

## 项目六：项目实施

### 1.1.1 任务实施

#### 1. 实施规划

##### 1) 实训拓扑结构

根据任务的需求与分析，实训的拓扑结构及网络参数如图 1-14 所示，以 PC1、PC2、模仿公司的市场部和产品部。

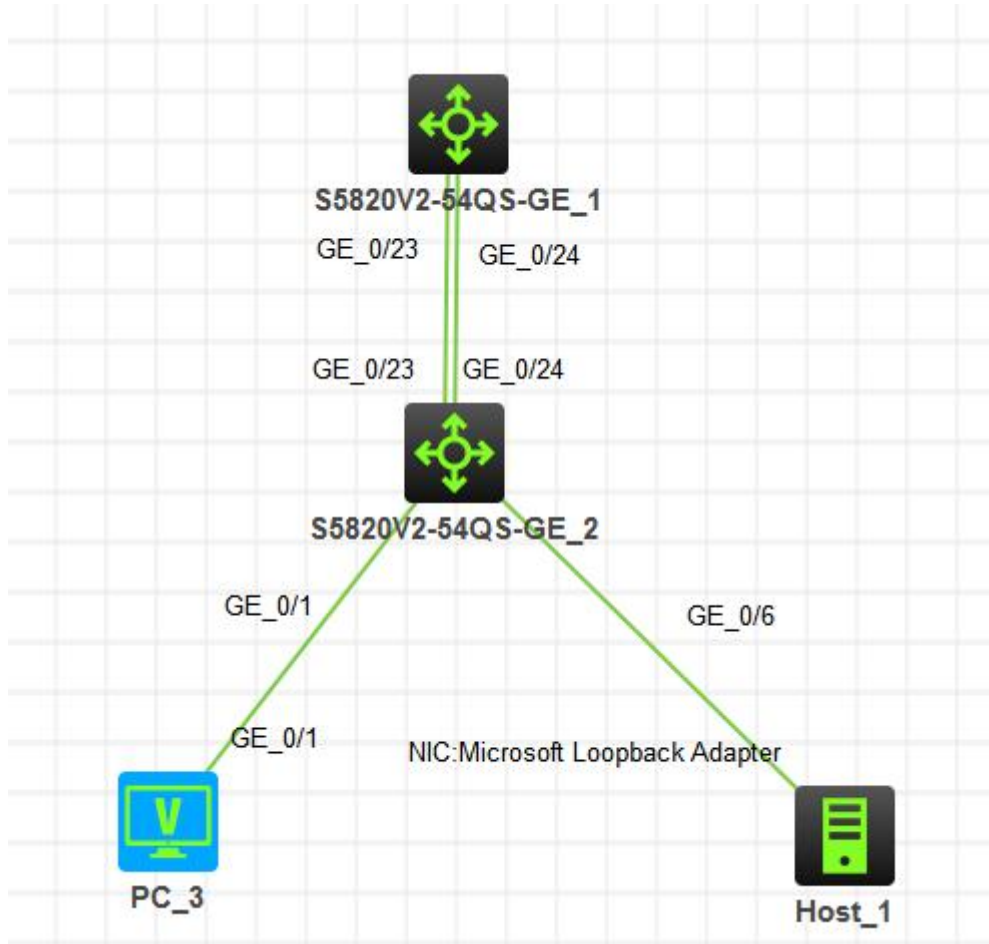


图 5-14 实训任务拓扑

##### 2) 实训设备

根据任务的需求和实训拓扑，每实训小组的实训设备配置建议如表 5-3 所示。

表5-3 实训设备配置清单

设备类型	设备型号	数量
交换机	H3C E126A	2
计算机	windows2003/windows7	2
双绞线	RJ-45	若干

##### 3) IP 地址规划

根据需求分析本任务的 IP 地址规划如表 5-4 所示。

表5-4 IP地址规划

设备	接口	IP 地址	网关
PC1	G0/1	192.168.10.2/24	192.168.10.254
PC2	G0/1	192.168.20.2/24	192.168.20.254
Sw2	Vlan10	192.168.10.254/24	
	Vlan20	192.168.20.254/24	
	Vlan1	1.1.1.2/30	
Sw1	Vlan1	1.1.1.1/30	

