

# Nexus 9000 TCAM值设置为0，丢弃ARP、UDLD、LACP数据包

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## 简介

本文档说明当端口因UDLD错误而关闭时，如何对Nexus 9000 TCAM进行故障排除

它涵盖当前和常见的概念、故障排除方法和错误消息。

本文档的目的是帮助用户了解如何在端口因UDLD错误而关闭时排除TCAM故障

## 预请求

了解Cisco NXOS命令

[NXOS TCAM配置](#)

## 拓扑

通过简单的拓扑可以看到问题

```
(N9k-1)Eth2/1-2 -(N9k-2)Eth2/1-2
```

```
1.1.1.1 /24 1.1.1.2/24
```

## 故障排除

以下协议无法在控制平面上工作：

ARP解析失败

Nexus 9000上的端口因模块1和2的UDLD错误而报告关闭。

```

N9K-1(config-if)# 2018 Oct 20 07:23:23 N9K-1 %ETHPORT-5-IF_ADMIN_UP: Interface port-channel100
is admin up .
2018 Oct 20 07:23:23 N9K-1 %ETHPORT-5-IF_DOWN_PORT_CHANNEL_MEMBERS_DOWN: Interface port-
channel100 is down (No operational members)
2018 Oct 20 07:23:23 N9K-1 last message repeated 1 time
2018 Oct 20 07:23:23 N9K-1 %ETHPORT-5-IF_DOWN_ERROR_DISABLED: Interface Ethernet2/2 is down
(Error disabled. Reason:UDLD empty echo)
2018 Oct 20 07:23:23 N9K-1 last message repeated 1 time
2018 Oct 20 07:23:23 N9K-1 %ETHPORT-5-IF_DOWN_ERROR_DISABLED: Interface Ethernet2/1 is down
(Error disabled. Reason:UDLD empty echo)
sh 2018 Oct 20 07:23:25 N9K-1 last message repeated 1 time

```

线卡因模块1和2的机箱上的L2ACLRedirect诊断测试而失败。

```

'Show module'

Mod Online Diag Status
--- -----
1   Fail-----cleared the module 1 and 2 error .[show logging nvram]
2   Fail-----module 2 reloaded.
3   Pass

Module 1 and 2:

      11) L2ACLRedirect-----> E
      12) BootupPortLoopback: U

```

客户达到此状态的另一种可能方式是从基于T2 ASIC的机箱迁移到基于Tahoe的机箱的SUP/LC

注意：如果您想了解有关ASIC故障排除的详细信息，请联系思科TAC

[CSCvc36411](#) 从T2升级到基于Tahoe的线卡/FM可能导致诊断故障和TCAM问题

## 分析

在N9K-2上，当TCAM值设置为0时，会出现此问题

```

N9K-2# sh hardware access-list tcam region
                NAT ACL[nat] size =      0
                Ingress PACL [ing-ifacl] size =      0
                VACL [vacl] size =      0
                Ingress RAACL [ing-racl] size =      0
                Ingress RBACL [ing-rbacl] size =      0
                Ingress L2 QOS [ing-l2-qos] size =      0
                Ingress L3/VLAN QOS [ing-l3-vlan-qos] size =      0
                Ingress SUP [ing-sup] size =      0
                Ingress L2 SPAN filter [ing-l2-span-filter] size =
                Ingress L3 SPAN filter [ing-l3-span-filter] size =      0
                Ingress FSTAT [ing-fstat] size =      0
                span [span] size =      0
                Egress RAACL [egr-racl] size =      0
                Egress SUP [egr-sup] size =      0
                Ingress Redirect [ing-redirect] size =      0

