# The problem that the S7503E-M as an intermediate device fails to pass the Layer 2 mirrored traffic

Switches VLAN QinQ 二层转发 **周天** 2020-06-01 Published

## Network Topology


On the Layer 2 network, Huawei equipment performs local mirroring, and throws mobile DNS traffic di rectly to our switch through the local mirror. Our switch acts as an intermediate device for pure Layer 2 forwarding. The mobile engineer stated: 1. The mirror source interface of the mobile party is a Layer 3 port. 2. The monitoring port of the mobile party (that is, the port connected to the S75 switch) is a Layer 2 port and is an access port. The vlan is a local vlan of Huawei"s own, so the traffic should be u ntagged.

## Problem Description

At this time, Layer 2 traffic cannot pass through S75. Check the interface count. There is a lot of traffi c on the inbound interface, but the outbound interface traffic is very small.

<YD-JZ-HJSW-2>dis counters inbound interface gi 0/0/1

| Interface | Total (pkts) | Broadcast (pkts) | Multicast (pkts) | Err (pkts) |
|---|---|---|---|---|
| GE0/0/1 | 1154698 | 0 | 9 | 0 |

Overflow: More than 14 digits (7 digits for column "Err").

--: Not supported.

<YD-JZ-HJSW-2>dis counters outbound interface ten 0/0/25

| Interface | Total (pkts) | Broadcast (pkts) | Multicast (pkts) | Err (pkts) |
|---|---|---|---|---|
| XGE0/0/25 | 102107 | 24 | 95 | 0 |

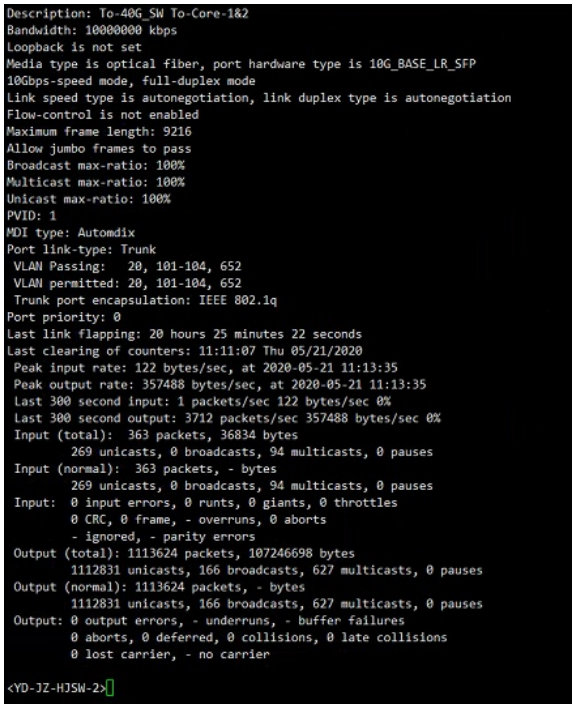
Overflow: More than 14 digits (7 digits for column "Err").

--: Not supported.

GE0/0/1(in)

```
IP packet frame type: Ethernet II, hardware address: 7485-c4ef-7400
Description: To-YD-JZ-DNS01
Bandwidth: 1000000 kbps
Loopback is not set
Media type is twisted pair, port hardware type is 1000_BASE_T
1000Mbps-speed mode, full-duplex mode
Link speed type is autonegotiation, link duplex type is autonegotiation
Flow-control is not enabled
Maximum frame length: 9216
Allow jumbo frames to pass
Broadcast max-ratio: 100%
Multicast max-ratio: 100%
Unicast max-ratio: 100%
PVID: 101
MDI type: Automdix
Port link-type: Access
 Tagged VLANs:   None
 Untagged VLANs: 101
Port priority: 0
Last link flapping: 21 hours 12 minutes 2 seconds
Last clearing of counters: 11:11:06 Thu 05/21/2020
 Peak input rate: 1850439 bytes/sec, at 2020-05-21 11:12:19
 Peak output rate: 16 bytes/sec, at 2020-05-21 11:12:19
 Last 300 second input: 13455 packets/sec 1850439 bytes/sec 1%
 Last 300 second output: 0 packets/sec 16 bytes/sec 0%
 Input (total):  4162278 packets, 572584330 bytes
         4162236 unicasts, 1 broadcasts, 35 multicasts, 0 pauses
 Input (normal):  4162272 packets, - bytes
         4162236 unicasts, 1 broadcasts, 35 multicasts, 0 pauses
 Input:  0 input errors, 0 runts, 0 giants, 0 throttles
         0 CRC, 0 frame, - overruns, 0 aborts
         - ignored, - parity errors
 Output (total): 39 packets, 5201 bytes
         0 unicasts, 0 broadcasts, 39 multicasts, 0 pauses
 Output (normal): 39 packets, - bytes
         0 unicasts, 0 broadcasts, 39 multicasts, 0 pauses
 Output: 0 output errors, - underruns, - buffer failures
         0 aborts, 0 deferred, 0 collisions, 0 late collisions
         0 lost carrier, - no carrier
```

XGE0/0/25(out)




## Process Analysis

First check the configuration under the device interface is a simple Layer 2 forwarding configuration, tr affic flooded in vlan101.

```
#
interface GigabitEthernet0/0/1
 port link-mode bridge
 description To-YD-JZ-DNS01
 port access vlan 101
#
interface Ten-GigabitEthernet0/0/25
 port link-mode bridge
 description To-40G_SW To-Core-1&2
 port link-type trunk
 undo port trunk permit vlan 1
 port trunk permit vlan 20 101 to 104 652
#
```

