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| **Use Case-01** **Correcting head office with data centre site with multiply routers (primary and backup) using BGP as a routing protocol.**  **Configuration:- Router- R1**  >en  #config t  #hostname Head office  #int s0/3/0  #ip address 10.0.0.1 255.0.0.0  #no shut  #int s0/3/1  #ip address 20.0.0.1 255.0.0.0  #no shut  #int loopback 0  #ip address 1.1.1.1 255.0.0.0  #no shut  #exit  #router bgp 100  #net 10.0.0.0  #net 20.0.0.0  #net 1.0.0.0  #neighbor 10.0.0.2 remote-as 200  #neighbor 20.0.0.2 remote-as 200  #ip route 2.0.0.0 255.0.0.0 s0/3/0 10  #ip route 2.0.0.0 255.0.0.0 s0/3/1 20  **Router- R2**  >en  #config t  #hostname Branchoffice  #int s0/3/1  #ip address 10.0.0.2 255.0.0.0  #no shut  #int s0/3/0  #ip address 20.0.0.2 255.0.0.0  #no shut  #int loopback 0  #ip address 2.2.2.2 255.0.0.0  #no shut  #exit  #router bgp 200  #net 10.0.0.0  #net 20.0.0.0  #net 1.0.0.0  #neighbor 10.0.0.1 remote-as 100  #neighbor 20.0.0.1 remote-as 100  #ip route 1.0.0.0 255.0.0.0 s0/3/1 10  #ip route 1.0.0.0 255.0.0.0 s0/3/0 20 |
| **Uses Case -02** **Restricting server access using routing policy.**  **Configuration: - Router1: - R1T1**  > en  #config t  #hostname R1T1  #int g0/1  #ip address 10.0.0.1 255.0.0.0  #no shut  #int g0/2  #ip address 20.0.0.1 255.0.0.0  #no shut  #exit  #ip route 30.0.0.0 255.0.0.0 20.0.0.2  **Router2: - R2T1T2**  >en  #config t  #hostname R2T1T2  #int g0/0  #no ip address  #no shut  #int g0/2  #ip address 20.0.0.2 255.0.0.0  #no shut  #int g0/1  #ip address 50.0.0.1 255.0.0.0  #no shut  #Int g0/0.2  #encapsulation dot1q 2  #ip address 30.0.0.1 255.0.0.0  #int g0/0.3  #encapsulation dot1q 3  #ip address 40.0.0.1 255.0.0.0  #exit  #ip route 10.0.0.0 255.0.0.0 20.0.0.1  #ip route 60.0.0.0 255.0.0.0 50.0.0.2  **Router3: - R3T2**  >en  #config t  #hostname R3T2  #int g0/0  #ip address 60.0.0.1 255.0.0.0  #no shut  #int g0/1  #ip address 50.0.0.2 255.0.0.0  #no shut  #exit  #ip route 40.0.0.0 255.0.0.0 50.0.0.1  **Switch1: - S1T1T2**  >en  #config t  #hostname S1T1T2  #vtp domain name T1T2  #vlan 2  #name Team1  #exit  #vlan 3  #name Team2  #exit  #int f0/2  #switchport mode access  #switchport access vlan 2  #int f0/3  #switchport mode access  #switchport access vlan 3  #exit #int g0/1  #switchport mode trunk  **Use Case-3** **Designing core layer for customer-1 at requirement is core redundance Layer 2.**  **Configuration:- Multi-layer Switch** **-MLS1**  >en  #config t  #hostname MLS1  #int range f0/1-5  #channel-group 1 mode desirable  **Multi-layer Switch** **-MLS2**  >en  #config t  #hostname MLS2  #int range f0/1-5  #channel-group 1 mode auto  **Router-R1**  >en  #config t  #hostname R1  #int g0/0  #ip address 10.0.0.1 255.0.0.0  #no shut  #int g0/1  #ip address 30.0.0.1 255.0.0.0  #no shut  #exit  #router ospf 1  #network 10.0.0.0 0.0.0.255 area 0  #network 30.0.0.0 0.0.0.255 area 0  **Router- R2**  >en  #config t  #hostname