Chap11 : configuration du nat/pat

SOMMAIRE

1. Configuration initiale du routeur ISP

Configuration des interfaces et de la route vers les pool

```
ISP(config)#int lo0

ISP(config-if)#
%LINK-3-UPDOWN: Interface Loopback0, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback0, chang

ISP(config-if)#ip addres 8.8.8.8 255.255.255.255
ISP(config-if)#int s0/0/0
ISP(config-if)#ip address 80.79.100.1 255.255.255.252
ISP(config-if)#no shut

%LINK-5-CHANGED: Interface Serial0/0/0, changed state to down
ISP(config-if)#^Z
ISP#
%SYS-5-CONFIG_I: Configured from console by console
conf t
Enter configuration commands, one per line.  End with CNTL/Z.
ISP(config)#ip route 201.49.10.16 255.255.255.240 80.79.100.2
ISP(config)#
```

2. Configuration initiale du routeur R1

Configuration des interfaces et de la route vers les pool

```
r1(config)#int s0/0/0
r1(config-if)#ip add 80.79.100.2 255.255.255.252
r1(config-if)#no shut

r1(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up
int g0
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up
/0
r1(config-if)#ip address 192.168.0.1 255.255.255.0
r1(config-if)#no shut

r1(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up
int g0/1
r1(config-if)#ip add 192.168.1.1 255.255.255.0
r1(config-if)#no shut

r1(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up
exit
r1(config)#ip route 0.0.0.0 0.0.0.0 80.79.100.1
r1(config)#
```

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Vérification des connectivités

pc-1 vers r1

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.0.1

Pinging 192.168.0.1 with 32 bytes of data:

Reply from 192.168.0.1: bytes=32 time<1ms TTL=255
Reply from 192.168.0.1: bytes=32 time<1ms TTL=255
Reply from 192.168.0.1: bytes=32 time<1ms TTL=255
Reply from 192.168.0.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% los
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Ping de PC-2

```
C:\>ping 192.168.1.10

Pinging 192.168.1.10 with 32 bytes of data:

Reply from 192.168.1.10: bytes=32 time<1ms TTL=127
Reply from 192.168.1.10: bytes=32 time<1ms TTL=127
Reply from 192.168.1.10: bytes=32 time<1ms TTL=127
Reply from 192.168.1.10: bytes=32 time<1ms TTL=127

Ping statistics for 192.168.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Ping de PC-3

```
C:\>ping 192.168.1.100

Pinging 192.168.1.100 with 32 bytes of data:

Reply from 192.168.1.100: bytes=32 time<1ms TTL=127
Reply from 192.168.1.100: bytes=32 time=1ms TTL=127
Reply from 192.168.1.100: bytes=32 time<1ms TTL=127
Reply from 192.168.1.100: bytes=32 time<1ms TTL=127

Ping statistics for 192.168.1.100:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

R1 vers 8.8.8.8

```
r1>en
r1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
r1(config)#^Z
r1#
%SYS-5-CONFIG_I: Configured from console by console
ping 8.8.8.8

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 8.8.8.8, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 2/4/8 ms

r1#
```

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3. Configuration commune à tout type de NAT

Le NAT prend effet lorsque qu'un paquet est routé d'une interface « inside »et une interface « outside»,il faut donc les configuré avec ip nat inside/outside

```
r1#conf t
Enter configuration commands, one
r1(config)#int g0/0
r1(config-if)#ip nat inside
r1(config-if)#int g0/1
r1(config-if)#ip nat inside
r1(config-if)#int s0/0/0
r1(config-if)#ip nat inside
r1(config-if)#ip nat out
r1(config-if)#ip nat outside
r1(config-if)#
```

