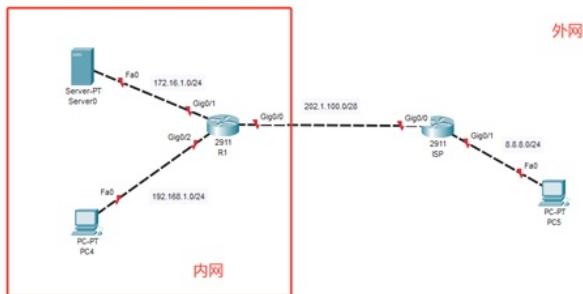




【MVS】思科路由器NAT映射典型组网配置案例

网络相关 韦家宁 2024-07-03 发表

组网及说明



本案例采用思科模拟器的路由器部署NAT映射，将内网服务器映射到外网，给外网提供服务。R1向ISP申请了202.1.100.2-202.1.100.5的IP地址段，其中202.1.100.5用于NAT映射，其他IP用于NAT地址转换。

配置步骤

- 1、按照网络拓扑图配置IP地址和路由。（ISP无需配置路由指向到R1）
- 2、配置R1的NAT地址转换，实现PC能够访问外网。
- 3、配置R1的NAT映射，将内网服务器映射外网，外网能通过映射后的IP访问内网服务器。

配置关键点

R1:

```
Router>ena
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hos R1
R1(config)#int gi 0/1
R1(config-if)#ip address 172.16.1.1 255.255.255.0
R1(config-if)#ip nat inside
R1(config-if)#no shutdown
R1(config-if)#exit
R1(config)#int gi 0/2
R1(config-if)#ip address 192.168.1.1 255.255.255.0
R1(config-if)#ip nat inside
R1(config-if)#no shutdown
R1(config-if)#exit
R1(config)#int gi 0/0
R1(config-if)#ip address 202.1.100.2 255.255.255.240
R1(config-if)#ip nat outside
R1(config-if)#no shutdown
R1(config-if)#exit
R1(config)#ip route 0.0.0.0 0.0.0.0 202.1.100.1
R1(config)#access-list 1 permit any

R1(config)#ip nat pool weijianing 202.1.100.3 202.1.100.4 netmask 255.255.255.240
R1(config)#ip nat inside source list 1 pool weijianing overload

R1(config)#ip nat inside source static 172.16.1.2 202.1.100.5
```

ISP:

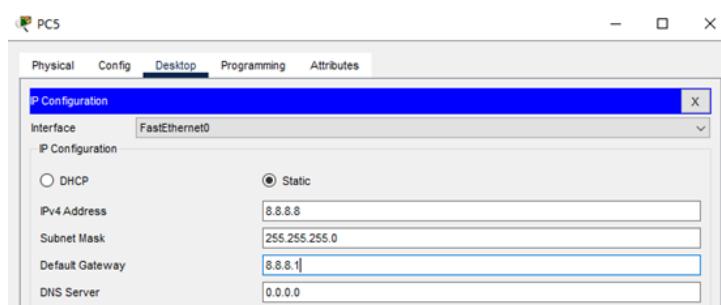
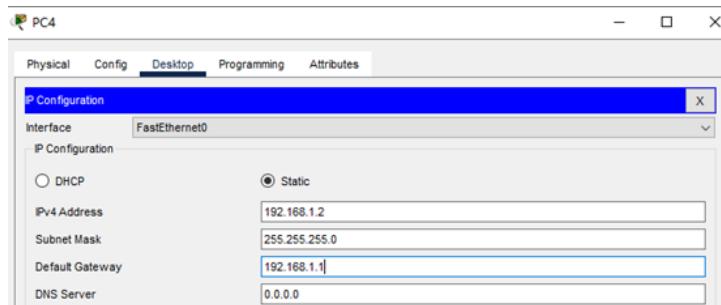
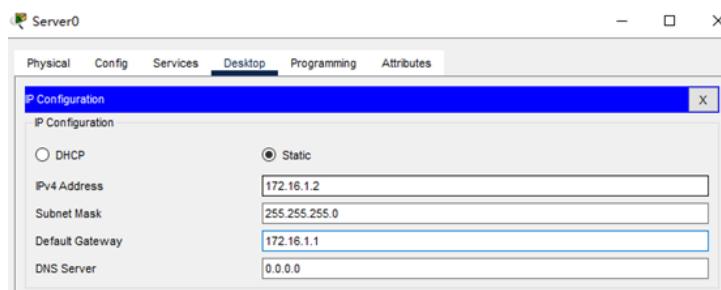
```
Router>ena
Router#conf t
```

