

عداعإ فاشتكاة فرفر بفس تافيرعت Cisco تاهجوم ىلع هاجتإلإ ىئانث هيجوتلإ vEdge

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عمدقملا

cisco ىلع بفس ةفرفر (BFD) فشك forwarding هاجتإلإ ىئانث فلتخملا ةقپثو اذه فصى
vEdge ديدخت جاحسم

ةيساسألأ تابلطتملا

تابلطتملا

لج Cisco SDWAN نم ةفرعم تنأ ىقلتي نأ ىصوي cisco.

عمدختسملا تانوكملا

19.2.1 لغشي يذلا Cisco Cloud vEdge هجوم ىلإ دنتسملا اذه دنتسي

ةصاخ ةيلمعم ةئيب يف ةدوجوملا ةزهجالأ نم دنتسملا اذه يف ةدراولأ تامولعملا عاشنإ مت
تناك اذإ. (ىضارتفا) حوسمم نيوكتب دنتسملا اذه يف عمدختسملا ةزهجالأ عيمج تادب
رمأ يال لم تحملا ريثأتلل كمهف نم دكأتف، ليغشتلا ديق كتكبش

ططخملا ىلع عماع قرظن

ةنعم ايجولوبط يال ىلع دنتسملا اذه رصتقي ال

دنتسمل اذه يف ةمهمل تانوكملا ضعبل ناولأل او IP نيوانع

نوكم	System-IP	VPN 0 IP / نولل	VPN 0 IP / نولل
vEdge-1	10.13.13.13	192.168.1.4 / mpls	192.168.2.4 / mpls
ج-2 دي ف	10.15.15.15	192.168.1.8 / biz-internet	192.168.2.8 / biz-inte
vSmart	10.8.8.8	192.168.1.3 / يضا رت ف ال	دو جوم ري غ
vManage	10.7.7.7	192.168.1.1 / يضا رت ف ا	دو جوم ري غ

درا بل رهن ضوح لود

يه Cisco vEdge هجوم يلع 'flap-reason' ل ةلمت حمل مي قلل

1. BFD- فذح ماق دق مكحتل اوتسم نأل BFD فذح متي

رخأل او (BFD) درومل ةئف فرع مل يلفسلا اوتسم لل دحاو BFD فذح دنع ني راطخ| ع فرب موقت BFD فذح دنع

2. دي ع بل فرطال نم BFD لوكوتور بل ةباجتسا دجوت ال - ةلهملا

3. Remote-down ةم زح لاسراب دي ع بل فرطال ماق - Remote-down
4. ةلدس نمل

4- روهظ دنعو ةرم لوال BFD لمع ةسلج عاشن دنع كلذ ني عت متي .ق بطني ال - كلذ ريغ
BFD لمع ةسلج

