

Verify End-to-End Connectivity across a Segment Routing SP

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Introduction

This document describes the process to verify end-to-end connectivity across a segment routing Service Provider (SP) with Cisco IOS®XR software.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- Knowledge of Basic IP Routing
- Knowledge of Cisco IOS and Cisco IOS XR command line

Components Used

The information in this document is based on these software and hardware versions:

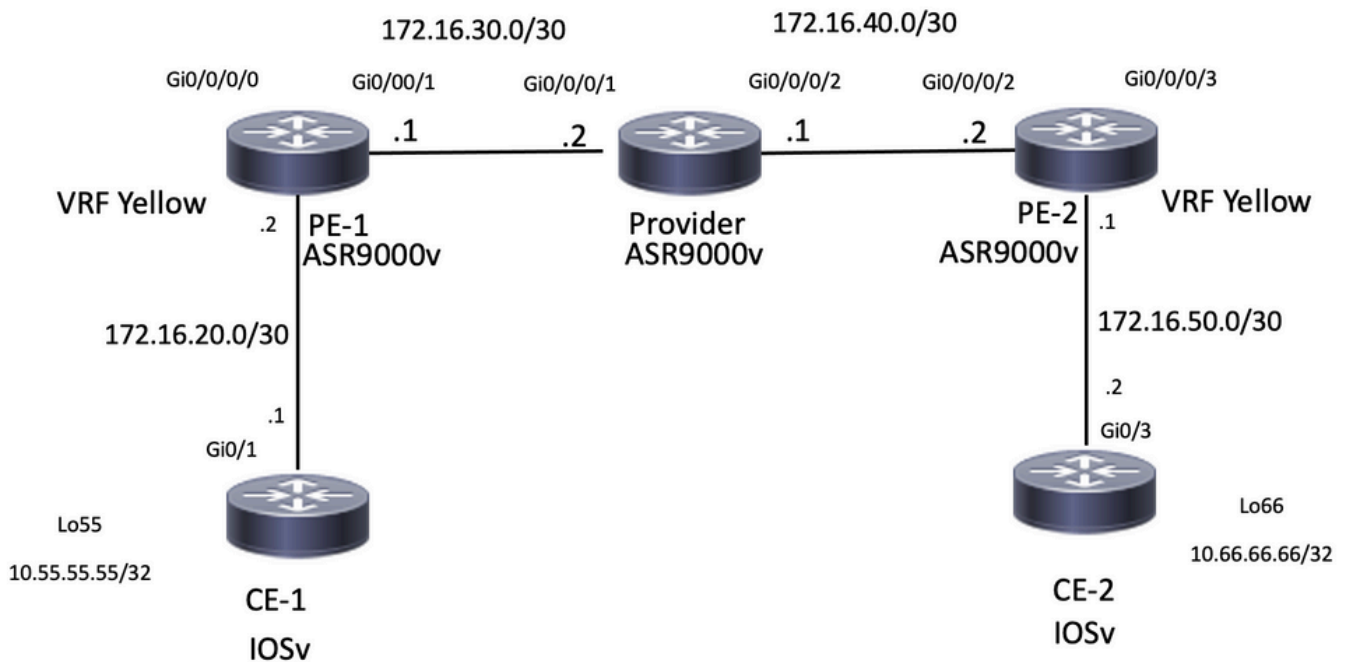
- Router with Cisco IOS XR software
- Router with Cisco IOS software

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

Background Information

The purpose of this document is to demonstrate the basic configuration to create a Segment Routing cloud and how to verify the end-to-end connectivity on Cisco IOS XR routers.

Topology



Network Topology

Initial Verification

BGP Configuration

CE-1

Loopback55 simulates the LAN side of router CE-1. You can advertise this prefix through eBGP to the PE-1 neighbor:

```
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

This router received the prefix 10.55.55.55/32 and have connectivity, now is able to advertise it into the Service Provider cloud:

```
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

Loopback66 simulates the LAN side of CE-2 router. In a similar way as CE-1, this router advertises the prefix via eBGP to neighbor router PE-2.

```

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

This router received prefix 10.66.66.66/32 and now is able to advertise to Service Provider cloud:

```

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

Routing Information Status from PE-1, Provider and PE-2

For this demonstration, OSPF is configured as IGP and iBGP.

PE-1

OSPF neighbor is UP and iBGP session to 10.3.3.3 that is Route Reflector.

```
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

Provider Router

On this device we can confirm that acts as Route reflector and iBGP session is established with neighbors 10.2.2.2 and 10.4.4.4

```
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 neighbor is up and IBGP session to 10.3.3.3 that is Route Reflector.

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

Segment Routing Configuration

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

!

Provider


```
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
  !
```

Final Verifications

CE-1 can reach interface loopback66 located on CE-2 router. The next Traceroute output shows that the packet takes label switch path when destined to 10.66.66.66 prefix. It can also be observed that the label uses the prefix-sid 16017 as it goes through router PE-2:

```
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 *
```

As the configuration did not use the absolute option, the labels started at 16000 values and appended the prefix-sid that was configured for Segment Routing.

```
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

```

From the other side, CE-2 can also reach loopback55 located on CE-1 router:

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 Labels

On the next output we can confirm that Segment routing labels are used to switch the traffic end-

to-end.

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

Fri Jan 27 20:32:13.697 UTC

Local Label	Outgoing Label	Prefix or ID	Outgoing Interface	Next Hop	Bytes 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 Label	Outgoing Label	Prefix or ID	Outgoing Interface	Next Hop	Bytes 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 Label	Outgoing Label	Prefix or ID	Outgoing Interface	Next Hop	Bytes 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