R2  #int g0/0  #ip address 20.0.0.1 255.0.0.0  #no shut  #int g0/1  #ip address 30.0.0.2 255.0.0.0  #no shut  #exit  #router ospf 2  #network 20.0.0.0 0.0.0.255 area 0  #network 30.0.0.0 0.0.0.255 area 0  **Switches- S1**  >en  #config t  #hostname S1  #int g0/1  #switchport mode trunk  **Switches- S2**  >en  #config t  #hostname S2  #int g0/1  #switchport mode trunk  **Use Case-4 Designing core layer for customer-1 at requirement is core redundance layer 3.**  **Configuration:- Multi-layer Switch** **-MLS1**  >en  #config t  #hostname MLS1  #ip routing  #int f0/1  #no switchport  #ip address 30.0.0.1 255.0.0.0  #no shut  #int f0/2  #no switchport  #ip address 30.0.0.1 255.0.0.0  #no shut  #int g0/1  #no switchport  #ip address 20.0.0.2 255.0.0.0  #no shut  #exit  #router ospf 2  #network 20.0.0.0 0.0.0.255 area 0  #network 30.0.0.0 0.0.0.255 area 0  #network 60.0.0.0 0.0.0.255 area 0  **Multilayer Switch- MLS2**  >en  #config t  #hostname MLS2  #ip routing  #int f0/2  #no switchport  #ip address 30.0.0.2 255.0.0.0  #no shut  #int f0/3  #no switchport  #ip address 60.0.0.2 255.0.0.0  #no shut  #int g0/2  #no switchport  #ip address 40.0.0.1 255.0.0.0  #no shut  #exit  #router ospf 4  #network 30.0.0.0 0.0.0.255 area 0  #network 40.0.0.0 0.0.0.255 area 0  #network 60.0.0.0 0.0.0.255 area 0  **Router -R1**  >en  #config t  #hostname R1  #int g0/1  #ip address 10.0.0.1 255.0.0.0  #no shut  #Int g0/0  #ip address 20.0.0.1 255.0.0.0  #no shut  #exit  #router ospf 1  #network 10.0.0.0 0.0.0.255 area 0  #network 20.0.0.0 0.0.0.255 area 0  **Router -R2**  >en  #config t  #hostname R2  #int g0/1  #ip address 50.0.0.1 255.0.0.0  #no shut  #Int g0/0  #ip address 40.0.0.2 255.0.0.0  #no shut  #exit  #router ospf 1  #network 40.0.0.0 0.0.0.255 area 0  #network 50.0.0.0 0.0.0.255 area 0 |
| **Use Case-5** **Designing core layer for customer-1 at requirement is core Security implement by Both Layers (L2, L3).**  **Configuration:- Multi-layer Switch** **-MLS1**  >en  #config t  #hostname MLS1  #ip routing  #int f0/1  #no switchport  #ip address 40.0.0.1 255.0.0.0  #no shut  #int g0/1  #no switchport  #ip address 30.0.0.2 255.0.0.0  #no shut  #exit  #router ospf 1  #network 30.0.0.0 0.0.0.0.255 area 0  #network 40.0.0.0 0.0.0.255 area 0  #access-list 135 deny icmp 10.0.0.0 0.255.255.255 60.0.0.0 0.255.255.255  #access-list 135 permit icmp any any  #int g0/1  #ip access-group 135 in  **Multi-Layer Switch-MLS2**  >en  #config t  #hostname MLS2  #ip routing  #int f0/2  #no switchport  #ip address 40.0.0.2 255.0.0.0  #no shut  #int g0/1  #no switchport  #ip address 50.0.0.1 255.0.0.0  #no shut  #exit  #router ospf 1  #network 40.0.0.0 0.0.0.255 area 0  #network 50.0.0.0 0.0.0.255 area 0  #access-list 135 deny icmp 70.0.0.0 0.255.255.255 20.0.0.0 0.255.255.255  #access-list 135 permit icmp any any  #int g0/1  #ip access-group 135 in  **Router-R1**  >en  #config t  #hostname R1  #int g0/0  #no ip address  #no shut  #int g0/0.2  #encapsulation dot1q 2  #ip address 10.0.0.1 255.0.0.0  #int g0/0.3  #encapsulation dot1q 3  #ip address 20.0.0.1 255.0.0.0  #int g0/1  #ip address 30.0.0.1 255.0.0.0  #no shut  #exit  #router ospf 1  #network 10.0.0.0 0.0.0.255 area 0  #network 20.0.0.0 0.0.0.255 area 0  #network 30.0.0.0 0.0.0.255 area 0  **Router-R2**  >en  #config t  #hostname R2  #int g0/0  #no ip address  #no shut  #int g0/0.2  #encapsulation dot1q 4  #ip address 60.0.0.1 255.0.0.0  #int g0/0.3  #encapsulation dot1q 5  #ip address 70.0.0.1 255.0.0.0  #int g0/1  #ip address 50.0.0.2 255.0.0.0  #no shut  #exit  #router ospf 1  #network 50.0.0.0 0.0.0.255 area 0  #network 60.0.0.0 0.0.0.255 area 0  #network 70.0.0.0 0.0.0.255 area 0  **Switch-S1**  >en  #config t  #hostname S1  #vtp domain Technical  #vlan 2  #name IT  #vlan 3  #name NonIT  #exit  #int f0/1  #switchport mode access  #switchport access vlan 2  #int f0/2  #switchport mode access  #switchport access vlan 3  #Int f0/3  #switchport mode access  #switchport access vlan 2  #int g0/1  #switchport mode trunk  #int f0/1  #switchport mode access  #switchport port-security  #switchport port-security max 1  #exit  #int f0/3  #swtchport mode access  #switchport port-security  #switchport port-security max 3  #exit  **Switch-S2**  >en  #config t  #hostname S2  #vtp domain Professional  #vlan 4  #name Doctor  #vlan 5  #name Engineering  #exit  #int f0/1  #switchport mode access  #switchport access vlan 4  #int f0/2  #switchport mode access  #switchport access vlan 5  #Int f0/3  #switchport mode access  #switchport access vlan 5  #Int f0/4  #switchport mode access  #switchport access vlan 5  #int g0/1  #switchport mode trunk | |
| **Use Case-06** **Off campus connectivity using Frame relay.**  1.Chicago- Ohio 2. Chicago- Washinton  (same Subnet- Multi-point) Texas (Same Subnet Point to point)  **Configuration: -**  S0-102->R1 to R2  103-> R1 to R3  104-> R1 to R4  S1-201->R2 to R1  S2-301->R3 to R1  S3-401-> R4 to R1  FR-S0->R1 to R2 S1-> R2 to R1  S0->R1 to R3 S2-> R3 to R1  S0->R1 to R4 S3-> R4 to R1  **Router- R1**  >en  #config t  #hostname Headoffice  #int s0/3/0  #no shut  #encapsulation frame-relay  #frame-relay lmi-type cisco  #exit  #int s0/3/0.102 multipoint  #ip address 192.168.10.1 255.255.255.0  #frame-relay interface-dlci 102  #frame-relay interface-dlci 103  #exit  #int s0/3/0.104 point-to-point  #ip address 192.168.20.1 255.255.255.0  #frame-relay interface-dlci 104  **Router- R2**  >en  #config t  #hostname Branchoffice1  #int s0/3/0  #no shut  #encapsulation frame-relay  #frame-relay lmi-type cisco  #exit  #int s0/3/0.201 multipoint  #ip address 192.168.10.2 255.255.255.0  #frame-relay interface-dlci 201  **Router- R3**  >en  #config t  #hostname Branchoffice2  #int s0/3/0  #no shut  #encapsulation frame-relay  #frame-relay lmi-type cisco  #exit  #int s0/3/0.301 multipoint  #ip address 192.168.10.3 255.255.255.0  #frame-relay interface-dlci 301  **Router- R4**  >en  #config t  #hostname Branchoffice3  #int s0/3/0  #no shut  #encapsulation frame-relay  #frame-relay lmi-type cisco  #exit  #int s0/3/0.401 point-to-point  #ip address 192.168.20.2 255.255.255.0  #frame-relay interface-dlci 401 | |
