CCNA3 Module 2 Challenge Lab (NetLab Friendly)

Assigned Address Space
_____._____.0.0/16
Scenario _____
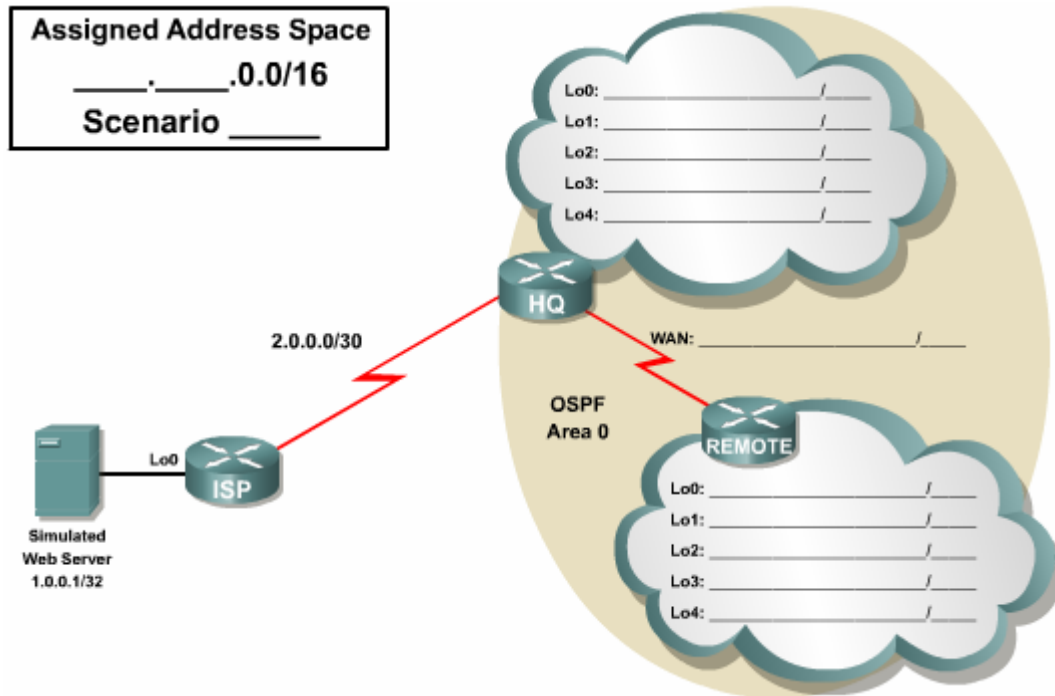
Device	Interface	IP Address	Subnet Mask
ISP	Lo0	1.0.0.1	255.255.255.255
		2.0.0.1	255.255.255.252
HQ		2.0.0.2	255.255.255.252
	Lo0		
	Lo1		
	Lo2		
	Lo3		
	Lo4		
REMOTE			
	Lo0		
	Lo1		
	Lo2		
	Lo3		
	Lo4		

Objective

Design an IP Addressing Scheme using VLSM

Configure and Verify Single-Area OSPF

Configure and Verify Default Route Configuration

Step 1: Design an IP Addressing Scheme using VLSM

Host Requirements	Scenario 1	Scenario 2	Scenario 3	Scenario 4
HQ Total Hosts Needed	**30,000**	**15,000**	**8,000**	**4,000**
Production LAN	16,000	8,000	4,000	2,000
Warehousing LAN	8,000	4,000	2,000	1,000
Marketing LAN	4,000	2,000	1,000	500
Management LAN	2,000	1,000	500	250
Purchasing LAN	1,000	500	250	120
REMOTE Total Hosts Needed	**30,000**	**15,000**	**8,000**	**4,000**
Eastern Region	4,000	2,000	1,000	500
Northern Region	4,000	2,000	1,000	500
Western Region	4,000	2,000	1,000	500
Southern Region	4,000	2,000	1,000	500
International	4,000	2,000	1,000	500

- Use the **Address Space** and **Scenario** assigned by your Instructor. Design an appropriate addressing scheme using VLSM and the above host requirements for your scenario.

- Once you have determined your subnets, label the topology in the blanks provided and fill out the address table. Loopback interfaces will be used to simulate LANs attached to HQ and REMOTE.

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Step 2: Cable the Topology and Basic Configuration

- Choose three routers and cable them according to the topology. You will not need any LAN interfaces or switches for this lab. (If using NetLab, choose a three router pod)

- Configure the routers according to your Instructor's required basic configuration. DO NOT configure OSPF at this time.

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Step 3: Configure OSPF Routing and Default Routing.

- Configure both HQ and REMOTE to use OSPF as the routing protocol. Enter the simulated LAN subnets and the WAN link between HQ and REMOTE. DO NOT advertise the 2.0.0.0/30 network.

- Configure ISP with a static route pointing the Assigned Address Space. Configure HQ with a default route point to ISP. Configure HQ to advertise the default route to REMOTE.

- Verify HQ and REMOTE routing tables.

  o HQ should have 7 directly connected routes, 5 OSPF routes, and 1 static route

  o REMOTE should have 6 directly connected routes, 5 OSPF routes, and 1 OSPF E2 route

  o Verify the REMOTE can ping the Simulated Web Server at 1.0.0.1

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Step 4: Other OSPF Configurations

- Change the OSPF hello interval to 30 seconds.

- The link between HQ and REMOTE is a ¼ T1. Change the bandwidth on both HQ and REMOTE to match the actual link speed.

- Configure OSPF authentication with MD5 between HQ and REMOTE.

Step 5: Verification and Documentation

- Capture the following verifications to a "verify.txt" file.

  o Ping output from REMOTE pinging the Simulated Web Server

  o Capture `show ip route` on all three routers: ISP, HQ and REMOTE

  o Capture `show ip ospf`, `show ip ospf neighbors`, `show ip ospf interface` on HQ and REMOTE

- Capture the running configurations on all three routers to separate text files. Use the hostname of the router to name each text file.

- Clean up the "verify.txt", "HQ.txt", "REMOTE.txt" and "ISP.txt" files. Add appropriate notes to assist in your studies.

Instructor Initials _____