세그먼트 라우팅 SP에서 엔드 투 엔드 연결 확인

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소개

이 문서에서는 Cisco IOS®XR 소프트웨어를 사용하는 세그먼트 라우팅 SP(Service Provider)에서 엔드 투 엔드 연결을 확인하는 프로세스에 대해 설명합니다.

사전 요구 사항

요구 사항

다음 주제에 대한 지식을 보유하고 있으면 유용합니다.

- 기본 IP 라우팅에 대한 지식
- Cisco IOS 및 Cisco IOS XR 명령행에 대한 지식

사용되는 구성 요소

이 문서의 정보는 다음 소프트웨어 및 하드웨어 버전을 기반으로 합니다.

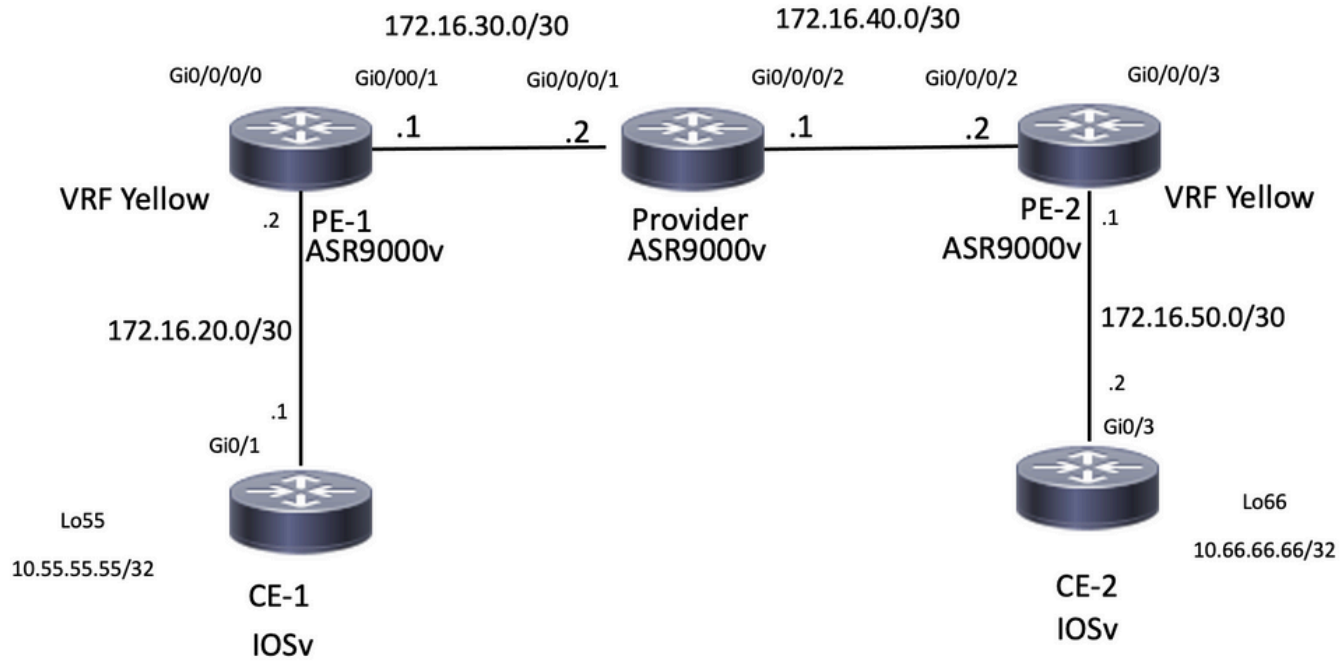
- Cisco IOS XR 소프트웨어가 포함된 라우터
- Cisco IOS 소프트웨어가 포함된 라우터

이 문서의 정보는 특정 랩 환경의 디바이스를 토대로 작성되었습니다. 이 문서에 사용된 모든 디바이스는 초기화된(기본) 컨피그레이션으로 시작되었습니다. 현재 네트워크가 작동 중인 경우 모든 명령의 잠재적인 영향을 미리 숙지하시기 바랍니다.

