



MSR56 OSPF邻居停留在init状态较长时间

OSPF

王科

2022-02-22 发表

组网及说明

组网: MSR5660 (2/3/2)----8M MSTP专线 (过传输) ---- (3/2/6)SR6604

问题描述

两端ospf邻居报DeadInterval timer expired (这个是传输问题，两端设备的入接口下都有CRC，需联系运营商排查)。此时，SR66侧OSPF直接由full变为down，LLDP也是马上超时。但MSR56侧OSPF状态由FULL变为INIT状态，且持续了2小时左右，并且LLDP也是2小时左右后才报超时日志的。

SR66:

```
%Jan 27 20:06:31:165 2022 DHJ-WAN-RT-6604-02 OSPF/6/OSPF_LAST_NBR_DOWN: OSPF 10255 Last neighbor down event: Router ID: 10.216.0.2 Local address: 10.248.250.217 Remote address: 10.248.250.218 Reason: DeadInterval timer expired.
```

```
%Jan 27 20:06:31:165 2022 DHJ-WAN-RT-6604-02 OSPF/5/OSPF_NBR_CHG: OSPF 10255 Neighbor 10.248.250.218(GigabitEthernet3/2/6) changed from FULL to DOWN.
```

```
%Jan 27 20:07:39:276 2022 DHJ-WAN-RT-6604-02 LLDP/5/LLDP_NEIGHBOR_AGE_OUT: -Slot=3; Nearest bridge agent neighbor aged out on port GigabitEthernet3/2/6 (IfIndex 1095), neighbor's chassis ID is 9429-2fd3-82b0, port ID is GigabitEthernet2/3/2.
```

MSR56:

```
%Jan 27 20:06:34:167 2022 KF-RT-MSR5660-02 OSPF/5/OSPF_NBR_CHG: OSPF 10255 Neighbor 10.248.250.217(GigabitEthernet2/3/2) changed from FULL to INIT.
```

```
%Jan 27 22:49:54:549 2022 KF-RT-MSR5660-02 OSPF/6/OSPF_LAST_NBR_DOWN: OSPF 10255 Last neighbor down event: Router ID: 10.248.255.3 Local address: 10.248.250.218 Remote address: 10.248.250.217 Reason: DeadInterval timer expired.
```

```
%Jan 27 22:49:54:549 2022 KF-RT-MSR5660-02 OSPF/5/OSPF_NBR_CHG: OSPF 10255 Neighbor 10.248.250.217(GigabitEthernet2/3/2) changed from INIT to DOWN.
```

#

```
ospf 10255 router-id 10.216.0.2
```

```
area 0.0.0.216
```

```
network 10.216.0.2 0.0.0.0
```

```
network 10.216.0.10 0.0.0.0
```

```
network 10.216.0.25 0.0.0.0
```

```
network 10.248.250.218 0.0.0.0
```

```
network 10.248.250.222 0.0.0.0
```

```
network 10.248.250.226 0.0.0.0
```

#

```
interface GigabitEthernet2/3/2
```

```
port link-mode route
```

```
bandwidth 8000
```

```
ip address 10.248.250.218 255.255.255.252
```

```
ospf network-type p2p
```

```
packet-filter 3011 outbound
```

#

过程分析

- 故障现象发生在27日20:06:34, MSR56侧OSPF邻居full->init, SR66侧OSPF邻居full->down。
- SR66邻居由full至down, 是因为超过4个hello间隔没有收到来自MSR56的hello, 保活超时, 判断依据为下面日志。
%Jan 27 20:06:31:165 2022 DHJ-WAN-RT-6604-02 OSPF/6/OSPF_LAST_NBR_DOWN: OSPF 10255 Last neighbor down event: Router ID: 10.216.0.2 Local address: 10.248.250.217 Remote address: 10.248.250.218 Reason: DeadInterval timer expired.
%Jan 27 20:06:31:165 2022 DHJ-WAN-RT-6604-02 OSPF/5/OSPF_NBR_CHG: OSPF 10255 Neighbor 10.248.250.218(GigabitEthernet3/2/6) changed from FULL to DOWN.
- 之后SR66会继续发hello, hello中本地router id正常携带, neighbor id为0.0.0.0。MSR56收到该hello后, 看到其中neighbor id非MSR56 router id, 因此MSR56邻居full->init。
%Jan 27 20:06:34:167 2022 KF-RT-MSR5660-02 OSPF/5/OSPF_NBR_CHG: OSPF 10255 Neighbor 10.248.250.217(GigabitEthernet2/3/2) changed from FULL to INIT.
- 从上述现象分析, **故障时间点MSR56至SR66方向不通, SR66至MSR56方向通**。从线路异常至SR66侧OSPF down, 时间为30-40s之间。

MSR56:

- 至22:49:54, MSR56侧OSPF邻居init->down, 说明此时SR66至MSR56方向也不通了, MSR56收不到hello持续4个hello间隔后, 邻居down。
%Jan 27 22:49:54:549 2022 KF-RT-MSR5660-02 OSPF/5/OSPF_NBR_CHG: OSPF 10255 Neighbor 10.248.250.217(GigabitEthernet2/3/2) changed from INIT to DOWN.
- 之后MSR56侧有数次init->down, 说明期间SR66至MSR56方向时通时断, 通时MSR56邻居init, 断时邻居down。
%Jan 27 22:52:44:549 2022 KF-RT-MSR5660-02 OSPF/5/OSPF_NBR_CHG: OSPF 10255 Neighbor 10.248.250.217(GigabitEthernet2/3/2) changed from INIT to DOWN.
%Jan 27 22:53:54:549 2022 KF-RT-MSR5660-02 OSPF/5/OSPF_NBR_CHG: OSPF 10255 Neighbor 10.248.250.217(GigabitEthernet2/3/2) changed from INIT to DOWN.
%Jan 27 23:02:44:549 2022 KF-RT-MSR5660-02 OSPF/5/OSPF_NBR_CHG: OSPF 10255 Neighbor 10.248.250.217(GigabitEthernet2/3/2) changed from INIT to DOWN.
- 至23:35:44, MSR56侧OSPF邻居full。
%Jan 27 23:35:44:244 2022 KF-RT-MSR5660-02 OSPF/5/OSPF_NBR_CHG: OSPF 10255 Neighbor 10.248.250.217(GigabitEthernet2/3/2) changed from LOADING to FULL.

SR66:

- 对应SR66侧日志, 23:33:21邻居init->down, 说明此前MSR56到SR66方向通过, SR66收到了来自MSR56的hello, 但neighbor为空, 因此邻居init。23:33:21, MSR56至SR66方向再次不通, SR66邻居init->down。
%Jan 27 23:33:21:165 2022 DHJ-WAN-RT-6604-02 OSPF/5/OSPF_NBR_CHG: OSPF 10255 Neighbor 10.248.250.218(GigabitEthernet3/2/6) changed from INIT to DOWN.
%Jan 27 23:35:11:165 2022 DHJ-WAN-RT-6604-02 OSPF/6/OSPF_LAST_NBR_DOWN: OSPF 10255 Last neighbor down event: Router ID: 10.216.0.2 Local address: 10.248.250.217 Remote address: 10.248.250.218 Reason: DeadInterval timer expired.
%Jan 27 23:35:11:165 2022 DHJ-WAN-RT-6604-02 OSPF/5/OSPF_NBR_CHG: OSPF 10255 Neighbor 10.248.250.218(GigabitEthernet3/2/6) changed from INIT to DOWN.
- 至23:35:44, 两个方向都恢复互通, 邻居full。
%Jan 27 23:35:44:246 2022 DHJ-WAN-RT-6604-02 OSPF/5/OSPF_NBR_CHG: OSPF 10255 Neighbor 10.248.250.218(GigabitEthernet3/2/6) changed from LOADING to FULL.
- 从线路恢复至OSPF p2p邻居full, 需要数秒时间。OSPF路由收敛速度取决于路由量, 现网设备路由数量1k以下, 收敛时间也在秒级。

查看两端设备诊断, 两端接口均没有发生过振荡, 不会停止发送OSPF hello。SR66接口G3/2/6入方向有大量错包, 可能与此次故障有关, 如MSR56发出报文到达SR66时CRC校验错误, SR66就不会送上CPU, 表现为hello超时。从诊断中无法判断错包产生时间, 需要在故障期间dis interface g3/2/6查看入方向错包是否持续增长。

GigabitEthernet2/3/2

Last link flapping: 76 weeks 3 days 0 hours 5 minutes

Input (total): 7661561159 packets, 1108441248915 bytes

- unicasts, - broadcasts, - multicasts, - pauses

Input (normal): 7661561155 packets, - bytes

7626040521 unicasts, 46 broadcasts, 35520588 multicasts, 0 pauses

Input: 4 input errors, 0 runts, 0 giants, - throttles

4 CRC, - frame, - overruns, 0 aborts

- ignored, - parity errors

Output (total): 9118312095 packets, 1187922082804 bytes

- unicasts, - broadcasts, - multicasts, - pauses

Output (normal): 9118312095 packets, - bytes

建议排查中间线路, 主要排查MSR56至SR60中间

后续可以考虑增加OSPF-BFD加快感知线路异常, BFD探测间隔用默认的400ms * 5即可。配置BFD后

, 如果线路频繁振荡, 可能导致OSPF频繁振荡

- lost carrier, - no carrier

GigabitEthernet3/2/6

Last link flapping: 70 weeks 0 days 0 hours 56 minutes

Input (total): 8062889283 packets, 1059672504493 bytes

8029029602 unicasts, 4 broadcasts, 31288937 multicasts, - pauses

Input (normal): 8060318543 packets, 1059078251094 bytes

8029029602 unicasts, 4 broadcasts, 31288937 multicasts, - pauses

Input: 2570740 input errors, 0 runts, 0 giants, - throttles

2570740 CRC, - frame, 0 overruns, - aborts

- ignored, - parity errors

Output (total): 6975777337 packets, 1038323619478 bytes

6944555507 unicasts, 24 broadcasts, 31221806 multicasts, - pauses

Output (normal): 6975777337 packets, 1038323619478 bytes

6944555507 unicasts, 24 broadcasts, 31221806 multicasts, - pauses

Output: 0 output errors, 0 underruns, - buffer failures

- aborts, 0 deferred, 0 collisions, 0 late collisions

0 lost carrier, - no carrier

