

NAT 网关

最佳实践

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本文介绍如何通过API使用NAT网关的DNAT功能和共享带宽功能实现多应用的共享带宽。

为了方便调用API，本操作中使用了一个用python语言编写的Command Line工具。

前期准备

部署规划

假设系统中有四个面向互联网的应用，需要使用三个公网IP；另外需要一个ECS和一个IP作为服务器管理的跳板机来使用，并准备一个公网IP暂时备用。整体资源规划如下：

- 带宽需求总量：150Mbps
- 公网IP需求总量：5个，其中一个公网IP留作备用
- ECS需求总量：5个
- 公网IP与ECS的映射关系：
 - IP1->ECS1
 - IP2->ECS2
 - IP3->ECS3/ECS4（其中80端口映射给ECS3的80端口；443端口映射给ECS4的443端口）
 - IP4->ECS5（运维跳板机，仅开放22端口）
 - IP5：暂不添加DNAT规则

创建VPC与ECS

创建VPC与ECS。注意ECS实例不需要单独配置公网IP。

VPC与ECS资源相关情况如下：

- VPC ID: vpc-11af8lxxx
- ECS列表

实例名称	私网IP
ECS1	192.168.1.1
ECS2	192.168.1.2
ECS3	192.168.1.3
ECS4	192.168.1.4

CLI工具下载

单击[此处](#)下载CLI工具。

Linux环境下可以直接使用wget命令进行下载。

```
wget http://docs.aliyun.cn-hangzhou.oss.aliyun-inc.com/assets/attach/42691/cn_zh/1468947102311/api.py
```

创建AccessKey

您需要为调用API的账号创建一个AccessKey，用于身份验证。详情查看[创建AccessKey](#)。

为CLI工具配置AccessKey

```
lee5deMacBook-Air:api-cli lee5$ python api.py config --id=qVq8LSA --secret=''
```

步骤一 创建NAT网关

调用CreateNatGateway接口创建NAT网关。

API示例：

```
[admin@tester:xxx]$ python api.py CreateNatGateway RegionId=cn-shanghai VpcId=vpc-11af8lxxx
BandwidthPackage.1.IpCount=4 BandwidthPackage.1.Bandwidth=150 BandwidthPackage.1.Zone=cn-
shanghai-a Name=MyNatGW Description="My first NAT Gateway"
=====Request URL=====
https://ecs.aliyuncs.com/?SignatureVersion=1.0&VpcId=vpc-
11af8lxxx&Name=MyNatGW&Format=json&TimeStamp=2016-05-
23T03%3A26%3A21Z&BandwidthPackage.1.IpCount=5&RegionId=cn-
shanghai&AccessKeyId=jZgi0oyrQ6ihgKp9&SignatureMethod=HMAC-SHA1&Version=2014-05-
26&Signature=I4KKhWgjJdImTqk4rCifAB3LbLw%3D&action=CreateNatGateway&SignatureNonce=1ebae4
9c-2096-11e6-b781-2cf0ee28adf2&BandwidthPackage.1.Bandwidth=150&BandwidthPackage.1.Zone=cn-
shanghai-a&Description=My+first+NAT+Gateway
=====Request URL end=====

===== Got Response =====
{
  "BandwidthPackageIds": {
    "BandwidthPackageId": [
      "bwp-11odxu2k7"
    ]
  },
  "ForwardTableIds": {
    "ForwardTableId": [
      "ftb-11tc6xgmv"
    ]
  },
}
```

```
"NatGatewayId": "ngw-112za33e4",
"RequestId": "2315DEB7-5E92-423A-91F7-4C1EC9AD97C3"
}
```

