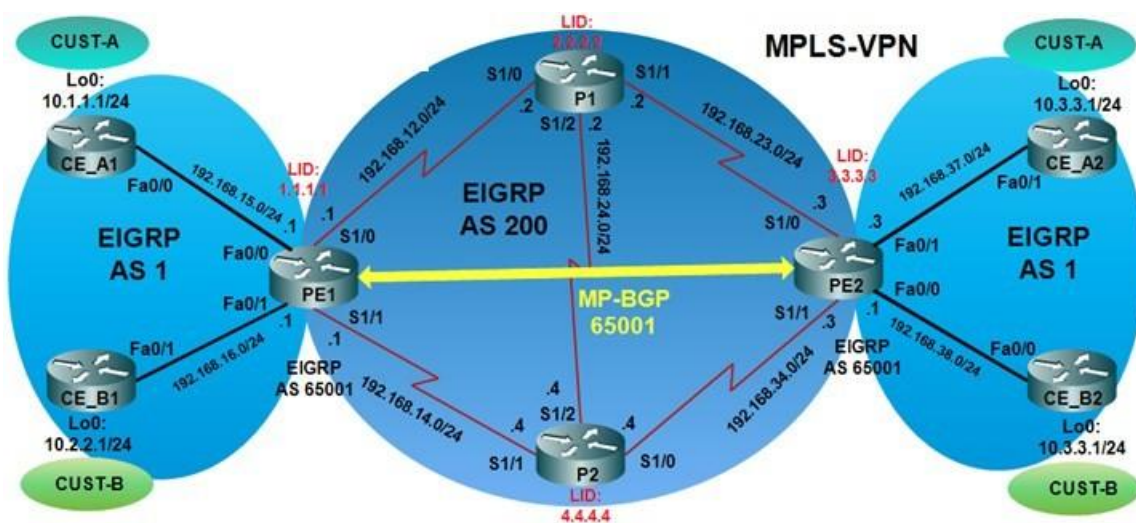


# MPLS VPN

## Practice Labs:

Redouane MEDDANE

### Lab 2: MPLS VPN using EIGRP between PE-CE link



The interfaces of P and PE routers are enabled for frame mode MPLS with the `mpls ip interface subcommand` and all P and PE routers use a common IGP (EIGRP with AS 200):

```
PE1#show mpls ldp neighbor
```

```
Peer LDP Ident: 2.2.2.2:0; Local LDP Ident 1.1.1.1:0
TCP connection: 2.2.2.2.27727 - 1.1.1.1.646
State: Oper; Msgs sent/rcvd: 20/18; Downstream
Up time: 00:05:49
LDP discovery sources:
  Serial1/0, Src IP addr: 192.168.12.2
Addresses bound to peer LDP Ident:
  192.168.12.2 192.168.23.2 192.168.24.2 2.2.2.2
Peer LDP Ident: 4.4.4.4:0; Local LDP Ident 1.1.1.1:0
TCP connection: 4.4.4.4.35129 - 1.1.1.1.646
State: Oper; Msgs sent/rcvd: 20/18; Downstream
Up time: 00:05:22
LDP discovery sources:
  Serial1/1, Src IP addr: 192.168.14.4
```

Addresses bound to peer LDP Ident:

192.168.34.4 192.168.14.4 192.168.24.4 4.4.4.4

PE2#show mpls ldp neighbor

Peer LDP Ident: 2.2.2.2:0; Local LDP Ident 3.3.3.3:0

TCP connection: 2.2.2.2.646 - 3.3.3.3.53352

State: Oper; Msgs sent/rcvd: 22/21; Downstream

Up time: 00:08:00

LDP discovery sources:

Serial1/0, Src IP addr: 192.168.23.2

Addresses bound to peer LDP Ident:

192.168.12.2 192.168.23.2 192.168.24.2 2.2.2.2

Peer LDP Ident: 4.4.4.4:0; Local LDP Ident 3.3.3.3:0

TCP connection: 4.4.4.4.18633 - 3.3.3.3.646

State: Oper; Msgs sent/rcvd: 22/20; Downstream

Up time: 00:07:22

LDP discovery sources:

Serial1/1, Src IP addr: 192.168.34.4  
 Addresses bound to peer LDP Ident:  
 192.168.34.4    192.168.14.4    192.168.24.4    4.4.4.4

```
PE1#show mpls forwarding-table
Local   Outgoing   Prefix      Bytes Label  Outgoing   Next Hop
Label   Label      or Tunnel Id Switched      interface
16      Pop Label  192.168.24.0/24 0             Se1/0      point2point
        Pop Label  192.168.24.0/24 0             Se1/1      point2point
17      Pop Label  192.168.23.0/24 0             Se1/0      point2point
18      Pop Label  192.168.34.0/24 0             Se1/1      point2point
19      18         3.3.3.3/32      0             Se1/0      point2point
        18         3.3.3.3/32      0             Se1/1      point2point
20      Pop Label  2.2.2.2/32      0             Se1/0      point2point
21      Pop Label  4.4.4.4/32      0             Se1/1      point2point
```

```
PE2#SHOW MPLs forwarding-table
Local   Outgoing   Prefix      Bytes Label  Outgoing   Next Hop
Label   Label      or Tunnel Id Switched      interface
16      Pop Label  192.168.12.0/24 0             Se1/0      point2point
17      Pop Label  192.168.24.0/24 0             Se1/0      point2point
        Pop Label  192.168.24.0/24 0             Se1/1      point2point
18      Pop Label  192.168.14.0/24 0             Se1/1      point2point
19      Pop Label  2.2.2.2/32      0             Se1/0      point2point
20      19         1.1.1.1/32      0             Se1/0      point2point
        20         1.1.1.1/32      0             Se1/1      point2point
21      Pop Label  4.4.4.4/32      0             Se1/1      point2point
```

**Configuration of VRF:**  
 Create each VRF, RD, and RT, plus associating the customer-facing PE interfaces with the correct VRF:  
**VRF CUST-A, RD 1:111, RT 1:100**  
**VRF CUST-B, RD 2:222, RT 2:200**

```
PE2
ip vrf CUST-A
  rd 1:111
  route-target export 1:100
  route-target import 1:100
!
ip vrf CUST-B
  rd 2:222
  route-target export 2:200
  route-target import 2:200
!
interface FastEthernet0/0
  ip vrf forwarding CUST-B
  ip address 192.168.38.3 255.255.255.0
!
interface FastEthernet0/1
  ip vrf forwarding CUST-A
  ip address 192.168.37.3 255.255.255.0
```

```
PE1
ip vrf CUST-A
  rd 1:111
  route-target export 1:100
  route-target import 1:100
```

```

!
ip vrf CUST-B
  rd 2:222
  route-target export 2:200
  route-target import 2:200
!
interface FastEthernet0/0
  ip vrf forwarding CUST-A
  ip address 192.168.15.1 255.255.255.0
!
interface FastEthernet0/1
  ip vrf forwarding CUST-B
  ip address 192.168.16.1 255.255.255.0

```

### Configuring the IGP Between PE and CE routers

#### CE-A1:

```

router eigrp 1
  network 10.0.0.0
  network 192.168.15.0

```

#### CE-A2:

```

router eigrp 1
  network 10.0.0.0
  network 192.168.37.0

```

#### CE\_B1:

```

router eigrp 1
  network 10.0.0.0
  network 192.168.16.0

```

#### CE\_B2:

```

router eigrp 1
  network 10.0.0.0
  network 192.168.38.0

```

#### PE1:

```

router eigrp 65001
!
  address-family ipv4 vrf CUST-A autonomous-system 1
    network 192.168.15.1 0.0.0.0
  exit-address-family
!
  address-family ipv4 vrf CUST-B autonomous-system 1
    network 192.168.16.1 0.0.0.0
  exit-address-family

