





ماظننلا تادادعإ صخلي يذلا لودجالا ىلإ ةفاضلإاب اذه:

ماظننلا IP عقوملا فرعم فيضملا مسا

vedge1	13	10.155.0.118
vedge3	13	10.155.0.120
vEdge4	4	10.155.0.50
vsmart1	1	10.155.0.3

ةوطخلا ضعب ىلإ ريشي نأ لكشي يكي تاتسإ نكاس قي رط vEdge1 و vEdge3 نم لك ىقلى تي ةمدخلال بناج VPN لآ في ةيولاتلا:

```
vpn 40
ip route 10.223.115.101/32 192.168.40.10
!
```

فادهألا هذه قي قحت لآ نمو:

1. إلى لودل رورم ةكرحل لضمفملا طبارلا يه vEdge1 metro-ethernet ةلصوناً نم دكأت "13 عقوملا".

2. رورم ةكرحل يناثلا لضمفملا طابترالا وه vEdge3 metro-ethernet طابترلا نوكي نأ بجيميم - "13 عقوملا" إلى لودل.

3. إلى لودل رورم ةكرح لودل لضمفم طابترلا ثلاث تنرتنإل ربع ماعلا vEdge1 طابترلا لرعج "13 عقوملا".

4. إلى لودل رورم ةكرحل اليفضفت طابترلا لقا تنرتنإل ربع-ماع vEdge3 طابترلا لرعجاً "13 عقوملا".

اذه vSmart يف مكحتلا جهن نيوكت مت

```
policy
lists
  tloc-list SITE13_TLOC_PREF
    tloc 10.155.0.118 color metro-ethernet encaps ipsec preference 200
    tloc 10.155.0.118 color public-internet encaps ipsec preference 100
    tloc 10.155.0.120 color metro-ethernet encaps ipsec preference 150
    tloc 10.155.0.120 color public-internet encaps ipsec preference 50
  !
  prefix-list SITE13_PREFIX
    ip-prefix 10.223.115.101/32
  !
  site-list site13
    site-id 13
  !
control-policy TE_POLICY_2_SITE4
sequence 10
match route
  prefix-list SITE13_PREFIX
  !
  action accept
  set
    tloc-list SITE13_TLOC_PREF
  !
  !
  !
  default-action accept
  !
!
apply-policy
  site-list site4
  control-policy TE_POLICY_2_SITE4 out
  !
!
```

## ةلكشملا

## ةيداعلا فورظلا

ةيلا ت اوخطك ةلمتحم TLOC تادحو 4 لالخنم تاراسملا هذه إلى ع vSmart ةينقت لصحت

```
vsmart1# show omp routes 10.223.115.101/32 | b PATH
PATH
```

```
ATTRIBUTE
```

VPN COLOR	PREFIX	ENCAP	FROM PEER PREFERENCE	ID	LABEL	STATUS	TYPE	TLOC IP
40	10.223.115.101/32	ipsec	-	35	1002	C,R	installed	10.155.0.118
metro-ethernet								
public-internet				37	1002	C,R	installed	10.155.0.118
metro-ethernet				35	1002	C,R	installed	10.155.0.120
public-internet				37	1002	C,R	installed	10.155.0.120

كذلك اقفوا هنا عن عملنا انا جومال ليضفت نيتي و

```
vsmart1# show omp routes 10.223.115.101/32 detail | nomore | b ADVERTISED | b "peer 10.155.0.50" | i Attributes\|originator\|\ tloc\|preference
Attributes:
originator      10.155.0.118
tloc            10.155.0.120, public-internet, ipsec
preference      50
Attributes:
originator      10.155.0.118
tloc            10.155.0.120, metro-ethernet, ipsec
preference      150
Attributes:
originator      10.155.0.118
tloc            10.155.0.118, public-internet, ipsec
preference      100
Attributes:
originator      10.155.0.118
tloc            10.155.0.118, metro-ethernet, ipsec
preference      200
```

