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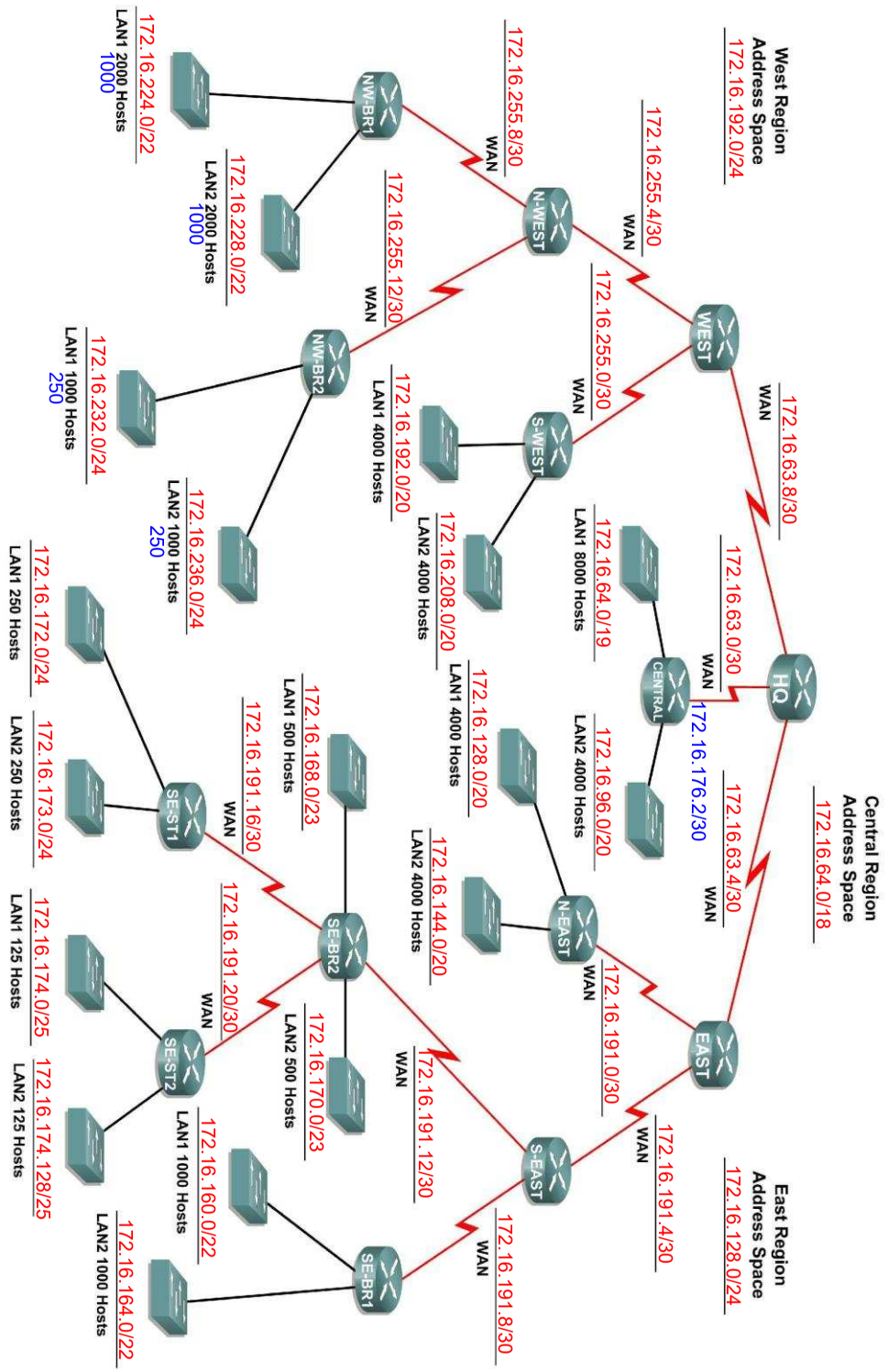
Activity 6.4.2: Challenge VLSM Calculation and Addressing Design

Topology Diagram



Learning Objectives

Upon completion of this activity, you will be able to:

- Determine the number of subnets needed.
- Determine the number of hosts needed for each subnet
- Design an appropriate addressing scheme using VLSM.

Scenario

In this activity, you have been given the network address 172.16.0.0/16 to subnet and provide the IP addressing for the network shown in the Topology Diagram. VLSM will be used so that the addressing requirements can be met using the 172.16.0.0/16 network.

The network has the following addressing requirements:

- East Network Section
    - The N-EAST (Northeast) LAN1 will require 4000 host IP addresses.
    - The N-EAST (Northeast) LAN2 will require 4000 host IP addresses.
    - The SE-BR1 (Southeast Branch1) LAN1 will require 1000 host IP addresses.
    - The SE-BR1 (Southeast Branch1) LAN2 will require 1000 host IP addresses.
    - The SE-BR2 (Southeast Branch2) LAN1 will require 500 host IP addresses.
    - The SE-BR2 (Southeast Branch2) LAN2 will require 500 host IP addresses.
    - The SE-ST1 (Southeast Satellite1) LAN1 will require 250 host IP addresses.
    - The SE-ST1 (Southeast Satellite1) LAN2 will require 250 host IP addresses.
    - The SE-ST2 (Southeast Satellite2) LAN1 will require 125 host IP addresses.
    - The SE-ST2 (Southeast Satellite2) LAN2 will require 125 host IP addresses.
- West Network Section
    - The S-WEST (Southwest) LAN1 will require 4000 host IP addresses.
    - The S-WEST (Southwest) LAN2 will require 4000 host IP addresses.
    - The NW-BR1 (Northwest Branch1) LAN1 will require 2000 host IP addresses.
    - The NW-BR1 (Northwest Branch1) LAN2 will require 2000 host IP addresses.
    - The NW-BR2 (Northwest Branch2) LAN1 will require 1000 host IP addresses.
    - The NW-BR2 (Northwest Branch2) LAN2 will require 1000 host IP addresses.
- Central Network Section
    - The Central LAN1 will require 8000 host IP addresses.
    - The Central LAN2 will require 4000 host IP addresses.
- The WAN links between each of the routers will require an IP address for each end of the link.

(**Note:** Remember that the interfaces of network devices are also host IP addresses and are included in the above addressing requirements.)

Task 1: Examine the Network Requirements.

Examine the network requirements and answer the questions below. Keep in mind that IP addresses will be needed for each of the LAN interfaces.

1. How many LAN subnets are needed? _____
2. How many subnets are needed for the WAN links between routers? _____

