

对MD 802.1Q配置的MD与FCIP

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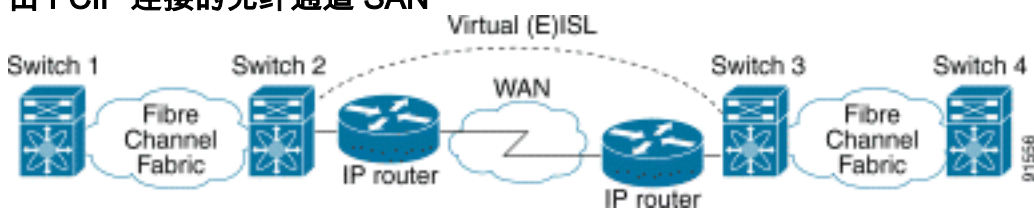
[相关信息](#)

简介

本文为TCP/IP光纤信道提供一配置示例802.1Q多层导向交换机给MD。

FCIP描述了在基于IP的光纤信道(FC)存储区域网络 (SAN) 岛实现互连的机制，以便在单个FC光组织中组成统一的SAN。FCIP依靠基于IP的网络服务，在通过局域网、城域网或广域网的SAN岛之间提供连通性。

由 FCIP 连接的光纤通道 SAN



FCIP在端口3225的用途传输控制协议(TCP)作为网络层传输。

先决条件

要求

IP骨干网必须是可操作和传送所需的带宽支持运行在FCIP链路间的应用程序—这可能是Layer2 (L2)或第3层(L3)拓扑。如果它是L3拓扑，必须设置和配置中间路由器或多层交换机适当地转发在FCIP通道之间的源和目的IP地址的IP数据流。如果服务质量(QoS)或流量整形被强制执行在任何网络设备在FCIP对等体之间的路径，管理IP基础设施的网络管理器应该咨询在配置任何相关参数和功

能前获得必要的详细信息在多层导向交换机FCIP配置文件。是在MDSes附近的以太网交换机必须为802.1q中继支持和配置，如果子接口在MDS IP Storage (IPS)服务模块配置。

使用的组件

本文档中的信息基于以下软件和硬件版本：

- 与IPS服务模块(DS-X9308-SMIP)运行版本1.2.(2a)的MDS9509
- 具备 IPS 服务模块 (DS-X9308-SMIP) 1.2.(2a) 运行版本的 MDS 9509
- 运行Catalyst OS (CatOS)的Catalyst 6509 7.4(3)
- 带有Emulex LP9K HBA的Win2003服务器(HPQ Pro-Liant-P4)
- IBM 存储阵列 (ESS-2105-F20)

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您使用的是真实网络，请确保您已经了解所有命令的潜在影响。

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

FCIP包括这些规格：

[ANSI T11](#)

1. FC-SW-2描述FC交换机的操作和交互作用包括E_Port和结构操作。
2. FC-BB-2是适合通过TCP网络主干的FC交换网络扩展的映射，它同时还定义了支持E_端口 和 B_端口的参考模型。

[IETF IPS 工作组](#)

1. TCP的FC包括在一个IP网络上传输FC帧的TCP/IP要求。
2. FC 帧封装可定义普通的光纤封装格式。

[IEEE 802标准](#)

所有类型IEEE 802 LAN可能与MAC网桥一起连接，在ISO/IEC 15802-3上指定。此标准定义了VLAN网桥操作允许VLAN结构定义、操作和管理在桥接LAN基础设施内的。

在两个SAN交换机或结构之间的互连在FCIP间呼叫FCIP链路，并且能包含一个或更多TCP连接。FCIP链路的每个结尾与虚拟E端口(VE_端口)或B_端口连接，这取决于实施情况。FC-BB 和 FC-BB-2 可描述两种方法之间的区别。IP服务模块(DS-X9308-SMIP)支持两种模式，但是默认对VE_Port，也是运行的推荐的模式，如果所有相关对等体是DS-X9308-SMIP模块。在MD平台的VE_Port功能也支持TE端口功能，由多个虚拟SAN (VSAN)使有能力中继数据流在一个FCIP实例间。驻留Cisco X9308-SMIP模块的千兆以太网(GE)接口支持802.1Q为了有效利用带宽在两个或多个FCIP通道之间的1 Gbps在低带宽需求每个FCIP通道存在的情况。一个人必须了解那共享通过使用dot1q的带宽不提供确定的带宽每个FCIP通道，当FCIP配置文件TCP参数在默认状态时被留下。

配置

在MDSes，您需要熟悉自己两平台的IPS配置指南。指南的多数当前版本可以在[配置](#)在Cisco.com的[IP存储设备](#)找到。在以太网交换机侧，一个需要熟悉dot1q中继配置特定。在本例中特定的示例，Catalyst运行混合的CatOS部署;另外配置可能适用于到其他Cisco交换机或从其他供应商的交换机。

