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## 简介

本文澄清流量整形的应用程序的之间差异对帧中继接口在思科7500系列路由器与通用接口处理器(VIP)和在其他平台。其他平台包括Cisco 7200、3600及2600系列路由器。

## 先决条件

### 要求

本文档没有任何特定的要求。

### 使用的组件

本文档不限于特定的软件和硬件版本。

### 规则

有关文档规则的详细信息，请参阅 [Cisco 技术提示规则](#)。

## 背景信息

自Cisco IOS软件版本12.1(5)T，服务质量(QoS)策略在VIP的分布式模式必须运行;路由交换机处理器(RSP) -不再支持基于QoS。因此，您必须使用模块化QoS命令行界面(MQC)的**shape命令**和其他命令为了实现帧中继接口的分布式流量整形在Cisco 7500系列的VIP。DTS结合通用流量整形(GTS)和帧中继流量整形(帧中继TS)。参考[配置配置示例的分布式流量整形](#)。

此表澄清如何配置帧中继TS，取决于平台：

	7500系列	7200，3600， 2600和其他非VIP平台
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支持的整形机制	DTS	帧中继TS
配置命令	<b>shape命令</b> 在策略映射	在主接口的 <b>帧中继的流量整形</b> ;映射组配置命令指定整形参数
要求dCEF	是(请用 <b>show cef linecard</b> 命令验证。)	否

<sup>1</sup> dCEF =分布式Cisco快速转发模式

**注意：**在Cisco 7500系列，因为帧中继TS执行在一个非分布式的模式的仅RSP能力通过**frame-relay traffic-shaping**命令配置帧中继TS当前阻塞。使用dCEF和帧中继TS，CEF“平底船”邻接导致RSP快速交换所有信息包，为最大转发性能是不理想的。

## 配置步骤

请使用这些步骤配置在基于VIP的帧中继接口的DTS：

1. 启用dCEF用此命令：`router(config)# ip cef distributed`
2. 保证帧中继接口为分布式交换启用。`router(config-if)# interface serial 8/0/0`  
`router(config-if)# ip route-cache distributed`  
`router# show ip interface serial 8/0/0`  
Serial8/0/0 is up,  
line protocol is up Internet address is 24.0.0.2/24 Broadcast address is  
255.255.255.255 *!--- Output suppressed.* ICMP redirects are always sent ICMP unreachable  
are always sent ICMP mask replies are never sent IP fast switching is enabled IP fast  
switching on the same interface is disabled IP Flow switching is disabled IP CEF switching  
is enabled **IP Distributed switching is enabled** IP Fast switching turbo vector IP CEF  
switching with tag imposition turbo vector IP multicast fast switching is enabled IP  
multicast distributed fast switching is disabled IP route-cache flags are Fast,  
Distributed, CEF Router Discovery is disabled IP output packet accounting is disabled
3. 创建服务策略并且应用它对映射类别。您能实现这些策略之一：**单级策略**？运用整形参数对虚拟电路流量**分级策略**？运用与shaping在“parent”级别和队列的一个两级策略在级“的孩子”参考[数据流策略作为QoS策略\(层次化数据流策略\)示例](#)欲知更多信息。**注意：**当Cisco IOS软件版本12.1(2)T介绍低延迟队列的(LLQ)时支持除Cisco 7500系列之外，在平台，分布式LLQ(dLLQ)在VIP的Cisco IOS软件版本12.1(5)T介绍。分布式版本提高此功能性能。您能配置同一个服务策略每数据链路连接标识符(DLCI)。您不需要使用映射类别。您能实施**service-policy**命令直接地到子接口或DLCI。然而，请配置dLLQ在映射类别里面。
4. 验证您的服务策略的正确作用这些命令：`show policy-map interfaces`  
`show interface`形状显示VIP FULL QoS

## FRF.12 与 DTS

Cisco IOS软件版本12.1(5)T介绍帧中继分段存储分布式版本，FRF.12。当您应用分布式FRF.12对帧中继接口时，您必须定义映射类别和运用服务策略在映射类别下。如果尝试配置与服务策略的一映射类别应用直接地对接口，您的路由器报告此错误消息用启用的**logging console**：

```
ip cef distributed ! class-map 1 match <> !--- Define match-on criteria. class-map 2 match
<> !--- Define match-on criteria. ! policy-map CBWFQ class 1 bandwidth <> !--- Define the value
in kbps or percent. class 2 priority <> !--- Define the value in kbps or percent. ! policy-map
SHAPE class class-default shape average service-policy CBWFQ ! int s0/0 encapsulation frame-
relay ip route-cache distributed !--- Do not configure frame-relay traffic-shaping. ! int s0/0.1
```

```
point-to-point ip address a.b.c.d frame-relay interface-dlci xxx class cisco ! map-class
frame-relay cisco service-policy output SHAPE
```