调用 DescribeNatGateways 接口查看 NAT 网关的详细信息。

API 示例：

```
[admin@tester:xxx]$ python api.py DescribeNatGateways RegionId=cn-shanghai VpcId=vpc-11af8lxxx
=====Request URL=====
https://ecs.aliyuncs.com/?SignatureVersion=1.0&VpcId=vpc-11af8lxxx&Format=json&TimeStamp=2016-
05-23T03%3A27%3A14Z&RegionId=cn-
shanghai&AccessKeyId=jZgi0oyrQ6ihgKp9&SignatureMethod=HMAC-SHA1&Version=2014-05-
26&Signature=JvXErso9g0fZdRTgBtNLepe%2F1e4%3D&action=DescribeNatGateways&SignatureNonce=3
e1424eb-2096-11e6-bc31-2cf0ee28adf2
=====Request URL end=====

===== Got Response =====
{
  "NatGateways": {
    "NatGateway": [
      {
        "BandwidthPackageIds": {
          "BandwidthPackageId": [
            "bwp-11odxu2k7"
          ]
        },
        "BusinessStatus": "Normal",
        "CreationTime": "2016-05-23T03:26:23Z",
        "Description": "My first NAT Gateway",
        "ForwardTableIds": {
          "ForwardTableId": [
            "ftb-11tc6xgmv"
          ]
        },
        "InstanceChargeType": "PostPaid",
        "Name": "MyNatGW",
        "NatGatewayId": "ngw-112za33e4",
        "RegionId": "cn-shanghai",
        "Spec": "Small",
        "Status": "Available",
        "VpcId": "vpc-11af8lxxx"
      }
    ]
  },
  "PageNumber": 1,
  "PageSize": 10,
  "RequestId": "FE4C442C-9778-449A-BF7F-7F36C3AF5611",
  "TotalCount": 1
}
```

调用 DescribeBandwidthPackages 接口查看已创建的共享带宽包的详细信息。

```
[admin@tester:xxx]$ python api.py DescribeBandwidthPackages RegionId=cn-shanghai NatGatewayId=ngw-112za33e4
=====Request URL=====
https://ecs.aliyuncs.com/?SignatureVersion=1.0&Format=json&TimeStamp=2016-05-23T03%3A33%3A30Z&RegionId=cn-shanghai&NatGatewayId=ngw-112za33e4&AccessKeyId=jZgi0oyrQ6ihgKp9&SignatureMethod=HMAC-SHA1&Version=2014-05-26&Signature=KN0C2Q4TUZtfECBn1c2lOdBzrb8%3D&action=DescribeBandwidthPackages&SignatureNonce=1e8941ae-2097-11e6-acbb-2cf0ee28adf2
=====Request URL end=====

===== Got Response =====
{
  "BandwidthPackages": {
    "BandwidthPackage": [
      {
        "Bandwidth": "150",
        "BandwidthPackageId": "bwp-11odxu2k7",
        "BusinessStatus": "Normal",
        "CreationTime": "2016-05-23T03:26:24Z",
        "Description": "",
        "InstanceChargeType": "PostPaid",
        "InternetChargeType": "PayByBandwidth",
        "IpCount": "5",
        "Name": "",
        "NatGatewayId": "ngw-112za33e4",
        "PublicIpAddresses": {
          "PublicIpAdresse": [
            {
              "AllocationId": "nateip-11iopy3sl",
              "IpAddress": "139.xxx.xx.107"
            },
            {
              "AllocationId": "nateip-11pt1f9ph",
              "IpAddress": "139.xxx.xx.55"
            },
            {
              "AllocationId": "nateip-111ul670c",
              "IpAddress": "139.xxx.xx.79"
            },
            {
              "AllocationId": "nateip-11ogfjj85",
              "IpAddress": "139.xxx.xx.59"
            },
            {
              "AllocationId": "nateip-11s2jempe",
              "IpAddress": "139.xxx.xx.58"
            }
          ]
        },
        "RegionId": "cn-shanghai",
        "Status": "Available",
        "ZoneId": "cn-shanghai-a"
      }
    ]
  },
}
```

```
"PageNumber": 1,  
"PageSize": 10,  
"RequestId": "14406B86-7CA1-4907-9755-86096F476A4F",  
"TotalCount": 1  
}
```

