

## Lab 10.3.2: How Many Networks?

### Learning Objectives

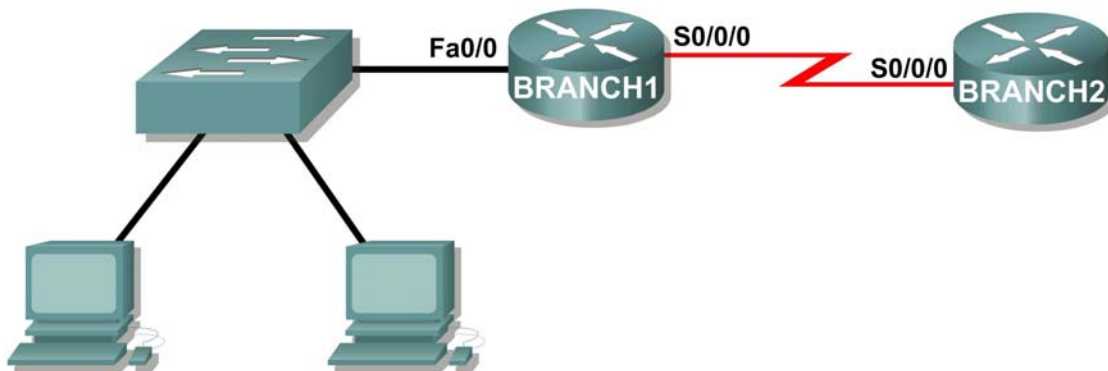
Upon completion of this lab, you will be able to:

- Determine the number of subnets.
- Design an appropriate addressing scheme.
- Assign addresses and subnet mask pairs to device interfaces.
- Examine the use of the available network address space.

### Scenario

In this lab, you have been given the network address 192.168.26.0/24 to subnet and provide the IP addressing for the networks shown in the Topology Diagrams. You must determine the number of networks needed then design an appropriate addressing scheme. Place the correct address and mask in the Addressing Table. In this example, the number of hosts is not important. You are only required to determine the number of subnets per topology example.

### Topology Diagram A



### Task 1: Determine the Number of Subnets in the Topology Diagram.

**Step 1:** How many networks are there? \_\_\_\_

**Step 2:** How many bits should you borrow to create the required number of subnets? \_\_\_\_

**Step 3:** How many usable host addresses per subnet did this give you? \_\_\_\_

**Step 4:** What is the new subnet mask in decimal form? \_\_\_\_

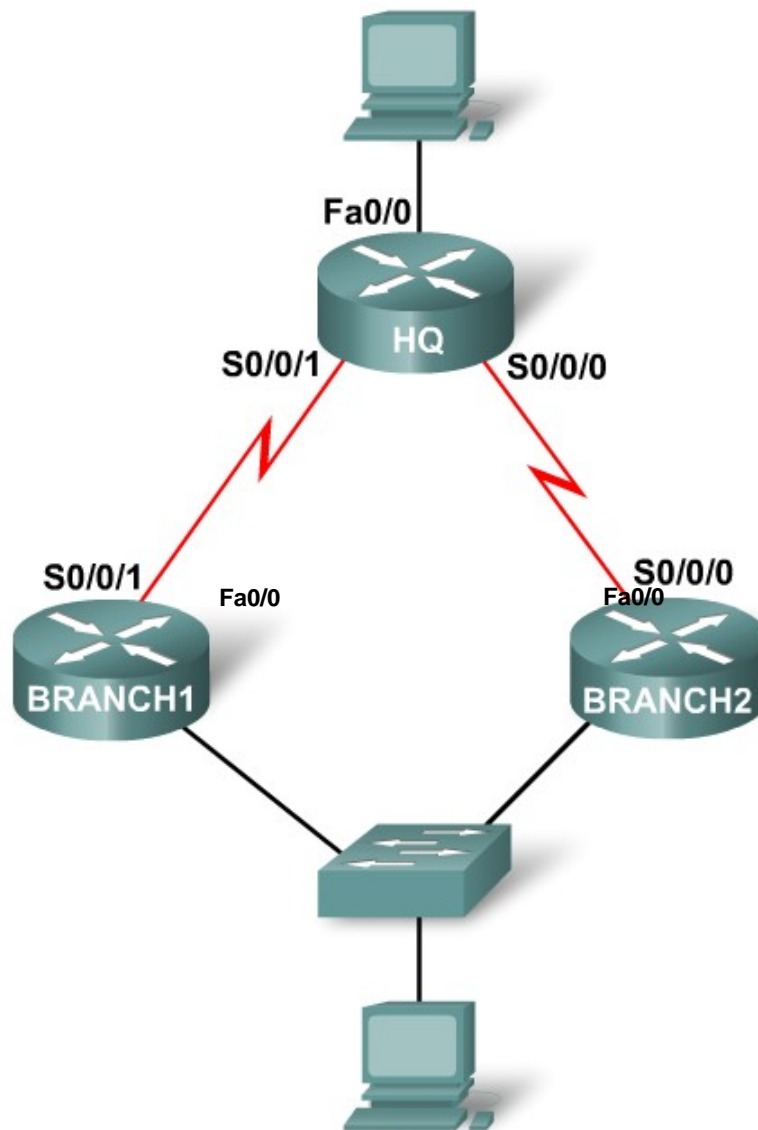
**Step 5:** How many subnets are available for future use? \_\_\_\_

