

برغ-قرش رورم ةكرح قفدت ءاطخأ فاشكتسأ اهحالصإو SDA هي جوت ةداعإ

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(اهسفن))

ةمدقملا

نم عزك برغلا ىلإ قرشلا نم رورملا ةكرح قفدت نم ققحتلا ةيفي كدنتسملا اذه حضوي
(SDA) جم انربلا ةطساوب فرعملا لوصول

ةيساسألأ تابلطتملا

تابلطتملا

ةيلاتلا عيضاوملاب ةفرعم كي دل نوكت نأب Cisco في صوت:

- (IP) تنرتنإلا لوكوتورب هي جوت ةداعإ
- (LISP) عقوملا ددحم/فرعملا لصف لوكوتورب

ةمدختسملا تانوكملا

ةيلاتلا ةيداملا تانوكملا وجماربال تارادصإ ىلإ دنتسملا اذه في ةدراولا تامولعملا دنتست:

- Cisco IOS® XE 17.10.1 ىلع C9000v
- SDA 1.0 (LISP PubSub سفل)

ةصاخ ةي لم عم ةئيب يف ةدوجوملا ةزهجالا نم دنتسملا اذه يف ةدراول تامولعمل عاشنإ م تناك اذا. (يضا رتفا) حوسمم نيوك تب دنتسملا اذه يف ةمدختسُملا ةزهجالا عيمج تادب رما يال لم تحملا ريثأتلل كمهف نم دكأتف ، ليغشتلا دي قكتك بش

ةلصللا تاذا تاجت نمللا

ةغيص ةي حمربو زاهج اذه عم تلمعتسا تنك اضيأ عيطتسي ةقويثو اذه

- C9200
- C9300
- C9400
- C9500
- C9600
- شذال تارادصل او Cisco IOS® XE 16.12


ةيساسا تامولعمل

نمض ةياهن ةطقن دبرت شيح موهفملا يلى برغلا يلى قرشللا نم SDA رورم ةكرح قفدت ريشي اميف ريذاحملا ضعب كانه . ةينبلا سفن لخاد يرخأ ةياهن ةطقن بلاصتالا SDA ةينب ةكرح قفدت نوكي نأ نكمي و . برغلا يلى قرشللا نم اقفدت ربتعي الو ربتعي امب قلعتي يلاتلا وحنلا يلى برغلا يلى قرشللا نم رورملا

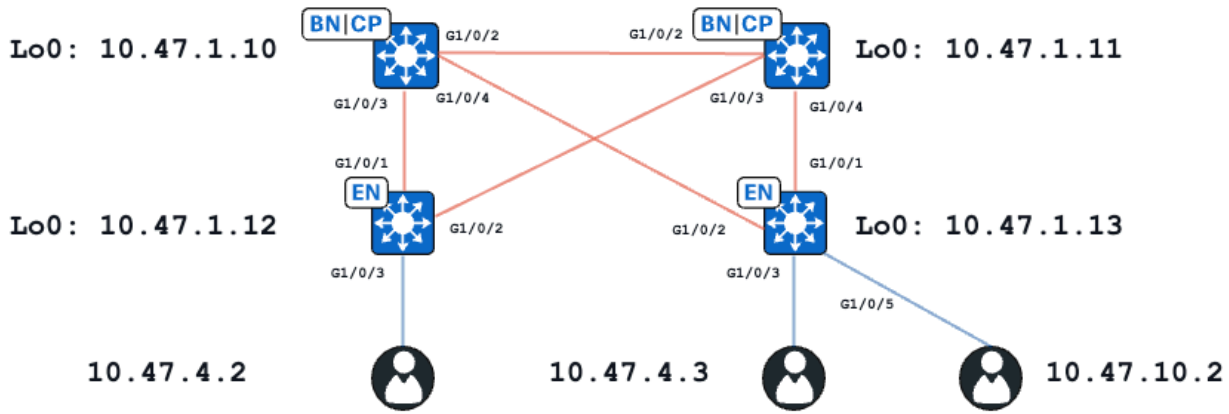
- بلاصتالا عم 172.17.10.2) اهسفن ةيعرفلا ةكبشللا يف ةدوجوملا ةياهنلا طاقن 172.19.10.3) L2LISP ادا ت م اذه ربتعي و
- 172.19.11.2 يلى شذتت 172.19.10.2) VRF (VN) هسفن لال يف نوكت يتيلا ةياهنلا طاقن L3 LISP ربتعي اذه (عمجم VRF يف الكو ، ةلوقنملا L2 دودح بلاصت م فيضم يلى شذتت جيسننلا نمض ةدوجوملا ةياهنلا ةطقن ، L2LISP لثم امامت

ةلثمألا هذه يلى برغلا يلى قرشللا نم رورملا ةكرح تاقفدت ريشت ال

- بونجلا يلى لامشللا نم ي ، جيسننلا جراخ يلى SDA جيسنن نم رورملا ةكرح تاشن
- ةياهن ةطقن) برغلا يلى قرشللا نم اضيأ VRF تالك بش ني ب هيجوتلا ربتعي ال ، VRF فيض يف ةياهن ةطقن يلى شذتت 172.19.10.2) IP ناو نع ، VRF عمجم يف (172.19.11.2) IP ناو نع
- ةجمدملا SD-WAN تالاجم
- SDA تي زنارت
- دودحلا ةلص
- تنارتسك

 `show platform fed switch <active|standby>` لباقم `show platform fed <active|standby>` : ةظالم مل اذا . (Fed) يساسالا ماظنلا رماو فلخت نأ نكمي : ةظالم ريغتملا ةبرجت يجر يف ، ةلثمألا يف اه يلى راشملا ةغايصللا عيزومت م تي

طاطخملا



طاقون عي مچ نوكت .ةعمجمل دودحل او ةينبل فاوچك C9000v تالوچمل لمعت ،لاثملا اذه ضارغل طاقون ةيانهنلا طاقون دجوت ،red_vn، (VN) ةيرهاظلا ةكبشلا سفن نمض ةيانهنلا ةكبش يف 10.47.10.2 دن ةيانهنلا ةطقن نوكتو ،اهسفن ةيعرفلا ةكبشلا يف 10.47.4.2 ةكبش سفن انه نكلو ةفلتخم ةيعرف VN.

نيوكتلا

ةينب ديوزتل Cisco (DNA) ةيمقرلا ةكبشلا ةينب زكرم مدختسي نأ ضرتملا نم ةيضا رتفال ادادعإل اب SDA يمقرلا لوچمل ةينب ةينب:

- تايلمع ىل اذانتسا رورملا ةكره ةجوت ةداع|ضرفي اذهو) 2 ةقبطلا دادتما نيكمتم (IP) ناووع شحب تايلمع نم ال دب MAC ناووع شحب ةيفرطلا ةزهجال ىلع ARP طغض نيكمتم ىل اذه يدؤي) 2 ةقبطلا ضيفت ليطعت تم (LISP) ةطساوب ARP ملعتو

م اسقأ ةدع ىلع ةهجال نيوكت يوتحي ،حيحص لكشب فيضملا مض ارجإ دعب

ةينبلا ةفاح ةهجال نيوكت (10.47.1.12):

```
interface GigabitEthernet1/0/3
  switchport access vlan 1026
  switchport mode access
  device-tracking attach-policy IPDT_POLICY
  spanning-tree portfast
  spanning-tree bpduguard enable
end

interface Vlan1026
  description Configured from Cisco DNA-Center
  mac-address 0000.0c9f.f341
  vrf forwarding red_vn
  ip address 10.47.4.1 255.255.255.0
  ip helper-address 10.47.9.9
  no ip redirects
  ip route-cache same-interface
  no lisp mobility liveness test
  lisp mobility red-IPV4
end
```

ةينبلا ةفاحل LISP نيوكت (10. 47. 1.12):

```
router lisp
 locator-table default
 locator-set rloc_222e1707-175d-4019-a783-060404f8bc2f
  IPv4-interface Loopback0 priority 10 weight 10
 exit-locator-set
!
instance-id 4099
 remote-rloc-probe on-route-change
 dynamic-eid red-IPV4
  database-mapping 10.47.4.0/24 locator-set rloc_222e1707-175d-4019-a783-060404f8bc2f
  exit-dynamic-eid
!
 dynamic-eid red-helpdesk-IPV4
  database-mapping 10.47.10.0/24 locator-set rloc_222e1707-175d-4019-a783-060404f8bc2f
  exit-dynamic-eid
!
 service ipv4
  eid-table vrf red_vn
  map-cache 0.0.0.0/0 map-request
  sgt distribution
  sgt
  exit-service-ipv4
!
 exit-instance-id
!
!
instance-id 8190
 remote-rloc-probe on-route-change
 service ethernet
  eid-table vlan 1026
  database-mapping mac locator-set rloc_222e1707-175d-4019-a783-060404f8bc2f
  dynamic-eid detection multiple-addr bridged-vm
  exit-service-ethernet
!
 exit-instance-id
!
instance-id 8192
 remote-rloc-probe on-route-change
 service ethernet
  eid-table vlan 1028
  database-mapping mac locator-set rloc_222e1707-175d-4019-a783-060404f8bc2f
  dynamic-eid detection multiple-addr bridged-vm
  exit-service-ethernet
!
 exit-instance-id
```

ةينبلا ةفاح ةهجاو نيوكت (10.47.1.13):

```
interface GigabitEthernet1/0/3
 switchport access vlan 1026
 switchport mode access
 device-tracking attach-policy IPDT_POLICY
```

```

spanning-tree portfast
spanning-tree bpduguard enable
end
!
interface GigabitEthernet1/0/5
switchport access vlan 1028
switchport mode access
device-tracking attach-policy IPDT_POLICY
spanning-tree portfast
spanning-tree bpduguard enable
end
!
interface Vlan1026
description Configured from Cisco DNA-Center
mac-address 0000.0c9f.f341
vrf forwarding red_vn
ip address 10.47.4.1 255.255.255.0
ip helper-address 10.47.9.9
no ip redirects
ip route-cache same-interface
no lisp mobility liveness test
lisp mobility red-IPV4
end
!
interface Vlan1028
description Configured from Cisco DNA-Center
mac-address 0000.0c9f.f800
vrf forwarding red_vn
ip address 10.47.10.1 255.255.255.0
ip helper-address 10.47.9.9
no ip redirects
ip route-cache same-interface
no lisp mobility liveness test
lisp mobility red-helpdesk-IPV4
end

```

تة ن ن ب ل ل ة ف ا ح ل LISP ن ن و ك ت (10.47.1.13)

```

router lisp
locator-table default
locator-set rloc_691b1fe4-5264-44c2-bb1b-0903b3eb2c51
  IPv4-interface Loopback0 priority 10 weight 10
  exit-locator-set
!
instance-id 4099
  remote-rloc-probe on-route-change
  dynamic-eid red-IPV4
    database-mapping 10.47.4.0/24 locator-set rloc_691b1fe4-5264-44c2-bb1b-0903b3eb2c51
    exit-dynamic-eid
  !
  dynamic-eid red-helpdesk-IPV4
    database-mapping 10.47.10.0/24 locator-set rloc_691b1fe4-5264-44c2-bb1b-0903b3eb2c51
    exit-dynamic-eid
  !
service ipv4
  eid-table vrf red_vn
  map-cache 0.0.0.0/0 map-request
  sgt distribution

```

```

sgt
exit-service-ipv4
!
exit-instance-id
!
instance-id 8190
remote-rloc-probe on-route-change
service ethernet
eid-table vlan 1026
database-mapping mac locator-set rloc_691b1fe4-5264-44c2-bb1b-0903b3eb2c51
dynamic-eid detection multiple-addr bridged-vm
exit-service-ethernet
!
exit-instance-id
!
instance-id 8192
remote-rloc-probe on-route-change
service ethernet
eid-table vlan 1028
database-mapping mac locator-set rloc_691b1fe4-5264-44c2-bb1b-0903b3eb2c51
dynamic-eid detection multiple-addr bridged-vm
exit-service-ethernet
!
exit-instance-id

```

ففيض مالم امضنا نم ققحتلا

لكايلهال نم ديدعلا عاشن امت ، فيض مالم باعيت سا ةيلمع نم عزك و

إخدا IPDT / IP زاغ بقعت ل

زي مت متي و (IPDT) IP زاغ بقعت لودج في حل اص لإخدا دجوي ، حاجن ب فيض مالم مض دعب
لوصول ل لباق هنا على يئاهنل فيض مالم

<#root>

Edge-1#

show device-tracking database interface g1/0/3

portDB has 2 entries for interface Gi1/0/3, 2 dynamic

Codes: L - Local, S - Static, ND - Neighbor Discovery, ARP - Address Resolution Protocol, DHCP - IPv4 DHCP

Preflevel flags (prlvl):

```

0001:MAC and LLA match      0002:Orig trunk           0004:Orig access
0008:Orig trusted trunk    0010:Orig trusted access  0020:DHCP assigned
0040:Cga authenticated     0080:Cert authenticated   0100:Statically assigned

```

Network Layer Address	Link Layer Address	Interface	vlan	prlvl	ag
DH4 10.47.4.2	5254.0019.93e9	Gi1/0/3	1026	0024	3mr

إخدا MAC / ARP

نكمي (أو) ضارت فالأبواب لاصتا رابتخا هنكمي، حاجنبا يئاهنل فيضم لاليجست دنع
يتلأه نلأة طقن لعلأة امح راجأ تيبتت متي مل إذا ضارت فالأبواب نم هبحس
(الاصتالاً اذه عنمت):

<#root>

Edge-1#

```
ping vrf red_vn 10.47.4.2
```

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 10.47.4.2, timeout is 2 seconds:

!!!!

