

Nexus 7000 OSPF邻接问题故障排除

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简介

本文档讨论开放最短路径优先(OSPF)邻居未按预期联机时遇到的几种常见场景。为避免Cisco Nexus 7000系列交换机出现此类意外行为，请确保遵循有关第3层(L3)和虚拟端口通道(vPC)的准则和限制。

背景信息

在排除故障之前，请确保符合指南和限制。请参阅《[设计和配置指南](#)》：[Cisco Nexus 7000系列交换机上虚拟端口通道\(vPC\)的最佳实践](#)，了解有关L3和vPC的详细信息。

Nexus 7000上用于排除OSPF邻接问题的过程与Cisco IOS®的过程类似，但Nexus 7000有更多内置工具和过滤器，以便轻松识别问题。

OSPF邻接关系未联机

有时，OSPF邻接关系未联机。`show ip ospf neighbor`命令不显示邻居。

```
R3#show ip ospf neighbor
```

```
R3#
```

此问题可能由以下原因引起：

- L2/L3连接问题
- 接口上未启用OSPF
- 接口定义为被动
- 子网掩码不匹配
- Hello/Dead间隔不匹配
- 身份验证密钥不匹配

- 不匹配的区域ID
- 传输/末节/非末节区域(NSSA)选项不匹配

要调查此问题，请检查连接、配置和访问控制列表(ACL)/控制平面策略(CoPP)。

检查L2/L3连接

1. 使用ping检查单播连接。

如果存在连接问题，请发现是由L2 Internet服务提供商(ISP)、物理端口、千兆接口转换器(GBIC)还是电缆引起的。

注意：假设没有ACL/CoPP阻止流量。如果问题是由硬件或电缆故障引起的，请更换或移动另一个端口以排除故障。

2. 使用ping检查组播连接。

```
N7K1-RP# ping multicast 224.0.0.5 interface vlan 5
PING 224.0.0.5 (224.0.0.5): 56 data bytes
64 bytes from 5.5.5.2: icmp_seq=0 ttl=254 time=1.739 ms
64 bytes from 5.5.5.2: icmp_seq=1 ttl=254 time=1.253 ms
64 bytes from 5.5.5.2: icmp_seq=2 ttl=254 time=0.866 ms
64 bytes from 5.5.5.2: icmp_seq=3 ttl=254 time=1.045 ms
64 bytes from 5.5.5.2: icmp_seq=4 ttl=254 time=1.89 ms

--- 224.0.0.5 ping multicast statistics ---
5 packets transmitted,
From member 5.5.5.2: 5 packets received, 0.00% packet loss
--- in total, 1 group member responded ---
N7K1-RP#
```

使用show int ethernet 1/1命令验证接口是否正常，以及是否没有丢包或错误。

```
N7K1-RP# show int ethernet 1/20 | section RX|TX
RX
 340213 unicast packets  368092 multicast packets  2 broadcast packets
 708307 input packets    233094927 bytes
 0 jumbo packets  0 storm suppression packets
 0 runs  0 giants  0 CRC/FCS  0 no buffer
 0 input error  0 short frame  0 overrun  0 underrun  0 ignored
 0 watchdog  0 bad etype drop  0 bad proto drop  0 if down drop
 0 input with dribble  0 input discard
 0 Rx pause
TX
 1374131 unicast packets  324752 multicast packets  3 broadcast packets
 1698886 output packets  196282264 bytes
 0 jumbo packets
 0 output error  0 collision  0 deferred  0 late collision
 0 lost carrier  0 no carrier  0 babble  0 output discard
 0 Tx pause
N7K1-RP#
```

3. 确定这些功能是否在传入的线卡、接口或CPU上丢弃数据包。

- ACL — 接口的入站/出站
- 服务质量(QoS) — 在接口上
- CoPP

QoS

```
N7K1-RP# show policy-map interface ethernet 1/20
```

```
Global statistics status : enabled
```

```
Ethernet1/20
```

```
Service-policy (queuing) input: default-in-policy  
SNMP Policy Index: 301989913
```

```
Class-map (queuing): in-q1 (match-any)  
queue-limit percent 50  
bandwidth percent 80  
queue dropped pkts : 0
```

```
Class-map (queuing): in-q-default (match-any)  
queue-limit percent 50  
bandwidth percent 20  
queue dropped pkts : 0
```

```
Service-policy (queuing) output: default-out-policy  
SNMP Policy Index: 301989922
```

```
Class-map (queuing): out-pq1 (match-any)  
priority level 1  
queue-limit percent 16  
queue dropped pkts : 0
```

```
Class-map (queuing): out-q2 (match-any)  
queue-limit percent 1  
queue dropped pkts : 0
```

```
Class-map (queuing): out-q3 (match-any)  
queue-limit percent 1  
queue dropped pkts : 0
```

```
Class-map (queuing): out-q-default (match-any)  
queue-limit percent 82  
bandwidth remaining percent 25  
queue dropped pkts : 0
```

CoPP

```
show policy-map interface control-plane class test1-copp-class-critical
```

```
Control Plane
```

```
service-policy input test1-copp-policy-lenient
```

```
class-map test1-copp-class-critical (match-any)  
match access-group name test1-copp-acl-bgp  
match access-group name test1-copp-acl-pim  
match access-group name test1-copp-acl-rip  
match access-group name test1-copp-acl-vpc  
match access-group name test1-copp-acl-bgp6  
match access-group name test1-copp-acl-igmp  
match access-group name test1-copp-acl-lisp  
match access-group name test1-copp-acl-msdp  
match access-group name test1-copp-acl-ospf  
match access-group name test1-copp-acl-pim6
```

```
match access-group name test1-copp-acl-rip6
match access-group name test1-copp-acl-rise
match access-group name test1-copp-acl-eigrp
match access-group name test1-copp-acl-lisp6
match access-group name test1-copp-acl-ospf6
match access-group name test1-copp-acl-rise6
match access-group name test1-copp-acl-eigrp6
match access-group name test1-copp-acl-otv-as
match access-group name test1-copp-acl-mac-l2pt
match access-group name test1-copp-acl-mpls-ldp
match access-group name test1-copp-acl-mpls-oam
match access-group name test1-copp-acl-mpls-rsvp
match access-group name test1-copp-acl-mac-l3-isis
match access-group name test1-copp-acl-mac-otv-isis
match access-group name test1-copp-acl-mac-fabricpath-isis
match protocol mpls router-alert
match protocol mpls exp 6
set cos 7
police cir 39600 kbps bc 375 ms
  conform action: transmit
  violate action: drop
module 1:
  conformed 539964945 bytes,
    5-min offered rate 5093 bytes/sec
    peak rate 5213 bytes/sec
  violated 0 bytes,
    5-min violate rate 0 bytes/sec
module 2:
  conformed 784228080 bytes,
    5-min offered rate 5848 bytes/sec
    peak rate 7692 bytes/sec
  violated 0 bytes,
    5-min violate rate 0 bytes/sec
module 3:
  conformed 5114206 bytes,
    5-min offered rate 41 bytes/sec
    peak rate 6656 bytes/sec
  violated 0 bytes,
    5-min violate rate 0 bytes/sec
```