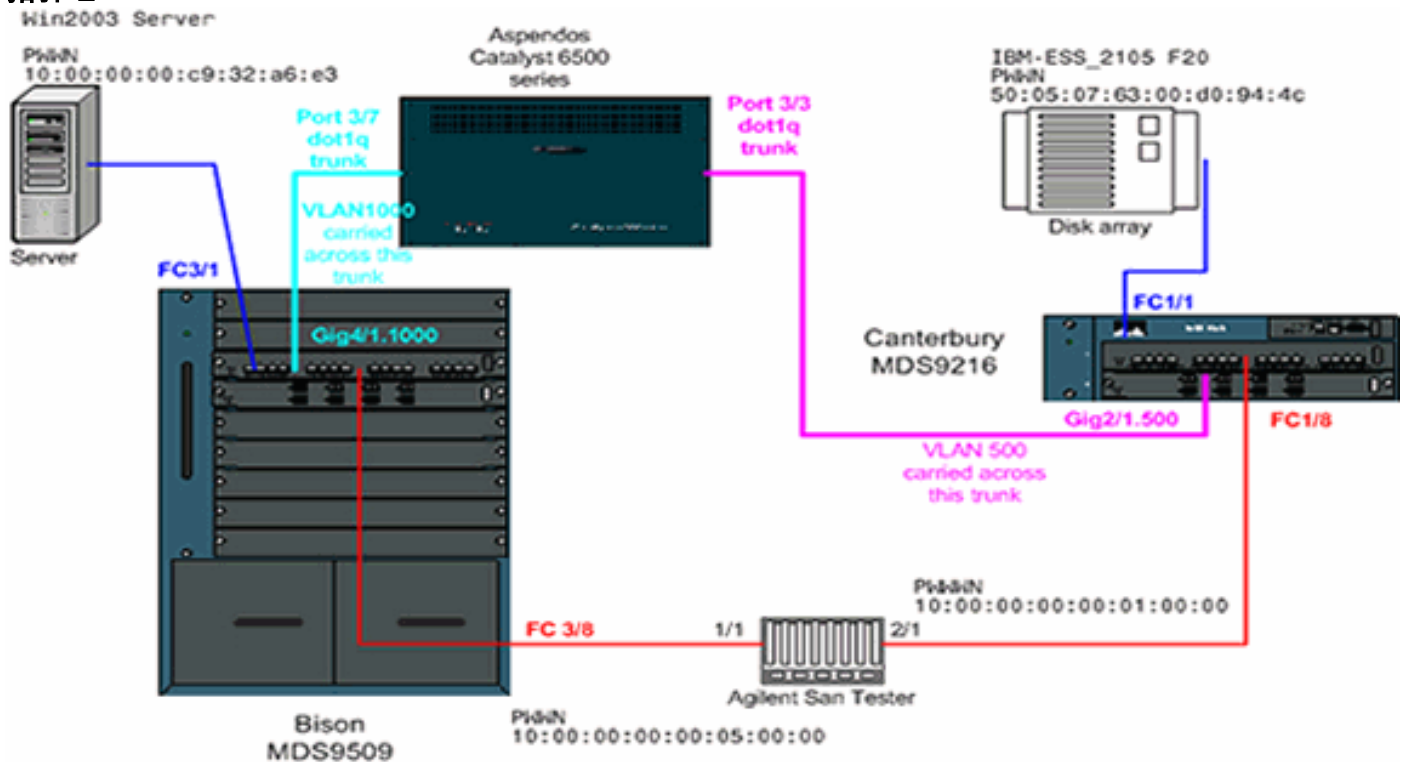
对于Catalyst 6000系列运行混合模式，参考[配置以太网VLAN中继](#)。对于本地IOS，参考[配置VLAN](#)。对于Catalyst XL运行本地IOS的类型交换机，参考[配置VLAN](#)。

注意：要查找本文档所用命令的其他信息，请使用[命令查找工具](#)（[仅限注册用户](#)）。

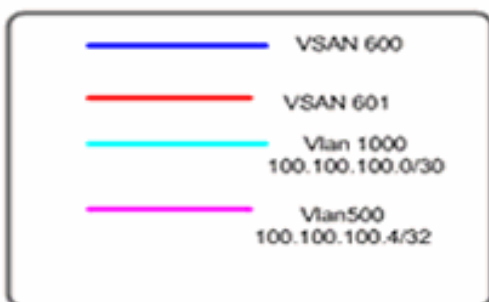
网络图

本文档使用下图所示的网络设置。

拓扑 2



Topology 2 - FCIP tunnel across dot1q subinterface



拓扑2表示在802.1Q中继间的一FCIP通道运行在IP网云的每一边。IP网云崩溃到从VLAN 1000路由流量到VLAN 500和从VLAN 500到VLAN 1000的一台多层交换机(Catalyst 6500)。VLAN 1000概念上映射对IP子网100.100.100.0/30，并且VLAN 500映射对IP子网100.100.100.4/30。MD映射并且获取dot1q帧清楚在下面配置部分的方式。为了简化，仅在一个物理接口间的一个FCIP通道在两