#### 4) VLAN 规划

根据需求分析本任务的 IP 地址规划，如表 1-5 所示。

表1-5Vlan规划

部门名称	主机	Vlan	端口
市场部	PC1	10	E 1/0/1 to E 1/0/5
产品部	PC2	20	E 1/0/6 to E 1/0/10

#### 2. 实施步骤

- 1) 根据实训拓扑图进行交换机、计算机的线缆连接，配置 PC1、PC2、的 IP 地址。
- 2) 使用计算机 Windows 操作系统的“超级终端”组件程序通过串口连接到交换机的配置界面，其中超级终端串口的属性设置还原为默认值（每秒位数 9600、数据位 8、奇偶校验无、数据流控制无）。
- 3) 超级终端登录到路由器，进行任务的相关配置。
- 4) Sw1 主要配置清单如下。

```
[sw]sysn sw1
[sw1]vl 10
[sw1-vlan10]port GigabitEthernet 1/0/1 to GigabitEthernet 1/0/5
[sw1]vl 20
[sw1-vlan20]port GigabitEthernet 1/0/6 to GigabitEthernet 1/0/10
[sw1]interface GigabitEthernet 1/0/24
[sw1-GigabitEthernet1/0/24]port link-type trunk
[sw1-GigabitEthernet1/0/24]port trunk permit vlan all
[sw1]interface Vlan-interface 1
[sw1-Vlan-interface1]ip addr 1.1.1.2 30
[sw1]telnet server enable
[sw1]user-interface vty 0 4
[sw1-line-vty0-4]authentication-mode scheme
[sw1-line-vty0-4]quit
[sw1]local-user wgf
[sw1-luser-manage-wgf]password simple 123
[sw1-luser-manage-wgf]service-type telnet
[sw1] ip route-static 0.0.0.0 0 1.1.1.1
[sw1]int Bridge-Aggregation 1
[sw1]int GigabitEthernet 1/0/23
[sw1-GigabitEthernet1/0/23]port link-aggregation group 1
```

```
[sw1-GigabitEthernet1/0/23]int GigabitEthernet 1/0/24
[sw1-GigabitEthernet1/0/24]port link-aggregation group 1
[sw1]int Bridge-Aggregation 1
[sw1-Bridge-Aggregation1]port link-type trunk
[sw1-Bridge-Aggregation1]port trunk permit vlan all
```

#### 5) sw2 主要配置清单如下:

```
[sw1]interface GigabitEthernet 1/0/24
[sw1-GigabitEthernet1/0/24]port link-type trunk
[sw1-GigabitEthernet1/0/24]port trunk permit vlan all
[sw2]interface Vlan-interface 1
[sw2-Vlan-interface1]ip add 1.1.1.1 30
[sw2]interface Vlan-interface 10
[sw2-Vlan-interface10]ip add 192.168.10.254 24
[sw2]interface Vlan-interface 20
[sw2-Vlan-interface10]ip add 192.168.20.254 24
[sw2]telnet server enable
[sw2]user-interface vty 0 4
[sw2-line-vty0-4]authentication-mode scheme
[sw2-line-vty0-4]quit
[sw2]local-user wgf1
[sw2-luser-manage-wgf1]password simple 123
[sw2-luser-manage-wgf1]service-type telnet
[sw1] ip route-static 0.0.0.0 0 1.1.1.2
[sw2]dhcp server ip-pool 333
[sw2-dhcp-pool-333]network 192.168.10.0 mask 255.255.255.0
[sw2-dhcp-pool-333]gateway-list 192.168.10.254
[sw2-dhcp-pool-333]address range 192.168.10.100 192.168.10.200
[sw2-dhcp-pool-333]qu
[sw2]dhcp server ip-pool 555
[sw2-dhcp-pool-555]network 192.168.20.0 mask 255.255.255.0
[sw2-dhcp-pool-555]gateway-list 192.168.20.254
[sw2-dhcp-pool-555]address range 192.168.20.100 192.168.20.200
[sw2]dhcp enable
[sw2]interface Vlan-interface 10
[sw2-Vlan-interface10]dhcp select relay
[sw2-Vlan-interface10]dhcp relay server-address 1.1.1..2
[sw2]interface Vlan-interface 20
[sw2-Vlan-interface20]dhcp select relay
[sw2-Vlan-interface20]dhcp relay server-address 1.1.1.2
[sw2]int Bridge-Aggregation 1
[sw2]int GigabitEthernet 1/0/23
[sw2-GigabitEthernet1/0/23]port link-aggregation group 1
[sw2-GigabitEthernet1/0/23]int GigabitEthernet 1/0/24
[sw2-GigabitEthernet1/0/24]port link-aggregation group 1
```

```
[sw2]int Bridge-Aggregation 1
[sw2-Bridge-Aggregation1]port link-type trunk
[sw2-Bridge-Aggregation1]port trunk permit vlan all
```