تاهو يران يسل

bfd-delete: ةفر لرب بس 1. وي ران يسل

وي ران يسل اذه جاتن اذع او VEDGE-1 هجوم يلع ذفنم ةوطخ ذي فننتب مق

```
HUB-1# request port-hop color biz-internet
```

```
VEDGE-1# show log tail -f /var/log/tmplog/vdebug
local7.debug: Mar 20 09:29:21 VEDGE-1 VDAEMON[1136]: vdaemon_disable_my_tloc[1308]:
%VDAEMON_DBG_EVENTS-1: Disabling tloc ge0_1.
local7.debug: Mar 20 09:29:21 VEDGE-1 VDAEMON[1136]: vdaemon_send_tloc_info[8282]:
%VDAEMON_DBG_MISC-1: Sending TLOC: ifname:ge0_1 color:biz-internet spi:1499 smarts:1 manages:1
state:DOWN LR encap: 0 LR hold time : 7000 Pairwise-Keys Disabled key-id 0
local7.info: Mar 20 09:29:21 VEDGE-1 VDAEMON[1136]: %Viptela-VEDGE-1-vdaemon-6-INFO-1400002:
Notification: 3/20/2020 9:29:21 control-connection-state-change severity-level:major host-
name:"VEDGE-1" system-ip:10.13.13.13 personality:vEdge peer-type:vsmart peer-system-ip:10.8.8.8
peer-vmanage-system-ip:0.0.0.0 public-ip:192.168.1.3 public-port:12946 src-color:biz-internet
remote-color:default uptime:"0:00:35:57" new-state:down
local7.info: Mar 20 09:29:21 VEDGE-1 VDAEMON[1136]: %Viptela-VEDGE-1-vdaemon-6-INFO-1400002:
Notification: 3/20/2020 9:29:21 control-connection-state-change severity-level:major host-
name:"VEDGE-1" system-ip:10.13.13.13 personality:vEdge peer-type:vmanage peer-system-ip:10.7.7.7
peer-vmanage-system-ip:0.0.0.0 public-ip:192.168.1.1 public-port:12946 src-color:biz-internet
remote-color:mpls uptime:"0:01:56:34" new-state:down
local7.info: Mar 20 09:29:21 VEDGE-1 FTMD[1126]: %Viptela-VEDGE-1-ftmd-6-INFO-1400002:
Notification: 3/20/2020 9:29:21 bfd-state-change severity-level:major host-name:"VEDGE-1"
system-ip:10.13.13.13 src-ip:192.168.2.4 dst-ip:192.168.1.6 proto:ipsec src-port:12406 dst-
port:12347 local-system-ip:10.13.13.13 local-color:"biz-internet" remote-system-ip:10.14.14.14
```

remote-color:"mpls" new-state:down deleted:false flap-reason:bfd-deleted

biz-internet: يلع لاصتالا لمع تقوي ف مكحتللاو BFD صرحف

VEDGE-1# show control connections | t

CFG	V	PEER	SITE	DOMAIN	PRIVATE	PRIVATE	PUBLIC	PUBLIC	PRIVATE	PRIVATE	CONTROLLER	
SYSTEM	ORG	BEHIND	ID	ID	IP	PORT	IP	PORT	IP	IP	PROTOCOL	LOCAL
INSTANCE	TYPE	COLOR	COLOR	IP	PORT	STATE	UPTIME	GROUP	ID	IP	NAME	PROXY
0	vsmart	8	1	192.168.1.4	12366	192.168.1.3	12946	10.8.8.8	dtls	-	-	-
mpls		default		192.168.1.3	12946	up	0:00:03:47	0				
No												
0	vsmart	8	1	192.168.2.4	12426	192.168.1.3	12946	10.8.8.8	dtls	-	-	-
biz-internet		default		192.168.1.3	12946	up	0:00:01:52	0				
No												
0	vbond	0	0	192.168.1.4	12366	192.168.1.10	12346	0.0.0.0	dtls	-	-	-
mpls		mpls		192.168.1.10	12346	up	0:00:03:47	0				
-												
0	vbond	0	0	192.168.2.4	12426	192.168.1.10	12346	0.0.0.0	dtls	-	-	-
biz-internet		biz-internet		192.168.1.10	12346	up	0:00:00:31	0				
-												
0	vmanage	8	0	192.168.2.4	12426	192.168.1.1	12946	10.7.7.7	dtls	-	-	-
biz-internet		mpls		192.168.1.1	12946	up	0:00:01:52	0				
No												