MDSes定义;实际上，一只将使用dot1q中继共享带宽多个FCIP通道之间的一千兆接口。

配置

- [具备 IPS-8 模块的 MDS9509 \(Bison\)](#)
- [具备 IPS-8 模块的 MDS9216 \(Canterbury\)](#)
- [Catalyst 6000 \(Aspendos\)用IPS-8模块](#)

具备 IPS-8 模块的 MDS9509 (Bison)

```
bison# sh ver

Cisco Storage Area Networking Operating System (SAN-OS)
Software
TAC support: http://www.cisco.com/tac
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rights reserved.
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Andiamo Systems, Inc. and/or other third parties and are
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distributed under license.

Software
BIOS: version 1.0.8
loader: version 1.2(2)
kickstart: version 1.2(2a)
system: version 1.2(2a)

BIOS compile time: 08/07/03
kickstart image file is: bootflash:/k122a
kickstart compile time: 9/23/2003 11:00:00
system image file is: bootflash:/s122a
system compile time: 10/8/2003 18:00:00

Hardware
RAM 1024584 kB

bootflash: 500736 blocks (block size 512b)
slot0: 0 blocks (block size 512b)

bison uptime is 1 days 15 hours 45 minute(s) 44
second(s)

Last reset
Reason: Unknown
System version: 1.2(2a)
Service:

bison# sh run

Building Configuration ...
fcip profile 1
ip address 100.100.100.1
!--- FCIP profile 1 is bound to the local relevant IPS
interface. !--- In this example, it is the IP address of
interface Gig4/1. vsan database vsan 200 name test vsan
600 vsan 601 fcdomain priority 1 vsan 1 fcdomain domain
1 preferred vsan 1 fcdomain domain 1 preferred vsan 600
fcdomain domain 1 preferred vsan 601 interface fcip1 no
```

```

shutdown switchport trunk allowed vsan 600-601 use-
profile 1 peer-info ipaddr 100.100.100.6 <!--- peer IP
address is the address on remote MDS Canterbury <!---
configured on interface Gig4/1.500. vsan database vsan
600 interface fc3/1 vsan 601 interface fc3/8 boot system
bootflash:/s122a sup-1 boot kickstart bootflash:/k122a
sup-1 boot system bootflash:/s122a sup-2 boot kickstart
bootflash:/k122a sup-2 boot asm-sfn bootflash:/ilc1.bin
module 4 ip domain-name cisco.com ip name-server
144.254.10.123 ip default-gateway 10.48.69.129 ip route
100.100.100.4 255.255.255.252 100.100.100.2 distance 2
!--- The next hop IP address is 100.100.100.2 !--- and
is owned by the intermediate !--- Ethernet multilayer
switch Aspendos. zone name z-fcip2 vsan 600 member pwn
50:05:07:63:00:d0:94:4c member pwn
10:00:00:00:c9:32:a6:e3 zone name Zone_a1 vsan 601
member pwn 10:00:00:00:00:01:00:00 member pwn
10:00:00:00:00:05:00:00 zone default-zone permit vsan 1
zone default-zone permit vsan 603 zoneset distribute
full vsan 600 zoneset name zs-fcip2 vsan 600 member z-
fcip2 zoneset name Agilent_1 vsan 601 member Zone_a1
zoneset activate name zs-fcip2 vsan 600 zoneset activate
name Agilent_1 vsan 601 interface fc3/1 no shutdown !---
Output suppressed. interface fc3/8 no shutdown interface
mgmt0 ip address 10.48.69.151 255.255.255.192 interface
GigabitEthernet4/1 no shutdown interface
GigabitEthernet4/1.1000 ip address 100.100.100.1
255.255.255.252 switchport mtu 3000 no shutdown !---
Here the subinterface 1000 is configured, !--- which
ties into dot1q VLAN 1000 on the Ethernet switch. !---
The MTU size is changed from the default 1500 bytes to
3000, !--- because the intermediate switch supports
jumbo frames !--- on both L2 and L3.

```

具备 IPS-8 模块的 MDS 9216 (Canterbury)

```

canterbury# sh run

Building Configuration ...
fcip profile 1
ip address 100.100.100.6

vsan database
vsan 600
vsan 601

fcdomain domain 2 preferred vsan 600
fcdomain domain 2 preferred vsan 601

interface fcipl
use-profile 1
peer-info ipaddr 100.100.100.1

vsan database
vsan 600 interface fc1/1
vsan 601 interface fc1/8

boot system bootflash:/s122a
boot kickstart bootflash:/k122a
fcalias name test vsan 1

ip domain-name cisco.com
ip name-server 144.254.10.123

```

```

ip default-gateway 10.48.69.129
ip route 10.61.0.0 255.255.0.0
ip route 10.61.0.0 255.255.0.0 10.48.69.200
ip route 100.100.100.0 255.255.255.252 100.100.100.5
distance 2
!--- Static IPS route required to reach the FCIP peer
address. line vty exec-timeout 0 switchname canterbury
system default switchport trunk mode auto zone name z-
fcip2 vsan 600 member pwnn 50:05:07:63:00:d0:94:4c
member pwnn 10:00:00:00:c9:32:a6:e3 zone default-zone
permit vsan 777 zoneset distribute full vsan 600 zoneset
name zs-fcip2 vsan 600 member z-fcip2 zoneset activate
name zs-fcip2 vsan 600 zoneset activate name Agilent_1
vsan 601 interface GigabitEthernet2/1 no shutdown
interface GigabitEthernet2/1.500 ip address
100.100.100.6 255.255.255.252 switchport mtu 3000 no
shutdown interface fc1/1 no shutdown interface fc1/8 no
shutdown interface mgmt0 ip address 10.48.69.156
255.255.255.128