## 5.1.6 任务验收

### 1. 设备验收

根据实训拓扑图检查验收路由器、计算机的线缆连接，检查 PC1、PC2、的 IP 地址。

### 2. 配置验收

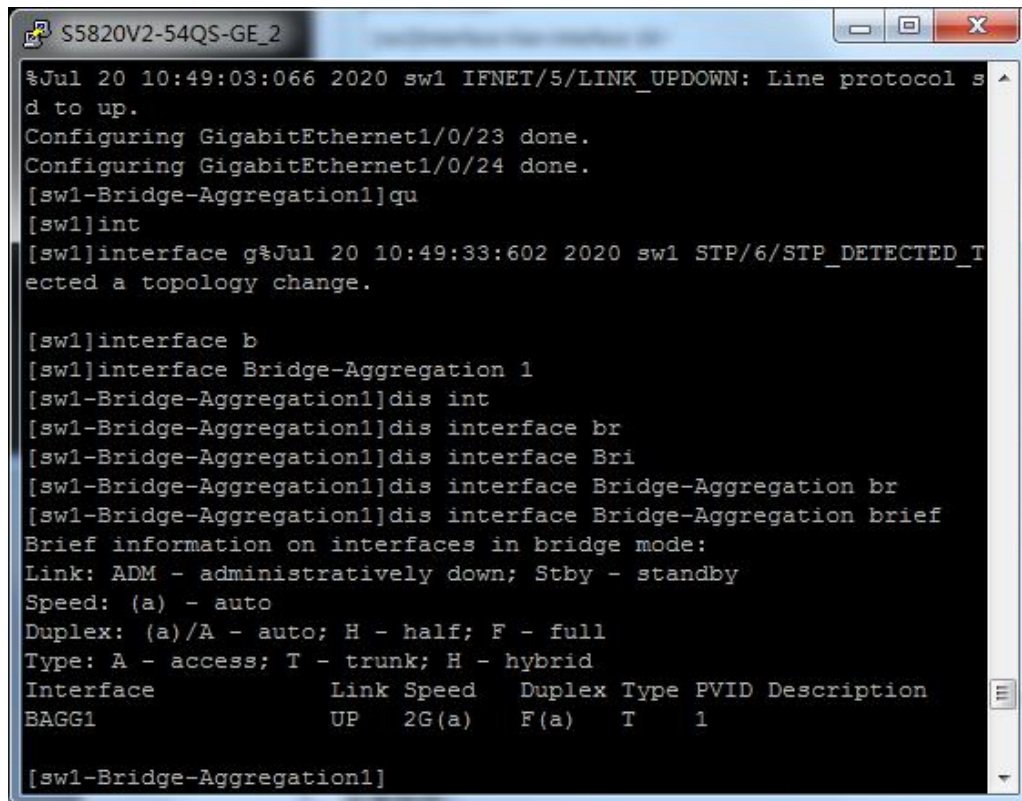
#### (1) 查看路由器路由表

```
[H3C]display ip routing-table
```

Destination/Mask	Proto	Pre	Cost	NextHop	Interface
0.0.0.0/0	Static	60	0	1.1.1.2	Vlan1
0.0.0.0/32	Direct	0	0	127.0.0.1	InLoop0
1.1.1.0/30	Direct	0	0	1.1.1.1	Vlan1
1.1.1.0/32	Direct	0	0	1.1.1.1	Vlan1
1.1.1.1/32	Direct	0	0	127.0.0.1	InLoop0
1.1.1.3/32	Direct	0	0	1.1.1.1	Vlan1
127.0.0.0/8	Direct	0	0	127.0.0.1	InLoop0
127.0.0.0/32	Direct	0	0	127.0.0.1	InLoop0
127.0.0.1/32	Direct	0	0	127.0.0.1	InLoop0
127.255.255.255/32	Direct	0	0	127.0.0.1	InLoop0
192.168.10.0/24	Direct	0	0	192.168.10.254	Vlan10
192.168.10.0/32	Direct	0	0	192.168.10.254	Vlan10
192.168.10.254/32	Direct	0	0	127.0.0.1	InLoop0
192.168.10.255/32	Direct	0	0	192.168.10.254	Vlan10
192.168.20.0/24	Direct	0	0	192.168.20.254	Vlan20
192.168.20.0/32	Direct	0	0	192.168.20.254	Vlan20
192.168.20.254/32	Direct	0	0	127.0.0.1	InLoop0
192.168.20.255/32	Direct	0	0	192.168.20.254	Vlan20
224.0.0.0/4	Direct	0	0	0.0.0.0	NULL0

```
---- More ----
```