배경 정보

이 문서의 목적은 세그먼트 라우팅 클라우드를 생성하기 위한 기본 컨피그레이션 및 Cisco IOS XR 라우터에서 엔드 투 엔드 연결을 확인하는 방법을 시연하는 것입니다.

토폴로지



네트워크 토폴로지

초기 확인

BGP 컨피그레이션

CE-1

Loopback55는 라우터 CE-1의 LAN 쪽을 시뮬레이션합니다. eBGP를 통해 PE-1 인접 디바이스에 이 접두사를 알릴 수 있습니다.

```
CE-1#show run | section r b
router bgp 65535
 bgp router-id 10.1.1.1
 bgp log-neighbor-changes
 redistribute connected
 redistribute eigrp 10
 neighbor 172.16.20.2 remote-as 8181

CE-1#show ip bgp neighbors 172.16.20.2 advertised-routes
BGP table version is 25, local router ID is 10.1.1.1
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
              r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
              x best-external, a additional-path, c RIB-compressed,
              t secondary path,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found

     Network          Next Hop            Metric LocPrf Weight Path
 *>   10.1.1.1/32      0.0.0.0                  0         32768 ?
 *>   10.11.11.11/32   192.168.1.1          10880         32768 ?
 *> 10.55.55.55/32 0.0.0.0 0 32768 ?
 *>   172.16.20.0/30   0.0.0.0                  0         32768 ?
 *>   192.168.1.0      0.0.0.0                  0         32768 ?

Total number of prefixes 5
```

PE-1

이 라우터는 접두사 10.55.55.55/32을 수신하고 연결되었으므로 이제 서비스 공급자 클라우드에 알릴 수 있습니다.

```
RP/0/RP0/CPU0:PE-1#show run vrf
Fri Jan 27 15:07:10.465 UTC
vrf Yellow
address-family ipv4 unicast
import route-target
200:200
!
export route-target
200:200
!

RP/0/RP0/CPU0:PE-1#show run router bgp
Fri Jan 27 14:54:33.488 UTC
router bgp 8181
 bgp router-id 10.2.2.2
 address-family ipv4 unicast
 !
 address-family vpnv4 unicast
 !
 neighbor 10.3.3.3
  remote-as 8181
  update-source Loopback0
  address-family vpnv4 unicast
   route-policy PASS in
   route-policy PASS out
  !
 !
 vrf Yellow
  rd 200:200
  address-family ipv4 unicast
  !
  neighbor 172.16.20.1
   remote-as 65535
   address-family ipv4 unicast
    route-policy PASS in
    route-policy PASS out
    as-override
   !

RP/0/RP0/CPU0:PE-1#show bgp vrf Yellow ipv4 unicast neighbors 172.16.20.1 routes
Fri Jan 27 14:54:48.433 UTC
BGP VRF Yellow, state: Active
BGP Route Distinguisher: 200:200
VRF ID: 0x60000001
BGP router identifier 10.2.2.2, local AS number 8181
Non-stop routing is enabled
BGP table state: Active
Table ID: 0xe0000001   RD version: 73
BGP main routing table version 73
BGP NSR Initial initsync version 2 (Reached)
BGP NSR/ISSU Sync-Group versions 0/0

Status codes: s suppressed, d damped, h history, * valid, > best
              i - internal, r RIB-failure, S stale, N Nexthop-discard
Origin codes: i - IGP, e - EGP, ? - incomplete
   Network            Next Hop            Metric LocPrf Weight Path
```

```
Route Distinguisher: 200:200 (default for vrf Yellow)
*> 10.1.1.1/32        172.16.20.1              0             0 65535 ?
*> 10.11.11.11/32     172.16.20.1          10880             0 65535 ?
*> 10.55.55.55/32 172.16.20.1 0 0 65535 ?
*> 172.16.20.0/30     172.16.20.1              0             0 65535 ?
*> 192.168.1.0/24     172.16.20.1              0             0 65535 ?
Processed 5 prefixes, 5 paths

RP/0/RP0/CPU0:PE-1#ping vrf Yellow 10.55.55.55
Fri Jan 27 14:55:06.077 UTC
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.55.55.55, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/5/7 ms
```

