

رورم ةكرحل اهحالص او L2 سار عاااخأ فاشككسأ ةرباعل MPLS

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ةمدقملا

لطعت دنع اهحالص او MPLS هي جوت ةداعإ راسم عاااخأ فاشككسأ ةي فيك دن تسملا اذه حضوي NCS4K (6.5.26) ةدق ع ل ع L2 سار فلت ببسب MPLS هي جوت ةداعإ راسم

ةلكشمل

لاصتا رابتخا لمعي ال نكلو، رورم ةكرح ةسدنه قفن لي غشت متي، ويرانيسلا اذه في MPLS: قفن ربع (MPLS) تالوكوتوربل ددعت مةي م ستلا لي وحت

```
tunnel-te5180 10.38.101.62 Up Up default #ping mpls traffic-eng tunnel-te 5180 Thu Jan 5
21:30:29.245 UTC Sending 5, 100-byte MPLS Echos to tunnel-te5180, timeout is 2 seconds, send
interval is 0 msec: Codes: '.' - success, 'Q' - request not sent, '.' - timeout, 'L' - labeled
output interface, 'B' - unlabeled output interface, 'D' - DS Map mismatch, 'F' - no FEC mapping,
'f' - FEC mismatch, 'M' - malformed request, 'm' - unsupported tlvs, 'N' - no rx label, 'P' - no
rx intf label prot, 'p' - premature termination of LSP, 'R' - transit router, 'I' - unknown
upstream index, 'X' - unknown return code, 'x' - return code 0 Type escape sequence to abort.
..... Success rate is 0 percent (0/5)
```

تأ MPLS traceroute ل ا في ةزفقا ل ا ضع ب ىرت ت

```
#traceroute mpls traffic-eng tunnel-te 5180 Thu Jan 5 21:30:49.405 UTC Tracing MPLS TE Label
Switched Path on tunnel-te5180, timeout is 2 seconds Codes: '.' - success, 'Q' - request not
sent, '.' - timeout, 'L' - labeled output interface, 'B' - unlabeled output interface, 'D' - DS
Map mismatch, 'F' - no FEC mapping, 'f' - FEC mismatch, 'M' - malformed request, 'm' -
unsupported tlvs, 'N' - no rx label, 'P' - no rx intf label prot, 'p' - premature termination of
LSP, 'R' - transit router, 'I' - unknown upstream index, 'X' - unknown return code, 'x' - return
code 0 Type escape sequence to abort. 0 172.16.61.78 MRU 9582 [Labels: 27769 Exp: 0] L 1
172.16.61.79 MRU 9582 [Labels: 28136 Exp: 0] 7 ms . 2 * . 3 * . 4 * . 5 *^C
```

امه عي قوت متي ني تي فاضا ني تطقن ىرت كن ا ف، MPLS: قفن نم ققحت ل ا ب موقت ام دنع
ل (ERO) ح ا رصل ا ه جوم ل

```
#show mpls traffic-eng tunnels 5180 Thu Jan 5 21:31:11.958 UTC Name: tunnel-te5180 Destination:
10.38.96.1 Ifhandle: 0x80002c4 Signalled-Name: MIVLPAMI-0112003A_t5180 Status: Admin: up Oper: up
Path: valid Signalling: connected path option 10, type dynamic (Basis for Setup, path weight
3000) Accumulative metrics: TE 3000 IGP 30 Delay 900000 Path-option attribute: eline-any Number
of affinity constraints: 1 Include bit map : 0x2 Include ext bit map : Length: 256 bits Value :
0x::2 Include affinity name : eline(1) G-PID: 0x0800 (derived from egress interface properties)
Bandwidth Requested: 7 kbps CT0 Creation Time: Thu Nov 10 22:17:55 2022 (7w6d ago) Config
Parameters: Bandwidth: 0 kbps (CT0) Priority: 5 5 Affinity: 0x0/0xffff Metric Type: TE
(interface) Path Selection: Tiebreaker: Min-fill (default) Hop-limit: disabled Cost-limit:
```

