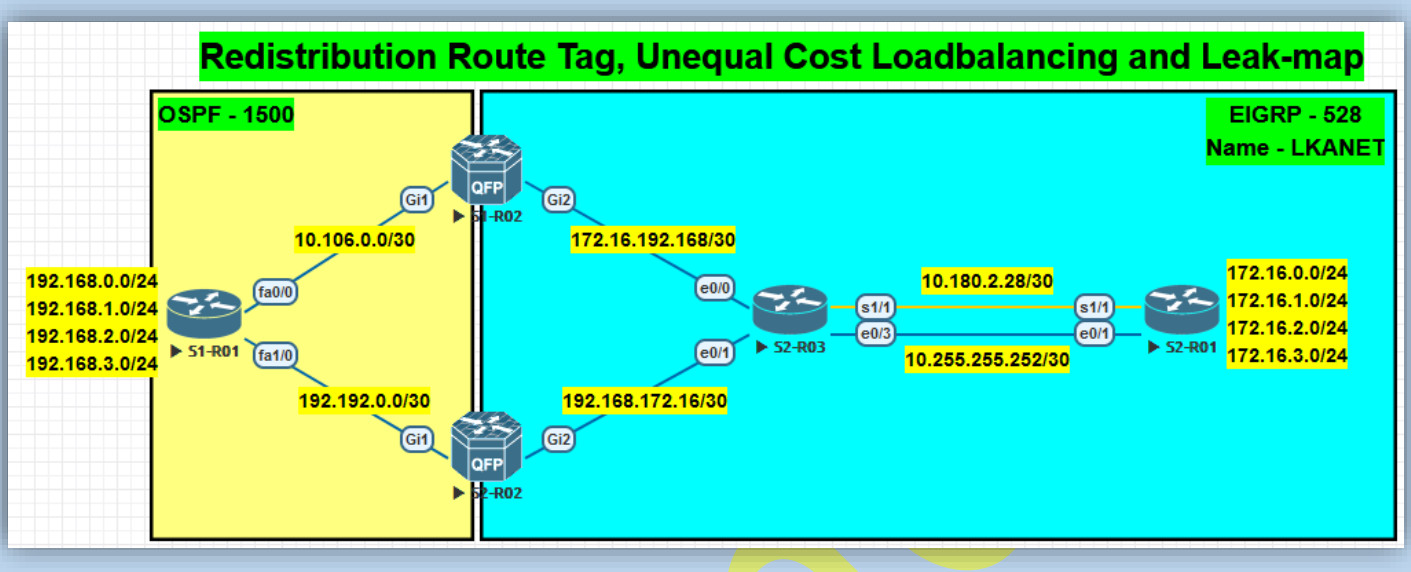
Redistribution

Route–tag, Unequal Cost Loadbalancing And Leak–map



Lab Requirements

1. Make a ***multi-point two-way redistribution*** between OSPF–1500 and EIGRP–528 (LKANET) at S1–R02 and S2–R02 using ***route–tag*** for loop prevention.
2. Make ***unequal cost loadbalancing*** between S2–R03 and S2–R01 for Serial link and Ethernet link.
3. Config EIGRP ***leak–map*** for the networks behind S2–R01 to advertise S2–R03 that Serial link for 172.16.0.1, 172.16.1.1 and Ethernet link for 172.16.2.1, 172.16.3.1.

OSPF Configurations

hello interval is 2s, dead interval is 11s and network type is point–to–point.

S1–R01

router **ospf 1500**

router–id 222.255.255.1

auto–cost reference–bandwidth **1000**

```
 passive-interface default
 no passive-interface FastEthernet0/0
 no passive-interface FastEthernet1/0
 network 10.106.0.1 0.0.0.0 area 0
 network 192.168.0.1 0.0.0.0 area 0
 network 192.168.1.1 0.0.0.0 area 0
 network 192.168.2.1 0.0.0.0 area 0
 network 192.168.3.1 0.0.0.0 area 0
 network 192.192.0.1 0.0.0.0 area 0
 network 222.255.255.1 0.0.0.0 area 0
!
```

S1-R02

```
router ospf 1500
 router-id 222.255.255.2
 auto-cost reference-bandwidth 1000
 passive-interface default
 no passive-interface GigabitEthernet1
 network 10.106.0.2 0.0.0.0 area 0
 network 222.255.255.2 0.0.0.0 area 0
!
```

S2-R02

```
router ospf 1500
 router-id 222.255.255.3
```

auto-cost reference-bandwidth **1000**

passive-interface default

no passive-interface **GigabitEthernet1**

network 192.192.0.2 0.0.0.0 area 0

network 222.255.255.3 0.0.0.0 area 0

!

EIGRP Configurations

hello timer is 2s and hold timer is 11s.

