

# INE 3010 LAB 1

Spring 2003 Version 1.0

## Missions (two weeks, 15 marks)

- Design the NSP network
- Setup the NSP static network infrastructure
- Setup the enterprise network
- Setup the OSPF network in NSP
- Setup the BGP network in NSP
- Setup the looking glass services

## Specifications

1. Design the NSP network
  - Design the VLAN scheme for partitioning the backbone switch.
  - Figure out the WAN links connected to other regional NSP network.
  - Work out the OSPF design with other regional offices within your NSP
  - Set the route policy based on the following principles
    - Enterprise network is just a customer of NSP. It should not involve in any dynamic routing protocol domain of the NSP network unless the enterprise network is connected to two different NSP. (In the Lab, an Enterprise has 4 regional offices and connected to same NSP.)
    - IGP should not cross EGP boundary.
2. Build the NSP and enterprise regional network
  - Setup the core switch and core router for the regional NSP network (VLAN assignment, partition and serial link configuration)
  - Setup the gateways and servers in NSP internal network and enterprise network.
    - VM1: NSP Internal Network Client
    - VM2: Enterprise Network Gateway
    - VM4: Enterprise Network Client
    - VM5: NSP Internal Network Gateway
  - Co-operate with other regional offices to link up the whole NSP network infrastructure and test the network.
3. Setup the OSPF network in NSP
  - Setup the OSPF in core router and NSP internal network gateway
  - For the OSPF setup in NSP internal network gateway, use zebra routing daemon on VM.
  - Test the OSFP with other regional offices

4. Setup the BGP network in NSP
  - Setup the BGP in core router.
  - Inject the routes for regional Enterprise network into BGP network.
  - Test the BGP with other regional offices
5. Setup the looking glass services
  - Set up the VM3 (NSP POP connecting regional IX) as the looking glass server running Apache.
  - At this moment, you can temporary set the default gateway of VM3 to be gateway POP in the IX LAN so that outsiders can access your looking glass server through the gateway POP.
  - Setup looking glass service for the core router and NSP internal network gateway

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