

项目一：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。

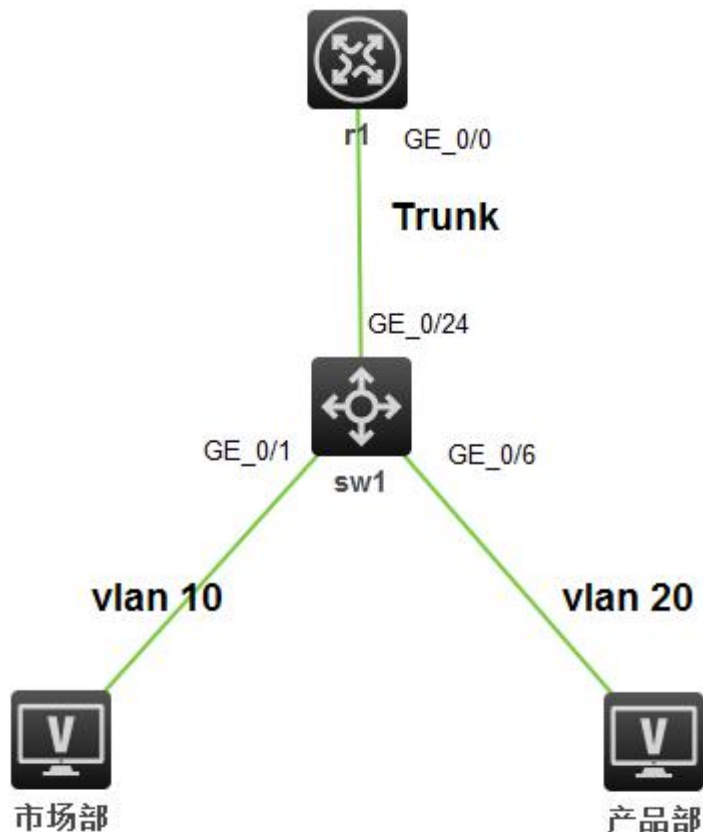


图 5-14 实训任务拓扑

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
路由器	H3C MSR20-40	1
交换机	H3C E126A	1
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		192.168.10.1/24	192.168.10.254
PC2		192.168.20.1/24	192.168.20.254
R1	Ethernet 0/0.1	192.168.10.254/24	
	Ethernet 0/0.2	192.168.20.254/24	

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。

```
[sw1]vlan 10
[sw1-vlan10]port GigabitEthernet 1/0/1 to GigabitEthernet 1/0/5
[sw1-vlan10]vlan 20
[sw1-vlan20]port GigabitEthernet 1/0/6 to GigabitEthernet 1/0/10
[sw1-vlan20]quit

[sw1]interface GigabitEthernet 1/0/24
[sw1-GigabitEthernet1/0/24]port link-type trunk
[sw1-GigabitEthernet1/0/24]port trunk permit vlan all
```

5) R1 主要配置清单如下：

```
[r1]interface GigabitEthernet 0/0.1
[r1-GigabitEthernet0/0.1]ip address 192.168.10.254 255.255.255.0
[r1-GigabitEthernet0/0.1]vlan-type dot1q vid 10

[r1]interface GigabitEthernet 0/0.2
[r1-GigabitEthernet0/0.2]ip address 192.168.20.254 255.255.255.0
[r1-GigabitEthernet0/0.2]vlan-type dot1q vid 20
```

1. 1. 2 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

查看路由器路由表

```
MSR36-20_1
[r1]show ip
[r1]show ip rou
[r1]show ip routing-table

Destinations : 16      Routes : 16

Destination/Mask    Proto  Pre Cost    NextHop          Interface
0.0.0.0/32         Direct 0 0           127.0.0.1        InLoop0
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   GE0/0.1
192.168.10.0/32    Direct 0 0           192.168.10.254   GE0/0.1
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   GE0/0.1
192.168.20.0/24    Direct 0 0           192.168.20.254   GE0/0.2
192.168.20.0/32    Direct 0 0           192.168.20.254   GE0/0.2
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   GE0/0.2
224.0.0.0/4        Direct 0 0           0.0.0.0          NULL0
224.0.0.0/24       Direct 0 0           0.0.0.0          NULL0
255.255.255.255/32 Direct 0 0           127.0.0.1        InLoop0

[r1]
```

