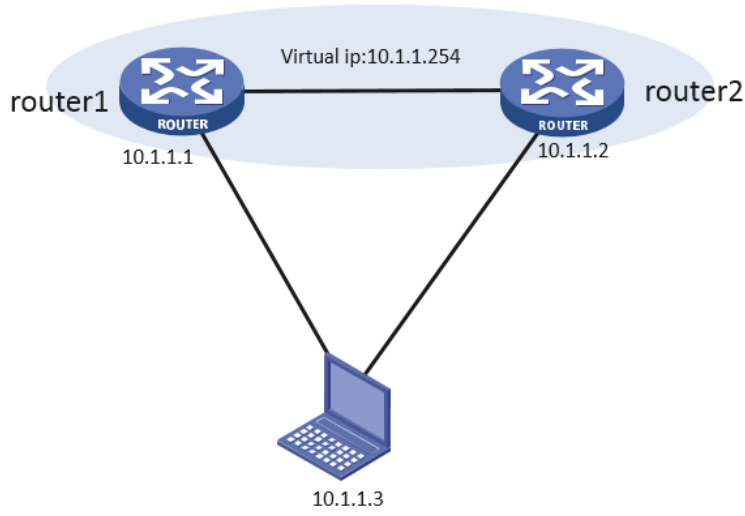


# 知 VRRP终端ping不通Virtual的虚网关IP地址

VRRP 郭尧 2021-11-30 发表

## 组网及说明



组网如图所示，两台路由器做VRRP，router1做主（10.1.1.1），router2做备（10.1.1.2），虚地址网关为10.1.1.254。

#### 问题描述

当router1做主设备时，终端只能ping通10.1.1.1实地址，ping不通254的虚地址网关，重启设备可恢复正常

## 过程分析

1. 查看设备vrrp详情: **display vrrp verbose** 看配置vrrp已生成的虚MAC地址。

```
[QingdaoTD-MSR3600]dis vrrp ver
```

IPv4 Virtual Router Information:

Running mode : Standard

Total number of virtual routers : 4

Interface Vlan-interface100

VRID : 100 Adver Timer : 100

Admin Status : Up State : Master

Config Pri : 100 Running Pri : 100

Preempt Mode : Yes Delay Time : 0

Auth Type : None

Virtual IP : 10.1.1.254 //虚拟IP地址

Virtual MAC : 0000-7c00-0127 //虚MAC地址

Master IP : 10.1.1.1

2. 终端ping10.1.1.254地址过程中, 在终端网卡抓包, 能够看到ARP请求报文, 但没有回应报文

No.	Time	Source	Destination	Protocol	Length	Info
55	72.942395	ac:95:0c:9b:01:06	Broadcast	ARP	42	Gratuitous ARP for 10.1.1.3 (Request)
56	72.942399	ac:95:0c:9b:01:06	Broadcast	ARP	42	Gratuitous ARP for 10.1.1.3 (Request)
62	77.720844	ac:95:0c:9b:01:06	Broadcast	ARP	42	Gratuitous ARP for 10.1.1.3 (Request)
63	77.720821	ac:95:0c:9b:01:06	Broadcast	ARP	42	Gratuitous ARP for 10.1.1.3 (Request)
77	89.308049	ac:95:0c:9b:01:06	Broadcast	ARP	42	42 Who has 10.1.1.254? Tell 10.1.1.3
78	89.763266	ac:95:0c:9b:01:06	Broadcast	ARP	42	42 Who has 10.1.1.254? Tell 10.1.1.3
81	90.765393	ac:95:0c:9b:01:06	Broadcast	ARP	42	42 Who has 10.1.1.254? Tell 10.1.1.3

3. 进入probe隐藏视图, 用命令行查看: **display hardware internal physical lsw mactable 0** 确认上面配置的虚MAC是否成功下发到设备的硬件中。

```
[QingdaoTD-MSR3600-probe]display hardware internal physical lsw
```

```
mactable 0
```

```
MAC Address Vlan Ifindex Status Trunk ChipBmp
```

```
384c-ad4d-ca2d 100 5 00000010 -1 00000000
```

```
7162-3e14-541c 100 0 80000000 -1 00000000
```

```
7162-3e14-541c 101 0 80000000 -1 00000000
```

```
7162-3e14-541c 102 0 80000000 -1 00000000
```

```
7162-3e14-541c 201 0 80000000 -1 00000000
```

```
7162-3e14-541c 300 0 80000000 -1 00000000 //注意: 0000-7c00-0127 这个虚MAC地址
```

