

CS640: Introduction to Computer Networks

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Lecture 22 -
Wireless Networking

Wireless Challenges

- Force us to rethink many assumptions
- Need to share airwaves rather than wire
- Mobility
- Other characteristics of wireless
 - Noisy → lots of losses
 - Slow
 - Interaction of multiple transmitters at receiver
 - Collisions, capture, interference
 - Multipath interference

IEEE 802.11 Wireless LAN

- **802.11b**
 - 2.4-2.5 GHz unlicensed radio spectrum
 - up to 11 Mbps
 - direct sequence spread spectrum (DSSS) in physical layer
 - all hosts use same chipping code
 - widely deployed, using base stations
- **802.11a**
 - 5-6 GHz range
 - up to 54 Mbps
- **802.11g**
 - 2.4-2.5 GHz range
 - up to 54 Mbps
- All use CSMA/CA for multiple access
- All have base-station and ad-hoc network versions