## Task 2: Record Subnet Information.

Step 1: Fill in the following chart with the subnet information.

Subnet Number	Subnet Address	First Usable Host Address	Last Usable Host Address	Broadcast Address
0				
1				
2				
3				
4				
5				
6				
7				

Topology Diagram B



### Task 3: Determine the Number of Subnets in the Topology Diagram.

**Step 1:** How many networks are there? \_\_\_\_

**Step 2:** How many bits should you borrow to create the required number of subnets? \_\_\_\_

**Step 3:** How many usable host addresses per subnet did this give you? \_\_\_\_

**Step 4:** What is the new subnet mask in decimal form? \_\_\_\_

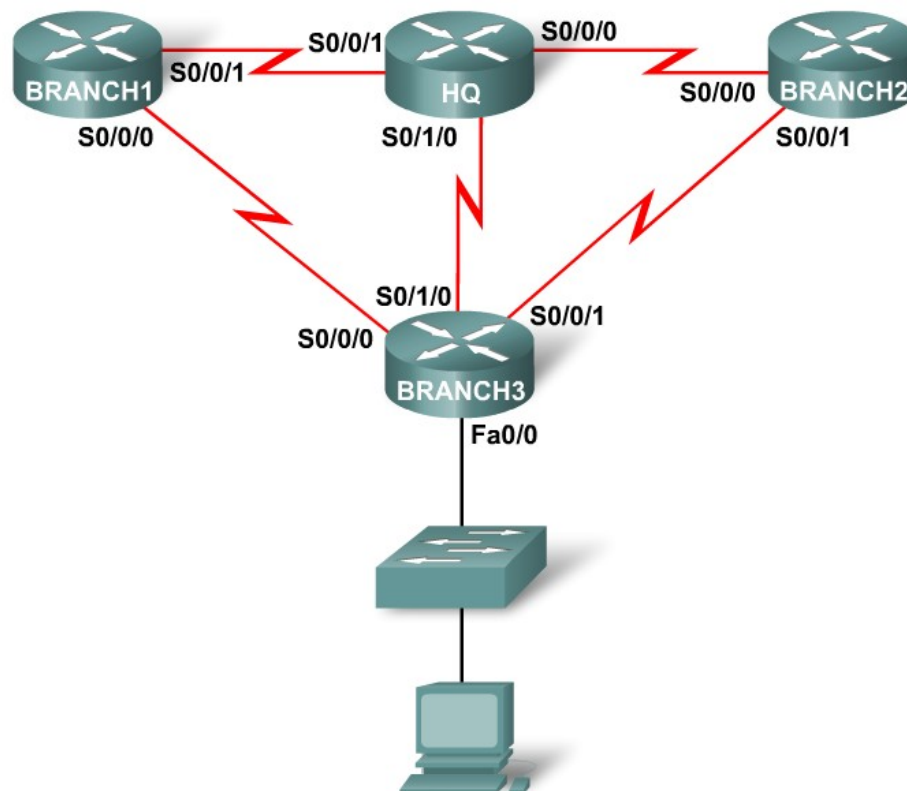
**Step 5:** How many subnets are available for future use? \_\_\_\_

### Task 4: Record Subnet Information.

**Step 1:** Fill in the following chart with the subnet information.

Subnet Number	Subnet Address	First Usable Host Address	Last Usable Host Address	Broadcast Address
0				
1				
2				
3				
4				
5				
6				
7				