```

Catalyst 6000 (Aspendos)用IPS-8模块

```
Aspendos> (enable) sh vlan 500
```

VLAN Name	Status	IfIndex
Mod/Ports, Vlans		

500	VLAN0500	active	191
1/1			

3/3

15/1

VLAN Mode	Type	SAID	MTU	Parent	RingNo	BrdgNo	Stp	Brdg
		Transl	Trans2					

500	enet	100	500	1500	-	-	-	-
0		0						

```
VLAN MISTP-Inst DynCreated RSPAN
```

500	-	static	disabled
-----	---	--------	----------

```
Aspendos> (enable) sh vlan 1000
```

VLAN Name	Status	IfIndex
Mod/Ports, Vlans		

1000	fcip-extra-hop	active	131
3/7			

15/1

VLAN Mode	Type	SAID	MTU	Parent	RingNo	BrdgNo	Stp	Brdg
		Transl	Trans2					

1000	enet	101	000	1500	-	-	-	-
------	------	-----	-----	------	---	---	---	---

```

0      0
VLAN MISTP-Inst DynCreated RSPAN
-----
1000 -          static      disabled

Aspendos> (enable) sh trunk 3/3

* - indicates vtp domain mismatch
Port Mode Encapsulation Status      Native vlan
-----
3/3 on dot1q      trunking      1

Port Vlans allowed on trunk
-----
3/3 1,500

Port Vlans allowed and active in management domain
-----
3/3 1,500

Port Vlans in spanning tree forwarding state and not
pruned
-----
3/3 1,500

Aspendos> (enable) sh trunk 3/7

* - indicates vtp domain mismatch
Port Mode Encapsulation Status      Native vlan
-----
3/7 on dot1q      trunking      1

Port Vlans allowed on trunk
-----
3/7 1,1000

Port Vlans allowed and active in management domain
-----
3/7 1,1000

Port Vlans in spanning tree forwarding state and not
pruned
-----
3/7 1,1000
!--- Note that VLAN 500 is trunked on port 3/3, which is
physically connected !--- to MDS Canterbury while port
3/7 trunks for VLAN 1000 and is connected !--- to MDS
Bison. The port 15/1 is an internal port and directs to
the !--- multilayer entity in the switch. Aspendos>
(enable) sh port jumbo

Jumbo frames MTU size is 9216 bytes.
Jumbo frames enabled on port(s) 1/2,3/1-16.
!--- L2 Jumbo support must be enabled for all relevant
ports. Aspendos> (enable) sh spantree 3/3

Port Vlan Port-State Cost Prio Portfast Channel_id

```

```

-----
3/3 1 forwarding 4 32 disabled 0
3/3 500 forwarding 4 32 disabled 0

Aspendos> (enable) sh spantree 3/7

Port Vlan Port-State Cost Prio Portfast Channel_id
-----
3/7 1 forwarding 4 32 disabled 0
3/7 1000 forwarding 4 32 disabled 0

Aspendos> (enable) sh spantree 15/1

Port Vlan Port-State Cost Prio Portfast Channel_id
-----
15/1 192 forwarding 4 32 enabled 0
15/1 500 forwarding 4 32 enabled 0
15/1 691 forwarding 4 32 enabled 0
15/1 1000 forwarding 4 32 enabled 0
!--- All relevant ports on the Catalyst are forwarding
!--- for their respective VLANs. Aspendos> (enable) ses
15

Trying Router-15...
Connected to Router-15.
Escape character is '^]'.

User Access Verification

Password:
Aspendos_MSFC2> en
Password:
Aspendos_MSFC2#

!
interface Vlan500
mtu 3000
ip address 100.100.100.5 255.255.255.252
end

Aspendos_MSFC2# sh run int vlan 1000
Building configuration...

Current configuration : 113 bytes
!
interface Vlan1000
description "test-vlan-fcip-1000"
mtu 3000
ip address 100.100.100.2 255.255.255.252
end
!--- The VLANs 500 and 1000 are configured properly on
the MSFC !--- of the Catalyst 6000. !--- Both subnets
are directly connected to the same Ethernet !--- switch,
so no additional routes are needed here. Also note !---
that the MTU size is changed accordingly on the MDS
Gigabit !--- interfaces to 3000 bytes. This change is
required to support !--- jumbo multilayer switching.