N7K1#

检查OSPF配置

使用这些命令可检查OSPF配置(子网、hello/dead间隔、区域ID、区域类型、身份验证密钥 (如果有) 和非被动), 并确保它在两端匹配。

1. 显示运行ospf
2. Show ip ospf 5 接口
3. Show ip ospf 5

以下是第一个命令的示例：

```
N7K1-RP# show run ospf
```

```
!Command: show running-config ospf
!Time: Thu May 16 11:27:24 2013
```

```
version 6.2(2)
feature ospf
```

```
logging level ospf 7
```

```
router ospf 5
  router-id 5.5.0.1

interface Vlan5
  ip router ospf 5 area 0.0.0.0

interface loopback5
  ip router ospf 5 area 0.0.0.0
```

N7K1-RP#

以下是第二个命令的示例：

```
N7K1-RP# show ip ospf 5 interface
Vlan5 is up, line protocol is up
  IP address 5.5.5.1/24, Process ID 5 VRF default, area 0.0.0.0
  Enabled by interface configuration
  State DR, Network type BROADCAST, cost 40
  Index 2, Transmit delay 1 sec, Router Priority 1
  Designated Router ID: 5.5.0.1, address: 5.5.5.1
  Backup Designated Router ID: 5.5.0.2, address: 5.5.5.2
  1 Neighbors, flooding to 1, adjacent with 1
  Timer intervals: Hello 10, Dead 40, Wait 40, Retransmit 5
    Hello timer due in 00:00:00
  No authentication
  Number of opaque link LSAs: 0, checksum sum 0
loopback5 is up, line protocol is up
  IP address 5.5.0.1/32, Process ID 5 VRF default, area 0.0.0.0
  Enabled by interface configuration
  State LOOPBACK, Network type LOOPBACK, cost 1
  Index 1
```

N7K1-RP#

以下是第三个命令的示例：

```
N7K1-RP# show ip ospf 5

Routing Process 5 with ID 5.5.0.1 VRF default
Routing Process Instance Number 3
Stateful High Availability enabled
Graceful-restart is configured
  Grace period: 60 state: Inactive
  Last graceful restart exit status: None
Supports only single TOS(TOS0) routes
Supports opaque LSA
Administrative distance 110
Reference Bandwidth is 40000 Mbps
SPF throttling delay time of 200.000 msec,
  SPF throttling hold time of 1000.000 msec,
  SPF throttling maximum wait time of 5000.000 msec
LSA throttling start time of 0.000 msec,
  LSA throttling hold interval of 5000.000 msec,
  LSA throttling maximum wait time of 5000.000 msec
Minimum LSA arrival 1000.000 msec
LSA group pacing timer 10 secs
Maximum paths to destination 8
Number of external LSAs 0, checksum sum 0
Number of opaque AS LSAs 0, checksum sum 0
Number of areas is 1, 1 normal, 0 stub, 0 nssa
Number of active areas is 1, 1 normal, 0 stub, 0 nssa
```

```
Install discard route for summarized external routes.
Install discard route for summarized internal routes.
Area BACKBONE(0.0.0.0)
  Area has existed for 1d10h
  Interfaces in this area: 2 Active interfaces: 2
  Passive interfaces: 0 Loopback interfaces: 1
  No authentication available
  SPF calculation has run 47 times
  Last SPF ran for 0.000542s
  Area ranges are
  Number of LSAs: 3, checksum sum 0x84d4
N7K1-RP#
```

检查OSPF消息

输入**show ip ospf event-history adjacency**命令以验证OSPF进程是否发送和接收了调试消息。

注意：最新消息显示在顶部。

输出显示了OSPF邻居之间交换的所有OSPF邻接消息。当OSPF邻接关系形成时，路由器在与其邻居完全邻接之前会经历多次状态更改。此输出显示所有状态更改和协商。如果存在问题(最大转换单位(MTU)、连接问题、丢包)，则会反映在输出中。

```
N7K1-RP# show ip ospf 5 event-history adjacency
```

```
Adjacency events for OSPF Process "ospf-5"
2013 May 16 10:50:58.121128 ospf 5 [9386]: : mtu 1600, opts: 0x42, ddbits:
0, seq: 0x6f40fde4
2013 May 16 10:50:58.121124 ospf 5 [9386]: : Sent DBD with 0 entries to 5.5.5.2
on Vlan5
2013 May 16 10:50:58.121114 ospf 5 [9386]: : Sending DBD to 5.5.5.2 on Vlan5
2013 May 16 10:50:58.118030 ospf 5 [9386]: : Nbr 5.5.5.2: LOADING --> FULL,
event LDDONE
2013 May 16 10:50:58.115840 ospf 5 [9386]: : Built LS Request packet for 5.5.5.2
with 1 entries
2013 May 16 10:50:58.115835 ospf 5 [9386]: : Add 5.5.0.2(0x1)5.5.0.2
(0x8000104e)(0x7ef8) (156) to LSR
2013 May 16 10:50:58.115823 ospf 5 [9386]: : Building LS Request packet to
5.5.5.2
2013 May 16 10:50:58.112201 ospf 5 [9386]: : Nbr 5.5.5.2: EXCHANGE --> LOADING,
event EXCHDONE
2013 May 16 10:50:58.112026 ospf 5 [9386]: : seqnr 0x6f40fde4, dbdbits 0x1,
mtu 1600, options 0x42
2013 May 16 10:50:58.112022 ospf 5 [9386]: : Got DBD from 5.5.5.2 with 0 entries
2013 May 16 10:50:58.111988 ospf 5 [9386]: : seqnr 0x6f40fde4, dbdbits 0x1,
mtu 1600, options 0x42
2013 May 16 10:50:58.111984 ospf 5 [9386]: : Got DBD from 5.5.5.2 with 0 entries
2013 May 16 10:50:58.110169 ospf 5 [9386]: : mtu 1600, opts: 0x42, ddbits: 0,
seq: 0x6f40fde3
2013 May 16 10:50:58.110165 ospf 5 [9386]: : Sent DBD with 0 entries to 5.5.5.2
on Vlan5
2013 May 16 10:50:58.110155 ospf 5 [9386]: : Sending DBD to 5.5.5.2 on Vlan5
2013 May 16 10:50:58.106609 ospf 5 [9386]: : Added 1 out of 1 LSAs to
request list
2013 May 16 10:50:58.106606 ospf 5 [9386]: : Added 5.5.0.2(0x1)5.5.0.2
(0x8000104e) (0x7ef8) (156) to request list
2013 May 16 10:50:58.106586 ospf 5 [9386]: : seqnr 0x6f40fde3, dbdbits 0x3,
mtu 1600, options 0x42
2013 May 16 10:50:58.106582 ospf 5 [9386]: : Got DBD from 5.5.5.2 with 1 entries
2013 May 16 10:50:58.106537 ospf 5 [9386]: : seqnr 0x6f40fde3, dbdbits 0x3,
```