### Topology Diagram C



### Task 5: Determine the Number of Subnets in the Topology Diagram.

**Step 1:** How many networks are there? \_\_\_\_\_

**Step 2:** How many bits should you borrow to create the required number of subnets? \_\_\_\_\_

**Step 3:** How many usable host addresses per subnet did this give you? \_\_\_\_\_

**Step 4:** What is the new subnet mask in decimal form? \_\_\_\_\_

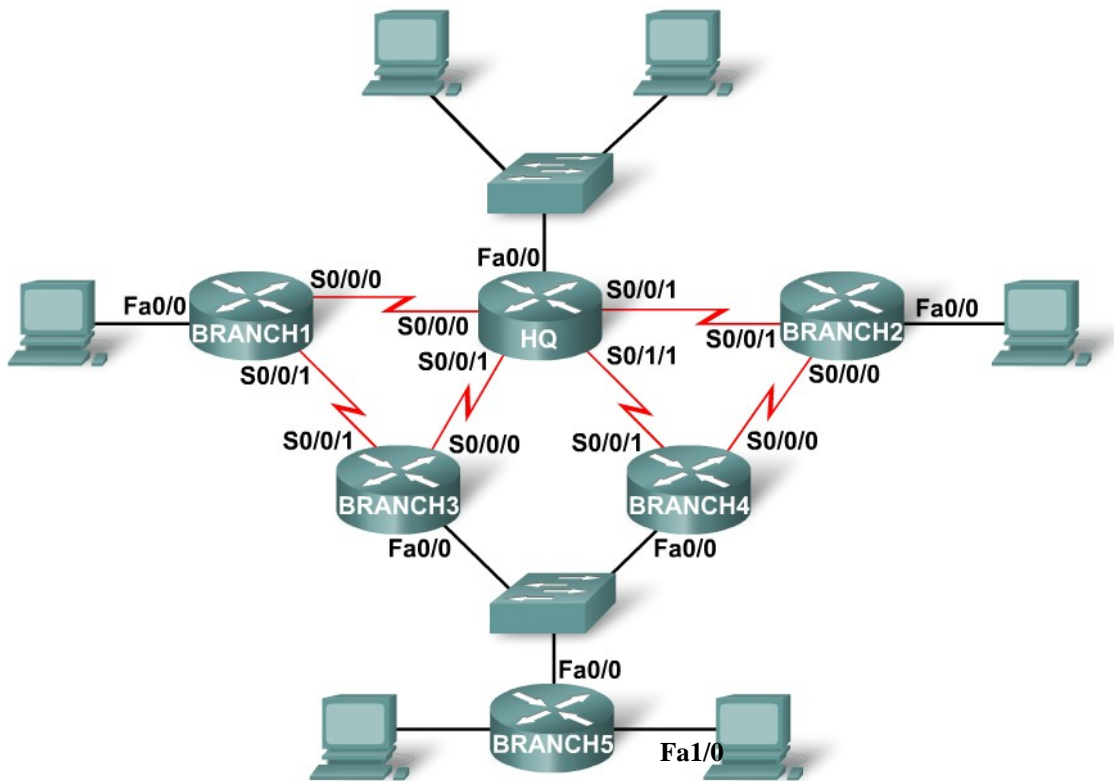
**Step 5:** How many subnets are available for future use? \_\_\_\_\_

### Task 6: Record Subnet Information.

**Step 1:** Fill in the following chart with the subnet information.

Subnet Number	Subnet Address	First Usable Host Address	Last Usable Host Address	Broadcast Address
0				
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

## Topology Diagram D



### Task 7: Determine the Number of Subnets in the Topology Diagram.

**Step 1:** How many networks are there? \_\_\_\_

**Step 2:** How many bits should you borrow to create the required number of subnets? \_\_\_\_

**Step 3:** How many usable host addresses per subnet did this give you? \_\_\_\_

**Step 4:** What is the new subnet mask in decimal form? \_\_\_\_

**Step 5:** How many subnets are available for future use? \_\_\_\_

### Task 8: Record Subnet Information.

Step 1: Fill in the following chart with the subnet information.

Subnet Number	Subnet Address	First Usable Host Address	Last Usable Host Address	Broadcast Address
0				
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				

### Reflection

What information is needed when determining an appropriate addressing scheme for a network?

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