

# 在用户级别的ASR 5000系列故障排除

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## 简介

此条款着重CLIs可适用对排除故障特定用户问题。是否有用户的已知遇到问题的用户的或组或者一未知(起初)组，有可帮助精确定位问题的一定数量的CLIs。请使用他们与(非订户的特定)统计信息CLIs的组合在故障排除流程。明显地不是所有这些命令将适用于每个情况，因为有些协议特殊化，而其他是足够通用的适用于所有用户。一些适用于用户平面(通过数据反复在用户和网络之间)，当其他适用于呼叫控制飞机(呼叫的安装)时，而一些可能适用于两个。

示例片断在一定数量的地方提供帮助做点清除。所有IP地址和识别信息更改。

## 命令

## 监视器用户(星期一-sub)

这很可能是其中最著名的on命令平台，并且多数时间是度过的此处描述和解释其使用情况。根据选择的设置，它有可能性显示所有特定的用户？s控制/信令和有效载荷数据所有接口、服务、协议等等的。在运行命令和解释输出的一些考虑事项包括以下：

- 基于调查某种程度上及时，如果问题怀疑，但是有的特定的用户问题不被认识，然后尝试捕获由？下一个呼叫？可能尝试许多次，可以导致捕获失败，如果问题足够常见。如果问题是少见的，此方法可能不可行。
- 对于已知呼叫类型(已关闭RP，打开RP、演变数据优化的(EVDO)，1X-EVDO、Layer2隧道协议(L2TP)，家庭代理程序、长期演变(LTE)等等)，是整体音量的低百分比的那些或者那些对等体数据包控制功能(PCF)的地方或对等体L2TP接入集中器(LAC)是问题怀疑的地方，然后特别是监视器注册用户菜单选项由这样标准允许合格下一个呼叫，将极大增加命中数速率。如果在节点的所有呼叫是同一个类型，则此方法不添加值(除了被提及的对等地址版本)，因为如此执行不缩小可能性。
- 有多种级别冗余1到5。请勿打开更高的水平冗余，如果没需要，它使读trace (迅速)更加困难。通常增加对冗余2 (默认= 1)是满足的。
- 默认情况下默认情况下，多数，但是不是所有是有趣的查看的，协议打开
- 除实际数据包数据以外，可能解释的特殊控制消息有时显示什么行动采取在盖板下？此信息经常是有用的。这包括呼叫统计显示在呼叫结束时。这是示例控制消息：

```
***CONTROL*** 00:25:27:054 Eventid:11813No LMA address available for APN <apn> in subscriber profile, PDN connection failed
```

- 如果增强版正在充电服务(ECS)在网关节点配置，则打开选项34 (CSS数据)允许显示到/从ECS模块发送的所有信息包，可以是有用为排除故障丢包和网络地址转换(NAT)。例如这是NAT'd由从私有IP 10.251.88.68的ECS对公有IP 209.165.201.1的用户互联网控制消息协议(ICMP)数据包

```
<<<<OUTBOUND 23:57:08:943 Eventid:77000(9)CSS Uplink Output PDU to ACS- slot:2 cpu:17
inst:436910.251.88.68 > 192.0.2.1: icmp: echo request (ttl 62, id 13840, len 84)***CONTROL***
23:57:08:943 Eventid:77202Rule matched : icmp-pkts for uplink packet of subscriber MSID
:INBOUND>>>>> 23:57:08:943 Eventid:77001(9)CSS Uplink Input PDU from ACS- slot:3 cpu:34
inst:8738209.165.201.1 > 192.0.2.1: icmp: echo request (ttl 62, id 13840, len 84)
```

- 如果它从trace不是显然的ASR为什么显示一种特定的行为，则查看用户的内部处理也许有值(解释包括状态机信息等等是困难的这样输出，但是可以由设计完成)，和，因此操作日志监控程序或记录的trace命令可能考虑(讨论以后)。
- 显示的时间戳是相当准确的，但是，因为多种设施是所有文字对屏幕实时，不可能权威推断显示的数据包定货是实际命令数据包处理，但是将是接近的。
- 在数据包数据交换网络(PDSN)或高速率数据包数据服务网关(HSGW)节点的入口侧，为了由移动台名报号(MSID)查看所有A11消息传送(如果那是重要查看在故障排除情况，可能不是)，监视器而不是用户名，因为用户名不知道(未在呼叫初被提交)和，因此不能显示。如果显示它的MSID不知道，则请由那采取一最初的trace，则在再监控MSID的开始。

这是示例其中监控由离呼叫较近(A11的开始的MSID捕获答复)与在Mobile IP (MIP)注册请求甚至RADIUS验证，当监控由用户名时。在用户名事例中，呼叫被捉住在FA服务点，而在MSID监视器被捉住前在PDSN服务点。

```
[local]PDSN> mon sub msid 111119782577072-----
------(Switching Trace) - New Incoming Call:-----
----- MSID/IMSI      : 111119782577072          Callid      : 454a2432
IMEI      : n/a          MSISDN      : n/a Username   : n/a
SessionType : unknown(0x00000000) Status      : Dormant          Service Name: ORP-1x
Src Context : source
-----Wednesday June 17 2015<<<<OUTBOUND 16:47:57:310 Eventid:29001(3)A11 Tx PDU,
from 10.208.144.30:699 to 10.211.17.206:699 (75)      Message Type: 0x03 (Registration Reply)
Code: 0x00 (Accepted)      Lifetime: 0x0708[local]PDSN> mon sub user 9782577072@cisco.com-
-----Incoming Call:-----
----- MSID/IMSI      : 111119782577072
Callid      : 110b36ad IMEI      : n/a          MSISDN      : n/a Username   :
9782577072@cisco.com      SessionType : unknown(0x00000010) Status      : Dormant
Service Name: FA_service-1 Src Context : destination
-----Wednesday June 17 2015<<<<OUTBOUND 17:11:53:987
Eventid:23901(6)RADIUS AUTHENTICATION Tx PDU, from 10.208.148.133:24912 to 198.51.100.1:1645
(401) PDU-dict=custom9 Code: 1 (Access-Request) Id: 81 Length: 401 Authenticator: CB 94 F3 4B 04
77 9F 4A 7A 44 FA 13 C9 7A 60 3C      Calling-Station-Id = 111119782577072
```

- 打开用户L3 (19)比将否则捕获在许多情况下不会产生更多信息，但是相当导致许多数据包重复项。
- 打开某些协议一式两份将发生数据包，例如Mobile IP的，MIP数据包显示两次，作为点对点协议(PPP)和作为MIP。
- 输出读好与一个非按比例的字体例如信使，因为列完全排队，使用这样字体，如此执行分析。
- 穿过特定接口的输出应该排队与该接口的一数据包捕获，是的差异监视器用户输出是子集，因为没有IP数据包的每一个字段将显示，因为不一定是相关的在排除故障有问题的协议。例如，从IP头的多数字段没有显示。如果那些字段是需要的，则请打开HEX/ASCII选项。
- 很多输出根据标准将解释，因此而不是显示一个实际整数值，系统打印值的一原文表示。打开冗余3并且/或者HEX/ASCII转储发现原始数据。

这是示例输出冗余3与2，跟随由一整个A11数据包的HEX/ASCII：

```
Application Sub Type: 0x01 (Radius)          Radius Attr: Attribute Type: 26 (Vendor-Specific)
Length: 12          Vendor Id: 5535 (ThreeGPP2)          Vendor Type: 40
(3GPP2-Airlink-Record-Type)          Vendor Length: 6          Value: 00
00 00 02          ....          (Active-Start)Application Sub Type:
0x01 (Radius)          Radius Attr: 3GPP2-Airlink-Record-Type = Active-Start0x0000 010a 0708
0000 0000 0ad0 901e 0ad0 9158          .....X0x0010 d92c 509a 0265 af7e 2715 8881 ecba
aed8          .,P..e.~'.....0x0020 0000 0001 0006 0811 1111 4290 4988 6126
.....B.I.a&0x0030 0000 d800 0015 9f01 011a 0c00 0015 9f28          .....(0x0040
0600 0000 021a 0c00 0015 9f29 06ec baae          .....0x0050 d81a 0c00 0015 9f2a 0600
0000 011a 1600          .....*.....0x0060 0015 9f74 1041 3030 3030 3034 4444 3045
...t.A000004DD0E0x0070 4535 331a 1400 0015 9f0a 0e30 3031 3230          E53.....001200x0080
3030 3330 3131 341a 0c00 0015 9f0b 0600          0030114.....0x0090 0000 001a 0c00 0015 9f0c
0600 0000 001a          .....0x00a0 0c00 0015 9f0d 0600 0000 001a 0c00 0015
.....0x00b0 9f10 0600 0000 211a 0c00 0015 9f11 0600          .....!.....0x00c0
0000 001a 0c00 0015 9f12 0600 0000 001a          .....0x00d0 0c00 0015 9f13 0600 0000
001a 0c00 0015          .....0x00e0 9f14 0600 0000 001a 0c00 0015 9f15 0600
.....0x00f0 0000 001a 0c00 0015 9f32 0600 0000 001a          .....2.....0x0100
0c00 0015 9f27 0600 0000 0020 1400 0001          .....0x0110 00b3 c5f0 257e 8e93 c719
1b79 3ef9 30be          ....%~.....y>.0.0x0120 07
```

- 不是所有的分片数据包显示，因为单元的网络处理器(NPU)结合从电线接收的片段在给他们前对sessmgr进程处理呼叫，并且监视器用户输出了的地方它生成。同样对于出站方向，NPU完成的分段没有显示。
- 在组合异地代理(FA)/HA机箱，从一个的输出用户会话只显示。例如，如果在FA的RADIUS验证被看到，它在呼叫的HA零件不显示。在这些情况下请使用监视器协议，如果feasible，将捕获的特定协议。
- 当排除故障在节点之间的问题(即FA和HA)时，请采取在两个机箱的一trace，如果在他们间的问

题间距或，如果如此执行可能帮助排除一些可能性。

例如这是从FA发送的同一数据包到HA：

```
PDSN/FA:<<<<OUTBOUND 23:57:08:941 Eventid:27001(0)MIP-TUNNEL (IPv4-IPv4) Tx PDU203.0.113.1 >
203.0.113.2: 10.251.88.68 > 192.0.2.1: icmp: echo request (ttl 62, id 13840, len 84) (ttl 255,
id 0, len 104)HA:INBOUND>>>>> 23:57:08:943 Eventid:27000(0)MIP-TUNNEL (IPv4-IPv4) Rx
PDU203.0.113.1 > 203.0.113.2: 10.251.88.68 > 192.0.2.1: icmp: echo request (ttl 62, id 13840,
len 84) (ttl 251, id 0, len 104)
```

- 从信息包数据网络(PDN)的出口接口派出和接收的数据包(这不包括例如FA的出口，因为出口是FA-HA IP隧道)，没有每不显示在untunneled接口的数据包系统的体系结构显示。如果数据包在入口来答复然后被派出暗示的入口，则数据包使它到其目的地和上一步(包括，如果目的地是机箱)。但是，如果无响应被派出入口，并且预计了，然后需要确定它是否获得了派出出口排除ASR，当罪犯，如果那样，答复在出口接收？这实际上适用于两个方向。在各自入口或出口接口的包嗅探器和在传输网络的其他点，包括在多种点的记录日志在传输包括终接点(用户设备或网络/Internet服务器)，可能是有用在找到无反应的原因。

这是一ICMP请求和答复在数据包在HA的入口的FA和HA (FA-HA通道)侧只显示，但是在FA的入口和输出侧，因为两个接口被建立隧道。注释在FA和HA之间的更改是存活时间(TTL)值作为它横断网络节点的唯一的一个字段：

```
INBOUND>>>>> 23:57:08:941 Eventid:25000(0)PPP Rx PDU (85)IP 85: 10.251.88.68 > 192.0.2.1: icmp:
echo request (ttl 63, id 13840, len 84)<<<<OUTBOUND 23:57:08:941 Eventid:27001(0)MIP-TUNNEL
(IPv4-IPv4) Tx PDU203.0.113.1 > 203.0.113.2: 10.251.88.68 > 192.0.2.1: icmp: echo request (ttl
62, id 13840, len 84) (ttl 255, id 0, len 104)INBOUND>>>>> 23:57:08:943 Eventid:27000(0)MIP-
TUNNEL (IPv4-IPv4) Rx PDU203.0.113.1 > 203.0.113.2: 10.251.88.68 > 192.0.2.1: icmp: echo request
(ttl 62, id 13840, len 84) (ttl 251, id 0, len 104)<<<<OUTBOUND 23:57:09:029
Eventid:27001(0)MIP-TUNNEL (IPv4-IPv4) Tx PDU203.0.113.2 > 203.0.113.1: 192.0.2.1 >
10.251.88.68: icmp: echo reply (ttl 42, id 27830, len 84) (ttl 255, id 0, len 104)Monday May 18
2015INBOUND>>>>> 23:57:09:030 Eventid:27000(0)MIP-TUNNEL (IPv4-IPv4) Rx PDU203.0.113.2 >
203.0.113.1: 192.0.2.1 > 10.251.88.68: icmp: echo reply (ttl 42, id 27830, len 84) (ttl 251, id
0, len 104)Monday May 18 2015<<<<OUTBOUND 23:57:09:030 Eventid:25001(0)PPP Tx PDU (88)IP 88:
192.0.2.1 > 10.251.88.68: icmp: echo reply (ttl 41, id 27830, len 84)
```

\*没有在客户能访问的ASR接口的内置的包嗅探器，但是TAC有若干功能在此区域根据协议(用户数据不可以是捕获的nomatter什么)

当分析星期一sub输出时，请考虑以下：

- 有即预计被看到的数据包未命中(从机箱或请求外面的答复从机箱或转发的数据包从机箱)
- 比排除故障可以数据包是被看到的进在相反的方向(确认至少一个方向工作)
- 是根据规格/已配置的计时器值发送/接收的在预计间隔实时并且/或者数据包
- 是按预计顺序发送/接收的数据包每份协议(请参阅警告前关于排序)
- 是包含正确/预期值(端口号、IP地址等等)的数据包的多种字段
- 对于TCP/IP，是连接适当地设置和切断。TCP标志的识别星期一sub之前使用的包括S (SYN)。跟随由在线路(确认)的Ack，Ack线路稍后跟随的S (SYN ACK)，P (推送)，R (重置)，F (FIN)
- 是一致发生的问题或随机地
- 有所有模式关于用户呼叫控制类型、用户id (用户名、msid、imsi等等)，私有或NAT IP池或者地址范围，UDP/TCP端口号，网络服务器(终端)地址，通信类型用户数据流(HTTP、SMS、FTP、UDP等等)，对等体呼叫控制Addresses节点(例如：FA、HA、PCF、策略&正在充电规则作用(PCRF)，服务网关(SGW)，直径服务器、等等)等等千方百计。
- 与规则的熟悉和服务提供商进行了可以或不可以发布/显示-的自定义协议行为询问问题!!!