Enter configuration commands, one per line. End with CNTL/Z.

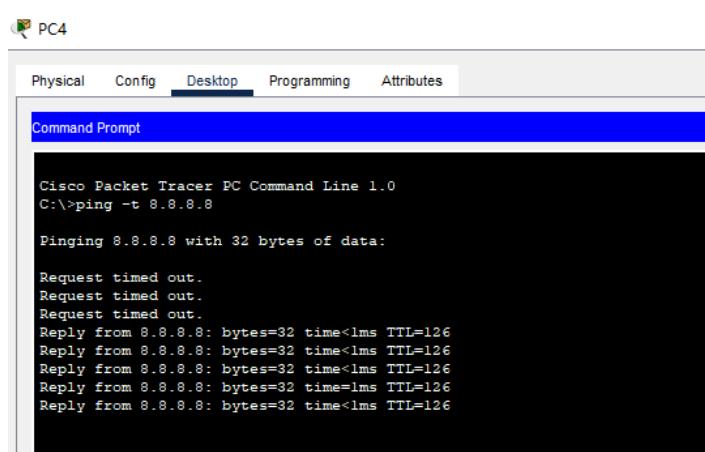
```
Router(config)#hos ISP
ISP(config)#int gi 0/1
ISP(config-if)#ip address 8.8.8.1 255.255.255.0
ISP(config-if)#no shutdown
ISP(config-if)#exit
ISP(config)#int gi 0/0
ISP(config-if)#ip address 202.1.100.1 255.255.255.240
ISP(config-if)#no shutdown
ISP(config-if)#exit
ISP(config)#do wr
Building configuration...
[OK]
ISP(config)#

```

PC和服务器均填写IP地址。



内网服务器和内网PC均可以PING通外网的8.8.8.8



Server0

Physical Config Services Desktop Programming Attributes

Command Prompt

```
Cisco Packet Tracer SERVER Command Line 1.0
C:\>ping -t 8.8.8.8

Pinging 8.8.8.8 with 32 bytes of data:

Request timed out.
Reply from 8.8.8.8: bytes=32 time<1ms TTL=126
Reply from 8.8.8.8: bytes=32 time<1ms TTL=126
Reply from 8.8.8.8: bytes=32 time<1ms TTL=126
Reply from 8.8.8.8: bytes=32 time=8ms TTL=126
```

外网PC能使用202.1.100.5的IP访问内网服务器。

PC5

Physical Config Desktop Programming Attributes

Command Prompt

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 202.1.100.5

Pinging 202.1.100.5 with 32 bytes of data:

Reply from 202.1.100.5: bytes=32 time<1ms TTL=126

Ping statistics for 202.1.100.5:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