```

#### PE2:

```

router eigrp 65001
!
  address-family ipv4 vrf CUST-A autonomous-system 1
    network 192.168.37.3 0.0.0.0
  exit-address-family
!
  address-family ipv4 vrf CUST-B autonomous-system 1
    network 192.168.38.1 0.0.0.0
  exit-address-family

```

### Verify the EIGRP neighbors:

```
PE1#show ip eigrp vrf CUST-A neighbors
EIGRP-IPv4 Neighbors for AS(1) VRF(CUST-A)
H   Address                Interface      Hold Uptime    SRTT    RTO  Q
Seq                                     (sec)         (ms)      Cnt
Num
0   192.168.15.5            Fa0/0         10 00:05:15 1573   5000  0  2
```

```
PE1#show ip eigrp vrf CUST-B neighbors
EIGRP-IPv4 Neighbors for AS(1) VRF(CUST-B)
H   Address                Interface      Hold Uptime    SRTT    RTO  Q
Seq                                     (sec)         (ms)      Cnt
Num
0   192.168.16.2            Fa0/1         11 00:06:24  168   1008  0  2
```

```
PE2#show ip eigrp vrf CUST-A neighbors
EIGRP-IPv4 Neighbors for AS(1) VRF(CUST-A)
H   Address                Interface      Hold Uptime    SRTT    RTO  Q
Seq                                     (sec)         (ms)      Cnt
Num
0   192.168.37.6            Fa0/1         14 00:03:04  196   1176  0  2
```

```
PE2#show ip eigrp vrf CUST-B neighbors
EIGRP-IPv4 Neighbors for AS(1) VRF(CUST-B)
H   Address                Interface      Hold Uptime    SRTT    RTO  Q
Seq                                     (sec)         (ms)      Cnt
Num
0   192.168.38.2            Fa0/0         12 00:05:25 1617   5000  0  2
```

### Verify the the EIGRP topology tables:

```
PE1#show ip eigrp vrf CUST-A topology
EIGRP-IPv4 Topology Table for AS(1)/ID(192.168.15.1) VRF(CUST-A)
Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,
       r - reply Status, s - sia Status
```

```
P 192.168.15.0/24, 1 successors, FD is 28160
    via Connected, FastEthernet0/0
P 10.1.1.0/24, 1 successors, FD is 156160
    via 192.168.15.5 (156160/128256), FastEthernet0/0
```

```
PE1#show ip eigrp vrf CUST-B topology
EIGRP-IPv4 Topology Table for AS(1)/ID(192.168.16.1) VRF(CUST-B)
Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,
       r - reply Status, s - sia Status
```

```
P 10.2.2.0/24, 1 successors, FD is 156160
    via 192.168.16.2 (156160/128256), FastEthernet0/1
P 192.168.16.0/24, 1 successors, FD is 28160
    via Connected, FastEthernet0/1
```

```
PE2#show ip eigrp vrf CUST-A topology
EIGRP-IPv4 Topology Table for AS(1)/ID(192.168.37.3) VRF(CUST-A)
Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,
```

r - reply Status, s - sia Status

```
P 192.168.37.0/24, 1 successors, FD is 28160
    via Connected, FastEthernet0/1
P 10.3.3.0/24, 1 successors, FD is 156160
    via 192.168.37.6 (156160/128256), FastEthernet0/1
```

```
PE2#show ip eigrp vrf CUST-B topology
EIGRP-IPv4 Topology Table for AS(1)/ID(192.168.38.3) VRF(CUST-B)
Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,
       r - reply Status, s - sia Status
```

```
P 192.168.38.0/24, 1 successors, FD is 28160
    via Connected, FastEthernet0/0
    via Rconnected (28160/0)
P 10.3.3.0/24, 1 successors, FD is 156160
    via 192.168.38.2 (156160/128256), FastEthernet0/0
```

**Verify the IP routes for each VRF:**

```
PE1#show ip route vrf CUST-A
```

Routing Table: CUST-A

```
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, l - LISP
       + - replicated route, % - next hop override
```