CE-2

Loopback66은 CE-2 라우터의 LAN 쪽을 시뮬레이션합니다. CE-1과 유사한 방식으로 이 라우터는 eBGP를 통해 접두사를 인접 라우터 PE-2에 광고합니다.

```
CE-2#show run | section r b
router bgp 65535
 bgp router-id 10.5.5.5
 bgp log-neighbor-changes
 redistribute connected
 redistribute eigrp 10
 neighbor 172.16.50.1 remote-as 8181

CE-2#show ip bgp neighbors 172.16.50.1 advertised-routes
BGP table version is 15, local router ID is 10.5.5.5
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
              r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
              x best-external, a additional-path, c RIB-compressed,
              t secondary path,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found

     Network          Next Hop            Metric LocPrf Weight Path
 *>   10.5.5.5/32      0.0.0.0                  0         32768 ?
 *>   10.22.22.22/32   192.168.4.1          10880         32768 ?
 *>   10.66.66.66/32   0.0.0.0                  0         32768 ?
 *>   172.16.50.0/30   0.0.0.0                  0         32768 ?
 *>   192.168.4.0      0.0.0.0                  0         32768 ?

Total number of prefixes 5
```

PE-2

이 라우터는 접두사 10.66.66.66/32을 받았으며 이제 서비스 공급자 클라우드에 알릴 수 있습니다.

```
RP/0/RP0/CPU0:PE-2#show run vrf
Fri Jan 27 15:07:51.117 UTC
vrf Yellow
address-family ipv4 unicast
import route-target
200:200
!
export route-target
200:200
!
```

```
RP/0/RP0/CPU0:PE-2#show run router bgp
Fri Jan 27 14:59:56.957 UTC
router bgp 8181
 bgp router-id 10.4.4.4
 address-family ipv4 unicast
 !
 address-family vpnv4 unicast
 !
 neighbor 10.3.3.3
  remote-as 8181
  update-source Loopback0
  address-family vpnv4 unicast
   route-policy PASS in
   route-policy PASS out
  !
 !
 vrf Yellow
  rd 200:200
  address-family ipv4 unicast
  !
  neighbor 172.16.50.2
   remote-as 65535
   address-family ipv4 unicast
    route-policy PASS in
    route-policy PASS out
    as-override
   !

RP/0/RP0/CPU0:PE-2#show bgp vrf Yellow ipv4 unicast neighbors 172.16.50.2 routes
Fri Jan 27 15:00:10.383 UTC
BGP VRF Yellow, state: Active
BGP Route Distinguisher: 200:200
VRF ID: 0x60000001
BGP router identifier 10.4.4.4, local AS number 8181
Non-stop routing is enabled
BGP table state: Active
Table ID: 0xe0000001   RD version: 64
BGP main routing table version 64
BGP NSR Initial initsync version 2 (Reached)
BGP NSR/ISSU Sync-Group versions 0/0

Status codes: s suppressed, d damped, h history, * valid, > best
              i - internal, r RIB-failure, S stale, N Nexthop-discard
Origin codes: i - IGP, e - EGP, ? - incomplete
   Network            Next Hop            Metric LocPrf Weight Path
Route Distinguisher: 200:200 (default for vrf Yellow)
*> 10.5.5.5/32        172.16.50.2              0             0 65535 ?
*> 10.22.22.22/32     172.16.50.2          10880             0 65535 ?
*> 10.66.66.66/32     172.16.50.2              0             0 65535 ?
*> 172.16.50.0/30     172.16.50.2              0             0 65535 ?
*> 192.168.4.0/24     172.16.50.2              0             0 65535 ?

Processed 5 prefixes, 5 paths

RP/0/RP0/CPU0:PE-2#ping vrf Yellow 10.66.66.66
Fri Jan 27 15:00:26.020 UTC
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.66.66.66, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 3/26/120 ms
```

PE-1,Provider and PE-2의 라우팅 정보 상태

이 데모에서는 OSPF가 IGP 및 iBGP로 구성됩니다.