VEDGE-1# sh bfd sess | t

DETECT	TX	SRC	DST	SITE	LOCAL	COLOR	COLOR	STATE			
SRC IP	DST IP	PROTO	PORT	PORT	SYSTEM	IP	ID	LOCAL	COLOR	COLOR	STATE
MULTIPLIER	INTERVAL	UPTIME	TRANSITIONS								
192.168.1.4	192.168.1.6	ipsec	12366	12347	10.14.14.14	14	mpls	mpls			
up	7	1000	0:00:03:48	0							
192.168.1.4	192.168.2.6	ipsec	12366	12387	10.14.14.14	14	mpls	biz-internet			
up	7	1000	0:00:03:48	0							
192.168.2.4	192.168.1.6	ipsec	12426	12347	10.14.14.14	14	biz-internet	mpls			
up	7	1000	0:00:01:55	0							
192.168.2.4	192.168.2.6	ipsec	12426	12387	10.14.14.14	14	biz-internet	biz-internet			
up	7	1000	0:00:01:55	0							
192.168.1.4	192.168.1.8	ipsec	12366	12406	10.15.15.15	15	mpls	mpls			
up	7	1000	0:00:03:48	0							
192.168.1.4	192.168.2.8	ipsec	12366	12366	10.15.15.15	15	mpls	biz-internet			
up	7	1000	0:00:03:48	0							
192.168.2.4	192.168.1.8	ipsec	12426	12406	10.15.15.15	15	biz-internet	mpls			
up	7	1000	0:00:01:55	0							
192.168.2.4	192.168.2.8	ipsec	12426	12366	10.15.15.15	15	biz-internet	biz-internet			
up	7	1000	0:00:01:55	0							
192.168.1.4	192.168.1.11	ipsec	12366	12346	10.16.16.16	16	mpls	mpls			
up	7	1000	0:00:03:48	0							
192.168.1.4	192.168.2.11	ipsec	12366	12426	10.16.16.16	16	mpls	biz-internet			
up	7	1000	0:00:03:48	0							
192.168.2.4	192.168.1.11	ipsec	12426	12346	10.16.16.16	16	biz-internet	mpls			
up	7	1000	0:00:01:55	0							
192.168.2.4	192.168.2.11	ipsec	12426	12426	10.16.16.16	16	biz-internet	biz-internet			
up	7	1000	0:00:01:55	0							
192.168.1.4	192.168.1.12	ipsec	12366	12426	10.17.17.17	17	mpls	mpls			
up	7	1000	0:00:03:48	0							

192.168.1.4	192.168.2.12	ipsec	12366	12406	10.17.17.17	17	mpls	biz-internet
up	7	1000	0:00:03:48	0				
192.168.2.4	192.168.1.12	ipsec	12426	12426	10.17.17.17	17	biz-internet	mpls
up	7	1000	0:00:01:55	0				
192.168.2.4	192.168.2.12	ipsec	12426	12406	10.17.17.17	17	biz-internet	biz-internet
up	7	1000	0:00:01:55	0				
192.168.1.4	192.168.1.14	ipsec	12366	12426	10.18.18.18	18	mpls	mpls
up	7	1000	0:00:03:48	0				
192.168.1.4	192.168.2.14	ipsec	12366	12426	10.18.18.18	18	mpls	biz-internet
up	7	1000	0:00:03:48	0				
192.168.2.4	192.168.1.14	ipsec	12426	12426	10.18.18.18	18	biz-internet	mpls
up	7	1000	0:00:01:55	0				
192.168.2.4	192.168.2.14	ipsec	12426	12426	10.18.18.18	18	biz-internet	biz-internet
up	7	1000	0:00:01:55	0				
192.168.1.4	192.168.3.40	ipsec	12366	12366	10.19.19.19	19	mpls	mpls
up	7	1000	0:00:03:48	0				
192.168.1.4	192.168.4.40	ipsec	12366	12366	10.19.19.19	19	mpls	biz-internet
up	7	1000	0:00:03:48	0				
192.168.2.4	192.168.3.40	ipsec	12426	12366	10.19.19.19	19	biz-internet	mpls
up	7	1000	0:00:01:55	0				
192.168.2.4	192.168.4.40	ipsec	12426	12366	10.19.19.19	19	biz-internet	biz-internet
up	7	1000	0:00:01:55	0				