Success rate is 100 percent (5/5), round-trip min/avg/max = 142/150/161 ms

في) لودجلا في قفاوتمل ARP لادإلأة افاضلأاب، MAC ناونع كانه، ءفاحلأة دقع لعل
VRF):

<#root>

Edge-1#

```
show mac address-table interface g1/0/3
```

Mac Address Table

```
-----  
Vlan    Mac Address      Type      Ports  
-----  
1026    5254.0019.93e9  DYNAMIC  Gi1/0/3  
Total Mac Addresses for this criterion: 1
```

Edge-1#

```
show ip arp vrf red_vn
```

```
Protocol Address          Age (min)  Hardware Addr  Type   Interface  
Internet 10.47.4.1        -          0000.0c9f.f341 ARPA   Vlan1026  
Internet 10.47.4.2        1          5254.0019.93e9 ARPA   Vlan1026  
Internet 10.47.10.1       -          0000.0c9f.f800 ARPA   Vlan1028
```

MAC** ناونع ءجمربل FED جم انرب

show platform software fed switch active matm
macTable vlan <vlan id> mac <mac address>

<#root>

Edge-1#

```
show platform software fed switch active matm macTable vlan 1026 mac 5254.0019.93e9
```

VLAN MAC Type Seq# EC_Bi Flags

machandle

siHandle

riHandle

diHandle

	*a_time	*e_time	ports			Con
1026	5254.0019.93e9		0x1	9	0	0

0x7f65ec7bda68

0x7f65ec7c21f8

0x0

0x7f65ec6e1368

300 7 GigabitEthernet1/0/3 Yes

====platform hardware details====

Asic: 0

htm-handle = 0x7f65ec95dc68 MVID = 7 gpn = 1

SI = 0xc3 RI = 0x25 DI = 0x526e

DI = 0x526e pmap = 0x00000000 0x00000004 pmap_intf : [GigabitEthernet1/0/3]

Asic: 1

SI = 0xc3 RI = 0x25 DI = 0x526e

DI = 0x526e pmap = 0x00000000 0x00000000

Mac Address مربي

show platform hardware fed switch active fwd-asic tracaction print-resource-handle <macHandle> 1

<#root>

Edge-1#

show platform hardware fed switch active fwd-asic abstraction print-resource-handle 0x7f65ec7bda68 1

Handle:0x7f65ec7bda68 Res-Type:ASIC_RSC_HASH_TCAM Res-Switch-Num:0 Asic-Num:255 Feature-ID:AL_FID_L2 Lk priv_ri/priv_si Handle: (nil)Hardware Indices/Handles: handle [ASIC: 0]: 0x7f65ec95dc68 Features sharing this resource:Cookie length: 12 19 00 54 52 e9 93 07 80 07 00 00 00

Detailed Resource Information (ASIC_INSTANCE# 0)

Number of HTM Entries: 1

Entry 0: (handle 0x7f65ec95dc68)

Absolute Index: 6778

Time Stamp: 4

KEY -

vlan:7

mac:0x5254001993e9

l3_if:0

gpn:3

epoch:0 static:0 flood_en:0 vlan_lead_wless_flood_en: 0 client_home_asic: 0 learning_peerid 0, learning_peerid 0, learning_peerid 0
MASK - vlan:0 mac:0x0 l3_if:0 gpn:0 epoch:0 static:0 flood_en:0 vlan_lead_wless_flood_en: 0 client_home_asic: 0
SRC_AD - need_to_learn:0 lrn_v:0 catchall:0 static_mac:0 chain_ptr_v:0 chain_ptr: 0 static_entry_v:0 au...
DST_AD - si:0xb7 bridge:0 replicate:0 blk_fwd_o:0 v4_rmac:0 v6_rmac:0 catchall:0 ign_src_lrn:0 port_mas...
=====

****MVID نم ققحتل****

نم ققحتل ل. ةزهألآ يف (MVID) نيعم ل VLAN فرعم وه قباسل اارخالآ يف 7 مقر ل
show platform software fed switch active vlan "ةيقيقح ل" VLAN ةكبشل اهتقباطم
<vlan number>

<#root>

Edge-1#

show platform software fed switch active vlan 1026

VLAN Fed Information

Vlan

Id

IF Id	LE Handle	STP Handle	L3 IF Handle	SVI IF ID
-------	-----------	------------	--------------	-----------

MVID

1026

0x000000000420011	0x00007f65ec6a08b8	0x00007f65ec6a1138	0x00007f65ec77e838	0x000000000000
-------------------	--------------------	--------------------	--------------------	----------------

7

****GPN يف لماعل اذفنم ل مقر نم ققحتل****

show platform software fed switch active ifm رمأل مدختسأ، "ةيقيقح" ةهجاوب GPN طبرل

mapping gpn

<#root>

Edge-1#

```
show platform software fed switch active ifm mappings gpn
```

Mappings Table

GPN	Interface	IF_ID	IF_TYPE
1	GigabitEthernet1/0/1	0x0000001a	ETHER
2	GigabitEthernet1/0/2	0x0000001b	ETHER
3			

GigabitEthernet1/0/3

0x0000000b ETHER

<-- GPN 3 lines up with the expected Egress interface

****MAC ناوع ةمرب****

show platform siHandle ميمق لىع لوصحلا (0x7f65ec7c21f8) قبا سلا رمالا نم فاه ةمرب لوصحلا زا ه ةمرب ممي
FWD-ASIC ةمرب لوصحلا زا ه ةمرب ممي
<si_handle> 1

<#root>

Edge-1#

```
show platform hardware fed switch active fwd-asic abstraction print-resource-handle 0x7f65ec7c21f8 1
```

Handle:0x7f65ec7c21f8 Res-Type:ASIC_RSC_SI Res-Switch-Num:255 Asic-Num:255 Feature-ID:AL_FID_L3_UNICAST.
priv_ri/priv_si Handle: 0x7f65ec7c2498Hardware Indices/Handles: index0:0xc3 mtu_index/13u_ri_index0:0x
Features sharing this resource:66 (1)]
57 (1)]
Cookie length: 56
00 00 00 00 00 00 00 02 04 00 00 00 00 00 00 00 00 00 07 00 52 54 00 19 93 e9 00 00 00 00 00 00 00 00

Detailed Resource Information (ASIC_INSTANCE# 0)

Station Index (SI) [0xc3] <-- Station Index is comprised of the Rewrite Index (RI) and Destination Index

stationTableGenericLabel = 0
stationFdConstructionLabel = 0x7
lookupSkipIdIndex = 0
rcpServiceId = 0
dejaVuPreCheckEn = 0x1

Replication Bitmap: LD <-- Local Data (LD) indicates that the destination is on this ASIC

Detailed Resource Information (ASIC_INSTANCE# 1)

Station Index (SI) [0xc3] <-- Station Index is comprised of the Rewrite Index (RI) and Destination Index

stationTableGenericLabel = 0
stationFdConstructionLabel = 0x7
lookupSkipIdIndex = 0
rcpServiceId = 0
dejaVuPreCheckEn = 0x1

Replication Bitmap: CD <-- Core Data (CD) indicates that the destination is on the same ASIC, different

****MAC ناونع ةباتك ةداع| سرهف ةحص نم ققحتل|****

طاشن حاتفم show platform hardware fed في مدختس او (0x25) قباسل رمالا نم RI ةم يق ذخ
ريوم <RI> <RI> يدم rewrite-index ل ASIC

<#root>

Edge-1#

show platform hardware fed switch active fwd-asic resource asic all rewrite-index range 0x25 0x25

ASIC#:0 RI:37 Rewrite_type:AL_RRM_REWRITE_L3_UNICAST_IPV4_SHARED(1) Mapped_rii:L3_UNICAST_IPV4(9)
MAC Addr:

MAC Addr: 52:54:00:19:93:e9

,
L3IF LE Index 41

ASIC#:0 RI:38 Rewrite_type:AL_RRM_REWRITE_L3_UNICAST_IPV4_SHARED(1) Mapped_rii:L3_UNICAST_IPV4(9)
MAC Addr: MAC Addr: 01:00:5e:00:00:00,
L3IF LE Index 40

ASIC#:0 RI:39 Rewrite_type:AL_RRM_REWRITE_L3_UNICAST_IPV4_SHARED(1) Mapped_rii:L3_UNICAST_IPV4(9)
MAC Addr: MAC Addr: 52:54:00:00:50:17,
L3IF LE Index 40

ASIC#:1 RI:37 Rewrite_type:AL_RRM_REWRITE_L3_UNICAST_IPV4_SHARED(1) Mapped_rii:L3_UNICAST_IPV4(9)
MAC Addr:

MAC Addr: 52:54:00:19:93:e9

,
L3IF LE Index 41

ASIC#:1 RI:38 Rewrite_type:AL_RRM_REWRITE_L3_UNICAST_IPV4_SHARED(1) Mapped_rii:L3_UNICAST_IPV4(9)
MAC Addr: MAC Addr: 01:00:5e:00:00:00,
L3IF LE Index 40

ASIC#:1 RI:39 Rewrite_type:AL_RRM_REWRITE_L3_UNICAST_IPV4_SHARED(1) Mapped_rii:L3_UNICAST_IPV4(9)
MAC Addr: MAC Addr: 52:54:00:00:50:17,
L3IF LE Index 40

****MAC ناوع ةهجو سرهف ةحص نم ققحتل****

دروم طشن حاتفم fed زاغ show platform في مدختساو (0x526e) قبا سلا رمالا نم DI ةمي ق ذخ
asic <di> </di> دمى index-ةياغ لك

<#root>

Edge-1#

```
show platform hardware fed switch active fwd-asic resource ASIC all destination-index range 0x526e 0x526e
```

ASIC#0:

Destination index = 0x526e

pmap = 0x00000000 0x00000004 <-- Convert decimal 4 to binary, which is 0100. Count this binary right to

pmap_intf : [GigabitEthernet1/0/3]

cmi = 0x0

rcp_pmap = 0x0

al_rsc_cmi

CPU Map Index (CMI) [0]

ctiLo0 = 0

ctiLo1 = 0

ctiLo2 = 0

cpuQNum0 = 0

cpuQNum1 = 0

cpuQNum2 = 0

npuIndex = 0

stripSeg = 0

copySeg = 0

ASIC#1:

Destination index = 0x526e

pmap = 0x00000000 0x00000000

cmi = 0x0

rcp_pmap = 0x0

al_rsc_cmi

CPU Map Index (CMI) [0]

ctiLo0 = 0

ctiLo1 = 0

ctiLo2 = 0

cpuQNum0 = 0

cpuQNum1 = 0

cpuQNum2 = 0

npuIndex = 0

stripSeg = 0

copySeg = 0

****ذفنم ل ن م ق قحتل****

لوحمل لة طشن ل IFM تان ي يع ت مدخت س أ ، اق ب س م ه ي ل ع ا ل ط ا ل ا م ت ي ذ ل ا ذفنم ل ا ط ب ر ل
ذفنم ل ا دوم ع ل ا ر ظ ن ا و commandShow platform software ي س ا س ا ل ا

<#root>

Edge-1#

show platform software fed switch active ifm mappings

```
----- show platform software fed switch active ifm mappings -----
Interface          IF_ID      Inst Asic Core Port SubPort Mac  Cntx LPN  GPN  Type Active
GigabitEthernet1/0/1  0x1a      0  0  0  0  0  1  0  1  1  NIF Y
GigabitEthernet1/0/2  0x1b      0  0  0  1  0  2  1  2  2  NIF Y
```

GigabitEthernet1/0/3

0xb 0 0 0

2

0 3 2 3 3 NIF Y

<-- Matches port 2 from previous output

****اه تي ذغت م ت ي ت ل ا ة ز ه ج ا ل ا ب ص ا خ ل ا MAC ن ا و ن ع ن م ق قحتل****

MacHandle. ك ف ه ر ف و ي ا م ع م ي ل ا ث م / ل م ع و ي ر ا ن ي س ي ف ج ا ر خ ل ا ا ذ ه ق ب ا ط ا ت ي

<#root>

Edge-1#

show platform hardware fed switch active matm macTable vlan 1026 mac 5254.0019.93e9

HEAD: MAC address 5254.0019.93e9 in VLAN 1026

KEY:

vlan 7

,

mac 0x5254001993e9

, l3_if 0,

gpn 3

, epoch 0, static 0, flood_en 0, vlan_lead_wless_flood_en 0, client_home_asic 0, learning_peerid 0, lea
MASK: vlan 0, mac 0x0, l3_if 0, gpn 0, epoch 0, static 0, flood_en 0, vlan_lead_wless_flood_en 0, clien
SRC_AD: need_to_learn 0, lrn_v 0, catchall 0, static_mac 0, chain_ptr_v 0, chain_ptr 0, static_entry_v
DST_AD: si 0xb7, bridge 0, replicate 0, blk_fwd_o 0, v4_mac 0, v6_mac 0, catchall 0, ign_src_lrn 0, por

Total Mac number of addresses:: 1

- 7 وه (MVID) ةزهجألا يف VLAN ةكبش فرعم
- MAC: 5254.0019.93e9 ناونع
- GPN: 3 ةكبش

LISP لادخا

لعل ايلحم يئاهنلا فيضملا لىل حجانلا فيضملا مضب ةصاخلا LISP تالادخا ءاشنلا دعب
 LISP / ةطيرخم داخ - (LISP MSMR) م كحتلا دقع لىل اهليجست لىل ةفاضلاب Edge ةدقع
 نكمي ددحم لپثم فرعم قاطنب قلعتي امي في LISP تاصوحف عيمج ءارجا بجي. (ةطيرخل للحم
 L2 و L3 لىل ةبسنلاب هصحف

<#root>

Edge-1#

show vlan id 1026

VLAN Name	Status	Ports
1026 red	active	

L2L10:8190

, Gi1/0/3

<-- L2 LISP Instance ID tied to VLAN 1026

****يناثلا يوتسمل نم LISP تانايب ةدعاق نم ققحتلا****

ةدعاق <L2 LISP IID> show lisp instance-id <L2 LISP IID> رمال مدختسا، L2 LISP تانايب ةدعاق نم ققحتلا
 <mac address> تنرثي تانايب

<#root>

Edge-1#

show lisp instance-id 8190 ethernet database 5254.0019.93e9

LISP ETR MAC Mapping Database for LISP 0 EID-table Vlan 1026 (IID 8190), LSBs: 0x1

Entries total 1, no-route 0, inactive 0, do-not-register 2

5254.0019.93e9/48, dynamic-eid Auto-L2-group-8190, inherited from default locator-set rloc_222e1707-175

Uptime: 2d17h, Last-change: 2d17h

Domain-ID: local

Service-Insertion: N/A

Locator	Pri/Wgt	Source	State
---------	---------	--------	-------

10.47.1.12

10/10 cfg-intf site-self, reachable

-----> Our own RLOC

Map-server	Uptime	ACK	Domain-ID
------------	--------	-----	-----------

10.47.1.10

1d11h Yes 0

-----> RLOC of upstream collocated border

10.47.1.11

2d17h Yes 0

-----> RLOC of upstream collocated border

****LISP نم ي ناثل لى وت س م ل ا ي ف (AR) نا ون ع ل ل ل ي ل ح ت ت ا ن ا ي ب ة د ع ا ق ن م ق ق ح ت ل ا****

show lisp instance-id <LISP L2 IID> ل ا ي ب ة د ع ا ق ن م ق ق ح ت ل ل
<mac address> ن ا و ن ع ة ق د - ت ن ر ث ي ل ا ت ا ن ا ي ب ة د ع ا ق ن ا و ن ع

<#root>

Edge-1#

show lisp instance-id 8190 ethernet database address-resolution 5254.0019.93e9

LISP ETR Address Resolution for LISP 0 EID-table Vlan 1026 (IID 8190)
(*) -> entry being deleted

Hardware Address	L3 InstID	Host Address	
5254.0019.93e9	4099	10.47.4.2/32	<-- Endpoint MAC Address, LISP L3 Instance ID, Endpoint I

****LISP L3 ت ا ن ا ي ب ة د ع ا ق ز ي م ر ت****

show lisp instance-id <LISP L3 IID> IPv4 ل ا ي ب ة د ع ا ق ن م ق ق ح ت ل ل
<ip address/subnet mask> ت ا ن ا ي ب ة د ع ا ق

<#root>

Edge-1#

show lisp instance-id 4099 ipv4 database 10.47.4.2/32

LISP ETR IPv4 Mapping Database for LISP 0 EID-table vrf red_vn (IID 4099), LSBs: 0x1
Entries total 1, no-route 0, inactive 0, do-not-register 1

10.47.4.2

/32, dynamic-eid red-IPV4, inherited from default locator-set rloc_222e1707-175d-4019-a783-060404f8bc2f

-----> Endpoint IPv4 Address

Uptime: 2d18h, Last-change: 2d18h
Domain-ID: local
Service-Insertion: N/A
Locator Pri/Wgt Source State

10.47.1.12

10/10 cfg-intf site-self, reachable

-----> Our own RLOC

Map-server	Uptime	ACK	Domain-ID
------------	--------	-----	-----------

10.47.1.10

1d11h	Yes	0
-------	-----	---

-----> RLOC of upstream collocated border

10.47.1.11

2d17h	Yes	0
-------	-----	---

-----> RLOC of upstream collocated border

****CEF قم ققحتل****

ي ل خ ا د <ip address> <vrf name> show ip cef vrf **رم أ ل ا مدختسأ**، CEF نم ققحتل ل

<#root>

Edge-1#

show ip cef vrf red_vn 10.47.4.2 internal

10.47.4.2/32, epoch 1, flags [att, sc], RIB[D], refcnt 6, per-destination sharing

sources: RIB, Adj, IPL

feature space:

IPRM: 0x00058000

Broker: linked, distributed at 3rd priority

subblocks:

SC owned,sourced:

LISP local EID

-

SC inherited: LISP remote EID - locator status bits 0x00000000

SC inherited: LISP cfg dyn-EID - LISP configured dynamic-EID

LISP EID attributes: localEID Yes, c-dynEID Yes, d-dynEID Yes, a-dynEID No

SC owned,sourced: LISP generalised SMR - [disabled, not inheriting, 0x7F06D0A67E40 locks: 1]

