用test命令创建动态服务流(UGS)在CMTS

Contents

Introduction

本文描述程序和命令创建在有线调制解调器终端系统(CMTS)的动态服务流。例如，用于语音呼叫的非请求的授权服务(UGS)。

Prerequisites

需求

Cisco 建议您了解以下主题：

- CMTS
- DOCSIS

Components Used

This document is not restricted to specific software and hardware versions.

The information in this document was created from the devices in a specific lab environment.All of the devices used in this document started with a cleared (default) configuration.如果您的网络处于活动状态，请确保您了解所有命令的潜在影响。

背景信息

为了创建动态服务流(什么类型)， CMTS或有线调制解调器需要发送一项动态服务添加(DSA)消息。

DSA消息包含两件事：

- 服务流(SF)本身。
- 相关的分类符。

DSA消息是使用同样TLV定义类似用于CM的那个的TLV编码的消息。

从PacketCable多媒体(PCMM)规格的消息序列：

10.2 Detailed Message Sequence

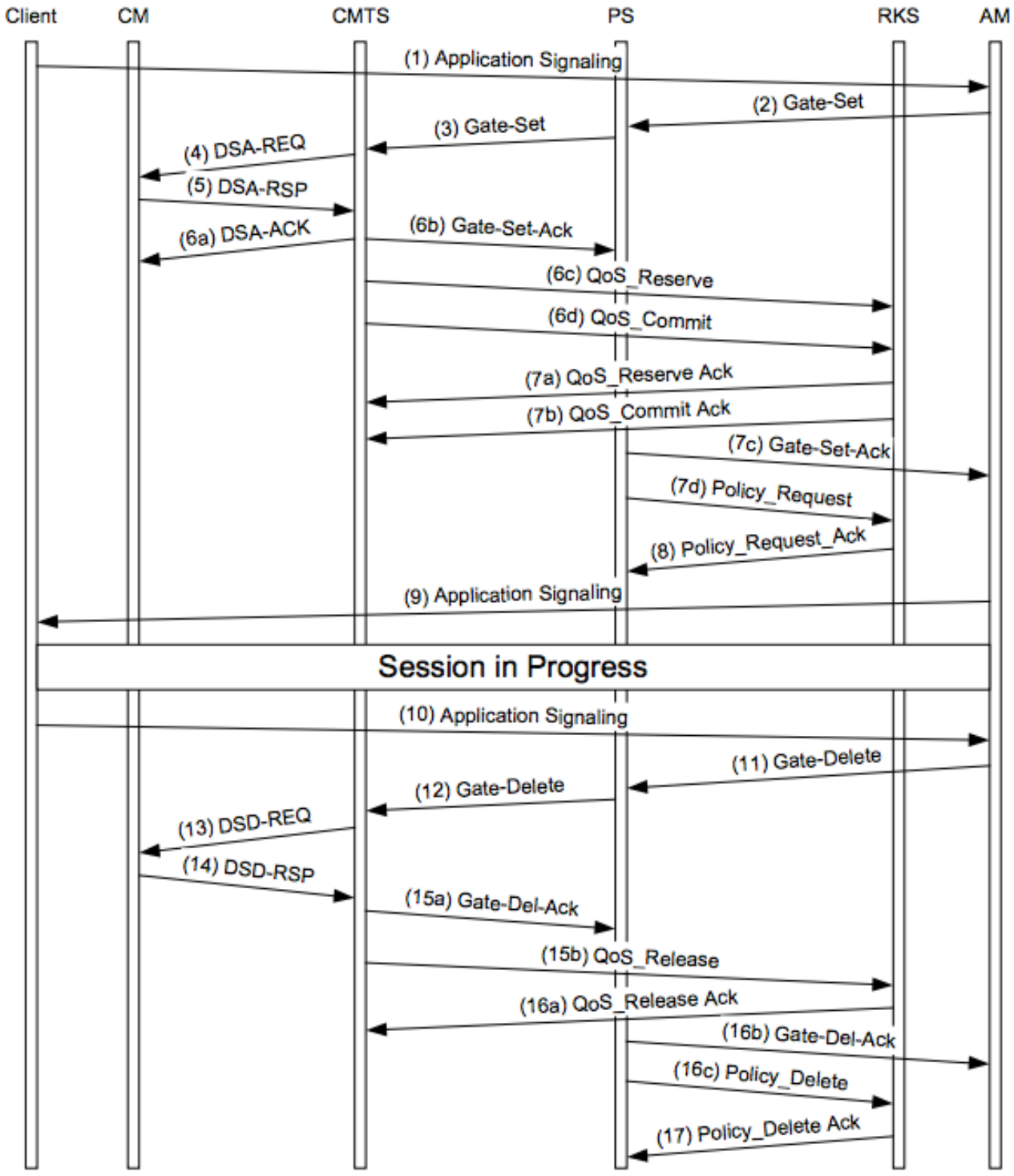

Figure 9 - Detailed Message Sequence

创建流

为了创建流，您需要发送DSA每您要创建的服务流(您可能潜在合并2个消息到单个消息，但是分裂

了他们使他们更加容易了解)。

> Note:使用的命令这里是为cBR8平台。ubr10k使用同一命令句法，但是，不用docsis关键字在测试命令

上行方向

示例：

```
test cable docsis dsa c005.c22c.dc5b message
1823010200040601060F010610040000037F130200E8160101150400000320140400004E20160f010102030200040906
05040a305879
```

TLVs的解码

1. 服务流TLV。

上行SF TLV是TLV 24 (0x18) ：

```
1823010200040601060F010610040000037F130200E8160101150400000320140400004E20
```

Decode:

```
1823 TLV 0x18 (24) - Len 35 - Upstream Service Flow (0x23 = 35)
01020004 TLV 0x18.1 (24.1) - Len 02 - Upstream Service Flow ID - value 0004
060106 TLV 0x18.6 (24.6) - Len 01 - QoS Parameter set type - value 06 -> Admitted and Active bit
set
0F0106 TLV 0x18.F (24.15) - Len 01 - Service flow scheduling type - value 06 -> UGS
10040000037F TLV 0x18.10(24.16) - Len 04 - Request Transmit policy - value 0x0000037F