PCS

Physical Config Desktop Programming Attributes

Web Browser

URL: http://202.1.100.5

Cisco Packet Tracer

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在R1查看NAT转换的情况。

```
R1#
SYS-5-CONFIG_I: Configured from console by console

R1#sh ip nat tr
Pro Inside global    Inside local     Outside local    Outside global
icmp 202.1.100.3:42  192.168.1.2:42  8.0.0.0:42      8.0.0.0:42
icmp 202.1.100.3:43  192.168.1.2:43  8.0.0.0:43      8.0.0.0:43
icmp 202.1.100.3:44  192.168.1.2:44  8.0.0.0:44      8.0.0.0:44
icmp 202.1.100.3:45  192.168.1.2:45  8.0.0.0:45      8.0.0.0:45
icmp 202.1.100.3:46  192.168.1.2:46  8.0.0.0:46      8.0.0.0:46
icmp 202.1.100.3:47  192.168.1.2:47  8.0.0.0:47      8.0.0.0:47
icmp 202.1.100.3:48  192.168.1.2:48  8.0.0.0:48      8.0.0.0:48
icmp 202.1.100.3:49  192.168.1.2:49  8.0.0.0:49      8.0.0.0:49
icmp 202.1.100.3:50  192.168.1.2:50  8.0.0.0:50      8.0.0.0:50
icmp 202.1.100.3:51  192.168.1.2:51  8.0.0.0:51      8.0.0.0:51
icmp 202.1.100.3:52  192.168.1.2:52  8.0.0.0:52      8.0.0.0:52
icmp 202.1.100.3:53  192.168.1.2:53  8.0.0.0:53      8.0.0.0:53
icmp 202.1.100.3:54  192.168.1.2:54  8.0.0.0:54      8.0.0.0:54
icmp 202.1.100.3:55  192.168.1.2:55  8.0.0.0:55      8.0.0.0:55
icmp 202.1.100.3:56  192.168.1.2:56  8.0.0.0:56      8.0.0.0:56
icmp 202.1.100.3:57  192.168.1.2:57  8.0.0.0:57      8.0.0.0:57
icmp 202.1.100.3:58  192.168.1.2:58  8.0.0.0:58      8.0.0.0:58
icmp 202.1.100.3:59  192.168.1.2:59  8.0.0.0:59      8.0.0.0:59
icmp 202.1.100.3:60  192.168.1.2:60  8.0.0.0:60      8.0.0.0:60
icmp 202.1.100.3:61  192.168.1.2:61  8.0.0.0:61      8.0.0.0:61
icmp 202.1.100.3:62  192.168.1.2:62  8.0.0.0:62      8.0.0.0:62
icmp 202.1.100.3:63  192.168.1.2:63  8.0.0.0:63      8.0.0.0:63
icmp 202.1.100.3:64  192.168.1.2:64  8.0.0.0:64      8.0.0.0:64
icmp 202.1.100.3:65  192.168.1.2:65  8.0.0.0:65      8.0.0.0:65
icmp 202.1.100.3:66  192.168.1.2:66  8.0.0.0:66      8.0.0.0:66
icmp 202.1.100.3:67  192.168.1.2:67  8.0.0.0:67      8.0.0.0:67
icmp 202.1.100.3:68  192.168.1.2:68  8.0.0.0:68      8.0.0.0:68
icmp 202.1.100.3:69  192.168.1.2:69  8.0.0.0:69      8.0.0.0:69
icmp 202.1.100.3:70  192.168.1.2:70  8.0.0.0:70      8.0.0.0:70