Gateway of last resort is not set

```
10.0.0.0/24 is subnetted, 1 subnets
D    10.1.1.0 [90/156160] via 192.168.15.5, 00:15:47, FastEthernet0/0
192.168.15.0/24 is variably subnetted, 2 subnets, 2 masks
C    192.168.15.0/24 is directly connected, FastEthernet0/0
L    192.168.15.1/32 is directly connected, FastEthernet0/0
```

```
PE1#
```

```
PE1#show ip route vrf CUST-B
```

Routing Table: CUST-B

```
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, l - LISP
       + - replicated route, % - next hop override
```

Gateway of last resort is not set

```
10.0.0.0/24 is subnetted, 1 subnets
D    10.2.2.0 [90/156160] via 192.168.16.2, 00:15:41, FastEthernet0/1
192.168.16.0/24 is variably subnetted, 2 subnets, 2 masks
C    192.168.16.0/24 is directly connected, FastEthernet0/1
L    192.168.16.1/32 is directly connected, FastEthernet0/1
```

```
PE2#show ip route vrf CUST-A
```

```
Routing Table: CUST-A
```

```
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, l - LISP
       + - replicated route, % - next hop override
```

```
Gateway of last resort is not set
```

```
      10.0.0.0/24 is subnetted, 1 subnets
D       10.3.3.0 [90/156160] via 192.168.37.6, 00:14:01, FastEthernet0/1
      192.168.37.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.37.0/24 is directly connected, FastEthernet0/1
L       192.168.37.3/32 is directly connected, FastEthernet0/1
```

```
PE2#
```

```
PE2#show ip route vrf CUST-B
```

```
Routing Table: CUST-B
```

```
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, l - LISP
       + - replicated route, % - next hop override
```

```
Gateway of last resort is not set
```

```
      10.0.0.0/24 is subnetted, 1 subnets
D       10.3.3.0 [90/156160] via 192.168.38.2, 00:13:26, FastEthernet0/0
      192.168.38.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.38.0/24 is directly connected, FastEthernet0/0
L      192.168.38.1/32 is directly connected, FastEthernet0/0
```

**The normal routing table does not have any routes for customer route 10.1.1.0/24, nor for the connected subnet between PE1 and CE-A1 (192.168.15.0/24):**

```
PE1#show ip route 10.1.1.0
```

```
% Network not in table
```

```
PE1#
```

```
PE1#show ip route 10.2.2.0
```

```
% Network not in table
```

```
PE1#
```

```
PE1#show ip route 192.168.15.0
```

```
% Network not in table
```

```
PE1#
```

```
PE1#show ip route 192.168.16.0
```

```
% Network not in table
```

```
PE1#
```

```
PE2#show ip route 10.3.3.0
```

```
% Network not in table
PE2#
PE2#show ip route 192.168.37.0
% Network not in table
PE2#
PE2#show ip route 192.168.38.0
% Network not in table
PE2#
```

#### Redistribution Between PE-CE routers (between IGP and MP-BGP):

```
PE1(config)#router bgp 65001
PE1(config-router)#address-family ipv4 vrf Cust-A
PE1(config-router-af)#redistribute eigrp 1
PE1(config-router-af)#address-family ipv4 vrf Cust-B
PE1(config-router-af)#redistribute eigrp 1
PE1(config-router-af)#router eigrp 65001
PE1(config-router)#address-family ipv4 vrf Cust-A
PE1(config-router-af)#redistribute bgp 65001 metric 10000 1000 255 1 1500
PE1(config-router-af)#address-family ipv4 vrf Cust-B
PE1(config-router-af)#redistribute bgp 65001 metric 5000 500 255 1 1500
```

```
PE2(config)#router bgp 65001
PE2(config-router)#address-family ipv4 vrf Cust-A
PE2(config-router-af)#redistribute eigrp 1
PE2(config-router-af)#address-family ipv4 vrf Cust-B
PE2(config-router-af)#redistribute eigrp 1
PE2(config-router-af)#router eigrp 65001
PE2(config-router)#address-family ipv4 vrf Cust-A
PE2(config-router-af)#redistribute bgp 65001 metric 10000 1000 255 1 1500
PE2(config-router-af)#address-family ipv4 vrf Cust-B
PE2(config-router-af)#redistribute bgp 65001 metric 5000 500 255 1 1500
```

