Build and Implement a Nova Group Real Estate Enterprise Network

Previous Tasks

- ➔ Vlans and SVI configuration
- ➔ ACL, STP, HSRP and DHCP Configuration

This lab's Objective

- ✓ First You'll add a new cluster of remote network to simulate the internet
- ✓ Configure The router interfaces on the distribution and core switch of the head office
- ✓ Configure Link aggregation(etherchannel) between one of the distro and core switch
- ✓ Configure OSPFv2 routing protocol for the internal network
- ✓ Configure NAT on the Edge router of the Head Office

Task 1: add a new cluster of network containing one router (1945) a switch and an http server

- ➔ Configure the remote network LAN interfaces and the http server
- ➔ Connect Head offices edge router with the remoter network's router using WAN link
- ➔ Configure the wan link with an IP address(IPV4)

Task 2: Configure the router interfaces on the distribution and core switch

- ➔ Assign an Ip address for each link b/w distribution and core switch , and b/w core switch and distribution switch

```
Distro1(config)# interface f0/3
Distro1(config-if)# no switchport
Distro1(config-if)# ip address 10.0.1.6 255.255.255.252
```

- ➔ Repeat this configuration commands on all the point to point interfaces.

Task 3: Configure OSPFv2 on the core and distribution layer switches

- ➔ Use the **router ospf** command in global configuration mode to enable OSPF on the devices.

```
Distro1(config)# router ospf 1
```

- ➔ Configure the **network** statements for the networks on the devices. Use an area ID of 0.

```
Distro1 (config-router)# network 10.5.55.0 0.0.0.255 area 0
Distro1 (config-router)# network 10.5.56.0 0.0.0.255 area 0
Distro1 (config-router)# network 10.0.1.4 0.0.0.3 area 0
Distro1 (config-router)# network 10.0.1.0 0.0.0.3 area 0
```

- ➔ Issue the **show ip ospf neighbor** command to verify that each device lists the other devices in the network as neighbors.

```
Distro1# show ip ospf neighbor
```

- ➔ Issue the **show ip route** command to verify that all networks display in the routing table on all the layer 3 switches.

➔ Verify OSPF protocol setting on each devices, this settings info include process ID , router ID, networks being advertised , and the neighbors

```
Distro1 (config-router)# show ip protocols
Distro1 (config-router)# show ip ospf
```

➔ Issue the `show ip ospf interface brief` command to display a summary of OSPF-enabled interfaces.

➔ Configure Default route on the edge router of the head office to point to the internet

```
edgerouter (config)# ip route 0.0.0.0 0.0.0.0 5.128.10.2
```

➔ Inject the default route to ospf's advertisement

```
edgerouter (config)# router ospf 1
edgerouter (config-router)# default-information originate
```

Task 4: configure Dynamic NAT on the edge router of the Head Office

➔ Define an access control list (ACL) that matches the LAN private IP address range.

```
edgerouter (config)# access-list 1 permit 192.168.1.0 0.0.0.255
```

➔ Specify NAT interfaces `e`

```
edgerouter (config)# interface g0/1
edgerouter (config-if)# ip nat inside
edgerouter (config-if)# interface s0/0/1
edgerouter (config-if)# ip nat outside
```

➔ Define the pool of usable public IP addresses.

```
edgerouter (config)# ip nat pool pa 5.128.10.3 5.128.10.8 netmask
255.255.255.0
```

➔ Define the NAT from the inside source list to the outside pool.

Note: Remember that NAT pool names are case-sensitive and the pool name entered here must match that used in the previous step.

```
edgerouter (config)# ip nat inside source list 1 pool pa
```

➔ Now try to access the internet's http server using a PC in HR department
➔ Check ip translation using `show ip nat translations` on the router

Build and Implement a Nova Group Real Estate Enterprise Network

Project: 15%

Due: in 2 weeks

Type: Individual project

Setup the same Implementation and design on the other two branches (4 kilo and megenegna branches) and setup the network so that the three branches can talk to each other.

Use a wan link between the branch network

Note: Refer to the previous lab for IPv4 address information

Bonus: Configure a single remote DHCP server with a relay-agent for each subnets of each branch. And Configure syslog server