mtu 1600, options 0x42
2013 May 16 10:50:58.106532 ospf 5 [9386]: : Got DBD from 5.5.5.2 with 1 entries
2013 May 16 10:50:58.104462 ospf 5 [9386]: : Built reply LSU with 2 LSAs for
5.5.5.2 128 bytes
2013 May 16 10:50:58.104439 ospf 5 [9386]: : Added 5.5.5.2(0x2)5.5.0.2
(0x80000045) (0xaf32) (156)
2013 May 16 10:50:58.104431 ospf 5 [9386]: : Added 5.5.0.1(0x1)5.5.0.1
(0x80000ecf) (0xd834) (8)(0)
2013 May 16 10:50:58.104408 ospf 5 [9386]: : Building reply LSU to 5.5.5.2
2013 May 16 10:50:58.104404 ospf 5 [9386]: : 2 requests in LSR (2 left)
2013 May 16 10:50:58.104370 ospf 5 [9386]: : Answering LSR from 5.5.5.2
2013 May 16 10:50:58.100790 ospf 5 [9386]: : Recv LSR from Nbr 5.5.5.2
2013 May 16 10:50:58.099055 ospf 5 [9386]: : mtu 1600, opts: 0x42, ddbits:
0x2, seq: 0x6f40fde2
2013 May 16 10:50:58.099051 ospf 5 [9386]: : Sent DBD with 3 entries to 5.5.5.2
on Vlan5
2013 May 16 10:50:58.099038 ospf 5 [9386]: : Sending DBD to 5.5.5.2 on Vlan5
2013 May 16 10:50:58.095072 ospf 5 [9386]: : seqnr 0x6f40fde2, ddbits 0x7,
mtu 1600, options 0x42
2013 May 16 10:50:58.095068 ospf 5 [9386]: : Got DBD from 5.5.5.2 with 0 entries
2013 May 16 10:50:58.095024 ospf 5 [9386]: : Nbr 5.5.5.2: EXSTART --> EXCHANGE,
event NEGDONE
2013 May 16 10:50:58.094895 ospf 5 [9386]: : We are SLAVE, 5.5.5.2 is master
2013 May 16 10:50:58.094890 ospf 5 [9386]: : seqnr 0x6f40fde2, ddbits 0x7,
mtu 1600, options 0x42
2013 May 16 10:50:58.094886 ospf 5 [9386]: : Got DBD from 5.5.5.2 with 0 entries
2013 May 16 10:50:58.093037 ospf 5 [9386]: : mtu 1600, opts: 0x42, ddbits: 0x7,
seq: 0x7273409a
2013 May 16 10:50:58.093033 ospf 5 [9386]: : Sent DBD with 0 entries to 5.5.5.2
on Vlan5
2013 May 16 10:50:58.093029 ospf 5 [9386]: : Sending DBD to 5.5.5.2 on Vlan5
2013 May 16 10:50:58.092915 ospf 5 [9386]: : Nbr 5.5.5.2: INIT --> EXSTART,
event TWOWAYRCVD
2013 May 16 10:50:58.092862 ospf 5 [9386]: : Nbr 5.5.5.2: TWOWAY --> EXSTART,
event ADJOK
2013 May 16 10:50:58.092763 ospf 5 [9386]: [9446]: Interface Vlan5 ---> BDR
2013 May 16 10:50:58.092757 ospf 5 [9386]: [9446]: Elected 5.5.0.2 as DR,
5.5.0.1 as BDR
2013 May 16 10:50:58.092690 ospf 5 [9386]: [9446]: This nbr 5.5.5.2 promoted
to current dr
2013 May 16 10:50:58.092687 ospf 5 [9386]: [9446]: Walking neighbor 5.5.5.2
(0x93e3524), state TWOWAY
2013 May 16 10:50:58.092683 ospf 5 [9386]: [9446]: Neighbor not declared DR,
ignoring
2013 May 16 10:50:58.092680 ospf 5 [9386]: [9446]: Walking neighbor 5.5.5.1
(0xaclf7514), state SELF
2013 May 16 10:50:58.092676 ospf 5 [9386]: [9446]: DR election starting
2013 May 16 10:50:58.092673 ospf 5 [9386]: [9446]: This neighbor is greater
than 2way
2013 May 16 10:50:58.092670 ospf 5 [9386]: [9446]: Walking neighbor 5.5.5.2
(0x93e3524), state TWOWAY
2013 May 16 10:50:58.092666 ospf 5 [9386]: [9446]: Compare done, new current
bdr 5.5.5.1
2013 May 16 10:50:58.092663 ospf 5 [9386]: [9446]: Current BDR set to this
neighbor
2013 May 16 10:50:58.092660 ospf 5 [9386]: [9446]: This neighbor is in
consideration for bdr
2013 May 16 10:50:58.092657 ospf 5 [9386]: [9446]: This neighbor is greater
than 2way
2013 May 16 10:50:58.092654 ospf 5 [9386]: [9446]: Walking neighbor 5.5.5.1
(0xaclf7514), state SELF
2013 May 16 10:50:58.092650 ospf 5 [9386]: [9446]: BDR election starting
2013 May 16 10:50:58.092647 ospf 5 [9386]: [9446]: DR/BDR Status of this router
changed, new election run

```

2013 May 16 10:50:58.092643 ospf 5 [9386]: [9446]: This nbr 5.5.5.2 promoted
to current dr
2013 May 16 10:50:58.092639 ospf 5 [9386]: [9446]: Walking neighbor 5.5.5.2
(0x93e3524), state TWOWAY
2013 May 16 10:50:58.092635 ospf 5 [9386]: [9446]: Neighbor not declared DR,
ignoring
2013 May 16 10:50:58.092632 ospf 5 [9386]: [9446]: Walking neighbor 5.5.5.1
(0xaclf7514), state SELF
2013 May 16 10:50:58.092628 ospf 5 [9386]: [9446]: DR election starting
2013 May 16 10:50:58.092625 ospf 5 [9386]: [9446]: This neighbor is greater
than 2way
2013 May 16 10:50:58.092622 ospf 5 [9386]: [9446]: Walking neighbor 5.5.5.2
(0x93e3524), state TWOWAY
2013 May 16 10:50:58.092618 ospf 5 [9386]: [9446]: Compare done, new current
bdr 5.5.5.1
2013 May 16 10:50:58.092613 ospf 5 [9386]: [9446]: Current BDR set to this
neighbor
2013 May 16 10:50:58.092610 ospf 5 [9386]: [9446]: This neighbor is in
consideration for bdr
2013 May 16 10:50:58.092607 ospf 5 [9386]: [9446]: This neighbor is greater
than 2way
2013 May 16 10:50:58.092604 ospf 5 [9386]: [9446]: Walking neighbor 5.5.5.1
(0xaclf7514), state SELF
2013 May 16 10:50:58.092597 ospf 5 [9386]: [9446]: BDR election starting
2013 May 16 10:50:58.092573 ospf 5 [9386]: [9446]: Current 0.0.0.0 as DR,
0.0.0.0 as BDR
2013 May 16 10:50:58.092567 ospf 5 [9386]: [9446]: Begin OSPF DR election on
Vlan5
2013 May 16 10:50:58.092432 ospf 5 [9386]: : Nbr 5.5.5.2: DOWN --> INIT,
event HELLORCVD