```

验证

本部分所提供的信息可用于确认您的配置是否正常工作。

[命令输出解释程序工具 \(仅限注册用户 \)](#) 支持某些 **show** 命令，使用此工具可以查看对 **show** 命令输出的分析。

- **show interface gig x/y** - 显示绑定到 FCIP 配置文件的相关千兆接口的状态。
- **show ips stats tcp int gig x/y**---显示相关千兆接口的TCP统计数据 and 活动连接。
- **show ips arp int gig x/y** - 显示相关千兆接口的所有地址解析协议 (ARP) 条目；对端的下一跳应该存在于此列表中。
- **show ips ip route int gig x/y** - 显示通过相关千兆接口的特定路由。
- **show interface fcip x**——显示FCIP接口状态和与此FCIP隧道相关的全部详情。
- **show profile fcip x** ——显示文件夹所捆绑的IP地址，以及所有配置的TCP参数。
- **show int fcip x counters**——用于检查是否有任何帧通过FCIP隧道。
- **show fcdomain vsan x** - 列出所有与域相关的详细信息；过去常常验证结构在FCIP隧道间被形成。
- **show fcns da vsan x** ---显示与VSAN相关的所有pwwn、FC4-类型和FCID;用于验证所有期望的条目通过FCIP隧道被分配。

注意： dot1q接口作为FCIP的一个正常物理接口。没有验证正常操作的特定的需求除**show interface gig x/y.z** where命令z之外代表子接口。根据设备连接对本地MD千兆接口，您必须参考相关文档验证接口和端口正确地配置。

故障排除

请务必发出**显示**命令多次建立计数器历史记录。与此刻没有涉及和只收集的计数器一次是通常无用的。

请使用下方所示的配置进行更多故障排除。

- [MDS9509 \(Bison\)](#)
- [MDS9216 \(Canterbury\)](#)
- [关于本地VLAN不匹配的注意](#)

MDS9509 (Bison)

```
bison# sh int gig 4/1.1000

GigabitEthernet4/1.1000 is up
  Hardware is GigabitEthernet, address is
0005.3000.a85a
  Internet address is 100.100.100.1/30
  MTU 3000 bytes
!--- Configured to 3000 bytes. 5 minutes input rate 488
bits/sec, 61 bytes/sec, 0 frames/sec 5 minutes output
rate 488 bits/sec, 61 bytes/sec, 0 frames/sec 1785
packets input, 996030 bytes 0 multicast frames, 0
compressed 0 input errors, 0 frame, 0 overrun 0 fifo
1812 packets output, 354152 bytes, 0 underruns 0 output
errors, 0 collisions, 0 fifo 0 carrier errors !--- MTU
is configured to 3000 bytes to avoid unnecessary !---
TCP segmentation and limit overhead. bison# sh ips stats
tcp int gig 4/1 de

TCP Statistics for port GigabitEthernet4/1
TCP send stats
  337202017 segments, 222637392068 bytes
```

```

130562402 data, 205533417 ack only packets
503 control (SYN/FIN/RST), 0 probes, 1105737
window updates
  7 segments retransmitted, 2208 bytes
  4 retransmitted while on ethernet send queue,
40061909 packets split
  250922624 delayed acks sent
TCP receive stats
  932985742 segments, 921498012 data packets in
sequence,
  936715052100 bytes in sequence
  770241 predicted ack, 856752348 predicted data
  0 bad checksum, 0 multi/broadcast, 0 bad offset
  0 no memory drops, 0 short segments
  0 duplicate bytes, 16 duplicate packets
  0 partial duplicate bytes, 0 partial duplicate
packets
  53128 out-of-order bytes, 165 out-of-order packets
  0 packet after window, 0 bytes after window
  5 packets after close
  76225562 acks, 192030009160 ack bytes, 0 ack
toomuch,
  5851 duplicate acks
  0 ack packets left of snd_una, 0 non-4 byte
aligned packets
  9124012 window updates, 0 window probe
  1381 pcb hash miss, 984 no port, 103 bad SYN, 0
paws drops
TCP Connection Stats
  272 attempts, 107 accepts, 163 established
  511 closed, 3 drops, 206 conn drops
  3 drop in retransmit timeout, 20 drop in keepalive
timeout
  0 drop in persist drops, 0 connections drained
TCP Miscellaneous Stats
  61792500 segments timed, 76225541 rtt updated
  124 retransmit timeout, 0 persist timeout
  5760 keepalive timeout, 5740 keepalive probes
TCP SACK Stats
  0 recovery episodes, 0 data packets, 0 data bytes
  0 data packets retransmitted, 0 data bytes
retransmitted
  0 connections closed, 0 retransmit timeouts
TCP SYN Cache Stats
  107 entries, 107 connections completed, 0 entries
timed out
  0 dropped due to overflow, 0 dropped due to RST
  0 dropped due to ICMP unreachable, 0 dropped due to
bucket overflow
  0 abort due to no memory, 0 duplicate SYN, 0 no-
route SYN drop
  0 hash collisions, 0 retransmitted

100.100.100.1:64860 100.100.100.6:3225 ESTABLISH 0 0
100.100.100.1:64862 100.100.100.6:3225 ESTABLISH 0 0
100.100.100.1:3225 0.0.0.0:0 LISTEN 0 0
!--- No specific counters are maintained per
subinterface. !--- All stats for all subinterfaces on
Gig 4/1 are seen here. bison# sh ips arp interface gig
4/1

Protocol Address Age (min) Hardware Addr Type Interface
Internet 100.100.100.2 13 0008.e21e.c7bc ARPA
GigabitEthernet4/1.1000