| **Use Case-7** **Designing core layer for customer-1 at requirement is core security with redundance layer 3.**  **Configuration:- Multi-layer Switch** **-MLS1**  >en  #config t  #hostname MLS1  #ip routing  #int f0/1  #no switchport  #ip address 30.0.0.1 255.0.0.0  #no shut  #int f0/2  #no switchport  #ip address 40.0.0.1 255.0.0.0  #no shut  #int f0/3  #no switchport  #ip address 50.0.0.1 255.0.0.0  #no shut  #int g0/2  #no switchport  #ip address 80.0.0.2 255.0.0.0  #no shut  #exit  #router ospf 1  #network 30.0.0.0 0.0.0.255 area 0  #network 40.0.0.0 0.0.0.255 area 0  #network 50.0.0.0 0.0.0.255 area 0  #network 80.0.0.0 0.0.0.255 area 0  **Multi-layer Switch** **-MLS2**  >en  #config t  #hostname MLS2  #ip routing  #int f0/1  #no switchport  #ip address 30.0.0.2 255.0.0.0  #no shut  #int f0/2  #no switchport  #ip address 40.0.0.2 255.0.0.0  #no shut  #int f0/3  #no switchport  #ip address 50.0.0.2 255.0.0.0  #no shut  #int g0/2  #no switchport  #ip address 90.0.0.2 255.0.0.0  #no shut  #exit  #router ospf 1  #network 30.0.0.0 0.0.0.255 area 0  #network 40.0.0.0 0.0.0.255 area 0  #network 50.0.0.0 0.0.0.255 area 0  #network 90.0.0.0 0.0.0.255 area 0  **Switch-S1**  >en  #config t  #hostname S1  #vlan 2  #name V2  #vlan 3  #name V3  #exit  #int f0/1  #switchport mode access  #switchport access vlan 2  #int f0/2  #switchport mode access  #switchport access vlan 3  #int g0/1  #switchport mode trunk  #exit  **Switch-S2**  >en  #config t  #hostname S2  #vlan 2  #name V2  #vlan 3  #name V3  #exit  #int f0/1  #switchport mode access  #switchport access vlan 2  #int f0/2  #switchport mode access  #switchport access vlan 3  #int g0/1  #switchport mode trunk  #exit  **Router-R1**  >en  #config t  #hostname R1  #int g0/0  #no ip address  #no shut  #int g0/0.2  #encapsulation dot1q 2  #ip address 10.0.0.2 255.0.0.0  #no shut  #int g0/0.3  #encapsulation dot1q 3  #ip address 20.0.0.2 255.0.0.0  #no shut  #int g0/1  #ip address 80.0.0.1 255.0.0.0  #no shut  #exit  #router ospf 1  #network 10.0.0.0 0.0.0.255 area 0  #network 20.0.0.0 0.0.0.255 area 0  #network 80.0.0.0 0.0.0.255 area 0  #exit  #access-list 160 permit icmp 10.0.0.0 0.0.0.255 60.0.0.0 0.0.0.255  #access-list 160 permit icmp 20.0.0.0 0.0.0.255 70.0.0.0 0.0.0.255  #int g0/1  #ip access-group 160 out  #exit  **Router-R2**  >en  #config t  #hostname R2  #int g0/0  # ip address 90.0.0.1 255.0.0.0  #no shut  #int g0/1  #no ip address  #no shut  #int g0/1.2  #encapsulation dot1q 2  #ip address 60.0.0.2 255.0.0.0  #no shut  #int g0/1.3  #encapsulation dot1q 3  #ip address 70.0.0.2 255.0.0.0  #exit  #router ospf 1  #network 60.0.0.0 0.0.0.255 area 0  #network 70.0.0.0 0.0.0.255 area 0  #network 90.0.0.0 0.0.0.255 area 0  #exit | |