icmp 202.1.100.3:71  192.168.1.2:71  8.0.0.0:71      8.0.0.0:71
icmp 202.1.100.3:72  192.168.1.2:72  8.0.0.0:72      8.0.0.0:72
icmp 202.1.100.3:73  192.168.1.2:73  8.0.0.0:73      8.0.0.0:73
icmp 202.1.100.3:74  192.168.1.2:74  8.0.0.0:74      8.0.0.0:74
icmp 202.1.100.3:75  192.168.1.2:75  8.0.0.0:75      8.0.0.0:75
icmp 202.1.100.3:76  192.168.1.2:76  8.0.0.0:76      8.0.0.0:76
icmp 202.1.100.3:77  192.168.1.2:77  8.0.0.0:77      8.0.0.0:77
icmp 202.1.100.3:78  192.168.1.2:78  8.0.0.0:78      8.0.0.0:78
icmp 202.1.100.3:79  192.168.1.2:79  8.0.0.0:79      8.0.0.0:79
icmp 202.1.100.3:80  192.168.1.2:80  8.0.0.0:80      8.0.0.0:80
icmp 202.1.100.3:81  192.168.1.2:81  8.0.0.0:81      8.0.0.0:81
icmp 202.1.100.3:82  192.168.1.2:82  8.0.0.0:82      8.0.0.0:82
icmp 202.1.100.3:83  192.168.1.2:83  8.0.0.0:83      8.0.0.0:83
icmp 202.1.100.3:84  192.168.1.2:84  8.0.0.0:84      8.0.0.0:84
icmp 202.1.100.3:85  192.168.1.2:85  8.0.0.0:85      8.0.0.0:85
icmp 202.1.100.3:86  192.168.1.2:86  8.0.0.0:86      8.0.0.0:86
icmp 202.1.100.3:87  192.168.1.2:87  8.0.0.0:87      8.0.0.0:87
icmp 202.1.100.3:88  192.168.1.2:88  8.0.0.0:88      8.0.0.0:88
icmp 202.1.100.3:89  192.168.1.2:89  8.0.0.0:89      8.0.0.0:89
icmp 202.1.100.3:90  192.168.1.2:90  8.0.0.0:90      8.0.0.0:90
icmp 202.1.100.3:91  192.168.1.2:91  8.0.0.0:91      8.0.0.0:91
icmp 202.1.100.3:92  192.168.1.2:92  8.0.0.0:92      8.0.0.0:92
icmp 202.1.100.3:93  192.168.1.2:93  8.0.0.0:93      8.0.0.0:93
icmp 202.1.100.3:94  192.168.1.2:94  8.0.0.0:94      8.0.0.0:94
icmp 202.1.100.3:95  192.168.1.2:95  8.0.0.0:95      8.0.0.0:95
icmp 202.1.100.3:96  192.168.1.2:96  8.0.0.0:96      8.0.0.0:96
icmp 202.1.100.3:97  192.168.1.2:97  8.0.0.0:97      8.0.0.0:97
icmp 202.1.100.3:98  192.168.1.2:98  8.0.0.0:98      8.0.0.0:98
icmp 202.1.100.3:99  192.168.1.2:99  8.0.0.0:99      8.0.0.0:99
icmp 202.1.100.5:13  172.16.1.2:13   8.0.0.0:13      8.0.0.0:13
icmp 202.1.100.5:14  172.16.1.2:14   8.0.0.0:14      8.0.0.0:14
icmp 202.1.100.5:15  172.16.1.2:15   8.0.0.0:15      8.0.0.0:15
icmp 202.1.100.5:16  172.16.1.2:16   8.0.0.0:16      8.0.0.0:16
icmp 202.1.100.5:17  172.16.1.2:17   8.0.0.0:17      8.0.0.0:17
icmp 202.1.100.5:18  172.16.1.2:18   8.0.0.0:18      8.0.0.0:18
```