```

!--- No specific ARP table is maintained per subinterface. !--- All entries for all subinterface on Gig4/1 are seen here. bison# **sh ips ip route int gig 4/1**

Codes: C - connected, S - static

No default gateway

S 100.100.100.4/30 via 100.100.100.2,
GigabitEthernet4/1.1000
C 100.100.100.0/30 is directly connected,
GigabitEthernet4/1.1000

*!--- IPS routes are derived from the main-interface, !--
- not specifically per subinterface. The next hop is
verified here.* bison# **sh cdp ne int gig 4/1**

Capability Codes: R - Router, T - Trans-Bridge, B -
Source-Route-Bridge
S - Switch, H - Host, I - IGMP, r - Repeater

Device ID Local Intrfce Hldtme Capability Platform
Port ID

TBM06033144 (Aspe Gig4/1 136 T S WS-C6506 3/7

*!--- Use this command if the neighbor supports it to
verify !--- physical connectivity.* bison# **sh fcip
profile 1**

FCIP Profile 1
Internet Address is 100.100.100.1 (interface
GigabitEthernet4/1.1000)
Listen Port is 3225
TCP parameters
SACK is enabled
PMTU discovery is enabled, reset timeout is 3600 sec
Keep alive is 60 sec
Minimum retransmission timeout is 200 ms
Maximum number of re-transmissions is 4
Send buffer size is 0 KB
Maximum allowed bandwidth is 1000000 kbps
Minimum available bandwidth is 15000 kbps
Estimated round trip time is 1000 usec
Congestion window monitoring is enabled, burst size is
10 KB

*!--- The profile parameters are an easy way to directly
verify !--- the configured TCP/IP parameters per FCIP
instance.* bison# **sh int fcip 1**

fcip1 is trunking
Hardware is GigabitEthernet
Port WWN is 20:c2:00:05:30:00:7a:de
Peer port WWN is 20:42:00:0c:30:6c:24:40
Admin port mode is auto, trunk mode is on
Port mode is TE
vsan is 1
Trunk vsans (allowed active) (1,600-601)
Trunk vsans (operational) (1,600-601)
Trunk vsans (up) (1,600-601)
Trunk vsans (isolated) ()
Trunk vsans (initializing) ()
Using Profile id 1 (**interface GigabitEthernet4/1.1000**)
Peer Information
Peer Internet address is 100.100.100.6 and port is 3225

```
Special Frame is disabled
Maximum number of TCP connections is 2
Time Stamp is disabled
QOS control code point is 0
QOS data code point is 0
B-port mode disabled
TCP Connection Information
2 Active TCP connections
Control connection: Local 100.100.100.1:64860, Remote
100.100.100.6:3225
Data connection: Local 100.100.100.1:64862, Remote
100.100.100.6:3225
2 Attempts for active connections, 0 close of
connections
TCP Parameters
Path MTU 3000 bytes
Current retransmission timeout is 200 ms
Round trip time: Smoothed 2 ms, Variance: 1
Advertized window: Current: 118 KB, Maximum: 118 KB,
Scale: 1
Peer receive window: Current: 118 KB, Maximum: 118 KB,
Scale: 1
Congestion window: Current: 10 KB, Slow start threshold:
112 KB
5 minutes input rate 200 bits/sec, 25 bytes/sec, 0
frames/sec
5 minutes output rate 200 bits/sec, 25 bytes/sec, 0
frames/sec
1306 frames input, 891212 bytes
472 Class F frames input, 46972 bytes
834 Class 2/3 frames input, 844240 bytes
0 Error frames timestamp error 0
867 frames output, 252424 bytes
470 Class F frames output, 48860 bytes
397 Class 2/3 frames output, 203564 bytes
0 Error frames 0 reass frames
!--- Here, the specific details per FCIP interface are
shown !--- by a running FCIP instance. You can also
derive the !--- TCP parameters of the peer with this
output. bison# sh fcdomain vsan 600
```