| **Use case-8 Web security in accessing with a web server.**  **Configuration**:- **Router -R1**  >en  #config t  #hostname FloorR1  #int g0/0  #ip address 10.0.0.1 255.0.0.0  #no shut  #int g0/1  #ip address 20.0.0.1 255.0.0.0  #no shut  #int g0/2  #ip address 30.0.0.1 255.0.0.0  #no shut  #exit  #router ospf 1  #network 10.0.0.0 0.0.0.255 area 0  #network 20.0.0.0 0.0.0.255 area 0  #network 30.0.0.0 0.0.0.255 area 0  **Router-R2**  >en  #config t  #hostname FloorR1  #int g0/0  #ip address 40.0.0.1 255.0.0.0  #no shut  #int g0/1  #ip address 50.0.0.1 255.0.0.0  #no shut  #int g0/2  #ip address 30.0.0.2 255.0.0.0  #no shut  #exit  #router ospf 1  #network 30.0.0.0 0.0.0.255 area 0  #network 40.0.0.0 0.0.0.255 area 0  #network 50.0.0.0 0.0.0.255 area 0 | |
| **Use case-9- Filtering access to the server’s b/w multiple divisions.**  **Configuration**:-**Router-R1**  >en  #config t  #hostname RouterFloor  #int g0/0  #ip address 10.0.0.1 255.0.0.0  #no shut  #int g0/1  #ip address 20.0.0.1 255.0.0.0  #no shut  #int g0/2  #ip address 30.0.0.1 255.0.0.0  #no shut  #exit  #router ospf 1  #network 10.0.0.0 0.0.0.255 area 0  #network 20.0.0.0 0.0.0.255 area 0  #network 30.0.0.0 0.0.0.255 area 0  #access-list 150 permit tcp 10.0.0.0 0.0.0.255 40.0.0.0 0.0.0.255  #access-list 150 permit tcp 20.0.0.0 0.0.0.255 50.0.0.0 0.0.0.255  #access-list 150 permit tcp 10.0.0.0 0.0.0.255 60.0.0.0 0.0.0.255  #access-list 150 permit tcp 20.0.0.0 0.0.0.255 60.0.0.0 0.0.0.255  #access-list 150 permit icmp 20.0.0.0 0.0.0.255 60.0.0.0 0.0.0.255  #access-list 150 permit icmp 10.0.0.0 0.0.0.255 60.0.0.0 0.0.0.255  #access-list 150 permit icmp 20.0.0.0 0.0.0.255 50.0.0.0 0.0.0.255  #access-list 150 permit icmp 10.0.0.0 0.0.0.255 40.0.0.0 0.0.0.255  #int g0/2  #ip access-group 150 out  **Router-R2**  >en  #config t  #hostname RouterDC  #int g0/0  #no ip address  #no shut  #int g0/0.2  #encapsulation dot1q 2  #ip address 40.0.0.1 255.0.0.0  #no shut  #int g0/0.3  #encapsulation dot1q 3  #ip address 50.0.0.1 255.0.0.0  #no shut  #int g0/1  #ip address 60.0.0.1 255.0.0.0  #no shut  #int g0/2  #ip address 30.0.0.2 255.0.0.0  #no shut  #exit  #router ospf 1  #network 30.0.0.0 0.0.0.255 area 0  #network 40.0.0.0 0.0.0.255 area 0  #network 50.0.0.0 0.0.0.255 area 0  #network 60.0.0.0 0.0.0.255 area 0  **Switch-S1**  >en  #config t  #hostname Switch  #vtp domain abc  #vlan 2  #name Sales  #vlan 3  #name Engineering  #exit  #int f0/1  #switchport mode access  #awitchport access vlan 2  #int f0/2  #switchport mode access  #switchport access vlan 3  #int g0/1  #switchport mode trunk | |