PE-1

OSPF 인접 디바이스는 UP이며 iBGP 세션은 Route Reflector인 10.3.3.3에 대한 세션입니다.

```
RP/0/RP0/CPU0:PE-1#show run router ospf
Fri Jan 27 15:09:23.910 UTC
router ospf 1
 router-id 10.2.2.2
 area 0
  !
  interface GigabitEthernet0/0/0/1
  !
 !
!

RP/0/RP0/CPU0:PE-1#show ospf neighbor
Fri Jan 27 15:09:31.435 UTC

* Indicates MADJ interface
# Indicates Neighbor awaiting BFD session up

Neighbors for OSPF 1

Neighbor ID     Pri   State           Dead Time   Address         Interface
10.3.3.3        1     FULL/BDR        00:00:37    172.16.30.2     GigabitEthernet0/0/0/1
    Neighbor is up for 16:59:30
Total neighbor count: 1
RP/0/RP0/CPU0:PE-1#show bgp vpnv4 unicast summary
Fri Jan 27 15:09:37.760 UTC
BGP router identifier 10.2.2.2, local AS number 8181
BGP generic scan interval 60 secs
Non-stop routing is enabled
BGP table state: Active
Table ID: 0x0   RD version: 0
BGP main routing table version 73
BGP NSR Initial initsync version 2 (Reached)
BGP NSR/ISSU Sync-Group versions 0/0
BGP scan interval 60 secs
BGP is operating in STANDALONE mode.
Process       RcvTblVer   bRIB/RIB   LabelVer  ImportVer  SendTblVer  StandbyVer
Speaker              73         73         73         73          73           0

Neighbor        Spk    AS MsgRcvd MsgSent   TblVer  InQ OutQ  Up/Down  St/PfxRcd
10.3.3.3          0  8181    1010     997       73    0    0 16:24:45          5
```

공급자 라우터

이 디바이스에서 경로 리플렉터 및 IBGP 세션 역할을 인접 디바이스 10.2.2.2 및 10.4.4.4와 설정했는지 확인할 수 있습니다

```
RP/0/RP0/CPU0:Provider#show run router ospf
Fri Jan 27 15:19:33.250 UTC
router ospf 1
router-id 10.3.3.3
area 0
!
interface GigabitEthernet0/0/0/1
!
interface GigabitEthernet0/0/0/2
!
```

```
RP/0/RP0/CPU0:Provider#show run router bgp
Fri Jan 27 15:11:08.321 UTC
router bgp 8181
 bgp router-id 10.3.3.3
 address-family ipv4 unicast
 !
 address-family vpnv4 unicast
 !
 neighbor-group IBGP
  remote-as 8181
  update-source Loopback0
 !
 neighbor 10.2.2.2
  use neighbor-group IBGP
  address-family vpnv4 unicast
   route-policy PASS in
   route-reflector-client
   route-policy PASS out
   next-hop-self
  !
 !
 neighbor 10.4.4.4
  use neighbor-group IBGP
  address-family vpnv4 unicast
   route-policy PASS in
   route-reflector-client
   route-policy PASS out
   next-hop-self
  !

RP/0/RP0/CPU0:Provider#show bgp vpnv4 unicast summary
Fri Jan 27 15:11:19.263 UTC
BGP router identifier 10.3.3.3, local AS number 8181
BGP generic scan interval 60 secs
Non-stop routing is enabled
BGP table state: Active
Table ID: 0x0   RD version: 0
BGP main routing table version 25
BGP NSR Initial initsync version 1 (Reached)
BGP NSR/ISSU Sync-Group versions 0/0
BGP scan interval 60 secs
BGP is operating in STANDALONE mode.
Process       RcvTblVer   bRIB/RIB   LabelVer  ImportVer  SendTblVer  StandbyVer
Speaker              25         25         25         25          25           0

Neighbor        Spk    AS MsgRcvd MsgSent   TblVer  InQ OutQ  Up/Down  St/PfxRcd
10.2.2.2          0  8181     998    1011       25    0    0 16:26:27          5
10.4.4.4          0  8181     997    1009       25    0    0 16:24:25          5
```