## 操作日志监控程序

这实际上是一global config命令与用于的一个运行时执行命令监控特定用户。有两个优点对使用此命令：

- 因为所有输出保存对日志，没有需要保持CLI会话开放
- 它自动地保存所有设施的调试级别日志用户的，包括通常将显现监视器用户的输出。虽则调试比可以需要的更大量是，信息没有未命中，并且不插入的对系统作为启用登录或监视器协议为多种设施(因为如此执行将请求使用受监视设施)的所有用户的信息。
- 输出可能不一样容易/快速读作为监视器用户生成的那。典型地TAC和工程将需要解释输出。
- 为了捕获协议消息详细信息和将由监视器用户捕获(操作日志监控程序只保存所有协议消息最初的少数线路)，二者之一同时运行监视器用户会话及以后参考输出当必要时，当分析操作日志监控程序输出时，或者，请打开记录的全双工事件冗余(全双工global config命令“记录日志显示的事件冗余”)。因为所有输出已经连续和完成，后一个方案不要求后任何的额外的工作。

## 记录的trace

与操作日志监控程序相对，此方法使用EXEC模式级别访问，但是也同时要求已经连接的设备。这是有用的排除故障用户数据(并且/或者更加进一步的呼叫控制事件，在问题的运行命令)后与呼叫建立相对，因为呼叫需要已经设置为了此能工作(否则不是报告什么都“没有呼叫匹配指定的标准”并且达到)。类似于操作日志监控程序，“请显示日志”显示所有获取数据。

## 监控协议

此命令监控在一个机箱的所有协议交换指定的协议的(呼叫控制，数据平面)，并且输出是一个相似的风格作为监视器用户

- 这应该只是在制作机箱的最后一招由于潜在的负载被施加，从属于协议和数据包音量协议的。
- 要求管理员CLI访问运行
- 要得到一个特定用户的输出，它将需要通过识别信息的类型过滤，例如username/MSID，callid，等等。

## 活动或运行时记录日志

这获取指定的设施的输出在指定的级别(从调试的错误的范围)

-这有问题和一样与监视器协议关于系统负载和过滤用户输出

-根据设施、调试级别和时间段希望可能要求运行/配置系统日志服务器去回到，或者数据可能覆盖，当在机箱的时候尝试获取。

## 用户命令

对于所有下面的用户命令，不仅是特定的用户联机的信息，但是命中数列表可以缩小对用户的一组由任何数量的标准，例如他们附加对的呼叫控制服务(PDSN、FA、HA、LAC、L2TP网络服务器(LNS)，ECS，LTE等)或实体通信(并列)(PCF、FA、HA、LAC、LNS、SGW等等)，信息包交换的卡德(PSC)附加对，连接或被留下的空闲时间留下或会话时间(更加极大/较少比)，相当数量数据接收或发送(更加极大/较少比)，相关IP池名称，睡眠状态/激活、等等，甚至这些和许多其他参数的多种组合。使用在线帮助列出可能性然后试验他们是一个巨大方式学习。

如前面提到，它没有要求总是认识特定用户跟踪。相反认识用户落入的类别导致能得到用户的列表类别的，从哪个能进一步缩小/分析并且选择特定的用户分析。请参阅CLI自动完成帮助关于？show subscriber？。

当它来时刻选择特定的用户，与其中一个的条件关键字例如用户名、国际移动用户Identity (IMSI)，MSID、移动站点ISDN (MSISDN)等等将是必要的。

## 全双工的show subscriber

这很可能是subscriber命令的第一存在并且应该为每个用户问题捕获。它包括一吨指定的用户的信息，并且可以是非常有用的为排除故障用户问题。当不可行讨论每个字段此处时，一些字段比其他通常明显地被检查并且参考了更多，虽然每个方案根据什么是不同的排除故障。要记住的某些事是：

- 一些字段根据呼叫技术不是相关的。例如：-在HA的域指定服务器(DNS)地址不是相关的，因为DNS从PDSN/FA给。
- 休眠只有在接入节点的含义和总是设置为在网关的激活
- 能不止一次列出一些字段
- 一些字段也许指示一个值，但是另一个值实际上导致获得使用。例如，获得使用的RADIUS服务器可能更改，如果有连通性问题到主要的一个
- 对于LTE和其他，为每个已连接持票人输出的一个每个用户显示。那么例如，如果用户连接与三应用程序点名称(APNs)一个APN有两个持票人的地方，然后相继地有四独立的输出。
- 多种字段应该能与其他CLIs输出如所需要关联包括配置。

PDSN/FA (接入节点)和HA (HA是节点网关类型)节点类型的有趣的字段，也可适用主要对所有呼叫类型，包括：

- 状态-睡眠状态或活动。
- 访问类型/技术-在呼叫的入口侧的技术
- 网络类型-在呼叫的输出侧的技术
- 用户名，MSID，IP地址，NAT IP地址-方式识别用户。  
注意：msid总是不是msid。例如在PGW它是IMSI。
- Callid - 8用于的十六进制数字ID跟踪每会话的所有活动。一唯一Callid为在信息包数据网络网关(PGW)或多媒体管理实体(MME)的每个APN存在
- Sessmgr实例-处理会话的sessmgr实例(请显示任务资源将列出sessmgrs)
- 卡德/Cpu - PSC或数据处理(DPC) sessmgr驻留的卡德
- PCF、HA、FA、明显DNS地址的等等-

- 已连接定期，当已连接的呼叫时
  - 呼叫持续时间-呼叫多久连接。
    - 注意：是不同的在FA和HA之间，如果用户漫游，因为新的FA节点不会认识总寿命原始呼叫是UP为
  - 空闲定期用户数据(控制数据包没有计数)多久未交换
  - 会话时间离开-多少更加长会话能在终止前持续(控制由硬编码配置，返回在验证，并且/或者协商在节点中)
  - MIP FA/MIP HA - MIP会话的多种值
  - Input pkts/字节- #从用户/字节接收的用户数据包通过入口侧
  - 输出包/字节- #用户数据包/字节发送往用户通过入口侧。
- 注意：
- 这些计数器适用于入口侧。没有在输出侧的计数器!!
  - 应该有这些计数的接近的相关性和到/从ECS的发送的数据包，但是也许没有完全匹配
- 丢弃的丢弃的input pkts/输出包-请注意数据包可能实际上被撤销在ECS外面，例如组播信息包或者丢弃由访问控制表(ACL)在上下文(因此请勿假设所有丢包在ECS)。

网关节点：

- IP池命名- IP寻址的IP池获取。仅相关在呼叫终端(网关)，因为其他节点(即PDSN)没有方式认识池名称，只有地址。
- ECS Rulebase - rulebase在包含活动正在充电的服务(ACS)中规定适用于用户数据包
- nat IP地址-公共可路由IP地址NAT私下用户指定的IP地址
- NAT领域-用于ECS服务的分组相关的NAT IP池
- (根据要求) - NAT地址是否永久或临时地分配到用户(每池配置)
- (NAT IP池名称) - NAT池名称
- Nexthop IP地址-的应该转发数据包IP池的下一跳地址对
- NAT分配-端口联机编号和使用的和范围那些端口NAT端口大块与NAT IP
- 下行CSS信息/上行链路CSS信息-上行链路的(输入)统计和ECS服务处理的数据包的下行(输出)方向

下列是一缩写的输出(删除的一些“较不重要”字段)为“显示为PDSN和HA的同一个用户”同时采取的子全双工，进行它容易关联在两个之间的输出包括数据包计数。

```
PDSN> show sub full username 9782577072@cisco.com Monday May 18 23:56:20 UTC 2015 Username:
9782577072@cisco.com Status: Dormant Access Type: pdsn-mobile-ip Network Type: Mobile-IP Access
Tech: CDMA 1xRTT Access Network Peer ID: n/a callid: 3ee822d2 msid: 111119782577072 Card/Cpu:
15/0 Sessmgr Instance: 212 state: Connected PCF address: 10.211.17.207 connect time: Mon May 18
23:45:54 2015 call duration: 00h10m35s idle time: 00h02m30s idle time left: 02h02m30s session
time left: 23h44m25s ip address: 10.251.88.68 Primary DNS Address: 209.165.200.225 Secondary DNS
Address: 209.165.200.226 home-agent: 203.0.113.2 fa-service name: FA9 (context destination)
source context: source destination context: destination AAA context: source AAA domain:
cisco.com AAA start count: 1 AAA stop count: 0 AAA interim count(RADIUS+GTPP): 0 Acct-session-
id: 69A9CDEB AAA RADIUS group: aaa-cisco.com RADIUS Auth Server IP: 198.51.100.1 RADIUS Acct
Server IP: 198.51.100.1 NAS IP Address: 10.208.148.133 MIPFA Session: Care-of-Address:
203.0.113.1 Home-Address: 10.251.88.68 HA-Address: 203.0.113.2 Lifetime: 02h00m00s Remaining
Life: 01h49m25s Revocation Negotiated: yes Revocation I Bit Negotiated: Yes input pkts: 254
output pkts: 229 input bytes: 24088 output bytes: 129012 input pkts dropped: 0 output pkts
dropped: 0 dormancy total: 11 handoff total: 0 Num Auxiliary A10s:1 PCF Address
SR_ID10.211.17.207 1[local] HA> show sub full username 9782577072@cisco.com Monday May 18 23:56:14
UTC 2015 Username: 9782577072@cisco.com Status: Online/Active Access Type: ha-mobile-ip Network
Type: IP Access Tech: Other Access Network Peer ID: n/a callid: 4a6ae475 msid: n/a Card/Cpu: 2/0
Sessmgr Instance: 329 state: Connected FA address: 66.174.112.72 connect time: Mon May 18
```

```

23:45:54 2015 call duration: 00h10m28s idle time: 00h02m23s idle time left: n/a session time
left: 23h49m32s ip address: 10.251.88.68 ip pool name: MIP_Private ha-service name: HA1 source
context: HA destination context: XGWout Acct-session-id: A414F3F6 RADIUS Auth Server IP:
198.51.100.1 RADIUS Acct Server IP: n/a NAS IP Address: 10.208.148.135 Nexthop IP Address:
209.165.200.230 active input acl: ECS_ACL active output acl: ECS_ACL ECS Rulebase: 201 Firewall-
and-Nat Policy: MIP Nat Realm: MIP_NAT_Int Nat ip address: 170.200.132.0 (on-demand)
(MIP_NAT_Int04) Nexthop ip address: 209.165.200.230 Nat port chunks allocated[start - end]: (1
chunk) [6464 - 6495] Max NAT port chunks used: 1 HA binding care-of-addr(s): 203.0.113.1 MIPHA
binding 1: Care-of-Address: 203.0.113.1 FA Address/Port: 203.0.113.1/434 Home-Address:
10.251.88.68 HA-Address: 203.0.113.2 Lifetime: 02h00m00s Remaining Life: 01h49m32s Revocation
Negotiated: Yes Revocation I Bit Negotiated: Yes MN-HA-Key-Present: TRUE MN-HA-SPI:300 FA-HA-
Key-Present: TRUE FA-HA-SPI:8832 Proxy DNS Intercept List: ROAMINGDNS Downlink CSS Information
Service/ACL Names: /ECS_ACL downlink pkts to svc: 229 downlink pkts from svc: 229 Uplink CSS
Information Service/ACL Names: /ECS_ACL uplink pkts to svc: 254 uplink pkts from svc: 252 input
pkts: 254 output pkts: 229 input bytes: 24088 output bytes: 129012