The local switch is the Principal Switch.

```
Local switch run time information:
State: Stable
Local switch WWN: 22:58:00:05:30:00:7a:df
Running fabric name: 22:58:00:05:30:00:7a:df
Running priority: 2
Current domain ID: 0x01(1)
```

```
Local switch configuration information:
State: Enabled
FCID persistence: Disabled
Auto-reconfiguration: Disabled
Contiguous-allocation: Disabled
Configured fabric name: 20:01:00:05:30:00:28:df
Configured priority: 128
Configured domain ID: 0x01(1) (preferred)
```

```
Principal switch run time information:
Running priority: 2
```

```
Interface          Role          RCF-reject
-----
```

```

fcip1           Downstream      Disabled
-----
bison# sh fcdomain vsan 601

The local switch is the Principal Switch.

Local switch run time information:
State: Stable
Local switch WWN: 22:59:00:05:30:00:7a:df
Running fabric name: 22:59:00:05:30:00:7a:df
Running priority: 2
Current domain ID: 0x01(1)

Local switch configuration information:
State: Enabled
FCID persistence: Disabled
Auto-reconfiguration: Disabled
Contiguous-allocation: Disabled
Configured fabric name: 20:01:00:05:30:00:28:df
Configured priority: 128
Configured domain ID: 0x01(1) (preferred)

Principal switch run time information:
Running priority: 2

Interface           Role           RCF-reject
-----
fcip1           Downstream      Disabled
-----
!--- Similar to normal (E)ISL troubleshooting, verify !-
-- that the fabric is formed as expected. bison# sh fcns
da vsan 600-601

VSAN 600:
-----
FCID      TYPE PWWN                               (VENDOR) FC4-
TYPE:FEATURE
-----
0x010001 N    10:00:00:00:c9:32:a6:e3 (Emulex) scsi-
fcp:init
0x020001 N    50:05:07:63:00:d0:94:4c (IBM)   scsi-
fcp:target fc..

Total number of entries = 2

VSAN 601:
-----
FCID      TYPE PWWN                               (VENDOR) FC4-
TYPE:FEATURE
-----
0x010001 N    10:00:00:00:c9:32:a6:e2 (Emulex) scsi-
fcp:init
0x010100 N    10:00:00:00:00:05:00:00
0x020100 N    10:00:00:00:00:01:00:00

Total number of entries = 3

```

MDS9216 (Canterbury)

```

canterbury# sh int gig 2/1.500

GigabitEthernet2/1.500 is up
  Hardware is GigabitEthernet, address is
0005.3000.ade6
  Internet address is 100.100.100.6/30
  MTU 3000 bytes
  5 minutes input rate 2248 bits/sec, 281 bytes/sec, 0
frames/sec
  5 minutes output rate 696 bits/sec, 87 bytes/sec, 0
frames/sec
  2263 packets input, 482038 bytes
    0 multicast frames, 0 compressed
    0 input errors, 0 frame, 0 overrun 0 fifo
  2479 packets output, 1077822 bytes, 0 underruns
    0 output errors, 0 collisions, 0 fifo
    0 carrier errors

canterbury# sh cdp ne int gig 2/1

Capability Codes: R - Router, T - Trans-Bridge, B -
Source-Route-Bridge
                  S - Switch, H - Host, I - IGMP, r -
Repeater

Device ID   Local Intrfce Hldtme Capability Platform
Port ID
-----
-----
TBM06033144 (Aspe Gig2/1 165   T S           WS-C6506 3/3
!--- If the neighbor supports CDP, use this command !---
to verify physical connectivity. canterbury# sh fcip
profile 1
FCIP Profile 1
Internet Address is 100.100.100.6 (interface
GigabitEthernet2/1.500)
Listen Port is 3225
TCP parameters
SACK is enabled
PMTU discovery is enabled, reset timeout is 3600 sec
Keep alive is 60 sec
Minimum retransmission timeout is 200 ms
Maximum number of re-transmissions is 4
Send buffer size is 0 KB
Maximum allowed bandwidth is 1000000 kbps
Minimum available bandwidth is 15000 kbps
Estimated round trip time is 1000 usec
Congestion window monitoring is enabled, burst size is
10 KB

canterbury# sh int fcip 1
fcip1 is trunking
Hardware is GigabitEthernet
Port WWN is 20:42:00:0c:30:6c:24:40
Peer port WWN is 20:c2:00:05:30:00:7a:de
Admin port mode is auto, trunk mode is auto
Port mode is TE
vsan is 1
Trunk vsans (allowed active) (1,600-601)
Trunk vsans (operational) (1,600-601)
Trunk vsans (up) (1,600-601)
Trunk vsans (isolated) ()

```

```
Trunk vsans (initializing) ()
Using Profile id 1 (interface GigabitEthernet2/1.500)
Peer Information
Peer Internet address is 100.100.100.1 and port is 3225
Special Frame is disabled
Maximum number of TCP connections is 2
Time Stamp is disabled
QOS control code point is 0
QOS data code point is 0
B-port mode disabled
TCP Connection Information
2 Active TCP connections
Control connection: Local 100.100.100.6:3225, Remote
100.100.100.1:64860
Data connection: Local 100.100.100.6:3225, Remote
100.100.100.1:64862
0 Attempts for active connections, 0 close of
connections
TCP Parameters
Path MTU 3000 bytes
Current retransmission timeout is 200 ms
Round trip time: Smoothed 2 ms, Variance: 1
Advertized window: Current: 118 KB, Maximum: 118 KB,
Scale: 1
Peer receive window: Current: 118 KB, Maximum: 118 KB,
Scale: 1
Congestion window: Current: 10 KB, Slow start threshold:
112 KB
5 minutes input rate 184 bits/sec, 23 bytes/sec, 0
frames/sec
5 minutes output rate 184 bits/sec, 23 bytes/sec, 0
frames/sec
1163 frames input, 336700 bytes
722 Class F frames input, 72176 bytes
441 Class 2/3 frames input, 264524 bytes
0 Error frames timestamp error 0
1588 frames output, 917216 bytes
724 Class F frames output, 70288 bytes
864 Class 2/3 frames output, 846928 bytes
0 Error frames 0 reass frames
```