PE-2

OSPF 인접 디바이스가 작동 중이고 IBGP 세션이 Route Reflector인 10.3.3.3으로 설정됩니다.

```
RP/0/RP0/CPU0:PE-2#show run router ospf
Fri Jan 27 15:12:47.741 UTC
router ospf 1
 router-id 10.4.4.4
 area 0
  !
  interface GigabitEthernet0/0/0/2
  !
```

```
RP/0/RP0/CPU0:PE-2#show ospf neighbor
Fri Jan 27 15:12:55.229 UTC
* Indicates MADJ interface
# Indicates Neighbor awaiting BFD session up
Neighbors for OSPF 1
Neighbor ID     Pri   State           Dead Time   Address         Interface
10.3.3.3        1     FULL/DR         00:00:35    172.16.40.1     GigabitEthernet0/0/0/2
    Neighbor is up for 17:01:21
Total neighbor count: 1

RP/0/RP0/CPU0:PE-2#show bgp vpnv4 unicast summary
Fri Jan 27 15:13:01.911 UTC
BGP router identifier 10.4.4.4, local AS number 8181
BGP generic scan interval 60 secs
Non-stop routing is enabled
BGP table state: Active
Table ID: 0x0   RD version: 0
BGP main routing table version 64
BGP NSR Initial initsync version 2 (Reached)
BGP NSR/ISSU Sync-Group versions 0/0
BGP scan interval 60 secs
BGP is operating in STANDALONE mode.
Process       RcvTblVer   bRIB/RIB   LabelVer  ImportVer  SendTblVer  StandbyVer
Speaker              64         64         64         64          64           0

Neighbor        Spk    AS MsgRcvd MsgSent   TblVer  InQ OutQ  Up/Down  St/PfxRcd
10.3.3.3          0  8181    1011     998       64    0    0 16:26:08          5

RP/0/RP0/CPU0:PE-2#ping 10.2.2.2 source loopback0
Fri Jan 27 15:13:09.728 UTC
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.2.2.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 9/21/67 ms

RP/0/RP0/CPU0:PE-2#ping 10.3.3.3 source loopback0
Fri Jan 27 15:13:16.696 UTC
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.3.3.3, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 5/6/7 ms
```

세그먼트 라우팅 컨피그레이션

PE-1

```
RP/0/RP0/CPU0:PE-1#show run router ospf
Fri Jan 27 16:15:56.479 UTC
router ospf 1
 router-id 10.2.2.2
 segment-routing mpls
 area 0
  segment-routing mpls
  interface Loopback0
   prefix-sid index 15
  !
```

공급자

```
RP/0/RP0/CPU0:Provider#show run router ospf
Fri Jan 27 16:17:09.471 UTC
```

```
router ospf 1
 router-id 10.3.3.3
 segment-routing mpls
 area 0
  segment-routing mpls
  interface Loopback0
   prefix-sid index 16
  !
```

PE-2

```
RP/0/RP0/CPU0:PE-2#show run router ospf
Fri Jan 27 16:18:11.090 UTC
router ospf 1
 router-id 10.4.4.4
 segment-routing mpls
 area 0
  segment-routing mpls
  interface Loopback0
   prefix-sid index 17
  !
```

최종 확인

CE-1은 CE-2 라우터에 위치한 인터페이스 루프백66에 연결할 수 있습니다. 다음 Traceroute 출력에서는 패킷이 10.66.66.66 접두사로 갈 때 레이블 스위치 경로를 사용함을 보여 줍니다. 라우터 PE-2를 통과할 때 레이블에서 접두사 SID 160**17**을 사용한다는 것을 관찰할 수도 있습니다.

```
CE-1#ping 10.66.66.66 source loopback0
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.66.66.66, timeout is 2 seconds:
Packet sent with a source address of 10.1.1.1
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 9/13/32 ms

CE-1#traceroute 10.66.66.66 source loopback0
Type escape sequence to abort.
Tracing the route to 10.66.66.66
VRF info: (vrf in name/id, vrf out name/id)
  1 172.16.20.2 6 msec 5 msec 5 msec
  2 172.16.30.2 [MPLS: Labels 16017/24003 Exp 0] 12 msec 13 msec 16 msec 3 172.16.40.2 [MPLS:
Label 24003 Exp 0] 15 msec 13 msec 12 msec
  4 172.16.50.2 [AS 8181] 13 msec 11 msec *
```