disabled Delay-limit: disabled Path-invalidation timeout: 10000 msec (default), Action: Tear (default) AutoRoute: enabled LockDown: disabled Policy class: not set Forward class: 0 (not enabled) Forwarding-Adjacency: disabled Autoroute Destinations: 0 Loadshare: 0 equal loadshares Auto-bw: enabled Last BW Applied: 7 kbps CT0 BW Applications: 29 Last Application Trigger: Periodic Application Bandwidth Min/Max: 0-4294967295 kbps Application Frequency: 60 min Jitter: 0s Time Left: 46m 48s Collection Frequency: 5 min Samples Collected: 2 Next: 1m 3s Highest BW: 0 kbps Underflow BW: 0 kbps Adjustment Threshold: 10% 10 kbps Overflow Detection disabled Underflow Detection disabled Resignal Last-bandwidth Disabled Auto-Capacity: Disabled: Fast Reroute: Enabled, Protection Desired: Any Path Protection: Not Enabled BFD Fast Detection: Disabled Reoptimization after affinity failure: Enabled Soft Preemption: Disabled History: Tunnel has been up for: 7w6d (since Thu Nov 10 22:17:55 UTC 2022) Current LSP: Uptime: 15:09:12 (since Thu Jan 05 06:22:00 UTC 2023) Reopt. LSP: Last Failure: LSP not signalled, identical to the [CURRENT] LSP Date/Time: Thu Jan 05 19:03:33 UTC 2023 [02:27:39 ago] Prior LSP: ID: 32 Path Option: 10 Removal Trigger: reoptimization completed Path info (IS-IS 1 level-2): Node hop count: 3 Hop0: 172.16.61.79 Hop1: 172.16.57.244 Hop2: 172.16.6.59 Hop3: 10.38.96.1

هيجوت ةداع| تامولعم ةدعاق" لاخذ| ىرتس، راسم ال ىلع لىلوالا ةوطخل ال ىل للاق تنال دنع قق: فنل اذهل حيحص ال (LFIB) "MPLS" مئيمست

```
#show mpls forwarding labels 27769 Fri Jan 6 06:13:04.220 UTC Local Outgoing Prefix Outgoing
Next Hop Bytes Label Label or ID Interface Switched -----
----- 27769 28136 TE: 5180 Hu0/10/0/11/2.4001 172.16.57.244 0
28136 TE: 5180 tt60409 point2point 0 (!)
```

ناونعل اذه مادختس| نكمي كلذل، اذه MAC ناونع ةدقعل هذه ىلع جرخملا ةهجاو مدختست
L2: تاراطال L2 س أري في MAC (SRC) ردمصمك

```
#show interfaces hundredGigE 0/10/0/11/2.4001 Fri Jan 6 06:14:45.773 UTC
HundredGigE0/10/0/11/2.4001 is up, line protocol is up Interface state transitions: 79 Hardware
is VLAN sub-interface(s), address is 0c11.67c8.2041 Description: To
HundredGigE1/3/0/10/2.PHLAPALO-12121302A:CID:I1001/GE100/PHLAPALO/SLTNPAST Internet address is
172.16.57.245 MTU 9600 bytes, BW 100000000 Kbit (Max: 100000000 Kbit) reliability 255/255,
txload 0/255, rxload 0/255 Encapsulation 802.1Q Virtual LAN, VLAN Id 4001, loopback not set,
Last link flapped 1w6d ARP type ARPA, ARP timeout 04:00:00 Last input 00:00:00, output 00:00:00
Last clearing of "show interface" counters never 5 minute input rate 64000 bits/sec, 62
packets/sec 5 minute output rate 2198000 bits/sec, 699 packets/sec 4529877895 packets input,
2267795435148 bytes, 6 total input drops 0 drops for unrecognized upper-level protocol Received
124 broadcast packets, 0 multicast packets 3926978895 packets output, 1611587340639 bytes, 0
total output drops Output 0 broadcast packets, 0 multicast packets
```

ىرت تنأ، <active LC VM> عقوم لخدم ةزجت حمل مزحل ضرع في رواجم ال بناجال ىلع نكلو
MAC نيوانع (DST) ةهجول او L2 SRC أطخ امامت نأ ريغ، حيحص ال MPLS ناونع

```
[200] Jan 6 06:10:12.449, len: 103, hits: 1, buffhdr type: 1 i/p i/f: HundredGigE1/3/0/10/2 punt
reason: DROP_PACKET Ingress Headers: port_ifh: 0x8001ae4, sub_ifh: 0x0, bundle_ifh: 0x0
logical_port: 0x6c1, pd_pkt_type: 3 punt_reason: DROP_PACKET (0) payload_offset: 21, l3_offset:
21 FTMH: pkt_size: 0x7e, tc: 0, tm_act_type: 0, ssp: 0x981 PPH: pph_fwd_code: CPU Trap (7),
fwd_hdr_offset: 0 inlif: 0x0, vrf: 0x0, rif: 0x0 FHEI: trap_code: Rx_UNKNOWN_PACKET (63),
trap_qual: 193 [ether dst: 0000.0000.0000 src: 0c11.67c8.2000 type/len: 0x8847] [MPLS label:
28136, exp 0x6, eos 0, ttl 255]
```