```

故障排除

如果对L2/3连接、配置和OSPF允许的流量的调查未发现问题并在列表中显示邻居，请打开思科技术支持中心(TAC)案例。输入以下命令，并向TAC提供两个邻居输出的信息：

- **show run**
- **显示技术支持ospf**

OSPF邻居停滞在初始化(INIT)状态

有时邻居停滞在INIT状态，这表示Nexus 7000看到来自邻居的hello数据包，但在hello数据包中看不到其路由器ID，以便进入双向的下一状态。

```
router2#show ip ospf neighbor
```

Neighbor ID	Pri	State	Dead Time	Address	Interface
170.170.5.1	1	INIT/-	00:00:34	170.170.1.1	ethernet 1/1

```
router-2#
```

此问题可能由以下原因引起：

- 一端使用ACL阻止hello数据包。
- 一端使用网络地址转换(NAT)转换OSPF hello。
- 一端的组播功能已中断(L2)。

完成以下步骤以调查问题：

1. 检验IP组播控制平面是否工作。


```
N7K4# ping multicast 224.0.0.5 interface Ethernet 1/1
```

如果在ping结果中看不到邻居的IP地址，则会出现问题。检查两边。

2. 检验是否从邻居收到HELLO数据包。

```
N7K4# show ip ospf 5 event-history adjacency
```

注意：不显示传出Hello数据包。

3. 在每个接口上启用OSPF邻接调试，并检验是否发送了hello数据包。

```
N7K4# debug logfile debug-ospf size 10000
N7K4# debug-filter ip ospf 5 interface Ethernet 1/1
N7K4# debug ip ospf 5 adjacency detail
```

注意：不要忘记禁用调试。

```
N7K4# undebug all
N7K4# no debug-filter all
N7K4# clear debug logfile debug-ospf
```

4. 检验数据包是否由OSPF发送到224.0.0.5。

```
N7K4# debug logfile ospf_vj
N7K4# debug-filter ip mpacket interface e1/5
N7K4# debug-filter ip mpacket direction outbound
N7K4# debug-filter ip mpacket dest 224.0.0.5
N7K4# debug ip ospf 5 hello
```

```
N7K4# show debug logfile ospf_vj
```

```
N7K1-RP# show debug logfile ospf_vj
2013 May 16 11:18:55.202270 ospf: 5 [9386] (default) LAN hello in, ivl 10/40,
options 0x02, mask /24, prio 1, dr 5.5.5.1, bdr 5.5.5
.2 on Vlan5 from 5.5.5.2
2013 May 16 11:19:00.527640 ospf: 5 [9386] (default) LAN hello out, ivl 10/40,
options 0x02, mask /24, prio 1, dr 5.5.5.1, bdr 5.5.
5.2 nbrs 1 on Vlan5 (area 0.0.0.0)
2013 May 16 11:19:03.500785 ospf: 5 [9386] (default) LAN hello in, ivl 10/40,
options 0x02, mask /24, prio 1, dr 5.5.5.1, bdr 5.5.5
.2 on Vlan5 from 5.5.5.2
2013 May 16 11:19:09.515150 ospf: 5 [9386] (default) LAN hello out, ivl 10/40,
options 0x02, mask /24, prio 1, dr 5.5.5.1, bdr 5.5.
5.2 nbrs 1 on Vlan5 (area 0.0.0.0)
2013 May 16 11:19:10.406800 ospf: 5 [9386] (default) LAN hello in, ivl 10/40,
options 0x02, mask /24, prio 1, dr 0.0.0.0, bdr 0.0.0
.0 on Vlan5 from 5.5.5.2
2013 May 16 11:19:10.417602 ospf: 5 [9386] (default) LAN hello in, ivl 10/40,
options 0x02, mask /24, prio 1, dr 0.0.0.0, bdr 0.0.0
.0 on Vlan5 from 5.5.5.2
N7K1-RP#
```