并不在这个表中, 说明下发失败

4. 打印debug底层信息, 可确认虚MAC是否下发失败, 进一步获得分析资料。

方法: 打开如下debug, 然后进行vrrp的主备切换操作。

```
[QingdaoTD-MSR3600 -probe]debugging physical lsw 0 mac all
```

```
< QingdaoTD-MSR3600 >t d
```

```
< QingdaoTD-MSR3600 >t m
```

显示内容如下:

.....

```
*Jan 1 08:26:37:517 2011 SXYC-TY-ChaiCun-MSR3600-51_GL LSWDBG/7/debugging: MACM_EV  
T(LSW_MACM_AddAddr: L4865): ifIndex=0x0, usVlanID=100, uiStatus=0x80000000, pucMacAddr=  
0000-7c00-0127 .
```

```
*Jan 1 08:26:37:517 2011 SXYC-TY-ChaiCun-MSR3600-51_GL LSWDBG/7/debugging: MACM_EV  
T(MACM_BCM53X_AddBlackholeOrCPUAddrToChip: L219): BCM53X add blackhole or cpu mac ad  
dress to chip,  
chip no 2 vlan id 100 mac status 2147483648 mac address 0000-7c00-0127 .
```

```
*Jan 1 08:26:37:518 2011 SXYC-TY-ChaiCun-MSR3600-51_GL LSWDBG/7/debugging: MACM_EV  
T(MACM_BCM53X_AddBlackholeOrCPUAddrToChip: L256): BCM53X add blackhole or cpu mac ad  
dress to chip failed,  
chip no 2 vlan id 100 mac status 2147483648 mac address 0000-7c00-0127 , return ERROR_NO_  
ENOUGH_RESOURCE. //提示资源不足
```

.....

后续分析发现, 客户当前的配置vrrp ID 与 VLAN 虚接口生成的虚MAC地址与设备中MAC地址冲突, 导致下发失败。从而导致了问题现象。

```
[QingdaoTD-MSR3600 ]display interface Vlan-interface 100
```

```
Vlan-interface1
```

```
Current state: UP
```

```
Line protocol state: UP
```

Description: Vlan-interface100 Interface

Bandwidth: 100000 kbps

Maximum transmission unit: 1500

把ID号改为200:  
Internet protocol processing: Disabled  
[Clingdao1D-MSR3600-Vlan-interface100]vrrp vrid 200 virtual-ip 10.1.1.254  
Interface Vlan-interface100 description  
Virtual Router Information:

Running mode: Standard

把ID号改为200:  
Total number of virtual routers : 4

Interface Vlan-interface100  
[Clingdao1D-MSR3600-Vlan-interface100]vrrp vrid 200 virtual-ip 10.1.1.254

VRRP ID : 200 Adver Timer : 100

Auth Type : None

Virtual Router Information:

Running mode : Standard

Total number of virtual routers : 4 //虚MAC地址已经修改。

Master IP : 10.1.1.100

修改后可以重新查看确认一下相关信息。  
[h3c-probe]display hardware internal physical lsw mactable 0

Auth type : None

MAC Address : Vlan Ifindex Status Trunk ChipBmp  
Virtual IP : 10.1.1.254  
Virtual MAC : 0000-7c00-0129 100 0 80000000 -1 00000000 //虚MAC地址已经修改。 虚MAC地址0000-5e00-01c8

下发成功  
Master IP : 10.1.1.1

修改后可以重新查看确认一下相关信息。  
[h3c-probe]display hardware internal physical lsw mactable 0

MAC Address Vlan Ifindex Status Trunk ChipBmp

0000-7c00-0129 100 0 80000000 -1 00000000 // 虚MAC地址0000-5e00-01c8

下发成功

7162-3e14-541c 100 5 00000010 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

7162-3e14-541c 100 0 80000000 -1 00000000

<zhangli>ping -a 10.1.1.3 10.1.1.254

Ping 10.1.1.254 ( 10.1.1.254 ) from 10.1.1.3 : 56 data bytes, press CTRL\_C to

break

56 bytes from 10.1.1.254 : icmp\_seq=0 ttl=255 time=0.580 ms //ping通虚拟网关地址。