컨피그레이션에서 absolute 옵션을 사용하지 않았으므로 레이블은 16000 값에서 시작하여 세그먼트 라우팅에 대해 구성된 접두사 sid를 추가했습니다.

```
RP/0/RP0/CPU0:PE-1#show cef 10.3.3.3/32
Fri Jan 27 21:32:42.813 UTC
10.3.3.3/32, version 43, labeled SR, internal 0x1000001 0x8110 (ptr 0xe3f6a00) [1], 0x600
(0xe593918), 0xa20 (0xee6e4b8)
 Updated Jan 26 23:21:30.314
 remote adjacency to GigabitEthernet0/0/0/1
 Prefix Len 32, traffic index 0, precedence n/a, priority 1
  gateway array (0xe3fbda8) reference count 3, flags 0x68, source rib (7), 0 backups
                [3 type 4 flags 0x8401 (0xeeb1648) ext 0x0 (0x0)]
```

```
  LW-LDI[type=1, refc=1, ptr=0xe593918, sh-ldi=0xeeb1648]
  gateway array update type-time 1 Jan 26 23:21:30.314
 LDI Update time Jan 26 23:21:30.315
 LW-LDI-TS Jan 26 23:21:30.315
   via 172.16.30.2/32, GigabitEthernet0/0/0/1, 8 dependencies, weight 0, class 0 [flags 0x0]
    path-idx 0 NHID 0x0 [0xf427148 0xf4271e0]
    next hop 172.16.30.2/32
    remote adjacency
     local label 16016      labels imposed {ImplNull}

    Load distribution: 0 (refcount 3)

    Hash  OK  Interface                 Address
    0     Y   GigabitEthernet0/0/0/1    remote

RP/0/RP0/CPU0:PE-1#show cef 10.4.4.4/32
Fri Jan 27 21:29:36.990 UTC
10.4.4.4/32, version 45, labeled SR, internal 0x1000001 0x8110 (ptr 0xe3f65c0) [1], 0x600
(0xe593e70), 0xa28 (0xee6e508)
 Updated Jan 26 23:21:47.181
 remote adjacency to GigabitEthernet0/0/0/1
 Prefix Len 32, traffic index 0, precedence n/a, priority 1
  gateway array (0xe3fbe90) reference count 3, flags 0x68, source rib (7), 0 backups
                [2 type 5 flags 0x8401 (0xeeb16a8) ext 0x0 (0x0)]
  LW-LDI[type=5, refc=3, ptr=0xe593e70, sh-ldi=0xeeb16a8]
  gateway array update type-time 1 Jan 26 23:21:47.182
 LDI Update time Jan 26 23:21:47.182
 LW-LDI-TS Jan 26 23:21:47.182
   via 172.16.30.2/32, GigabitEthernet0/0/0/1, 6 dependencies, weight 0, class 0 [flags 0x0]
    path-idx 0 NHID 0x0 [0xf4271e0 0x0]
    next hop 172.16.30.2/32
    remote adjacency
     local label 16017      labels imposed {16017}

    Load distribution: 0 (refcount 2)

    Hash  OK  Interface                 Address
    0     Y   GigabitEthernet0/0/0/1    remote
```

CE-2는 CE-1 라우터에 있는 루프백55에도 연결할 수 있습니다.

```
CE-2#ping 10.55.55.55 source loopback66
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.55.55.55, timeout is 2 seconds:
Packet sent with a source address of 10.66.66.66
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 11/12/15 ms

CE-2#traceroute 10.55.55.55 source loopback66
Type escape sequence to abort.
Tracing the route to 10.55.55.55
VRF info: (vrf in name/id, vrf out name/id)
  1 172.16.50.1 6 msec 5 msec 4 msec
  2 172.16.40.1 [MPLS: Labels 16015/24003 Exp 0] 9 msec 16 msec 10 msec
  3 172.16.30.1 [MPLS: Label 24003 Exp 0] 10 msec 13 msec 8 msec
  4 172.16.20.1 [AS 8181] 11 msec 7 msec *
```

MPLS 레이블

다음 출력에서는 Segment 라우팅 레이블이 트래픽을 엔드 투 엔드로 전환하는 데 사용됨을 확인할 수 있습니다.