اضياً موقياً يذلاً ويرانياً سلاً اذاً رابلاً خالاً VEDGE-1 لىل مكلل لاصلاً حسم اضياً كنىل كنىل (TLOC) لىل طعلل:

```

local1.info: Mar 20 09:34:20 VEDGE-1 confd[897]: audit user: admin/60155 CLI 'clear control
connections'
local7.info: Mar 20 09:34:20 VEDGE-1 VDAEMON[1136]: %Viptela-VEEDGE-1-vdaemon-6-INFO-1400002:
Notification: 3/20/2020 9:34:20 control-connection-state-change severity-level:major host-
name:"VEEDGE-1" system-ip:10.13.13.13 personality:vEdge peer-type:vsmart peer-system-ip:10.8.8.8
peer-vmanage-system-ip:0.0.0.0 public-ip:192.168.1.3 public-port:12946 src-color:biz-internet
remote-color:default uptime:"0:00:00:51" new-state:down
local7.info: Mar 20 09:34:20 VEDGE-1 VDAEMON[1136]: %Viptela-VEEDGE-1-vdaemon-6-INFO-1400002:
Notification: 3/20/2020 9:34:20 control-connection-state-change severity-level:major host-
name:"VEEDGE-1" system-ip:10.13.13.13 personality:vEdge peer-type:vmanage peer-system-ip:10.7.7.7
peer-vmanage-system-ip:0.0.0.0 public-ip:192.168.1.1 public-port:12946 src-color:biz-internet
remote-color:mpls uptime:"0:00:01:09" new-state:down
local7.info: Mar 20 09:34:20 VEDGE-1 FTMD[1126]: %Viptela-VEEDGE-1-ftmd-6-INFO-1400002:
Notification: 3/20/2020 9:34:20 bfd-state-change severity-level:major host-name:"VEEDGE-1"
system-ip:10.13.13.13 src-ip:192.168.2.4 dst-ip:192.168.1.6 proto:ipsec src-port:12426 dst-
port:12347 local-system-ip:10.13.13.13 local-color:"biz-internet" remote-system-ip:10.14.14.14
remote-color:"mpls" new-state:down deleted:false flap-reason:bfd-deleted

```

ةرملل اذاً biz-internet و MPLS ناولل لىل لمعلل تقو نل ققح:

```

VEEDGE-1# sh bfd sess | t