Adj source:

IP adj out of Vlan1026

,

addr 10.47.4.2

7F06D300B738

Dependent covered prefix type adjfib, cover 10.47.4.0/24

2 IPL sources [no flags]

ifnums:

Vlan1026(29): 10.47.4.2

path list 7F06CEE8D720, 3 locks, per-destination, flags 0x49 [shble, rif, hwc]

path 7F06D0A900C8, share 1/1, type attached nexthop, for IPv4
nexthop 10.47.4.2 Vlan1026, IP adj out of Vlan1026, addr 10.47.4.2 7F06D300B738
output chain:

IP adj out of Vlan1026, addr 10.47.4.2

7F06D300B738

SDA (LISP) في مكدحت لادقع يوتحت ، SDA ةفاح ةدقع لىلع ةيلحم لال LISP تالادخ دإ لىل ةفاض إلاب
ةياهن لاطاقن لوح ةيفاض إ تامولعم لىلع اضيأ (MS/MR):

عمجم لال يدودح لال LISP L2 مداخل نم ققحت لال:

تنرثي إال مداخل <L2 LISP IID> show lisp instance-id رمال مدختسأ ، LISP L2 مداخل نم ققحت لال
<MAC Address>

<#root>

Border-1#

show lisp instance-id 8190 ethernet server 5254.0019.93e9

LISP Site Registration Information

Site name: site_uci

Description: map-server configured from Cisco DNA-Center

Allowed configured locators: any

Requested EID-prefix:

EID-prefix:

5254.0019.93e9

/48 instance-id 8190

<-- Endpoint MAC Address

First registered: 2w5d
Last registered: 3d16h
Routing table tag: 0
Origin: Dynamic, more specific of any-mac
Merge active: No
Proxy reply: Yes
Skip Publication: No
Force Withdraw: No
TTL: 1d00h
State: complete
Extranet IID: Unspecified
Registration errors:
Authentication failures: 0
Allowed locators mismatch: 0

ETR

10.47.1.12

:21038, last registered 3d16h, proxy-reply, map-notify

<-- Egress Tunnel Router (Fabric Edge IP address)

TTL 1d00h, no merge, hash-function sha1
state complete, no security-capability
nonce 0xB60C4314-0x97BB332D
xTR-ID 0xAB3179F6-0xC774F22C-0x00F2C82E-0x3A66738D
site-ID unspecified
Domain-ID local
Multihoming-ID unspecified
sourced by reliable transport

Locator	Local	State	Pri/Wgt	Scope
---------	-------	-------	---------	-------

10.47.1.12

yes	up	10/10	IPv4	none
-----	----	-------	------	------

<--(Fabric Edge IP address)

نمضمل دحل (AR) LISP ناووع ةقد مداخ نم ققحتل:

مداخ ناووع ةقد <LISP L2 IID> show lisp instance-id رمأل مدختسأ L2 LISP AR مداخ نم ققحتل
<IP address> تنرثيال

مداخ ناووع <LISP L2 IID> show lisp instance-id رمأل مدختسأ، ليجستل تاظوفحم نم ققحتل
-history ليجستل <IP Address> حوضو ةقد - تنرثيال

<#root>

Border-1#

show lisp instance-id 8190 ethernet server address-resolution 10.47.4.2

Address-resolution data for router lisp 0 instance-id 8190

Site name: site_uci

Host Address:

10.47.4.2

/32

Hardware Address:

5254.0019.93e9

First registered: 2w5d

Last registered: 3d16h

Registration errors:

Authentication failures: 0

ETR

10.47.1.12

:21038

Last registered: 3d16h

TTL: 1d00h

xTR-ID: 0xAB3179F6-0xC774F22C-0x00F2C82E-0x3A66738D

Site-ID: unspecified
Registered addr: 5254.0019.93e9
L3 Instance ID: 4099

Border-1#

```
show lisp instance-id 8190 ethernet server address-resolution 10.47.4.2 registration-history
```

Map-Server registration history

Roam = Did host move to a new location?

WLC = Did registration come from a Wireless Controller?

Prefix qualifier: + = Register Event, - = Deregister Event, * = AR register event

Timestamp (UTC)	Instance	Proto	Roam	WLC	Source
					EID prefix / Locator
*Sep 29 16:50:27.762	8190	TCP	No	No	10.47.1.12 +*10.47.4.2/32 / 5254.0019.93e9
*Oct 1 21:05:11.086	8190	TCP	No	No	10.47.1.12 +*10.47.4.2/32 / 5254.0019.93e9
*Oct 2 06:51:11.882	8190	TCP	No	No	10.47.1.12 +*10.47.4.2/32 / 5254.0019.93e9
*Oct 3 00:56:33.642	8190	TCP	No	No	10.47.1.12 +*10.47.4.2/32 / 5254.0019.93e9
*Oct 3 01:53:45.934	8190	TCP	No	No	10.47.1.12 +*10.47.4.2/32 / 5254.0019.93e9
*Oct 6 04:36:08.685	8190	TCP	No	No	10.47.1.12 +*10.47.4.2/32 / 5254.0019.93e9

عجم لال ي دودح ال L3 LISP م داخ نم ق قحت ال

show lisp instance-id <LISP L3 IID> IPv4 server <IP address>

show lisp instance-id <LISP L3 IID> IPv4 server <IP Address> register-history

<#root>

Border-1#

```
show lisp instance-id 4099 ipv4 server 10.47.4.2
```

LISP Site Registration Information

Site name: site_uci

Description: map-server configured from Cisco DNA-Center

Allowed configured locators: any

Requested EID-prefix:

EID-prefix:

10.47.4.2

/32 instance-id 4099

First registered: 2w5d

Last registered: 02:39:39

Routing table tag: 0

Origin: Dynamic, more specific of 10.47.4.0/24

```

Merge active:      No
Proxy reply:      Yes
Skip Publication:  No
Force Withdraw:   No
TTL:              1d00h
State:            complete
Extranet IID:     Unspecified
Registration errors:
  Authentication failures: 0
  Allowed locators mismatch: 0
ETR

```

10.47.1.12

```

:21038, last registered 02:39:39, proxy-reply, map-notify
      TTL 1d00h, no merge, hash-function sha1
      state complete, no security-capability
      nonce 0x128CB668-0xF7B85F77
      xTR-ID 0xAB3179F6-0xC774F22C-0x00F2C82E-0x3A66738D
      site-ID unspecified
      Domain-ID local
      Multihoming-ID unspecified
      sourced by reliable transport
Locator   Local State   Pri/Wgt Scope

```

10.47.1.12

```

yes      up           10/10  IPv4 none

```

Border-1#

```

show lisp instance-id 4099 ipv4 server 10.47.4.2/32 registration-history

```

Map-Server registration history

Roam = Did host move to a new location?

WLC = Did registration come from a Wireless Controller?

Prefix qualifier: + = Register Event, - = Deregister Event, * = AR register event

Timestamp (UTC)	Instance	Proto	Roam	WLC	Source
					EID prefix / Locator
*Oct 6 04:36:01.548	4099	UDP	No	No	10.47.1.12 + 10.47.4.2/32
*Oct 6 04:36:08.686	4099	TCP	No	No	10.47.1.12 + 10.47.4.2/32
*Oct 9 18:35:48.058	4099	TCP	No	No	10.47.1.12 + 10.47.4.2/32

SDA في ARP قود

أه. يضارثفا دادع| ةي لم عم ءان ب SDA دوزي نأ تل م عت سا Cisco Catalyst Center نأ ضررت في ةك ب ش في) ةي ن ب ل ل خاد رورم ل ةك ر ح ل ك ن أو 2 ةق ب ط ل ل ق ح ل م ن ي ك م ت م ت ه ن أ ي ن ع ي LISP، ل ن ن رث ي ل ل ي م / MAC ن ي و ان ع ث ح ب ت ا ي ل م ع ي ل ع ء ان ب ا ه ه ي ح و ت ة د ا ع | م ت ت (ا ه س ف ن VN، IP ل LISP ل ي م / IP ن ي و ان ع ث ح ب ت ا ي ل م ع ن م ال د ب

ةت ب ا ث ل ل ARP ت ا ل ا خ د | ن ي و ك ت د ي ف م ل ن م ن و ك ي د ق، ا ه ا ل ص | و ا ط ا ل ا ف ا ش ك ت س ا ر و ط ن م ن م ي ف م ا ل ل ا ل ص ت ا ل ا ب ة ق ل ل ع ت م ة ل ك ش م ل ت ن ا ك ا ذ ا م م ة ع ر س ب ق ق ح ل ل ل ن ي ف ي ض م ل ا ل ك ي ل ع

ةقدب طقف وأ (ةفضملا ةزهجال نيب لاصتالا رابتخا لمعي ال ةلجال هذه في) ةينبلا ARP.

امك، اهعقومو ةفضملا ةزهجال ديدحت ل حل LISP نم SDA ةينب في ARP ةلمع ديفتست ةيدلقتلا ليوحتلا/هيجوتلا تائب في ARP كولس نع فلتخت

ةينبلا ةياهن ةطقنل MAC/IP طبر ديدحتل ARP بلط ةينبلا ةياهن ةطقن لسرت: 1 ةوطخل

فضملا نم ARP ةمزح يقلت ديكأتل لوخدلا ةهجاو ىلع ةمزحلا طاقنلا نيوكت نكمي:

```
<#root>
```

```
Edge-1#
```

```
monitor capture 1 interface g1/0/3 in match any
```

```
Edge-1#
```

```
mon cap 1 start
```

```
Started capture point : 1
```

```
Edge-1#
```

```
mon cap 1 stop
```

```
Capture statistics collected at software:
```

```
  Capture duration - 22 seconds
```

```
  Packets received - 13
```

```
  Packets dropped - 0
```

```
  Packets oversized - 0
```

```
Number of Bytes dropped at asic not collected
```

```
Capture buffer will exist till exported or cleared
```

```
Stopped capture point : 1
```

```
Edge-1#
```

```
show monitor capture 1 buffer brief
```

```
Starting the packet display ..... Press Ctrl + Shift + 6 to exit
```

```
  1   0.000000 52:54:00:19:93:e9 -> ff:ff:ff:ff:ff:ff ARP 60 Who has 10.47.4.3? Tell 10.47.4.2
```

```
  2   1.028893 52:54:00:19:93:e9 -> ff:ff:ff:ff:ff:ff ARP 60 Who has 10.47.4.3? Tell 10.47.4.2
```

```
  3   2.058244 52:54:00:19:93:e9 -> ff:ff:ff:ff:ff:ff ARP 60 Who has 10.47.4.3? Tell 10.47.4.2
```

```
Edge-1#
```

```
show monitor capture 1 buffer display-filter arp detailed
```

```
Starting the packet display ..... Press Ctrl + Shift + 6 to exit
```

```
Frame 1: 60 bytes on wire (480 bits), 60 bytes captured (480 bits) on interface /tmp/epc_ws/wif_to_ts_p
```

```
  Interface id: 0 (/tmp/epc_ws/wif_to_ts_pipe)
```

```
    Interface name: /tmp/epc_ws/wif_to_ts_pipe
```

```
  Encapsulation type: Ethernet (1)
```

```
  Arrival Time: Oct 10, 2023 14:52:03.659290000 UTC
```

```
  [Time shift for this packet: 0.000000000 seconds]
```

```
  Epoch Time: 1696949523.659290000 seconds
```

```

[Time delta from previous captured frame: 0.000000000 seconds]
[Time delta from previous displayed frame: 0.000000000 seconds]
[Time since reference or first frame: 0.000000000 seconds]
Frame Number: 1
Frame Length: 60 bytes (480 bits)
Capture Length: 60 bytes (480 bits)
[Frame is marked: False]
[Frame is ignored: False]
[Protocols in frame: eth:ethertype:arp]
Ethernet II, Src: 52:54:00:19:93:e9 (
52:54:00:19:93:e9
), Dst:
ff:ff:ff:ff:ff:ff
(ff:ff:ff:ff:ff:ff)
<-- SMAC/DMAC respectively
Destination: ff:ff:ff:ff:ff:ff (ff:ff:ff:ff:ff:ff)
Address: ff:ff:ff:ff:ff:ff (ff:ff:ff:ff:ff:ff)
.... ..1. .... = LG bit: Locally administered address (this is NOT the factory d
.... ..1 .... = IG bit: Group address (multicast/broadcast)
Source: 52:54:00:19:93:e9 (52:54:00:19:93:e9)
Address: 52:54:00:19:93:e9 (52:54:00:19:93:e9)
.... ..1. .... = LG bit: Locally administered address (this is NOT the factory d
.... ..0 .... = IG bit: Individual address (unicast)
Type: ARP (
0x0806
)
Padding: 00000000000000000000000000000000
Address Resolution Protocol (request)
Hardware type: Ethernet (1)
Protocol type: IPv4 (0x0800)
Hardware size: 6
Protocol size: 4
Opcode: request (1)
Sender MAC address:
52:54:00:19:93:e9
(52:54:00:19:93:e9)
Sender IP address:
10.47.4.2
Target MAC address:
00:00:00:00:00:00
(00:00:00:00:00:00)
Target IP address:
10.47.4.3

```

MAC ناووع دي دحت ل LISP بلط عاشن اب موقت و ARP موزع Edge ة دقوع كل هتست 2. ة و طخال
 Host-02. ب صخال

م كحت ل ا تاي و تسم لى | 10.47.4.3 ب صخال ل MAC ناووع ل حل لISP ة طيرخ بلط ل Edge-1 ل سري

ةمجم لادو لال) LISP ف:

```
<#root>
```

```
Edge-1#
```

```
debug lisp control-plane all
```

```
Edge-1#
```

```
debug l2lisp all
```

```
LISP[REMT ]-0: Map Request: Delay is over for IID 8190 EID 10.47.4.3/32, requester 'AR'.  
LISP[REMT ]-0 IID 8190: Schedule processing of Map-Requests from 'remote EID prefix' in IPv4.  
LISP[REMT ]-0: Map Request: Sending request for IID 8190 EID 10.47.4.3/32, requester 'AR'.
```

لإى رخ أةم ةباجتسإ لسرتو IP/MAC نىىعت ل LISP بل ل Control Node لىقلت 3. ةوطخل
ةدق SDA Edge

LISP ةطىرخ لىل ع در مادختساب ةباجتسال او Fabric Edge ن م LISP ةطىرخ بل لىقلت م تى
ب 10.47.4.3 ب طبترى لذل MAC ناوع مادختساب

```
<#root>
```

```
Border-1#
```

```
debug lisp control-plane all
```

```
Border-1#
```

```
debug l2lisp all
```

```
LISP[TRNSP]-0: Processing received Map-Request(1) message on GigabitEthernet1/0/3 from 10.47.4.3:4342 to  
LISP[MR ]-0: Received Map-Request with 1 records, first EID IID 8190 10.47.4.3/32, source EID UNSPEC,  
LISP[MR ]-0 IID 8190 Eth-ARP: MS EID 10.47.4.3/32: Sending proxy reply to 10.47.1.12.
```

نزم لاناوع لة قد لادإ لىل ادانسا "للكو در" مادختساب LISP ف مكحتللة حول بىجتست
اهب ةصاخل ةلحملل تاناىبلل ةدعاق ف

```
<#root>
```

```
Border-1#
```

```
show lisp instance-id 8190 ethernet server address-resolution 10.47.4.3
```

```
Address-resolution data for router lisp 0 instance-id 8190
```

```
Site name: site_uci
```

Host Address:

10.47.4.3

/32

Hardware Address:

5254.001e.ad00

First registered: 21:11:17

Last registered: 21:11:17

Registration errors:

Authentication failures: 0

ETR 10.47.1.13:16056

Last registered: 21:11:17

TTL: 1d00h

xTR-ID: 0x8CEE6478-0x9358E248-0xE935FF07-0x8C3C5450

Site-ID: unspecified

Registered addr:

5254.001e.ad00

L3 Instance ID:

4099

MAC 10.47.4.3 ناونع ب LISP در Edge ةدق ملتست 4. ةوطخل

Fabric Edge ةدق ةطساوب LISP ليكو در يقلت متي

```
LISP[REMT ]-0: Processing Map-Reply mapping record for IID 8190 MAC 5254.001e.ad00/48 LCAF 2, ttl 1440,  
LISP[REMT ]-0: Processing mapping information for EID prefix IID 8190 5254.001e.ad00/48.
```

MAC ناونع RLOC عقوم ديدحتل LISP ةطيرخ بلط ةمزح Edge ةدق لسرت 5. ةوطخل

يذلا 10.47.4.3 لىل MAC ناونع Edge Node فرعت ، لىل وائل ثالثا تاوطخلل حج انلا لامك اإل دعب
هذه ب Edge ةدق درت ال ، 2 ةق بطلال دادتما نيكمتم عم . ةي ادبلا ي ف هل ARP ءاشن ا مت
ة فاحل RLOC عقوم ديدحتل كلذ نم ال دب اهم دختست لب ، 10.47.4.2 لىل رخا ةرم تامول عم ال
2 ةق بطلال ةكبش ي ف امك 10.47.4.3 وحن ARP هي جوت ةداع اهنكم مي يتح ، جورخ ال ةدق
ةي ديلقتل .

