network. We identified scalability as one concern. Suppose that when a mobile user moves from one network to another, the new foreign network advertises a specific route to the mobile user, and the old foreign network withdraws its route. Consider how routing information propagates in a distance-vector algorithm (particularly for the case of interdomain routing among networks that span the globe).

a. Will other routers be able to route datagrams immediately to the new foreign network as soon as the foreign network begins advertising its route?

b. Is it possible for different routers to believe that different foreign networks contain the mobile user?

c. Discuss the timescale over which other routers in the network will eventually learn the path to the mobile users.

P12. Suppose the correspondent in Figure 6.22 were mobile. Sketch the additional network-layer infrastructure that would be needed to route the datagram from the original mobile user to the (now mobile) correspondent. Show the structure of the datagram(s) between the original mobile user and the (now mobile) correspondent, as in Figure 6.23.

P13. In mobile IP, what effect will mobility have on end-to-end delays of datagrams between the source and destination?

P14. Consider the chaining example discussed at the end of Section 6.7.2. Suppose a mobile user visits foreign networks A, B, and C, and that a correspondent begins a connection to the mobile user when it is resident in foreign network A. List the sequence of messages between foreign agents, and between foreign agents and the home agent as the mobile user moves from network A to network B to network C. Next, suppose chaining is not performed, and the correspondent (as well as the home agent) must be explicitly notified of the changes in the mobile user's care-of address. List the sequence of messages that would need to be exchanged in this second scenario.

P15. Consider two mobile nodes in a foreign network having a foreign agent. Is it possible for the two mobile nodes to use the same care-of address in mobile IP? Explain your answer.

P16. In our discussion of how the VLR updated the HLR with information about the mobile's current location, what are the advantages and disadvantages of providing the MSRN as opposed to the address of the VLR to the HLR?

Wireshark Lab

At the companion Web site for this textbook, http://www.awl.com/kurose-ross, you'll find a Wireshark lab for this chapter that captures and studies the 802.11 frames exchanged between a wireless laptop and an access point.