Secondly, use the debug port flow-info slot 0 command to view the incremental traffic changes. You c an see that the packets in the inbound direction of 0/0/1 are much larger than the packets in the outbound direction of 0/0/25, and the packet is not forwarded. Packets may be dropped on the S75 s witch.

inbound

```
[YD-JZ-HJSW-2-probe]debug port flow-info  slot 0

PORT MATRIX:
Interface Link Input(bytes/s) Input(packets/s) Output(bytes/s) Output(packets/s)
================================================================================
GE0/0/1      up   8550314        57694          71             0
GE0/0/2      up   6977150        48078          71             0
GE0/0/3      up   3640781        23886          71             0
GE0/0/4      up   3167084        21009          71             0
GE0/0/5      down 0              0              0              0
GE0/0/6      up   4              0              71             0
GE0/0/7      up   779766         6923           807520         6923
GE0/0/8      down 0              0              0              0
GE0/0/9      up   0              0              179934         123
GE0/0/10     down 0              0              0              0
GE0/0/11     down 0              0              0              0
GE0/0/12     down 0              0              0              0
GE0/0/13     up   0              0              79             0
GE0/0/14     up   6              0              72             0
GE0/0/15     down 0              0              0              0
GE0/0/16     down 0              0              0              0
GE0/0/17     down 0              0              0              0
GE0/0/18     down 0              0              0              0
GE0/0/19     down 0              0              0              0
[YD-JZ-HJSW-2-probe]debug port flow-info  slot 0

PORT MATRIX:
Interface Link Input(bytes/s) Input(packets/s) Output(bytes/s) Output(packets/s)
================================================================================
GE0/0/1      up   8540214        57683          72             0
GE0/0/2      up   6977787        48051          72             0
GE0/0/3      up   3635822        23851          72             0
GE0/0/4      up   3192491        21003          72             0
```

outbound

```
GE0/0/22     down 0              0              0              0
GE0/0/23     down 0              0              0              0
GE0/0/24     up   738615         6071           738615         6071
XGE0/0/25    up   187            1              738854         6072
XGE0/0/26    up   1              0              76             0
XGE0/0/27    up   180320         123            72             0
XGE0/0/28    down 0              0              0              0

[YD-JZ-HJSW-2-probe]debug port flow-info  slot 0

PORT MATRIX:
Interface Link Input(bytes/s) Input(packets/s) Output(bytes/s) Output(packets/s)
================================================================================
GE0/0/1      up   8495651        57830          73             0
GE0/0/2      up   7043647        48051          73             0
GE0/0/3      up   3634485        24025          72             0
GE0/0/4      up   3252807        21163          73             0
GE0/0/5      down 0              0              0              0
GE0/0/6      up   4              0              71             0
GE0/0/7      up   713734         6064           738052         6064
GE0/0/8      down 0              0              0              0
GE0/0/9      up   0              0              180429         124
GE0/0/10     down 0              0              0              0
GE0/0/11     down 0              0              0              0
GE0/0/12     down 0              0              0              0
GE0/0/13     up   0              0              79             0
GE0/0/14     up   6              0              72             0
GE0/0/15     down 0              0              0              0
GE0/0/16     down 0              0              0              0
GE0/0/17     down 0              0              0              0
GE0/0/18     down 0              0              0              0
GE0/0/19     down 0              0              0              0
GE0/0/20     down 0              0              0              0
GE0/0/21     down 0              0              0              0
GE0/0/22     down 0              0              0              0
GE0/0/23     down 0              0              0              0
GE0/0/24     up   738002         6064           738002         6064
XGE0/0/25    up   196            1              738323         6066
XGE0/0/26    up   1              0              76             0
XGE0/0/27    up   180369         123            72             0
XGE0/0/28    down 0              0              0              0
```

It is suspected that the reason is that the layer 2 traffic carries the vlan tag. Although the Huawei devi ce indicates that it is thrown to our S75E G0/0/1 interface to the traffic without carrying the vlan-tag, it is received from our device ge1 (G0 / 0/1) chip. According to the statistics of the received packets, a l arge number of vlan-tag packets were received.

UC_PERQ_BYTE(7).ge0:  2,023,941  +2,023,941  131/s
RUC.ge1  :  1,409,965,854  +1,237,338,671  61,335/s
RDBGC3.ge1  :  1,409,976,359  +1,237,347,910  61,335/s
RDBGC8.ge1  :  1,409,976,358  +1,237,347,909  61,335/s
ING_NIV_RX_FRAMES_VLAN_TAGGED.ge1:  1,409,976,358  +1,237,347,909  61,335/s  //Count of TAG packets received on the port
R64.ge1  :  189,608  +164,997  3/s
R127.ge1  :  831,165,610  +731,516,945  35,010/s
R255.ge1  :  456,778,664  +398,236,914  19,650/s
R511.ge1  :  107,757,150  +94,497,804  6,565/s
R1023.ge1  :  3,481,027  +3,038,954  96/s
R1518.ge1  :  147,305  +137,589  3/s

Therefore, Huawei devices use Layer 3 ports as mirror source ports to send mirror packets that also c arry vlan tags.

## Solution

The QinQ function is implemented on the S75 switch. When the message enters the S75 switch port, because qinq will be marked with an outer tag, the tagged message will be released by the port. The l abel is peeled off.