، تنرثي اإل ليثم ي ف رخا LISP ةطيرخ بلط ةمزح ءاشن ا ب Edge Node موقت ، ببسلا اذهلو ،
10.47.4.2 ب صاخلا MAC ناونع RLOC تامول عم بلطت ةرمل هذه ي فو

<#root>

Edge-1#

```
debug lisp control-plane all
```

Edge-1#


```
debug l2lisp all
```

```
*Oct 10 17:01:41.430: LISP[REMT ]-0 IID 8190: Schedule processing of Map-Requests from 'remote EID pref
*Oct 10 17:01:41.430: LISP[REMT ]-0: Map Request: Sending request for IID 8190 EID 5254.001e.ad00/48, r
```

RLOC عقوم دي دحتل مكحتل ادق ع طساوب LISP ةطيخ بلط ةمزح يقلت متي 6: ةوطخل
MAC ناوعل

ةيحلحملا تانايبلا ةدعاق ةلاح ىل ادا نسا اهيلع درتو LISP ةمزح Control Node ىقلتت
اهب ةصاخلا

```
<#root>
```

```
Border-1#
```

```
debug lisp control-plane all
```

```
Border-1#
```

```
debug l2lisp all
```

```
*Oct 10 16:04:42.055: LISP[MR ]-0 IID 8190 Eth-ARP: MS EID 10.47.4.3/32: Sending proxy reply to 10.47
*Oct 10 16:04:42.407: LISP[MR ]-0: Received Map-Request with 1 records, first EID IID 8190 5254.001e.
*Oct 10 16:04:42.408: LISP[MR ]-0 IID 8190 MAC: MS EID 5254.001e.ad00/48: Sending proxy reply to 10.4
```

Edge Node ةطساوب LISP ةطيخ دريقلت متي 7: ةوطخل

Edge Node ةطساوب Control Node ةطساوب هؤاشن مت يذلا LISP ةطيخ دريقلت متي

```
<#root>
```

```
Edge-1#
```

```
debug lisp control-plane all
```

```
Edge-1#
```

```
debug l2lisp all
```

```
*Oct 10 17:44:00.181: LISP[TRNSP]-0: Processing received Map-Reply(2) message on GigabitEthernet1/0/2 f
*Oct 10 17:44:00.181: LISP[REMT ]-0: Received Map-Reply with nonce 0xF954EC80-0x039D7E4A, 1 records.
*Oct 10 17:44:00.181: LISP[REMT ]-0: Map-Reply nonce matches pending request for IID 8190 EID 5254.001e
*Oct 10 17:44:00.181: LISP[REMT ]-0: Processing Map-Reply mapping record for IID 8190 MAC 5254.001e.ad0
*Oct 10 17:44:00.181: LISP[REMT ]-0: Map Request: Received reply with rtt 560ms.
*Oct 10 17:44:00.181: LISP[REMT ]-0: Processing mapping information for EID prefix IID 8190 5254.001e.a
```

LISP ل تنرثي لي ثم ةطيخ ل تقوملا نيزختلا ةركاذي ف لاخدا ءاشن ىل اريخا ي دوي اذهو
ب الصتم 10.47.4.3 نوكي شيح Edge-2 هاجت ARP ةمزح هيجوت ةدعاب حمسيو

<#root>

Edge-1#

```
show lisp instance-id 8190 ethernet map-cache 5254.001e.ad00
```

LISP MAC Mapping Cache for LISP 0 EID-table Vlan 1026 (IID 8190), 1 entries

5254.001e.ad00/48, uptime: 00:04:11, expires: 23:55:48, via map-reply, complete

Sources: map-reply

State: complete, last modified: 00:04:11, map-source: 10.47.1.13

Active, Packets out: 8(0 bytes), counters are not accurate (~ 00:00:04 ago)

Encapsulating dynamic-EID traffic

Locator	Uptime	State	Pri/Wgt	Encap-IID
---------	--------	-------	---------	-----------

10.47.1.13	00:04:11	up	10/10	-
------------	----------	----	-------	---

Last up-down state change: 00:04:11, state change count: 1

Last route reachability change: 00:04:11, state change count: 1

Last priority / weight change: never/never

RLOC-probing loc-status algorithm:

Last RLOC-probe sent: 00:04:11 (rtt 560ms)

HOST-02 وحن لسري و VXLAN ةكبش يف ARP ني مضت متي 8. ةوطخل

لسرت نأ نكمي يتح 10.47.4.3 ع قوم ديدحت لبولطم LISP ب ةقلعتم ل تاوطخل ا عي مج تناك نيخت متي . ةبسانم ل ةفاحل ةدقع وحن يداحأ ثبك ةي لصألا (ثبلا) ARP ةمزح Edge ةدقع Edge ةدقع ةي زك رمل ةجلا عمل ةدحو ةطساوب (هطاقسإ متي ال) اتقوم ي لصألا ARP ب ل ط ARP ةمزح لاسرا دنع يتح ةبسانم ل ARP ةقذب حمسي امم تاوطخل ا عي مج لامكإ متي يتح 10.47.4.2 نم ةدحاو

ل ا ثمل ا يف حضوم وه امك ، VXLAN ةكبش يف ARP ةمزح ني مضت متي

<#root>

Edge-2#

```
show monitor capture 1 buffer display-filter arp brief
```

Starting the packet display Press Ctrl + Shift + 6 to exit

```
67 15.149181 52:54:00:19:93:e9 -> 52:54:00:1e:ad:00 ARP 110 Who has 10.47.4.3? Tell 10.47.4.2
```

```
68 15.155511 52:54:00:19:93:e9 -> 52:54:00:1e:ad:00 ARP 110 Who has 10.47.4.3? Tell 10.47.4.2
```

إل ا ثبلا ل ARP ب ل ط نم اضيأ هلي وحت مت امك VXLAN ةكبش يف ARP ب ل ط ني مضت متي ي داحأ ل ا ثبلا ل ARP ب ل ط

<#root>

Frame 68: 110 bytes on wire (880 bits), 110 bytes captured (880 bits) on interface /tmp/epc_ws/wif_to_t

Interface id: 0 (/tmp/epc_ws/wif_to_ts_pipe)

Interface name: /tmp/epc_ws/wif_to_ts_pipe

Encapsulation type: Ethernet (1)

Arrival Time: Oct 10, 2023 17:56:43.256570000 UTC

[Time shift for this packet: 0.000000000 seconds]

Epoch Time: 1696960603.256570000 seconds

[Time delta from previous captured frame: 0.006330000 seconds]

```

[Time delta from previous displayed frame: 0.006330000 seconds]
[Time since reference or first frame: 15.155511000 seconds]
Frame Number: 68
Frame Length: 110 bytes (880 bits)
Capture Length: 110 bytes (880 bits)
[Frame is marked: False]
[Frame is ignored: False]
[Protocols in frame: eth:ethertype:ip:udp:vxlan:eth:ethertype:arp]
Ethernet II, Src: 52:54:00:0a:42:11 (52:54:00:0a:42:11), Dst: 52:54:00:17:fe:65 (52:54:00:17:fe:65)
  Destination: 52:54:00:17:fe:65 (52:54:00:17:fe:65)
    Address: 52:54:00:17:fe:65 (52:54:00:17:fe:65)
      .... ..1. .... = LG bit: Locally administered address (this is NOT the factory default)
      .... ..0. .... = IG bit: Individual address (unicast)
  Source: 52:54:00:0a:42:11 (52:54:00:0a:42:11)
    Address: 52:54:00:0a:42:11 (52:54:00:0a:42:11)
      .... ..1. .... = LG bit: Locally administered address (this is NOT the factory default)
      .... ..0. .... = IG bit: Individual address (unicast)
  Type: IPv4 (0x0800)
Internet Protocol Version 4, Src:
10.47.1.12
, Dst:
10.47.1.13 <-- 10.47.1.12 is Edge-1 RLOC, 10.47.1.13 is Edge-2 RLOC
0100 .... = Version: 4
.... 0101 = Header Length: 20 bytes (5)
Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)
  0000 00.. = Differentiated Services Codepoint: Default (0)
  .... ..00 = Explicit Congestion Notification: Not ECN-Capable Transport (0)
Total Length: 96
Identification: 0x1781 (6017)
Flags: 0x4000, Don't fragment
  0... .... = Reserved bit: Not set
  .1.. .... = Don't fragment: Set
  ..0. .... = More fragments: Not set
Fragment offset: 0
Time to live: 253
Protocol: UDP (17)
Header checksum: 0x4f95 [validation disabled]
[Header checksum status: Unverified]
Source: 10.47.1.12
Destination: 10.47.1.13
User Datagram Protocol, Src Port: 65354, Dst Port: 4789
Source Port: 65354
Destination Port: 4789
Length: 76
[Checksum: [missing]]
[Checksum Status: Not present]
[Stream index: 0]
[Timestamps]
  [Time since first frame: 15.155511000 seconds]
  [Time since previous frame: 0.006330000 seconds]
Virtual eXtensible Local Area Network
Flags: 0x8800, GBP Extension, VXLAN Network ID (VNI)
  1... .... = GBP Extension: Defined
  .... ..0.. .... = Don't Learn: False
  .... 1... .... = VXLAN Network ID (VNI): True
  .... .... 0... = Policy Applied: False
  .000 .000 0.00 .000 = Reserved(R): 0x0000
Group Policy ID: 0
VXLAN Network Identifier (VNI): 8190 <-- L2 LISP IID

```

```

Reserved: 0
Ethernet II, Src:
52:54:00:19:93:e9
(52:54:00:19:93:e9), Dst:
52:54:00:1e:ad:00
(52:54:00:1e:ad:00)
<--Unicast ARP Request
Destination: 52:54:00:1e:ad:00 (52:54:00:1e:ad:00)
Address: 52:54:00:1e:ad:00 (52:54:00:1e:ad:00)
.... ..1. .... = LG bit: Locally administered address (this is NOT the factory d
.... ..0 .... = IG bit: Individual address (unicast)
Source: 52:54:00:19:93:e9 (52:54:00:19:93:e9)
Address: 52:54:00:19:93:e9 (52:54:00:19:93:e9)
.... ..1. .... = LG bit: Locally administered address (this is NOT the factory d
.... ..0 .... = IG bit: Individual address (unicast)
Type: ARP (
0x0806
)
Trailer: 00000000000000000000000000000000
Address Resolution Protocol (
request
)
Hardware type: Ethernet (1)
Protocol type: IPv4 (0x0800)
Hardware size: 6
Protocol size: 4
Opcode: request (1)
Sender MAC address: 52:54:00:19:93:e9 (52:54:00:19:93:e9)
Sender IP address: 10.47.4.2
Target MAC address: 00:00:00:00:00:00 (00:00:00:00:00:00)
Target IP address: 10.47.4.3

```

10.47.4.2 وحن هل اسرا متو 10.47.4.3 ةطساوب ARP در ءاشنإ مت 9 ةوطخال

<#root>

Edge-2#

show monitor capture 1 buffer display-filter arp brief

Starting the packet display Press Ctrl + Shift + 6 to exit

```

1 0.000000 52:54:00:1e:ad:00 -> 52:54:00:19:93:e9 ARP 60 10.47.4.3 is at 52:54:00:1e:ad:00
2 0.069429 52:54:00:1e:ad:00 -> 52:54:00:19:93:e9 ARP 60 10.47.4.3 is at 52:54:00:1e:ad:00
11 5.960508 52:54:00:1e:ad:00 -> 52:54:00:19:93:e9 ARP 60 Who has 10.47.4.2? Tell 10.47.4.3

```

ناونع ىلإ نكلو (ىلصأل ARP بلطك) ثبل ناونع ىلإ ةمزحل هيچوت متي ال، تقولا اذه ي
ةلمع لىغشت متي، (Edge-2) لخدملا ةفاح ةدقع ىلإ لصت امدنع، 10.47.4.2 ب صخال MAC

Starting the packet display Press Ctrl + Shift + 6 to exit

```
1 0.000000 10.47.4.2 -> 10.47.4.3 ICMP 98 Echo (ping) request id=0x0040, seq=3/768, ttl=64
```

Edge-1#

show monitor capture 1 buffer detail

Starting the packet display Press Ctrl + Shift + 6 to exit

Frame 1: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface /tmp/epc_ws/wif_to_ts_p

```
Interface id: 0 (/tmp/epc_ws/wif_to_ts_pipe)
Interface name: /tmp/epc_ws/wif_to_ts_pipe
Encapsulation type: Ethernet (1)
Arrival Time: Oct 10, 2023 18:21:21.484694000 UTC
[Time shift for this packet: 0.000000000 seconds]
Epoch Time: 1696962081.484694000 seconds
[Time delta from previous captured frame: 0.000000000 seconds]
[Time delta from previous displayed frame: 0.000000000 seconds]
[Time since reference or first frame: 0.000000000 seconds]
Frame Number: 1
Frame Length: 98 bytes (784 bits)
Capture Length: 98 bytes (784 bits)
[Frame is marked: False]
[Frame is ignored: False]
[Protocols in frame: eth:ethertype:ip:icmp:data]
```

Ethernet II, Src:

52:54:00:19:93:e9

(52:54:00:19:93:e9), Dst:

52:54:00:1e:ad:00

(52:54:00:1e:ad:00)

<-- Endpoint MAC, Anycast GW MAC respectively

```
Destination: 52:54:00:1e:ad:00 (52:54:00:1e:ad:00)
Address: 52:54:00:1e:ad:00 (52:54:00:1e:ad:00)
.... ..1. .... = LG bit: Locally administered address (this is NOT the factory default)
.... ...0 .... = IG bit: Individual address (unicast)
Source: 52:54:00:19:93:e9 (52:54:00:19:93:e9)
Address: 52:54:00:19:93:e9 (52:54:00:19:93:e9)
.... ..1. .... = LG bit: Locally administered address (this is NOT the factory default)
.... ...0 .... = IG bit: Individual address (unicast)
Type: IPv4 (0x0800)
```

Internet Protocol Version 4, Src:

10.47.4.2

, Dst:

10.47.4.3

```
0100 .... = Version: 4
.... 0101 = Header Length: 20 bytes (5)
Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)
0000 00.. = Differentiated Services Codepoint: Default (0)
.... ..00 = Explicit Congestion Notification: Not ECN-Capable Transport (0)
Total Length: 84
Identification: 0x7321 (29473)
Flags: 0x4000, Don't fragment
0... .... = Reserved bit: Not set
```

```

    .1.. .... .... .... = Don't fragment: Set
    ..0. .... .... .... = More fragments: Not set
    Fragment offset: 0
    Time to live: 64
    Protocol: ICMP (1)
    Header checksum: 0xab25 [validation disabled]
    [Header checksum status: Unverified]
    Source: 10.47.4.2
    Destination: 10.47.4.3
Internet Control Message Protocol
  Type: 8 (Echo (ping) request)
  Code: 0
  Checksum: 0x02ea [correct]
  [Checksum Status: Good]
  Identifier (BE): 64 (0x0040)
  Identifier (LE): 16384 (0x4000)
  Sequence number (BE): 3 (0x0003)
  Sequence number (LE): 768 (0x0300)
  Data (56 bytes)

```

```

0000  68 95 8c 3d 00 00 00 00 00 00 00 00 00 00 00 00  h..=.....
0010  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ..
0020  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ..
0030  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  ..
      Data: 68958c3d0000000000000000000000000000000000000000b^&
      [Length: 56]

```

10.47.1.13: عقومال دحم لقح يف ةدحمال Edge ةدقع لى | 10.47.4.3 وحن ICMP ةمزل لاسرا متي ةنمضمال ةمزل لطاقتل ربع ةمزل لطاقتل نكمي و (Edge-2).

