TELE 4363 Tutorial 1 (week 3)

Q1: The figures below are from the IEEE 802.11 standard for wireless LANs, and summarise the format of frames used by stations conforming to this standard. How does this format facilitate future extension? (Figure 12 labels field lengths in "octets" – a formal term for a byte.)

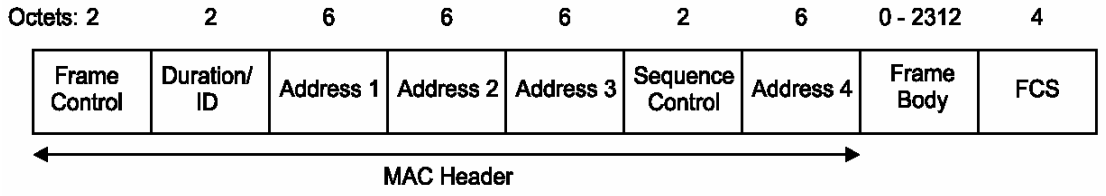

Figure 12—MAC frame format

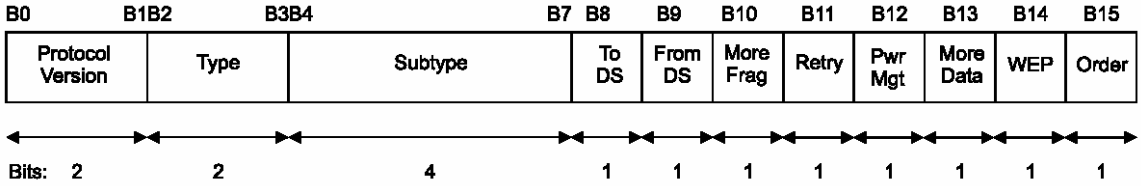

Figure 13—Frame Control field

Table 1—Valid type and subtype combinations

Type value b3 b2	Type description	Subtype value b7 b6 b5 b4	Subtype description
00	Management	0000	Association request
00	Management	0001	Association response
00	Management	0010	Reassociation request
00	Management	0011	Reassociation response
00	Management	0100	Probe request
00	Management	0101	Probe response
00	Management	0110–0111	Reserved
00	Management	1000	Beacon
00	Management	1001	Announcement traffic indication message (ATIM)
00	Management	1010	Disassociation
00	Management	1011	Authentication
00	Management	1100	Deauthentication
00	Management	1101–1111	Reserved
01	Control	0000–1001	Reserved

+ additional codes for different type values.

Q2: The IEEE 802.11 frame allows the payload ("frame body") length to vary from 0 to 2312 bytes, whereas "Ethernet" allows the payload length to vary from 46 to 1500 bytes. What could happen when an access point connects an IEEE 802.11 wireless LAN to an Ethernet, and must forward a frame from the wireless LAN to the Ethernet, but the frame is either very short (e.g. 1 byte payload) or very long (e.g. 2312 byte payload)?

Q3: In 802.11, the "More Data" field (B13) indicates that an 802.11 source has more data to send to the destination. Ethernet provides no mechanism to convey this information. If a network layer protocol had to work over both Ethernet and 802.11, and had to indicate to a destination transport layer whether the source had more data to send, then what functionality would the network layer protocol likely include?