RP/0/RP0/CPU0:PE-1#**show mpls forwarding**

```
Fri Jan 27 20:32:13.697 UTC
Local  Outgoing    Prefix             Outgoing     Next Hop        Bytes
Label  Label       or ID              Interface                    Switched
------ ----------- ------------------ ------------ --------------- ------------
16016  Pop         SR Pfx (idx 16)    Gi0/0/0/1    172.16.30.2     126880
16017  16017       SR Pfx (idx 17)    Gi0/0/0/1    172.16.30.2     17292
24000  Pop         SR Adj (idx 0)     Gi0/0/0/1    172.16.30.2     0
24001  Aggregate   172.16.20.0/30[V]  Yellow                       11384
24002  Unlabelled  192.168.1.0/24[V]  Gi0/0/0/0    172.16.20.1     0
24003  Unlabelled  10.55.55.55/32[V]  Gi0/0/0/0    172.16.20.1     0
24004  Unlabelled  10.11.11.11/32[V]  Gi0/0/0/0    172.16.20.1     0
24005  Unlabelled  10.1.1.1/32[V]     Gi0/0/0/0    172.16.20.1     0
```

RP/0/RP0/CPU0:Provider#**show mpls forwarding**

```
Fri Jan 27 20:33:14.878 UTC
Local  Outgoing    Prefix             Outgoing     Next Hop        Bytes
Label  Label       or ID              Interface                    Switched
------ ----------- ------------------ ------------ --------------- ------------
16015  Pop         SR Pfx (idx 15)    Gi0/0/0/1    172.16.30.1     151687
16017  Pop         SR Pfx (idx 17)    Gi0/0/0/2    172.16.40.2     147701
24000  Pop         SR Adj (idx 0)     Gi0/0/0/1    172.16.30.1     0
24001  Pop         SR Adj (idx 0)     Gi0/0/0/2    172.16.40.2     0
```

RP/0/RP0/CPU0:PE-2#**show mpls forwarding**

```
Fri Jan 27 20:33:49.201 UTC
Local  Outgoing    Prefix             Outgoing     Next Hop        Bytes
Label  Label       or ID              Interface                    Switched
------ ----------- ------------------ ------------ --------------- ------------
16015  16015       SR Pfx (idx 15)    Gi0/0/0/2    172.16.40.1     25304
16016  Pop         SR Pfx (idx 16)    Gi0/0/0/2    172.16.40.1     128619
24000  Pop         SR Adj (idx 0)     Gi0/0/0/2    172.16.40.1     0
24001  Aggregate   172.16.50.0/30[V]  Yellow                       1200
24002  Unlabelled  192.168.4.0/24[V]  Gi0/0/0/3    172.16.50.2     0
24003  Unlabelled  10.66.66.66/32[V]  Gi0/0/0/3    172.16.50.2     0
24004  Unlabelled  10.5.5.5/32[V]     Gi0/0/0/3    172.16.50.2     0
24005  Unlabelled  10.22.22.22/32[V]  Gi0/0/0/3    172.16.50.2     0
```

```
CE-2#show ip bgp neighbors 172.16.50.1 advertised-routes BGP table version is 5, local router ID
is 5.5.5.5 Status codes: s suppressed, d damped, h history, * valid, > best, i - internal, r
RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter, x best-external, a additional-
path, c RIB-compressed, t secondary path, Origin codes: i - IGP, e - EGP, ? - incomplete RPKI
validation codes: V valid, I invalid, N Not found Network Next Hop Metric LocPrf Weight Path *>
5.5.5.5/32 0.0.0.0 0 32768 ? *> 22.22.22.22/32 192.168.4.1 10880 32768 ? *> 172.16.50.0/30
0.0.0.0 0 32768 ? *> 192.168.4.0 0.0.0.0 0 32768 ? Total number of prefixes 4
```

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