#### (2) 查看链路聚合



```
S5820V2-54QS-GE_2
%Jul 20 10:49:03:066 2020 sw1 IFNET/5/LINK_UPDOWN: Line protocol s
d to up.
Configuring GigabitEthernet1/0/23 done.
Configuring GigabitEthernet1/0/24 done.
[sw1-Bridge-Aggregation1]qu
[sw1]int
[sw1]interface g%Jul 20 10:49:33:602 2020 sw1 STP/6/STP_DETECTED_T
ected a topology change.

[sw1]interface b
[sw1]interface Bridge-Aggregation 1
[sw1-Bridge-Aggregation1]dis int
[sw1-Bridge-Aggregation1]dis interface br
[sw1-Bridge-Aggregation1]dis interface Bri
[sw1-Bridge-Aggregation1]dis interface Bridge-Aggregation br
[sw1-Bridge-Aggregation1]dis interface Bridge-Aggregation brief
Brief information on interfaces in bridge mode:
Link: ADM - administratively down; Stby - standby
Speed: (a) - auto
Duplex: (a)/A - auto; H - half; F - full
Type: A - access; T - trunk; H - hybrid
Interface          Link Speed  Duplex Type PVID Description
BAGG1              UP    2G(a)   F(a)  T    1

[sw1-Bridge-Aggregation1]
```