```

要进一步拆除UDLD，但ping操作失败

## 从N9K-2发出ARP请求

N9K-2# ethanalyzer local interface inband

Capturing on inband

```
2018-10-23 10:46:47.282551      1.1.1.1 -> 1.1.1.2      ICMP Echo (ping) request
2018-10-23 10:46:47.286072 b0:aa:77:30:75:bf -> ff:ff:ff:ff:ff:ff ARP Who has 1.1.1.1? Tell
1.1.1.2
2018-10-23 10:46:49.284704      1.1.1.1 -> 1.1.1.2      ICMP Echo (ping) request
2018-10-23 10:46:51.286150 b0:aa:77:30:75:bf -> ff:ff:ff:ff:ff:ff ARP Who has 1.1.1.1? Tell
1.1.1.2
2018-10-23 10:46:51.286802      1.1.1.1 -> 1.1.1.2      ICMP Echo (ping) request
2018-10-23 10:46:53.288989      1.1.1.1 -> 1.1.1.2      ICMP Echo (ping) request
2018-10-23 10:46:55.289920      1.1.1.1 -> 1.1.1.2      ICMP Echo (ping) request
2018-10-23 10:46:57.292070      1.1.1.1 -> 1.1.1.2      ICMP Echo (ping) request
2018-10-23 10:46:59.292568      1.1.1.1 -> 1.1.1.2      ICMP Echo (ping) request
2018-10-23 10:46:59.292818 b0:aa:77:30:75:bf -> ff:ff:ff:ff:ff:ff ARP Who has 1.1.1.1? Tell
1.1.1.2
10 packets captured
```

## N9K-1#以太分析器本地接口带内

Capturing on inband

```
2018-10-23 04:02:40.568119 b0:aa:77:30:75:bf -> ff:ff:ff:ff:ff:ff ARP Who has 1.1.1.1? Tell
1.1.1.2
2018-10-23 04:02:40.568558 cc:46:d6:af:ff:bf -> b0:aa:77:30:75:bf ARP 1.1.1.1 is at
cc:46:d6:af:ff:bf
2018-10-23 04:02:48.574800 b0:aa:77:30:75:bf -> ff:ff:ff:ff:ff:ff ARP Who has 1.1.1.1? Tell
1.1.1.2
2018-10-23 04:02:48.575230 cc:46:d6:af:ff:bf -> b0:aa:77:30:75:bf ARP 1.1.1.1 is at
cc:46:d6:af:ff:bf——arp reply packet sent by agg1.
```

## N9K-2上的ELAM有来自N9K-1的ARP响应

注意：请联系Cisco TAC以验证ELAM捕获

module-2(TAH-elam-insel6)# reprot

Initting block addresses

SUGARBOWL ELAM REPORT SUMMARY

slot - 2, asic - 1, slice - 0

=====

Incoming Interface: Eth2/2

Src Idx : 0x42, Src BD : 4489

Outgoing Interface Info: dmod 0, dpid 0

Dst Idx : 0x0, Dst BD : 4489

**Packet Type: ARP**

**Dst MAC address: B0:AA:77:30:75:BF**

**Src MAC address: CC:46:D6:AF:FF:BF**

**Target Hardware address: B0:AA:77:30:75:BF ----- Arp packet captured on Linecard**

**Sender Hardware address: CC:46:D6:AF:FF:BF**

**Target Protocol address: 1.1.1.2**

**Sender Protocol address: 1.1.1.1**

ARP opcode: 2



```

dropped 0 bytes;
dropped 0 bytes;
dropped 0 bytes;
dropped 0 bytes;
dropped 0 bytes;
dropped 0 bytes;
dropped 0 bytes;
dropped 0 bytes;
dropped 0 bytes;
dropped 0 bytes;
dropped 0 bytes;

```

[Spoiler](#)

面向Sup的活动FM是模块22。要验证在命令下运行

**module-30# show mvdxn internal port-status**

Switch type: Marvell 98DXN41 - 4 port switch

Port	Descr	Enable	Status	ANeg	Speed	Mode	InByte	OutByte	InPkts	OutPkts
6	Local AXP CPU	Yes	UP	No	2	6	781502852	1006219901	6868852	3506128
7	This SC BCM EOBC switch	Yes	UP	No	2	6	654791960	430206276	1833465	3523170
8	Other SC BCM EOBC switch	Yes	DOWN	No	2	6	72282	176	3	2
9	This SC EPC switch	Yes	UP	No	2	6	351355874	351309506	1672662	3345683

