**NetworkDesign**

**Project activity, you will demonstrate your ability to:**

* Design, research, configure, and verify EIGRP, IPv4 on a network
* Plan a VLSM addressing scheme for the nodes connected to the LANs
* Design in Packet Tracer submit pkt file in drop box the will be made available

Four branch routers are directly connected to Head quarter router and Head Quarter router is connected to Internet Service Provider router with three server stations DNS, web, TFTP

**Scenario**

You and your team members have been asked to design an IPv4 network that is using the EIGRP protocol. These network 4 branches that are connected to main headquarters router. This router at the headquarters connects directly to an ISP router

**Required Resources**

* Packet Tracer software
* Documentation

**Step 1:**

* + Design the network topology.
    - Network equipment:
      * Six routers
        + Four branch routers
        + One headquarters router
        + One ISP router
    - Switches to support the LANS
    - LANs:
    - Two LANs per branch router
      * Two LANs with 700 hosts
      * One LAN serving 220 hosts
      * One LAN with 200 hosts
      * Two LANS with 90 hosts
      * One LAN with 80 hosts
      * One LAN with 45 hosts
      * Add two PCs per LAN and
    - One, three-host LAN assigned to the ISP router to provide server connectivity (DNS, Web, and TFTP).

**Step 2:**  
Devise the network addressing scheme.

* Use a Class B address that will meet the specifications listed in **Step 1.**
* ISPs LAN connection needs a different IPv4 network number for Internet or telecommunications connectivity to the servers.
* Use VLSM to conserve addresses and high scalability.
* Implement the network address scheme to hosts and LAN and WAN interfaces. **Step 3:** Implement the EIGRP routing protocol on your network
* Requirements:
  + Advertise directly connected networks.
  + Disable automatic summarization.
  + Modify the bandwidth of the interfaces.

**Step 4:**

Configure basic security

* Configure a banner warning.

**Step 5:** Backup the configurations of each router local hard drive. **Step 6:** Verify the network.

\* Validate connectivity by pinging all devices.

\* Use five show commands to verify EIGRP configuration

**Make sure you can ping the devices across the network**