```

基于在FA和HA节点之间的以下ICMP请求/响应信息包交换(实际上有4 ICMP交换，只有显示的一个此处)，接着而来的数据包/字节数跟踪由“显示子全双工”显示：

```

[local]PDSN> show sub full username 9782577072@cisco.comMonday May 18 23:56:20 UTC 2015 input
pkts: 254 output pkts: 229 input bytes: 24088
output bytes: 129012 input pkts dropped: 0 output pkts dropped: 0
[local]PDSN> show sub full username 9782577072@cisco.comMonday May 18 23:57:25 UTC 2015 input
pkts: 258 output pkts: 233 input bytes: 24424
output bytes: 129348INBOUND>>>>> 23:57:08:943 Eventid:27000(0)MIP-TUNNEL (IPv4-IPv4) Rx
PDU203.0.113.1 > 203.0.113.2: 10.251.88.68 > 192.0.2.1: icmp: echo request (ttl 62, id 13840,
len 84) (ttl 251, id 0, len 104)<<<<<OUTBOUND 23:57:09:029 Eventid:27001(0)MIP-TUNNEL (IPv4-
IPv4) Tx PDU203.0.113.2 > 203.0.113.1: 192.0.2.1 > 10.251.88.68: icmp: echo reply (ttl 42, id
27830, len 84) (ttl 255, id 0, len 104)[local]HA> show sub full username
9782577072@cisco.comMonday May 18 23:56:14 UTC 2015Downlink CSS Information downlink pkts to
svc: 229 downlink pkts from svc: 229 Uplink CSS Information uplink pkts to svc:
254 uplink pkts from svc: 252 input pkts: 254 output pkts: 229
input bytes: 24088 output bytes: 129012[local]HA> show sub full username
9782577072@cisco.comMonday May 18 23:57:34 UTC 2015Downlink CSS Information downlink pkts to
svc: 233 downlink pkts from svc: 233 Uplink CSS Information uplink pkts to svc:
258 uplink pkts from svc: 256 input pkts: 258 output pkts:
233 input bytes: 24424 output bytes: 129348

```

以下示例片段是为在LTE (VoLTE)呼叫的一语音。解释可以是不易处理的，因为有两个用户列出，并且差异化不是透明在他们之间。

- 列出的第一个是默认IP多媒体系统(IMS)持票人，并且第二是专用的(VoLTE)持票人，同样APN的两个部分
- 账户会话id：是区分标志。
- 输入/输出pkts/字节是不同的在两个持票人之间，并且，因为专用的持票人将发送许多(语音)数据包，一个人可能假设，有更高的计数的用户会是专用的持票人，同时...到/从ECS的数据包计数为两个列出同样(默认持票人使用的数量)
- 两显示的连接时间显示默认持票人连接时间，即使专用已连接以后。
- 方式获得更加有用的和准确，PGW呼叫的较少不易处理的信息是“显示PGW全双工”(讨论以后)

```

[local]PGW> show sub full imsi 300420060496012Monday September 16 21:50:07 UTC 2013Username:
0300420060496012@nai.epc.mnc420.mcc300.3gppnetwork.org Status: Online/Active Access Type: gtp-
pdn-type-ipv6 Network Type: IPv6 Access Tech: eUTRAN Access Network
Peer ID: n/a callid: 22075719 msid: 300420060496012 Card/Cpu: 7/1
Sessmgr Instance: 115 state: Connected SGW Address: 203.0.113.3 connect
time: Mon Sep 16 21:44:28 2013 call duration: 00h05m42s idle time: 00h00m00s
idle time left: 02h05m00s session time left: 08759h54m long duration time left: n/a

```



```

long duration action: n/a always on: Disabled ip address: 2001:db8::1 ip pool name: ims61-03
source context: XGWin destination context: XGWout ... AAA context:
XGWin AAA domain: XGWin ...Acct-session-id: 42AE2B922619E10F...
active input acl: n/a active output acl: n/a active input ipv6
acl: ECS_ACL_V6 active output ipv6 acl: ECS_ACL_V6 ECS Rulebase: PGW... P-
CSCF address : Primary: 2001:db8::fd Secondary: 2001:db8::fe Tertiary: n/a...
Downlink CSS Information Service/ACL Names: /ECS_ACL_V6 (Active Charging Optimized
Mode) downlink pkts to svc: 658 downlink pkts from svc: 658 Uplink CSS
Information Service/ACL Names: /ECS_ACL_V6 (Active Charging Optimized Mode)
uplink pkts to svc: 675 uplink pkts from svc: 675 Collapsed cscf subscribers:
none input pkts: 29 output pkts: 45 input bytes: 10578
output bytes: 10763 input bytes dropped: 0 output bytes dropped: 0
input pkts dropped: 0 output pkts dropped: 0 ... pk rate from
user(bps): 1375 pk rate to user(bps): 1699 ave rate from user(bps): 458
ave rate to user(bps): 566 sust rate from user(bps): 456 sust rate to
user(bps): 564 pk rate from user(pps): 0 pk rate to user(pps): 1
...CAE Server Address:Username: 0300420060496012@nai.epc.mnc420.mcc300.3gppnetwork.org Status:
Online/Active Access Type: gtp-pdn-type-ipv6 Network Type: IPv6 Access Tech: eUTRAN
Access Network Peer ID: n/a callid: 22075719 msid: 300420060496012
Card/Cpu: 7/1 Sessmgr Instance: 115 state: Connected
SGW Address: 203.0.113.3 connect time: Mon Sep 16 21:44:28 2013 call duration: 00h05m42s idle
time: 00h00m00s idle time left: 02h05m00s session time left: 08759h54m long
duration time left: n/a long duration action: n/a always on: Disabled ip address:
2001:db8::1 ip pool name: ims61-03 source context: XGWin destination context:
XGWout ... AAA context: XGWin AAA domain: XGWin AAA
start count: 0 AAA stop count: 0 AAA interim
count(RADIUS+GTP): 0 Acct-session-id: 42AE2B922619E18D... active input ipv6 acl:
ECS_ACL_V6 active output ipv6 acl: ECS_ACL_V6 ECS Rulebase: PGW
P-CSCF address : Primary: 2001:db8::fd Secondary: 2001:db8::fe Tertiary: n/a... Downlink CSS
Information Service/ACL Names: /ECS_ACL_V6 (Active Charging Optimized Mode) downlink pkts to
svc: 658 downlink pkts from svc: 658 Uplink CSS Information Service/ACL Names: /ECS_ACL_V6
(Active Charging Optimized Mode) uplink pkts to svc: 675 uplink pkts from svc: 675 Collapsed
cscf subscribers: none input pkts: 643 output pkts: 617 input bytes: 58421 output bytes: 55925
... pk rate from user(bps): 1375 pk rate to user(bps): 1699 ave rate from user(bps): 458 ave
rate to user(bps): 566 sust rate from user(bps): 456 sust rate to user(bps): 564 pk rate from
user(pps): 0 pk rate to user(pps): 1

```

## show subscriber (hsgw |PGW |GGSN |MME |sgw |sgsn)全双工

其中一些有非常比全双工正常的show subscriber特别地为专门制作呼叫类型(更加通用的有用的信息许多字段适用于所有呼叫类型的地方，虽然一些字段仍然是特定对某些呼叫类型)

- 一旦hsgw和GGSN，没有差异在输出中与正常比较“显示子全双工”，除了限定符对指定的类型的呼叫自动地限制命中数列表。
- MSISDN有效列出设备电话号码
- 明确地和正确地列出字段名IMSI
- 注意从同样APN的持票人有同样Callid
- 持票人类型和持票人ID -请区分在多种持票人之间
- QCI -服务质量标识符(范围自1到9)。在这种情况下QCI 1是为语音，并且QCI 5是为IMS控制
- c-teid， u-teid -控制和用户平面的终端终点标识为识别连结数据包的什么是必要的持票人与
- S5/S8/S2b-APN， SGIAPN -持票人的APN
- input pkts/输出包-数据包计数是为持票人
- MBR/GBR上行链路/下行-在两个方向的最大和保证比特率。是关于VoLTE编码的比特率的VoLTE的注意38000位/秒。

以下示例片断是为在LTE (VoLTE)呼叫的同一语音如表示以“请显示子全双工”上述，大概在同时采取(请参阅时间戳)，因此输出有用的比较可以被做，如果感兴趣。它也包括当时也连接的互联网APN

:

```
[local]PGW> show sub pgw-only full imsi 300420060496012Monday September 16 21:50:25 UTC
2013Username: 0300420060496012@nai.epc.mnc420.mcc300.3gppnetwork.org Subscriber Type : Home
Status : Online/Active State : Connected Connect Time : Mon Sep 16
21:44:28 2013 Idle time : 00h00m00s MS TimeZone : +5:00 Daylight Saving Time:
+1 hour Access Type: gtp-pdn-type-ipv6 Network Type: IPv6 Access Tech: eUTRAN
pgw-service-name: PGW1 Callid: 22075719 IMSI: 300420060496012 Protocol
Username: MSISDN: 19126757869 Interface Type: S5S8GTP Emergency Bearer
Type: N/A S6b Auth Status: Enabled Acct-session-id (C1): 42AE2B922619E10F ThreeGPP2-
correlation-id (C2): 3939BA30 / h0WKcCZS Card/Cpu: 7/1 Sessmgr
Instance: 115 Bearer Type: Default Bearer-Id: 5 Bearer State: Active IP allocation type: N/A
IPv6 allocation type: local pool IP address: 2001:db8::1 Framed Routes: N/A Framed Routes
Source: N/A ULI: TAI-ID: MCC: 300 MNC: 420 TAC: 0x8504 ECGI-ID: MCC: 300 MNC: 420 ECI: 0x207b201
Accounting mode: None APN Selection Mode: Subscribed MEI: 9900015028325700 Serving Nw: MCC=300,
MNC=420 Charging id: 639230223 Charging chars: normal Source context: XGWin Destination context:
XGWout S5/S8/S2b-APN: IMSAPN SGi-APN: IMSAPN APN-OI: mnc420.mcc300.gprs IMS Auth Service : IMS-
GX active input ipv4 acl: active output ipv4 acl: active input ipv6 acl: ECS_ACL_V6 active
output ipv6 acl: ECS_ACL_V6 ECS Rulebase: PGW Bearer QoS: QCI: 5 ARP: 0x069 PCI: 1 (Disabled) PL
: 10 PVI: 1 (Disabled) MBR Uplink(bps): 0 MBR Downlink(bps): 0 GBR Uplink(bps): 0 GBR
Downlink(bps): 0 P-CSCF address : 1: 2001:db8::fd 2: 2001:db8::fe 3: NA Access Point MAC
Address: N/A pgw c-teid: [0x8d11c073] 2366750835 pgw u-teid: [0xc20d0073] 3255631987 sgw c-teid:
[0x00160880] 1443968 sgw u-teid: [0x00160885] 1443973 ePDG c-teid: N/A ePDG u-teid: N/A pgw c-
addr: 203.0.113.4 pgw u-addr: 203.0.113.4
2001:db8::1f sgw c-addr: 203.0.113.3 sgw u-addr: 203.0.113.3 ePDG c-addr: N/A ePDG u-addr: N/A
Downlink APN AMBR: 600 Kbps Uplink APN AMBR: 600 Kbps input pkts: 29 output pkts: 45 input
bytes: 10578 output bytes: 10763 input bytes dropped: 0 output bytes dropped: 0 input pkts
dropped: 0 output pkts dropped: 0 ... pk rate from user(bps): 27699 pk rate to user(bps): 24879
ave rate from user(bps): 9691 ave rate to user(bps): 8859 sust rate from user(bps): 9720 sust
rate to user(bps): 8885 pk rate from user(pps): 37 pk rate to user(pps): 34 ave rate from
user(pps): 12 ave rate to user(pps): 11 sust rate from user(pps): 12 sust rate to user(pps): 11
link online/active percent: 100... CAE Server Address:Username:
0300420060496012@nai.epc.mnc420.mcc300.3gppnetwork.org Subscriber Type : Home Status :
Online/Active State : Connected Connect Time : Mon Sep 16 21:49:53 2013 Idle time : 00h00m00s MS
TimeZone : +5:00 Daylight Saving Time: +1 hour Access Type: gtp-pdn-type-ipv6 Network Type: IPv6
Access Tech: eUTRAN pgw-service-name: PGW1 Callid: 22075719 IMSI: 300420060496012 Protocol
Username: MSISDN: 19126757869 Interface Type: S5S8GTP Emergency Bearer Type: N/A S6b Auth
Status: Enabled Acct-session-id (C1): 42AE2B922619E18D ThreeGPP2-correlation-id (C2): 3939BA30 /
h0WKcCZS Card/Cpu: 7/1 Sessmgr Instance: 115 Bearer Type: Dedicated Bearer-Id: 7 Bearer State:
Active IP allocation type: N/A IPv6 allocation type: local pool IP address: 2001:db8::1 Framed
Routes: N/A Framed Routes Source: N/A ULI: TAI-ID: MCC: 300 MNC: 420 TAC: 0x8504 ECGI-ID: MCC:
300 MNC: 420 ECI: 0x207b201 Accounting mode: None APN Selection Mode: Subscribed MEI:
9900015028325700 Serving Nw: MCC=300, MNC=420 Charging id: 639230349 Charging chars: normal
Source context: XGWin Destination context: XGWout S5/S8/S2b-APN: IMSAPN SGi-APN: IMSAPN APN-OI:
mnc420.mcc300.gprs IMS Auth Service : IMS-GX active input ipv4 acl: active output ipv4 acl:
active input ipv6 acl: ECS_ACL_V6 active output ipv6 acl: ECS_ACL_V6 ECS Rulebase: PGW Bearer
QoS: QCI: 1 ARP: 0x06d PCI: 1 (Disabled) PL : 11 PVI: 1 (Disabled) MBR Uplink(bps): 38000 MBR
Downlink(bps): 38000 GBR Uplink(bps): 38000 GBR Downlink(bps): 38000 P-CSCF address : 1:
2001:db8::fd 2: 2001:db8::fe 3: NA Access Point MAC Address: N/A pgw c-teid: [0x8d11c073]
2366750835 pgw u-teid: [0xc1f20073] 3253862515 sgw c-teid: [0x00160880] 1443968 sgw u-teid:
[0x00160887] 1443975 ePDG c-teid: N/A ePDG u-teid: N/A pgw c-addr: 203.0.113.4 pgw u-addr:
203.0.113.4
2001:db8::1f sgw c-addr: 203.0.113.3 sgw u-addr: 203.0.113.3 ePDG c-addr: N/A ePDG u-addr: N/A
Downlink APN AMBR: 600 Kbps Uplink APN AMBR: 600 Kbps input pkts: 1640 output pkts: 1614 input
bytes: 149478 output bytes: 146930 input bytes dropped: 0 output bytes dropped: 0 input pkts
dropped: 0 output pkts dropped: 0 ... pk rate from user(bps): 27699 pk rate to user(bps): 24879
ave rate from user(bps): 9691 ave rate to user(bps): 8859 sust rate from user(bps): 9720 sust
rate to user(bps): 8885 pk rate from user(pps): 37 pk rate to user(pps): 34 ave rate from
user(pps): 12 ave rate to user(pps): 11 sust rate from user(pps): 12 sust rate to user(pps): 11

CAE Server Address:
Username: 0300420060496012@nai.epc.mnc420.mcc300.3gppnetwork.org
Subscriber Type : Home
```

