

## 知 某局点S7506E设备VRF接口和普通接口互通异常经验案例

MCE 静态ARP 徐猛 2019-01-02 发表

### 组网及说明

现场连接拓扑如下，使用1/6/0/41接口和1/6/0/42接口互连，其中1/6/0/42接口下绑定了VPN实例，实例名为VRF。

(本案例为保护隐私，将地址部分信息进行了隐匿，请知悉)



### 问题描述

S7506E上两个三层接口，一个接口加入vpn实例，一个接口不加vpn实例，互联ping不通。查看设备接口都无法学习到对端接口的arp信息。

现场使用聚合口和单接口对接场景都是这种现象：

之前使用聚合口对接：

RAGG878---RAGG879

现在使用单接口对接：

1/6/0/41---1/6/0/42

### 过程分析

1.首先检查两端接口的配置信息如下，检查配置都正常：

```
#
interface GigabitEthernet1/6/0/41
port link-mode route
ip address *.240.128.153 255.255.255.248
#
interface GigabitEthernet1/6/0/42
port link-mode route
ip binding vpn-instance VRF
ip address *.240.128.154 255.255.255.248
#
```

2.查看下两端接口是否能正常up，查看接口信息如下，可以发现接口地址以及接口状态都是正常：

```
=====display interface brief=====
Brief information on interfaces in route mode:
Link: ADM - administratively down; Stby - standby
Protocol: (s) - spoofing
Interface      Link Protocol Primary IP   Description
GE1/6/0/41    UP  UP    *.240.128.153
GE1/6/0/42    UP  UP    *.240.128.154
```

3.查看ping测试情况如下，两端互ping异常，都无法互通：

```
ping -a *.240.128.153 *.240.128.154
Ping *.240.128.154 (*.240.128.154) from *.240.128.153: 56 data bytes, press CTRL_C to break
Request time out
Request time out
Request time out
Request time out
Request time out
```

```
ping -vpn-instance VRF *.240.128.153
Ping *.240.128.153 (*.240.128.153): 56 data bytes, press CTRL_C to break
Request time out
Request time out
Request time out
Request time out
Request time out
```

4.检查ARP表项，无论是全局ARP表项还是vpn实例ARP表项都没有对段接口的ARP表项。后来查看接口详细信息如下：

```
GigabitEthernet1/6/0/41
Current state: UP
Line protocol state: UP
Internet address: 36.240.128.153/29 (primary)
IP packet frame type: Ethernet II, hardware address: ac74-098c-a801
```

```
GigabitEthernet1/6/0/42
Current state: UP
Line protocol state: UP
Internet address: 36.240.128.154/29 (primary)
IP packet frame type: Ethernet II, hardware address: ac74-098c-a801
```

经查看接口详细信息发现，两个互通的接口的MAC地址是相同的，后续和产品线工程师进行确认，7500E系列的设备的接口的mac地址是一样的，这样的话，设备收到arp请求报文时，如果源MAC为自身接口MAC,不会学习ARP。故导致ping不通的情况产生。

#### 解决方法

后与产品线工程师确认，可以考虑使用配置静态arp方法。另外在端口上配置关闭报文入接口与静态MAC地址表项匹配检查功能（undo mac-address static source-check enable）。下面提供下使用vlan虚接口互通以及使用三层物理口互通的场景下的配置实现方式案例，并分别进行下说明：

(1) 使用vlan虚接口互通时，具体配置如下：

```
#
interface Vlan-interface10
ip address 10.0.0.1 255.0.0.0
#
interface GigabitEthernet1/1/0/22
port link-mode bridge
port access vlan 10
undo mac-address static source-check enable
#
interface Vlan-interface11
ip binding vpn-instance vpna
ip address 10.0.0.2 255.0.0.0
#
interface GigabitEthernet1/1/0/24
port link-mode bridge
port access vlan 11
undo mac-address static source-check enable
#
ip vpn-instance vpna
route-distinguisher 100:1
#
arp static 10.0.0.2 0000-fc00-3a7b 10 GigabitEthernet1/1/0/22
arp static 10.0.0.1 0000-fc00-3a7b 11 GigabitEthernet1/1/0/24 vpn-instance vpna
```

[HP]dis arp

Type: S-Static D-Dynamic O-Openflow R-Rule M-Multiport I-Invalid

IP address	MAC address	VLAN/VSI	Interface	Aging	Type
10.0.0.2	0000-fc00-3a7b 10		GE1/1/0/22	--	S
10.0.0.1	0000-fc00-3a7b 11		GE1/1/0/24	--	S

```
[HP]ping 10.0.0.2
Ping 10.0.0.2 (10.0.0.2): 56 data bytes, press CTRL+C to break
```

```
56 bytes from 10.0.0.2: icmp_seq=0 ttl=255 time=3.973 ms
```

```
56 bytes from 10.0.0.2: icmp_seq=1 ttl=255 time=8.011 ms
```

```
[HP]ping -vpn-instance vpna -a 10.0.0.2 10.0.0.1
Ping 10.0.0.1 (10.0.0.1) from 10.0.0.2: 56 data bytes, press CTRL+C to break
```

```
56 bytes from 10.0.0.1: icmp_seq=0 ttl=255 time=3.930 ms
```

```
56 bytes from 10.0.0.1: icmp_seq=1 ttl=255 time=4.330 ms
```

(2) 使用三层物理口互通时，具体配置方式如下：

```
#
interface GigabitEthernet2/3/0/19
port link-mode route
combo enable copper
ip address 10.10.10.20 255.255.255.0
undo mac-address static source-check enable
#
interface GigabitEthernet2/3/0/20
port link-mode route
combo enable copper
ip binding vpn-instance xumeng
ip address 10.10.10.10 255.255.255.0
undo mac-address static source-check enable
#
ip vpn-instance xumeng
route-distinguisher 100:1
#
arp static 10.10.10.10 5cdd-704f-113d
arp static 10.10.10.20 5cdd-704f-113d vpn-instance xumeng
#
[S105-1]ping -a 10.10.10.20 10.10.10.10
Ping 10.10.10.10 (10.10.10.10) from 10.10.10.20: 56 data bytes, press CTRL_C to break
56 bytes from 10.10.10.10: icmp_seq=0 ttl=255 time=3.151 ms
56 bytes from 10.10.10.10: icmp_seq=1 ttl=255 time=2.746 ms
56 bytes from 10.10.10.10: icmp_seq=2 ttl=255 time=2.429 ms
56 bytes from 10.10.10.10: icmp_seq=3 ttl=255 time=2.416 ms
56 bytes from 10.10.10.10: icmp_seq=4 ttl=255 time=2.833 ms

[S105-1]ping -vpn-instance xumeng -a 10.10.10.10 10.10.10.20 //vpn始发流量
Ping 10.10.10.20 (10.10.10.20) from 10.10.10.10: 56 data bytes, press CTRL_C to break
56 bytes from 10.10.10.20: icmp_seq=0 ttl=255 time=2.930 ms
56 bytes from 10.10.10.20: icmp_seq=1 ttl=255 time=2.480 ms
56 bytes from 10.10.10.20: icmp_seq=2 ttl=255 time=2.462 ms
56 bytes from 10.10.10.20: icmp_seq=3 ttl=255 time=2.616 ms
56 bytes from 10.10.10.20: icmp_seq=4 ttl=255 time=2.363 ms
```