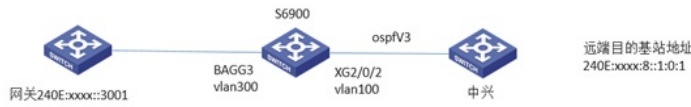


知 S6900交换机ipv6路由不生效经验案例

IPv6 孙兆强 2020-08-19 发表

组网及说明



6900和中心设备之间跑ospfv3。到网关为静态路由指定。

问题描述

用户在网关设备上ping远端基站目的地址不通，在s6900上查看IPV6路由正常。

=====display ipv6 routing-table=====

```
Destination: ::/0                    Protocol : O_ASE2  
NextHop : FE80::D6C1:C8FF:FE8E:DCB0      Preference: 150  
Interface : Vlan100                    Cost : 1
```

```
Destination: 240E:xxxx::3000/119            Protocol : O_SUM  
NextHop : ::                          Preference: 255  
Interface : NULL0                      Cost : 0
```

```
Destination: 240E:xxxx::3000/122            Protocol : Static  
NextHop : 240E:xxxx::30E1                Preference: 60  
Interface : Vlan300                    Cost : 0
```

过程分析

在设备上流量统计，发现流量在6900和中心交换机之间不断的来回转发。

Interface: Ten-GigabitEthernet2/0/2 //上行口

```
Direction: Inbound  
Policy: test  
Classifier: test  
Operator: AND  
Rule(s):  
If-match acl ipv6 3200  
Behavior: test  
Accounting enable:  
160 (Packets)
```

Interface: Ten-GigabitEthernet2/0/2 //上行口

```
Direction: Outbound  
Policy: test  
Classifier: test  
Operator: AND  
Rule(s):  
If-match acl ipv6 3200  
Behavior: test  
Accounting enable:  
160 (Packets)
```

Interface: Ten-GigabitEthernet2/0/3 //下行口

```
Direction: Inbound  
Policy: test  
Classifier: test  
Operator: AND  
Rule(s):  
If-match acl ipv6 3200  
Behavior: test  
Accounting enable:  
5 (Packets)
```

在6900的上行口抓包，发现流量回来后本应发到网关的流量被6900又发回中兴了。

Source	Destination	Protocol	Length	Info
240e:186::3001	240e::8:1:10:1	ICMPv6	114	Echo (ping) request id=0x17fa, seq=1, hop limit=254 (reply in 22862)
240e:186:8:1:10:1	240e::3001	ICMPv6	114	Echo (ping) reply id=0x17fa, seq=1, hop limit=63 (request in 22861)
240e:186:8:1:10:1	240e::3001	ICMPv6	114	Echo (ping) reply id=0x17fa, seq=1, hop limit=62
240e:186:8:1:10:1	240e::3001	ICMPv6	114	Echo (ping) reply id=0x17fa, seq=1, hop limit=61
240e:186:8:1:10:1	240e::3001	ICMPv6	114	Echo (ping) reply id=0x17fa, seq=1, hop limit=60
240e:186:8:1:10:1	240e::3001	ICMPv6	114	Echo (ping) reply id=0x17fa, seq=1, hop limit=59
240e:186:8:1:10:1	240e::3001	ICMPv6	114	Echo (ping) reply id=0x17fa, seq=1, hop limit=58
240e:186:8:1:10:1	240e::3001	ICMPv6	114	Echo (ping) reply id=0x17fa, seq=2, hop limit=3
240e:186:8:1:10:1	240e::3001	ICMPv6	114	Echo (ping) reply id=0x17fa, seq=2, hop limit=2
240e:186:8:1:10:1	240e::3001	ICMPv6	114	Echo (ping) reply id=0x17fa, seq=2, hop limit=1
240e:186::3203	240e::8:1:10:1	ICMPv6	162	Time Exceeded (hop limit exceeded in transit)

查看芯片底层的路由表项

```
[6900-probe]debug ipv6-drv show route 0 240E:186::3001 slot 2
```

```
*****
- IPv6 Route Information      Slot 2
*****
- uiMask=112 is bigger than 64!
-----
```

提示路由掩码大于64没有下发到芯片底层。而默认路由是小于64位的，在底层是会下发的，所以报文回到到交换机后，三层转发匹配默认路由又扔回中兴设备。

```
[6900-probe]debug ipv6-drv show route 0 0::0 slot 2
```

```
*****
- IPv6 Route Information      Slot 2
*****
--- UNIT: 0 ---
- IPv6 ADDR:      0000:0000:0000:0000:0000:0000:0000:0000
- VRF:            0
- MASKLEN:       0
- EGRESS ID:     100015
- FLAGS:        0x20000
- PRI:          0
- CLASS ID:     32
- HWINDEX:     7173
- TUNNEL OPT:   0
- HITBIT:      NO
-----
- EGRESS NUM:    0
- EGRESS FLAGS: 0x0
- INTF NUM:     7
- MAC ADDR:     d4c1-c88e-dc90
- VLAN:        100
- DMOD:        66
- DPORT:       49
- TRUNK:       0
-----
```

解决方法

通过命令 `hardware-resource routing-mode { ipv6-64 | ipv6-128 }` 修改设备支持大于64位掩码的 ipv6 路由。此命令需要重启设备才能生效。

可以通过如下命令查看是否支持大于64位掩码的 ipv6 路由

显示前缀大于64位的 IPv6 路由功能的支持情况。

```
display hardware-resource routing-mode
```

Routing-mode resource(routing-mode), all supported modes:

```
ipv6-64      ipv6-64 supported
ipv6-128     ipv6-128 supported
```

```
-----
Default      Current      Next
ipv6-64      ipv6-128     ipv6-128
```