步骤二 配置DNAT

调用CreateForwardEntry接口添加如下五条转发条目：

- IP1:Any -> ecs-ip1:Any, protocol=Any
- IP2:Any -> ecs-ip2:Any, protocol=Any
- IP3:80 -> ecs-ip3:80 , protocol=TCP
- IP3:443 -> ecs-ip3:443, protocol=TCP

IP4:22 -> ecs-ip4:22 , protocol=TCP

API示例：

```
[admin@tester:xxx]$ python api.py CreateForwardEntry RegionId=cn-shanghai ForwardTableId=ftb-  
11tc6xgmv ExternalIp=139.xxx.xx.107 ExternalPort=Any InternalIp=192.168.1.1 InternalPort=Any  
IpProtocol=Any  
=====Request URL=====  
https://ecs.aliyuncs.com/?ExternalIp=139.xxx.xx.107&SignatureVersion=1.0&Format=json&TimeStamp=20  
16-05-23T03%3A53%3A18Z&RegionId=cn-  
shanghai&ExternalPort=Any&InternalIp=192.168.1.1&Signature=iR4GSzhJQtowMJOj%2FRth3ABP4FA%3D  
&AccessKeyId=jZgi0oyrQ6ihgKp9&ForwardTableId=ftb-11tc6xgmv&SignatureMethod=HMAC-  
SHA1&Version=2014-05-26&IpProtocol=Any&action=CreateForwardEntry&SignatureNonce=e2ceae11-  
2099-11e6-b548-2cf0ee28adf2&InternalPort=Any  
=====Request URL end=====
```

===== Got Response =====

```
[admin@tester:xxx]$ python api.py CreateForwardEntry RegionId=cn-shanghai ForwardTableId=ftb-  
11tc6xgmv ExternalIp=139.xxx.xx.107 ExternalPort=Any InternalIp=192.168.1.1 InternalPort=Any  
IpProtocol=Any  
=====Request URL=====  
https://ecs.aliyuncs.com/?ExternalIp=139.xxx.xx.107&SignatureVersion=1.0&Format=json&TimeStamp=20  
16-05-23T03%3A53%3A18Z&RegionId=cn-  
shanghai&ExternalPort=Any&InternalIp=192.168.1.1&Signature=iR4GSzhJQtowMJOj%2FRth3ABP4FA%3D  
&AccessKeyId=jZgi0oyrQ6ihgKp9&ForwardTableId=ftb-11tc6xgmv&SignatureMethod=HMAC-  
SHA1&Version=2014-05-26&IpProtocol=Any&action=CreateForwardEntry&SignatureNonce=e2ceae11-  
2099-11e6-b548-2cf0ee28adf2&InternalPort=Any  
=====Request URL end=====
```

