路由器基本配置大作业

Boson NetSim

一.实验目的

1.掌握路由器的基本知识

2.掌握路由器端口的配置

3.掌握路由协议的基本配置

4.熟悉使用 Boson Netsim 模拟器

二. 实验内容

1. 本实验要求自行构建一个网络拓扑,要求包括3个以上路由器(路由器采用串行连接),用于连接两个以太网，每个以太网至少包括 1 台主机；

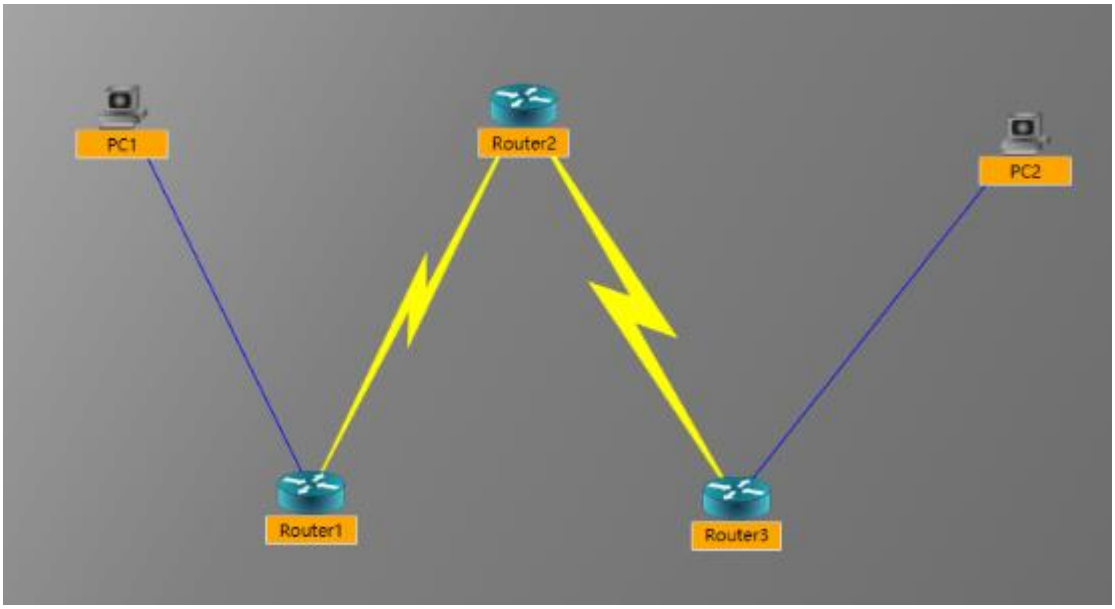
2.完成路由器、主机等设备的配置；使用 RIP 或 OSPF 来维护路由器的路由表。