在运行在RSP 8的Cisco IOS软件版本12.2(5)T的此部分的配置和配置验证命令在Cisco 7500系列路由器测试了。

**注意：** [与服务质量\(分段、流量整形，LLQ/IP RTP优先级\)的](#) [参考的基于帧中继的VoIP](#)关于分段值的选择的更多信息。

### DTS和FRF.12配置示例

```
interface Ethernet4/1/3 ip address 10.122.3.206
255.255.255.0 ! interface Serial5/0/0:0 no ip address
encapsulation frame-relay load-interval 30 no fair-
queue !--- Do not configure frame-relay traffic-shaping.
! interface Serial5/0/0:0.1 point-to-point ip address
10.1.1.2 255.255.255.0 frame-relay interface-dlci 16
class test frame-relay ip rtp header-compression ! map-
class frame-relay test no frame-relay adaptive-shaping
service-policy output llq-shape frame-relay fragment
120 !--- Apply the frame-relay fragment command to the
!--- Frame Relay map class. access-list 101 permit udp
any range 16384 32767 any range 16384 32767
```

```
MS-7507-8A# show ip rtp head RTP/UDP/IP header compression statistics: DLCI 16 Link/Destination
info: point-to-point dlci Interface Serial5/0/0:0: Distributed fast switched: 4 seconds since
line card sent last stats update Rcvd: 105475 total, 105472 compressed, 0 errors 0 dropped, 0
buffer copies, 0 buffer failures Sent: 99451 total, 99447 compressed, 3776208 bytes saved,
2187963 bytes sent 2.72 efficiency improvement factor Connect: 256 rx slots, 256 tx slots, 0
long searches, 3 misses 0 collisions, 0 negative cache hits 99% hit ratio, five minute miss rate
0 misses/sec, 0 max MS-7507-8A# show policy-map Policy Map llq-shape Class class-default
shape peak 256000 1024 1024 service-policy llq Policy Map llq Class voip priority percent
50 MS-7507-8A# show policy-map interface s 5/0/0:0.1 Serial5/0/0:0.1: DLCI 16 - Service-policy
output: llq-shape queue stats for all priority classes: queue size 0, queue limit 32
packets output 147008, packet drops 0 tail/random drops 0, no buffer drops 0, other drops 0
Class-map: class-default (match-any) 148237 packets, 10393582 bytes 30 second offered rate
24000 bps, drop rate 0 bps Match: any queue size 0, queue limit 64 packets output
149563, packet drops 0 tail/random drops 0, no buffer drops 0, other drops 0 Shape: cir
256000, Bc 1024, Be 1024 lower bound cir 0, adapt to fecn 0 output bytes 6972057, shape
rate 10000 bps Service-policy : llq Class-map: voip (match-all) 146701 packets, 10325334
bytes 30 second offered rate 24000 bps, drop rate 0 bps Match: access-group 101 Priority:
50% (128 kbps), burst bytes 3200, b/w exceed drops: 0 Class-map: class-default (match-any)
1536 packets, 68248 bytes 30 second offered rate 0 bps, drop rate 0 bps Match: any queue
size 0, queue limit 32 packets output 2555, packet drops 0 tail/random drops 0, no buffer
drops 0, other drops 0 MS-7507-8A# show frame pvc 16 PVC Statistics for interface Serial5/0/0:0
(Frame Relay DTE) DLCI = 16, DLCI USAGE = LOCAL, PVC STATUS = ACTIVE, INTERFACE =
Serial5/0/0:0.1 input pkts 3036327 output pkts 199453 in bytes 198958363 out bytes 17271661
dropped pkts 0 in FECN pkts 0 in BECN pkts 0 out FECN pkts 0 out BECN pkts 0 in DE
pkts 0 out DE pkts 0 out bcast pkts 1071 out bcast bytes 371448 5 minute input rate 0
bits/sec, 0 packets/sec 5 minute output rate 35000 bits/sec, 50 packets/sec pvc create time
17:51:42, last time pvc status changed 17:50:53 fragment type end-to-end fragment size 120 MS-