```

DETECT	TX	SRC	DST	SITE	LOCAL	COLOR	COLOR	STATE
SRC IP	DST IP	PROTO	PORT	PORT	SYSTEM IP	ID	LOCAL	COLOR
MULTIPLIER	INTERVAL	UPTIME	TRANSITIONS					
192.168.1.4	192.168.1.6	ipsec	12366	12347	10.14.14.14	14	mpls	mpls
up	7	1000	0:00:01:37	2				
192.168.1.4	192.168.2.6	ipsec	12366	12387	10.14.14.14	14	mpls	biz-internet
up	7	1000	0:00:01:37	2				
192.168.2.4	192.168.1.6	ipsec	12426	12347	10.14.14.14	14	biz-internet	mpls
up	7	1000	0:00:01:55	2				
192.168.2.4	192.168.2.6	ipsec	12426	12387	10.14.14.14	14	biz-internet	biz-internet
up	7	1000	0:00:01:55	2				
192.168.1.4	192.168.1.8	ipsec	12366	12406	10.15.15.15	15	mpls	mpls

```

up      7          1000      0:00:01:37  2
192.168.1.4 192.168.2.8 ipsec 12366 12366 10.15.15.15 15 mpls biz-internet
up      7          1000      0:00:01:37  2
192.168.2.4 192.168.1.8 ipsec 12426 12406 10.15.15.15 15 biz-internet mpls
up      7          1000      0:00:01:55  2
192.168.2.4 192.168.2.8 ipsec 12426 12366 10.15.15.15 15 biz-internet biz-internet
up      7          1000      0:00:01:55  2
192.168.1.4 192.168.1.11 ipsec 12366 12346 10.16.16.16 16 mpls mpls
up      7          1000      0:00:01:37  2
192.168.1.4 192.168.2.11 ipsec 12366 12426 10.16.16.16 16 mpls biz-internet
up      7          1000      0:00:01:37  2
192.168.2.4 192.168.1.11 ipsec 12426 12346 10.16.16.16 16 biz-internet mpls
up      7          1000      0:00:01:55  2
192.168.2.4 192.168.2.11 ipsec 12426 12426 10.16.16.16 16 biz-internet biz-internet
up      7          1000      0:00:01:55  2
192.168.1.4 192.168.1.12 ipsec 12366 12426 10.17.17.17 17 mpls mpls
up      7          1000      0:00:01:37  2
192.168.1.4 192.168.2.12 ipsec 12366 12406 10.17.17.17 17 mpls biz-internet
up      7          1000      0:00:01:37  2
192.168.2.4 192.168.1.12 ipsec 12426 12426 10.17.17.17 17 biz-internet mpls
up      7          1000      0:00:01:55  2
192.168.2.4 192.168.2.12 ipsec 12426 12406 10.17.17.17 17 biz-internet biz-internet
up      7          1000      0:00:01:55  2
192.168.1.4 192.168.1.14 ipsec 12366 12426 10.18.18.18 18 mpls mpls
up      7          1000      0:00:01:37  2
192.168.1.4 192.168.2.14 ipsec 12366 12426 10.18.18.18 18 mpls biz-internet
up      7          1000      0:00:01:37  2
192.168.2.4 192.168.1.14 ipsec 12426 12426 10.18.18.18 18 biz-internet mpls
up      7          1000      0:00:01:55  2
192.168.2.4 192.168.2.14 ipsec 12426 12426 10.18.18.18 18 biz-internet biz-internet
up      7          1000      0:00:01:55  2
192.168.1.4 192.168.3.40 ipsec 12366 12366 10.19.19.19 19 mpls mpls
up      7          1000      0:00:01:37  2
192.168.1.4 192.168.4.40 ipsec 12366 12366 10.19.19.19 19 mpls biz-internet
up      7          1000      0:00:01:37  2
192.168.2.4 192.168.3.40 ipsec 12426 12366 10.19.19.19 19 biz-internet mpls
up      7          1000      0:00:01:55  2
192.168.2.4 192.168.4.40 ipsec 12426 12366 10.19.19.19 19 biz-internet biz-internet
up      7          1000      0:00:01:54  3

```

```

VEDGE-1# show control connections | t
LOCAL

```

```

LOCAL
          CFG      V
        PEER      SITE DOMAIN PRIVATE PRIVATE PUBLIC PUBLIC
SYSTEM
SYSTEM ORG BEHIND
INSTANCE TYPE ID ID IP PORT IP PORT IP PROTOCOL LOCAL
COLOR REMOTE COLOR IP PORT STATE UPTIME GROUP ID IP NAME PROXY
-----
0      vsmart 8 1 192.168.1.4 12366 192.168.1.3 12946 10.8.8.8
dtls mpls default 192.168.1.3 12946 up 0:00:01:41 0 -
- No
0      vsmart 8 1 192.168.2.4 12426 192.168.1.3 12946 10.8.8.8
dtls biz-internet default 192.168.1.3 12946 up 0:00:01:59 0 -
- No
0      vbond 0 0 192.168.1.4 12366 192.168.1.10 12346 0.0.0.0
dtls mpls mpls 192.168.1.10 12346 up 0:00:01:42 0 -
- -
0      vbond 0 0 192.168.2.4 12426 192.168.1.10 12346 0.0.0.0
dtls biz-internet biz-internet 192.168.1.10 12346 up 0:00:00:01 0 -
- -
0      vmanage 8 0 192.168.2.4 12426 192.168.1.1 12946 10.7.7.7

```

```
dtls      biz-internet  mpls      192.168.1.1  12946  up      0:00:01:59  0      -
-         No
```

قلمة الما: ببس-حجن 2. ويرانيسلا

VEDGE-1 لىل (ةلحال هذو في biz-internet) TLOC لىل طعت بب ويرانيسلا اذو جاتن اذاع كنكمي لىل فسلا عزال في ةه او لىل غشت فاقى اب.