| **Use Scale -10 Secured Vlan Environment**  **Configuration**:- **Router-R1F1M**  >en  #config t  #hostname R1F1M  #int g0/0  #no ip address  #no shut  #int g0/0.2  #encapsulation dot1q 2  #ip address 10.0.0.3 255.0.0.0  #int g0/0.3  #ip address 20.0.0.3 255.0.0.0  #int g0/1  #ip address 30.0.0.1 255.0.0.0  #no shut  #exit  #router ospf 1  #network 10.0.0.0 0.0.0.255 area 0  #network 20.0.0.0 0.0.0.255 area 0  #network 30.0.0.0 0.0.0.255 area 0  **Router-R2F2CS**  >en  #config t  #hostname R2F2CS  #int g0/0  #no ip address  #no shut  #int g0/0.2  #encapsulation dot1q 2  #ip address 40.0.0.3 255.0.0.0  #int g0/0.3  #encapsulation dot1q 3  #ip address 50.0.0.3 255.0.0.0  #int g0/1  #ip address 30.0.0.2 255.0.0.0  #no shut  #int g0/2  #ip address 60.0.0.1 255.0.0.0  #router ospf 2  #network 30.0.0.0 0.0.0.255 area 0  #network 40.0.0.0 0.0.0.255 area 0  #network 50.0.0.0 0.0.0.255 area 0  #network 60.0.0.0 0.0.0.255 area 0  **Router-R3F3E**  >en  #config t  #hostname R3F3E  #int g0/0  #no ip address  #no shut  #int g0/0.2  #encapsulation dot1q 2  #ip address 70.0.0.3 255.0.0.0  #int g0/0.3  #encapsulation dot1q 3  #ip address 80.0.0.3 255.0.0.0  #int g0/1  #ip address 60.0.0.2 255.0.0.0  #no shut  #int g0/2  #ip address 90.0.0.1 255.0.0.0  #exit  #router ospf 3  #network 60.0.0.0 0.0.0.255 area 0  #network 70.0.0.0 0.0.0.255 area 0  #network 80.0.0.0 0.0.0.255 area 0  #network 90.0.0.0 0.0.0.255 area 0  **Router-R4F4C**  >en  #config t  #hostname R4F4C  #int g0/0  #no ip address  #no shut  #int g0/0.2  #encapsulation dot1q 2  #ip address 100.0.0.3 255.0.0.0  #int g0/0.3  #ip address 110.0.0.3 255.0.0.0  #int g0/1  #ip address 90.0.0.2 255.0.0.0  #no shut  #exit  #router ospf 4  #network 90.0.0.0 0.0.0.255 area 0  #network 100.0.0.0 0.0.0.255 area 0  #network 110.0.0.0 0.0.0.255 area 0  **Switch-S1F1M**  >en  #config t  #hostname S1F1M  #vtp domain Mechanical  #vlan 2  #name MS  #vlan 3  #name MT  #int f0/2  #switchport mode access  #switchport access vlan 2  #int f0/3  #switchport mode access  #switchport access vlan 3  #int g0/1  #switchport mode trunk  #vtp password 123  **Switch-S2F2CS**  >en  #config t  #hostname S2F2CS  #vtp domain ComputerScience  #vlan 2  #name CSS  #vlan 3  #name CST  #int f0/1  #switchport mode access  #switchport access vlan 2  #int f0/3  #switchport mode access  #switchport access vlan 3  #int g0/1  #switchport mode trunk  #vtp password 456  **Switch-S3F3E**  >en  #config t  #hostname S2F2E  #vtp domain Engineering  #vlan 2  #name ES  #vlan 3  #name ET  #int f0/2  #switchport mode access  #switchport access vlan 2  #int f0/3  #switchport mode access  #switchport access vlan 3  #int g0/1  #switchport mode trunk  #vtp password 789  **Switch-S2F2C**  >en  #config t  #hostname S2F2C  #vtp domain Civil  #vlan 2  #name CS  #vlan 3  #name CT  #int f0/1  #switchport mode access  #switchport access vlan 2  #int f0/2  #switchport mode access  #switchport access vlan 3  #int g0/1  #switchport mode trunk  #vtp password 366 | |