注意：不要忘记禁用调试。

```
N7K4# clear debug logfile ospf_vj
N7K4# undebug all
N7K4# no debug-fil all
no debug-filter ip mpacket interface Ethernet1/5
no debug-filter ip mpacket direction outbound
no debug-filter ip mpacket dest 224.0.0.5
N7K4#
```

5. 检验数据包是否在ethanalyzer上。

```
N7K4# ethanalyzer local interface inband capture-filter "ip proto \ospf"

N7K1# ethanalyzer local interface inband capture-filter "ip proto \ospf"
Capturing on inband
50 packets captured
2013-05-16 11:06:34.387196      5.5.5.2 -> 224.0.0.5      OSPF Hello Packet
2013-05-16 11:06:34.397553      5.5.5.2 -> 224.0.0.5      OSPF Hello Packet
2013-05-16 11:06:38.895343      5.5.5.1 -> 224.0.0.5      OSPF Hello Packet
```

注意：默认虚拟设备环境(VDC)中必须有一个。

故障排除

如果对L2/3连接、配置和OSPF允许的流量的调查未发现问题并显示邻居变为FULL，请提交TAC案例。输入以下命令，并向TAC提供两个邻居输出的信息：

- show run
- 显示技术支持ospf

OSPF邻居停滞在双向状态

有时，OSPF邻居停滞在双向状态。此场景在广播网络类型中是正常的，并减少了线路上的泛洪量。如果所有路由器的优先级均为零，则也会发生此情况。

注意：只有低端路由器的优先级应配置为零，这样它们就不会参与指定路由器(DR)选举。

请参阅[为什么show ip ospf neighbor命令显示邻居停滞在双向状态？](#)文章。

OSPF邻居停滞在Exstart/Exchange中

有时，OSPF邻居停滞在Exstart/Exchange状态。

如果OSPF邻居的接口之间存在MTU不匹配，或者由于传输介质而无法使用已配置MTU的数据包大小相互ping通，则OSPF邻居将停滞在exstart/exchange状态。

```
router-6# show ip ospf neighbor
```

Neighbor ID	Pri	State	Dead Time	Address	Interface	
170.170.11.7	1	EXCHANGE/	-	00:00:36	170.170.11.7	Serial2.7

```
router-6#
```

```
router-7# show ip ospf neighbor
```

Neighbor ID	Pri	State	Dead Time	Address	Interface
170.170.11.6	1	EXSTART/ -	00:00:33	170.170.11.6	Serial0.6

```
router-7#
```

此问题可能由以下原因引起：

- MTU不匹配 — 一台路由器上的EXCHANGE和另一台路由器上的EXSTART
注意：可以使用ip ospf mtu-ignore命令进行配置。
- 邻居路由器ID(RID)与其邻居的EXSTART相同
- 单播中断 — EXCHANGE MTU问题 — 无法通过超过特定长度的数据包进行pingACL阻止单播
— 在双向OSPF发送单播数据包(点对点(P2P)链路除外)后NAT转换单播数据包

完成以下步骤以调查问题：

1. 检查普通ping操作，其中Do not Fragment(DF)位为on，接口上的IP MTU最大值为maximum。

```
N7K4# ping 10.10.12.2 df-bit packet-size 1472
```

注意：在Cisco IOS中，当您输入ping x.x.x.x size <size>命令时，大小指IP数据包大小。在Linux中，您指定ping的互联网控制消息协议(ICMP)负载，而不是像在Cisco IOS中那样指定IP数据包大小。您可能已经知道，Nexus是在Linux上构建的。MTU仍设置为1,500字节 — 其中20个字节是IP报头，另8个字节是ICMP报头。1,500- 20 - 8 = 1,472字节的负载。因此，实际IP数据报大小与Cisco IOS上的大小相同，即1,500字节。

2. 使用show int ethernet 1/1命令检查传入接口上是否丢弃了数据包。

```
N7K1-RP# show int ethernet 1/20 | section RX|TX
```

```
RX
```

```
340213 unicast packets 368092 multicast packets 2 broadcast packets
708307 input packets 233094927 bytes
0 jumbo packets 0 storm suppression packets
0 runs 0 giants 0 CRC/FCS 0 no buffer
0 input error 0 short frame 0 overrun 0 underrun 0 ignored
0 watchdog 0 bad etype drop 0 bad proto drop 0 if down drop
0 input with dribble 0 input discard
0 Rx pause
```

```
TX
```

```
1374131 unicast packets 324752 multicast packets 3 broadcast packets
1698886 output packets 196282264 bytes
0 jumbo packets
0 output error 0 collision 0 deferred 0 late collision
0 lost carrier 0 no carrier 0 babble 0 output discard
0 Tx pause
```

```
N7K1-RP#
```

3. 使用show policy-map interface control-plane class test1-copp-class-critical命令检查CoPP是否丢弃OSPF数据包。

```
Control Plane
```

```
service-policy input test1-copp-policy-lenient
```

```
class-map test1-copp-class-critical (match-any)
```

```

match access-group name test1-copp-acl-bgp
match access-group name test1-copp-acl-pim
match access-group name test1-copp-acl-rip
match access-group name test1-copp-acl-vpc
match access-group name test1-copp-acl-bgp6
match access-group name test1-copp-acl-igmp
match access-group name test1-copp-acl-lisp
match access-group name test1-copp-acl-msdp
match access-group name test1-copp-acl-ospf
match access-group name test1-copp-acl-pim6
match access-group name test1-copp-acl-rip6
match access-group name test1-copp-acl-rise
match access-group name test1-copp-acl-eigrp
match access-group name test1-copp-acl-lisp6
match access-group name test1-copp-acl-ospf6
match access-group name test1-copp-acl-rise6
match access-group name test1-copp-acl-eigrp6
match access-group name test1-copp-acl-otv-as
match access-group name test1-copp-acl-mac-l2pt
match access-group name test1-copp-acl-mpls-ldp
match access-group name test1-copp-acl-mpls-oam
match access-group name test1-copp-acl-mpls-rsvp
match access-group name test1-copp-acl-mac-l3-isis
match access-group name test1-copp-acl-mac-otv-isis
match access-group name test1-copp-acl-mac-fabricpath-isis
match protocol mpls router-alert
match protocol mpls exp 6
set cos 7
police cir 39600 kbps bc 375 ms
  conform action: transmit
  violate action: drop
module 1:
  conformed 539964945 bytes,
    5-min offered rate 5093 bytes/sec
    peak rate 5213 bytes/sec
  violated 0 bytes,
    5-min violate rate 0 bytes/sec
module 2:
  conformed 784228080 bytes,
    5-min offered rate 5848 bytes/sec
    peak rate 7692 bytes/sec
  violated 0 bytes,
    5-min violate rate 0 bytes/sec
module 3:
  conformed 5114206 bytes,
    5-min offered rate 41 bytes/sec
    peak rate 6656 bytes/sec
  violated 0 bytes,
    5-min violate rate 0 bytes/sec

