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**Лабораторная работа №8**

**«Трансляция адресов(NAT)»**

**Выполнили:**

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**Цель работы:** Изучение принципов динамической маршрутизации, настройка

протоколов RIP v.1 и RIP v.2.

**Настройка IP-адресов на физических интерфейсах маршрутизатора:**

**Router 1:**

Настройка IP-адресов на физических интерфейсах

маршрутизатора (Router1), а также на логическом интерфейсе

Loopback(программный виртуальный интерфейс):

[Huawei]interface GigabitEthernet 0/0/0

[Huawei-GigabitEthernet0/0/0]ip address 192.168.1.1 24

[Huawei-GigabitEthernet0/0/0]quit

[Huawei]interface Loopback 0

[Huawei-LoopBack0]ip addres 1.1.1.1 24

[Huawei-LoopBack0]quit

**Router 2:**

[Huawei]interface GigabitEthernet 0/0/0

[Huawei-GigabitEthernet0/0/0]ip address 192.168.1.2 24

[Huawei-GigabitEthernet0/0/0]quit

[Huawei]interface Loopback 0

[Huawei-LoopBack0]

[Huawei-LoopBack0]ip address 2.2.2.2 24

[Huawei-LoopBack0]quit

[Huawei]interface GigabitEthernet 0/0/1

[Huawei-GigabitEthernet0/0/1]ip address 198.168.2.1 24

[Huawei-GigabitEthernet0/0/1]quit

**Router 3:**

[Huawei]interface GigabitEthernet 0/0/0

[Huawei-GigabitEthernet0/0/0]

[Huawei-GigabitEthernet0/0/0]ip address 192.168.2.2 24

[Huawei-GigabitEthernet0/0/0]

Nov 12 2018 12:37:12-08:00 Huawei %%01IFNET/4/LINK\_STATE(l)[0]:The line protocol

IP on the interface Ethernet0/0/0 has entered the UP state.

[Huawei-Ethernet0/0/0]

Nov 12 2018 12:37:15-08:00 Huawei DS/4/DATASYNC\_CFGCHANGE:OID 1.3.6.1.4.1.2011.5

.25.191.3.1 configurations have been changed. The current change number is 1, th

e change loop count is 0, and the maximum number of records is 4095.