Status : Online/Active  
State : Connected  
Connect Time : Mon Sep 16 21:44:33 2013  
Idle time : 00h02m04s  
MS TimeZone : +5:00 Daylight Saving Time: +1 hour

Access Type: gtp-pdn-type-ipv4-ipv6 Network Type: IPV4+IPv6  
Access Tech: eUTRAN pgw-service-name: PGW1  
Callid: 2207571f IMSI: 300420060496012  
Protocol Username: MSISDN: 19126757869  
Interface Type: S5S8GTP  
Emergency Bearer Type: N/A  
S6b Auth Status: Enabled  
Acct-session-id (C1): 42AE2B922619E115  
ThreeGPP2-correlation-id (C2): 3939BA36 / h0WKfBYt  
Card/Cpu: 7/1 Sessmgr Instance: 115

Bearer Type: Default Bearer-Id: 6

Bearer State: Active  
IP allocation type: local pool  
IPv6 allocation type: local pool  
IP address: 2001:db8::2, 10.174.230.156  
Framed Routes: N/A Framed Routes Source: N/A

ULI:

TAI-ID:  
MCC: 300 MNC: 420  
TAC: 0x8504  
ECGI-ID:  
MCC: 300 MNC: 420  
ECI: 0x207b201

Accounting mode: None APN Selection Mode: Subscribed  
MEI: 9900015028325700 Serving Nw: MCC=300, MNC=420  
Charging id: 639230229 Charging chars: normal  
Source context: XGWin Destination context: XGWout

S5/S8/S2b-APN: INTERNET

SGi-APN: INTERNET  
APN-OI: mnc420.mcc300.gprs

IMS Auth Service : IMS-GX  
active input ipv4 acl: ECS\_ACL\_V4 active output ipv4 acl: ECS\_ACL\_V4  
active input ipv6 acl: ECS\_ACL\_V6 active output ipv6 acl: ECS\_ACL\_V6  
ECS Rulebase: OCS

Bearer QoS:

QCI: 9  
ARP: 0x069  
PCI: 1 (Disabled)  
PL : 10  
PVI: 1 (Disabled)  
MBR Uplink(bps): 0 MBR Downlink(bps): 0  
GBR Uplink(bps): 0 GBR Downlink(bps): 0

P-CSCF address :

1: NA  
2: NA  
3: NA

Access Point MAC Address: N/A

pgw c-teid: [0x8c298073] 2351530099 pgw u-teid: [0xc20b8073] 3255533683  
sgw c-teid: [0x31580880] 827852928 sgw u-teid: [0x31580886] 827852934  
ePDG c-teid: N/A ePDG u-teid: N/A  
pgw c-addr: 203.0.113.4 pgw u-addr: 203.0.113.4  
2001:db8::1f  
sgw c-addr: 203.0.113.3 sgw u-addr: 203.0.113.3

```

ePDG c-addr: N/A                ePDG u-addr: N/A

Downlink APN AMBR:      75000 Kbps   Uplink APN AMBR:      75000 Kbps
input pkts: 21          output pkts: 23
input bytes: 2687      output bytes: 6457
input bytes dropped: 0  output bytes dropped: 0
input pkts dropped: 0   output pkts dropped: 0
...

```

```

CAE Server Address:
Total subscribers matching specified criteria: 3

```

## 显示全双工激活正在充电的会话

这次要subscriber命令后面“很可能显示子全双工”，更加重要在网关，如果排除故障ECS相关问题例如丢包，联机充电，IMS (PCRF)授权。

- 上行链路和下行数据包和字节应该匹配那些据报道发送到/从ECS在“显示子PGW”
- 注意跟踪丢弃的数据包的多种字段
- 动态规则NAME条目是PCRF返回的规则通过Gx交互作用在最初和持续的PCRF交互作用。匹配规则的数据包计数与他们的定义一起是列出的
- 对于充电的规则定义(在本例中它是专用的VoLTE持票人)，也列出配额、使用情况和时间

要一致，以下示例片段是为在LTE (VoLTE)呼叫的同一语音如表示以“请显示子全双工”，并且“请显示子PGW全双工”上述，大概在同时采取(请参阅时间戳)，因此输出有用的比较可以被做，如果感兴趣。

- 另外显示互联网APN哪些获取联机充电的数据
- 规则0\_0是为语音(实时传输协议(RTP))数据和0\_1是为实时控制协议(RCP) -使用随着时间的推移传达链路和语音质量在该链路。在此CLI运行了时候，数据包未在RCP持票人通过。

```

[local]PGW> show active-charging sessions full imsi 300420060496012Monday September 16 21:50:18
UTC 2013  Session-ID:          115:12023212  Username:
0300420060496012@nai.epc.mnc420.mcc300.3gppnetwork.org  Callid:          22075719
IMSI/MSID:          300420060496012  MSISDN:
19126757869  ACSMgr Instance:          115  ACSMgr Card/Cpu:          7/1  SessMgr
Instance:          115  Client-IP:
2001:db8::  NAS-IP:          0.0.0.0  Access-
NAS-IP (FA):          NAS-PORT:
0  NSAPI:          5  Acct-Session-ID:
393A43B1  NAS-ID:          n/a  Access-NAS-
ID(FA):          n/a  3GPP2-BSID:
n/a  Access-Correlation-ID(FA):          n/a  3GPP2-
Correlation-ID:          n/a  MEID:
n/a  Carrier-ID:          n/a  ESN:          n/a  Uplink Bytes:
10778  Downlink Bytes:          10411  Uplink Packets:          32  Downlink
Packets:          41  Injected Uplink Bytes:          0  Injected Downlink Bytes:
0  Injected Uplink Packets:          0  Injected Downlink Packets:          0  Buffered Uplink
Packets:          0  Buffered Downlink Packets:          0  Buffered Uplink Bytes:          0
Buffered Downlink Bytes:          0  Uplink Packets in Buffer:          0  Uplink Bytes in
Buffer:          0  Downlink Packets in Buffer:          0  Downlink Bytes in Buffer:          0
Buff Over-limit Uplink Pkts:          0  Buff Over-limit Uplink Bytes:          0  Buff Over-limit
Downlink Pkts:          0  Buff Over-limit Downlink Bytes:          0  Processed Uplink Packets:          0
Processed Downlink Packets:          0  Dropped Uplink Packets:          0  Dropped Downlink
Packets:          0  Uplink Out of Order Packets:          0  Downlink Out of Order Packets:          0