130200E8 TLV 0x18.13(24.19) - Len 02 - Number of bytes - value 0xe8 -> 232 bytes
160101 TLV 0x18.16(24.22) - Len 01 - Number of grants per interval- value 1
150400000320 TLV 0x18.15(24.21) - Len 04 - Tolerated Grant Jitter - value 0x320 -> 800
140400004E20 TLV 0x18.14(24.20) - Len 04 - Nominal Grant interval - value 0x4e20 -> 20000
```

2. 分类符TLV。

用于此示例的分类符是仅简单的IP信息包分类符。分类符的其他类型存在(协议、UDP/TCP等等)。

上行分类符TLV是TLV 22 (0x16) ：

```
160f010102030200040906050 40a305879
```

Decode:

```
160f TLV 0x16 (22) - Len 15 - Upstream Classifier
010102 TLV 0x16.1 (22.1) - Len 01 - Classifier reference - Unique classifier ID - value 0x02
03020004 TLV 0x16.2 (22.2) - Len 02 - Service flow reference - value 0004 -> MUST match the SFID
above
0906 TLV 0x16.9 (22.9) - Len 06 - IPv4 packet classifier encoding
05040a305879 TLV 0x16.9.5(22.9.5) - Len 04 - Destination IPv4 classifier - value 0a305879
10.48.88.121
```

它对应于此服务流/分类符在CM配置文件：

```
160f0101020302000409060504 0a305879
```

Decode:

```
160f TLV 0x16 (22) - Len 15 - Upstream Classifier
010102 TLV 0x16.1 (22.1) - Len 01 - Classifier reference - Unique classifier ID - value 0x02
03020004 TLV 0x16.2 (22.2) - Len 02 - Service flow reference - value 0004 -> MUST match the SFID
above
0906 TLV 0x16.9 (22.9) - Len 06 - IPv4 packet classifier encoding
05040a305879 TLV 0x16.9.5(22.9.5) - Len 04 - Destination IPv4 classifier - value 0a305879
10.48.88.121
```

下行方向

示例：

test cable docsis dsa c005.c22c.dc5b message
191A0102009906010607010508040000154A00A04000154A00B0200DA170f0101020302009909060304 0a305879

TLVs的解码

1. 服务流TLV。

下行服务流TLV是TLV 25 (0x19) ：

```
191A0102009906010607010508040000154A00A04000154A00B0200DA
```

