R1:

license smart enable

license boot level appxk9

do write

Reload

en

conf t

hostname R1

no ip domain lookup

ip routing

ipv6 unicast-routing

int g0/0/0

ip address 152.19.0.2 255.255.255.252

no shut

int g0/0/1

ip add 162.19.0.2 255.255.255.252

no shut

Int vlan 1

ip add 172.19.0.1 255.255.255.0

No shut

int g0/1/0

Sw access vlan 1

no shut

int lo0

ip add 162.19.255.1 255.255.255.255

no shut

int tunnel 0

tunnel source gig 0/0/0

tunnel mode gre multipoint

ip addr 10.3.1.1 255.255.255.0

ipv6 addr 2001:10:3:1::1/64

ip nhrp network-id 1

ip nhrp map multicast dynamic

ip nhrp authentication Cisco123

ipv6 nhrp network-id 1

ipv6 nhrp map multicast dynamic

ipv6 nhrp authentication Cisco123

ip mtu 1400

ipv6 mtu 1400

ip tcp adjust-mss 1360

ipv6 tcp adjust-mss 1360

bandwidth 100000

ip nhrp redirect

ipv6 nhrp redirect

no shut

router ei 3

network 152.19.0.0 0.0.255.255

network 172.19.0.0 0.0.0.255

Passive-interface vlan 1

ip route 0.0.0.0 0.0.0.0 152.19.0.1

Ip route 172.19.1.0 255.255.255.0 172.19.0.2

router ospf 3

network 162.19.0.0 0.0.255.255 area 3

network 172.19.0.1 0.0.0.0 area 3

mpls ldp autoconfig

router bgp 3

bgp log-neighbor-changes

no bgp default ipv4-unicast

neighbor GRP3 peer-group

neighbor GRP3 remote-as 3

neighbor GRP3 update-source Loopback0

neighbor 162.19.255.1 peer-group GRP3

neighbor 162.19.255.2 peer-group GRP3

neighbor 162.19.255.3 peer-group GRP3

address-family ipv4

redistribute connected route-map CONN

neighbor 162.19.255.1 activate

neighbor 162.19.255.2 activate

neighbor 162.19.255.3 activate

exit-address-family

address-family vpnv4

neighbor GRP3 send-community extended

neighbor 162.19.255.1 activate

neighbor 162.19.255.2 activate

neighbor 162.19.255.3 activate

exit-address-family

R2:

license smart enable

license boot level appxk9

do write

Reload

en

conf t

hostname R2

no ip domain lookup

ip routing

ipv6 unicast-routing

int g0/0/0

ip address 152.19.0.6 255.255.255.252

no shut

int g0/0/1

ip add 162.19.0.6 255.255.255.252

no shut

Int vlan 2

ip add 172.19.64.1 255.255.255.0

No shut

int g0/1/0

Sw access vlan 2

no shut

int lo0

ip add 162.19.255.2 255.255.255.255

no shut

int tu 0

description R2 mGRE - DMVPN Tunnel

ip addr 10.3.1.2 255.255.255.0

ipv6 addr 2001:10:3:1::2/64

tunnel source gig 0/0/0

tunnel mode gre multipoint

bandwidth 100000

ip mtu 1400

ipv6 mtu 1400

ip tcp adjust-mss 1360

ipv6 tcp adjust-mss 1360

ip nhrp network-id 1

ip nhrp authentication Cisco123

ip nhrp nhs 10.3.1.1 nbma 152.19.0.2 multicast

ip nhrp registration no-unique

ip nhrp shortcut

ipv6 nhrp network-id 1

ipv6 nhrp authentication Cisco123

ipv6 nhrp nhs 2001:10:3:1::1 nbma 152.19.0.2 multicast

ipv6 nhrp shortcut

no shut

router ei 3

network 152.19.0.0 0.0.255.255

network 172.19.64.0 0.0.0.255

Passive-interface vlan 2

ip route 0.0.0.0 0.0.0.0 152.19.0.5

router ospf 3

network 162.19.0.0 0.0.255.255 area 3

network 172.19.2.254 0.0.0.0 area 3

Mpls ldp autoconfig

router bgp 3

bgp log-neighbor-changes

no bgp default ipv4-unicast

neighbor GRP3 peer-group

neighbor GRP3 remote-as 3

neighbor GRP3 update-source Loopback0

neighbor 162.19.255.1 peer-group GRP3

neighbor 162.19.255.2 peer-group GRP3

neighbor 162.19.255.3 peer-group GRP3

address-family ipv4

redistribute connected route-map CONN

neighbor 162.19.255.1 activate

neighbor 162.19.255.2 activate

neighbor 162.19.255.3 activate

exit-address-family

address-family vpnv4

neighbor GRP3 send-community extended

neighbor 162.19.255.1 activate

neighbor 162.19.255.2 activate

neighbor 162.19.255.3 activate

exit-address-family

R3:

license smart enable

license boot level appxk9

do write

Reload

en

conf t

hostname R3

no ip domain lookup

ip routing

ipv6 unicast-routing

int g0/0/0

ip address 152.19.0.10 255.255.255.252

no shut

int g0/0/1

ip add 162.19.0.10 255.255.255.252

no shut

Int vlan 3

ip add 172.19.96.1 255.255.255.0

No shut

int g0/1/0

Sw access vlan 3

no shut

int lo0

ip add 162.19.255.3 255.255.255.255

no shut

int tu 0

description R3 mGRE - DMVPN Tunnel

ip addr 10.3.1.3 255.255.255.0

ipv6 addr 2001:10:3:1::3/64

tunnel source gig 0/0/0

tunnel mode gre multipoint

bandwidth 100000

ip mtu 1400

ipv6 mtu 1400

ip tcp adjust-mss 1360

ipv6 tcp adjust-mss 1360

ip nhrp network-id 1

ip nhrp authentication Cisco123

ip nhrp nhs 10.3.1.1 nbma 152.19.0.2 multicast

ip nhrp registration no-unique

ip nhrp shortcut

ipv6 nhrp network-id 1

ipv6 nhrp authentication Cisco123

ipv6 nhrp nhs 2001:10:3:1::1 nbma 152.19.0.2 multicast

ipv6 nhrp shortcut

no shut

router ei 3

network 152.19.0.0 0.0.255.255

network 172.19.96.0 0.0.0.255

Passive-interface vlan 3

ip route 0.0.0.0 0.0.0.0 152.19.0.9

Ip route 172.19.3.0 255.255.255.0 172.19.96.2

router ospf 3

network 162.19.0.0 0.0.255.255 area 3

network 172.19.0.0 0.0.255.255 area 3

Mpls ldp autoconfig

router bgp 3

bgp log-neighbor-changes

no bgp default ipv4-unicast

neighbor GRP3 peer-group

neighbor GRP3 remote-as 3

neighbor GRP3 update-source Loopback0

neighbor 162.19.255.1 peer-group GRP3

neighbor 162.19.255.2 peer-group GRP3

neighbor 162.19.255.3 peer-group GRP3

address-family ipv4

redistribute connected route-map CONN

neighbor 162.19.255.1 activate

neighbor 162.19.255.2 activate

neighbor 162.19.255.3 activate

exit-address-family

address-family vpnv4

neighbor GRP3 send-community extended

neighbor 162.19.255.1 activate

neighbor 162.19.255.2 activate

neighbor 162.19.255.3 activate

exit-address-family

R4:

en

conf t

hostname R4

no ip domain lookup

ip routing

ipv6 unicast-routing

Int gig 0/0

Ip add dhcp

No shut

ip nat outside

Int gig 0/1

Ip address 30.36.0.1 255.255.255.0

No shut

ip nat inside

access-list 1 permit any

ip nat inside source list 1 int gig0/0 overload

ip route 1.1.1.0 255.255.0.0 30.36.0.2

ip route 152.19.0.0 255.255.0.0 30.36.0.2

ip route 162.19.0.0 255.255.0.0 30.36.0.2

ip route 172.19.0.0 255.255.0.0 30.36.0.2

do write

SP1:

hostname SP1

no ip domain lookup

ip routing

ipv6 unicast-routing

Int g1/0/23

No sw

Ip add 30.36.0.2 255.255.255.0

No shut

Int g1/0/24

No sw

Ip add 1.1.1.1 255.255.255.252

No shut

Int g1/0/3

No sw

Ip add 152.19.0.9 255.255.255.252

No shut

Int g1/0/2

No sw

Ip add 152.19.0.5 255.255.255.252

No shut

Int g1/0/1

No sw

Ip add 152.19.0.1 255.255.255.252

No shut

ip route 0.0.0.0 0.0.0.0 30.36.0.1

ip route 162.19.0.0 255.255.0.0 1.1.1.2

ip route 172.19.0.0 255.255.0.0 1.1.1.2

Ip route 172.19.3.0 255.255.255.0 152.19.0.10

Ip route 172.19.1.0 255.255.255.0 152.19.0.2

router ei 3

network 152.19.0.0 0.0.255.255

network 30.36.0.0 0.0.0.255

network 1.1.1.1

network 0.0.0.0

redistribute static metric 1 1 1 1 1

SP2:

hostname SP2

no ip domain lookup

ip routing

ipv6 unicast-routing

mpls label protocol ldp

Int g1/0/24

No sw

Ip add 1.1.1.2 255.255.255.252

No shut

Int g1/0/3

No sw

Ip add 162.19.0.9 255.255.255.252

No shut

Int g1/0/2

No sw

Ip add 162.19.0.5 255.255.255.252

No shut

Int g1/0/1

No sw

Ip add 162.19.0.1 255.255.255.252

No shut

interface Loopback0

ip address 172.19.255.4 255.255.255.255

router ospf 3

network 162.19.0.0 0.0.255.255 area 3

network 172.19.255.4 0.0.0.0 area 3

default-information originate

Mpls ldp autoconfig

Ip route 0.0.0.0 0.0.0.0 1.1.1.1

Ip route 172.19.3.0 255.255.255.0 162.19.0.10

Ip route 172.19.1.0 255.255.255.0 162.19.0.2

router bgp 3

bgp log-neighbor-changes

no bgp default ipv4-unicast

neighbor GRP3 peer-group

neighbor GRP3 remote-as 3

neighbor GRP3 update-source Loopback0

neighbor 162.19.255.1 peer-group GRP3

neighbor 162.19.255.2 peer-group GRP3

neighbor 162.19.255.3 peer-group GRP3

address-family ipv4

redistribute connected route-map CONN

neighbor 162.19.255.1 activate

neighbor 162.19.255.2 activate

neighbor 162.19.255.3 activate

exit-address-family

address-family vpnv4

neighbor GRP3 send-community extended

neighbor 162.19.255.1 activate

neighbor 162.19.255.2 activate

neighbor 162.19.255.3 activate

exit-address-family

S3:

en

conf t

hostname S3

Vlan 2

Name Vancouver

Vlan 3

Name Richmond

Int range f0/15-18

Sw access vlan 1

Int range f0/5-10

Sw access vlan 2

Int range f0/20-24

Sw access vlan 3