If an ISP assigned you a / 28 IPv6 address block, how many computers could be assigned an address from the block?

Step 1:

Only 4 bits are available to distinguish between the machines due to the fact that 28 of the address's 32 bits are used for the netmask.

Step 2:

A 32-bit IP address is divided into 4 pieces by 8-bit groups that are separated by dots. The net mask length is simply subtracted from the total number of bits in an IP address (IPV4 IP address) to determine the number of computers to which an IP address should be assigned; in the case of the question above, this yields four. Next, we use the equation 2 (32-28) -2 = 14. As the broadcast address and network address cannot be assigned to our computers because they are reserved, we deduct 2 from the formula above.

Suppose you are an ISP with a / 24 IPv4 address block. Explain whether you can accommodate a request from a customer who needs addresses for 255 computers. (Hint: consider the special addresses.)

Step 1:

2.0/24" indicates that there are 24 bits in the network, where "24" is the number of bits. The amount of bits still available for address space can be determined from this. Since each "part" of the address marked by the decimal points comprises eight bits and all IPv4 networks have 32 bits, "192.0.

Step 2:

There will be 256 addresses accessible for a /24 address block, or 2(32-24). The number of addresses that can be issued to computers or hosts will be 256 -2 = 254. However, a suffix with all 0s address is reserved for network ID and a suffix with all 1s address is reserved for broadcast address.

Suppose you are an ISP that owns a / 22 IPv4 address block. Can you accommodate requests from six customers who need addresses for 9, 15, 20, 41, 128, and 260 computers, respectively? If so, how? If not, explain why.

There will be 232-22 = 210 = 1024 addresses available if an ISP owns the /22 address block. In a highly effective manner, we should examine the distribution of these accessible addresses. For instance, 28 = 256 is a lot less and 29 = 512 is a lot more if we wish to assign a block for 260 addresses (lots of addresses are wasted).