4. Configuration du NAT statique pour PC3 (redirection)

```
r1#conf
Configuring from terminal, memory, or network [terminal]?
Enter configuration commands, one per line.  End with CNTL/Z.
r1(config)#ip nat inside source st
r1(config)#ip nat inside source static 192.168.1.100 201.49.10.30
r1(config)#^Z
r1#
%SYS-5-CONFIG_I: Configured from console by console
sh ip n
r1#sh ip nat tr
r1#sh ip nat translations
Pro  Inside global     Inside local       Outside local      Outside global
---  201.49.10.30      192.168.1.100      ---                ---

r1#S
```

effectue un Teste sur PC3 pourver quil peut communiquer avec le réseau public ont.

```
C:\>ping 8.8.8.8

Pinging 8.8.8.8 with 32 bytes of data:

Reply from 8.8.8.8: bytes=32 time=2ms TTL=254
Reply from 8.8.8.8: bytes=32 time=2ms TTL=254
Reply from 8.8.8.8: bytes=32 time=1ms TTL=254
Reply from 8.8.8.8: bytes=32 time=6ms TTL=254

Ping statistics for 8.8.8.8:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss)
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 6ms, Average = 2ms

C:\>S
```

Voici la table de tranlation

```
r1#sh ip nat translations
Pro  Inside global     Inside local       Outside local      Outside global
icmp 201.49.10.30:29   192.168.1.100:29   8.8.8.8:29         8.8.8.8:29
icmp 201.49.10.30:30   192.168.1.100:30   8.8.8.8:30         8.8.8.8:30
icmp 201.49.10.30:31   192.168.1.100:31   8.8.8.8:31         8.8.8.8:31
icmp 201.49.10.30:32   192.168.1.100:32   8.8.8.8:32         8.8.8.8:32
---  201.49.10.30      192.168.1.100      ---                ---

r1#
```

Teste d'un un ping 201.49.10.30 depuis le routeur ISP. Ce ping doit être redirigé vers PC3. Puis ,ont affiche la table de translation du routeur R1.

```
ISP>en
ISP#ping 201.49.10.30

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 201.49.10.30, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 5/5/7 ms

ISP#
```

```
r1#sh ip nat translations
Pro  Inside global     Inside local       Outside local      Outside global
icmp 201.49.10.30:1    192.168.1.100:1    80.79.100.1:1      80.79.100.1:1
icmp 201.49.10.30:2    192.168.1.100:2    80.79.100.1:2      80.79.100.1:2
icmp 201.49.10.30:3    192.168.1.100:3    80.79.100.1:3      80.79.100.1:3
icmp 201.49.10.30:4    192.168.1.100:4    80.79.100.1:4      80.79.100.1:4
icmp 201.49.10.30:5    192.168.1.100:5    80.79.100.1:5      80.79.100.1:5
---  201.49.10.30      192.168.1.100      ---                ---

r1#
```

5. Configuration du NAT dynamique avec pool d'adresses (sans et avec surcharge)

Création du pool d'adresses ainsi définir les adresses IP sources susceptibles d'êtres translatées et configurer le NAT .

```
r1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
r1(config)#ip nat pool POOL-NAT-LAN2 201.49.10.29 netmask 255.255.255.240
                                                  ^
% Invalid input detected at '^' marker.

r1(config)#ip nat pool POOL-NAT-LAN2 201.49.10.29 net
r1(config)#ip nat pool POOL-NAT-LAN2 201.49.10.29 net
r1(config)#ip nat pool POOL-NAT-LAN2 201.49.10.29 net?
% Unrecognized command
r1(config)#ip nat pool POOL-NAT-LAN2 201.49.10.29 ?
  A.B.C.D  End IP address
r1(config)#ip nat pool POOL-NAT-LAN2 201.49.10.17 201.49.10.29 net
r1(config)#ip nat pool POOL-NAT-LAN2 201.49.10.17 201.49.10.29 netmask 255.255.255.240
r1(config)#access-list 1 deny 192.168.1.100
r1(config)#access-list 1 permit 192.168.1.0 0.0.0.255
r1(config)#ip nat inside source list 1 pool POOL-NAT-LAN2
r1(config)#
```