ليثم يف ثحبال متي، L2 دادتمال نيكمت متي شيح VLAN ةكبش يف ةمزل ل لابقس | عم LISP تترثي:

<#root>

Edge-1#

```
show lisp instance-id 8190 ethernet map-cache 5254.001e.ad00
```

```
LISP MAC Mapping Cache for LISP 0 EID-table Vlan 1026 (IID 8190), 1 entries
```

```
5254.001e.ad00/48, uptime: 00:22:29, expires: 23:37:32, via map-reply, complete
```

```
Sources: map-reply
```

```
State: complete, last modified: 00:22:29, map-source: 10.47.1.13
```

```
Active, Packets out: 42(0 bytes), counters are not accurate (~ 00:00:58 ago)
```

```
Encapsulating dynamic-EID traffic
```

```
Locator      Uptime      State      Pri/Wgt      Encap-IID
```

```
10.47.1.13
```

```
00:22:29 up      10/10      -
```

```
Last up-down state change:      00:22:29, state change count: 1
```

```
Last route reachability change: 00:22:29, state change count: 1
```

```
Last priority / weight change:  never/never
```

```
RLOC-probing loc-status algorithm:
```

```
Last RLOC-probe sent:           00:22:28 (rtt 1609ms)
```

عقوت م وهو، L2LI0 لى لى ريشي هناف، ءءىءب لاءىه نل ءطقنل MAC ناونع نم ققحت

<#root>

Edge-1#

show mac add add 5254.001e.ad00

Mac Address Table

```
-----  
Vlan    Mac Address      Type      Ports  
----    -  
1026    5254.001e.ad00  CP_LEARN  L2LI0  
Total Mac Addresses installed by LISP: REMOTE: 1
```

ءىف اضا تامولعم لى لى لوصحل نكمى، FED فى MAC ناونع صرل

<#root>

Edge-1#

show platform software fed sw active matm macTable vlan 1026 mac 5254.001e.ad00

```
VLAN  MAC                Type Seq#  EC_Bi  Flags
```

machandle

siHandle

riHandle

```
diHandle          *a_time *e_time  ports
```

1026

5254.001e.ad00

```
0x1000001      0      0      64
```

0x7f65ecfdd3a8

0x7f65ecfdd1f8

0x7f65ecfdd048

```
0x0                0      2  RLOC 10.47.1.13 adj_id 97
```

====platform hardware details====

Asic: 0

htm-handle = 0x7f65ecc4d188 MVID = 7 gpn = 1

SI = 0xc7 RI = 0x12 DI = 0x5012

Asic: 1

SI = 0xc7 RI = 0x12 DI = 0x5013

MAC ناووع چلاعم كف

show platform hardware fed switch active fwd-asic traccation print-resource-handle <macHandle> 1

<#root>

Edge-1#

show platform hardware fed switch active fwd-asic abstraction print-resource-handle 0x7f65ecfdd3a8 1

Handle:0x7f65ecfdd3a8 Res-Type:ASIC_RSC_HASH_TCAM Res-Switch-Num:0 Asic-Num:255 Feature-ID:AL_FID_L2_WI
priv_ri/priv_si Handle: (nil)Hardware Indices/Handles: handle [ASIC: 0]: 0x7f65ecc4d188
Features sharing this resource:Cookie length: 12
1e 00 54 52 00 ad 07 80 07 00 00 00

Detailed Resource Information (ASIC_INSTANCE# 0)

Number of HTM Entries: 1

Entry 0: (handle 0x7f65ecc4d188)

Absolute Index: 4706

Time Stamp: 14

KEY -

vlan:7

mac:0x5254001ead00

l3_if:0

gpn:3401

epoch:0 static:0 flood_en:0 vlan_lead_wless_flood_en: 0 client_home_asic: 0 learning_peerid 0, learning
MASK - vlan:0 mac:0x0 l3_if:0 gpn:0 epoch:0 static:0 flood_en:0 vlan_lead_wless_flood_en: 0 client_home
SRC_AD - need_to_learn:0 lrn_v:0 catchall:0 static_mac:0 chain_ptr_v:0 chain_ptr: 0 static_entry_v:0 au
DST_AD - si:0xc7 bridge:0 replicate:0 blk_fwd_o:0 v4_rmac:0 v6_rmac:0 catchall:0 ign_src_lrn:0 port_mas

MAC ناووع ريفشت كف

show platform hardware fed switch active fwd-asic traccation print-resource-handle <siHandle> 1

10.47.1.12 <-- Local RLOC

Dst IP:

10.47.1.13 <-- Remote RLOC

iVxlan dstMac: 0x5254:0x01c:0x7de0
iVxlan srcMac: 0x00:0x00:0x00
IPv4 TTL: 0
iid present: 1
lisp iid: 0
lisp flags: 0
dst Port: 4789
update only l3if: 0
is Sgt: 1
is TTL Prop: 0
L3if LE: 0 (0)
Port LE: 0 (0)
Vlan LE: 7 (0)

ASIC#:1 RI:18 Rewrite_type:AL_RRM_REWRITE_L2_PAYLOAD_L2LISP_ENCAP(115) Mapped_rii:LVX_L2_ENCAP_L2_PAYLOAD
Src IP:

10.47.1.12 <-- Local RLOC

Dst IP:

10.47.1.13 <-- Remote RLOC

iVxlan dstMac: 0x5254:0x01c:0x7de0
iVxlan srcMac: 0x00:0x00:0x00
IPv4 TTL: 0
iid present: 1
lisp iid: 0
lisp flags: 0
dst Port: 4789
update only l3if: 0
is Sgt: 1
is TTL Prop: 0
L3if LE: 0 (0)
Port LE: 0 (0)
Vlan LE: 7 (0)

ةهجولا سرهف زيمرت ك ف

دروم fwd-asic طشن حاتفم show platform hardware fed رمأل ا يف لمعتساو (0x5012) ل ا ذخ
ك <di> <di> دم index-ةي ا ل ك

<#root>

Edge-1#

show platform hardware fed switch active fwd-asic resource ASIC all destination-index range 0x5012 0x5012

ASIC#0:

Destination index = 0x5012

DI_RCP_PORT1 <-- Recirculation port for VXLAN imposition

Dst IP:

10.47.1.13 <-- Remote RLOC

iVxlan dstMac: 0x610:0x00:0x00
iVxlan srcMac: 0x00:0x00:0x00
IPv4 TTL: 0
iid present: 1
lisp iid: 0
lisp flags: 0
dst Port: 4789
update only l3if: 0
is Sgt: 1
is TTL Prop: 0
L3if LE: 0 (0)
Port LE: 279 (0)
Vlan LE: 7 (0)

Detailed Resource Information (ASIC_INSTANCE# 1)

ASIC#:1 RI:18 Rewrite_type:AL_RRM_REWRITE_L2_PAYLOAD_L2LISP_ENCAP(115) Mapped_rii:LVX_L2_ENCAP_L2_PAYLOAD
Src IP:

10.47.1.12 <-- Local RLOC

Dst IP:

10.47.1.13 <-- Remote RLOC

iVxlan dstMac: 0x610:0x00:0x00
iVxlan srcMac: 0x00:0x00:0x00
IPv4 TTL: 0
iid present: 1
lisp iid: 0
lisp flags: 0
dst Port: 4789
update only l3if: 0
is Sgt: 1
is TTL Prop: 0
L3if LE: 0 (0)
Port LE: 279 (0)
Vlan LE: 7 (0)

=====

يلفسل راسملا نم ققحتلا

وردقلا اهل و 10.47.1.12 مادختساب IID 8190 عم VXLAN ةكبش يف رورملا ةكرح نيمضت متي
Gig1/0/1 و G1/0/2 جراخ لامأل ةنزواتم نوكت نأ يلع

<#root>

Edge-1#

show ip route 10.47.1.13

Routing entry for 10.47.1.13/32

```
Known via "isis", distance 115, metric 30, type level-2
Redistributing via isis
Last update from 10.47.1.4 on GigabitEthernet1/0/2, 2d22h ago
Routing Descriptor Blocks:
  10.47.1.4, from 10.47.1.13, 2d22h ago, via GigabitEthernet1/0/2
    Route metric is 30, traffic share count is 1
  * 10.47.1.0, from 10.47.1.13, 2d22h ago, via GigabitEthernet1/0/1
    Route metric is 30, traffic share count is 1
```

Edge-1#

```
show ip cef 10.47.1.13
```

```
10.47.1.13/32
  nexthop 10.47.1.0 GigabitEthernet1/0/1
  nexthop 10.47.1.4 GigabitEthernet1/0/2
```

show platform software fed switch active ip adj
adj

<#root>

Edge-1#

```
show platform software fed switch active ip adj
```

IPV4 Adj entries	if_name	dst_mac	si_hdl	r
dest	if_name	dst_mac	si_hdl	r
-----	-----	-----	-----	-
225.0.0.0	GigabitEthernet1/0/1	0100.5e00.0000	0x7f65ec958128	0x
10.47.1.10	LISPO.4100	4500.0000.0000	0x7f65ec895ed8	0x
225.0.0.0	GigabitEthernet1/0/2	0100.5e00.0000	0x7f65ec958f68	0x
10.47.1.4	GigabitEthernet1/0/2	5254.001c.7de0	0x7f65ec8a5458	0x
225.0.0.0	Null0	f800.0011.0000	0x7f65ec3740c8	0x
10.47.1.0	GigabitEthernet1/0/1	5254.000a.42f3	0x7f65ec8b8468	0x

SI_HDL ةوطلال زيمرت ك

```
show platform hardware fed switch active fwd-asic abstraction print-resource-handle <si_hdl> 1
```

<#root>

Edge-1#

```
show platform hardware fed switch active fwd-asic abstraction print-resource-handle 0x7f65ec8a5458 1
```

```
Handle:0x7f65ec8a5458 Res-Type:ASIC_RSC_SI Res-Switch-Num:255 Asic-Num:255 Feature-ID:AL_FID_L3_UNICAST.
priv_ri/priv_si Handle: 0x7f65ec8a4eb8Hardware Indices/Handles: index0:0xbc mtu_index/13u_ri_index0:0x
Features sharing this resource:66 (1)]
Cookie length: 56
```

00 00 00 00 00 00 00 00 26 00 00 00 00 00 00 00 00 00 00 00 08 00 52 54 00 1c 7d e0 00 00 00 00 00 00 00

Detailed Resource Information (ASIC_INSTANCE# 0)

Station Index (SI) [0xbc] -----> Contains RI and DI information

RI = 0x1a -----> Rewrite Index = MAC address rewrite information for L3 forwarding to the ne

DI = 0x526d -----> Destination Index = Outgoing Interface

stationTableGenericLabel = 0

stationFdConstructionLabel = 0x7

lookupSkipIdIndex = 0

rcpServiceId = 0

dejaVuPreCheckEn = 0

Replication Bitmap: LD -----> Local Data, indicating that this ASIC is directly connected to the

Detailed Resource Information (ASIC_INSTANCE# 1)

Station Index (SI) [0xbc] -----> Contains RI and DI information

RI = 0x1a -----> Rewrite Index = MAC address rewrite information for L3 forwarding to the ne

DI = 0x526d -----> Destination Index = Outgoing Interface

stationTableGenericLabel = 0

stationFdConstructionLabel = 0x7

lookupSkipIdIndex = 0

rcpServiceId = 0

dejaVuPreCheckEn = 0

Replication Bitmap: CD -----> Core Data, indicating that this instance of the ASIC is on the same

=====

تحت قيادات الة و طخل الة بات ك الة اداع | سره ف ريف شت ك ف

show platform hardware fed م ا ل ا ي ف م ا د خ ت س | RI (0x1a) زي مرت ك ف ل fwd-asic ط ش ن ح ا ت ف م <RI> <RI> ي د م <RI> <RI> ع ي م ج د ر و م

<#root>

Edge-1#

show platform hardware fed switch active fwd-asic resource ASIC all rewrite-index range 0x1a 0x1a

ASIC#:0

RI:26

Rewrite_type:AL_RRM_REWRITE_L3_UNICAST_IPV4_SHARED(1) Mapped_rii:L3_UNICAST_IPV4(9)

-----> Decimal 26 is hex 0x1a

MAC Addr: MAC Addr: 52:54:00:1c:7d:e0,

-----> MAC address 5254.001c.7de0 for the next-hop adjacency

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ASIC#:1 RI:26 Rewrite_type:AL_RRM_REWRITE_L3_UNICAST_IPV4_SHARED(1) Mapped_rii:L3_UNICAST_IPV4(9)

MAC Addr: MAC Addr: 52:54:00:1c:7d:e0,

-----> MAC address 5254.001c.7de0 for the next-hop adjacency

تحت ةيالات ال ةوطخل ال ةهجو سرهف ريفشت ك ف

ردصم ل طاشن طاشن حات فم ةيذغت زا هج show platform في مادختسا | DI (0x526d) زيمرت ك فل
FWD-asic <di> </di> دم -index- ةياغ ل ك

<#root>

Edge-1#

```
show platform hardware fed switch active fwd-asic resource ASIC all destination-index range 0x526d 0x526d
```

ASIC#0:

Destination index = 0x526d

pmap = 0x00000000 0x00000002 <-- Convert decimal 2 to binary, which is 0010. Count this

pmap_intf : [GigabitEthernet1/0/2]

cmi = 0x0

rcp_pmap = 0x0

al_rsc_cmi

CPU Map Index (CMI) [0]

ctiLo0 = 0

ctiLo1 = 0

ctiLo2 = 0

cpuQNum0 = 0

cpuQNum1 = 0

cpuQNum2 = 0

npuIndex = 0

stripSeg = 0

copySeg = 0

ASIC#1:

Destination index = 0x526d

pmap = 0x00000000 0x00000000

cmi = 0x0

rcp_pmap = 0x0

al_rsc_cmi

CPU Map Index (CMI) [0]

ctiLo0 = 0

ctiLo1 = 0

ctiLo2 = 0

cpuQNum0 = 0

cpuQNum1 = 0

cpuQNum2 = 0

npuIndex = 0

stripSeg = 0

copySeg = 0

Edge-1#

```
show platform software fed switch active ifm mappings
```

Interface	IF_ID	Inst	Asic	Core
-----------	-------	------	------	------

Port

SubPort	Mac	Cntx	LPN	GPN	Type	Active
---------	-----	------	-----	-----	------	--------


```

GigabitEthernet1/0/1      0x1a      0  0  0  0      0      1  0  1  1      NIF Y
GigabitEthernet1/0/2
  0x1b      0  0  0
1
  0      2  1  2  2      NIF Y
<-- Port 1 lines up to G1/0/2
GigabitEthernet1/0/3      0xb       0  0  0  2      0      3  2  3  3      NIF Y
GigabitEthernet1/0/4      0xc       0  0  0  3      0      4  3  4  4      NIF Y
GigabitEthernet1/0/5      0xd       0  0  0  4      0      5  4  5  5      NIF Y
GigabitEthernet1/0/6      0xe       0  0  0  5      0      6  5  6  6      NIF Y
GigabitEthernet1/0/7      0xf       0  0  0  6      0      7  6  7  7      NIF Y
GigabitEthernet1/0/8      0x10      0  0  0  7      0      8  7  8  8      NIF Y

