CS 154 – Set 11

Wireless Technologies
Wireless LAN
Wireless LANs

- Mobility
- Flexibility
- Hard to wire areas
- Reduced cost of wireless systems
- Improved performance of wireless systems
Wireless LAN Applications

- LAN Extension
- Cross building interconnection
- Nomadic access
- Ad hoc networks
LAN Extension

- Buildings with large open areas
  - Manufacturing plants
  - Warehouses
- Historical buildings
- Small offices
- May be mixed with fixed wiring system
Single Cell Wireless LAN

Ateneo’s Nokia WLAN Setup
Multi Cell Wireless LAN
Cross Building Interconnection

- Point to point wireless link between buildings
- Typically connecting bridges or routers
- Used where cable connection not possible
  - e.g. across a street
Nomadic Access

- Mobile data terminal
  - e.g. laptop
- Transfer of data from laptop to server
- Campus or cluster of buildings
Ad Hoc Networking

- Peer to peer
- Temporary
- e.g. conference
Wireless LAN Configurations

(a) Infrastructure Wireless LAN

(b) Ad hoc LAN
Home Networking
HomeRF

- Can accommodate up to a maximum of 127 devices with up to 6 full duplex connections
- TDMA and CSMA/CA technologies
- 2.4-GHz
- Data rate of 1-2 Mbps
- Range of about 300-feet
Powerline Ethernet

- Evolution from X10 specification which supported up to 256 devices
- Interface module uses AC outlets and includes an Ethernet transceiver that supports 10Mbps
Phoneline

- Enables 1Mbps LAN connections using existing in-house telephone wiring
- Allows up to 25 PCs using CSMA/CD
- Up to around 500 feet between nodes
- The Home Phoneline standard supports simultaneous access with traditional POTS and ADSL