3.实验配置完成后，两台主机要能够相互 ping 通

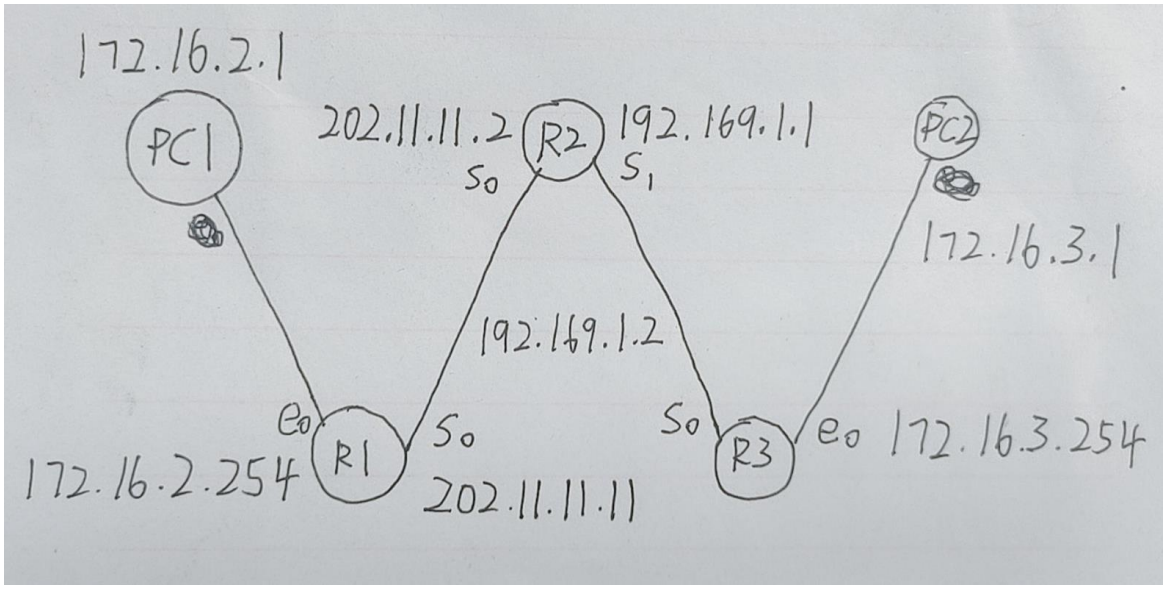
4.实验报告要包括网络拓扑、配置以及结果

三. 实验步骤

拓扑图



各端口 ip



配置命令

1.Router1

```
enable
configure terminal
hostname Router1
interface ethernet 0/0
ip address 172.16.2.254 255.255.255.0
no shutdown
interface serial 0/0
ip address 202.11.11.11 255.255.255.0
clock rate 64000
no shutdown
end
```

2.Router2

```
enable
configure terminal
hostname Router2
interface serial 0/0
ip address 202.11.11.2 255.255.255.0
```

```
no shutdown
interface serial 0/1
ip address 192.169.1.1 255.255.255.0
clock rate 64000
no shutdown
end
```

3.Router3

```
enable
configure terminal
hostname Router3
interface serial 0/0
ip address 192.169.1.2 255.255.255.0
no shutdown
interface ethernet 0/0
ip address 172.16.3.254 255.255.255.0
clock rate 64000
no shutdown
end
```

4.PC1

```
C:>ipconfig /ip 172.16.2.1 255.255.255.0
C:>ipconfig /dg 172.16.2.254
C:>
```

5.PC2

```
Press Enter to begin
C:>ipconfig /ip 172.16.3.1 255.255.255.0
C:>ipconfig /dg 172.16.3.254
```

6.配置 rip 协议

```
// Router1 配置 rip 协议
router rip
network 172.16.2.0
network 202.11.11.0
```

```
end
// Router2 配置 rip 协议
router rip
network 202.11.11.0
network 192.169.1.0
end
// Router3 配置 rip 协议
router rip
network 192.169.1.0
network 172.16.3.0
end
```

7.ping 结果

```
C:>ping 172.16.2.1

Pinging 172.16.2.1 with 32 bytes of data:
Reply from 172.16.2.1: bytes=32 time=68ms TTL=241
Reply from 172.16.2.1: bytes=32 time=66ms TTL=241
Reply from 172.16.2.1: bytes=32 time=61ms TTL=241
Reply from 172.16.2.1: bytes=32 time=70ms TTL=241
Reply from 172.16.2.1: bytes=32 time=66ms TTL=241

Ping statistics for 172.16.2.1:
     Packets: Sent = 5, Received = 5, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
     Minimum = 61ms, Maximum =  70ms, Average =  66ms
```

```
C:>ping 172.16.3.1

Pinging 172.16.3.1 with 32 bytes of data:
Reply from 172.16.3.1: bytes=32 time=58ms TTL=241
Reply from 172.16.3.1: bytes=32 time=65ms TTL=241
Reply from 172.16.3.1: bytes=32 time=70ms TTL=241
Reply from 172.16.3.1: bytes=32 time=62ms TTL=241
Reply from 172.16.3.1: bytes=32 time=62ms TTL=241

Ping statistics for 172.16.3.1:
     Packets: Sent = 5, Received = 5, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
     Minimum = 58ms, Maximum =  70ms, Average =  63ms
```

四．实验总结

在安装 Boson NetSim 时困难重重，出现了 incomplete command 等问题，一定要严格按照说明文档进行安装。通过本次实验熟练掌握了 Boson Netsim 模拟器的使用，熟悉了路由器的基本配置，加深了对路由协议的理解。