NCS4K: ةدقعل ىلع ةرادال ةهجاو MAC SRC ناونع قباطي و، all-0 وه DST MAC ناونع

```
#show interfaces mgmtEth 0/rp1/emS/0 Fri Jan 6 06:15:59.141 UTC MgmtEth0/RP1/EMS/0 is down, line
protocol is down Interface state transitions: 0 Hardware is Management Ethernet, address is
0c11.67c8.2000 (bia 0c11.67c8.2000) Internet address is 10.230.192.86 MTU 1514 bytes, BW 100000
Kbit (Max: 100000 Kbit) reliability 255/255, txload 0/255, rxload 0/255 Encapsulation ARPA,
Full-duplex, 100Mb/s, unknown, link type is autonegotiation loopback not set, ARP type ARPA, ARP
timeout 04:00:00 Last input never, output never Last clearing of "show interface" counters never
5 minute input rate 0 bits/sec, 0 packets/sec 5 minute output rate 0 bits/sec, 0 packets/sec 0
```

packets input, 0 bytes, 0 total input drops 0 drops for unrecognized upper-level protocol
Received 0 broadcast packets, 0 multicast packets 0 runts, 0 giants, 0 throttles, 0 parity 0
input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort 0 packets output, 0 bytes, 0 total
output drops Output 0 broadcast packets, 0 multicast packets 0 output errors, 0 underruns, 0
applique, 0 resets 0 output buffer failures, 0 output buffers swapped out 0 carrier transitions

لحل

حيحصت فرع Cisco CSCvz99253 نم عاخالا حيحصت فرع - DDTS ل اوه يرذجال ببسلا
م تيذلا Cisco CSCvz99253 نم عاخالا حيحصت فرع راركت Cisco CSCwa11748 نم عاخالا
6.5.32: رادصلا في هحالصا

```
+++++++ Dec 23 23:24:58.214 ofa_ipnhgroup_event 0/LC1 3235382# t4839
TP3147224,dnxsdk_l3_fec_create,enter,trans_id,357633649,npu_id,0,is_modify,1,use_eei_encoding,0,
dest,0x6052,encap_id,0x4000304a,fec_id,0x2001fe98, Dec 23 15:10:16.787 ofa_ipnh_event 0/LC1
210586# t5614
TP2061,client_ipnh_create,grid_res_id_alloc_req_success,trans_id,357386085,encap_id,0x304a,alloc
_sz,2 Dec 23 15:10:16.787 ofa_ipnh_event 0/LC1 286920# t4857
TP9909,dispatch_ipnh,resolve_refhdl_success,ref_l3intf_trans_id,357386081,hdl,0x87a75238 Dec 23
15:10:16.787 ofa_ipnh_event 0/LC1 172418# t4857
TP9913,dummy_block,trans_id,357386085,wait,duration,time,0.1742 Dec 23 15:10:16.787
ofa_ipnh_event 0/LC1 153352# t4857
TP3149344,srv_ipnh_create,entry,trans_id,357386085,npu_mask,0x100000,l3a_mac_addr,00af.1f18.0043
,l3a_intf_id,28,port_id,0 Dec 23 15:10:16.780 ofa_ipnh_event 0/LC1 258284# t5614
TP2061,client_ipnh_create,grid_res_id_alloc_req_success,trans_id,357386077,encap_id,0x3048,alloc
_sz,2 Dec 23 15:10:16.780 ofa_ipnh_event 0/LC1 105614# t4857
TP9909,dispatch_ipnh,resolve_refhdl_success,ref_l3intf_trans_id,357383451,hdl,0x87a75238 Dec 23
15:10:16.780 ofa_ipnh_event 0/LC1 172408# t4857
TP9913,dummy_block,trans_id,357386077,wait,duration,time,0.1947 Dec 23 15:10:16.780
ofa_ipnh_event 0/LC1 286912# t4857
TP3149344,srv_ipnh_create,entry,trans_id,357386077,npu_mask,0x100000,l3a_mac_addr,00af.1f18.0043
,l3a_intf_id,28,port_id,0 +++++++
```

رثأتمل جرخم لل ةي عرفللا ةه جاولا ني وكت ةداعا كنك مي ،دادرتس ةقيرطك

ةمچرتل هذه لوج

ةللأل تاي نقتل نم ةومچم مادختساب دن تسمل اذه Cisco تچرت
ملاعلاء انءمچ يف نيمدختسمل معدى وتحم مي دقتل ةيرشبلاو
امك ةقيد نوك تنل ةللأل ةمچرت لصف أن ةظحال مچرئى. ةصاخلا مهتغب
Cisco يلخت. فرتحم مچرت مامدقي يتل ةيفارتحال ةمچرتل عم لالحا وه
ىلإ أمئاد عوچرلاب يصوت و تامچرتل هذه ةقदन ةتيلوئسم Cisco
Systems (رفوتم طبارلا) يلصلأل يزىلچنلإ دن تسمل