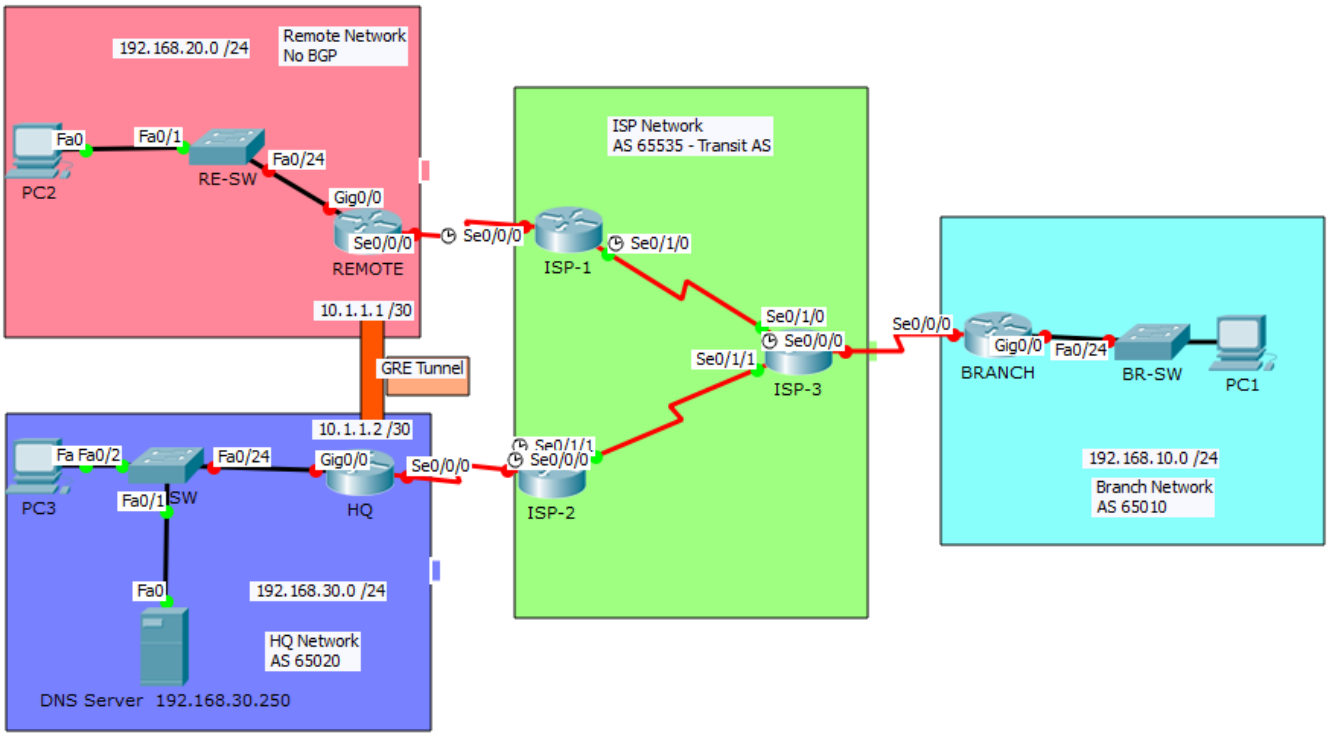
Packet Tracer – Skills Integration Challenge

Topology



Addressing Table

Device	Interface	IP Address	Subnet Mask	Default Gateway
ISP-1	S0/0/0	209.165.201.1	255.255.255.252	N/A
	S0/1/0	209.165.201.9	255.255.255.252	N/A
ISP-2	S0/0/0	209.165.201.17	255.255.255.252	N/A
	S0/1/1	209.165.201.13	255.255.255.252	N/A
ISP-3	S0/0/0	209.165.201.21	255.255.255.252	N/A
	S0/1/0	209.165.201.10	255.255.255.252	N/A
	S0/1/1	209.165.201.14	255.255.255.252	N/A
REMOTE	S0/0/0	209.165.201.2	255.255.255.252	N/A
	G0/0	192.168.20.1	255.255.255.0	N/A
	Tunnel 10	10.1.1.1	255.255.255.252	N/A
HQ	S0/0/0	209.165.201.18	255.255.255.252	N/A
	G0/0	192.168.30.1	255.255.255.0	N/A
	Tunnel 10	10.1.1.2	255.255.255.252	N/A
BRANCH	S0/0/0	209.165.201.22	255.255.255.252	N/A
	G0/0	192.168.10.1	255.255.255.0	N/A
PC1	NIC	DHCP		192.168.10.1
PC2	NIC	192.168.20.10	255.255.255.0	192.168.20.1
PC3	NIC	DHCP		192.168.30.1
DNS Server	NIC	192.168.30.250	255.255.255.0	192.168.30.1