3. 功能验收

市场部和产品部之间能相互通信。

```
PC_3
5 packet(s) transmitted, 5 packet(s) received, 0.0% packet loss
round-trip min/avg/max/std-dev = 1.000/1.400/2.000/0.490 ms
<H3C>%Jul 13 09:48:26:310 2020 H3C PING/6/PING_STATISTICS: Ping statistics for 192.168.10.254: 5 packet(s) tra
nsmitted, 5 packet(s) received, 0.0% packet loss, round-trip min/avg/max/std-dev = 1.000/1.400/2.000/0.490 ms.

<H3C>
<H3C>
<H3C>
<H3C>
<H3C>
<H3C>ping 192.168.20.1
Ping 192.168.20.1 (192.168.20.1): 56 data bytes, press CTRL_C to break
56 bytes from 192.168.20.1: icmp_seq=0 ttl=254 time=4.000 ms
56 bytes from 192.168.20.1: icmp_seq=1 ttl=254 time=3.000 ms
56 bytes from 192.168.20.1: icmp_seq=2 ttl=254 time=3.000 ms
56 bytes from 192.168.20.1: icmp_seq=3 ttl=254 time=3.000 ms
56 bytes from 192.168.20.1: icmp_seq=4 ttl=254 time=3.000 ms

--- Ping statistics for 192.168.20.1 ---
5 packet(s) transmitted, 5 packet(s) received, 0.0% packet loss
round-trip min/avg/max/std-dev = 3.000/3.200/4.000/0.400 ms
<H3C>%Jul 13 09:53:26:804 2020 H3C PING/6/PING_STATISTICS: Ping statistics for 192.168.20.1: 5 packet(s) trans
mitted, 5 packet(s) received, 0.0% packet loss, round-trip min/avg/max/std-dev = 3.000/3.200/4.000/0.400 ms.

PC_4
5 packet(s) transmitted, 5 packet(s) received, 0.0% packet loss
round-trip min/avg/max/std-dev = 0.000/0.000/0.000/0.000 ms
<H3C>%Jul 13 09:48:09:773 2020 H3C PING/6/PING_STATISTICS: Ping statistics for 192.168.20.1: 5 packet(s) trans
mitted, 5 packet(s) received, 0.0% packet loss, round-trip min/avg/max/std-dev = 0.000/0.000/0.000/0.000 ms.

<H3C>
<H3C>
<H3C>
<H3C>
<H3C>
<H3C>ping 192.168.10.1
Ping 192.168.10.1 (192.168.10.1): 56 data bytes, press CTRL_C to break
56 bytes from 192.168.10.1: icmp_seq=0 ttl=254 time=3.000 ms
56 bytes from 192.168.10.1: icmp_seq=1 ttl=254 time=3.000 ms
56 bytes from 192.168.10.1: icmp_seq=2 ttl=254 time=3.000 ms
56 bytes from 192.168.10.1: icmp_seq=3 ttl=254 time=3.000 ms
56 bytes from 192.168.10.1: icmp_seq=4 ttl=254 time=3.000 ms

--- Ping statistics for 192.168.10.1 ---
5 packet(s) transmitted, 5 packet(s) received, 0.0% packet loss
round-trip min/avg/max/std-dev = 3.000/3.000/3.000/0.000 ms
<H3C>%Jul 13 09:53:42:607 2020 H3C PING/6/PING_STATISTICS: Ping statistics for 192.168.10.1: 5 packet(s) trans
mitted, 5 packet(s) received, 0.0% packet loss, round-trip min/avg/max/std-dev = 3.000/3.000/3.000/0.000 ms.
```

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

1.1.3 项目总结

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**、路由器单臂路由的配置实训。