(TLOC) ةيساس ال اىل لوصولا في مكحت ةدحو لىل طعت لب ق VEDGE-2 لىل ع BFD ةلحال VEDGE-1 ببناج لىل:

```
VEDGE-2# show bfd sessions remote-color mpls system-ip 10.13.13.13 | t
          SRC      DST              SITE
DETECT    TX
SRC IP    DST IP    PROTO  PORT    PORT    SYSTEM IP    ID    LOCAL COLOR    COLOR    STATE
MULTIPLIER INTERVAL  UPTIME      TRANSITIONS
-----
192.168.1.8  192.168.1.4  ipsec  12406  12406  10.13.13.13  13    mpls          mpls    up
7          1000        0:00:03:15  2
192.168.2.8  192.168.1.4  ipsec  12366  12366  10.13.13.13  13    biz-internet  mpls    up
7          1000        0:00:03:15  2
```

رادص ال ا خسنت تن ا ن ا دع ب vedge-2 لىل ل جس:

```
local7.info: Mar 20 10:00:04 VEDGE-2 FTMD[1119]: %Viptela-VEEDGE-2-ftmd-6-INFO-1400002:
Notification: 3/20/2020 10:0:4 bfd-state-change severity-level:major host-name:"VEDGE-2" system-
ip:10.15.15.15 src-ip:192.168.1.8 dst-ip:192.168.2.14 proto:ipsec src-port:12406 dst-port:12426
local-system-ip:10.15.15.15 local-color:"mpls" remote-system-ip:10.18.18.18 remote-color:"biz-
internet" new-state:down deleted:false flap-reason:timeout
local7.info: Mar 20 10:00:05 VEDGE-2 FTMD[1119]: %Viptela-VEEDGE-2-ftmd-6-INFO-1400002:
Notification: 3/20/2020 10:0:4 bfd-state-change severity-level:major host-name:"VEDGE-2" system-
ip:10.15.15.15 src-ip:192.168.2.8 dst-ip:192.168.4.40 proto:ipsec src-port:12386 dst-port:12366
local-system-ip:10.15.15.15 local-color:"biz-internet" remote-system-ip:10.19.19.19 remote-
color:"biz-internet" new-state:down deleted:false flap-reason:timeout
VEDGE-2# show bfd sessions remote-color mpls system-ip 10.13.13.13 | t
```

```
          SRC      DST              SITE
DETECT    TX
SRC IP    DST IP    PROTO  PORT    PORT    SYSTEM IP    ID    LOCAL COLOR    COLOR    STATE
MULTIPLIER INTERVAL  UPTIME      TRANSITIONS
-----
192.168.1.8  192.168.1.4  ipsec  12406  12406  10.13.13.13  13    mpls          mpls    up
7          1000        0:00:21:56  3
192.168.2.8  192.168.1.4  ipsec  12386  12366  10.13.13.13  13    biz-internet  mpls    down
7          1000        NA          1
```