===== Got Response =====

```
{  
  "ForwardEntryId": "fwd-119smw5tk",  
  "RequestId": "A4AEE536-A97A-40EB-9EBE-53A6948A6928"  
}
```

```
[admin@tester:xxx]$  
[admin@tester:xxx]$
```

```
[admin@tester:xxx]$
[admin@tester:xxx]$ python api.py CreateForwardEntry RegionId=cn-shanghai ForwardTableId=ftb-
11tc6xgmv ExternalIp=139.xxx.xx.55 ExternalPort=Any InternalIp=192.168.1.2 InternalPort=Any
IpProtocol=Any
=====Request URL=====
https://ecs.aliyuncs.com/?ExternalIp=139.xxx.xx.55&SignatureVersion=1.0&Format=json&TimeStamp=201
6-05-23T03%3A53%3A42Z&RegionId=cn-
shanghai&ExternalPort=Any&InternalIp=192.168.1.2&Signature=mFBn%2BCd4LfHkKj53MwmWyMhzyfs%
3D&AccessKeyId=jZgi0oyrQ6ihgKp9&ForwardTableId=ftb-11tc6xgmv&SignatureMethod=HMAC-
SHA1&Version=2014-05-26&IpProtocol=Any&action=CreateForwardEntry&SignatureNonce=f09c1b38-
2099-11e6-aa80-2cf0ee28adf2&InternalPort=Any
=====Request URL end=====

===== Got Response =====
{
  "ForwardEntryId": "fwd-11dz3ly9l",
  "RequestId": "5DBC8F86-2D76-4BF4-B839-7FF31B61D516"
}
[admin@tester:xxx]$
[admin@tester:xxx]$
[admin@tester:xxx]$
[admin@tester:xxx]$ python api.py CreateForwardEntry RegionId=cn-shanghai ForwardTableId=ftb-
11tc6xgmv ExternalIp=139.xxx.xx.79 ExternalPort=80 InternalIp=192.168.1.3 InternalPort=80
IpProtocol=TCP
=====Request URL=====
https://ecs.aliyuncs.com/?ExternalIp=139.xxx.xx.79&SignatureVersion=1.0&Format=json&TimeStamp=201
6-05-23T03%3A54%3A10Z&RegionId=cn-
shanghai&ExternalPort=80&InternalIp=192.168.1.3&Signature=OpTui3SKbAjKXy6gKRoJb%2B9Lazg%3D&
AccessKeyId=jZgi0oyrQ6ihgKp9&ForwardTableId=ftb-11tc6xgmv&SignatureMethod=HMAC-
SHA1&Version=2014-05-26&IpProtocol=TCP&action=CreateForwardEntry&SignatureNonce=01c41d5c-
209a-11e6-905e-2cf0ee28adf2&InternalPort=80
=====Request URL end=====

===== Got Response =====
{
  "ForwardEntryId": "fwd-11r23r7p5",
  "RequestId": "67B7AAFD-E7AB-4EB8-AA5C-AA38CFFB4A95"
}
[admin@tester:xxx]$
[admin@tester:xxx]$
[admin@tester:xxx]$
[admin@tester:xxx]$ python api.py CreateForwardEntry RegionId=cn-shanghai ForwardTableId=ftb-
11tc6xgmv ExternalIp=139.xxx.xx.79 ExternalPort=443 InternalIp=192.168.1.4 InternalPort=443
IpProtocol=TCP
=====Request URL=====
https://ecs.aliyuncs.com/?ExternalIp=139.xxx.xx.79&SignatureVersion=1.0&Format=json&TimeStamp=201
6-05-23T03%3A55%3A22Z&RegionId=cn-
shanghai&ExternalPort=443&InternalIp=192.168.1.4&Signature=X%2BZtHbTeKYf8xU%2FvWhPAMg%2B5s
cc%3D&AccessKeyId=jZgi0oyrQ6ihgKp9&ForwardTableId=ftb-11tc6xgmv&SignatureMethod=HMAC-
SHA1&Version=2014-05-26&IpProtocol=TCP&action=CreateForwardEntry&SignatureNonce=2c3f2573-
209a-11e6-be0f-2cf0ee28adf2&InternalPort=443
=====Request URL end=====

===== Got Response =====
{
  "ForwardEntryId": "fwd-11cdhpijk",
```

```

"RequestId": "260A9673-5522-4F66-844A-1F1AB47CD21C"
}
[admin@tester:xxx]$
[admin@tester:xxx]$
[admin@tester:xxx]$
[admin@tester:xxx]$ python api.py CreateForwardEntry RegionId=cn-shanghai ForwardTableId=ftb-11tc6xgmv ExternalIp=139.xxx.xx.59 ExternalPort=22 InternalIp=192.168.1.5 InternalPort=22 IpProtocol=TCP
=====Request URL=====
https://ecs.aliyuncs.com/?ExternalIp=139.xxx.xx.59&SignatureVersion=1.0&Format=json&TimeStamp=2016-05-23T03%3A55%3A44Z&RegionId=cn-shanghai&ExternalPort=22&InternalIp=192.168.1.5&Signature=%2FZWf5%2ForHr%2BUR446eEBLC4LNYe8%3D&AccessKeyId=jZgi0oyrQ6ihgKp9&ForwardTableId=ftb-11tc6xgmv&SignatureMethod=HMAC-SHA1&Version=2014-05-26&IpProtocol=TCP&action=CreateForwardEntry&SignatureNonce=39863cf3-209a-11e6-8f6d-2cf0ee28adf2&InternalPort=22
=====Request URL end=====

===== Got Response =====
{
  "ForwardEntryId": "fwd-11iv34uj7",
  "RequestId": "0884BC12-8EAD-4AAA-826E-30E5435D7C27"
}

