

# “显示子摘要”计数的说明

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## 简介

本文描述了使用"show sub summary"命令报告的订阅者计数中似乎不一致的情况。通常，从"show subsummary"中统计的所有订阅者类型的计数加到顶部的"Total Subscribers"计数。但是，订阅者的专用承载和默认承载以及某些限定词的使用可能导致不同订阅者类型的计数与"Total Subscribers"的预期不匹配。

## 通过示例进行说明

### 为VoLTE用户计数专用和默认承载

在长期演进语音(VoLTE)中，IP多媒体系统(IMS)应用点名称(APN)具有专用的默认承载，对于设置所有VoLTE呼叫至关重要。对于每个唯一用户，“显示子用户”(Show sub summ)增量为“总用户”(Total Subscribers)字段的1，即使每个用户有两个承载。但是，每个用户有两个承载这一事实在CLI的子部分中捕获。例如，此处请注意，pgw-gtp-ipv6的计数表示IMS APN的专用承载和默认承载的计数，而总计数仅捕获两个承载用于相同IMS APN的事实。这由仅pgw限定符进一步确认，该限定符实际列出了各个承载，但与非仅pgw版本一样，通过Total字段对每个APN的用户仅计数一次。

这些示例取自包数据网络网关(PGW)，该网关包括LTE和增强型高速分组数据(eHRPD)呼叫类型。

请注意，pgw-gtp-ipv6(LTE)+ pgw-pmip-ipv6(eHRPD) — 总专用承载=总用户

```
[local]PGW> show sub summ apn ims
Sunday August 23 03:58:07 UTC 2015
```

Total Subscribers:	1851827		
Active:	1851827	Dormant:	0
hsgw-ipv4-ipv6:	0	pgw-pmip-ipv6:	285069
pgw-pmip-ipv4:	0	pgw-pmip-ipv4-ipv6:	0
pgw-gtp-ipv6:	1567307	pgw-gtp-ipv4:	0

```
[local]PGW> show sub pgw-only summ apn ims
Sunday August 23 03:58:08 UTC 2015
```

Total Subscribers	: 1851820	Total Visitors	: 4
Total Home	: 1851816	Total S6b Assume Positive	: 0
Total Roamers	: 0		
Total Bearers	: 1567308		
Total Default Bearers	: 1566761	Total Dedicated Bearers	: 547

```

Total PDNs by RAT-Type
EUTRAN          : 1566761      UTRAN          : 0
GERAN           : 0           WLAN           : 0
OTHER           : 285059

```

```

pmip-pdn-type-ipv4      : 0
pmip-pdn-type-ipv6      : 285059
pmip-pdn-type-ipv4-ipv6 : 0
gtp-pdn-type-ipv4       : 0
gtp-pdn-type-ipv6       : 1567308

```

此主体甚至适用于“显示子”汇总，不带任何限定符。

$$65 + 1567327 + 285074 + 235124 + 1653 = 3430145 - 547 (\text{专用承载}) = 3429598 \approx 3429614$$

```

[local]PGW> show sub summ
Sunday August 23 03:58:07 UTC 2015

```

```

Total Subscribers:      3429614
Active:                  3429614      Dormant:          0
LAPI Devices:           0
pdsn-simple-ipv4:       0           pdsn-simple-ipv6: 0
pdsn-mobile-ip:         0           ha-mobile-ipv6:   0
hsgw-ipv6:              0           hsgw-ipv4:        0
hsgw-ipv4-ipv6:         0           pgw-pmip-ipv6:    285074
pgw-pmip-ipv4:          65          pgw-pmip-ipv4-ipv6: 235124
pgw-gtp-ipv6:           1567327      pgw-gtp-ipv4:     1653
pgw-gtp-ipv4-ipv6:     1340902      sgw-gtp-ipv6:     0