```

ri_hdl ةوخلال زيمرت ك ف

مت يذلا يساسأل ماظنللا زاهج ضرع يف (0x7f65ec8a4eb8) RI_HDL مادختسا زيمرت كفل
 1 (ri_hdl) ةجالعام-دروم-ةعابط FWD-ASIC دي رجت لىل عمي طشن طشن لوح مبهت يذغت

<#root>

Edge-1#

show platform hardware fed switch active fwd-asic abstraction print-resource-handle 0x7f65ec8a4eb8 1

```

Handle:0x7f65ec8a4eb8 Res-Type:ASIC_RSC_RI Res-Switch-Num:255 Asic-Num:255 Feature-ID:AL_FID_L3_UNICAST
priv_ri/priv_si Handle: 0x7f65ec903b28Hardware Indices/Handles: index0:0x1a mtu_index/13u_ri_index0:0x
Features sharing this resource:66 (1)
Cookie length: 56
00 00 00 00 00 00 00 00 26 00 00 00 00 00 00 00 00 00 00 08 00 52 54 00 1c 7d e0 00 00 00 00 00 00

```

Detailed Resource Information (ASIC_INSTANCE# 0)

 ASIC#:0

RI:26

Rewrite_type:AL_RRM_REWRITE_L3_UNICAST_IPV4_SHARED(1) Mapped_rii:L3_UNICAST_IPV4(9)

<-- Decimal 26 is 0x1a in hex

MAC Addr: MAC Addr:

52:54:00:1c:7d:e0

,

<-- MAC address 5254.001c.7de0 for the next-hop adjacency

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Detailed Resource Information (ASIC_INSTANCE# 1)

 ASIC#:1

RI:26

Rewrite_type:AL_RRM_REWRITE_L3_UNICAST_IPV4_SHARED(1) Mapped_rii:L3_UNICAST_IPV4(9)

<-- Decimal 26 is 0x1a in hex

MAC Addr: MAC Addr:

52:54:00:1c:7d:e0

' MAC Addr: MAC Addr:

52:54:00:1c:7d:e0

'

<-- MAC address 5254.001c.7de0 for the next-hop adjacency

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=====

SDA ةينب ي ةيساسأل فيضم لى لوصول ةينالك م (اهس فن VN ةكبش / ةفلتخم ل VLAN ت اكبش)

بستني فيضم اذه نأ امب 10.47.10.2 و 10.47.4.2 نيب لاصتال صحتف يرحي، مسقلا اذه يفو ريصقت لى لريشي نأ لكشي gateway-ريصقت ىقلتى نأ جاتحي الك، فلتخم VLANs لى لى 10.47.10.1 و 10.47.10.2 و 10.47.4.1 و 10.47.4.2 ل لخدم

لعمي ةيضارتفال ةبوابل او ةياهن ل ةطقن نيب لاصتال نأ ديكأت 1. ةوطخل:

<#root>

Edge-1#

ping vrf red_vn 10.47.4.2

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 10.47.4.2, timeout is 2 seconds:

!!!!

Success rate is 100 percent (5/5), round-trip min/avg/max = 155/164/181 ms

<#root>

Edge-2#

ping vrf red_vn 10.47.10.1

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 10.47.10.1, timeout is 2 seconds:

!!!!

Success rate is 100 percent (5/5), round-trip min/avg/max = 41/46/62 ms

Edge-1: ةطساوب حاجنب 10.47.4.2 نم ةمزال يقلت نم دكأت 2. ةوطخال

10.47.4.2: هجاوت يتلا لوخدلا هجاو لىع ةمزال طاقتلا نكمي

<#root>

Edge-1#

monitor capture 1 interface g1/0/3 in match any

Edge-1#

mon cap 1 start

Started capture point : 1

Edge-1#

mon cap 1 stop

Capture statistics collected at software:

Capture duration - 12 seconds

Packets received - 9

Packets dropped - 0

Packets oversized - 0

Number of Bytes dropped at ASIC not collected

Capture buffer will exist till exported or cleared

Stopped capture point : 1

Edge-1#

show monitor capture 1 buffer brief

Starting the packet display Press Ctrl + Shift + 6 to exit

1	0.000000	10.47.4.2 -> 10.47.10.2	ICMP 98 Echo (ping) request	id=0x0041, seq=0/0, ttl=64
2	0.023447	10.47.4.2 -> 10.47.10.2	ICMP 98 Echo (ping) request	id=0x0041, seq=0/0, ttl=64

Edge-1#

show monitor capture 1 buffer detailed

Starting the packet display Press Ctrl + Shift + 6 to exit

Frame 1: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface /tmp/epc_ws/wif_to_ts_p

Interface id: 0 (/tmp/epc_ws/wif_to_ts_pipe)

Interface name: /tmp/epc_ws/wif_to_ts_pipe

Encapsulation type: Ethernet (1)

Arrival Time: Oct 11, 2023 15:27:46.033825000 UTC

[Time shift for this packet: 0.000000000 seconds]

Epoch Time: 1697038066.033825000 seconds

[Time delta from previous captured frame: 0.000000000 seconds]

[Time delta from previous displayed frame: 0.000000000 seconds]

[Time since reference or first frame: 0.000000000 seconds]

Frame Number: 1

Frame Length: 98 bytes (784 bits)

Capture Length: 98 bytes (784 bits)

[Frame is marked: False]

[Length: 56]

LISP ثحب - 3 ةوطخال

هذه في امك. مزحلا هيل لسرت يذلا 03-فيضملا (RLOC) عقوم لخدملا ةفاح ةدقع ددحت نأ بجي (نومدختسملا: VN / VRF هسفن ل نكلو) ةفلتخم VLAN ةكبش في 03-فيضملا، ةلحال (يمتنني MAC ناونع) IP ناونع لى دنسني ثحبل نأ ثيح LISP نم IPv4 ليثم مادختسا متي (اهسفن ةفاحلا ةدقع لى).

<#root>

Edge-1#

```
debug lisp control-plane all
```

```
LISP[REMT ]-0: Map Request: Sending request for IID 4099 EID 10.47.10.2/32, requester 'remote EID prefix'
```

```
LISP[REMT ]-0: Map-Reply nonce matches pending request for IID 4099 EID 10.47.10.2/32, requester 'remote EID prefix'
```

border-1: LISP ةطيرخ مداخ) مكحتلا ةدقع لى لى LISP ةطيرخ بلط ل لصي

<#root>

Border-1#

```
debug lisp control-plane all
```

```
LISP[TRNSP]-0: Processing received Map-Request(1) message on GigabitEthernet1/0/3 from 10.47.10.2:4342
```

```
LISP[MR ]-0: Received Map-Request with 1 records, first EID IID 4099 10.47.10.2/32, source EID 10.47.10.2/32
```

```
LISP[MR ]-0 IID 4099 IPv4: MS EID 10.47.10.2/32: Sending proxy reply to 10.47.1.12.
```

ةفاحلا ةدقع لى لى LISP ةطيرخ در لصي:

```
LISP[REMT ]-0: Processing Map-Reply mapping record for IID 4099 IPv4 10.47.10.2/32 LCAF 2, ttl 1440, ac
```

```
LISP[REMT ]-0: Processing mapping information for EID prefix IID 4099 10.47.10.2/32.
```

درلا-ةطيرخال جلاعوي و 10.47.10.2 ل RLOC ل Fabric Edge ملعتسي

```
LISP[REMT ]-0: Map Request: Sending request for IID 4099 EID 10.47.10.2/32, requester 'remote EID RLOC'
```

```
LISP[REMT ]-0: Processing Map-Reply mapping record for IID 4099 IPv4 10.47.10.2/32 LCAF 2, ttl 1440, ac
```

```
LISP[REMT ]-0: Processing mapping information for EID prefix IID 4099 10.47.10.2/32.
```

ةادا اضيا كانه. LISP ةي لمع روظنم نم عاطخال حي حصت عي مجت بجي، لاخل دوجو مدع ةلح في

ة قيرط هذه) ايودي LISP ة ليمع ليغش تل اهم ادختس ا نكمي يتل او (LISP Grouper) LIG يمست
الك نيب تانايب ال ة دعاق قسانتو ة رركم ال م كحتل ة دقع نيوك ت رابت خال ة يغلل ة لاعف
(م كحتل ا يتدقع

<#root>

Edge-1#

```
lig instance-id 4099 10.47.10.2 to 10.47.1.10
```

```
Mapping information for EID 10.47.10.2 from 10.47.1.10 with RTT 334 msec
10.47.10.2/32, uptime: 00:00:00, expires: 23:59:59, via map-reply, complete
Locator      Uptime      State  Pri/Wgt      Encap-IID
10.47.1.13  00:00:00   up     10/10        -
```

Edge-1#

```
lig instance-id 4099 10.47.10.2 to 10.47.1.11
```

```
Mapping information for EID 10.47.10.2 from 10.47.1.11 with RTT 327 msec
10.47.10.2/32, uptime: 00:00:06, expires: 23:59:59, via map-reply, complete
Locator      Uptime      State  Pri/Wgt      Encap-IID
10.47.1.13  00:00:06   up     10/10        -
```

راسم ال نم ققحتل

هتيقلت يذلا ة طيرخلل تقؤم ال نيختل ة ركاذ لاخذ ا LISP مدختستو، CEF LISP مدختست

<#root>

Edge-1#

```
show ip cef vrf red_vn 10.47.10.2
```

```
10.47.10.2/32
  nexthop 10.47.1.13 LISP0.4099
```

Edge-1#

```
show ip route 10.47.1.13
```

```
Routing entry for 10.47.1.13/32
  Known via "isis", distance 115, metric 30, type level-2
  Redistributing via isis
  Last update from 10.47.1.4 on GigabitEthernet1/0/2, 3d19h ago
  Routing Descriptor Blocks:
    10.47.1.4, from 10.47.1.13, 3d19h ago, via GigabitEthernet1/0/2
      Route metric is 30, traffic share count is 1
    * 10.47.1.0, from 10.47.1.13, 3d19h ago, via GigabitEthernet1/0/1
      Route metric is 30, traffic share count is 1
```

Edge-1#

```
show lisp instance-id 4099 ipv4 map-cache 10.47.10.2
```

```
LISP IPv4 Mapping Cache for LISP 0 EID-table vrf red_vn (IID 4099), 1 entries
```

10.47.10.2

```
/32, uptime: 00:08:48, expires: 23:51:17, via map-reply, complete
Sources: map-reply
State: complete, last modified: 00:08:48, map-source: 10.47.1.11
Active, Packets out: 51(29376 bytes), counters are not accurate (~ 00:00:15 ago)
Encapsulating dynamic-EID traffic
Locator      Uptime      State  Pri/Wgt      Encap-IID
```

10.47.1.13

```
00:08:48 up      10/10      -
Last up-down state change:      00:08:48, state change count: 1
Last route reachability change:  22:07:12, state change count: 1
Last priority / weight change:   never/never
RLOC-probing loc-status algorithm:
Last RLOC-probe sent:           00:08:48 (rtt 931ms)
```

نم ققحتال LISP Next-Hop

show رمأل مدختسأ. عقي نأ جاتحي ةوطخ دعب LISP ل ن م قيقدت ، فلغي VXLAN طبر اذه نأ امب
platform software fed switch active ip adj لوصحلل ل 10.47.1.13، ةيفاضا تامولعم ل
LISP ل ةيلاتال ةوطخال

<#root>

Edge-1#

```
show platform software fed switch active ip adj
```

IPV4 Adj entries

dest	if_name	dst_mac	si_hdl	r
10.47.1.10	LISP0.4100	4500.0000.0000	0x7f65ec895ed8	0
10.47.1.4	GigabitEthernet1/0/2	5254.001c.7de0	0x7f65ec8a5458	0
10.47.1.0	GigabitEthernet1/0/1	5254.000a.42f3	0x7f65ec8b8468	0
10.47.4.2	Vlan1026	5254.0019.93e9	0x7f65ec7c21f8	0
10.47.1.13	LISP0.4099	4500.0000.0000	0x7f65ed00f668	0

ري فشت ك ف LISP Next-Hop si_hdl

show platform hardware fed switch active fwd-asic abstraction print-resource-handle <si_hdl> 1
م عم لاماعتال كنكمري

<#root>

Edge-1#

```
show platform hardware fed switch active fwd-asic abstraction print-resource-handle 0x7f65ed00f668 1
```

Handle:0x7f65ed00f668 Res-Type:ASIC_RSC_SI Res-Switch-Num:255 Asic-Num:255 Feature-ID:AL_FID_LISP Lkp-f
priv_ri/priv_si Handle: 0x7f65ed00fd58Hardware Indices/Handles: index0:0xc8 mtu_index/13u_ri_index0:0x
Features sharing this resource:109 (1)
Cookie length: 56
00 00 00 00 00 00 00 00 38 5f 84 ec 0a 2f 01 0d ff ff ff ff 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

Detailed Resource Information (ASIC_INSTANCE# 0)

Station Index (SI) [0xc8] <-- Contains the RI and DI
RI = 0x2c <-- Rewrite Index contains information for L3 Forwarding
DI = 0x5012 <-- Destination Index contains information for the destination port

stationTableGenericLabel = 0
stationFdConstructionLabel = 0x7
lookupSkipIdIndex = 0xc
rcpServiceId = 0
dejaVuPreCheckEn = 0
Replication Bitmap: LD

Detailed Resource Information (ASIC_INSTANCE# 1)

Station Index (SI) [0xc8] <-- Contains the RI and DI
RI = 0x2c <-- Rewrite Index contains information for L3 Forwarding
DI = 0x5013 <-- Destination Index contains information for the destination port

stationTableGenericLabel = 0
stationFdConstructionLabel = 0x7
lookupSkipIdIndex = 0xc
rcpServiceId = 0
dejaVuPreCheckEn = 0
Replication Bitmap: LD

=====

LISP Next-Hop RI زيمرت ك ف

ل ك FWD-ASIC دروم طاشن حات فم ةي ذغت زا هج ةصنم ضرع ي ف لمعت ساو RI (0x2c) مدخت سا
rewrite-index دم ي <RI> <RI>

<#root>

Edge-1#

show platform hardware fed switch active fwd-asic resource asic all rewrite-index range 0x2c 0x2c

ASIC#:0 RI:44 Rewrite_type:AL_RRM_REWRITE_IPV4_VXLAN_INNER_IPV4_ENCAP(110) Mapped_rii:LVX_L3_ENCAP_L2_P
Dst Mac: MAC Addr: ba:25:cd:f4:ad:38,
Src IP:

10.47.1.12 <-- Local RLOC

Dst IP:

10.47.1.13 <-- RLOC of Edge-2


```
IPv4 TTL:      0
LISP INSTANCEID:  0
L3IF LE Index:  46
```

```
ASIC#:1 RI:44 Rewrite_type:AL_RRM_REWRITE_IPV4_VXLAN_INNER_IPV4_ENCAP(110) Mapped_rii:LVX_L3_ENCAP_L2_P
Dst Mac:      MAC Addr: ba:25:cd:f4:ad:38,
Src IP:
```

```
10.47.1.12 <-- Local RLOC
```

```
Dst IP:
```

```
10.47.1.13 <-- RLOC of Edge-2
```

```
IPv4 TTL:      0
LISP INSTANCEID:  0
L3IF LE Index:  46
```

LISP Next-Hop di ريفشت ك ف

ة-يغ ل ك FWD-asic دروم طشن حاتفم ةيذغت زاهج ةصنم ضرع يف لمعتساو (0x5012) DI ل ا ذخ
<DI> <DI> دم ةسرهف