اذا تبيثتو وبس انم (TLOC) لقلنا الى لوصولنا في مكحتة دحو ديحتب vEdge4 موقوي  
هيجوتال لودج في راسمنا:

```
vedge4# show ip routes 10.223.115.101/32 | b PROTOCOL
```

VPN	PREFIX	PROTOCOL	PROTOCOL SUB	NEXTHOP IF NAME	NEXTHOP ADDR	NEXTHOP VPN	TLOC
IP	COLOR	ENCAP	STATUS				
40	10.223.115.101/32	omp	-	-	-	-	-
10.155.0.118	metro-ethernet	ipsec	F,S				

ديرت امك رورمنا كرح هيجوتة داع لمرعت

```
vedge4# traceroute vpn 40 10.223.115.101
Traceroute 10.223.115.101 in VPN 40
traceroute to 10.223.115.101 (10.223.115.101), 30 hops max, 60 byte packets
 1 192.168.40.4 (192.168.40.4) 0.835 ms 0.984 ms 1.097 ms
 2 192.168.40.10 (192.168.40.10) 2.955 ms 3.056 ms 3.218 ms
```

عدصنا تالاح

اه اف اقي متي وا) ةمدخلال باناج نم LAN ةكبش ةهجاو ةهجاو ضفخننن و vEdge1 لىل ع اطح عقي ، اريخا  
 (اهسفن يه ةجيتننل نوكت ، لاثملا لىبس لىل ع ، رابتخا ارجال لووسملا ةطساوب

```
vedge1# show interface vpn 40
```

TCP	IF	IF	IF	ADMIN	OPER	TRACKER	ENCAP	PORT	MTU	HWADDR	
SPEED	AF	MSS	RX	TX	STATUS	STATUS	STATUS	TYPE	TYPE	MTU	HWADDR
VPN	INTERFACE	TYPE	IP ADDRESS	STATUS	STATUS	STATUS	TYPE	TYPE	MTU	HWADDR	
MBPS	DUPLEX	ADJUST	UPTIME	PACKETS	PACKETS						
40	ge0/4	ipv4	192.168.40.4/24	Up	Down	NA	null	service	1500		
00:50:56:be:91:36	-	-	-	1420	-	129768	0				

اذه ةلازا متت ، 10.223.115.101/32 راسملا ةحلاص ةيلات ةوطخ هيدل سيل vEdge1 نال ارظن  
 vSmart لىل نال دعب كلذ نع نلعي الو هيجوتلا ةداعا و هيجوتلا ل وادج نم راسملا

```
vedge1# show ip routes 10.223.115.101/32 | b PROTO
```

VPN	PREFIX	PROTOCOL	PROTOCOL	NEXTHOP	NEXTHOP	NEXTHOP	TLOC
IP	COLOR	ENCAP	STATUS	SUB TYPE	IF NAME	ADDR	VPN
40	10.223.115.101/32	static	-	-		192.168.40.21	-
-	-	I					

```
vedge1# show ip fib vpn 40 | i 10.223.115.101/32
```

```
vedge1#
```

```
vedge1# show omp routes 10.223.115.101/32 detail | nomore | b ADVERTISED
```

```
vedge1#
```

(عقوتم اذه) راسملا اذه نع نلعي vEdge3 لازي ال ، هسفن تقولا يفو

```
vedge3# show omp routes 10.223.115.101/32 detail | nomore | b ADVERTISED
```

```
ADVERTISED TO:
```

```
peer 10.155.0.3
```

```
Attributes:
```

```
originator 10.155.0.120
label 1002
path-id 35
tloc 10.155.0.120, metro-ethernet, ipsec
ultimate-tloc not set
domain-id not set
site-id 13
overlay-id 1
preference not set
tag not set
origin-proto static
origin-metric 0
as-path not set
unknown-attr-len not set
```

```
Attributes:
```

```
originator 10.155.0.120
```

```

label                1002
path-id              37
tloc                 10.155.0.120, public-internet, ipsec
ultimate-tloc       not set
domain-id            not set
site-id              13
overlay-id           1
preference            not set
tag                  not set
origin-PROTO         static
origin-metric        0
as-path              not set
unknown-attr-len    not set