```

Dyn FUI Redirected Flows: 0 Dyn FUI Discarded Pkts: 0 ITC Terminated Flows: 0  
 ITC Redirected Flows: 0 ITC Dropped Packets: 0 ITC ToS Remarkd Packets: 0  
 ITC Dropped Upl Pkts: 0 ITC Dropped Dnl Pkts: 0 ITC Dropped Upl Bytes: 0  
 ITC Dropped Dnl Bytes: 0 Flow action Terminated Flows: 0  
 PP Flow action Terminated Flows: 0 CC Dropped Uplink Packets: 0  
 CC Dropped Uplink Bytes: 0 CC Dropped Downlink Packets: 0  
 CC Dropped Downlink Bytes: 0 NRUPC Req Made: 1 NRUPC Req Success: 1  
 NRUPC Req Failed: 0 NRUPC Req Time Out: 0  
 Dynamic Rule Limiting: Enabled Bearer Bandwidth Limiting: Enabled Uplink MBR (bps): 0  
 Downlink MBR (bps): 0 Uplink GBR (bps): 0 Downlink GBR (bps): 0  
 Uplink Burst (bytes): 0 Downlink Burst (bytes): 0 Dropped Uplink Pkts: 0  
 Dropped Downlink Pkts: 0 Dropped Uplink Bytes: 0 Dropped Downlink Bytes: 0  
 Current Readdressed Sessions: 0 Total Readdressed Uplink Pkts: 0  
 Total Readdressed Uplink Bytes: 0 Total Readdressed Downlink Pkts: 0  
 Total Readdressed Downlink Bytes: 0 Total Readdressing Failure Packets: 0  
 Non Syn Flow: 0 Duplicate Key: 0 Dropped Pkts: 0 Creation Time: Monday September 16  
 21:44:28 GMT 2013 Last Pkt Time: Monday September 16 21:50:20 GMT 2013  
 Duration: 00h:05m:52s Active Charging Service name: LTE Rule Base name: PGW  
 URL-Redir First-Request-Only: n/a Bandwidth Policy: n/a FW-and-NAT Policy: n/a  
 NAT Policy NAT44: Not-required NAT Policy NAT64: Not-required TPO Policy: n/a  
 CF Policy ID: n/a Old CF Policy ID: n/a Dynamic Charging: Enabled Dynamic Chrg  
 Msg Received: 3 Rule Definitions Received: 3 Installs Received: 3 Removes Received: 0  
 Installs Succeeded: 3 Installs Failed: 0 Removes Succeeded: 0 Removes Failed: 0  
 Uplink Dynamic Rule Packets: 32 Uplink Dynamic Rule Bytes: 10778 Downlink Dynamic Rule Packets: 41  
 Downlink Dynamic Rule Bytes: 10411 Dynamic Charging Packet Drop statistics: PCC Rule BW Limit Upl Pkts: 0  
 PCC Rule BW Limit Dnl Pkts: 0 PCC Rule BW Limit Upl Bytes: 0 PCC Rule BW Limit Dnl Bytes: 0  
 PCC Rule Gating Upl Pkts: 0 PCC Rule Gating Dnl Pkts: 0 PCC Rule Gating Upl Bytes: 0  
 PCC Rule Gating Dnl Bytes: 0 RuleMatch Fail Upl Pkts: 0 RuleMatch Fail Dnl Pkts: 0  
 RuleMatch Fail Upl Bytes: 0 RuleMatch Fail Dnl Bytes: 0 Credit-Control: Off Event-Triggers: QoS  
 Renegotiate Up: 0 QoS Renegotiate Dn: 0 TCP Proxy Flows Requests: 0 TCP Proxy Flows Request Success: 0  
 Disable TCP Proxy Flows Requests: 0 Disable TCP Proxy Flows Success: 0 Current TCP Proxy Flows: 0  
 Total TCP Proxy Flows: 0 TCP-proxy reset for non-SYN flows: 0 Current IP Flows: 0  
 Current ICMP Flows: 0 Current IPv6 Flows: 2 Current ICMPv6 Flows: 0 Current TCP Flows: 1  
 Current UDP Flows: 1 Current HTTP Flows: 0 Current HTTPS Flows: 0 Current FTP Flows: 0  
 Current POP3 Flows: 0 Current SMTP Flows: 0 Current SIP Flows: 1 Current RTSP Flows: 0  
 Current RTP Flows: 0 Current RTCP Flows: 0 Current IMAP Flows: 0 Current WSP-CO Flows: 0  
 Current WSP-CL Flows: 0 Current MMS Flows: 0 Current DNS Flows: 0 Current PPTP-GRE Flows: 0  
 Current PPTP Flows: 0 Current P2P Flows: 0 Current H323 Flows: 0 Current TFTP Flows: 0  
 Current UNKNOWN Flows: 1 Max (L3) Flows: 6 Max Flows Timestamp: Monday September 16  
 21:44:39 GMT 2013 CAE-Readdressing: GET Requests redirected: 0 POST Requests redirected: 0  
 Other Requests redirected: 0 HTTP Responses redirected: 0 Requests having xheader inserted: 0  
 Total Uplink Bytes: 0 Total Uplink Packets: 0 Total Downlink Packets: 0 Total request charging  
 action hit: 0 Total response charging action hit: 0 Total Charging action hit - Req. Readdr.: 0  
 Total Charging action hit - Resp. Readdr.: 0 CAE Readdressing Err. Conditions: Total connection  
 failed to video server: 0 Skipped Req. Readdr. - pipelined req: 0 Skipped Req. Readdr. - persistent case: 0  
 Skipped Req.

```

Readdr. - zero copied buf:                                0 Skipped Req. Readdr. - buf limit
exceed:                                                  0 Req. Readdr. - Socket Mig. failed:
0 Skipped Flow. - pipelined req.:                        0 Skipped Resp.
Readdr. - pipelined req:                                0 Skipped Resp. Readdr. - persistent
case:                                                  0 Skipped Resp. Readdr. - partial resp hdr:
0 Skipped Resp. Readdr. - zero copied buf:              0 Skipped Resp.
Readdr. - buf limit exceed:                              0 Resp. Readdr. - Socket Mig. failed:
0 Total load balancer failed:                            0 Total MVG xheader
insertion failed:                                       0 Rulebase configuration missing:
0 Transrating: Total Transrated Video Connections:      0
Total GZIP'd Video Connections:                          0 Total MP4 Video
Connections:                                             0 Total FLV Video Connections:
0 Transrated Sorenson H263 Connections:                  0 Transrated H264
Connections:                                             0 Failed Sorenson H263 Connections:
0 Failed H264 Connections:                              0 Failed Video Codec
not supported                                           0 Total Input Video Data Bytes:
0 SH263 Input Video Data Bytes:                          0 H264 Input Video
Data Bytes:                                             0 GZIP Input Video Data Bytes:
0 Total Output Video Data Bytes:                          0 SH263 Output Video
Data Bytes:                                             0 H264 Output Video Data Bytes:
0 GZIP Output Video Data Bytes:                          0 Average Input
Video Bit Rate:                                         0 SH263 Input Video Bit Rate:
0 H264 Input Video Bit Rate:                             0 Average Output
Video Bit Rate:                                         0 SH263 Output Video Bit Rate:
0 H264 Output Video Bit Rate:                           0 Average Bit Rate
Reduction:                                             0 SH263 Bit Rate Reduction:
0 H264 Bit Rate Reduction:                              0 TCP-Proxy Session
Stats:                                                 n/a WiMAX Hotlining Status:
n/a Link Monitoring Average Throughput:                  0 kbps Link Monitoring Average RTT:
0 ms Charging Updates:                                  n/aDynamic Charging
Rule Definition Statistics:Dynamic-Rule-Name            Pkts-Down Bytes-Down    Pkts-Up   Bytes-Up
Hits-----
41      10411      32      10778      73Total Dynamic Rules:          1Total Predefined
Rules:          0Total Firewall Predefined Rules: 0Charging-Updates Statistics:
n/aDynamic Charging Rule Definition(s) Configured:Name      Prior Content-Id Chrg-
Type Rule Parameters -----
----- IMSDefault  950      100  Offline Gate Status:      Allow All
QoS Class Identifier:      5                                ARP Priority Level:
10                                Reporting Level: Rating Grp
Metering Method:  Duration                                Uplink MBR:
75000000                                Downlink MBR:      75000000
Filter 1:                                Direction:          Uplink
Dst Addr  ::/0                                Filter 2:
Direction:      Downlink                                Src Addr
::/0Predefined Rules Enabled List: n/aPredefined Firewall Rules Enabled List: n/a Session-ID:
115:12023218 Username: 0300420060496012@nai.epc.mnc420.mcc300.3gppnetwork.org Callid:
2207571f IMSI/MSID:      300420060496012 MSISDN:
19126757869 ACSMgr Instance:      115 ACSMgr Card/Cpu:      7/1 SessMgr
Instance:                                115 Client-IP:
2001:db8::,10.174.230.156 NAS-IP:
0.0.0.0 Access-NAS-IP(FA):                                NAS-PORT:
0 NSAPI:      6 Acct-Session-ID:
393A43B7 NAS-ID:                                n/a Access-NAS-
ID(FA):                                n/a 3GPP2-BSID:
n/a Access-Correlation-ID(FA):                                n/a 3GPP2-
Correlation-ID:                                n/a MEID:
n/a Carrier-ID:                                n/a ESN:      n/a Uplink Bytes:
2887 Downlink Bytes:      6105 Uplink Packets:      24 Downlink
Packets:      19 Injected Uplink Bytes:      0 Injected Downlink Bytes:
0 Injected Uplink Packets:      0 Injected Downlink Packets:      0 Buffered Uplink
Packets:      0 Buffered Downlink Packets:      0 Buffered Uplink Bytes:      0
Buffered Downlink Bytes:      0 Uplink Packets in Buffer:      0 Uplink Bytes in
Buffer:      0 Downlink Packets in Buffer:      0 Downlink Bytes in Buffer:      0
Buff Over-limit Uplink Pkts:      0 Buff Over-limit Uplink Bytes:      0 Buff Over-limit

```

Downlink Pkts: 0 Buff Over-limit Downlink Bytes: 0 Processed Uplink Packets: 0  
Processed Downlink Packets: 0 Dropped Uplink Packets: 0 Dropped Downlink  
Packets: 0 Uplink Out of Order Packets: 0 Downlink Out of Order Packets: 0  
Dyn FUI Redirected Flows: 0 Dyn FUI Discarded Pkts: 0 ITC Terminated Flows:  
0 ITC Redirected Flows: 0 ITC Dropped Packets: 0 ITC ToS Remarkd  
Packets: 0 ITC Dropped Upl Pkts: 0 ITC Dropped Dnl Pkts: 0  
ITC Dropped Upl Bytes: 0 ITC Dropped Dnl Bytes: 0 Flow action  
Terminated Flows: 0 PP Flow action Terminated Flows:  
0 CC Dropped Uplink Packets: 0 CC Dropped Uplink Bytes: 0 CC Dropped  
Downlink Packets: 0 CC Dropped Downlink Bytes: 0 NRUPC Req Made:  
1 NRUPC Req Success: 1 NRUPC Req Failed: 0 NRUPC Req Time  
Out: 0 Dynamic Rule Limiting: Enabled Bearer Bandwidth Limiting: Enabled Uplink  
MBR (bps): 0 Downlink MBR (bps): 0 Uplink GBR (bps):  
0 Downlink GBR (bps): 0 Uplink Burst (bytes): 0 Downlink Burst  
(bytes): 0 Dropped Uplink Pkts: 0 Dropped Downlink Pkts: 0  
Dropped Uplink Bytes: 0 Dropped Downlink Bytes: 0 Current Readdressed  
Sessions: 0 Total Readdressed Uplink Pkts:  
0 Total Readdressed Uplink Bytes: 0 Total Readdressed  
Downlink Pkts: 0 Total Readdressed Downlink Bytes:  
0 Total Readdressing Failure Packets: 0 Non Syn Flow:  
0 Duplicate Key: 0 Dropped Pkts: 0 Creation Time:  
Monday September 16 21:44:33 GMT 2013 Last Pkt Time: Monday September 16  
21:48:33 GMT 2013 Duration: 00h:05m:47s  
Active Charging Service name: LTE Rule Base name:  
OCS URL-Redir First-Request-Only: n/a Bandwidth  
Policy: n/a FW-and-NAT Policy:  
NATPOLICY NAT Policy NAT44: Required NAT Policy  
NAT64: Not-required TPO Policy:  
n/a CF Policy ID: n/a Old CF Policy  
ID: n/a Dynamic Charging:  
Enabled Dynamic Chrg Msg Received: 1 Rule Definitions Received: 1 Installs  
Received: 3 Removes Received: 0 Installs Succeeded:  
3 Installs Failed: 0 Removes Succeeded: 0 Removes Failed:  
0 Uplink Dynamic Rule Packets: 22 Uplink Dynamic Rule Bytes: 2763 Downlink Dynamic  
Rule Packets: 17 Downlink Dynamic Rule Bytes: 5879 Dynamic Charging Packet Drop  
statistics: PCC Rule BW Limit Upl Pkts: 0 PCC Rule BW Limit Dnl Pkts: 0 PCC Rule  
BW Limit Upl Bytes: 0 PCC Rule BW Limit Dnl Bytes: 0 PCC Rule Gating Upl Pkts:  
0 PCC Rule Gating Dnl Pkts: 0 PCC Rule Gating Upl Bytes: 0 PCC Rule Gating  
Dnl Bytes: 0 RuleMatch Fail Upl Pkts: 0 RuleMatch Fail Dnl Pkts: 0  
RuleMatch Fail Upl Bytes: 0 RuleMatch Fail Dnl Bytes: 0 Credit-Control:  
On CC Peer: PHLARTRMAS03 CC Group:  
DCCA-GY CC Mode: DIAMETER CC Failure  
Handling: Retry & Terminate CC Session Failover:  
Enabled CCR-I Server Unreachable Handling: Continue CCR-U Server  
Unreachable Handling: Continue Total CCR-U  
0 Current Server Unreachable State: n/a Interim Volume  
in Bytes (used / allotted): na/ na Interim Time in Seconds (used /  
allotted): na/ na Server Retries (attempted / configured):  
na/ na QoS Renegotiate Up: 0 QoS Renegotiate Dn: 0 TCP Proxy  
Flows Requests: 0 TCP Proxy Flows Request Success: 0 Disable TCP Proxy Flows  
Requests: 0 Disable TCP Proxy Flows Success: 0 Current TCP Proxy Flows: 0 Total  
TCP Proxy Flows: 0 TCP-proxy reset for non-SYN flows:  
0 Current IP Flows: 0 Current ICMP Flows: 0 Current IPv6  
Flows: 1 Current ICMPv6 Flows: 0 Current TCP Flows:  
1 Current UDP Flows: 0 Current HTTP Flows: 0 Current HTTPS  
Flows: 0 Current FTP Flows: 0 Current POP3 Flows: 0  
Current SMTP Flows: 0 Current SIP Flows: 0 Current RTSP Flows:  
0 Current RTP Flows: 0 Current RTCP Flows: 0 Current IMAP  
Flows: 0 Current WSP-CO Flows: 0 Current WSP-CL Flows:  
0 Current MMS Flows: 0 Current DNS Flows: 0 Current PPTP-GRE  
Flows: 0 Current PPTP Flows: 0 Current P2P Flows: 0  
Current H323 Flows: 0 Current TFTP Flows: 0 Current UNKNOWN  
Flows: 1 Max (L3) Flows: 6 Max Flows Timestamp:  
Monday September 16 21:44:40 GMT 2013... Charging Updates:

```

n/a      Rating-Group:          3300      Service-Identifier:          0      State:
Charging   Checkpoint State:      Current      Pending Update:          No      Last
Answer:    0h05m47s      Validity-Time:          42853      Volume Threshold:
255852544          Quota          Usage      Total Usage      -----
-----
----- CC-Time:          -
347        347      CC-Total-Octets:      524288000      8992      8992      CC-
Input-Octets:      -      2887      2887      CC-Output-Octets:      -
6105        6105      CC-Service-Specific-Units:      -      36      36      Quota-
Consumption-Time:      -      -      Quota-Hold-Time:      -      -
Quota-Validity-Time:      43200      347Ruledef Name      Pkts-Down Bytes-Down
Pkts-Up  Bytes-Up      Hits-----
-----HandledDNS3300          2      226      2      124      4Firewall-
Ruledef Name Pkts-Down Bytes-Down      Pkts-Up  Bytes-Up      Hits-----
-----int_apn_src          2      226
2      124      4Dynamic Charging Rule Definition Statistics:Dynamic-Rule-Name      Pkts-
Down Bytes-Down      Pkts-Up  Bytes-Up      Hits-----
-----RTRRule3300          17      5879      22      2763
36Total Dynamic Rules:          1Total Predefined Rules:          2Total Firewall Predefined
Rules: 0Charging-Updates Statistics:          n/aDynamic Charging Rule Definition(s)
Configured:Name      Prior Content-Id Chrg-Type Rule Parameters      -----
-----RTRRule3300      950
3300      Both Gate Status:      Allow All          QoS
Class Identifier:      9          ARP Priority Level:
10          Reporting Level: Rating Grp
Metering Method: Durn + Vol          Uplink MBR:
75000000          Downlink MBR:      75000000
Filter 1:          Direction:          Uplink
Dst Addr 0.0.0.0/0          Filter 2:
Direction:      Downlink          Src Addr 0.0.0.0/0
Filter 3:          Direction:          Uplink
Dst Addr ::/0          Filter 4:
Direction:      Downlink          Src Addr
::/0Predefined Rules Enabled List:      HandleTCP3300      HandledDNS3300Predefined Firewall
Rules Enabled List: n/a Session-ID:          115:12023409 Username:
0300420060496012@nai.epc.mnc420.mcc300.3gppnetwork.org Callid:          22075719
IMSI/MSID:          300420060496012 MSISDN:
19126757869 ACSMgr Instance:          115 ACSMgr Card/Cpu:          7/1 SessMgr
Instance:          115 Client-IP:
2001:db8:: NAS-IP:          0.0.0.0 Access-
NAS-IP(FA):          NAS-PORT:
0 NSAPI:          7 Acct-Session-ID:
393A43B1 NAS-ID:          n/a Access-NAS-
ID(FA):          n/a 3GPP2-BSID:
n/a Access-Correlation-ID(FA):          n/a 3GPP2-
Correlation-ID:          n/a MEID:
n/a Carrier-ID:          n/a ESN:          n/a Uplink Bytes:
94041 Downlink Bytes:          83406 Uplink Packets:          1033 Downlink
Packets:          922... Dynamic Rule Limiting: Enabled Bearer Bandwidth Limiting:
Enabled Uplink MBR (bps):          38000 Downlink MBR (bps):          38000 Uplink GBR
(bps):          38000 Downlink GBR (bps):          38000 Uplink Burst (bytes):
9500 Downlink Burst (bytes):          9500 Dropped Uplink Pkts:          0 Dropped
Downlink Pkts:          0 Dropped Uplink Bytes:          0 Dropped Downlink Bytes:
0 Current Readdressed Sessions:          0 Total Readdressed
Uplink Pkts:          0 Total Readdressed Uplink Bytes:
0 Total Readdressed Downlink Pkts:          0 Total Readdressed
Downlink Bytes:          0 Total Readdressing Failure Packets:
0 Non Syn Flow:          0 Duplicate Key:          0 Dropped Pkts:
0 Creation Time:          Monday September 16 21:44:28 GMT 2013 Last Pkt Time:
Monday September 16 21:50:20 GMT 2013 Duration:
00h:05m:52s Active Charging Service name:          LTE Rule
Base name:          PGW URL-Redir First-Request-
Only:          n/a Bandwidth Policy:
n/a FW-and-NAT Policy:          n/a NAT Policy
NAT44:          Not-required NAT Policy NAT64:

```



```

Not-required TPO Policy: n/a CF
Policy ID: n/a Old CF Policy ID:
n/a Dynamic Charging: Enabled Dynamic Chrg Msg
Received: 0 Rule Definitions Received: 0 Installs Received: 0
Removes Received: 0 Installs Succeeded: 0 Installs Failed:
0 Removes Succeeded: 0 Removes Failed: 0 Uplink Dynamic
Rule Packets: 1033 Uplink Dynamic Rule Bytes: 94041 Downlink Dynamic Rule Packets: 922
Downlink Dynamic Rule Bytes: 83406 Dynamic Charging Packet Drop statistics: PCC Rule BW Limit
Upl Pkts: 0 PCC Rule BW Limit Dnl Pkts: 0 PCC Rule BW Limit Upl Bytes: 0
PCC Rule BW Limit Dnl Bytes: 0 PCC Rule Gating Upl Pkts: 0 PCC Rule Gating Dnl
Pkts: 0 PCC Rule Gating Upl Bytes: 0 PCC Rule Gating Dnl Bytes: 0
RuleMatch Fail Upl Pkts: 0 RuleMatch Fail Dnl Pkts: 0 RuleMatch Fail Upl
Bytes: 0 RuleMatch Fail Dnl Bytes: 0 Credit-Control:
Off Event-Triggers: QoS Renegotiate
Up: 0 QoS Renegotiate Dn: 0 TCP Proxy Flows Requests: 0
TCP Proxy Flows Request Success: 0 Disable TCP Proxy Flows Requests: 0 Disable TCP Proxy
Flows Success: 0 Current TCP Proxy Flows: 0 Total TCP Proxy Flows: 0
TCP-proxy reset for non-SYN flows: 0 Current IP Flows:
0 Current ICMP Flows: 0 Current IPv6 Flows: 1 Current ICMPv6
Flows: 0 Current TCP Flows: 0 Current UDP Flows: 1
Current HTTP Flows: 0 Current HTTPS Flows: 0 Current FTP Flows:
0 Current POP3 Flows: 0 Current SMTP Flows: 0 Current SIP Flows:
0 Current RTSP Flows: 0 Current RTP Flows: 0 Current RTCP
Flows: 0 Current IMAP Flows: 0 Current WSP-CO Flows:
0 Current WSP-CL Flows: 0 Current MMS Flows: 0 Current DNS Flows:
0 Current PPTP-GRE Flows: 0 Current PPTP Flows: 0 Current P2P Flows:
0 Current H323 Flows: 0 Current TFTP Flows: 0 Current UNKNOWN
Flows: 1 Max (L3) Flows: 0 Max Flows Timestamp:
n/a... Charging Updates: n/aNo Charging
ruledef(s) match the specified criteriaNo Firewall ruledef(s) match the specified
criteriaDynamic Charging Rule Definition Statistics:Dynamic-Rule-Name Pkts-Down Bytes-Down
Pkts-Up Bytes-Up Hits-----
-----0_0 922 83406 1033 94041 1955Total Dynamic
Rules: 2Total Predefined Rules: 0Total Firewall Predefined Rules:
0Charging-Updates Statistics: n/aDynamic Charging Rule Definition(s) Configured:Name
Prior Content-Id Chrg-Type Rule Parameters -----
----- 0_0 400 102 Offline Gate Status:
Allow All QoS Class Identifier: 1
ARP Priority Level: 11 Reporting Level:
Rating Grp Metering Method: Duration
Uplink MBR: 38000 Downlink MBR:
38000 Uplink GBR: 38000
Downlink GBR: 38000 Filter 1:
Direction: Uplink Protocol:
UDP Src Addr 2001:db8::12/128
Dst Addr 2001:db8::13/128 Dst Port 59536
Filter 2: Direction: Downlink
Protocol: UDP Src Addr
2001:db8::13/128 Dst Addr 2001:db8::12/128
Dst Port 53626 0_1 401 102 Offline Gate Status: Allow All
QoS Class Identifier: 1 ARP Priority Level:
11 Reporting Level: Rating Grp
Metering Method: Duration Uplink MBR:
0 Downlink MBR: 0
Uplink GBR: 0 Downlink GBR:
0 Filter 1:
Direction: Uplink Protocol:
UDP Src Addr 2001:db8::12/128
Dst Addr 2001:db8::13/128 Dst Port 59537
Filter 2: Direction: Downlink
Protocol: UDP Src Addr
2001:db8::13/128 Dst Addr 2001:db8::12/128
Dst Port 53627Predefined Rules Enabled List: n/aPredefined Firewall Rules Enabled List: n/a

```

Total acs sessions matching specified criteria: 3

## 显示激活正在充电防火墙统计信息

这是妹“显示全双工激活正在充电的会话”并且可能提供更多信息在原因为丢包。

```
[XGWout]PGW> show active-charging firewall statistics callid 0000513aThursday June 18 17:01:20
UTC 2015Firewall Statistics for Callid 0000513a in Context: XGWout.Data Stats:Total Packets
Received: 8745Total Bytes Received:
5296353Total Packets Sent: 8704Total
Bytes Sent: 5291193Total Packets (NAT64
Translation): 0Total Bytes Reduced (NAT64
Translation): 0Total Packets Injected:
0Total Bytes Injected: 0Uplink Packets
Dropped: 37Uplink Bytes Dropped:
5000Downlink Packets Dropped: 4Downlink
Bytes Dropped: 160Total Malformed Packets:
0Total DOS Attacks: 0Total Flows
Processed by Firewall: 0Total NAT Flows Processed by
Firewall: 171Total NAT44 Flows Processed by Firewall:
171Total NAT64 Flows Processed by Firewall: 0Total Bypass-
NAT Flows Processed by Firewall: 0Total Bypass-NAT44 Flows
Processed by Firewall: 0Total Bypass-NAT64 Flows Processed by
Firewall: 0Current Flows Processed by Firewall:
0Current NAT Flows Processed by Firewall: 1Current NAT44
Flows Processed by Firewall: 1Current NAT64 Flows Processed
by Firewall: 0Current Bypass-NAT Flows Processed by
Firewall: 0Current Bypass-NAT44 Flows Processed by Firewall:
0Current Bypass-NAT64 Flows Processed by Firewall: 0
```

## show subscriber数据速率[high-low]

捕获数据速率/用户的用户或组的吞吐量

- 这是最有用的即，当应用对怀疑有数据问题/用户的一组两个方向与有问题的正常比较了或其他组-一个特定的IP池的用户

以下输出是为同一个VoLTE用户被采取在上一个命令的同时。

```
[local]PGW> show sub data-rate high callid 22075719 Monday September 16 21:51:07 UTC 2013Total
Subscribers : 1 Active : 1 Dormant :
0 peak rate from user(bps): 27699 peak rate to user(bps) : 24879 ave rate
from user(bps) : 16663 ave rate to user(bps) : 16433 sust rate from user(bps):
16692 sust rate to user(bps) : 16459 peak rate from user(pps): 37 peak
rate to user(pps) : 34 ave rate from user(pps) : 22 ave rate to user(pps)
: 22 sust rate from user(pps): 22 sust rate to user(pps) : 22
```