```

当您仅通过使用QCI = 1通过专用承载传递语音数据的VoLTE用户进行资格审批时，这一点就更为明确。在本例中，请注意pgw-gtp-ipv6大约是总用户数的两倍，因为它计算每个VOLTE用户的专用承载和默认承载。

```

[local]PGW> show sub summ apn ims qci 1
Sunday August 23 04:34:57 UTC 2015

```

```

Total Subscribers:      302
Active:                  302          Dormant:          0
LAPI Devices:           0
pdsn-simple-ipv4:       0           pdsn-simple-ipv6: 0
pdsn-mobile-ip:         0           ha-mobile-ipv6:   0
hsgw-ipv6:              0           hsgw-ipv4:        0
hsgw-ipv4-ipv6:         0           pgw-pmip-ipv6:    0
pgw-pmip-ipv4:          0           pgw-pmip-ipv4-ipv6: 0
pgw-gtp-ipv6:           605          pgw-gtp-ipv4:     0

```

```

[local]PGW> show sub pgw-only summ apn ims qci 1
Sunday August 23 04:34:58 UTC 2015

```

```

Total Subscribers      : 302
Total Home              : 302          Total Visitors    : 0
Total Roamers           : 0           Total S6b Assume Positive : 0
Total Bearers           : 605
Total Default Bearers   : 302          Total Dedicated Bearers  : 303

Total PDNs by RAT-Type
EUTRAN          : 302      UTRAN          : 0
GERAN           : 0       WLAN           : 0
OTHER           : 0

```

```

pmip-pdn-type-ipv4      : 0
pmip-pdn-type-ipv6      : 0
pmip-pdn-type-ipv4-ipv6 : 0
gtp-pdn-type-ipv4       : 0
gtp-pdn-type-ipv6       : 605

```

## 计数共享相同呼叫的专用承载和默认承载

相关示例是按被叫列出用户时。单个被叫方代表给定APN的所有承载，而共享该被叫方的所有承载(2)将单独列出/计数。同时，Total字段仅增加一次，以表示APN的所有承载。在本例中，IMS默认承载ID = 5,IMS专用承载ID = 7。

```

[local]PGW> show sub callid 0000d532
Sunday August 23 04:39:54 UTC 2015

```

vvvvvv	CALLID	MSID	USERNAME	IP	TIME-IDLE
YTCNAT	0000d532	320490143033837	0320490143033837@nai.epc.mnc490.mcc320.3gppnetwork.org		
					2600:5555:801a:1bee::d5:3201 00h38m02s
YTCNAT	0000d532	320490143033837	0320490143033837@nai.epc.mnc490.mcc320.3gppnetwork.org		
					2600:5555:801a:1bee::d5:3201 00h38m02s

```

[local]PGW> show sub summ callid 0000d532
Sunday August 23 04:39:56 UTC 2015

```

Total Subscribers:	1		
Active:	1	Dormant:	0
LAPI Devices:	0		
pdsn-simple-ipv4:	0	pdsn-simple-ipv6:	0
pdsn-mobile-ip:	0	ha-mobile-ipv6:	0
hsgw-ipv6:	0	hsgw-ipv4:	0
hsgw-ipv4-ipv6:	0	pgw-pmip-ipv6:	0
pgw-pmip-ipv4:	0	pgw-pmip-ipv4-ipv6:	0
pgw-gtp-ipv6:	2	pgw-gtp-ipv4:	0

```

[local]PGW> show sub pgw-only callid 0000d532
Sunday August 23 04:39:57 UTC 2015

```

vvvvvv	CALLID	IMSI/IMEI	v	v IP	APN	TIME-IDLE
YECHDN	0000d532	3204900143033837	005	L 2600:5555:801a:1bee::d5:3201	ims	00h38m05s
YECHEH	0000d532	3204900143033837	007	L 2600:5555:801a:1bee::d5:3201	ims	00h38m05s

```

[local]PGW> show sub pgw-only summ callid 0000d532
Sunday August 23 04:39:59 UTC 2015