S'il y a plus de machines dans le réseau privé que d'adresses publiques disponibles, il faut alors ajouter « overload » à la commande :

```
r1(config)#ip nat inside source list 1 pool POOL-NAT-LAN2 over
r1(config)#ip nat inside source list 1 pool POOL-NAT-LAN2 overload
r1(config)#
```

PC2 peut communiquer avec l'extérieur (ping 8.8.8.8).

```
C:\>ping 8.8.8.8

Pinging 8.8.8.8 with 32 bytes of data:

Reply from 8.8.8.8: bytes=32 time=8ms TTL=254
Reply from 8.8.8.8: bytes=32 time=7ms TTL=254
Reply from 8.8.8.8: bytes=32 time=9ms TTL=254
Reply from 8.8.8.8: bytes=32 time=12ms TTL=254

Ping statistics for 8.8.8.8:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss)
Approximate round trip times in milli-seconds:
    Minimum = 7ms, Maximum = 12ms, Average = 9ms
```

ont montre latable de translation

```
r1#
%SYS-5-CONFIG_I: Configured from console by console
sh ip nat translations
Pro  Inside global     Inside local       Outside local      Outside global
icmp 201.49.10.17:41   192.168.1.10:41    8.8.8.8:41         8.8.8.8:41
icmp 201.49.10.17:42   192.168.1.10:42    8.8.8.8:42         8.8.8.8:42
icmp 201.49.10.17:43   192.168.1.10:43    8.8.8.8:43         8.8.8.8:43
icmp 201.49.10.17:44   192.168.1.10:44    8.8.8.8:44         8.8.8.8:44
---  201.49.10.30      192.168.1.100      ---                ---

r1#
```

6. Configuration du NAT dynamique sans pool d'adresses (avec surcharge : fonction PAT)

créer une ACL ainsi que configure le nat.

```
r1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
r1(config)#acc
r1(config)#access-list 2 per
r1(config)#access-list 2 permit 192.168.0.0 0.0.0.255
r1(config)#ip nat ins
r1(config)#ip nat inside sour
r1(config)#ip nat inside source list 2 int s0/0/0 overload
r1(config)#^Z
r1#
```

toute machine de ce réseau peuvent communiquer avec l'extérieur désormais voici le teste avec la table de tranlation.

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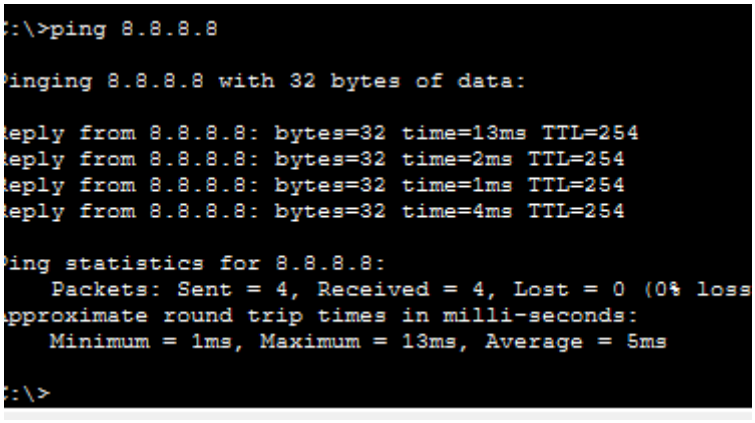


```
sh ip nat translations
Pro  Inside global     Inside local       Outside local      Outside global
icmp 80.79.100.2:49    192.168.0.10:49    8.8.8.8:49         8.8.8.8:49
icmp 80.79.100.2:50    192.168.0.10:50    8.8.8.8:50         8.8.8.8:50
icmp 80.79.100.2:51    192.168.0.10:51    8.8.8.8:51         8.8.8.8:51
icmp 80.79.100.2:52    192.168.0.10:52    8.8.8.8:52         8.8.8.8:52
---  201.49.10.30      192.168.1.100      ---                ---
```