**Wireless Multimedia System**

**Quiz 0 (15 min), Sep 15, 2010**

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課程建議: (對於無線網路的疑問或對課程的期待)

**Exercise Topic: Performance Anomaly of 802.11b (IEEE INFOCOM 2003)**

IEEE 802.11b uses the CSMA/CA protocol to share the radio channel in a fair way. However, we have observed that in some common situations in a wireless environment, the method results in a considerable performance degradation. In a typical wireless local area network, some hosts may be far away from their access point so that the quality of their radio transmissions is low. In this case current 802.11b products degrade the bit rate from the nominal 11 Mb/s rate to 5.5, 2, or 1 Mb/s – when a host detects repeated unsuccessful frame transmissions, it decreases its bit rate. If there is at least one host with a lower rate, a 802.11 cell presents a *performance anomaly*: the throughput of all host transmitting at the higher rate is degraded below the level of the lower rate. Such a behavior penalizes fast hosts and privileges the slow one.

(A) Can you offer the reason for the 802.11b performance anomaly?

(B) Can you offer a solution for the 802.11 performance anomaly?