```

N7K1#

4. 使用show ip ospf 5 event-history adjacency命令或debug ip ospf 5 adjacency命令检查OSPF数据库描述符(DBD)交换。

```

N7K1-RP# debug logfile debug-ospf size 10000
N7K1-RP# debug-filter ip ospf 5 interface Vlan 5
N7K1-RP# debug ip ospf 5 adjacency detail

```

示例如下：

```

N7K1-RP# show debug logfile debug-ospf
2013 May 20 05:36:23.414376 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM start:
old state FULL, event HELLORCVD
2013 May 20 05:36:23.414424 ospf: 5 [8325] (default) Nbr 5.5.5.2: FULL -->
FULL, event HELLORCVD
2013 May 20 05:36:23.414438 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM start:
old state FULL, event TWOWAYRCVD
2013 May 20 05:36:23.414450 ospf: 5 [8325] (default) Nbr 5.5.5.2: FULL -->
FULL, event TWOWAYRCVD
2013 May 20 05:36:28.832638 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM start:
old state FULL, event HELLORCVD
2013 May 20 05:36:28.832674 ospf: 5 [8325] (default) Nbr 5.5.5.2: FULL -->
FULL, event HELLORCVD
2013 May 20 05:36:28.832695 ospf: 5 [8325] (default) Nbr 5.5.5.2: transitioning
to OneWay - did not find ourselves
2013 May 20 05:36:28.832709 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM start:
old state FULL, event ONEWAYRCVD
2013 May 20 05:36:28.833073 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM state
changed from FULL to INIT, event ONEWAYRCVD
2013 May 20 05:36:28.833120 ospf: 5 [8325] Begin OSPF DR election on Vlan5
2013 May 20 05:36:28.833140 ospf: 5 [8325] Current 5.5.0.1 as DR, 5.5.0.2
as BDR
2013 May 20 05:36:28.833177 ospf: 5 [8325] BDR election starting
2013 May 20 05:36:28.833196 ospf: 5 [8325] Walking neighbor 5.5.5.1
(0xaec59188), state SELF
2013 May 20 05:36:28.833211 ospf: 5 [8325] This neighbor is greater
than 2way
2013 May 20 05:36:28.833235 ospf: 5 [8325] Walking neighbor 5.5.5.2
(0x9777584), state INIT
2013 May 20 05:36:28.833249 ospf: 5 [8325] DR election starting
2013 May 20 05:36:28.833265 ospf: 5 [8325] Walking neighbor 5.5.5.1
(0xaec59188), state SELF
2013 May 20 05:36:28.833281 ospf: 5 [8325] This nbr 5.5.5.1 promoted to
current dr
2013 May 20 05:36:28.833297 ospf: 5 [8325] Walking neighbor 5.5.5.2
(0x9777584), state INIT
2013 May 20 05:36:28.833404 ospf: 5 [8325] Elected 5.5.0.1 as DR,
0.0.0.0 as BDR
2013 May 20 05:36:28.833440 ospf: 5 [8325] Interface Vlan5 ---> DR
2013 May 20 05:36:28.833456 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM start:
old state INIT, event ADJOK
2013 May 20 05:36:28.833474 ospf: 5 [8325] (default) Nbr 5.5.5.2: INIT -->
INIT, event ADJOK
2013 May 20 05:36:28.833492 ospf: 5 [8325] (default) Nbr 5.5.5.2: FULL -->
INIT, event ONEWAYRCVD
2013 May 20 05:36:28.843309 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM start:
old state INIT, event HELLORCVD
2013 May 20 05:36:28.843339 ospf: 5 [8325] (default) Nbr 5.5.5.2: INIT -->
INIT, event HELLORCVD
2013 May 20 05:36:28.843357 ospf: 5 [8325] (default) Nbr 5.5.5.2: transitioning
to OneWay - did not find ourselves
2013 May 20 05:36:28.843370 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM start:
old state INIT, event ONEWAYRCVD
2013 May 20 05:36:28.843386 ospf: 5 [8325] (default) Nbr 5.5.5.2: INIT -->
INIT, event ONEWAYRCVD
2013 May 20 05:36:34.244541 ospf: 5 [8325] (default) Got DBD from 5.5.5.2
with 0 entries
2013 May 20 05:36:34.244567 ospf: 5 [8325] (default) seqnr 0x9247f5e,
dbdbits 0x7, mtu 1600, options 0x42
2013 May 20 05:36:34.244622 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM start:
old state INIT, event TWOWAYRCVD
2013 May 20 05:36:34.244798 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM state

