28. A system has an *n*-layer protocol hierarchy. Applications generate messages of length *M* bytes. At each of the layers, an *h*-byte header is added. What fraction of the network bandwidth is filled with headers?
29. Give five examples of a device connected to two networks at the same time, and explain why this is useful.
30. The subnet of **Fig. 1-12(b)** was designed to withstand a nuclear war. How many bombs would it take to partition the nodes into two disconnected sets? Assume that any bomb wipes out a node and all of the links connected to it.
31. The Internet is roughly doubling in size every 18 months. Although no one really knows for sure, one estimate put the number of hosts on it a 1 billion in 2018. Use these data to compute the expected number of Internet hosts in the year 2027. Do you believe this? Explain why or why not.
32. When a file is transferred between two computers, two acknowledgement strategies are possible. In the first one, the file is chopped up into packets, which are individually acknowledged by the receiver, but the file transfer as a whole is not acknowledged. In the second one, the packets are not acknowledged individually, but the entire file is acknowledged when it arrives. Discuss these two approaches.
33. Mobile phone network operators need to know where their subscribers' mobile phones (hence their users) are located. Explain why this is bad for users. Now give reasons why this is good for users.
34. How long was a bit in the original 802.3 standard in meters? Use a transmission speed of 10 Mbps and assume the