```

调用DescribeForwardTableEntries接口查看已添加的DNAT条目。

API示例：

```

[admin@tester:xxx]$ python api.py DescribeForwardTableEntries RegionId=cn-shanghai ForwardTableId=ftb-11tc6xgmv
=====Request URL=====
https://ecs.aliyuncs.com/?SignatureVersion=1.0&Format=json&TimeStamp=2016-05-23T03%3A56%3A18Z&RegionId=cn-shanghai&AccessKeyId=jZgi0oyrQ6ihgKp9&ForwardTableId=ftb-11tc6xgmv&SignatureMethod=HMAC-SHA1&Version=2014-05-26&Signature=x4%2B6oNYxIRBmND8rcIbJM9EJ8ts%3D&action=DescribeForwardTableEntries&SignatureNonce=4db93223-209a-11e6-81eb-2cf0ee28adf2
=====Request URL end=====

===== Got Response =====
{
  "ForwardTableEntries": {
    "ForwardTableEntry": [
      {
        "ExternalIp": "139.xxx.xx.107",
        "ExternalPort": "any",
        "ForwardEntryId": "fwd-119smw5tk",
        "ForwardTableId": "ftb-11tc6xgmv",
        "InternalIp": "192.168.1.1",
        "InternalPort": "any",
        "IpProtocol": "any",
        "Status": "Available"
      },
      {
        "ExternalIp": "139.xxx.xx.79",
        "ExternalPort": "443",
        "ForwardEntryId": "fwd-11cdhpijk",

```



```
"ForwardTableId": "ftb-11tc6xgmv",
"InternalIp": "192.168.1.4",
"InternalPort": "443",
"IpProtocol": "tcp",
"Status": "Available"
},
{
  "ExternalIp": "139.xxx.xx.55",
  "ExternalPort": "any",
  "ForwardEntryId": "fwd-11dz3ly9l",
  "ForwardTableId": "ftb-11tc6xgmv",
  "InternalIp": "192.168.1.2",
  "InternalPort": "any",
  "IpProtocol": "any",
  "Status": "Available"
},
{
  "ExternalIp": "139.xxx.xx.59",
  "ExternalPort": "22",
  "ForwardEntryId": "fwd-11iv34uj7",
  "ForwardTableId": "ftb-11tc6xgmv",
  "InternalIp": "192.168.1.5",
  "InternalPort": "22",
  "IpProtocol": "tcp",
  "Status": "Available"
},
{
  "ExternalIp": "139.xxx.xx.79",
  "ExternalPort": "80",
  "ForwardEntryId": "fwd-11r23r7p5",
  "ForwardTableId": "ftb-11tc6xgmv",
  "InternalIp": "192.168.1.3",
  "InternalPort": "80",
  "IpProtocol": "tcp",
  "Status": "Available"
}
]
},
"PageNumber": 1,
"PageSize": 10,
"RequestId": "C84FDDCF-8550-4024-B89C-01E7459D7CF9",
"TotalCount": 5
}
```