```

Total Subscribers	: 1		
Total Home	: 1	Total Visitors	: 0
Total Roamers	: 0	Total S6b Assume Positive	: 0
Total Bearers	: 2		
Total Default Bearers	: 1	Total Dedicated Bearers	: 1
Total PDNs by RAT-Type			
EUTRAN	: 1	UTRAN	: 0
GERAN	: 0	WLAN	: 0
OTHER	: 0		
pmip-pdn-type-ipv4	: 0		
pmip-pdn-type-ipv6	: 0		
pmip-pdn-type-ipv4-ipv6	: 0		

```
gtp-pdn-type-ipv4      : 0
gtp-pdn-type-ipv6      : 2
```

## 适用于专用/默认承载的限定符与所有用户的混合

最后，最令人困惑的示例可能是连续使用多个限定符，这些限定符在承载级别以及整个用户中都适用。在本示例中，第三个限定符将添加到连接时间超过一天(86400秒)的狭窄用户。由于本示例还使用代表VoLTE用户的QCI 1，因此可能预期命中列表为空，因为有多少人在24小时以上的呼叫中？但结果不是预期的真AND运算。即，结果不是连接超过一天的IMS VoLTE会话，因为该数字可能为0。相反，结果是所有具有VoLTE会话的IMS用户，且默认IMS或专用(VoLTE)IMS会话已启动超过一天(前者并不罕见)。

在此输出中，连接时间大于限定符将输出限制为在默认IMS承载上连接超过一天的用户，而没有不考虑呼叫连接时间的限定符。

```
[local]PGW> show sub summ apn ims qci 1 connected-time greater-than 86400
Sunday August 23 05:18:23 UTC 2015
```

Total Subscribers:	113		
Active:	113	Dormant:	0
LAPI Devices:	0		
pdsn-simple-ipv4:	0	pdsn-simple-ipv6:	0
pdsn-mobile-ip:	0	ha-mobile-ipv6:	0
hsgw-ipv6:	0	hsgw-ipv4:	0
hsgw-ipv4-ipv6:	0	pgw-pmip-ipv6:	0
pgw-pmip-ipv4:	0	pgw-pmip-ipv4-ipv6:	0
pgw-gtp-ipv6:	226	pgw-gtp-ipv4:	0

```
[local]PGW> show sub summ apn ims qci 1
Sunday August 23 05:18:52 UTC 2015
```

Total Subscribers:	248		
Active:	248	Dormant:	0
LAPI Devices:	0		
pdsn-simple-ipv4:	0	pdsn-simple-ipv6:	0
pdsn-mobile-ip:	0	ha-mobile-ipv6:	0
hsgw-ipv6:	0	hsgw-ipv4:	0
hsgw-ipv4-ipv6:	0	pgw-pmip-ipv6:	0
pgw-pmip-ipv4:	0	pgw-pmip-ipv4-ipv6:	0
pgw-gtp-ipv6:	497	pgw-gtp-ipv4:	0

以下是一个示例，其中给定用户的完整输出符合超过一天的连接时间标准。

**注意：**输入命令后，Internet APN默认的连接时间在几分钟内，因此您可以确定它是符合连接标准(连接时间为8月7日20:01:23日)的默认IMS承载，这会导致报告此用户。

```
[local]PGW> show sub apn ims qci 1 connected-time greater-than 86400
Monday August 10 12:04:29 UTC 2015
```

vvvvvv	CALLID	MSID	USERNAME	IP	TIME-
--------	--------	------	----------	----	-------

```
-----
YTCNAT 00eff501 320490127668665 0320490127668665@nai.epc.mnc490.mcc320.3gppnetwork.org
2600:5555:8001:9ccb::eff5:101 00h00m00s
```

```
[local]PGW> show sub pgw-only full imsi 320490127668665
Monday August 10 12:06:38 UTC 2015
```

```
Username: 0320490127668665@nai.epc.mnc490.mcc320.3gppnetwork.org
```

Subscriber Type : Home  
Status : Online/Active  
State : Connected  
Connect Time : Fri Aug 7 20:01:23 2015