| **Use Scale -11 Fire wall**  **Configuration**:-**ASA-Ciscoasa**  >en  #config t  #hostname Ciscoasa  #int vlan 1  #ip address 10.0.0.1 255.0.0.0  #nameif inside  #security-level 100  #exit  #int e0/0  #swoitchport access vlan 1  #exit  #int vlan 2  #ip address 20.0.0.2 255.0.0.0  #nameif outside  #security-level 0  #exit  #int e0/1  #switchport access vlan 2  #exit  #object network mynetwork  #nat(iinside,outside)dynamic interface  #subnet 10.0.0.0 255.0.0.0  #route outside 0.0.0.0 0.0.0.0 20.0.0.1  #access-list mylist extended permit tcp 100.0.0.0 255.0.0.0 any  #access-list mylist extended permit icmp 100.0.0.0 255.0.0.0 any  #access-group mylist in interface outside  #dhcpd address 10.0.0.2-10.0.0.10 inside  #dhcpd enable inside  **Router-IspR1**  >en  #config t  #hostname IspR1  #int g0/0  #ip address 20.0.0.1 255.0.0.0  #no shut  #int g0/1  #ip address 100.0.0.1 255.0.0.0  #no shut  #exit  #router ospf 1  #network 20.0.0.0 0.0.0.255 area 0  #network 100.0.0.0 0.0.0.255 area 0 | |
| **Use Scale -12 VPN by using GRE configuration.**  **Configuration**:-**Router-R1**  >en  #config t  #hostname HeadOffice  #int g0/0  #ip address 10.0.0.1 255.0.0.0  #no shut  #int g0/1  #ip address 20.0.0.1 255.0.0.0  #no shut  #int g0/2  #ip address 50.0.0.1 255.0.0.0  #no shut  #exit  #router rip  #network 10.0.0.0  #network 20.0.0.0  #network 50.0.0.0  #int tunnel0  #ip address 172.16.0.1 255.255.0.0  #tunnel source g0/1  #tunnel destination 30.0.0.2  #int tunnel1  #ip address 173.16.0.1 255.255.0.0  #tunnel source g0/2  #tunnel destination 60.0.0.2  #exit  #ip route 40.0.0.0 255.0.0.0 172.16.0.2  #ip route 70.0.0.0 255.0.0.0 173.16.0.2  **Router-R2**  >en  #config t  #hostname Router  #int g0/0  #ip address 20.0.0.2 255.0.0.0  #no shut  #int g0/1  #ip address 30.0.0.1 255.0.0.0  #no shut  #exit  #router rip  #network 20.0.0.0  #network 30.0.0.0  **Router-R3**  >en  #config t  #hostname Router  #int g0/0  #ip address 50.0.0.2 255.0.0.0  #no shut  #int g0/1  #ip address 60.0.0.1 255.0.0.0  #no shut  #exit  #router rip  #network 50.0.0.0  #network 60.0.0.0  **Router-R4**  >en  #config t  #hostname BranchOffice1  #int g0/0  #ip address 40.0.0.1 255.0.0.0  #no shut  #int g0/1  #ip address 30.0.0.2 255.0.0.0  #no shut  #int g0/2  #ip address 80.0.0.1 255.0.0.0  #no shut  #exit  #router rip  #network 30.0.0.0  #network 40.0.0.0  #network 80.0.0.0  #int tunnel0  #ip address 172.16.0.2 255.255.0.0  #tunnel source g0/1  #tunnel destination 20.0.0.1  #int tunnel2  #ip address 174.16.0.1 255.255.0.0  #tunnel source g0/2  #tunnel destination 80.0.0.2  #exit  #ip route 10.0.0.0 255.0.0.0 172.16.0.1  #ip route 70.0.0.0 255.0.0.0 174.16.0.2  **Router-R5**  >en  #config t  #hostname BranchOffice2  #int g0/0  #ip address 70.0.0.1 255.0.0.0  #no shut  #int g0/1  #ip address 60.0.0.2 255.0.0.0  #no shut  #int g0/2  #ip address 80.0.0.2 255.0.0.0  #no shut  #exit  #router rip  #network 60.0.0.0  #network 70.0.0.0  #network 80.0.0.0  #int tunnel1  #ip address 173.16.0.2 255.255.0.0  #tunnel source g0/1  #tunnel destination 50.0.0.1  #int tunnel2  #ip address 174.16.0.2 255.255.0.0  #tunnel source g0/2  #tunnel destination 80.0.0.2  #exit  #ip route 10.0.0.0 255.0.0.0 173.16.0.1  #ip route 40.0.0.0 255.0.0.0 174.16.0.1  **Use Scale -13 VPN by using IPsec configuration.