قلمة الما: ببس ال ة فر فر 3. ويرانيسلا

ويرانيسلا نم ةي لىل فسلا ةه او ال لىل فاقى ال اذو فننت بب ويرانيسلا اذو جاتن اذاع كنكمي لىل ق باسلا.

```
local7.info: Mar 20 10:01:20 VEDGE-2 FTMD[1119]: %Viptela-VEEDGE-2-ftmd-6-INFO-1400002:
Notification: 3/20/2020 10:1:18 bfd-state-change severity-level:major host-name:"VEDGE-2"
system-ip:10.15.15.15 src-ip:192.168.2.8 dst-ip:192.168.1.11 proto:ipsec src-port:12386 dst-
port:12346 local-system-ip:10.15.15.15 local-color:"biz-internet" remote-system-ip:10.16.16.16
remote-color:"mpls" new-state:up deleted:false flap-reason:na
local7.info: Mar 20 10:01:20 VEDGE-2 FTMD[1119]: %Viptela-VEEDGE-2-ftmd-6-INFO-1400002:
Notification: 3/20/2020 10:1:18 bfd-state-change severity-level:major host-name:"VEDGE-2"
```

```
system-ip:10.15.15.15 src-ip:192.168.1.8 dst-ip:192.168.2.11 proto:ipsec src-port:12406 dst-
port:12426 local-system-ip:10.15.15.15 local-color:"mpls" remote-system-ip:10.16.16.16 remote-
color:"biz-internet" new-state:up deleted:false flap-reason:na
```

```
VEDGE-2# show bfd sessions remote-color mpls system-ip 10.13.13.13 | t
```

DETECT	TX	SRC	DST	SITE	SYSTEM IP	ID	LOCAL COLOR	COLOR	STATE
MULTIPLIER	INTERVAL	PORT	PORT	TRANSITIONS	UPTIME				
192.168.1.8	192.168.1.4	ipsec	12406	12366	10.13.13.13	13	mpls	mpls	up
7	1000	0:00:22:32	3						
192.168.2.8	192.168.1.4	ipsec	12386	12366	10.13.13.13	13	biz-internet	mpls	up
7	1000	0:00:00:04	1						

4. remote-down:بب-س-ح-ي-ن ج. ويران يسيلا

نول يلع VEDGE-1 يلع no control-connections رمأل مادختساب ويران يسيلا اذه خسن كنكمي (ةلأل هذه يي MPLS) ددحم

vEdge-1: يلع تالجس

```
vpn 0
interface ge0/0
ip address 192.168.1.4/24
tunnel-interface
encapsulation ipsec
color mpls
no control-connections
```

```
VEDGE-1# show control connections | t
LOCAL
```

LOCAL	PEER	SITE	CFG	V	PRIVATE	PUBLIC	PUBLIC	PRIVATE	PUBLIC	CONTROLLER	
SYSTEM	ORG	BEHIND	DOMAIN	PRIVATE	PRIVATE	PUBLIC	PUBLIC	PRIVATE	PUBLIC		
INSTANCE	TYPE	ID	ID	IP	PORT	IP	PORT	IP	IP	PROTOCOL	LOCAL
COLOR	REMOTE	COLOR	IP	PORT	STATE	UPTIME	GROUP	ID	IP	NAME	PROXY
0	vsmart	8	1	192.168.2.4	12426	192.168.1.3	12946	10.8.8.8	dtls		
biz-internet	default			192.168.1.3	12946	up	0:00:17:54	0	-	-	
No											
0	vbond	0	0	192.168.2.4	12426	192.168.1.10	12346	0.0.0.0	dtls		
biz-internet	biz-internet			192.168.1.10	12346	up	0:00:02:37	0	-	-	
-											
0	vmanage	8	0	192.168.2.4	12426	192.168.1.1	12946	10.7.7.7	dtls		
biz-internet	mpls			192.168.1.1	12946	up	0:00:22:44	0	-	-	
No											

