

排除CPS上 5012(DIAMETER_UNABLE_TO_CONFLICT)导致的 VoLTE呼叫故障

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简介

本文档介绍如何排除因思科策略套件(CPS)的5012(DIAMETER_UNABLE_TO_CONFLICT)而导致的长期演进语音(VoLTE)呼叫故障。

问题

在CPS上报告由于5012(DIAMETER_UNABLE_TO_CONFLICT)而导致的VoLTE呼叫故障。

这些是整合引擎日志，您可以在其中看到CPS收到的命令代码Rx_AAR(265)-Request，并通过结果代码DIAMETER_UNABLE_TO_CONFLICT(5012)从CPS通过Rx接口回复到IP多媒体子系统(IMS)。

```
===== HOSTNAME-qnsXX [yyyy-mm-dd 15:32:00,673] =====
```

```
POLICY RESULT ERROR: null
```

```
    session action = None
```

```
    TRIGGER: Message: com.broadhop.diameter2.messages.DiameterRequestMessage
```

```
        Application Id: Rx (16777236)
```

```
        Command Code: Rx_AAR (265)
```

```
        Dest realm: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org
```

```
        Device protocol: RX_TGPP
```

```
        End to end id: 204492743 (0x0c304fc7)
```

```
        Hop by hop id: 2985189310 (0xb1ee5fbe)
```

```
        Origin state: 0
```


Device protocol: RX_TGPP
End to end id: 90747852 (0x0568b3cc)
Hop by hop id: 2509770985 (0x959810e9)
Origin state: 0
Stack name: null
Origin host: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org
Origin realm: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org
Session-Id: pcsf-stdn.imsgrout1-111-
1111111.aaa.sbc.bbb.com;316160;1;5.2551556468.2;pcsf-stdn.imsgrout1-111-1111111
Auth-Application-Id: 16777236
Media-Component-Description:

Media-Component-Number: 1
Media-Sub-Component:
Flow-Number: 1
Flow-Description:
Media-Sub-Component:
Flow-Number: 2

Codec-Data: uplink\r\noffer\r\nnm=audio 50010 RTP/AVP 99 97 105 96\r\n\r\nna=rtpmap:99 AMR-
WB/16000/1\r\n\r\nna=fmtp:99 mode-change-capability=2;max-re
d=0\r\n\r\nna=rtpmap:97 AMR/8000/1\r\n\r\nna=fmtp:97 mode-change-capability=2;max-red=0\r\n\r\nna=rtpmap:105
telephone-event/16000\r\n\r\nna=fmtp:105 0-15\r\n\r\nna=rtpmap:96 telephone-event/8000\r
\r\n\r\nna=fmtp:96 0-15\r\n\r\nna=curr:gqos local none\r\n\r\nna=curr:gqos remote none\r\n\r\nna=des:gqos mandatory local
sendrecv\r\n\r\nna=des:gqos optional remote sendrecv\r\n\r\nna=ptime:20\r\n\r\nna=maxptime:
240\r\n\r\n

(0x75706c696e6b0d0a6f666665720d0a6d3d617564696f203530303130205254502f415650203939203937203130352
039360d0a613d7274706d61703a393920414d522d57422f31363030302f310d0a613
d666d74703a3939206d6f64652d6368616e67652d6361706162696c6974793d323b6d61782d7265643d300d0a613d727
4706d61703a393720414d522f383030302f310d0a613d666d74703a3937206d6f64652d63686
16e67652d6361706162696c6974793d323b6d61782d7265643d300d0a613d7274706d61703a3130352074656c6570686
f6e652d6576656e742f31363030300d0a613d666d74703a31303520302d31350d0a613d72747
06d61703a39362074656c6570686f6e652d6576656e742f383030300d0a613d666d74703a393620302d31350d0a613d6
37572723a716f73206c6f63616c206e6f6e650d0a613d637572723a716f732072656d6f74652
06e6f6e650d0a613d6465733a716f73206d616e6461746f7279206c6f63616c2073656e64726563760d0a613d6465733
a716f73206f7074696f6e616c2072656d6f74652073656e64726563760d0a613d7074696d653
a32300d0a613d6d6178)