7507-8A# show interface shape Serial5/0/0:0 nobuffer drop 0 Serial5/0/0:0.1(class 0): cir
256000, Bc 1024, Be 1024 lower bound cir 0, adapt to fecn 0 packets output 152104, bytes output
6985505 queue limit 64, queue size 0, drops 0 last clear = 16:58:59 ago, shape rate = 10000
bpsMS-7507-8A# show ip rtp head RTP/UDP/IP header compression statistics: DLCI 16
Link/Destination info: point-to-point dlci Interface Serial5/0/0:0: Distributed fast switched: 4
seconds since line card sent last stats update Rcvd: 105475 total, 105472 compressed, 0 errors 0
dropped, 0 buffer copies, 0 buffer failures Sent: 99451 total, 99447 compressed, 3776208 bytes
saved, 2187963 bytes sent 2.72 efficiency improvement factor Connect: 256 rx slots, 256 tx
slots, 0 long searches, 3 misses 0 collisions, 0 negative cache hits 99% hit ratio, five minute
miss rate 0 misses/sec, 0 max MS-7507-8A# show policy-map Policy Map llq-shape Class class-
default shape peak 256000 1024 1024 service-policy llq Policy Map llq Class voip priority
percent 50 MS-7507-8A# show policy-map interface s 5/0/0:0.1 Serial5/0/0:0.1: DLCI 16 - Service-
policy output: llq-shape queue stats for all priority classes: queue size 0, queue limit 32
```

```
packets output 147008, packet drops 0 tail/random drops 0, no buffer drops 0, other drops 0
Class-map: class-default (match-any) 148237 packets, 10393582 bytes 30 second offered rate
24000 bps, drop rate 0 bps Match: any queue size 0, queue limit 64 packets output
149563, packet drops 0 tail/random drops 0, no buffer drops 0, other drops 0 Shape: cir
256000, Bc 1024, Be 1024 lower bound cir 0, adapt to fecn 0 output bytes 6972057, shape
rate 10000 bps Service-policy : llq Class-map: voip (match-all) 146701 packets, 10325334
bytes 30 second offered rate 24000 bps, drop rate 0 bps Match: access-group 101 Priority:
50% (128 kbps), burst bytes 3200, b/w exceed drops: 0 Class-map: class-default (match-any)
1536 packets, 68248 bytes 30 second offered rate 0 bps, drop rate 0 bps Match: any queue
size 0, queue limit 32 packets output 2555, packet drops 0 tail/random drops 0, no buffer
drops 0, other drops 0 MS-7507-8A# show frame pvc 16 PVC Statistics for interface Serial5/0/0:0
(Frame Relay DTE) DLCI = 16, DLCI USAGE = LOCAL, PVC STATUS = ACTIVE, INTERFACE =
Serial5/0/0:0.1 input pkts 3036327 output pkts 199453 in bytes 198958363 out bytes 17271661
dropped pkts 0 in FECN pkts 0 in BECN pkts 0 out FECN pkts 0 out BECN pkts 0 in DE
pkts 0 out DE pkts 0 out bcast pkts 1071 out bcast bytes 371448 5 minute input rate 0
bits/sec, 0 packets/sec 5 minute output rate 35000 bits/sec, 50 packets/sec pvc create time
17:51:42, last time pvc status changed 17:50:53 fragment type end-to-end fragment size 120 MS-
7507-8A# show interface shape Serial5/0/0:0 nobuffer drop 0 Serial5/0/0:0.1(class 0): cir
256000, Bc 1024, Be 1024 lower bound cir 0, adapt to fecn 0 packets output 152104, bytes output
6985505 queue limit 64, queue size 0, drops 0 last clear = 16:58:59 ago, shape rate = 10000 bps
```

## [已知问题](#)

如果仍然使用Cisco IOS软件版本12.1E，配置与帧中继封装的VIP接口能失败与总线错误。此失败出现，如果运用服务策略，当接口通过流量时。在您更新服务策略前，应急方案是终止所有后台流量。或者您能升级到Cisco IOS软件版本12.2或以后。

欲知更多信息，参考[思科工具&资源](#)页。

## [相关信息](#)

- [QoS 技术支持](#)
- [技术支持和文档 - Cisco Systems](#)