

Домашнее задание урок 4.

а) разбить сеть 192.168.1.0 на 2 подсети, на 4, на 8

Управляется это маской подсети, единицы определяют сеть, нули - адрес:

192.168.1.0/25

Address: 192.168.1.0 11000000.10101000.00000001.0 0000000

Netmask: 255.255.255.128 = 25 11111111.11111111.11111111.1 0000000

Подсеть 1 (0): 192.168.1.0 - 192.168.1.127

Подсеть 2 (1): 192.168.1.128 - 192.168.1.255

192.168.1.0/26

Address: 192.168.1.0 11000000.10101000.00000001.00 000000

Netmask: 255.255.255.192 = 26 11111111.11111111.11111111.11 000000

Подсеть 1 (00): 192.168.1.0 - 192.168.1.63

Подсеть 2 (01): 192.168.1.64 - 192.168.1.127

Подсеть 3 (10): 192.168.1.128 - 192.168.1.191

Подсеть 4 (11): 192.168.1.192 - 192.168.1.255

192.168.1.0/27

Address: 192.168.1.0 11000000.10101000.00000001.000 00000

Netmask: 255.255.255.224 = 27 11111111.11111111.11111111.111 00000

Подсеть 1 (000): 192.168.1.0 - 192.168.1.31

Подсеть 2 (001): 192.168.1.32 - 192.168.1.63

Подсеть 3 (010): 192.168.1.64 - 192.168.1.95

Подсеть 4 (011): 192.168.1.96 - 192.168.1.127

Подсеть 5 (100): 192.168.1.128 - 192.168.1.159

Подсеть 6 (101): 192.168.1.160 - 192.168.1.191

Подсеть 7 (110): 192.168.1.192 - 192.168.1.223

Подсеть 8 (111): 192.168.1.224 - 192.168.1.255

б) найти, сколько хостов будет в сети 172.16.1.0/25, в сети 10.0.0.0/26

Число адресов, которые можно использовать это число адресов в сети минус 2 (адрес сети и бродкаст)

В сети 172.16.1.0/25 – $(128 - 2) = 126$ хостов, в сети 10.0.0.0/26 – $(64 - 2) = 62$ хоста

в) найти бродкаст-адрес в сети 10.0.0.0/30, в сети 10.255.255.124/30

Бродкаст это последний адрес согласно маске подсети, маска 30 это значит 30 бит под сеть, на адреса остается два бита, т.е. последние биты это 11,

соответственно бродкаст для 10.0.0.0: последний октет 00000011 - 10.0.0.3

соответственно бродкаст для 10.255.255.124: последний октет 01111111 - 10.255.255.127

На всех маршрутизаторах настроить динамическую маршрутизацию с помощью протокола RIP2. Ответ должен содержать sh ip ro и команды с которыми вы настроили. rip v2. Учтите, что если используете файл, в котором настроена статическая маршрутизация, ее нужно удалить через no ip route.

Модифицирую свою старую схему (Router 0 -> Router 3)

Убираем статическую маршрутизацию.

Настройка Router 3.

enable

configure terminal

no ip route 192.168.3.0 255.255.255.0 172.16.0.2

no ip route 192.168.2.0 255.255.255.0 172.17.0.1

end

write

Настройка Router 2.

enable

configure terminal

no ip route 192.168.1.0 255.255.255.0 172.16.0.3

no ip route 192.168.2.0 255.255.255.0 172.18.0.1

end

write

Настройка Router 1.

enable

configure terminal

no ip route 192.168.1.0 255.255.255.0 172.17.0.3

no ip route 192.168.3.0 255.255.255.0 172.18.0.2

end

write

Проверяем, ничего не пингуется.

Настраиваем RIP.

Настройка Router 3.

enable

configure terminal

router rip

v 2

network 192.168.1.0

network 172.16.0.0

network 172.17.0.0

end

write

Настройка Router 2.

enable

configure terminal

router rip

v 2

network 192.168.3.0

network 172.16.0.0

network 172.18.0.0

end

write

Настройка Router 1.

enable

configure terminal

router rip

v 2

network 192.168.2.0

network 172.17.0.0

network 172.18.0.0

end

write

Проверяем маршруты

The screenshot displays the Cisco Packet Tracer interface. On the left, a network topology is shown with three routers (Router-PT Router1, Router-PT Router2, Router-PT Router3) and two switches (Switch-PT Switch3, Switch-PT Switch4). Various PC and server icons are connected to the network. The IP addresses for the devices are labeled: PC-PT 192.168.1.2, PC-PT 192.168.1.3, PC-PT 192.168.2.2, PC-PT 192.168.2.3, Router1 172.17.0.0/255.255.0.0, Router2 172.18.0.0/255.255.0.0, Router3 172.16.0.0/255.255.0.0, and Switch3 172.16.0.0/255.255.0.0.