Codec-Data: downlink\r\nanswer\r\nnm=audio 36602 RTP/AVP 97
96\r\n\r\nna=rtpmap:97 AMR/8000/1\r\n\r\nna=fmtp:97 mode-set=0,2,4,7; mode-change-period=2;
mode-change-capability=2; mode-change-neighbor=1; max-red=0\r\n\r\nna=rtpmap:96 telephone-
event/8000\r\n\r\nna=fmtp:96 0-15\r\n\r\nna=curr:gqos local sendrecv\r\n\r\nna=curr:gqos remote none\r\n\r
\r\n\r\nna=des:gqos mandatory local sendrecv\r\n\r\nna=des:gqos mandatory remote sendrecv\r\n\r\nna=conf:gqos remote
sendrecv\r\n\r\nna=maxptime:40\r\n\r\n(0x646f776e6c696e6b0d0a616e737765720d0a6d3d617
564696f203336363032205254502f4156502039372039360d0a613d7274706d61703a393720414d522f383030302f310
d0a613d666d74703a3937206d6f64652d7365743d302c322c342c373b206d6f64652d6368616
e67652d706572696f643d323b206d6f64652d6368616e67652d6361706162696c6974793d323b206d6f64652d6368616
e67652d6e65696768626f723d313b206d61782d7265643d300d0a613d7274706d61703a39362
074656c6570686f6e652d6576656e742f383030300d0a613d666d74703a393620302d31350d0a613d637572723a716f7
3206c6f63616c2073656e64726563760d0a613d637572723a716f732072656d6f7465206e6f6
e650d0a613d6465733a716f73206d616e6461746f7279206c6f63616c2073656e64726563760d0a613d6465733a716f7
3206d616e6461746f72792072656d6f74652073656e64726563760d0a613d636f6e663a716f7
32072656d6f74652073656e64726563760d0a613d6d6178707)

DEBUG MSGS:

INFO : (core) Tagging message with ID: RX_TGPP
INFO : (rx) Sending 265 Message on session pcsf-stdn.imsgrout1-111-
1111111.aaa.sbc.bbb.com;316160;1;5.2551556468.2;pcsf-stdn.imsgrout1-111-1111111
INFO : (balance) Error found, rolling back transaction
ERROR : (core) Error processing policy request: null

SERVICE CALC MSGS:

USE CASES:

SENT MESSAGES (asynchronous):

Message: com.broadhop.diameter2.messages.DiameterResponseMessage

Application Id: Rx (16777236)

```
Command Code: Rx_AAA (265)
Dest host: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org
Dest realm: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org
Device protocol: RX_TGPP
End to end id: 90747852 (0x0568b3cc)
Hop by hop id: 2509770985 (0x959810e9)
Origin state: 0
Stack name: null
Origin realm: YYYY.ims.mncXYZ.mccXYZ.3gppnetwork.org
Session-Id: pcsf-stdn.imsgrout1-111-
1111111.aaa.sbc.bbb.com;316160;1;5.2551556468.2;pcsf-stdn.imsgrout1-111-1111111
Auth-Application-Id: 16777236
QPS-Internal-Route-Record-Host: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org
QPS-Internal-Route-Record-Realm: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org
Result-Code: DIAMETER_UNABLE_TO_COMPLY (5012)
```

成功案例：(引擎日志)

对于成功案例，上行链路和下行链路编解码器中均不显示十六进制数据，在成功案例和失败案例中AAR中均不显示任何差异。

有关成功案例，请参阅信息：(核心) 按键成功加载：DEBUG MSG下的
imsiFramedIpKey:1111111111111111:172.16.xx.yy，在故障场景中不存在该消息。

```
HOSTNAME-qnsXX [yyyy-mm-dd 15:33:30,543]
POLICY RESULT SUCCESS:
  session action = None
  domainId = IMS
  locationId = ims
  SERVICES: IMS_DEFAULT
  TRIGGER: Message: com.broadhop.diameter2.messages.DiameterRequestMessage
    Application Id: Rx (16777236)
    Command Code: Rx_AAR (265)
    Dest realm: YYYY.ims.mncXYZ.mccXYZ.3gppnetwork.org
    Device protocol: RX_TGPP
    End to end id: 182837146 (0x0ae5df9a)
    Hop by hop id: 2274945953 (0x8798eba1)
    Origin state: 0
    Stack name: null
    Origin host: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org
    Origin realm: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org
    Session-Id: pcsf-stdn.imsgrout1-111-
1111111.aaa.sbc.bbb.com;316160;1;5.2551556468.2;pcsf-stdn.imsgrout1-111-1111111
    Auth-Application-Id: 16777236
    Media-Component-Description:
      Media-Component-Number: 1
      Media-Sub-Component:
        Flow-Number: 1

      Media-Sub-Component:
        Flow-Number: 2

    Codec-Data: uplink\r\noffer\r\nnm=audio 50008 RTP/AVP 116 107 118
96 111 110\r\nna=rtpmap:116 AMR-WB/16000/1\r\nna=fmtp:116 mode-change-capabil
ity=2;max-red=220\r\nna=rtpmap:107 AMR-WB/16000/1\r\nna=fmtp:107 octet-align=1;mode-change-
capability=2;max-red=220\r\nna=rtpmap:118 AMR/8000/1\r\nna=fmtp:118 mode-change-capab
ility=2;max-red=220\r\nna=rtpmap:96 AMR/8000/1\r\nna=fmtp:96 octet-align=1;mode-change-
capability=2;max-red=220\r\nna=rtpmap:111 telephone-event/16000\r\nna=fmtp:111 0-15\r\nna=
rtpmap:110 telephone-event/8000\r\nna=fmtp:110 0-15\r\nna=curr:qos local none\r\nna=curr:qos remote
```