**  **Configuration**:-**Router-R1**  >en  #config t  #hostname HeadOffice  #int f0/0  #ip address 10.0.0.1 255.0.0.0  #no shut  #int s0/1/0  #ip address 20.0.0.1 255.0.0.0  #no shut  #int s0/1/1  #ip address 50.0.0.1 255.0.0.0  #no shut  #exit  #router rip  #network 10.0.0.0  #network 20.0.0.0  #network 50.0.0.0  1.#crypto isakmp policy 10  #encr aes 256  #hash md5  #group 5  #lifetime 86400  #authentication pre-share  #exit  #crypto isakmp key 123 address 30.0.0.2  #access-list 100 permit icmp 10.0.0.0 0.0.0.255 40.0.0.0 0.0.0.255  #crypto ipsec transform-set ts esp-aes 256 esp-md5-hmac  #crypto map mymap 10 ipsec-isakmp  #set peer 30.0.0.2  #set transform-set ts  #set pfs group5  #match address 100  #exit  #int s0/1/0  #crypto map mymap  2. #crypto isakmp policy 20  #encr aes 256  #hash md5  #group 5  #lifetime 86400  #authentication pre-share  #exit  #crypto isakmp key 321 address 60.0.0.2  #access-list 150 permit icmp 10.0.0.0 0.0.0.255 70.0.0.0 0.0.0.255  #crypto ipsec transform-set ts esp-aes 256 esp-md5-hmac  #crypto map mymap 20 ipsec-isakmp  #set peer 60.0.0.2  #set transform-set ts  #set pfs group5  #match address 150  #exit  #int s0/1/1  #crypto map mymap  **Router-R2**  >en  #config t  #hostname R2  #int s0/1/0  #ip address 20.0.0.2 255.0.0.0  #no shut  #int s0/1/1  #ip address 30.0.0.1 255.0.0.0  #no shut  #exit  #router rip  #network 20.0.0.0  #network 30.0.0.0  **Router-R3**  >en  #config t  #hostname R3  #int s0/1/1  #ip address 50.0.0.2 255.0.0.0  #no shut  #int s0/1/1  #ip address 60.0.0.1 255.0.0.0  #no shut  #exit  #router rip  #network 50.0.0.0  #network 60.0.0.0  **Router-R4**  >en  #config t  #hostname BranchOffice1  #int f0/0  #ip address 40.0.0.1 255.0.0.0  #no shut  #int s0/1/1  #ip address 30.0.0.2 255.0.0.0  #no shut  #exit  #router rip  #network 30.0.0.0  #network 40.0.0.0  #crypto isakmp policy 10  #encr aes 256  #hash md5  #group 5  #lifetime 86400  #authentication pre-share  #exit  #crypto isakmp key 123 address 20.0.0.1  #access-list 100 permit icmp 40.0.0.0 0.0.0.255 10.0.0.0 0.0.0.255  #crypto ipsec transform-set ts esp-aes 256 esp-md5-hmac  #crypto map mymap 10 ipsec-isakmp  #set peer 20.0.0.1  #set transform-set ts  #set pfs group5  #match address 100  #exit  #int s0/1/1  #crypto map mymap  **Router-R5**  >en  #config t  #hostname BranchOffice2  #int f0/0  #ip address 70.0.0.1 255.0.0.0  #no shut  #int s0/1/0  #ip address 60.0.0.2 255.0.0.0  #no shut  #exit  #router rip  #network 60.0.0.0  #network 70.0.0.0  #crypto isakmp policy 20  #encr aes 256  #hash md5  #group 5  #lifetime 86400  #authentication pre-share  #exit  #crypto isakmp key 321 address 50.0.0.1  #access-list 150 permit icmp 70.0.0.0 0.0.0.255 10.0.0.0 0.0.0.255  #crypto ipsec transform-set ts esp-aes 256 esp-md5-hmac  #crypto map mymap 20 ipsec-isakmp  #set peer 50.0.0.1  #set transform-set ts  #set pfs group5  #match address 150  #exit  #int s0/1/0  #crypto map mymap | |