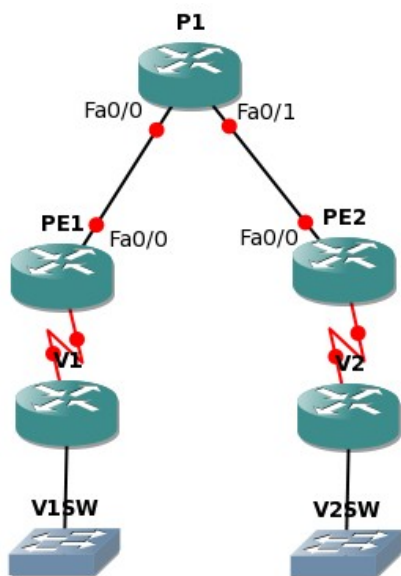


# Laboratorio: MPLS L3VPN



Indirizzamento IP:

loopbacks:

P1: 10.0.0.1/32

PE1: 10.0.1.1/32

PE2: 10.0.1.2/32

P1 – PE1 : 10.1.0.0/30 (.1 - .2)

P1 – PE2 : 10.2.0.0/30 (.1 - .2)

PE1 – V1: 192.168.21.0/30 (.1 - .2)

PE2 – V2: 192.168.22.0/30 (.1 - .2)

rete V1: 192.168.101.0/24

rete V2: 192.168.102.0/24

P1

```
hostname P1
ip cef
!
mpls label protocol ldp
!
interface Loopback0
 ip address 10.0.0.1 255.255.255.255
!
interface FastEthernet0/0
 ip address 10.1.0.1 255.255.255.252
 duplex auto
 speed auto
 mpls ip
!
interface FastEthernet0/1
 ip address 10.2.0.1 255.255.255.252
 duplex auto
 speed auto
 mpls ip
!
router ospf 1
 log-adjacency-changes
 network 10.0.0.1 0.0.0.0 area 0
 network 10.1.0.0 0.0.0.3 area 0
 network 10.2.0.0 0.0.0.3 area 0
```

PE1

```
hostname PE1
!
ip cef
!
ip vrf ClientA
 rd 999:1
```

```

route-target export 64999:1
route-target import 64999:1
!
mpls label protocol ldp
!
interface Loopback0
 ip address 10.0.1.1 255.255.255.255
!
interface FastEthernet0/0
 ip address 10.1.0.2 255.255.255.252
 duplex auto
 speed auto
 mpls ip
!
interface Serial0/1
 no ip address
 encapsulation frame-relay
 no keepalive
 clock rate 64000
!
interface Serial0/1.1 point-to-point
 ip vrf forwarding ClientA
 ip address 192.168.21.1 255.255.255.252
 frame-relay interface-dlci 101
!
router ospf 1
 log-adjacency-changes
 network 10.0.1.1 0.0.0.0 area 0
 network 10.1.0.0 0.0.0.3 area 0
!
router rip
 version 2
!
 address-family ipv4 vrf ClientA
  redistribute bgp 64999 metric 1
  network 192.168.21.0
  no auto-summary
  version 2
 exit-address-family
!
router bgp 64999
 no bgp default ipv4-unicast
 bgp log-neighbor-changes
 neighbor 10.0.1.2 remote-as 64999
 neighbor 10.0.1.2 update-source Loopback0
!
 address-family vpnv4
  neighbor 10.0.1.2 activate
  neighbor 10.0.1.2 send-community extended
 exit-address-family
!
 address-family ipv4 vrf ClientA
  redistribute rip metric 1
  no synchronization
 exit-address-family

```

PE2

hostname PE2

!

```

ip cef
!
ip vrf ClientA
  rd 999:1
  route-target export 64999:1
  route-target import 64999:1
!
mpls label protocol ldp
!
interface Loopback0
  ip address 10.0.1.2 255.255.255.255
!
interface FastEthernet0/0
  ip address 10.2.0.2 255.255.255.252
  duplex auto
  speed auto
  mpls ip
!
interface Serial0/1
  no ip address
  encapsulation frame-relay
  no keepalive
  clock rate 64000
!
interface Serial0/1.1 point-to-point
  ip vrf forwarding ClientA
  ip address 192.168.22.1 255.255.255.252
  frame-relay interface-dlci 101
!
router ospf 1
  log-adjacency-changes
  network 10.0.1.2 0.0.0.0 area 0
  network 10.2.0.0 0.0.0.3 area 0
!
router rip
  version 2
  !
  address-family ipv4 vrf ClientA
    redistribute bgp 64999 metric 1
    network 192.168.22.0
    no auto-summary
    version 2
  exit-address-family
!
router bgp 64999
  no bgp default ipv4-unicast
  bgp log-neighbor-changes
  neighbor 10.0.1.1 remote-as 64999
  neighbor 10.0.1.1 update-source Loopback0
  !
  address-family vpnv4
    neighbor 10.0.1.1 activate
    neighbor 10.0.1.1 send-community extended
  exit-address-family
!
  address-family ipv4 vrf ClientA
    redistribute rip metric 1
    no synchronization
  exit-address-family

```

V1

```
hostname V1
!
interface FastEthernet0
 ip address 192.168.101.254 255.255.255.0
 speed auto
!
interface Serial0
 no ip address
 encapsulation frame-relay
 no keepalive
!
interface Serial0.1 point-to-point
 ip address 192.168.21.2 255.255.255.252
 frame-relay interface-dlci 101
!
router rip
 version 2
 network 192.168.21.0
 network 192.168.101.0
 no auto-summary
!
ip classless
```

V2

```
hostname V2
!
interface FastEthernet0
 ip address 192.168.102.254 255.255.255.0
 speed auto
!
interface Serial0
 no ip address
 encapsulation frame-relay
 no keepalive
!
interface Serial0.1 point-to-point
 ip address 192.168.22.2 255.255.255.252
 frame-relay interface-dlci 101
!
router rip
 version 2
 network 192.168.22.0
 network 192.168.102.0
 no auto-summary
!
ip classless
```

PE1>sh ip route vrf ClientA

Routing Table: ClientA

```
192.168.21.0/30 is subnetted, 1 subnets
C    192.168.21.0 is directly connected, Serial0/1.1
192.168.22.0/30 is subnetted, 1 subnets
B    192.168.22.0 [200/0] via 10.0.1.2, 00:00:08
B    192.168.102.0/24 [200/1] via 10.0.1.2, 00:00:08
R    192.168.101.0/24 [120/1] via 192.168.21.2, 00:00:03, Serial0/1.1
PE1>
```

V1>sh ip route

```
192.168.21.0/30 is subnetted, 1 subnets
C    192.168.21.0 is directly connected, Serial0.1
192.168.22.0/30 is subnetted, 1 subnets
R    192.168.22.0 [120/1] via 192.168.21.1, 00:00:02, Serial0.1
R    192.168.102.0/24 [120/1] via 192.168.21.1, 00:00:02, Serial0.1
C    192.168.101.0/24 is directly connected, FastEthernet0
V1>ping 192.168.102.254
```

```
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.102.254, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 76/181/536 ms
V1>
```