```

عقوت م وه امك vEdge3 نم نآل نطخ ىل ع vSmart زارطل ل صحي:

```

vsmart1# show omp routes 10.223.115.101/32 | b PATH

```

VPN	PREFIX	FROM PEER	PATH	ID	LABEL	STATUS	ATTRIBUTE	TLOC IP
COLOR	ENCAP	PREFERENCE					TYPE	
40	10.223.115.101/32	10.155.0.120		35	1002	C,R	installed	10.155.0.120
metro-ethernet	ipsec	-						
		10.155.0.120		37	1002	C,R	installed	10.155.0.120
public-internet	ipsec	-						

اذه نع نال ع ل ا ي ف vSmart ج م ان رب رم ت س ي ، ه س فن ت قول ا ي ف ن كل و

```

vsmart1# show omp routes 10.223.115.101/32 detail | nomore | b ADVERTISED | b "peer
10.155.0.50" | i Attributes\|originator\|\| tloc\|preference
Attributes:
originator          10.155.0.120
tloc                 10.155.0.120, public-internet, ipsec
preference           50
Attributes:
originator          10.155.0.120
tloc                 10.155.0.120, metro-ethernet, ipsec
preference           150
Attributes:
originator          10.155.0.120
tloc                 10.155.0.118, public-internet, ipsec
preference           100
Attributes:
originator          10.155.0.120
tloc                 10.155.0.118, metro-ethernet, ipsec
preference           200

```

ت ا ي ل م ع ل ا ة م ئ ا ق ا ر ج ن ا ل ع ق و ت م ل ك و ل س ل ا وه ا ذ ه و د ي ح و ل ا ئ ش ن م ل ا ر ي ي غ ت م ت ، ى ر ت ا م ك ، ة و ق ب ا ط خ ل ا TLOC ن ي ي ع ت و " ة ل ل ا ل ا ة و ط خ ل ا ن ي ي ع ت " ( ت د ح ت ي ا ب ي ر ق ت ) ه ب ش ي ة ي ن و ر ت ك ل ل ا ل ا ل و ص و ل ا ة ي ن ا ك م ا د ق ف ي ل ل ا ل ا ب و .

```

vedge4# ping vpn 40 10.223.115.101 count 5
Ping in VPN 40
PING 10.223.115.101 (10.223.115.101) 56(84) bytes of data.
^C
--- 10.223.115.101 ping statistics ---

```

5 packets transmitted, 0 received, 100% packet loss, time 3999ms

vedge4# traceroute vpn 40 10.223.115.101

Traceroute 10.223.115.101 in VPN 40

traceroute to 10.223.115.101 (10.223.115.101), 30 hops max, 60 byte packets

```
1 * * *
2 * * *
3 * * *
4 * * *
5 * * *
```

## الحل

TLOC: لة حيصلا ريغ ةيلاتلا ةوطخلا تامولعم نييعت بنجتلا جهنلا اذ حارتقا متي، لحك

```
policy
lists
  tloc-list vedge1-tlocs
    tloc 10.155.0.118 color metro-ethernet encaps ipsec
    tloc 10.155.0.118 color public-internet encaps ipsec
  !
  tloc-list vedge1-tlocs-preference
    tloc 10.155.0.118 color metro-ethernet encaps ipsec preference 200
    tloc 10.155.0.118 color public-internet encaps ipsec preference 100
  !
  tloc-list vedge3-tlocs
    tloc 10.155.0.120 color metro-ethernet encaps ipsec
    tloc 10.155.0.120 color public-internet encaps ipsec
  !
  tloc-list vedge3-tlocs-preference
    tloc 10.155.0.120 color metro-ethernet encaps ipsec preference 150
    tloc 10.155.0.120 color public-internet encaps ipsec preference 50
  !
!
!
policy
control-policy TE_POLICY_2_SITE4
sequence 10
  match route
    prefix-list SITE13_PREFIX
    tloc-list vedge1-tlocs
  !
  action accept
  set
    tloc-list vedge1-tlocs-preference
  !
!
sequence 20
  match route
    prefix-list SITE13_PREFIX
    tloc-list vedge3-tlocs
  !
  action accept
  set
    tloc-list vedge3-tlocs-preference
  !
!
!
default-action accept
!
```

!

