

Re: Subnetting question on Sybex Book

Source:

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>If it is indeed a class B address

I'm going to post the complete question with the answers (I don't think there should be any copyright issue by copying just a single question). I thought that if you say the subnet mask is something like 255.255.x.y then you are implicitly assuming it is a class B network.

Anyway, this is the complete story (hope it doesn't wrap horribly):

You work for Carpathian Worldwide Enterprises, which has more than 50 administrative and manufacturing locations around the world. The size of these organizations varies greatly, with the number of computers per location ranging from 15 to slightly fewer than 1000. The sales operations use more than 1000 facilities, each of which contains 2 to 5 computers. Carpathian is also in merger talks with another large organization; if the merger materializes as planned, you will have to accommodate another 100 manufacturing and administrative locations, each with a maximum of 600 computers, as well as 2,000 additional sales facilities. You don't have any numbers for the future growth of the company, but you are told to keep growth in mind. You decide to implement a private addressing plan for the entire organization. More than half of your routers don't support Variable Length Subnet Masking. What subnet masks would work for this situation? (Choose all that apply.)

- A. 255.255.224.0
- B. 255.255.240.0
- C. 255.255.248.0

- D. 255.255.252.0
- E. 255.255.254.0

B, C, D. When you add up the locations that currently need to be given a network address, the total is 3150, and the maximum number of hosts at any one of these locations is less than 1000. The subnet masks need to support those requirements. The subnet masks given in options B, C, and D will provide the address space to support the outlined requirements. The subnet mask 255.255.240.0 supports more than 4000 subnets and 4000 hosts. The subnet mask 255.255.248.0 supports more than 8000 subnets and more than 2000 hosts. The subnet mask 255.255.252.0 supports more than 16,000 subnets and more than 1000 hosts. Although each of these subnet masks will work, at the rate that this company is growing, 255.255.252.0 is probably the best mask to prepare for the future. It's unlikely that there will ever be more than 1000 hosts on any given network. In fact, that number would probably cause performance problems on that subnet. Therefore, it's better to have more subnets available to deploy as the company grows. The subnet mask 255.255.224.0 supports more than 2000 subnets—an insufficient number to cover the locations. The subnet mask 255.255.254.0 supports more than 32,000 subnets but only 500 hosts per subnet, which are not enough hosts to cover all the locations.