vedge-2: يلع تالجس

```
local7.info: Mar 20 11:36:40 VEDGE-2 FTMD[1119]: %Viptela-VEDGE-2-ftmd-6-INFO-1400002:
Notification: 3/20/2020 11:36:40 bfd-state-change severity-level:major host-name:"VEDGE-2"
system-ip:10.15.15.15 src-ip:192.168.1.8 dst-ip:192.168.1.4 proto:ipsec src-port:12406 dst-
port:12406 local-system-ip:10.15.15.15 local-color:"mpls" remote-system-ip:10.13.13.13 remote-
color:"mpls" new-state:down deleted:false flap-reason:remote-down
local7.info: Mar 20 11:36:40 VEDGE-2 FTMD[1119]: %Viptela-VEDGE-2-ftmd-6-INFO-1400002:
```

```

Notification: 3/20/2020 11:36:40 bfd-state-change severity-level:major host-name:"VEDGE-2"
system-ip:10.15.15.15 src-ip:192.168.2.8 dst-ip:192.168.1.4 proto:ipsec src-port:12386 dst-
port:12406 local-system-ip:10.15.15.15 local-color:"biz-internet" remote-system-ip:10.13.13.13
remote-color:"mpls" new-state:down deleted:false flap-reason:remote-down
local7.info: Mar 20 11:36:41 VEDGE-2 FTMD[1119]: %Viptela-VEDGE-2-ftmd-6-INFO-1400002:
Notification: 3/20/2020 11:36:41 bfd-state-change severity-level:major host-name:"VEDGE-2"
system-ip:10.15.15.15 src-ip:192.168.1.8 dst-ip:192.168.1.4 proto:ipsec src-port:12406 dst-
port:12406 local-system-ip:10.15.15.15 local-color:"mpls" remote-system-ip:10.13.13.13 remote-
color:"mpls" new-state:up deleted:false flap-reason:na
local7.info: Mar 20 11:36:41 VEDGE-2 FTMD[1119]: %Viptela-VEDGE-2-ftmd-6-INFO-1400002:
Notification: 3/20/2020 11:36:41 bfd-state-change severity-level:major host-name:"VEDGE-2"
system-ip:10.15.15.15 src-ip:192.168.2.8 dst-ip:192.168.1.4 proto:ipsec src-port:12386 dst-
port:12406 local-system-ip:10.15.15.15 local-color:"biz-internet" remote-system-ip:10.13.13.13
remote-color:"mpls" new-state:up deleted:false flap-reason:na
VEDGE-2# show bfd sessions remote-color mpls system-ip 10.13.13.13 | t
          SRC      DST              SITE
DETECT    TX
SRC IP    DST IP    PROTO  PORT    PORT  SYSTEM IP    ID    LOCAL COLOR    COLOR  STATE
MULTIPLIER  INTERVAL  UPTIME      TRANSITIONS
-----
192.168.1.8 192.168.1.4 ipsec  12406  12406  10.13.13.13  13    mpls          mpls  up
7          1000      0:00:05:27  16
192.168.2.8 192.168.1.4 ipsec  12386  12406  10.13.13.13  13    biz-internet  mpls  up
7          1000      0:00:05:27  9

```

قلم تاذ تامولعم

- [هاجت الاء يئانث هي جوتلا ةءاعا فاشكو تان ايبلا يوتسم تالاصتا اءاطخا فاشكتسا](#)
- [اهجالصاو](#)
- [تادن تسم لءاو ينقتلا معدلا - Cisco Systems](#)

ةمچرتل هذه لوج

ةللأل تاي نقتل نم ةومچم مادختساب دن تسمل اذہ Cisco تچرت
ملاعلاء انءمچي فني مدختسمل معدى وتحم مي دقتل ةيرشبل او
امك ةقيقد نوك تنل ةللأل ةمچرت لصف أن ةظحال مچري. ةصاخل مه تلبل
Cisco يلخت. فرتحم مچرت مامدقي يتل ةيفارتحال ةمچرتل عم لالحل وه
ىل إأمئاد ةوچرلاب ي صؤتو تامچرتل هذه ةقدنع اهتيلوئسم Cisco
Systems (رفوتم طبارل) ي لصلأل يزي لچنل دن تسمل