<#root>

Edge-1#

```
show platform hardware fed switch active fwd-asic resource ASIC all destination-index range 0x5012 0x5012
```

ASIC#0:

```
Destination index = 0x5012
```

```
DI_RCP_PORT1 <-- Expected, this means the packet is recirculated for VXLAN imposition
```

```
pmap          = 0x00000000 0x00000000
cmi           = 0x0
rcp_pmap      = 0x1
al_rsc_cmi
CPU Map Index (CMI) [0]
ctiLo0       = 0
ctiLo1       = 0
ctiLo2       = 0
cpuQNum0     = 0
cpuQNum1     = 0
cpuQNum2     = 0
npuIndex     = 0
stripSeg     = 0
copySeg      = 0
ASIC#1:
```

```
Destination index = 0x5012
```

```
DI_RCP_PORT1 <-- Expected, this means the packet is recirculated for VXLAN imposition
```

```
pmap          = 0x00000000 0x00000000
cmi           = 0x0
rcp_pmap      = 0x0
```



```
IPv4 TTL:      0
LISP INSTANCEID:  0
L3IF LE Index:  46
```

=====

ةيالاتلا ةوطخلال نم ققحتلال نيمضت

ققحتلال ثدحي، لفسلا ءجلا يف نيلم تحت م نيراسم كانه، LISP Next-hop لى لوصول
ةيالاتلا ةوطخلال نراق ي ناثلال نم ققحتلال يف قبطي قطنم ل سفن، دحاول

<#root>

Edge-1#

```
show ip route 10.47.1.13
```

```
Routing entry for 10.47.1.13/32
  Known via "isis", distance 115, metric 30, type level-2
  Redistributing via isis
  Last update from 10.47.1.4 on GigabitEthernet1/0/2, 3d19h ago
  Routing Descriptor Blocks:
```

10.47.1.4

```
, from 10.47.1.13, 3d19h ago, via GigabitEthernet1/0/2
  Route metric is 30, traffic share count is 1
  *
```

10.47.1.0

```
, from 10.47.1.13, 3d19h ago, via GigabitEthernet1/0/1
  Route metric is 30, traffic share count is 1
```

show platform software م دختسأ، ةيالاتلا تاوطخلال لوح تامولعملال نم ديزم لىل لوصول
software software لىتلا م ت يذغت م ت ي ip adj طشن

<#root>

Edge-1#

```
show platform software fed switch active ip adj
```

```
IPV4 Adj entries
dest          if_name          dst_mac          si_hdl          r
-----          -
10.47.1.4     GigabitEthernet1/0/2  5254.001c.7de0  0x7f65ec8a5458  0x
10.47.1.0     GigabitEthernet1/0/1  5254.000a.42f3  0x7f65ec8b8468  0x
```

<snip>

SI_HDL الة لال ؤوطخال زيمرت ك ف

show platform hardware fed switch active fwd-asic abstraction print-resource-handle <si_hdl> 1
م ل ماع تال ك ن ك م ي
او (0x7f65ec8a5458) si_hdl عم ل ماع تال ك ن ك م ي

<#root>

Edge-1#

show platform hardware fed switch active fwd-asic abstraction print-resource-handle 0x7f65ec8a5458 1

Handle:0x7f65ec8a5458 Res-Type:ASIC_RSC_SI Res-Switch-Num:255 Asic-Num:255 Feature-ID:AL_FID_L3_UNICAST.
priv_ri/priv_si Handle: 0x7f65ec8a4eb8Hardware Indices/Handles: index0:0xbc mtu_index/13u_ri_index0:0x
Features sharing this resource:66 (1)]

Cookie length: 56

00 00 00 00 00 00 00 00 26 00 00 00 00 00 00 00 00 00 00 00 08 00 52 54 00 1c 7d e0 00 00 00 00 00 00 00 00

Detailed Resource Information (ASIC_INSTANCE# 0)

Station Index (SI) [0xbc] <-- Contains the RI and DI

RI = 0x1a <-- Rewrite index contains information for L3 Forwarding

DI = 0x526d <-- Destination index contains information for the destination port

stationTableGenericLabel = 0

stationFdConstructionLabel = 0x7

lookupSkipIdIndex = 0

rcpServiceId = 0

dejaVuPreCheckEn = 0

Replication Bitmap: LD

Detailed Resource Information (ASIC_INSTANCE# 1)

Station Index (SI) [0xbc] <-- Contains the RI and DI

RI = 0x1a <-- Rewrite index contains information for L3 Forwarding

DI = 0x526d <-- Destination index contains information for the destination port

stationTableGenericLabel = 0

stationFdConstructionLabel = 0x7

lookupSkipIdIndex = 0

rcpServiceId = 0

dejaVuPreCheckEn = 0

Replication Bitmap: CD

RI ل ؤ لال ؤوطخال ري ف ش ت ك ف

show platform hardware fed fwd-asic طاشن حات ف م
او (0x1a) RI ل ذ خ
<RI> <RI> م ي دم

<#root>

Edge-1#

```
show platform hardware fed switch active fwd-asic resource asic all rewrite-index range 0x1a 0x1a
```

ASIC#:0

RI:26

Rewrite_type:AL_RRM_REWRITE_L3_UNICAST_IPV4_SHARED(1) Mapped_rii:L3_UNICAST_IPV4(9)

<-- Decimal 26 is hex 0x1a

MAC Addr: MAC Addr:

52:54:00:1c:7d:e0

,

<-- MAC Address 5254.001c.7de0 corresponds to the next-hop

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ASIC#:1

RI:26

Rewrite_type:AL_RRM_REWRITE_L3_UNICAST_IPV4_SHARED(1) Mapped_rii:L3_UNICAST_IPV4(9)

<-- Decimal 26 is hex 0x1a

MAC Addr: MAC Addr:

52:54:00:1c:7d:e0

,

<-- MAC Address 5254.001c.7de0 corresponds to the next-hop

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Underlay ل ة ل ل ة و ط خ ل ل ر ي ف ش ت ك ف

د ر و م fwd-asic ط ش ن ح ا ت ف م show platform hardware fed ر م أ ل ي ف ل م ع ت س ا و (0x526d) ل ل د خ
<di> <di> د م -index ة ي ا غ ل ك

<#root>

Edge-1#

```
show platform hardware fed switch active fwd-asic resource asic all destination-index range 0x526d 0x526d
```

ASIC#0:

Destination index = 0x526d

pmap = 0x00000000 0x00000002 <-- Take decimal 2 and convert to binary, so 0010, and then

pmap_intf : [GigabitEthernet1/0/2]

cmi = 0x0

rcp_pmap = 0x0

al_rsc_cmi

CPU Map Index (CMI) [0]

```

ctiLo0          = 0
ctiLo1          = 0
ctiLo2          = 0
cpuQNum0        = 0
cpuQNum1        = 0
cpuQNum2        = 0
npuIndex        = 0
stripSeg        = 0
copySeg         = 0
ASIC#1:

```

```
Destination index = 0x526d
```

```
pmap            = 0x00000000 0x00000000
```

```

cmi              = 0x0
rcp_pmap         = 0x0
al_rsc_cmi
CPU Map Index (CMI) [0]
ctiLo0          = 0
ctiLo1          = 0
ctiLo2          = 0
cpuQNum0        = 0
cpuQNum1        = 0
cpuQNum2        = 0
npuIndex        = 0
stripSeg        = 0
copySeg         = 0

```

Edge-1#

```
show platform software fed switch active ifm mappings
```

Interface	IF_ID	Inst	Asic	Core										
Port														
	SubPort	Mac	Cntx	LPN	GPN	Type	Active							
GigabitEthernet1/0/1	0x1a		0	0	0	0	0	0	1	0	1	1	NIF	Y
GigabitEthernet1/0/2														
	0x1b		0	0	0									
1														
	0		2	1	2	2			NIF	Y				
<-- Port 1 maps to Gig1/0/2														
GigabitEthernet1/0/3	0xb		0	0	0	2	0	3	2	3	3		NIF	Y
GigabitEthernet1/0/4	0xc		0	0	0	3	0	4	3	4	4		NIF	Y
GigabitEthernet1/0/5	0xd		0	0	0	4	0	5	4	5	5		NIF	Y
GigabitEthernet1/0/6	0xe		0	0	0	5	0	6	5	6	6		NIF	Y
GigabitEthernet1/0/7	0xf		0	0	0	6	0	7	6	7	7		NIF	Y
GigabitEthernet1/0/8	0x10		0	0	0	7	0	8	7	8	8		NIF	Y

ri_hdl ةيولات ال ةوطخال زيمرت ك

حافاتم show platform hardware fed رمأل ي ف لمعتساو (0x7f65ec8b8158) ال ذخأب مق
 fwd-asic طشن <ri_hdl> 1-ةرابة resource-handle دي رجت

<#root>

Edge-1#

show platform hardware fed switch active fwd-asic abstraction print-resource-handle 0x7f65ec8b8158 1

Handle:0x7f65ec8b8158 Res-Type:ASIC_RSC_RI Res-Switch-Num:255 Asic-Num:255 Feature-ID:AL_FID_L3_UNICAST.
priv_ri/priv_si Handle: 0x7f65ec7a6338Hardware Indices/Handles: index0:0x1b mtu_index/13u_ri_index0:0x
Features sharing this resource:66 (1)]
Cookie length: 56
00 00 00 00 00 00 00 00 25 00 00 00 00 00 00 00 00 00 00 00 08 00 52 54 00 0a 42 f3 00 00 00 00 00 00 00 00

Detailed Resource Information (ASIC_INSTANCE# 0)

ASIC#:0 RI:27 Rewrite_type:AL_RRM_REWRITE_L3_UNICAST_IPV4_SHARED(1) Mapped_rii:L3_UNICAST_IPV4(9)
MAC Addr: MAC Addr:

52:54:00:0a:42:f3

,
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Detailed Resource Information (ASIC_INSTANCE# 1)

ASIC#:1 RI:27 Rewrite_type:AL_RRM_REWRITE_L3_UNICAST_IPV4_SHARED(1) Mapped_rii:L3_UNICAST_IPV4(9)
MAC Addr: MAC Addr:

52:54:00:0a:42:f3

,
L3IF LE Index 37

=====

نك مي . لامحلأا ةنزوم دعاوق ىلإ ادانتسا اهل اسراو VXLAN ةكبش يف مزحلل نيمضت متي
تاهجاولا عيمج ىلع تانايبلا رورم ةكرح طاقتلال (EPC) ةنمضمل ةمزحلل طاقتلال مادختسا
يفغبني حشرم EPC ل، نمضم VXLAN يه ةمزحلل نأ ةطقنللهذه دنع ركذت . تقولل سفن يف
. ناونع IPv4 يلىلخاد ال ، RLOC لىل RLOC لباقم تنك

<#root>

Edge-1#

monitor capture 1 interface range g1/0/1-2 out match ipv4 host 10.47.1.12 host 10.47.1.13

Edge-1#

monitor capture 1 start

Started capture point : 1

Edge-1#

Edge-1#

monitor capture 1 stop

Capture statistics collected at software:

Capture duration - 18 seconds
Packets received - 4
Packets dropped - 0
Packets oversized - 0

Number of Bytes dropped at asic not collected

Capture buffer will exist till exported or cleared

Stopped capture point : 1

Edge-1#

show monitor capture 1 buffer brief

Starting the packet display Press Ctrl + Shift + 6 to exit

1	0.000000	10.47.4.2	->	10.47.10.2	ICMP 148 Echo (ping) request	id=0x0046, seq=0/0, ttl=63
2	0.980849	10.47.4.2	->	10.47.10.2	ICMP 148 Echo (ping) request	id=0x0046, seq=1/256, ttl=63
3	1.984077	10.47.4.2	->	10.47.10.2	ICMP 148 Echo (ping) request	id=0x0046, seq=2/512, ttl=63
4	2.999989	10.47.4.2	->	10.47.10.2	ICMP 148 Echo (ping) request	id=0x0046, seq=3/768, ttl=63

Edge-1#

show monitor capture 1 buffer detailed

Starting the packet display Press Ctrl + Shift + 6 to exit

Frame 1: 148 bytes on wire (1184 bits), 148 bytes captured (1184 bits) on interface /tmp/epc_ws/wif_to_...
Interface id: 0 (/tmp/epc_ws/wif_to_ts_pipe)
Interface name: /tmp/epc_ws/wif_to_ts_pipe
Encapsulation type: Ethernet (1)
Arrival Time: Oct 11, 2023 16:50:52.262553000 UTC
[Time shift for this packet: 0.000000000 seconds]
Epoch Time: 1697043052.262553000 seconds
[Time delta from previous captured frame: 0.000000000 seconds]
[Time delta from previous displayed frame: 0.000000000 seconds]
[Time since reference or first frame: 0.000000000 seconds]
Frame Number: 1
Frame Length: 148 bytes (1184 bits)
Capture Length: 148 bytes (1184 bits)
[Frame is marked: False]
[Frame is ignored: False]
[Protocols in frame: eth:ethertype:ip:udp:vxlan:eth:ethertype:ip:icmp:data]

Ethernet II, Src:

00:00:00:00:00:00

(00:00:00:00:00:00), Dst:

00:00:00:00:00:00

(00:00:00:00:00:00)

<-- EPC does not capture L3 rewrite on egress properly, this is OK

Destination: 00:00:00:00:00:00 (00:00:00:00:00:00)
Address: 00:00:00:00:00:00 (00:00:00:00:00:00)
.... ..0. = LG bit: Globally unique address (factory default)
.... ...0 = IG bit: Individual address (unicast)
Source: 00:00:00:00:00:00 (00:00:00:00:00:00)
Address: 00:00:00:00:00:00 (00:00:00:00:00:00)
.... ..0. = LG bit: Globally unique address (factory default)
.... ...0 = IG bit: Individual address (unicast)

Type: IPv4 (0x0800)
Internet Protocol Version 4, Src:

10.47.1.12

, Dst:

10.47.1.13 <-- RLOC to RLOC

0100 = Version: 4
.... 0101 = Header Length: 20 bytes (5)
Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)
 0000 00.. = Differentiated Services Codepoint: Default (0)
 00 = Explicit Congestion Notification: Not ECN-Capable Transport (0)
Total Length: 134
Identification: 0x1d6f (7535)
Flags: 0x4000, Don't fragment
 0... = Reserved bit: Not set
 .1.. = Don't fragment: Set
 ..0. = More fragments: Not set
Fragment offset: 0
Time to live: 64
Protocol: UDP (17)
Header checksum: 0x0682 [validation disabled]
[Header checksum status: Unverified]
Source: 10.47.1.12
Destination: 10.47.1.13

User Datagram Protocol, Src Port: 65354, Dst Port: 4789

Source Port: 65354
Destination Port: 4789
Length: 114
[Checksum: [missing]]
[Checksum Status: Not present]
[Stream index: 0]
[Timestamps]

 [Time since first frame: 0.000000000 seconds]
 [Time since previous frame: 0.000000000 seconds]

Virtual eXtensible Local Area Network

Flags: 0x8800, GBP Extension, VXLAN Network ID (VNI)
 1... = GBP Extension: Defined
 0.. = Don't Learn: False
 1... = VXLAN Network ID (VNI): True
 0... = Policy Applied: False
 .000 .000 0.00 .000 = Reserved(R): 0x0000
Group Policy ID: 0
VXLAN Network Identifier (VNI):

4099 <-- LISP L3 IID

Reserved: 0

Ethernet II, Src: 00:00:00:00:61:00 (

00:00:00:00:61:00

), Dst: ba:25:cd:f4:ad:38 (

ba:25:cd:f4:ad:38

)

<-- Dummy Ethernet header for VXLAN

Destination: ba:25:cd:f4:ad:38 (ba:25:cd:f4:ad:38)

Address: ba:25:cd:f4:ad:38 (ba:25:cd:f4:ad:38)

