CHAPTER 14 (corrisponde al cap. 13 italiano)

Wireless LANs

Solutions to Review Questions and Exercises

Review Questions

1. The *basic service set (BSS)* is the building block of a wireless LAN. A BSS without an AP is called an ad hoc architecture; a BSS with an AP is sometimes referred to as an infrastructure network. An *extended service set (ESS)* is made up of two or more BSSs with APs. In this case, the BSSs are connected through a distribution system, which is usually a wired LAN.

2. A station with *no-transition* mobility is either stationary or moving only inside a BSS. A station with *BSS-transition* mobility can move from one BSS to anther, but the movement is confined inside one ESS. A station with *ESS-transition* mobility can move from one ESS to another.

3. The *orthogonal frequency-division multiplexing (OFDM)* method for signal generation in a 5-GHz ISM band is similar to *frequency division multiplexing (FDM)*, with one major difference: All the subbands are used by one source at a given time. Sources contend with one another at the data link layer for access.

4. Stations on wireless LANs normally use *CSMA/CA*.

5. *Network Allocation Vector (NAV)* forces other stations to defer sending their data if one station acquires access. In other words, it provides the collision avoidance aspect. When a station sends an RTS frame, it includes the duration of time that it needs to occupy the channel. The stations that are affected by this transmission create a timer called a NAV.

6. A Bluetooth network is called a *piconet*. A *scatternet* is two or more piconets.

7. The following shows the relationship:

Radio layer	→	**Internet physical layer**
Baseband layer	→	**MAC sublayer of Internet data link layer**
L2CAP layer	→	**LLC sublayer of Internet data link layer**

8. A Bluetooth primary and secondary can be connected by a *synchronous connection-oriented (SCO)* link or an *asynchronous connectionless (ACL)* link. An SCO link is used when avoiding latency (delay in data delivery) is more important than

integrity (error-free delivery). An ACL link is used when data integrity is more important than avoiding latency.

9. The primary sends on the *even-numbered* slots; the secondary sends on the *odd-numbered* slots.

10. In all types of frames, a duration of **259 μs** is used for hopping.

Exercises

11. In *CSMA/CD*, the protocol allows collisions to happen. If there is a collision, it will be detected, destroyed, and the frame will be resent. *CSMA/CA* uses a technique that prevents collision.

12. See Table 14.1.

Table 14.1 *Exercise 12*

Fields	802.3 field size (bytes)	802.11 field size (bytes)
Destination Address	6	
Source Address	6	
Address 1		6
Address 2		6
Address 3		6
Address 4		6
FC		2
D/ID		2
SC		2
PDU Length	2	
Data and Padding	46 to 1500	
Frame Body	64-1518	0 to 2312
FCS (CRC)	4	4