Background / Scenario

In this skills integration challenge, the XYZ Corporation uses a combination of eBGP, PPP, and GRE WAN connections. Other technologies include DHCP, default routing, OSPF for IPv4, and SSH configurations.

Requirements

Note: The user EXEC password is **cisco** and the privileged EXEC password is **class**.

Interface Addressing

- Configure interface addressing as needed on appropriate devices.
  - Use the topology table to implement addressing on routers REMOTE, HQ, and BRANCH.
  - Configure **PC1** and **PC3** to use DHCP.

SSH

- Configure **HQ** to use SSH for remote access.
  - Set the modulus to **2048**. The domain name is **CISCO.com**.
  - The username is **admin** and the password is **secureaccess**.

- Only SSH should be allowed on the VTY lines.
- Modify the SSH defaults: version 2; 60-second timeout; two retries.

PPP

- Configure the WAN link from **BRANCH** to the **ISP-3** router using PPP encapsulation and CHAP authentication.
  - Create a user **ISP-3** with the password of **cisco**.
- Configure the WAN link from **HQ** to the **ISP-2** router using PPP encapsulation and CHAP authentication.
  - Create a user **ISP-2** with the password of **cisco**.

DHCP

- On **BRANCH**, configure a DHCP pool for the BRANCH LAN using the following requirements:
  - Exclude the first 5 IP addresses in the range.
  - The case-sensitive pool name is **LAN**.
  - Include the DNS server attached to the **HQ** LAN as part of the DHCP configuration.
- Configure PC1 to use DHCP.
- On **HQ**, configure a DHCP pool for the HQ LAN using the following requirements:
  - Exclude the first 10 IP addresses in the range.
  - The case-sensitive pool name is **LAN**.
  - Include the DNS server attached to the **HQ** LAN as part of the DHCP configuration.
- Configure PC3 to use DHCP.

Default Routing

- Configure **REMOTE** with a default route to the **ISP-1** router. Use the Next-Hop IP as an argument.

eBGP Routing

- Configure **BRANCH** with eBGP routing.
  - Configure **BRANCH** to peer with **ISP-3**.
  - Add **BRANCH's** internal network to BGP
- Configure **HQ** with eBGP routing.
  - Configure **HQ** to peer with **ISP-2**.
  - Add **HQ's** internal network to BGP.

GRE Tunneling

- Configure **REMOTE** with a tunnel interface to send IP traffic over GRE to **HQ**.
  - Configure **Tunnel 10** with appropriate addressing information.
  - Configure the tunnel source with the local exit interface.
  - Configure the tunnel destination with the appropriate endpoint IP address.
- Configure **HQ** with a tunnel interface to send IP traffic over GRE to **REMOTE**.
  - Configure **Tunnel 10** with appropriate addressing information.
  - Configure the tunnel source with the local exit interface.
  - Configure the tunnel destination with the appropriate endpoint IP address.

OSPF Routing

- Because the **REMOTE** LAN should have connectivity to the **HQ** LAN, configure OSPF across the GRE tunnel.
  - Configure OSPF process 100 on the **REMOTE** router.
  - **REMOTE** should advertise the LAN network via OSPF.
  - **REMOTE** should be configured to form an adjacency with **HQ** over the GRE tunnel.
  - Disable OSPF updates on appropriate interfaces.
- Because the **HQ** LAN should have connectivity to the **REMOTE** LAN, configure OSPF across the GRE tunnel.
  - Configure OSPF process 100 on the **HQ** router.
  - **HQ** should advertise the LAN network via OSPF.
  - **HQ** should be configured to form an adjacency with **REMOTE** over the GRE tunnel.
  - Disable OSPF updates on appropriate interfaces.

Connectivity

- Verify full connectivity from **PC2** to the **DNS Server**.
- Verify full connectivity from **PC1** to the **DNS Server**.