掉 vlan)→LSW1 根据 vlan99 信息接收帧→根据 MAC 表和 vlan 信息把帧转发到 G0/0/2→G0/0/2 根据 untagged 表去掉 vlan 信息，转发到 PC1→PC1 收到回送信息。