none\r\na=des:qos mandatory local sendrecv\r\na=des:qos optional remote sen
drecv\r\na=ptime:20\r\na=maxptime:240\r\n (uplink
offer
m=audio 50008 RTP/AVP 116 107 118 96 111 110 **Note: Codec-Data is in readable form not like how
it was in failure case.**
a=rtpmap:116 AMR-WB/16000/1
a=fmtp:116 mode-change-capability=2;max-red=220
a=rtpmap:107 AMR-WB/16000/1
a=fmtp:107 octet-align=1;mode-change-capability=2;max-red=220
a=rtpmap:118 AMR/8000/1
a=fmtp:118 mode-change-capability=2;max-red=220
a=rtpmap:96 AMR/8000/1
a=fmtp:96 octet-align=1;mode-change-capability=2;max-red=220
a=rtpmap:111 telephone-event/16000
a=fmtp:111 0-15
a=rtpmap:110 telephone-event/8000
a=fmtp:110 0-15
a=curr:qos local none
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos optional remote sendrecv
a=ptime:20
a=maxptime:240
)
Codec-Data: downlink\r\nanswer\r\nnm=audio 3302 RTP/AVP 118
110\r\na=rtpmap:118 AMR/8000/1\r\na=fmtp:118 mode-set=0,2,4,7; mode-change-period
=2; mode-change-capability=2; mode-change-neighbor=1; max-red=0\r\na=rtpmap:110 telephone-
event/8000\r\na=fmtp:110 0-15\r\na=curr:qos local sendrecv\r\na=curr:qos remote no
ne\r\na=des:qos mandatory local sendrecv\r\na=des:qos mandatory remote sendrecv\r\na=conf:qos
remote sendrecv\r\na=maxptime:40\r\n (downlink
answer
m=audio 3302 RTP/AVP 118 110
a=rtpmap:118 AMR/8000/1
a=fmtp:118 mode-set=0,2,4,7; mode-change-period=2; mode-change-capability=2; mode-change-
neighbor=1; max-red=0
a=rtpmap:110 telephone-event/8000
a=fmtp:110 0-15
a=curr:qos local sendrecv
a=curr:qos remote none
a=des:qos mandatory local sendrecv
a=des:qos mandatory remote sendrecv
a=conf:qos remote sendrecv
a=maxptime:40
)
Media-Type: AUDIO (0)
Max-Requested-Bandwidth-UL: 64000
Max-Requested-Bandwidth-DL: 41000
Flow-Status: ENABLED (2)
RS-Bandwidth: 0
RR-Bandwidth: 0
Subscription-Id:
Subscription-Id-Type: END_USER_SIP_URI (2)
Subscription-Id-Data:
sip:+911234567890@ims.mncXYZ.mccXYZ.3gppnetwork.org
Subscription-Id:
Subscription-Id-Type: END_USER_IMSI (1)
Subscription-Id-Data: <1111111111111111>
AF-Charging-Identifier: "PCSF:1-sbc"
Specific-Action: INDICATION_OF_LOSS_OF_BEARER (2)
Specific-Action: INDICATION_OF_RECOVERY_OF_BEARER (3)
Specific-Action: INDICATION_OF_RELEASE_OF_BEARER (4)
Specific-Action: IP_CAN_CHANGE (6)
Framed-IP-Address: 172.16.xx.yy (0x0aAAAAcB)
Supported-Features:

Vendor-Id: XXXX

Service-Info-Status: FINAL SERVICE INFORMATION (0)

QPS-Internal-Route-Record-Host: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org

QPS-Internal-Route-Record-Realm: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org

DEBUG MSGS:

INFO : (core) Tagging message with ID: RX_TGPP

INFO : (core) Successful load by key:

imsiFramedIpKey:1111111111111111:172.16.xx.yy <<<<<<<<

INFO : (core) Start session triggered

INFO : (rx) Success binding to Gx session 0008-

diamproxy.AAAA.cisco.com;11111111;111111111;5c765a28-3b02 by IMSI And IP Address

INFO : (TGPP) [Rel8, Rel9, Rel10] features supported for Vendor-Id XXXX,

Feature-List-ID X

INFO : (core) domain: IMS

INFO : (rx) Sending AAA Message on session pcsf-stdn.imsgroup1-111-

1111111.aaa.sbc.bbb.com;316160;1;5.2551556468.2;pcsf-stdn.imsgroup1-111-1111111

INFO : (gx) Installing preconfigured rule: _1_1_2_AF_AUDIO

INFO : (gx) Installing preconfigured rule: _1_1_1_AF_AUDIO

INFO : (et) Event trigger 2 added

INFO : (et) Event trigger 5 added

INFO : (et) Event trigger 6 added

INFO : (et) Event trigger 7 added

INFO : (gx) Sending RAR Message on session 0008-

diamproxy.AAAA.cisco.com;11111111;111111111;5c765a28-3b02

SERVICE CALC MSGS:

USE CASES:

INFO : (use-cases) Use case 'XXXX IMS Default', status: true, Condition: No

Condition Set

SENT MESSAGES (asynchronous):

Message: com.broadhop.diameter2.messages.DiameterResponseMessage

Application Id: Rx (16777236)

Command Code: Rx AAA (265)

Dest host: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org

Dest realm: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org

Device protocol: RX_TGPP

End to end id: 182837146 (0x0ae5df9a)

Hop by hop id: 2274945953 (0x8798eba1)

Origin state: 0

Stack name: null

Origin realm: pcrf.mncXYZ.mccXYZ.3gppnetwork.org

Session-Id: pcsf-stdn.imsgroup1-111-

1111111.aaa.sbc.bbb.com;316160;1;5.2551556468.2;pcsf-stdn.imsgroup1-111-1111111

Auth-Application-Id: 16777236

IP-CAN-Type: 3GPP_EPS (5)

RAT-Type: EUTRAN (1004)

Supported-Features:

Vendor-Id: XXXX

QPS-Internal-Route-Record-Host: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org

QPS-Internal-Route-Record-Realm: XXXX.ims.mncXYZ.mccXYZ.3gppnetwork.org

Result-Code: DIAMETER_SUCCESS (2001)

从consolidated-qns日志中，似乎也未发生Gx与Rx会话的绑定。在consolidated-qns日志中，可以通过此处显示的异常看到这一点。

HOSTNAME-qnsXX yyyy-mm-dd 02:23:03,445 [pool-3-thread-1] **WARN**

c.b.policy.impl.RulesPolicyService - An exception was thrown while executing a policy action.

```
java.lang.NullPointerException: null <<<<<<<<<<

    at
com.broadhop.diameter2.policy.rx.tgpp.DiameterRxTGPPDeviceMgr.getGxSession(DiameterRxTGPPDeviceM
gr.java:1104)

    at
com.broadhop.diameter2.policy.rx.tgpp.DiameterRxTGPPDeviceMgr.filterEvent(DiameterRxTGPPDeviceMg
r.java:7418)

    at com.broadhop.blueprint.master.MasterBlueprint.filterEvent(MasterBlueprint.java:1283)

    at
com.broadhop.blueprint.master.MasterBlueprint.executionPreSession2(MasterBlueprint.java:245)

    at
com.broadhop.policy.Rule_Execute_Presession_Phase_2__392a9765_1022_4823_b082_cde9f22abf37__e4Baw
WmREeKEu46lGH_XOQ__0.consequence(Unknown Source)
```

解决方案

启用完全DB扫描限制并设置为5。观察到Rx AAR的数量增加并超过110(5*22)，同时观察到Rx AAA响应5012。

这是因为限制设置为5且有22个QNS VM，而且完全数据库扫描仅允许110个请求。

所有其他请求都将被丢弃，并出现错误响应。所有AAR请求都执行完整的DB扫描，因为它们尚未在后备密钥中配置IMSlandframedIP密钥。

以下是解决问题的步骤：

步骤1.在PB - cluster - lookaved key prefixes下添加imsiFramedIpKey。

步骤2.等待成功发布（发布后等待5分钟）。

步骤3.返回“群集管理器”终端，使用restartall.sh脚本重新启动qns进程。

步骤4.重新启动操作完成后，运行diagnostocs.sh脚本以验证CPS是否已启动并正在运行。

步骤5.使用telnet命令登录QNS OSGI控制台之一：

```
telnet <qns vm host name> 9091 [Eg:- telnet qns01 9091]
```

Execute "rebuildAllSkRings" command on OSGI console to rebuild the configured "Lookaside Key Prefixes" so qns process start utilizing it

```
osgi> rebuildAllSkRings
```

Please wait until execution completes

Execute "disconnect" command on console and it waits for user input just press "Enter" key to come out from OSGI console.

```
osgi> disconnect
```

Disconnect from console? (y/n; default=y)

Connection closed by foreign host.