```

```

changed from INIT to EXSTART, event ADJOK
2013 May 20 05:36:34.244859 ospf: 5 [8325] Begin OSPF DR election on Vlan5
2013 May 20 05:36:34.244880 ospf: 5 [8325] Current 5.5.0.1 as DR, 0.0.0.0
as BDR
2013 May 20 05:36:34.244916 ospf: 5 [8325] BDR election starting
2013 May 20 05:36:34.244935 ospf: 5 [8325] Walking neighbor 5.5.5.1
(0xaec59288), state SELF
2013 May 20 05:36:34.244949 ospf: 5 [8325] This neighbor is greater
than 2way
2013 May 20 05:36:34.244965 ospf: 5 [8325] Walking neighbor 5.5.5.2
(0x9777584), state EXSTART
2013 May 20 05:36:34.244978 ospf: 5 [8325] This neighbor is greater
than 2way
2013 May 20 05:36:34.244991 ospf: 5 [8325] This neighbor is in consideration
for bdr
2013 May 20 05:36:34.245004 ospf: 5 [8325] Current BDR set to this neighbor
2013 May 20 05:36:34.245019 ospf: 5 [8325] Compare done, new current
bdr 5.5.5.2
2013 May 20 05:36:34.245033 ospf: 5 [8325] DR election starting
2013 May 20 05:36:34.245049 ospf: 5 [8325] Walking neighbor 5.5.5.1
(0xaec59288), state SELF
2013 May 20 05:36:34.245065 ospf: 5 [8325] This nbr 5.5.5.1 promoted to
current dr
2013 May 20 05:36:34.245080 ospf: 5 [8325] Walking neighbor 5.5.5.2
(0x9777584), state EXSTART
2013 May 20 05:36:34.245094 ospf: 5 [8325] Neighbor not declared DR,
ignoring
2013 May 20 05:36:34.245202 ospf: 5 [8325] Elected 5.5.0.1 as DR,
5.5.0.2 as BDR
2013 May 20 05:36:34.245247 ospf: 5 [8325] Interface Vlan5 ---> DR
2013 May 20 05:36:34.245262 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM start:
old state EXSTART, event ADJOK
2013 May 20 05:36:34.245299 ospf: 5 [8325] (default) Nbr 5.5.5.2:
EXSTART --> EXSTART, event ADJOK
2013 May 20 05:36:34.245318 ospf: 5 [8325] (default) Nbr 5.5.5.2:
INIT --> EXSTART, event TWOWAYRCVD
2013 May 20 05:36:34.245335 ospf: 5 [8325] (default) We are SLAVE,
5.5.5.2 is master
2013 May 20 05:36:34.245348 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM start:
old state EXSTART, event NEGDONE
2013 May 20 05:36:34.245366 ospf: 5 [8325] (default) Preparing DBD exchange
for nbr 5.5.5.2, 387/5
2013 May 20 05:36:34.245463 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM state
changed from EXSTART to EXCHANGE, event NEGDONE
2013 May 20 05:36:34.245483 ospf: 5 [8325] (default) Nbr 5.5.5.2: EXSTART -->
EXCHANGE, event NEGDONE
2013 May 20 05:36:34.245843 ospf: 5 [8325] (default) Got DBD from 5.5.5.2
with 0 entries
2013 May 20 05:36:34.245862 ospf: 5 [8325] (default) seqnr 0x9247f5e,
dbdbits 0x7, mtu 1600, options 0x42
2013 May 20 05:36:34.245997 ospf: 5 [8325] (default) Sending DBD to
5.5.5.2 on Vlan5
2013 May 20 05:36:34.246031 ospf: 5 [8325] (default) Add 5.5.0.2(0x1)5.5.0.2
(0x80000084) (0x2c26) (109) to DBD
2013 May 20 05:36:34.246062 ospf: 5 [8325] (default) Add 5.5.0.1(0x1)5.5.0.1
(0x8000007f) (0xa3c7) (5)(0) to DBD
2013 May 20 05:36:34.246078 ospf: 5 [8325] (default) Filled DBD to 5.5.5.2
with 2 entries
2013 May 20 05:36:34.246111 ospf: 5 [8325] (default) Sent DBD with 2 entries to
5.5.5.2 on Vlan5
2013 May 20 05:36:34.246128 ospf: 5 [8325] (default) mtu 1600, opts: 0x42,
ddbbits: 0x2, seq: 0x9247f5e
2013 May 20 05:36:34.258616 ospf: 5 [8325] (default) Recv LSR from Nbr 5.5.5.2
2013 May 20 05:36:34.258634 ospf: 5 [8325] (default) schedule flood