ةوطخال مادختساب راسملا نعالعإل عنموقوملاني سحتىلإةسايسلا هذه لثم يدؤت  
LOC: في ححصلا ريغة لالتلا

```
vsmart1# show omp routes 10.223.115.101/32 detail | nomore | b ADVERTISED | b "peer  
10.155.0.50" | i Attributes\|originator\|\ tloc\|preference  
Attributes:  
  originator      10.155.0.120  
  tloc            10.155.0.120, public-internet, ipsec  
  preference      50  
Attributes:  
  originator      10.155.0.120  
  tloc            10.155.0.120, metro-ethernet, ipsec  
  preference      150  
Attributes:  
  originator      10.155.0.120  
  tloc            10.155.0.120, public-internet, ipsec  
  preference      not set
```

ةظوفحم لشفلا تاهوي رانيس ربع لوصولة لىلباق، كلذل ةجيتنكو

```
vedge4# traceroute vpn 40 10.223.115.101  
Traceroute 10.223.115.101 in VPN 40  
traceroute to 10.223.115.101 (10.223.115.101), 30 hops max, 60 byte packets  
 1 192.168.40.6 (192.168.40.6) 0.458 ms 0.507 ms 0.617 ms  
 2 192.168.40.10 (192.168.40.10) 1.928 ms 1.976 ms 2.069 ms  
  
vedge4# ping vpn 40 10.223.115.101  
Ping in VPN 40  
PING 10.223.115.101 (10.223.115.101) 56(84) bytes of data.  
64 bytes from 10.223.115.101: icmp_seq=1 ttl=254 time=0.702 ms  
64 bytes from 10.223.115.101: icmp_seq=2 ttl=254 time=0.645 ms  
64 bytes from 10.223.115.101: icmp_seq=3 ttl=254 time=0.691 ms  
64 bytes from 10.223.115.101: icmp_seq=4 ttl=254 time=0.715 ms  
64 bytes from 10.223.115.101: icmp_seq=5 ttl=254 time=0.603 ms  
^C  
--- 10.223.115.101 ping statistics ---  
5 packets transmitted, 5 received, 0% packet loss, time 4000ms  
rtt min/avg/max/mdev = 0.603/0.671/0.715/0.044 ms
```



ةمچرتل هذه ل و ح

ةلأل تاي نقتل ن مة و مچم مادخت ساب دن تسم ل اذ ه Cisco ت مچرت  
م ل اء ان ا ع مچ ي ف ن م دخت س م ل م عد و ت ح م م ي دقت ل ة ي ر ش ب ل و  
امك ة ق ي ق د ن و ك ت ن ل ة ل آل ة مچرت ل ض ف ا ن ا ة ظ ح ال م ي ج ر ي . ة ص ا خ ل م ه ت غ ل ب  
Cisco ي ل خ ت . ف ر ت ح م مچرت م ا ه م د ق ي ي ت ل ا ة ي ف ا ر ت ح ال ا ة مچرت ل ا ع م ل ا ح ل ا و ه  
ى ل ا م اء ا د ع و ج ر ل ا ب ي ص و ت و ت ا مچرت ل ا ه ذ ه ة ق د ن ع ا ه ت ي ل و ئ س م  
Systems (ر ف و ت م ط ب ا ر ل ا) ي ل ص ا ل ا ي ز ي ل ج ن ا ل ا دن ت س م ل ا