其它相关操作

增加公网IP个数

当需要更多公网IP时，可以在共享带宽包中增加公网IP个数，并为这些新增加的公网IP添加DNAT规则。

您可以调用AddBandwidthPackageIps接口增加公网IP个数。

API示例：

```
[admin@tester:xxx]$ python api.py AddBandwidthPackageIps RegionId=cn-shanghai BandwidthPackageId=bwp-11odxu2k7 IpCount=6
=====Request URL=====
https://ecs.aliyuncs.com/?SignatureVersion=1.0&BandwidthPackageId=bwp-11odxu2k7&Format=json&TimeStamp=2016-05-23T03%3A58%3A18Z&RegionId=cn-shanghai&AccessKeyId=jZgi0oyrQ6ihgKp9&SignatureMethod=HMAC-SHA1&Version=2014-05-26&Signature=pSjC98nbDGgMl1tdjcXARIfW6t0%3D&action=AddBandwidthPackageIps&SignatureNonce=955c7d70-209a-11e6-907e-2cf0ee28adf2&IpCount=6
=====Request URL end=====

===== Got Response =====
{
  "RequestId": "EC0B5C51-7F40-44D6-A642-1DE764B547EC"
}
```

减少公网IP个数

当需要减少一些公网IP时，可以在共享带宽包中删除指定的公网IP。删除前，确保该IP没有被DNAT规则引用。如果有引用，需要先删除相应的DNAT规则。

您可以调用RemoveBandwidthPackageIps接口减少公网IP个数。

API示例：

```
[admin@tester:xxx]$ python api.py RemoveBandwidthPackageIps RegionId=cn-shanghai BandwidthPackageId=bwp-11odxu2k7 RemovedIpAddresses.1=nateip-1110a2l48 RemovedIpAddresses.2=nateip-11s2jempe
=====Request URL=====
https://ecs.aliyuncs.com/?RemovedIpAddresses.2=nateip-11s2jempe&SignatureVersion=1.0&BandwidthPackageId=bwp-11odxu2k7&Format=json&TimeStamp=2016-05-23T04%3A01%3A34Z&RegionId=cn-shanghai&RemovedIpAddresses.1=nateip-1110a2l48&AccessKeyId=jZgi0oyrQ6ihgKp9&SignatureMethod=HMAC-SHA1&Version=2014-05-26&Signature=l4NbMQD5X1xkLrgBZm34Aj4uwii%3D&action=RemoveBandwidthPackageIps&SignatureNonce=0a34f3f3-209b-11e6-b183-2cf0ee28adf2
=====Request URL end=====

===== Got Response =====
{
  "RequestId": "7D275A59-1EB0-4775-8A20-2A47055EAC5C"
}
```

临时增减带宽

随着业务压力的变化，在某些时候需要增减购买的带宽。

您可以调用ModifyBandwidthPackageSpec修改带宽。

API示例：

```
[admin@tester:xxx]$ python api.py ModifyBandwidthPackageSpec RegionId=cn-shanghai
BandwidthPackageId=bwp-11odxu2k7 Bandwidth=200
=====Request URL=====
https://ecs.aliyuncs.com/?SignatureVersion=1.0&BandwidthPackageId=bwp-
11odxu2k7&Format=json&TimeStamp=2016-05-23T04%3A03%3A08Z&RegionId=cn-
shanghai&Bandwidth=200&AccessKeyId=jZgi0oyrQ6ihgKp9&SignatureMethod=HMAC-SHA1&Version=2014-05-
26&Signature=tozPphaDTYvhOI%2Bw%2FJjw7WaPn70%3D&action=ModifyBandwidthPackageSpec&SignatureNon
ce=42429561-209b-11e6-b869-2cf0ee28adf2
=====Request URL end=====

===== Got Response =====
{
  "RequestId": "079874CD-AEC1-43E6-AC03-ADD96B6E4907"
}
```

如果您已经在VPC中基于ECS搭建了SNAT网关，又想将架构切换为基于NAT网关实现的SNAT，您可以将原有自建SNAT网关拆除，再进行NAT网关的创建和配置。但该操作会导致SNAT功能中断一段时间。

本文提供一种操作方法，利用路由表的一些特性（主要是“最长匹配原则”），实现从自建SNAT网关到阿里云NAT网关的无缝切换。切换过程中，不会出现SNAT功能不可用，仅在切换的一瞬间发生已有TCP连接的断开，只需应用进行重连即可。