[关于本地VLAN不匹配的注意](#)

在某些条件下，客户可能发现在相邻(Catalyst)以太网交换机的系统日志的VLAN错误消息。这指示在那些交换机trunkport的一个不正确的配置。如果子接口.1000在其中一配置在MD IP服务模块的主接口，在Catalyst交换机的相邻switchport需要建立中继为该同样VLAN ID 1000。如果，由于某种原因，Catalyst运行VLAN 1000作为端口VLAN或本地VLAN，则错误消息生成，并且连接是残破的，因为从MD侧的dot1q封装的帧没有由交换机了解，并且丢弃。VLAN错误示例如下所示。

```
canterbury# sh int gig 2/1.500
```

```
GigabitEthernet2/1.500 is up
  Hardware is GigabitEthernet, address is 0005.3000.ade6
  Internet address is 100.100.100.6/30
  MTU 3000 bytes
  5 minutes input rate 2248 bits/sec, 281 bytes/sec, 0 frames/sec
  5 minutes output rate 696 bits/sec, 87 bytes/sec, 0 frames/sec
  2263 packets input, 482038 bytes
    0 multicast frames, 0 compressed
    0 input errors, 0 frame, 0 overrun 0 fifo
```

2479 packets output, 1077822 bytes, 0 underruns
0 output errors, 0 collisions, 0 fifo
0 carrier errors

canterbury# **sh cdp ne int gig 2/1**

Capability Codes: R - Router, T - Trans-Bridge, B - Source-Route-Bridge
S - Switch, H - Host, I - IGMP, r - Repeater

Device ID	Local Infrfce	Hldtme	Capability	Platform	Port ID
TBM06033144	(Aspe Gig2/1	165	T S	WS-C6506	3/3

!--- If the neighbor supports CDP, use this command !--- to verify physical connectivity.

canterbury# **sh fcip profile 1**

FCIP Profile 1
Internet Address is 100.100.100.6 (interface GigabitEthernet2/1.500)
Listen Port is 3225
TCP parameters
SACK is enabled
PMTU discovery is enabled, reset timeout is 3600 sec
Keep alive is 60 sec
Minimum retransmission timeout is 200 ms
Maximum number of re-transmissions is 4
Send buffer size is 0 KB
Maximum allowed bandwidth is 1000000 kbps
Minimum available bandwidth is 15000 kbps
Estimated round trip time is 1000 usec
Congestion window monitoring is enabled, burst size is 10 KB

canterbury# **sh int fcip 1**

fcip1 is trunking
Hardware is GigabitEthernet
Port WWN is 20:42:00:0c:30:6c:24:40
Peer port WWN is 20:c2:00:05:30:00:7a:de
Admin port mode is auto, trunk mode is auto
Port mode is TE
vsan is 1
Trunk vsans (allowed active) (1,600-601)
Trunk vsans (operational) (1,600-601)
Trunk vsans (up) (1,600-601)
Trunk vsans (isolated) ()
Trunk vsans (initializing) ()
Using Profile id 1 (interface GigabitEthernet2/1.500)
Peer Information
Peer Internet address is 100.100.100.1 and port is 3225
Special Frame is disabled
Maximum number of TCP connections is 2
Time Stamp is disabled
QOS control code point is 0
QOS data code point is 0
B-port mode disabled
TCP Connection Information
2 Active TCP connections
Control connection: Local 100.100.100.6:3225, Remote 100.100.100.1:64860
Data connection: Local 100.100.100.6:3225, Remote 100.100.100.1:64862
0 Attempts for active connections, 0 close of connections
TCP Parameters
Path MTU 3000 bytes
Current retransmission timeout is 200 ms
Round trip time: Smoothed 2 ms, Variance: 1
Advertized window: Current: 118 KB, Maximum: 118 KB, Scale: 1
Peer receive window: Current: 118 KB, Maximum: 118 KB, Scale: 1
Congestion window: Current: 10 KB, Slow start threshold: 112 KB
5 minutes input rate 184 bits/sec, 23 bytes/sec, 0 frames/sec

5 minutes output rate 184 bits/sec, 23 bytes/sec, 0 frames/sec
1163 frames input, 336700 bytes
722 Class F frames input, 72176 bytes
441 Class 2/3 frames input, 264524 bytes
0 Error frames timestamp error 0
1588 frames output, 917216 bytes
724 Class F frames output, 70288 bytes
864 Class 2/3 frames output, 846928 bytes
0 Error frames 0 reass frames

[相关信息](#)

- [RFC 3821 - 基于 TCP/IP 的光纤通道 \(FCIP\)](#)
- [T11 主页](#)
- [得到IEEE 802™程序](#)
- [技术支持 - Cisco Systems](#)