Switch type: Marvell 98DXN11 - 10 port switch

Port	Descr	Enable	Status	ANeg	Speed	Mode	InByte	OutByte	InPkts	OutPkts
0	FM6 EPC switch	Yes	DOWN	No	2	6	0	0	0	0
1	FM5 EPC switch	Yes	DOWN	No	2	6	0	0	0	0
2	SUP ALT EPC	Yes	DOWN	No	2	6	0	0	0	0
3	SUP PRI EPC	Yes	DOWN	No	2	6	0	0	0	0
4	<b>FM4 EPC switch</b>	<b>Yes</b>	<b>DOWN</b>	<b>No</b>	<b>2</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
5	<b>FM3 EPC switch</b>	<b>Yes</b>	<b>DOWN</b>	<b>No</b>	<b>2</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
6	<b>FM2 EPC switch</b>	<b>Yes</b>	<b>DOWN</b>	<b>No</b>	<b>2</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
7	<b>FM1 EPC switch</b>	<b>Yes</b>	<b>DOWN</b>	<b>No</b>	<b>2</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
8	Other SC EPC switch	Yes	UP	No	2	6	351356399	351310095	1672664	3345687
9	Local SC 4-port switch	Yes	UP	No	2	6	351310031	351356399	3345688	1672664

```

Rule Rule_name Match_ctr Pol_en Pol_idx inProfileBytes
outOfProfileBytes

```

面向Sup的活动FM是模块22。要验证以下命令的运行情况，module-30# show mvdxn internal port-status  
交换机类型：Marvell 98DXN41 - 4端口交换机端口设计器启用状态InByte OutByte InPkts OutPkts — — — — — — — 6本地AXP CPU是UP第2 6 781502852 1006219901 3506128 7此SC BCMEOBC交换机是UP 2 6 654791960 430206276 1833465 3523170 8其他SC BCM EOBC交换机是DOWN 2 6 72282 176 3 2 9此SC EPC交换机是UP 2 6 351355874交351309506换机类型：Marvell 98DXN11 - 10端口交换机端口设计器启用状态InByte OutByte InPkts OutPkts— — — — — 0 FM6 EPC交换机是关闭2 6 0 0 0 1 FM5 EPC交换机是关闭2 6 0 0 0 2 SUP ALT EPC是关闭2 6 0 0 0 3 SUP PRI EPC是关闭2 6 0 0 0 4 FM4 EPC交换机是关闭2 6 0 0 0 5 FM3 EPC交换机是关闭26 0 0 0 6 FM2 EPC交换机是关闭否2 6 0 0 0 7 FM1 EPC交换机是关闭否2 6 0 0 0 8其他SC EPC交换机是UP否2 6 351356399 351310095 3345687 9本地SC 4端口交换机是UP否2 6 351310031 3345688 1672664规则\_name Match\_ctr Pol\_en Pol\_idx inProfileBytes outOfProfileBytes— — —

## 解决方案

TCAM值设置为0会导致线路卡中所有控制流量丢弃。

将TCAM值更改为默认udld后，系统会启动并解析arp

添加到N9K-2的配置可解决此问题

配置更改后需要重新加载

```
N9K-2(config)# hardware access-list tcam region ing-sup 512
Warning: Please reload all linecards for the configuration to take effect

N9K-2(config)# hardware access-list tcam region ing-racl 1536
Warning: Please reload all linecards for the configuration to take effect

N9K-2(config)# hardware access-list tcam region ing-l2 ing-l2-qos ing-l2-span-filter

N9K-2(config)# hardware access-list tcam region ing-l2-qos 256
Warning: Please reload all linecards for the configuration to take effect

N9K-2(config)# hardware access-list tcam region ing-l3-vlan-qos 512
Warning: Please reload all linecards for the configuration to take effect

N9K-2(config)# hardware access-list tcam region ing-l2 ing-l2-qos ing-l2-span-filter
N9K-2(config)# hardware access-list tcam region ing-l2-span-filter 256

N9K-2(config)# hardware access-list tcam region ing-l3-span-filter 256
N9K-2(config)# hardware access-list tcam region span 512

Warning: Please reload all linecards for the configuration to take effect

N9K-2(config)# hardware access-list tcam region egr-racl 1792

Warning: Please reload all linecards for the configuration to take effect

N9K-2(config)# show run | grep tcam
hardware access-list tcam region ing-redirect 0

N9K-2(config)# hardware access-list tcam region ing-redirect 256

Warning: Please reload all linecards for the configuration to take effect
```

## 有用的命令

显示硬件访问列表tcam区域

show run | inc TCAM" — 无输出表示TCAM设置为默认设置。

## 实用链接

[Nexus 9000 TCAM雕刻](#)