On the right, the CLI window for Router3 is open, showing the output of the 'show ip route' command. The output lists the following routes:

```
Router>show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

C 172.16.0.0/16 is directly connected, FastEthernet5/0
C 172.17.0.0/16 is directly connected, FastEthernet4/0
R 172.18.0.0/16 [120/1] via 172.17.0.1, 00:00:07, FastEthernet4/0
  [120/1] via 172.16.0.2, 00:00:18, FastEthernet5/0
C 192.168.1.0/24 is directly connected, FastEthernet0/0
R 192.168.2.0/24 [120/1] via 172.17.0.1, 00:00:07, FastEthernet4/0
R 192.168.3.0/24 [120/1] via 172.16.0.2, 00:00:18, FastEthernet5/0
```

Cisco Packet Tracer - C:\temp\L4_DZ.pkt

File Edit Options View Tools Extensions Window Help

Logical Physical x: 694, y: 309

Router2

Physical Config CLI Attributes

IOS Command Line Interface

```
Router>show
Router>show ip
Router>show ip rou
Router>show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

C    172.16.0.0/16 is directly connected, FastEthernet5/0
R    172.17.0.0/16 [120/1] via 172.18.0.1, 00:00:21, FastEthernet4/0
   (120/1) via 172.16.0.3, 00:00:21, FastEthernet5/0
C    172.18.0.0/16 is directly connected, FastEthernet4/0
R    192.168.1.0/24 [120/1] via 172.16.0.3, 00:00:21, FastEthernet5/0
R    192.168.2.0/24 [120/1] via 172.18.0.1, 00:00:21, FastEthernet4/0
C    192.168.3.0/24 is directly connected, FastEthernet0/0

Router>
```

Ctrl+F6 to exit CLI focus

Copy Paste

Top

Time: 150:43:00

Scenario 0

New Delete

Toggle PDU List Window

Fire Last Status Source Destination Type Color Time(sec) Periodic Num Edit Delete

Activate Windows

Go to Settings to activate Win

11

Cisco Packet Tracer - C:\temp\L4_DZ.pkt

File Edit Options View Tools Extensions Window Help

Logical Physical x: 715, y: 424

Router1

Physical Config CLI Attributes

IOS Command Line Interface

```
Router>show
Router>show ip
Router>show ip ro
Router>show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

R    172.16.0.0/16 [120/1] via 172.18.0.3, 00:00:16, FastEthernet5/0
   (120/1) via 172.17.0.3, 00:00:05, FastEthernet4/0
C    172.17.0.0/16 is directly connected, FastEthernet4/0
C    172.18.0.0/16 is directly connected, FastEthernet5/0
R    192.168.1.0/24 [120/1] via 172.17.0.3, 00:00:05, FastEthernet4/0
C    192.168.2.0/24 is directly connected, FastEthernet0/0
R    192.168.3.0/24 [120/1] via 172.18.0.2, 00:00:16, FastEthernet5/0

Router>
```

Ctrl+F6 to exit CLI focus

Copy Paste

Top

Time: 150:46:02

Scenario 0

New Delete

Toggle PDU List Window

Fire Last Status Source Destination Type Color Time(sec) Periodic Num Edit Delete

Activate Windows

Go to Settings to activate W

ENG

Проверяем пинги.

Из 192.168.1.0 в 192.168.3.0 и 192.168.2.0

The network diagram shows a topology with three switches (Switch-PT, Switch-PT, Switch-PT) and two routers (Router-PT, Router-PT). PC-PT 192.168.1.3 is connected to Switch-PT. PC-PT 192.168.2.2 is connected to Switch-PT. PC-PT 192.168.3.2 is connected to Switch-PT. The routers are connected to the switches and each other. The command prompt shows the results of pinging 192.168.3.2 and 192.168.2.2 from 192.168.1.3.

```
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.3.2:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 192.168.3.2

Pinging 192.168.3.2 with 32 bytes of data:

Reply from 192.168.3.2: bytes=32 time<1ms TTL=126
Reply from 192.168.3.2: bytes=32 time<1ms TTL=126
Reply from 192.168.3.2: bytes=32 time<1ms TTL=126
Reply from 192.168.3.2: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.3.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 192.168.2.2

Pinging 192.168.2.2 with 32 bytes of data:

Request timed out.
Reply from 192.168.2.2: bytes=32 time<1ms TTL=126
Reply from 192.168.2.2: bytes=32 time<1ms TTL=126
Reply from 192.168.2.2: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.2.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

Из 192.168.3.0 в 192.168.1.0 и 192.168.2.0

The network diagram shows the same topology as the previous image. The command prompt shows the results of pinging 192.168.1.3 and 192.168.2.2 from 192.168.3.2.

```
Reply from 192.168.2.2: bytes=32 time<1ms TTL=126
Reply from 192.168.2.2: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.2.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 192.168.1.3

Pinging 192.168.1.3 with 32 bytes of data:

Reply from 192.168.1.3: bytes=32 time<1ms TTL=126
Reply from 192.168.1.3: bytes=32 time<1ms TTL=126
Reply from 192.168.1.3: bytes=32 time<1ms TTL=126
Reply from 192.168.1.3: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 192.168.2.2

Pinging 192.168.2.2 with 32 bytes of data:

Reply from 192.168.2.2: bytes=32 time=12ms TTL=126
Reply from 192.168.2.2: bytes=32 time<1ms TTL=126
Reply from 192.168.2.2: bytes=32 time<1ms TTL=126
Reply from 192.168.2.2: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.2.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 12ms, Average = 3ms

C:\>
```

Из 192.168.2.0 в 192.168.3.0 и 192.168.1.0