## show subscriber调试INFO

此命令有可能是有用为TAC或工程在他们的努力支持客户主要的信息，虽然有信息在这里好奇客户也许查找有趣的。

## 使用得同一VoLTE示例这里：

```
[local]PGW> show sub debug-info msid 300420060496012Monday September 16 21:50:51 UTC
2013username: 0300420060496012@nai.epc.mnc420.mcc300.3gppnetwork.org
callid: 22075719 msid: 300420060496012 Card/Cpu: 7/1 Sessmgr Instance: 115 Primary callline:
Redundancy Status: Original Session Checkpoints Attempts Success Last-Attempt Last-Success Full:
8 6 63300ms 63300ms Micro: 661 661 0ms 0ms GR Checkpoints Sent 2 Full Checkpoints, last 63
seconds before 56 Micro Checkpoints, last 3 seconds before Invalidate-CRRs: 0 Call Statistics: 1
Current number of NAT flows checkpointed: 0 Current state: SMGR_STATE_CONNECTED FSM Event trace:
State Event Num Occurances Time SMGR_STATE_OPEN SMGR_EVT_NEWCALL (1) 2013-09-16:21:44:28
SMGR_STATE_NEWCALL_ARRIVED SMGR_EVT_IPV6ADDR_ALLOC_SUCCESS (1) 2013-09-16:21:44:29
SMGR_STATE_NEWCALL_ARRIVED SMGR_EVT_ANSWER_CALL (1) 2013-09-16:21:44:29
SMGR_STATE_NEWCALL_ANSWERED SMGR_EVT_LINE_CONNECTED (1) 2013-09-16:21:44:29
SMGR_STATE_LINE_CONNECTED SMGR_EVT_LOWER_LAYER_UP (1) 2013-09-16:21:44:29 CLP State Trace: State
EBI's Associated Time CLI_MAPPED_SGX_EVT_POLICY_STATUS_IND - - - - - 2013-09-
16:21:49:53 CLI_MAPPED_SGX_EVT_POLICY_CHANGE_REQ - - - - - 2013-09-16:21:49:53
CLI_MAPPED_SEF_EVT_POLICY_CHANGE_REQ - - - - - 2013-09-16:21:49:53
CLI_MAPPED_SEF_EVT_POLICY_CHANGE_RSP - - - - - 2013-09-16:21:49:53
CLI_MAPPED_SGX_EVT_POLICY_CHANGE_REQ - - - - - 2013-09-16:21:49:53
CLI_MAPPED_SGX_EVT_POLICY_STATUS_IND - - - - - 2013-09-16:21:49:53
CLI_MAPPED_SEF_EVT_SESS_SETUP_RSP - - - - - 2013-09-16:21:44:29
CLI_MAPPED_SGX_EVT_POLICY_STATUS_IND - - - - - 2013-09-16:21:44:29
SMGR_CLP_EVT_PGW_UPDATE_BEARER_REQ - - - - - 2013-09-16:21:44:29
CLI_MAPPED_SEF_EVT_BEARER_BINDING_RSP - - - - - 2013-09-16:21:44:29
SMGR_CLP_EVT_PGW_CREATE_SESSION_RSP 5 - - - - - 2013-09-16:21:44:29
CLI_MAPPED_SGX_EVT_POLICY_CHANGE_REQ - - - - - 2013-09-16:21:49:52
CLI_MAPPED_SEF_EVT_POLICY_CHANGE_REQ - - - - - 2013-09-16:21:49:52
CLI_MAPPED_SEF_EVT_POLICY_CHANGE_RSP - - - - - 2013-09-16:21:49:52
CLI_MAPPED_SGX_EVT_POLICY_CHANGE_REQ - - - - - 2013-09-16:21:49:52
CLI_MAPPED_SGX_EVT_POLICY_STATUS_IND - - - - - 2013-09-16:21:49:52
SMGR_CLP_EVT_PGW_CREATE_BEARER_REQ - - - - - 2013-09-16:21:49:52
CLI_MAPPED_SEF_EVT_BEARER_BINDING_RSP - - - - - 2013-09-16:21:49:53
SMGR_CLP_EVT_PGW_CREATE_BEARER_RSP - - 7 - - - - - 2013-09-16:21:49:53
CLI_MAPPED_SEF_EVT_POLICY_STATUS_IND - - - - - 2013-09-16:21:49:53 Sub Session State
Trace: EBI ID State TimeStamp 5 SMGR_STATE_NEWCALL_ARRIVED 2013-09-16:21:44:28 5
SMGR_STATE_CONNECTED 2013-09-16:21:44:29 7 SMGR_STATE_CONNECTED 2013-09-16:21:49:53 NAT Policy
NAT44: Not-required NAT Policy NAT64: Not-required Data Reorder statistics Total timer expiry: 0
Total flush (tmr expiry): 0 Total no buffers: 0 Total flush (no buffers): 0 Total flush (queue
full): 0 Total flush (out of range):0 Total flush (svc change): 0 Total out-of-seq pkt drop: 0
Total out-of-seq arrived: 0 IPv4 Reassembly Statistics: Success: 0 In Progress: 0 Failure
(timeout): 0 Failure (no buffers): 0 Failure (other reasons): 0 Re-addressed Session Entries:
Allowed: 2000 Current: 0 Added: 0 Deleted: 0 Revoked for use by different subscriber: 0 TCP
Proxy DNS Info entries 0 IPv4 ACL applied: active input acl: number of rules: 0 active output
acl: number of rules: 0 ACL caching statistics: input packets: 2206 input cache hits: 0 output
packets: 2183 output cache hits: 0 IPv6 ACL applied: active input ipv6 acl: ECS_ACL_V6 number of
rules: 8 active output ipv6 acl: ECS_ACL_V6 number of rules: 8 IPv6 ACL caching statistics:
input cache hits: 1787 output cache hits: 739 Total number of ACL reload: 0 Total number of ACS
session deleted on ACL reload: 0 NEMO Mode: N/A ; Peer bond: NO ; Peer Callid: 00000000 sessmgr
NPU Flow Details: Flow Id Flow Type Nat Realm VPN Id 8079786 IPV6_FLOW n/a 5 Private IP NPU flow
timeout (Seconds) : n/a ACS PCP Service: n/a
```

## show subscriber AAA配置

这是所有AAA和配置(涉及的均等非AAA)相关信息—巨大的列表用户的，不管AAA是否是均等使用或访问。发现是有用的什么机箱分配到用户，而不必要分析AAA认证信息包交换，用户配置文件

或做关于默认机箱设置的假定。

## show subscriber活动

这标注用户的活动程度

## 显示激活正在充电流IP地址

这是所有流列表由流id的所有会话的连接对给的出口IP地址，与在两个方向发送的字节数一起。箴言报用户必须首先使用发现用户尝试访问然后确认的什么地址任何数据包是否从该地址接收。

- 关于流id的详细信息利益可以获取与显示激活正在充电流全双工流id，识别由MS IP字段(用户的IP地址的适当的流哪些从输出的星期一-sub这时知道)。

## show subscriber策略

这列出分配的用户的当前策略

## 显示[mipfa|全双工的mipha]

这列出关于用户的详细的MIP相关信息

```
[local]PDSN-FA> show mipfa full username 9786045176@cisco.com Tuesday May 12 16:08:05 UTC
2015Username: 9786045176@cisco.com Callid: 1120ff97MSID: 311289786045176
Num Agent Advt Sent: 1 Num Agent Solicit Rcvd: 0 Home Address #1: 10.235.121.62 NAI:
9786045176@cisco.com FA Address: 203.0.113.1 HA Address: 203.0.113.2 Lifetime:
02h00m00s Remaining Lifetime: 01h56m04s Reverse Tunneling: On
Encapsulation Type: IP-IP GRE Key: n/a IPSec Required: No IPSec Ctrl
Tunnel Estab.: No IPSec Data Tunnel Estab.: No MN-AAA Removal: No Proxy
MIP: Disabled DMU Auth Failures: 0 Send Terminal Verification: Disabled
Revocation Negotiated: YES Revocation I Bit Negotiated: YES MN-HA-Key-Present: FALSE
MN-HA-SPI: n/a FA-HA-Key-Present: TRUE FA-HA-SPI: 8832 MN-FA-Key-Present: FALSE
MN-FA-SPI: n/a HA-RK-KEY-Present: FALSE HA-RK-SPI: n/a HA-RK-Lifetime: n/a
HA-RK-Remaining-Lifetime: n/a Send Host Config: Disabled
```

## 显示[mipfa|mipha]计数器

这报告关于用户的多种MIP涉及的计数器：

```
[local]PFDN> show mipfa counters username 9786045176@cisco.com Tuesday May 12 16:08:12 UTC
```

```

2015MSID: 311289786045176Username: 9786045176@cisco.comCallid: 1120ff97Num Agent Advt Sent: 1
Num Agent Solicit Rcvd: 0 Home Address: 10.235.121.62 NAI: 9786045176@cisco.com FA
Address: 203.0.113.1 HA Address: 203.0.113.2Registration Request Received: Total
Received Reg: 1 Accepted Reg: 1 Rejected Reg:
0 Denied Reg: 0 Discarded Reg: 0
Relayed Reg: 1 Auth Failed Reg: 0 FA Denied Reg:
0 HA Denied Reg: 0 Rcvd with MIP Key Data; 0
Init RRQ Received: 1 Init RRQ Accepted: 1 Init RRQ
Rejected: 0 Init RRQ Denied: 0 Init RRQ Discarded:
0 Init RRQ Relayed: 1 Init RRQ Auth Failed: 0 Init
PMIP RRQ Xmit: 0 Init PMIP RRQ Re-Xmit: 0 Init RRQ Denied by FA:
0 Init RRQ Denied by HA: 0 Renew RRQ Received: 0
Renew RRQ Accepted: 0 Renew RRQ Rejected: 0 Renew RRQ
Denied: 0 Renew RRQ Discarded: 0 Renew RRQ Relayed: 0
Renew RRQ Auth Failed: 0 Renew PMIP RRQ Xmit: 0 Renew PMIP RRQ
Re-Xmit: 0 Renew RRQ Denied by FA: 0 Renew RRQ Denied by HA: 0
Dereg RRQ Received: 0 Dereg RRQ Accepted: 0 Dereg RRQ
Rejected: 0 Dereg RRQ Denied: 0 Dereg RRQ Discarded:
0 Dereg RRQ Relayed: 0 Dereg RRQ Auth Failed: 0 Dereg
PMIP RRQ Xmit: 0 Dereg PMIP RRQ Re-Xmit: 0 Dereg RRQ Denied by FA:
0 Dereg RRQ Denied by HA: 0 Denied by FA: Unspecified error: 0
Reg Timeout: 0 Admin Prohibited: 0 No Resources:
0 MN Auth Failure: 0 HA Auth Failure: 0
Lifetime too long: 0 Poorly formed Request: 0 Poorly formed
Reply: 0 MN Too Distant: 0 Invalid COA: 0
Missing NAI: 0 Missing Home Agent: 0 Missing Home
Addr: 0 Unknown Challenge: 0 Missing Challenge: 0
Stale Challenge: 0 Encap Unavailable: 0 Rev Tunnel
Unavailable: 0 Rev Tunnel Mandatory: 0 HA Network Unreachable: 0
Delivery Style Unavailable: 0 HA Host Unreachable: 0 HA Port
Unreachable: 0 HA Unreachable: 0 Unknown CVSE Rcvd:
0 MIP Key Request: 0 AAA Authenticator: 0
Public Key Invalid: 0 Discarded by FA: Invalid Extn: 0
Invalid UDP Checksum: 0 Denied by HA: FA Auth Failure: 0
Poorly formed Request: 0 Mismatched ID: 0 Simul Bindings
Exceeded:0 Unknown HA: 0 Rev Tunnel Unavailable: 0
MN Auth Failure: 0 No Resources: 0 Admin Prohibited:
0 Rev Tunnel Mandatory: 0 Encap Unavailable: 0
Unspecified Reason: 0 Unknown CVSE Rcvd: 0 Registration
Reply Rcvd: Total: 1 Relayed: 1
Errors: 0 Init RRP Rcvd: 1 Init RRP
Relayed: 1 Renew RRP Rcvd: 0 Renew RRP Relayed: 0
Dereg RRP Rcvd: 0 Dereg RRP Relayed: 0 RRP with Dyn HA
Rcvd: 0 RRP with Dyn HA Denied: 0 Registration Reply Sent: Total:
1 Accepted Reg: 1 Accepted DeReg: 0
Denied: 0 Send Error: 0 Tunnel Data
Received: Total Packets : 3383 IPIP: 3383 GRE:
0 Total Bytes : 3850296 IPIP: 3850296 GRE:
0 Errors: Protocol Type Error: 0 GRE Key Absent: 0
GRE Checksum Error : 0 Invalid Pkt Length: 0 No Session Found
: 0 Tunnel Data Sent: Total Packets : 2905 IPIP:
2905 GRE: 0 Total Bytes : 346228 IPIP:
346228 GRE: 0

```

## 显示ppp [full]

这报告关于用户的详细的PPP相关信息。  
-全双工版本不是正常版本的扩展。

```

[local]PDSN-HSGW> show ppp username 9786045176@cisco.comTuesday May 12 16:08:18 UTC 2015PPP
Summary:          1 PPP Sessions In ProgressLayer Info:          1 LCP Up          1 IPCP Up
0 IPv6CP Up      0 CCP UpCompression:          0 VJ Compressed Sessions (loc to rem)          0 VJ
Compressed Sessions (rem to loc)          0 ROHC Compressed Sessions (loc to rem)          0 ROHC
Compressed Sessions (rem to loc)          0 Normal PPP Compressed Sessions          0 Stateless
PPP Compressed Sessions          1 NONE          0 STAC          0 MPPC          0 DEFLATE (loc to rem)
1 NONE          0 STAC          0 MPPC          0 DEFLATE (rem to loc)Errors:          0 In errors
0 In discards          0 In unknown proto          0 Out errors          0 Out discards
0 Pkt too long          0 Bad address          0 Bad control          0 Bad FCS          0
Bad Length          0 Echo req rcvd          0 Echo rsp rcvd          0 Echo Req sent          0
Echo rsp sent          0 Invalid magic-number rcvd          0 LCP Vend Ext req sent          0
LCP Vend Ext req resent          0 LCP Vend Ext rsp rcvd          0 LCP Vend Ext protocol
rejected          0 LCP Vend Ext req max-retried          0 Decomp errors          0 Comp Reset
sent          0 Comp errors          0 Comp expansion          0 Comp Reset rcvdData Stats:
294366 In octs(unframed)          2059 In pkts          307 In ctrl octs
8 In ctrl pkts          0 In comp octs          0 In comp pkts
0 In uncomp octs          307522 In framed octs          3798297 Out octs(unframed)
3400 Out pkts          139 Out ctrl octs          6 Out ctrl pkts
0 Out comp octs          0 Out comp pkts          0 Out uncomp octs
3840820 Out framed octs[local]PDSN-HSGW> show ppp full username 9786045176@cisco.comTuesday May
12 16:08:23 UTC 2015Username: 9786045176@cisco.com Callid:1120ff97 Msid: 311289786045176LCP
State: Opened mtu (Negotiated/Enforced): 1500/1500 mru: 1500 auth algorithm (loc to rem):
none (rem to loc): none PFC (loc to rem): enabled [ignore] (rem to loc): enabled ACFC
(loc to rem): enabled [ignore] (rem to loc): enabled async map (loc to rem): 0x00000000
(remote to loc): 0x00000000IPCP State: Opened IP Header comp. (loc to rem): none
(remote to loc): none Local Address: 203.0.113.1 Remote Address:
0.0.0.0 Primary DNS: 209.165.200.225 Secondary DNS: 209.165.200.226 Primary NBNS:
0.0.0.0 Secondary NBNS: 0.0.0.0IPv6CP State: Not OpenedCCP State: Not Opened
294701 In octs(unframed)          2063 In pkts          3798574 Out octs(unframed)
3404 Out pkts          307 In ctrl octs          8 In ctrl pkts          139 Out ctrl
octs          6 Out ctrl pkts          307883 In framed octs          3841113
Out framed octs          291333 In data (unfr/data-cmp) octs          3784675 Out data (unfr/data-cmp) octs
291471 In data (iphdr-cmp) octs          3784843 Out data (iphdr-cmp) octs          0 In data
(iphdr-cmp-fail) octs          0 In data (iphdr-cmp-fail) pkts          0 In data (iphdr-rohc)
octs          0 Out data (iphdr-rohc) octs          0 In data (iphdr-rohc-fail) octs          0
In data(iphdr-rohc-fail) pkts          0 In discards          0 In errors
0 Out discards          0 Out errors          0 Bad address
0 Bad control          0 Pkt too long          0 Bad FCS          0 Bad pkt length
0 Echo req rcvd          0 Echo rsp rcvd          0 Echo req sent
0 Echo rsp sent          0 LCP Vend Ext req sent          0 LCP Vend Ext req resent
0 LCP Vend Ext rsp rcvd          0 LCP Vend Ext protocol rejected          0 LCP Vend Ext
req max-retried          0 Invalid magic-number rcvdTotal PPP sessions matching specified
criteria: 1show ppp counters[local]PDSN-HSGW> show ppp counters username
9786045176@cisco.comTuesday May 12 16:08:52 UTC 2015Username: 9786045176@cisco.com
Callid:1120ff97 Msid: 311289786045176          296894 In octs(unframed)          2083 In pkts
3800156 Out octs(unframed)          3412 Out pkts          307 In ctrl octs
8 In ctrl pkts          139 Out ctrl octs          6 Out ctrl pkts          310124 In
framed octs          3842736 Out framed octs          293517 In data (unfr/data-cmp) octs
3786225 Out data (unfr/data-cmp) octs          293655 In data (iphdr-cmp) octs          3786393 Out data
(iphdr-cmp) octs          0 In data (iphdr-cmp-fail) octs          0 In data (iphdr-cmp-fail) pkts
0 In data (iphdr-rohc) octs          0 Out data (iphdr-rohc) octs          0 In data (iphdr-
rohc-fail) octs          0 In data(iphdr-rohc-fail) pkts          0 In discards
0 In errors          0 Out discards          0 Out errors          0 Bad address
0 Bad control          0 Pkt too long          0 Bad FCS          0 Bad pkt length
0 Echo req rcvd          0 Echo rsp rcvd          0 Echo req sent
0 Echo rsp sent          0 LCP Vend Ext req sent          0 LCP Vend Ext req resent
0 LCP Vend Ext rsp rcvd          0 LCP Vend Ext protocol rejected          0 LCP Vend Ext
req max-retried          0 Invalid magic-number rcvdTotal PPP sessions matching specified
criteria: 1