| | | | |
|---------------------|----------------|--------------|--------------|
| icmp 202.1.100.3:97 | 192.168.1.2:97 | 8.8.8.8:97 | 8.8.8.8:97 |
| icmp 202.1.100.3:98 | 192.168.1.2:98 | 8.8.8.8:98 | 8.8.8.8:98 |
| icmp 202.1.100.3:99 | 192.168.1.2:99 | 8.8.8.8:99 | 8.8.8.8:99 |
| icmp 202.1.100.5:13 | 172.16.1.2:13 | 8.8.8.8:13 | 8.8.8.8:13 |
| icmp 202.1.100.5:14 | 172.16.1.2:14 | 8.8.8.8:14 | 8.8.8.8:14 |
| icmp 202.1.100.5:15 | 172.16.1.2:15 | 8.8.8.8:15 | 8.8.8.8:15 |
| icmp 202.1.100.5:16 | 172.16.1.2:16 | 8.8.8.8:16 | 8.8.8.8:16 |
| icmp 202.1.100.5:17 | 172.16.1.2:17 | 8.8.8.8:17 | 8.8.8.8:17 |
| icmp 202.1.100.5:18 | 172.16.1.2:18 | 8.8.8.8:18 | 8.8.8.8:18 |
| icmp 202.1.100.5:19 | 172.16.1.2:19 | 8.8.8.8:19 | 8.8.8.8:19 |
| icmp 202.1.100.5:1 | 172.16.1.2:1 | 8.8.8.8:1 | 8.8.8.8:1 |
| icmp 202.1.100.5:20 | 172.16.1.2:20 | 8.8.8.8:20 | 8.8.8.8:20 |
| icmp 202.1.100.5:21 | 172.16.1.2:21 | 8.8.8.8:21 | 8.8.8.8:21 |
| icmp 202.1.100.5:22 | 172.16.1.2:22 | 8.8.8.8:22 | 8.8.8.8:22 |
| icmp 202.1.100.5:23 | 172.16.1.2:23 | 8.8.8.8:23 | 8.8.8.8:23 |
| icmp 202.1.100.5:24 | 172.16.1.2:24 | 8.8.8.8:24 | 8.8.8.8:24 |
| icmp 202.1.100.5:25 | 172.16.1.2:25 | 8.8.8.8:25 | 8.8.8.8:25 |
| icmp 202.1.100.5:26 | 172.16.1.2:26 | 8.8.8.8:26 | 8.8.8.8:26 |
| icmp 202.1.100.5:27 | 172.16.1.2:27 | 8.8.8.8:27 | 8.8.8.8:27 |
| icmp 202.1.100.5:28 | 172.16.1.2:28 | 8.8.8.8:28 | 8.8.8.8:28 |
| icmp 202.1.100.5:29 | 172.16.1.2:29 | 8.8.8.8:29 | 8.8.8.8:29 |
| icmp 202.1.100.5:2 | 172.16.1.2:2 | 8.8.8.8:2 | 8.8.8.8:2 |
| icmp 202.1.100.5:30 | 172.16.1.2:30 | 8.8.8.8:30 | 8.8.8.8:30 |
| icmp 202.1.100.5:31 | 172.16.1.2:31 | 8.8.8.8:31 | 8.8.8.8:31 |
| icmp 202.1.100.5:32 | 172.16.1.2:32 | 8.8.8.8:32 | 8.8.8.8:32 |
| icmp 202.1.100.5:33 | 172.16.1.2:33 | 8.8.8.8:33 | 8.8.8.8:33 |
| icmp 202.1.100.5:34 | 172.16.1.2:34 | 8.8.8.8:34 | 8.8.8.8:34 |
| icmp 202.1.100.5:35 | 172.16.1.2:35 | 8.8.8.8:35 | 8.8.8.8:35 |
| icmp 202.1.100.5:36 | 172.16.1.2:36 | 8.8.8.8:36 | 8.8.8.8:36 |
| icmp 202.1.100.5:37 | 172.16.1.2:37 | 8.8.8.8:37 | 8.8.8.8:37 |
| icmp 202.1.100.5:38 | 172.16.1.2:38 | 8.8.8.8:38 | 8.8.8.8:38 |
| icmp 202.1.100.5:39 | 172.16.1.2:39 | 8.8.8.8:39 | 8.8.8.8:39 |
| icmp 202.1.100.5:3 | 172.16.1.2:3 | 8.8.8.8:3 | 8.8.8.8:3 |