**The BGP tables show only locally injected routes, no routes for the prefixes on the other side of the MPLS cloud:**

```
PE1#show ip bgp vpnv4 all
BGP table version is 3, local router ID is 1.1.1.1
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,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found
```

| Network   | Next Hop     | Metric | LocPrf | Weight | Path |
|---|--------------|--------|--------|--------|------|
| Route Distinguisher: 1:111 (default for vrf CUST-A) |              |        |        |        |      |
| *> 10.1.1.0/24                                      | 192.168.15.5 | 156160 |        | 32768  | ?    |
| Route Distinguisher: 2:222 (default for vrf CUST-B) |              |        |        |        |      |
| *> 10.2.2.0/24                                      | 192.168.16.2 | 156160 |        | 32768  | ?    |

PE1#

```
PE2#show ip bgp vpnv4 all
BGP table version is 3, local router ID is 3.3.3.3
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,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found
```



| Network   | Next Hop     | Metric | LocPrf | Weight | Path |
|---|--------------|--------|--------|--------|------|
| Route Distinguisher: 1:111 (default for vrf CUST-A) |              |        |        |        |      |
| *> 10.3.3.0/24                                      | 192.168.37.6 | 156160 |        | 32768  | ?    |
| Route Distinguisher: 2:222 (default for vrf CUST-B) |              |        |        |        |      |
| *> 10.3.3.0/24                                      | 192.168.38.2 | 156160 |        | 32768  | ?    |

PE2#

```
PE1#show ip bgp vpnv4 rd 1:111
BGP table version is 3, local router ID is 1.1.1.1
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,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found
```

| Network   | Next Hop     | Metric | LocPrf | Weight | Path |
|---|--------------|--------|--------|--------|------|
| Route Distinguisher: 1:111 (default for vrf CUST-A) |              |        |        |        |      |
| *> 10.1.1.0/24                                      | 192.168.15.5 | 156160 |        | 32768  | ?    |

PE1#

### Configuration MP-BGP Between PEs routers:

```
PE1(config)#router bgp 65001
PE1(config-router)#neighbor 3.3.3.3 remote-as 65001
PE1(config-router)#neighbor 3.3.3.3 update-source loop0
PE1(config-router)#address-family vpnv4
PE1(config-router-af)#neighbor 3.3.3.3 activate
PE1(config-router-af)#neighbor 3.3.3.3 send-community
```

```
PE2(config)#router bgp 65001
PE2(config-router)#neighbor 1.1.1.1 remote-as 65001
PE2(config-router)#neighbor 1.1.1.1 update-source loop0
PE2(config-router)#address-family vpnv4
PE2(config-router-af)#neighbor 1.1.1.1 activate
PE2(config-router-af)#neighbor 1.1.1.1 send-community
```

### Verify the BGP neighbor:

```
PE1#show ip bgp summary
BGP router identifier 1.1.1.1, local AS number 65001
BGP table version is 1, main routing table version 1
```

| Neighbor     | V | AS    | MsgRcvd | MsgSent | TblVer | InQ | OutQ | Up/Down  |
|--------------|---|-------|---------|---------|--------|-----|------|----------|
| State/PfxRcd |   |       |         |         |        |     |      |          |
| 3.3.3.3      | 4 | 65001 | 12      | 12      | 1      | 0   | 0    | 00:04:43 |

0  
PE1#

**Verify the per-RD BGP table. And we can see the overlapping 10.3.3.0/24 part of the two customers' address spaces:**

```
PE1#show ip bgp vpnv4 all
BGP table version is 7, local router ID is 1.1.1.1
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,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found
```

| Network   | Next Hop     | Metric | LocPrf | Weight | Path |
|---|--------------|--------|--------|--------|------|
| Route Distinguisher: 1:111 (default for vrf CUST-A) |              |        |        |        |      |
| *> 10.1.1.0/24                                      | 192.168.15.5 | 156160 |        | 32768  | ?    |
| *>i 10.3.3.0/24                                     | 3.3.3.3      | 156160 | 100    | 0      | ?    |
| Route Distinguisher: 2:222 (default for vrf CUST-B) |              |        |        |        |      |
| *> 10.2.2.0/24                                      | 192.168.16.2 | 156160 |        | 32768  | ?    |
| *>i 10.3.3.0/24                                     | 3.3.3.3      | 156160 | 100    | 0      | ?    |