应用场景

VPC中有两个ECS实例：

- i-9410jxxxx配置了自建的SNAT网关。这台ECS上绑定了一个EIP，并且开启了转发服务、配置了iptables规则以实现SNAT转发。
- i-94kjwxxxx为需要SNAT功能来访问互联网的服务器。

VPC的路由器上，添加了一条自定义路由（目标网段为0.0.0.0/0），将公网访问请求转发给i-9410jxxxx。

操作步骤

在VPC中添加8条路由条目，对原有路由进行覆盖。

路由条目的目标网段分别为1.0.0.0/8、2.0.0.0/7、4.0.0.0/6、8.0.0.0/5、16.0.0.0/4、32.0.0.0/3、64.0.0.0/2、128.0.0.0/1，下一跳均为i-9410jxxxx。

由于路由表按照最长匹配原则，会优先匹配子网掩码最长的路由条目；而去往任意IP地址的数据包，都会匹配到这8条中的一条；因此，0.0.0.0/0这条路由实际上已经不再有用了。

专有网络详情	路由器基本信息						编辑	^
	名称	-	ID	vrt-94ou	创建时间	2015-11-17 20:58:54		
	备注	-						
	路由条目列表							
	路由表ID	状态	目标网段	下一跳	下一跳类型	类型	操作	
	vtb-94dvtmqo8	可用	128.0.0.0/1	i-9410j	ECS 实例	自定义	删除	
	vtb-94dvtmqo8	可用	64.0.0.0/2	i-9410j	ECS 实例	自定义	删除	
	vtb-94dvtmqo8	可用	32.0.0.0/3	i-9410j	ECS 实例	自定义	删除	
	vtb-94dvtmqo8	可用	16.0.0.0/4	i-9410j	ECS 实例	自定义	删除	
	vtb-94dvtmqo8	可用	8.0.0.0/5	i-9410j	ECS 实例	自定义	删除	
路由器	vtb-94dvtmqo8	可用	4.0.0.0/6	i-9410j	ECS 实例	自定义	删除	
	vtb-94dvtmqo8	可用	2.0.0.0/7	i-9410j	ECS 实例	自定义	删除	
	vtb-94dvtmqo8	可用	1.0.0.0/8	i-9410j	ECS 实例	自定义	删除	
	vtb-94dvtmqo8	可用	0.0.0.0/0	i-9410j	ECS 实例	自定义	删除	
	vtb-94dvtmqo8	可用	172.1	-	-	系统	-	
	vtb-94dvtmqo8	可用	100.64.0.0/10	-	-	系统	-	
交换机								
高可用虚拟IP								

删除目标网段为0.0.0.0/0的路由条目。

创建NAT网关。创建NAT网关时，系统会自动添加一条0.0.0.0/0的路由，指向NAT网关。

路由条目列表							
路由表ID	状态	目标网段	下一跳	下一跳类型	类型	操作	
vtb-94dvtmqo8	可用	0.0.0.0/0	ngw-sc	-	自定义	删除	
vtb-94dvtmqo8	可用	128.0.0.0/1	i-9410jeo5i	ECS 实例	自定义	删除	
vtb-94dvtmqo8	可用	64.0.0.0/2	i-9410jeo5i	ECS 实例	自定义	删除	
vtb-94dvtmqo8	可用	32.0.0.0/3	i-9410jeo5i	ECS 实例	自定义	删除	

在NAT网关中，创建一个共享带宽包。

注意：确保NAT网关带宽包的带宽和自建NAT网关的带宽保持一致。因为只要在NAT网关添加了SNAT规则，SNAT规则中的ECS的出公网方向的流量就会受NAT网关带宽包带宽的限速。

配置SNAT规则。

删除VPC中添加的8条路由路由条目，使路由器把公网访问请求不再转发给自建SNAT，而是转发给NAT网关。

至此，已经完成了从自建SNAT网关到使用官方NAT网关的SNAT功能的全部切换流程。