Auto Delete : No

Idle time : 00h00m00s  
MS TimeZone : -4:00 Daylight Saving Time: +1 hour

Access Type: gtp-pdn-type-ipv6 Network Type: IPv6  
Access Tech: eUTRAN pgw-service-name: PGW1  
Callid: 00eff501 IMSI: 320490127668665  
MSISDN: 16036860864  
Interface Type: S5S8GTP Low Access Priority: N/A  
Emergency Bearer Type: N/A  
IMS-media Bearer: No  
S6b Auth Status: Enabled  
Access Peer Profile: default  
Acct-session-id (C1): 42AE14C2013B7181  
ThreeGPP2-correlation-id (C2): 01C250B4 / 0t-G0QsS  
Card/Cpu: 1/1 Sessmgr Instance: 4

Bearer Type: Default Bearer-Id: 5  
Bearer State: Active  
IP allocation type: N/A  
IPv6 allocation type: local pool  
IP address: 2600:5555:8001:9ccb::eff5:101

...

S5/S8/S2b/S2a-APN: ims  
SGi-APN: ims

Bearer QoS:  
QCI: 5

...

Username: 0320490127668665@nai.epc.mnc490.mcc320.3gppnetwork.org

Subscriber Type : Home  
Status : Online/Active  
State : Connected  
Connect Time : Mon Aug 10 11:52:51 2015

Auto Delete : No

Idle time : 00h00m00s  
MS TimeZone : -4:00 Daylight Saving Time: +1 hour

Access Type: gtp-pdn-type-ipv6 Network Type: IPv6  
Access Tech: eUTRAN pgw-service-name: PGW1  
Callid: 00eff501 IMSI: 320490127668665  
MSISDN: 16036860864  
Interface Type: S5S8GTP Low Access Priority: N/A  
Emergency Bearer Type: N/A  
IMS-media Bearer: Yes  
S6b Auth Status: Enabled  
Access Peer Profile: default  
Acct-session-id (C1): 42AE14C2013E4AF6  
ThreeGPP2-correlation-id (C2): 01C250B4 / 0t-G0QsS  
Card/Cpu: 1/1 Sessmgr Instance: 4

Bearer Type: Dedicated Bearer-Id: 7  
Bearer State: Active  
IP allocation type: N/A  
IPv6 allocation type: local pool

IP address: 2600:5555:8001:9ccb::eff5:101

...

S5/S8/S2b/S2a-APN: ims  
SGi-APN: ims

Bearer QoS:  
QCI: 1

Username: 0320490127668665@nai.epc.mnc490.mcc320.3gppnetwork.org

Subscriber Type : Home  
Status : Online/Active  
State : Connected  
Connect Time : Mon Aug 10 11:51:24 2015

Auto Delete : No

Idle time : 00h15m14s  
MS TimeZone : -4:00 Daylight Saving Time: +1 hour

Access Type: gtp-pdn-type-ipv4-ipv6 Network Type: IPV4+IPV6  
Access Tech: eUTRAN pgw-service-name: PGW1  
Callid: 00f2c514 IMSI: 320490127668665  
MSISDN: 15556860864  
Interface Type: S5S8GTP Low Access Priority: N/A  
Emergency Bearer Type: N/A  
IMS-media Bearer: No  
S6b Auth Status: Enabled  
Access Peer Profile: default  
Acct-session-id (C1): 42AE14C2013E4AC5  
ThreeGPP2-correlation-id (C2): 01C520A2 / Oumaajjh  
Card/Cpu: 1/1 Sessmgr Instance: 4

Bearer Type: Default Bearer-Id: 6  
Bearer State: Active  
IP allocation type: local pool  
IPv6 allocation type: local pool  
IP address: 2600:5555:b027:b408::f2c5:1401, 100.84.110.26

...

S5/S8/S2b/S2a-APN: internet  
SGi-APN: internet

Bearer QoS:  
QCI: 8  
ARP: 0x069

Total subscribers matching specified criteria: 3