### 3. 功能验收

- (1) 自动获取 IP 参数



(2) 市场部和产品部之间能相互通信。

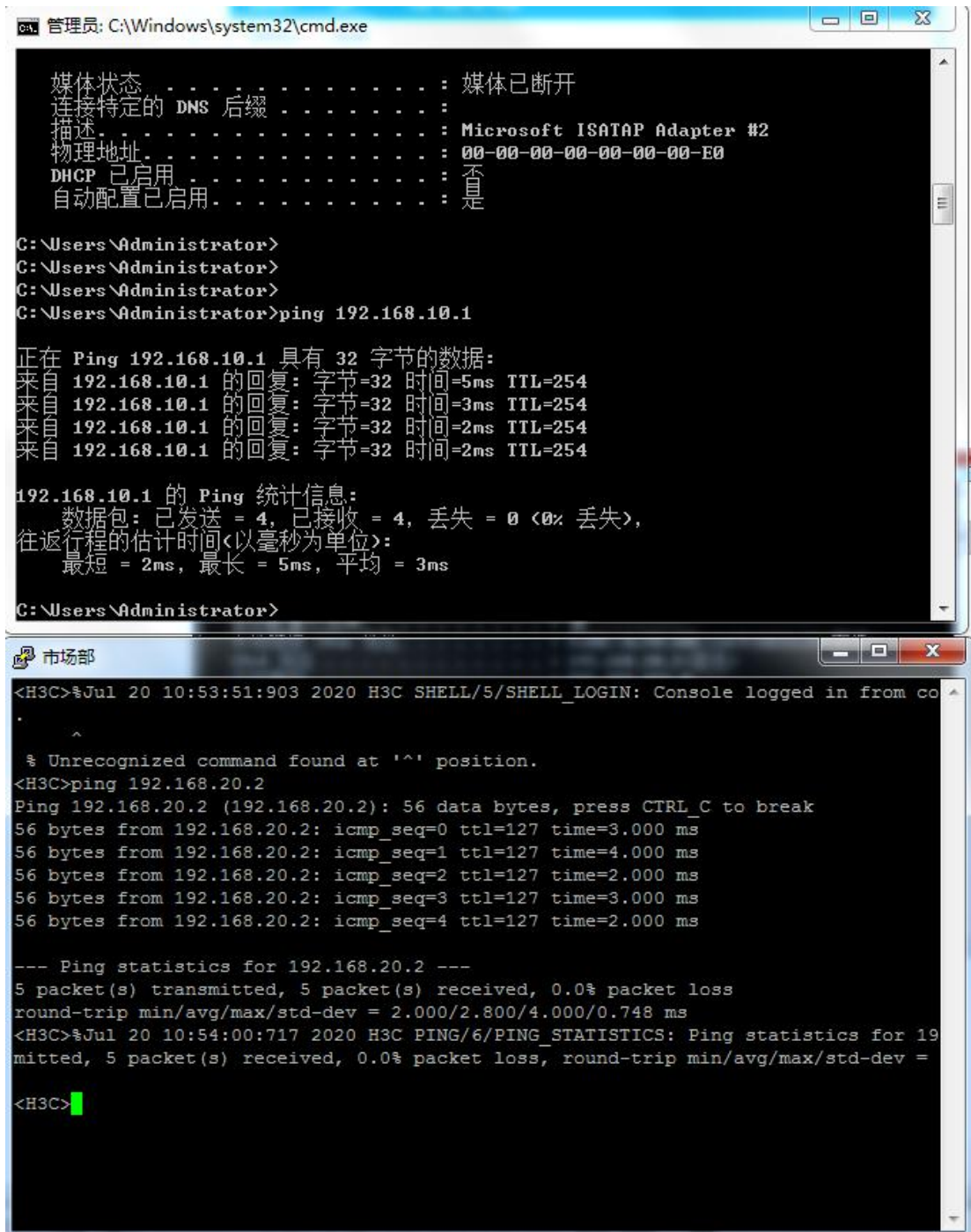
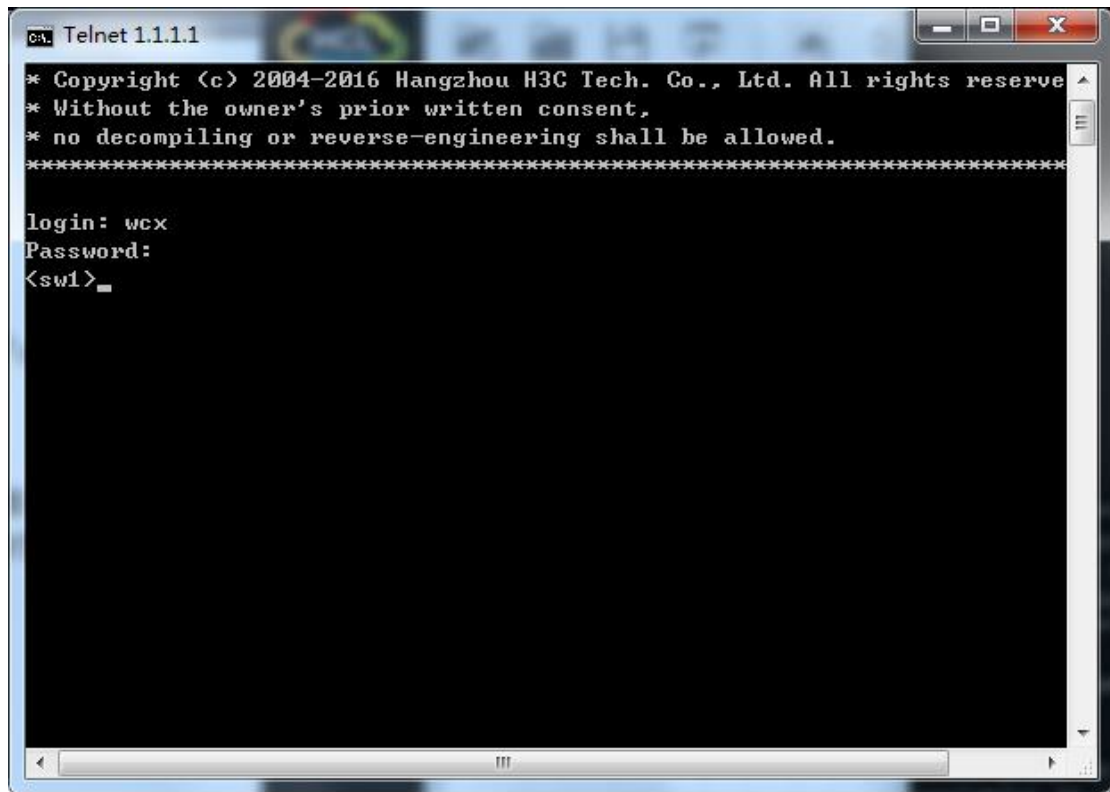


图 5-15 在 PC2（产品部）上通过命令提示符 ping 命令访问外部网络

### (3) 设备远程管理



```
Ca. Telnet 1.1.1.1
* Copyright (c) 2004-2016 Hangzhou H3C Tech. Co., Ltd. All rights reserved.
* Without the owner's prior written consent,
* no decompiling or reverse-engineering shall be allowed.
*****
login: wx
Password:
<sw1>
```

### 1.1.7 任务总结

针对某公司办公区网络的改造任务的内容和目标, 根据需求分析进行了实训的规划和实施, 通过本任务进行了交换机 vlan、vlan trunk、三层 vlan 路由、dhcp、dhcp relay、链路聚合等的配置实训。