```

2013 May 20 05:36:34.258674 ospf: 5 [8325] (default) Answering LSR from 5.5.5.2
2013 May 20 05:36:34.258690 ospf: 5 [8325] (default) 1 requests in LSR (1 left)
2013 May 20 05:36:34.258707 ospf: 5 [8325] (default) Building reply LSU to 5.5.5.2
2013 May 20 05:36:34.258726 ospf: 5 [8325] (default) Found requested LSA
5.5.0.1(1)5.5.0.1 for 5.5.5.2
2013 May 20 05:36:34.258791 ospf: 5 [8325] (default) Added 5.5.0.1(0x1)
5.5.0.1 (0x8000007f) (0xa3c7) (5)(O)
2013 May 20 05:36:34.258872 ospf: 5 [8325] (default) Built reply LSU with 1 LSAs
for 5.5.5.2 96 bytes
2013 May 20 05:36:34.286591 ospf: 5 [8325] (default) Got DBD from 5.5.5.2
with 2 entries
2013 May 20 05:36:34.286615 ospf: 5 [8325] (default) seqnr 0x9247f5f,
dbdbits 0x3, mtu 1600, options 0x42
2013 May 20 05:36:34.286751 ospf: 5 [8325] (default) Got DBD from 5.5.5.2
with 2 entries
2013 May 20 05:36:34.286784 ospf: 5 [8325] (default) seqnr 0x9247f5f,
dbdbits 0x3, mtu 1600, options 0x42
2013 May 20 05:36:34.286804 ospf: 5 [8325] (default) Found 5.5.5.1(0x2)
5.5.0.1 (0x80000004) (0x46de) (111) in DBD
2013 May 20 05:36:34.286870 ospf: 5 [8325] (default) Added 5.5.5.1(0x2)
5.5.0.1 (0x80000004) (0x46de) (111)(DO) to request li
st
2013 May 20 05:36:34.286889 ospf: 5 [8325] (default) Found 5.5.0.2(0x1)
5.5.0.2 (0x80000085) (0x91d0) (5) in DBD
2013 May 20 05:36:34.286917 ospf: 5 [8325] (default) Added 5.5.0.2(0x1)
5.5.0.2 (0x80000084) (0x2c26) (109) to request list
2013 May 20 05:36:34.286932 ospf: 5 [8325] (default) Added 2 out of 2 LSAs
to request list
2013 May 20 05:36:34.287046 ospf: 5 [8325] (default) Sending DBD to
5.5.5.2 on Vlan5
2013 May 20 05:36:34.287066 ospf: 5 [8325] (default) Filled DBD to
5.5.5.2 with 0 entries
2013 May 20 05:36:34.287101 ospf: 5 [8325] (default) Sent DBD with 0 entries to
5.5.5.2 on Vlan5
2013 May 20 05:36:34.287121 ospf: 5 [8325] (default) mtu 1600, opts: 0x42,
dbdbits: 0, seq: 0x9247f5f
2013 May 20 05:36:34.291760 ospf: 5 [8325] (default) Got DBD from 5.5.5.2
with 0 entries
2013 May 20 05:36:34.291789 ospf: 5 [8325] (default) seqnr 0x9247f60,
dbdbits 0x1, mtu 1600, options 0x42
2013 May 20 05:36:34.291915 ospf: 5 [8325] (default) Got DBD from 5.5.5.2
with 0 entries
2013 May 20 05:36:34.291934 ospf: 5 [8325] (default) seqnr 0x9247f60,
dbdbits 0x1, mtu 1600, options 0x42
2013 May 20 05:36:34.291953 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM start:
old state EXCHANGE, event EXCHDONE
2013 May 20 05:36:34.292101 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM state
changed from EXCHANGE to LOADING, event EXCHDONE
2013 May 20 05:36:34.292124 ospf: 5 [8325] (default) Nbr 5.5.5.2: EXCHANGE -->
LOADING, event EXCHDONE
2013 May 20 05:36:34.293200 ospf: 5 [8325] (default) Building LS Request packet
to 5.5.5.2
2013 May 20 05:36:34.293231 ospf: 5 [8325] (default) Add 5.5.0.2(0x1)
5.5.0.2 (0x80000084) (0x2c26) (110) to LSR
2013 May 20 05:36:34.293262 ospf: 5 [8325] (default) Add 5.5.5.1(0x2)
5.5.0.1 (0x80000004) (0x46de) (111)(DO) to LSR
2013 May 20 05:36:34.293281 ospf: 5 [8325] (default) Built LS Request packet for
5.5.5.2 with 2 entries
2013 May 20 05:36:34.297954 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM start:
old state LOADING, event LDDONE
2013 May 20 05:36:34.298069 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM state
changed from LOADING to FULL, event LDDONE
2013 May 20 05:36:34.298206 ospf: 5 [8325] (default) Nbr 5.5.5.2: LOADING -->
FULL, event LDDONE

```

2013 May 20 05:36:34.299179 ospf: 5 [8325] (default) Sending DBD to 5.5.5.2
on Vlan5
2013 May 20 05:36:34.299199 ospf: 5 [8325] (default) Filled DBD to 5.5.5.2
with 0 entries
2013 May 20 05:36:34.299233 ospf: 5 [8325] (default) Sent DBD with 0 entries to
5.5.5.2 on Vlan5
2013 May 20 05:36:34.299253 ospf: 5 [8325] (default) mtu 1600, opts: 0x42,
ddbits: 0, seq: 0x9247f60
2013 May 20 05:36:38.746942 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM start:
old state FULL, event HELLORCVD
2013 May 20 05:36:38.747010 ospf: 5 [8325] (default) Nbr 5.5.5.2: FULL -->
FULL, event HELLORCVD
2013 May 20 05:36:38.747024 ospf: 5 [8325] (default) Nbr 5.5.5.2 FSM start:
old state FULL, event TWOWAYRCVD
2013 May 20 05:36:38.747046 ospf: 5 [8325] (default) Nbr 5.5.5.2: FULL -->
FULL, event TWOWAYRCVD
2013 May 20 05:36:38.747073 ospf: 5 [8325] (default) Different BDR in hello,
invoking nbrchange
2013 May 20 05:36:38.747090 ospf: 5 [8325] (default) Neighbor
priority/options/DR/BDR value changed
2013 May 20 05:36:38.747265 ospf: 5 [8325] Begin OSPF DR election on Vlan5
2013 May 20 05:36:38.747288 ospf: 5 [8325] Current 5.5.0.1 as DR,
5.5.0.2 as BDR
2013 May 20 05:36:38.747329 ospf: 5 [8325] BDR election starting
2013 May 20 05:36:38.747348 ospf: 5 [8325] Walking neighbor 5.5.5.1
(0xaec59478), state SELF
2013 May 20 05:36:38.747362 ospf: 5 [8325] This neighbor is greater
than 2way
2013 May 20 05:36:38.747648 ospf: 5 [8325] Walking neighbor 5.5.5.2
(0x9777584), state FULL
2013 May 20 05:36:38.747662 ospf: 5 [8325] This neighbor is greater
than 2way
2013 May 20 05:36:38.747676 ospf: 5 [8325] This neighbor is in consideration
for bdr
2013 May 20 05:36:38.747689 ospf: 5 [8325] Current BDR set to this neighbor
2013 May 20 05:36:38.747705 ospf: 5 [8325] Compare done, new current bdr
5.5.5.2
2013 May 20 05:36:38.747733 ospf: 5 [8325] DR election starting
2013 May 20 05:36:38.747750 ospf: 5 [8325] Walking neighbor 5.5.5.1
(0xaec59478), state SELF
2013 May 20 05:36:38.747766 ospf: 5 [8325] This nbr 5.5.5.1 promoted to
current dr
2013 May 20 05:36:38.747782 ospf: 5 [8325] Walking neighbor 5.5.5.2
(0x9777584), state FULL
2013 May 20 05:36:38.747796 ospf: 5 [8325] Neighbor not declared DR,
ignoring
2013 May 20 05:36:38.747948 ospf: 5 [8325] Elected 5.5.0.1 as DR,
5.5.0.2 as BDR
2013 May 20 05:36:38.748004 ospf: 5 [8325] Interface Vlan5 ---> DR

```

注意：不要忘记禁用调试。

```

N7K1-RP# clear debug logfile debug-ospf
N7K1-RP# undebug all
N7K1-RP# no debug-fil all

```

调查提示：

查找不匹配的MTU消息。按照序列号查找因DBD丢弃而重新传输的信息。检查是否收到意外的DBD序列号。

故障排除

