

Random Access Protocols: Key Concepts

- random backoff
- channel sensing
- collision detection
- collision avoidance:
 - random backoff on sensing busy channel
 - reservation (RTS/CTS)

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Wireless Networks

- Physical layer: multipath fading and impact on reliable transmission.
- MAC layer: multiple access and interference management
- Mobility management

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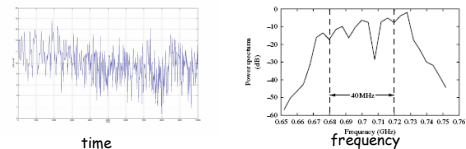
Aloha and CSMA

- What does efficiency of a MAC protocol mean?
- How to compute the efficiency of Aloha and CSMA protocols?
- How should the retransmission probability be adjusted as a function of system load?
- How is this actually done in Ethernet?
- What is the impact of propagation delay on efficiency?

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Multipath Fading

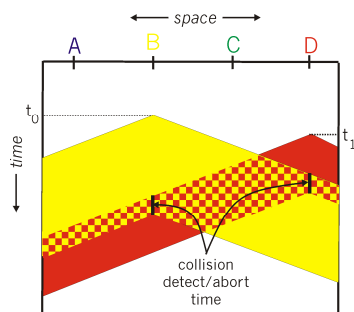
- Why does the wireless channel behave like this?



- What is the main idea for reliable communication over this unreliable medium?

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Timing Diagrams



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Multiple Access and Interference Management

Key concepts:

- Universal vs fractional frequency reuse
- GSM vs CDMA
- Hidden terminal problem and impact on CSMA protocol in 802.11 networks.

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Mobility Management

- Home network vs visited network
- Home address vs care-of-address
- Indirect vs direct routing
- Soft vs hard handoff

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