.... ..1. = LG bit: Locally administered address (this is NOT the factory d

monitor capture 1 start

Started capture point : 1
Edge-2#

monitor capture 1 stop

Capture statistics collected at software:

Capture duration - 7 seconds
Packets received - 6
Packets dropped - 0
Packets oversized - 0

Number of Bytes dropped at asic not collected

Capture buffer will exists till exported or cleared

Stopped capture point : 1

Edge-2#

show monitor capture 1 buffer brief

Starting the packet display Press Ctrl + Shift + 6 to exit

1	0.000000	10.47.4.2	->	10.47.10.2	ICMP 148 Echo (ping) request	id=0x0047, seq=0/0, ttl=63
2	0.007826	10.47.4.2	->	10.47.10.2	ICMP 148 Echo (ping) request	id=0x0047, seq=0/0, ttl=63
3	0.086345	10.47.4.2	->	10.47.10.2	ICMP 148 Echo (ping) request	id=0x0047, seq=1/256, ttl=63
4	0.097490	10.47.4.2	->	10.47.10.2	ICMP 148 Echo (ping) request	id=0x0047, seq=1/256, ttl=63
5	1.150969	10.47.4.2	->	10.47.10.2	ICMP 148 Echo (ping) request	id=0x0047, seq=2/512, ttl=63
6	1.163817	10.47.4.2	->	10.47.10.2	ICMP 148 Echo (ping) request	id=0x0047, seq=2/512, ttl=63

Edge-2#

show monitor capture 1 buffer detailed

Starting the packet display Press Ctrl + Shift + 6 to exit

Frame 1: 148 bytes on wire (1184 bits), 148 bytes captured (1184 bits) on interface /tmp/epc_ws/wif_to_...
Interface id: 0 (/tmp/epc_ws/wif_to_ts_pipe)
Interface name: /tmp/epc_ws/wif_to_ts_pipe
Encapsulation type: Ethernet (1)
Arrival Time: Oct 11, 2023 16:58:12.702159000 UTC
[Time shift for this packet: 0.000000000 seconds]
Epoch Time: 1697043492.702159000 seconds
[Time delta from previous captured frame: 0.000000000 seconds]
[Time delta from previous displayed frame: 0.000000000 seconds]
[Time since reference or first frame: 0.000000000 seconds]
Frame Number: 1
Frame Length: 148 bytes (1184 bits)
Capture Length: 148 bytes (1184 bits)
[Frame is marked: False]
[Frame is ignored: False]
[Protocols in frame: eth:ethertype:ip:udp:vxlan:eth:ethertype:ip:icmp:data]
Ethernet II, Src: 52:54:00:0a:42:11 (52:54:00:0a:42:11), Dst: 52:54:00:17:fe:65 (52:54:00:17:fe:65)

<-- True MAC addresses post L3 rewrite

Destination: 52:54:00:17:fe:65 (52:54:00:17:fe:65)

Address: 52:54:00:17:fe:65 (52:54:00:17:fe:65)

.... ..1. = LG bit: Locally administered address (this is NOT the factory d

.... ..0. = IG bit: Individual address (unicast)

Source: 52:54:00:0a:42:11 (52:54:00:0a:42:11)

Address: 52:54:00:0a:42:11 (52:54:00:0a:42:11)

.... ..1. = LG bit: Locally administered address (this is NOT the factory d

.... ..0. = IG bit: Individual address (unicast)

Type: IPv4 (0x0800)

Internet Protocol Version 4, Src:

10.47.1.12

, Dst:

10.47.1.13 <-- RLOC to RLOC

0100 = Version: 4

.... 0101 = Header Length: 20 bytes (5)

Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)

0000 00.. = Differentiated Services Codepoint: Default (0)

.... ..00 = Explicit Congestion Notification: Not ECN-Capable Transport (0)

Total Length: 134

Identification: 0x1d7b (7547)

Flags: 0x4000, Don't fragment

0... = Reserved bit: Not set

.1.. = Don't fragment: Set

..0. = More fragments: Not set

Fragment offset: 0

Time to live: 62

Protocol: UDP (17)

Header checksum: 0x0876 [validation disabled]

[Header checksum status: Unverified]

Source: 10.47.1.12

Destination: 10.47.1.13

User Datagram Protocol, Src Port: 65354, Dst Port: 4789

Source Port: 65354

Destination Port: 4789

Length: 114

[Checksum: [missing]]

[Checksum Status: Not present]

[Stream index: 0]

[Timestamps]

[Time since first frame: 0.000000000 seconds]

[Time since previous frame: 0.000000000 seconds]

Virtual eXtensible Local Area Network

Flags: 0x8800, GBP Extension, VXLAN Network ID (VNI)

1... = GBP Extension: Defined

.... ..0.. = Don't Learn: False

.... 1... = VXLAN Network ID (VNI): True

.... ..0... 0... = Policy Applied: False

.000 .000 0.00 .000 = Reserved(R): 0x0000

Group Policy ID: 0

VXLAN Network Identifier (VNI):

4099 <-- LISP L3 IID

Reserved: 0

Ethernet II, Src: 00:00:00:00:61:00 (

00:00:00:00:61:00

), Dst: ba:25:cd:f4:ad:38 (

<#root>

Edge-2#

show ip cef vrf red_vn 10.47.10.2

10.47.10.2/32

nexthop 10.47.10.2 Vlan1028

Edge-2#

show platform software fed switch active ip adj

IPV4 Adj entries

dest	if_name	dst_mac	si_hdl	r
-----	-----	-----	-----	-
10.47.10.2	Vlan1028	5254.0002.cbf5	0x7f5744f89988	0x

<snip>

سي_هديل ةطقن زيمرت ك ف

show platform hardware fed switch active fwd-asic abstraction print-resource-handle <si_hdl> 1
سي_هديل (0x7f5744f89988) عم لماعتلا كنكمي

<#root>

Edge-2#

show platform hardware fed switch active fwd-asic abstraction print-resource-handle 0x7f5744f89988 1

Handle:0x7f5744f89988 Res-Type:ASIC_RSC_SI Res-Switch-Num:255 Asic-Num:255 Feature-ID:AL_FID_L3_UNICAST.
priv_ri/priv_si Handle: 0x7f5744f8afa8Hardware Indices/Handles: index0:0xc8 mtu_index/13u_ri_index0:0x

Features sharing this resource:66 (1)]

57 (1)]

Cookie length: 56

00 00 00 00 00 00 00 00 04 04 00 00 00 00 00 00 00 00 00 00 07 00 52 54 00 02 cb f5 00 00 00 00 00 00 00 00

Detailed Resource Information (ASIC_INSTANCE# 0)

Station Index (SI) [0xc8] <-- Station Index contains RI and DI

RI = 0x2c <-- Rewrite Index contains information for L2 Forwarding

DI = 0x526e <-- Rewrite Index contains destination port information

stationTableGenericLabel = 0

stationFdConstructionLabel = 0x7

lookupSkipIdIndex = 0

rcpServiceId = 0

dejaVuPreCheckEn = 0x1

Replication Bitmap: LD

Detailed Resource Information (ASIC_INSTANCE# 1)

```
Station Index (SI) [0xc8] <-- Station Index contains RI and DI
RI = 0x2c <-- Rewrite Index contains information for L2 Forwarding
DI = 0x526e <-- Rewrite Index contains destination port information
```

```
stationTableGenericLabel = 0
stationFdConstructionLabel = 0x7
lookupSkipIdIndex = 0
rcpServiceId = 0
dejaVuPreCheckEn = 0x1
Replication Bitmap: CD
```

=====

ةياهنلا ةطقن زيمرت ك ف

دروم fwd-asic طشن حاتفم show platform hardware fed رمأل ي ف لمعتساو RI (0x2c) ذخأب مق
جدم <RI> <RI> rewrite-index عيمج

<#root>

Edge-2#

```
show platform hardware fed switch active fwd-asic resource asic all rewrite-index range 0x2c 0x2c
```

ASIC#:0

RI:44

```
Rewrite_type:AL_RRM_REWRITE_L3_UNICAST_IPV4_SHARED(1) Mapped_rii:L3_UNICAST_IPV4(9)
```

```
<-- Decimal 44 is hex 0x2c
```

```
MAC Addr: MAC Addr:
```

```
52:54:00:02:cb:f5
```

,

```
<-- MAC Address 5254.0002.cbF5 is 10.47.10.2
```

```
L3IF LE Index 50
```

```
ASIC#:1 RI:44 Rewrite_type:AL_RRM_REWRITE_L3_UNICAST_IPV4_SHARED(1) Mapped_rii:L3_UNICAST_IPV4(9)
```

```
<-- Decimal 44 is hex 0x2c
```

```
MAC Addr: MAC Addr:
```

```
52:54:00:02:cb:f5
```

,

```
<-- MAC Address 5254.0002.cbF5 is 10.47.10.2
```

```
L3IF LE Index 50
```

ةياهنلا ةطقن زيمرت ك ف

ة-يغ ل ك FWD-asic دروم طشن حاتفم ةيذغت زاھج ةصنم ضرع يف لمعتساو (0x526e) ل DI ذخ
<di> <di> دم ةسرف

<#root>

Edge-2#

show platform hardware fed switch active fwd-asic resource ASIC all destination-index range 0x526e 0x526e

ASIC#0:

Destination index = 0x526e

pmap = 0x00000000 0x00000010 <-- Convert 10 into binary, 0001 and 0000, so 00010000, and

pmap_intf : [GigabitEthernet1/0/5]

cmi = 0x0

rcp_pmap = 0x0

al_rsc_cmi

CPU Map Index (CMI) [0]

ctiLo0 = 0

ctiLo1 = 0

ctiLo2 = 0

cpuQNum0 = 0

cpuQNum1 = 0

cpuQNum2 = 0

npuIndex = 0

stripSeg = 0

copySeg = 0

ASIC#1:

Destination index = 0x526e

pmap = 0x00000000 0x00000000

cmi = 0x0

rcp_pmap = 0x0

al_rsc_cmi

CPU Map Index (CMI) [0]

ctiLo0 = 0

ctiLo1 = 0

ctiLo2 = 0

cpuQNum0 = 0

cpuQNum1 = 0

cpuQNum2 = 0

npuIndex = 0

stripSeg = 0

copySeg = 0

Edge-2#

show platform software fed switch active ifm mappings

Interface	IF_ID	Inst	Asic	Core	Port	SubPort	Mac	Cntx	LPN	GPN	Type	Active
GigabitEthernet1/0/1	0x1a	0	0	0	0	0	1	0	1	1	NIF	Y
GigabitEthernet1/0/2	0x1b	0	0	0	1	0	2	1	2	2	NIF	Y
GigabitEthernet1/0/3	0xb	0	0	0	2	0	3	2	3	3	NIF	Y
GigabitEthernet1/0/4	0xc	0	0	0	3	0	4	3	4	4	NIF	Y

GigabitEthernet1/0/5

0xd 0 0 0


```
0 5 4 5 5 NIF Y
```

```
<-- Port 4 corresponds to Gig1/0/5
```

```
GigabitEthernet1/0/6 0xe 0 0 0 5 0 6 5 6 6 NIF Y
GigabitEthernet1/0/7 0xf 0 0 0 6 0 7 6 7 7 NIF Y
GigabitEthernet1/0/8 0x10 0 0 0 7 0 8 7 8 8 NIF Y
```

يلى تطبر نوکي HOST-03 شي ج خ م ل ا ة ه ج ا و ح ن ه ل س ر ي و ط ب ر ل ا Edge-2 ل ي ز ي :

```
<#root>
```

```
Edge-2#
```

```
monitor capture 1 interface g1/0/5 out match ipv4 host 10.47.4.2 host 10.47.10.2
```

```
Edge-2#
```

```
monitor capture 1 start
```

```
Started capture point : 1
```

```
Edge-2#
```

```
monitor capture 1 stop
```

```
Capture statistics collected at software:
```

```
Capture duration - 6 seconds
Packets received - 3
Packets dropped - 0
Packets oversized - 0
```

```
Number of Bytes dropped at asic not collected
```

```
Capture buffer will exists till exported or cleared
```

```
Stopped capture point : 1
```

```
Edge-2#
```

```
show monitor capture 1 buffer brief
```

```
Starting the packet display ..... Press Ctrl + Shift + 6 to exit
```

```
1 0.000000 10.47.4.2 -> 10.47.10.2 ICMP 106 Echo (ping) request id=0x0048, seq=0/0, ttl=62
2 0.984985 10.47.4.2 -> 10.47.10.2 ICMP 106 Echo (ping) request id=0x0048, seq=1/256, ttl=62
3 1.985357 10.47.4.2 -> 10.47.10.2 ICMP 106 Echo (ping) request id=0x0048, seq=2/512, ttl=62
```

```
Edge-2#
```

```
show monitor capture 1 buffer detailed
```

```
Starting the packet display ..... Press Ctrl + Shift + 6 to exit
```

```
Frame 1: 106 bytes on wire (848 bits), 106 bytes captured (848 bits) on interface /tmp/epc_ws/wif_to_ts
Interface id: 0 (/tmp/epc_ws/wif_to_ts_pipe)
Interface name: /tmp/epc_ws/wif_to_ts_pipe
Encapsulation type: Ethernet (1)
Arrival Time: Oct 11, 2023 17:22:20.730331000 UTC
[Time shift for this packet: 0.000000000 seconds]
```

```

Epoch Time: 1697044940.730331000 seconds
[Time delta from previous captured frame: 0.000000000 seconds]
[Time delta from previous displayed frame: 0.000000000 seconds]
[Time since reference or first frame: 0.000000000 seconds]
Frame Number: 1
Frame Length: 106 bytes (848 bits)
Capture Length: 106 bytes (848 bits)
[Frame is marked: False]
[Frame is ignored: False]
[Protocols in frame: eth:ethertype:cmd:ethertype:ip:icmp:data]
Ethernet II, Src:
00:00:00:00:61:00
(00:00:00:00:61:00), Dst:
ff:ff:ff:ff:ff:ff
(ff:ff:ff:ff:ff:ff)
<-- Dummy Ethernet header, EPC does not capture it properly
Destination: ff:ff:ff:ff:ff:ff (ff:ff:ff:ff:ff:ff)
Address: ff:ff:ff:ff:ff:ff (ff:ff:ff:ff:ff:ff)
.... ..1. .... = LG bit: Locally administered address (this is NOT the factory default)
.... ...1 .... = IG bit: Group address (multicast/broadcast)
Source: 00:00:00:00:61:00 (00:00:00:00:61:00)
Address: 00:00:00:00:61:00 (00:00:00:00:61:00)
.... ..0. .... = LG bit: Globally unique address (factory default)
.... ...0 .... = IG bit: Individual address (unicast)
Type: CiscoMetaData (0x8909)
Cisco MetaData
Version: 1
Length: 1
Options: 0x0001
SGT: 0
Type: IPv4 (0x0800)
Internet Protocol Version 4, Src:
10.47.4.2
, Dst:
10.47.10.2 <-- True IP addresses
0100 .... = Version: 4
.... 0101 = Header Length: 20 bytes (5)
Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)
0000 00.. = Differentiated Services Codepoint: Default (0)
.... ..00 = Explicit Congestion Notification: Not ECN-Capable Transport (0)
Total Length: 84
Identification: 0x35e4 (13796)
Flags: 0x4000, Don't fragment
0... .... = Reserved bit: Not set
.1.. .... = Don't fragment: Set
..0. .... = More fragments: Not set
Fragment offset: 0
Time to live: 62
Protocol: ICMP (1)
Header checksum: 0xe463 [validation disabled]
[Header checksum status: Unverified]
Source: 10.47.4.2
Destination: 10.47.10.2
Internet Control Message Protocol
Type: 8 (Echo (ping) request)

```


ةمچرتل هذه لوج

ةللأل تاي نقتل نمة ومة مادختساب دن تسمل اذة Cisco تمةرت
ملاعلاء انء مء مء نمة دختسمل معد و تمة مء دقتل ةر شبل او
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