[Huawei-GigabitEthernet0/0/0]quit

[Huawei]interface Loopback 0

[Huawei-LoopBack0]ip address 3.3.3.3 24

[Huawei-LoopBack0]quit

**Проверка соединения:**

<Huawei>ping 192.168.1.2

PING 192.168.1.2: 56 data bytes, press CTRL\_C to break

Reply from 192.168.1.2: bytes=56 Sequence=1 ttl=255 time=440 ms

Reply from 192.168.1.2: bytes=56 Sequence=2 ttl=255 time=30 ms

Reply from 192.168.1.2: bytes=56 Sequence=3 ttl=255 time=30 ms

Reply from 192.168.1.2: bytes=56 Sequence=4 ttl=255 time=30 ms

Reply from 192.168.1.2: bytes=56 Sequence=5 ttl=255 time=30 ms

--- 192.168.1.2 ping statistics ---

5 packet(s) transmitted

5 packet(s) received

0.00% packet loss

round-trip min/avg/max = 30/112/440 ms

<Huawei>ping 192.168.2.2

PING 192.168.2.2: 56 data bytes, press CTRL\_C to break

Reply from 192.168.2.2: bytes=56 Sequence=1 ttl=255 time=250 ms

Reply from 192.168.2.2: bytes=56 Sequence=2 ttl=255 time=40 ms

Reply from 192.168.2.2: bytes=56 Sequence=3 ttl=255 time=60 ms

Reply from 192.168.2.2: bytes=56 Sequence=4 ttl=255 time=30 ms

Reply from 192.168.2.2: bytes=56 Sequence=5 ttl=255 time=30 ms

--- 192.168.2.2 ping statistics ---

5 packet(s) transmitted

5 packet(s) received

0.00% packet loss

round-trip min/avg/max = 30/82/250 ms

**Задаем подсети:**

[Huawei-rip-1]network 192.168.1.0

[Huawei-rip-1]network 1.0.0.0

[Huawei-rip-1]network 192.168.2.0

[Huawei-rip-1]network 2.0.0.0

**Проверяем таблицу маршрутизации:**

**Router 1:**

[Huawei]display ip routing-table

Route Flags: R - relay, D - download to fib

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Routing Tables: Public

Destinations : 12 Routes : 12

Destination/Mask Proto Pre Cost Flags NextHop Interface

1.1.1.0/24 Direct 0 0 D 1.1.1.1 LoopBack0

1.1.1.1/32 Direct 0 0 D 127.0.0.1 LoopBack0

1.1.1.255/32 Direct 0 0 D 127.0.0.1 LoopBack0

2.0.0.0/8 RIP 100 1 D 192.168.1.2 GigabitEthernet

0/0/0

127.0.0.0/8 Direct 0 0 D 127.0.0.1 InLoopBack0

127.0.0.1/32 Direct 0 0 D 127.0.0.1 InLoopBack0

127.255.255.255/32 Direct 0 0 D 127.0.0.1 InLoopBack0

192.168.1.0/24 Direct 0 0 D 192.168.1.1 GigabitEthernet

0/0/0

192.168.1.1/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/0

192.168.1.255/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/0

192.168.2.0/24 RIP 100 1 D 192.168.1.2 GigabitEthernet

0/0/0

255.255.255.255/32 Direct 0 0 D 127.0.0.1 InLoopBack0

**Router 2:**

[Huawei]display ip routing-table

Route Flags: R - relay, D - download to fib

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Routing Tables: Public

Destinations : 14 Routes : 14

Destination/Mask Proto Pre Cost Flags NextHop Interface

1.0.0.0/8 RIP 100 1 D 192.168.1.1 GigabitEthernet

0/0/0

2.2.2.0/24 Direct 0 0 D 2.2.2.2 LoopBack0

2.2.2.2/32 Direct 0 0 D 127.0.0.1 LoopBack0

2.2.2.255/32 Direct 0 0 D 127.0.0.1 LoopBack0

127.0.0.0/8 Direct 0 0 D 127.0.0.1 InLoopBack0

127.0.0.1/32 Direct 0 0 D 127.0.0.1 InLoopBack0

127.255.255.255/32 Direct 0 0 D 127.0.0.1 InLoopBack0

192.168.1.0/24 Direct 0 0 D 192.168.1.2 GigabitEthernet

0/0/0

192.168.1.2/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/0

192.168.1.255/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/0

192.168.2.0/24 Direct 0 0 D 192.168.2.1 GigabitEthernet

0/0/1

192.168.2.1/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/1

192.168.2.255/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/1

255.255.255.255/32 Direct 0 0 D 127.0.0.1 InLoopBack0

**Router 3:**

[Huawei]display ip routing-table

Route Flags: R - relay, D - download to fib

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Routing Tables: Public

Destinations : 10 Routes : 10

Destination/Mask Proto Pre Cost Flags NextHop Interface

1.0.0.0/8 RIP 100 2 D 192.168.2.1 GigabitEthernet

0/0/0

2.0.0.0/8 RIP 100 1 D 192.168.2.1 GigabitEthernet

0/0/0

127.0.0.0/8 Direct 0 0 D 127.0.0.1 InLoopBack0

127.0.0.1/32 Direct 0 0 D 127.0.0.1 InLoopBack0

127.255.255.255/32 Direct 0 0 D 127.0.0.1 InLoopBack0

192.168.1.0/24 RIP 100 1 D 192.168.2.1 GigabitEthernet

0/0/0

192.168.2.0/24 Direct 0 0 D 192.168.2.2 GigabitEthernet

0/0/0

192.168.2.2/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/0

192.168.2.255/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/0

255.255.255.255/32 Direct 0 0 D 127.0.0.1 InLoopBack0

**Задание 2:**

**Router 1:**

[Huawei]ping 2.2.2.2

PING 2.2.2.2: 56 data bytes, press CTRL\_C to break

Reply from 2.2.2.2: bytes=56 Sequence=1 ttl=255 time=190 ms

Reply from 2.2.2.2: bytes=56 Sequence=2 ttl=255 time=30 ms

Reply from 2.2.2.2: bytes=56 Sequence=3 ttl=255 time=20 ms

Reply from 2.2.2.2: bytes=56 Sequence=4 ttl=255 time=20 ms

Reply from 2.2.2.2: bytes=56 Sequence=5 ttl=255 time=30 ms

--- 2.2.2.2 ping statistics ---

5 packet(s) transmitted

5 packet(s) received

0.00% packet loss

round-trip min/avg/max = 20/58/190 ms

<Huawei>terminal debugging

Info: Current terminal debugging is on.

<Huawei>debugging rip 1

<Huawei>

Nov 16 2018 17:20:18.985.1-08:00 Huawei RIP/7/DBG: 25: 5071: RIP 1: Periodic tim

er expired for interface GigabitEthernet0/0/0

<Huawei>

Nov 16 2018 17:20:18.985.2-08:00 Huawei RIP/7/DBG: 25: 6278: RIP 1: Job Periodic

Update is created

<Huawei>

Nov 16 2018 17:20:18.985.3-08:00 Huawei RIP/7/DBG: 25: 5719: RIP 1: Periodic tim

er expired for interface GigabitEthernet0/0/0 (192.168.1.1) and its added to per

iodic update queue

Включение протокола RIP v.2. :

[Huawei]rip 1

[Huawei-rip-1]version 2

[Huawei-rip-1]quit