PE1#

PE2#show ip bgp vpnv4 all  
 BGP table version is 7, local router ID is 3.3.3.3  
 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,  
 Origin codes: i - IGP, e - EGP, ? - incomplete  
 RPKI validation codes: V valid, I invalid, N Not found

| Network   | Next Hop     | Metric | LocPrf | Weight | Path |
|---|--------------|--------|--------|--------|------|
| Route Distinguisher: 1:111 (default for vrf CUST-A) |              |        |        |        |      |
| *>i 10.1.1.0/24                                     | 1.1.1.1      | 156160 | 100    | 0      | ?    |
| *> 10.3.3.0/24                                      | 192.168.37.6 | 156160 |        | 32768  | ?    |
| Route Distinguisher: 2:222 (default for vrf CUST-B) |              |        |        |        |      |
| *>i 10.2.2.0/24                                     | 1.1.1.1      | 156160 | 100    | 0      | ?    |
| *> 10.3.3.0/24                                      | 192.168.38.2 | 156160 |        | 32768  | ?    |

PE2#

#### Verify the the per-VRF routing tables of PEs routers:

PE1#show ip route vrf CUST-A | beg Gate  
 Gateway of last resort is not set

10.0.0.0/24 is subnetted, 2 subnets  
 D 10.1.1.0 [90/156160] via 192.168.15.5, 00:58:13, FastEthernet0/0  
 B 10.3.3.0 [200/156160] via 3.3.3.3, 00:06:20  
 192.168.15.0/24 is variably subnetted, 2 subnets, 2 masks  
 C 192.168.15.0/24 is directly connected, FastEthernet0/0  
 L 192.168.15.1/32 is directly connected, FastEthernet0/0  
 PE1#

PE1#show ip route vrf CUST-B | beg Gate  
 Gateway of last resort is not set

10.0.0.0/24 is subnetted, 2 subnets  
 D 10.2.2.0 [90/156160] via 192.168.16.2, 00:25:35, FastEthernet0/1  
 B 10.3.3.0 [200/156160] via 3.3.3.3, 00:06:24  
 192.168.16.0/24 is variably subnetted, 2 subnets, 2 masks  
 C 192.168.16.0/24 is directly connected, FastEthernet0/1  
 L 192.168.16.1/32 is directly connected, FastEthernet0/1  
 PE1#

#### Verify that the customer routers have learned the routes from each customer router in the same VRF:

CE\_A1#show ip route eigrp | beg Gate  
 Gateway of last resort is not set

10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks  
 D 10.3.3.0/24 [90/158720] via 192.168.15.1, 00:10:57, FastEthernet0/0  
 CE\_A1#

```
CE_A2# show ip route eigrp | beg Gate
Gateway of last resort is not set
```

```
      10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks
D       10.1.1.0/24 [90/158720] via 192.168.37.3, 00:12:21, FastEthernet0/1
CE_A2#
```

```
CE_B1#show ip route eigrp | beg Gate
Gateway of last resort is not set
```

```
      10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks
D       10.3.3.0/24 [90/158720] via 192.168.16.1, 00:13:29, FastEthernet0/1
CE_B1#
```

**Verify the connectivity between customers:**

```
CE_A1#ping 10.3.3.1 sou 10.1.1.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.3.3.1, 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 = 220/264/296 ms
CE_A1#
```

```
CE_B1#ping 10.3.3.1 sou 10.2.2.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.3.3.1, timeout is 2 seconds:
Packet sent with a source address of 10.2.2.1
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 232/269/312 ms
CE_B1#
```