```

## 显示全双工的RP

## 这报告关于用户的详细的A11 (RP接口)相关信息 -“请显示RP计数器”是此命令的一子集

```
[local]PDSN-HSGW> show rp full username 9786045176@cisco.com Tuesday May 12 16:07:52 UTC
2015Username: 9786045176@cisco.com Callid: 1120ff97 Msid: 311289786045176A10 Connection
#1:(Main) PCF Address: 10.207.6.67 PDSN Address: 10.211.28.132 MN Sess Ref ID:
1 GRE Key: 1864769 Service Option: 59Flow Control State : XON Lifetime:
00h30m00s Remaining Lifetime: 00h28m59s GRE Receive: Total Packets Rcvd:
2017 Total Bytes Rcvd: 367426 GRE Send: Total Packets Sent: 4722
Total Bytes Sent: 3988706 Data Over Signaling Packets: 0 Data Over Signaling Bytes: 0
IP Header compression: Forward: ROHC not negotiated Reverse: ROHC not negotiatedGRE Flow
Control: Total Packets Received with XOFF: 0 Total Packets Received with
XON: 0 Total XON->XOFF Transitions: 0 Total Output
Packets Dropped on XOFF: 0 Total Output Bytes Dropped on XOFF: 0
SPI: 257 Prev System Id: 0 Current System Id: 0 Prev Network Id: 0
Current Network Id: 0 Prev Packet Zone Id: 0 Current Packet Zone Id: 0 BSID:
001C00030015 GRE Segmentation : DisabledRegistration Request/Reply: Renew
RRQ Accepted: 0 Discarded: 0 Intra PDSN Active H/O RRQ Accept: 0 Intra PDSN
Dormant H/O RRQ Accept: 0 Inter PDSN Handoff RRQ Accepted: 1 Reply Send Error:
0Registration Update/Ack: Initial Update Transmitted: 0 Update Retransmitted: 0
Denied: 0 Not Acknowledged: 0 Reg Ack Received: 0
Reg Ack Discarded: 0 Update Send Error: 0 Registration Update Send Reason: Lifetime
Expiry: 0 Upper Layer Initiated: 0 Other Reasons: 0
Handoff Release: 0 Session Manager Exited: 0 Registration Update Denied: Reason
Unspecified: 0 Admin Prohibited: 0 PDSN Failed Authentication: 0
Identification Mismatch: 0 Poorly Formed Update: 0 Session Update/Ack: Initial
Update Transmitted: 1 Update Retransmitted: 0 Denied: 0
Not Acknowledged: 0 Sess Update Ack Received: 1 Sess Update Ack Discarded: 0
Update Send Error: 0 Session Update Send Reason: Always On: 0
QoS Info: 1 TFT violation: 0 Traffic Violation: 0
Traffic Policing: 0 Operator Triggered: 0 Session Update Denied:
Reason Unspecified: 0 Insufficient Resources: 0 Admin Prohibited:
0 Parameter not updated: 0 PDSN Failed Authentication: 0
Identification Mismatch: 0 Poorly Formed Update: 0 Profile Id Not Supported: 0
Handoff In Progress : 0 GRE Receive: Total Packets Received: 2017
Protocol Type Error: 0 Total Bytes Received: 367426 GRE Key Absent:
0 GRE Checksum Error: 0
Invalid Packet Length: 0 GRE Send: Total Packets Sent: 4722 Total
Bytes Sent: 3988706 Total Packets Sent in SDB:0 Total Bytes Sent in
SDB: 0 GRE Segmentation: Total Packets Received with Segmentation Indication: 0
Total Packets Sent with Segmentation Indication: 0 Total Successful
Reassembly: 0 Total packets processed without proper
reassemble: 0 GRE Flow Control: Total Packets Received with XOFF: 0
Total Packets Received with XON: 0 Total XON->XOFF Transitions: 0
Total Output Packets Dropped on XOFF: 0 Total Output Bytes Dropped on XOFF: 0
Total RP sessions matching specified criteria: 1
```

## 显示全双工的L2TP会话

### 这报告关于用户的详细的L2TP相关信息

-请注释Rx，并且Tx数据呼叫(0s)的LAC侧的数据包计数不看上去正确，当与LNS比较呼叫的侧

```
[local]PDSN-LAC> show l2tp sessions full user 0020000648@cisco.comWednesday June 17 23:34:13 UTC
2015Username: 0020000648@cisco.com Callid: 161df87f Msid: 311280020000648Peer IP Address:
203.0.113.11 Service Name: LAC-Service1Context Name: destination Service Type:
LACSession State: LAC_ESTABLISHED Local Tunnel ID: 7 Local Session ID: 2471
```

```

Peer Tunnel ID: 88 Peer Session ID: 2471 Call Type: LAC-INCOMING
Call Serial Num: 371062911 Rx Connect Speed: 57600 Tx Connect Speed: 64000 PPP
Proxy-Auth: CHAP_MD5 Tunnel Key: n/a Bearer Type: DIGITAL Framing
Type: ASYNC System ID: 0 Network ID: 0 Cell Number:
0 Service Option: 0 Data Rx Sequence Num Enabled: DISABLED Data Tx
Sequence Num Enabled: DISABLED Data Rx Sequence Num: 0 Data Tx Sequence
Num: 0 Rx Data Pkts: 0 Tx Data Pkts: 0 Rx Data
Octs: 0 Tx Data Octets: 0 Rx Discard Data Pkts: 0
Handoffs: 0 [local]HA-LNS> show l2tp sessions full username
0020009112@cisco.com Wednesday June 17 23:33:01 UTC 2015Username: 0020000648@cisco.com
Callid: 0a30f2ac Msid: 311280020000648Peer IP Address: 203.0.113.10 Service Name:
SIP-LNSContext Name: LNSINGRESS Service Type: LNSSession State: LNS_ESTABLISHED
Local Tunnel ID: 88 Local Session ID: 2471 Peer Tunnel ID: 7
Peer Session ID: 2471 Call Type: LNS-INCOMING Call Serial Num: 371062911 Rx
Connect Speed: 57600 Tx Connect Speed: 64000 PPP Proxy-Auth: CHAP_MD5
Tunnel Key: n/a Bearer Type: DIGITAL Framing Type: ASYNC Data Rx
Sequence Num Enabled: ENABLED Data Tx Sequence Num Enabled: DISABLED Data Rx Sequence Num:
15 Data Tx Sequence Num: 6 Rx Data Pkts: 15 Tx
Data Pkts: 6 Rx Data Octets: 953 Tx Data Octets: 424 Rx Discard
Data Pkts: 0

```

## show rsvp counters

这列出用户的详细的rsvp计数器

## 显示全双工IMS授权的会话

这列出关于PCRF会话的详细信息

此示例显示两的APNs、APN1和APN2 PCRF信息

- 注释SGSN IP地址实际上是SGW地址

```

[local]PGW> show ims-authorization sessions full imsi 300420160377232Wednesday June 17 23:47:00
UTC 2015CallId: 4d9f33cb Service Name: IMS-GX IMSI: 300420160377232 Session ID:
0007-diamproxy.PHLA.Gx.ims.com;1302279115;926061183;55810c5d-17f02 Bearer Type: GTP SGSN IP-
Addr: 203.0.113.3 APN: APN1 Bearer Control Mode: UE/NW State: Connected Negotiated Supported
Features: 3gpp-r10 Bound PCRF Server: ohcis04mra01.cisco.com Primary PCRF Server:
ohcis04mra01.cisco.com Secondary PCRF Server: njbbs04mra01.cisco.com Primary P-CSCF: NA
Secondary P-CSCF: NA Outstanding CCR-U: 0 UE IP Address: UE IP Session Type: IPv6 IPv4
Address: NA IPv6 Prefix: 5555:1000:8010:a9a4:: Auth Decision: Event Triggers: QoS-
Change PLMN-Change RAT-Change IP_CAN-Change Usage-Report Successful-
Resource-Alloc UE-Timezone-Change Resource-Modification-Request UE-IP-Address-
Allocate UE-IP-Address-Release Default-EPS-Bearer-QoS-Change APN-AMBR-
Modification-Failure Default-EPS-Bearer-QoS-Modification-Failure Event Report
Indication: None Negotiated QoS: Default-Bearer-QoS: QCI: 5 ARP: PL: 10
PCI: 1 PVI: 1 APN AMBR Uplink(in bps): 600000 APN AMBR Downlink(in bps):
600000CallId: 4d9f5163 Service Name: IMS-GX IMSI: 300420160377232 Session ID:
0007-diamproxy.PHLA.Gx.ims.com;1302286691;929479551;55814953-17f02 Bearer Type: GTP SGSN IP-
Addr: 203.0.113.3 APN: APN2 Bearer Control Mode: UE/NW State: Connected Negotiated
Supported Features: 3gpp-r10 Bound PCRF Server: ohcis04mra01.cisco.com Primary PCRF Server:
ohcis04mra01.cisco.com Secondary PCRF Server: njbbs04mra01.cisco.com Primary P-CSCF: NA
Secondary P-CSCF: NA Outstanding CCR-U: 0 UE IP Address: UE IP Session Type: IPv4_IPv6
IPv4 Address: 100.107.226.26 IPv6 Prefix: 5555:1000:b029:a82d:: Auth Decision: Event
Triggers: QoS-Change PLMN-Change RAT-Change IP_CAN-Change Out-Of-Credit

```



```
Reallocation-Of-Credit      Usage-Report      Resource-Modification-Request      UE-IP-Address-
Allocate      UE-IP-Address-Release      Default-EPS-Bearer-QoS-Change      APN-AMBR-
Modification-Failure      Default-EPS-Bearer-QoS-Modification-Failure      Event Report
Indication: None Negotiated QoS:      Default-Bearer-QoS:      QCI: 8      ARP:      PL: 10
PCI: 1      PVI: 1      APN AMBR Uplink(in bps): 150000000      APN AMBR Downlink(in bps):
150000000
```

## 非订户的特定命令

虽然命令 `show port npu` 计数器？ 并且 `show port` 数据链接计数器？ 适用于一个整个接口，如果尝试发现系统是否处理特定的用户的数据出口接口(请参阅以上提到监视器用户的限制)，并且用户可以被控制，然后设法通过网络发送非常大数据包，并且看到接口计数器是否由发送的数据包编号在期间他们是短的窗口的增加在发送。能执行此在结果充满信心地要求确保选择的数据包大小的计数器不在运行测验前非常频繁地通常增加。