S1-R02

router **eigrp LKANET**

!

address-family ipv4 unicast autonomous-system **528**

!

af-interface default

passive-interface

exit-af-interface

!

af-interface **GigabitEthernet2**

hello-interval **2**

hold-time **11**

no passive-interface

exit-af-interface

```
 !
 network 172.16.192.169 0.0.0.0
 eigrp router-id 222.255.255.2
!
```

S2-R02

```
router eigrp LKANET
 !
 address-family ipv4 unicast autonomous-system 528
 !
 af-interface default
  passive-interface
 exit-af-interface
 !
 af-interface GigabitEthernet2
  hello-interval 2
  hold-time 11
  no passive-interface
 exit-af-interface
 !
 network 192.168.172.17 0.0.0.0
 eigrp router-id 222.255.255.3
!
```

S2-R03

```
router eigrp LKANET
 !
 address-family ipv4 unicast autonomous-system 528
  !
  af-interface default
   passive-interface
  exit-af-interface
  !
  af-interface Ethernet0/3
   hello-interval 2
   hold-time 11
   no passive-interface
  exit-af-interface
  !
  af-interface Serial1/1
   hello-interval 2
   hold-time 11
   no passive-interface
  exit-af-interface
  !
  af-interface Ethernet0/0
   hello-interval 2
```

```
 hold-time 11
 no passive-interface
exit-af-interface
!
af-interface Ethernet0/1
 hello-interval 2
 hold-time 11
 no passive-interface
exit-af-interface
!
network 10.180.2.29 0.0.0.0
network 10.255.255.253 0.0.0.0
network 172.16.192.170 0.0.0.0
network 192.168.172.18 0.0.0.0
eigrp router-id 222.255.255.253
!
```

S2-R01

```
router eigrp LKANET
 !
 address-family ipv4 unicast autonomous-system 528
  !
  af-interface default
   passive-interface
```

```
 exit-af-interface
 !
 af-interface Serial1/1
  hello-interval 2
  hold-time 11
  no passive-interface
 exit-af-interface
 !
 af-interface Ethernet0/1
  hello-interval 2
  hold-time 11
  no passive-interface
 exit-af-interface
 !
 network 10.180.2.30 0.0.0.0
 network 10.255.255.254 0.0.0.0
 network 172.16.0.1 0.0.0.0
 network 172.16.1.1 0.0.0.0
 network 172.16.2.1 0.0.0.0
 network 172.16.3.1 0.0.0.0
 eigrp router-id 222.255.255.254
!
```

Redistribution With Route-tag

S1-R02

```
route-map O_TO_E permit 10
 set tag 111
!
route-map O_TO_E deny 20
 match tag 999
!
route-map E_TO_O permit 10
 set tag 999
!
route-map E_TO_O deny 20
 match tag 111
!
router ospf 1500
redistribute eigrp 528 metric 110 subnets route-map E_TO_O
!
router eigrp LKANET
 !
 address-family ipv4 unicast autonomous-system 528
  !
  topology base
```

redistribute ospf 1500 match internal external 1 external 2 metric 1000000 1 255 1 1500 route-map O_TO_E

!

S2-R02

route-map **O_TO_E** **permit** 10

set **tag 111**

!

route-map **O_TO_E** **deny** 20

match **tag 999**

!

route-map **E_TO_O** **permit** 10

set **tag 999**

!

route-map **E_TO_O** **deny** 20

match **tag 111**

!

router **ospf 1500**

redistribute eigrp 528 metric 110 subnets route-map E_TO_O

!

router **eigrp LKANET**

!

address-family ipv4 unicast autonomous-system **528**

!

topology base

redistribute ospf 1500 match internal external 1 external 2 metric 100000 1 255 1 1500 route-map O_TO_E

!

Unequal Cost Loadbalancing

S2-R03

router **eigrp LKANET**

!

address-family ipv4 unicast autonomous-system **528**

!

topology base

variance 14

!

S2-R01

router **eigrp LKANET**

!

address-family ipv4 unicast autonomous-system **528**

!

topology base

variance 10

!

Leak-map Configuration

S2-R01

```
access-list 10 permit 172.16.1.1
access-list 10 permit 172.16.0.1
access-list 20 permit 172.16.3.1
access-list 20 permit 172.16.2.1
!
route-map SERIAL permit 10
 match ip address 10
!
route-map ETHERNET permit 10
 match ip address 20
!
router eigrp LKANET
 !
 address-family ipv4 unicast autonomous-system 528
  !
  af-interface Serial1/1
   summary-address 172.16.0.0 255.255.252.0 leak-map SERIAL
   !
   af-interface Ethernet0/1
   summary-address 172.16.0.0 255.255.252.0 leak-map ETHERNET
!
```

Unequal Cost Loadbalancing Calculation

We need to know FD Value (Feasible Distance) of Successor and Feasible Successor of a specific route.

For example,

Successor = 150456

Feasible Successor = 1456123

So, We need to multiply FD of Successor with a number and the result must be more than FD of Feasible Successor.

150456 x ***10*** = 1504560 > 1456123

Thus, Variance is **10**.