

CS 440 Quiz 6

1. Why does the 802.11 frame include four addresses?

The 802.11 standard includes the distribution system which can link BSS's together. When a message has to move through the distribution system, the access points need to include their addresses in the packet, but they still have to carry the addresses of the original sender and the final destination in order to complete the transaction. Hence the four addresses, source, destination, source AP and destination AP.

2. Why does an 802.11 frame use *duration* rather than *number of bytes* in its frames?

Nodes can transmit at different bit rates, so duration is much more meaningful than the number of bytes, particularly in a protocol that bases its access behavior on stations remaining silent for periods of time even when the signal being sent can't be heard.

3. MACA is the term used to describe the access control method used by 802.11. How does this work?

- (a) Wait for the channel to clear.
- (b) Send a *Request To Send* message to the desired recipient.
- (c) Wait for a *Clear To Send* to be returned.
- (d) Send the message.
- (e) Wait for an acknowledgement that the message was received or if not forthcoming, go back to 1.

4. The chipping sequence you are using is *101*. You receive the message *010010101010*. What is the message?

Since the chipping sequence has three bits, each three bit group in the received message represents one bit in the original message before encoding. Each bit was the result of XOR'ing the chipping sequence with the message bit, so the original value can be obtained by executing another XOR.

$$010\ 010\ 101\ 010 \oplus 101\ 101\ 101\ 101$$

$$\rightarrow 111\ 111\ 000\ 111 \rightarrow 1101$$

The message was 1101.