Decode:

```
191A TLV 0x19 (25) - Len 1A (26) - Downstream Service Flow definition
01020099 TLV 0x19.1 (25.1) - Len 02 - Downstream Service Flow ID - value 0x99
060106 TLV 0x19.6 (25.6) - Len 01 - QoS Parameter set type - value 06 -> Admitted and Active bit
set
070105 TLV 0x19.7 (25.7) - Len 01 - Traffic Priority - value 05 -> Prio 5
0804000154A0 TLV 0x19.8 (25.8) - Len 04 - Max Sustain Rate - value 0x154a0 = 87200 bps
0A04000154A0 TLV 0x19.A (25.10) - Len 04 - Min Reserved Rate - value 0x154a0 = 87200 bps
0B0200DA TLV 0x19.B (25.11) - Len 02 - Assumed Min Rvd Rate packet size - value 0xda = 218
```

2. 分类符TLV。

这也是无格式IPv4分类符。更加复杂的分类符可能也被创建。

下行Classifer TLV是TLV 23 (0x17) ：

```
170f0101020302009909060304 0a305879
```

Decode:

```
170f TLV 0x17 (23) - Len 15 - Downstream Classifier
010102 TLV 0x17.1 (23.1) - Len 01 - Downstream Classifier Reference - value 0x02
03020099 TLV 0x17.3 (23.3) - Len 02 - Downstream Service Flow ID reference - value 0x99 -> MUST
match SFID above
0906 TLV 0x17.9 (23.9) - Len 06 - IPv4 classifier
03040a305879 TLV 0x17.9.3(23.9.3) - Len 04 - Source IPv4 Address - value 0x0a305879 ->
10.48.88.121
```

它对此服务流/分类符的correspods在CM配置文件：

170f0101020302009909060304 0a305879

Decode:

170f TLV 0x17 (23) - Len 15 - Downstream Classifier
010102 TLV 0x17.1 (23.1) - Len 01 - Downstream Classifier Reference - value 0x02
03020099 TLV 0x17.3 (23.3) - Len 02 - Downstream Service Flow ID reference - value 0x99 -> MUST match SFID above
0906 TLV 0x17.9 (23.9) - Len 06 - IPv4 classifier
03040a305879 TLV 0x17.9.3(23.9.3) - Len 04 - Source IPv4 Address - value 0x0a305879 -> 10.48.88.121

删除流

动态服务流可以删除与动态服务删除(DSD)消息。程序是相同的删除美国SF和DS SF。

test cable docsis dsd <mac> <service-flow-id>

示例：

```
acdc-cbr8-2#show cable modem 2cab.a40c.5598 service-flow

SUMMARY:
MAC Address    IP Address      Host          MAC               Prim  Num Primary        DS
                               Interface     State             Sid   CPE Downstream     RfId
2cab.a40c.5598 172.54.0.4      C1/0/2/UB     w-online          27    0   In1/0/2:7      8711


Sfid  Dir Curr  Sid   Sched  Prio MaxSusRate  MaxBrst     MinRsvRate  Throughput
          State       Type
17    US  act   27    BE     5    1024        3044        0           929
18    DS  act   N/A   N/A    3    300000000   24600       0           887

--> Before : 2SFs only

acdc-cbr8-2#test cable docsis dsa 2cab.a40c.5598 message
18230102000406010 60F010610040000037F130200E816010115040000032014040000 4E20160f010102030200040906
05040a305879

--> UGS SF

acdc-cbr8-2#test cable docsis dsa 2cab.a40c.5598 message
191A0102009906010607010508040000154A00A04000154A00B0200DA170f0101020302009909060304 0a305879

--> DS SF

acdc-cbr8-2#show cable modem 2cab.a40c.5598 service-flow
Load for five secs: 10%/1%; one minute: 9%; five minutes: 10%
Time source is NTP, 10:54:57.426 CET Thu Nov 22 2018


SUMMARY:
MAC Address    IP Address      Host          MAC               Prim  Num Primary        DS
                               Interface     State             Sid   CPE Downstream     RfId
2cab.a40c.5598 172.54.0.4      C1/0/2/UB     w-online          27    0   In1/0/2:7      8711


Sfid  Dir Curr  Sid   Sched  Prio MaxSusRate  MaxBrst     MinRsvRate  Throughput
          State       Type
```

```
17    US  act   27    BE     5    1024         3044         0           896
57    US  act   43    UGS    0    0            0            0           0
18    DS  act   N/A   N/A    3    300000000    24600        0           0
58    DS  act   N/A   N/A    5    87200        3044         87200       0

--> Now Both UGS and DS voice flows are created (and throughput would be seen as soon as packets
match the classifier.)
```

相关信息

- PacketCable多媒体规格
- Technical Support & Documentation - Cisco Systems