互联网计算上机实验报告

1. 配置IP地址及rip

R1

R1(config)#int g0/0/0

R1(config-if)#ip address 219.219.10.2 255.255.255.0

R1(config-if)#no shut

R1(config)#int g0/0/1

R1(config-if)#ip address 192.168.10.1 255.255.255.0

R1(config-if)#no shut

R1(config-if)#exit

R1(config)#router rip

R1(config-router)#network 219.219.10.0

R1(config-router)#exit

R2

R2(config)#int g0/0/0

R2(config-if)#ip address 219.219.10.3 255.255.255.0

R2(config-if)#no shut

R2(config-if)#int g0/0/1

R2(config-if)#ip address 192.168.20.1 255.255.255.0

R2(config-if)#no shut

R2(config-if)#exit

R2(config)#router rip

R2(config-router)#network 219.219.10.0

R3

R3(config)#int g/0/0

R3(config-if)#ip address 219.219.20.2 255.255.255.0

R3(config-if)#no shut

R3(config-if)#exit

R3(config)#router rip

R3(config-router)#network 219.219.20.2

R4

R4(config)#int g0/0/0

R4(config-if)#ip address 219.219.20.3 255.255.255.0

R4(config-if)#no shut

R4(config-if)#exit

R4(config)#router rip

R4(config-router)#network 219.219.20.0

R6

R6(config)#int f0/0

R6(config-if)#ip address 219.219.10.1 255.255.255.0

R6(config-if)#no shut

R6(config-if)#int f1/0

R6(config-if)#ip address 219.219.20.1 255.255.255.0

R6(config-if)#no shut

R6(config-if)#exit

R6(config)#router rip

R6(config-router)#network 219.219.10.0

R6(config-router)#network 219.219.20.0

1. 配置DHCP动态地址分配及DHCP欺诈保护
2. 配置R1的DHCP功能

R1(config)#service dhcp

R1(config)#ip dhcp pool nju1

R1(dhcp-config)#network 192.168.10.0 255.255.255.0

R1(dhcp-config)#default-router 192.168.10.1

R1(dhcp-config)#dns-server 192.168.10.1

R1(dhcp-config)#ip dhcp excluded-address 192.168.10.1 192.168.10.10

1. 设置计算机IP获取DHCP

计算机分配的IP地址如图所示

PC>ipconfig

IP Address......................: 192.168.10.11

Subnet Mask.....................: 255.255.255.0

Default Gateway.................: 192.168.10.1

路由器R1的地址分配如图所示

R1#show ip dhcp binding

IP address Client-ID/ Lease expiration Type

Hardware address

192.168.10.11 0001.6466.8924 -- Automatic

192.168.10.12 000D.BD05.3127 -- Automatic

192.168.10.13 00E0.B060.0A48 -- Automatic

192.168.10.14 0001.6387.187C -- Automatic

1. 防止DHCP欺骗

配置路由器R2的DHCP功能

R2(config)#service dhcp

R2(config)#ip dhcp pool nju2

R2(dhcp-config)#network 192.168.20.0 255.255.255.0

R2(dhcp-config)#default-router 192.168.20.1

R2(dhcp-config)#dns-server 192.168.20.1

R2(config)#ip dhcp excluded-address 192.168.20.1 192.68.20.10

将g1/0/17设为信任端口

Sw1(config)#int g1/0/17

Sw1(config-if)#ip dhcp snooping trust

Sw1(config-if)#int g1/0/18

Sw1(config-if)#no ip dhcp snooping trust

观察

R2#show ip dhcp binding

IP address Client-ID/ Lease expiration Type

Hardware address

192.168.20.13 0001.6466.8924 -- Automatic

192.168.20.14 000D.BD05.3127 -- Automatic

192.168.20.17 00E0.B060.0A48 -- Automatic

192.168.20.18 0001.6387.187C -- Automatic

1. 划分VLAN

Sw0

Sw0(config)#int f0/8

Sw0(config-if)#switch mode trunk

Sw0(config)#vlan 10

Sw0(config-vlan)#vlan 20

Sw0(config-vlan)#vlan 30

Sw0(config)#int range f0/1-7

Sw0(config-if-range)#switchport access vlan 10

Sw0(config-if-range)#int range f0/9-16

Sw0(config-if-range)#switchport access vlan 20

Sw0(config-if-range)#int range f0/17-24

Sw0(config-if-range)#switchport access vlan 30

Sw1

Sw1(config)#int f0/8

Sw1(config-if)#switchport mode trunk

Sw1(config-if)#int range f0/1-7

Sw1(config-if-range)#switchport access vlan 10

Sw1(config-if-range)#int range f0/9-16

Sw1(config-if-range)#switchport access vlan 20

Sw1(config-if-range)#int range f0/17-24

Sw1(config-if-range)#switchport access vlan 30

观察

Sw1#show vlan brief

VLAN Name Status Ports

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1 default active Gig1/1, Gig1/2

10 VLAN0010 active Fa0/1, Fa0/2, Fa0/3, Fa0/4

Fa0/5, Fa0/6, Fa0/7

20 VLAN0020 active Fa0/9, Fa0/10, Fa0/11, Fa0/12

Fa0/13, Fa0/14, Fa0/15, Fa0/16

30 VLAN0030 active Fa0/17, Fa0/18, Fa0/19, Fa0/20

Fa0/21, Fa0/22, Fa0/23, Fa0/24

1002 fddi-default active

1003 token-ring-default active

1004 fddinet-default active

1005 trnet-default active

1. 设置NAT地址转换

R2(config)#ip nat inside source static 192.168.20.13 219.219.10.254

R2(config)#ip nat inside source static 192.168.20.14 219.219.10.253

R2(config)#ip nat inside source static 192.168.20.17 219.219.10.252

R2(config)#ip nat inside source static 192.168.20.18 219.219.10.251

R2(config)#interface g0/0/1

R2(config-if)#ip nat inside

R2(config)#interface g0/0/0

R2(config-if)#ip nat outside

观察

R2#debug ip nat

NAT: s=192.168.20.17->219.219.10.252, d=219.219.20.3 [83]

NAT: s=192.168.20.17->219.219.10.252, d=219.219.20.3 [84]

NAT\*: s=219.219.20.3, d=219.219.10.252->192.168.20.17 [15]

NAT: s=192.168.20.17->219.219.10.252, d=219.219.20.3 [85]

NAT\*: s=219.219.20.3, d=219.219.10.252->192.168.20.17 [16]

NAT: s=192.168.20.17->219.219.10.252, d=219.219.20.3 [86]

NAT\*: s=219.219.20.3, d=219.219.10.252->192.168.20.17 [17]

1. 设置ACL