| icmp 202.1.100.5:40 | 172.16.1.2:40 | 8.8.8.8:40 | 8.8.8.8:40 |
| icmp 202.1.100.5:41 | 172.16.1.2:41 | 8.8.8.8:41 | 8.8.8.8:41 |
| icmp 202.1.100.5:42 | 172.16.1.2:42 | 8.8.8.8:42 | 8.8.8.8:42 |
| icmp 202.1.100.5:43 | 172.16.1.2:43 | 8.8.8.8:43 | 8.8.8.8:43 |
| icmp 202.1.100.5:44 | 172.16.1.2:44 | 8.8.8.8:44 | 8.8.8.8:44 |
| icmp 202.1.100.5:45 | 172.16.1.2:45 | 8.8.8.8:45 | 8.8.8.8:45 |
| icmp 202.1.100.5:46 | 172.16.1.2:46 | 8.8.8.8:46 | 8.8.8.8:46 |
| icmp 202.1.100.5:47 | 172.16.1.2:47 | 8.8.8.8:47 | 8.8.8.8:47 |
| icmp 202.1.100.5:48 | 172.16.1.2:48 | 8.8.8.8:48 | 8.8.8.8:48 |
| icmp 202.1.100.5:49 | 172.16.1.2:49 | 8.8.8.8:49 | 8.8.8.8:49 |
| icmp 202.1.100.5:4 | 172.16.1.2:4 | 8.8.8.8:4 | 8.8.8.8:4 |
| icmp 202.1.100.5:50 | 172.16.1.2:50 | 8.8.8.8:50 | 8.8.8.8:50 |
| icmp 202.1.100.5:51 | 172.16.1.2:51 | 8.8.8.8:51 | 8.8.8.8:51 |
| icmp 202.1.100.5:52 | 172.16.1.2:52 | 8.8.8.8:52 | 8.8.8.8:52 |
| icmp 202.1.100.5:53 | 172.16.1.2:53 | 8.8.8.8:53 | 8.8.8.8:53 |
| icmp 202.1.100.5:54 | 172.16.1.2:54 | 8.8.8.8:54 | 8.8.8.8:54 |
| icmp 202.1.100.5:55 | 172.16.1.2:55 | 8.8.8.8:55 | 8.8.8.8:55 |
| icmp 202.1.100.5:56 | 172.16.1.2:56 | 8.8.8.8:56 | 8.8.8.8:56 |
| icmp 202.1.100.5:57 | 172.16.1.2:57 | 8.8.8.8:57 | 8.8.8.8:57 |
| icmp 202.1.100.5:58 | 172.16.1.2:58 | 8.8.8.8:58 | 8.8.8.8:58 |
| icmp 202.1.100.5:59 | 172.16.1.2:59 | 8.8.8.8:59 | 8.8.8.8:59 |
| icmp 202.1.100.5:60 | 172.16.1.2:60 | 8.8.8.8:60 | 8.8.8.8:60 |
| icmp 202.1.100.5:61 | 172.16.1.2:61 | 8.8.8.8:61 | 8.8.8.8:61 |
| icmp 202.1.100.5:62 | 172.16.1.2:62 | 8.8.8.8:62 | 8.8.8.8:62 |
| icmp 202.1.100.5:63 | 172.16.1.2:63 | 8.8.8.8:63 | 8.8.8.8:63 |
| icmp 202.1.100.5:64 | 172.16.1.2:64 | 8.8.8.8:64 | 8.8.8.8:64 |
| icmp 202.1.100.5:65 | 172.16.1.2:65 | 8.8.8.8:65 | 8.8.8.8:65 |
| icmp 202.1.100.5:66 | 172.16.1.2:66 | 8.8.8.8:66 | 8.8.8.8:66 |
| icmp 202.1.100.5:67 | 172.16.1.2:67 | 8.8.8.8:67 | 8.8.8.8:67 |
| icmp 202.1.100.5:68 | 172.16.1.2:68 | 8.8.8.8:68 | 8.8.8.8:68 |
| icmp 202.1.100.5:69 | 172.16.1.2:69 | 8.8.8.8:69 | 8.8.8.8:69 |
| icmp 202.1.100.5:70 | 172.16.1.2:70 | 8.8.8.8:70 | 8.8.8.8:70 |
| --- | 202.1.100.5 | 172.16.1.2 | --- |
| tcp 202.1.100.5:80 | 172.16.1.2:80 | 8.8.8.8:1025 | 8.8.8.8:1025 |

R1#

至此，思科路由器NAT映射典型组网配置案例已完成！