

## Chapter 9

### Nature of Computing Peer-to-Peer Networks

## Pull vs Push Technology

- Pull – user decides what information comes to them
- Push – user gets information sent to them
- Examples:
  - Browsing web pages?
  - Email/Spam?
  - Watching TV?
  - Radio?

## Push Technology

- RSS
- Email newsletters
- Podcasts
- Video podcast (“vidcast” or “vodcast”)



## Peer-to-Peer Networks

- Napster
- Gnutella Network
- Bit Torrent

## Napster

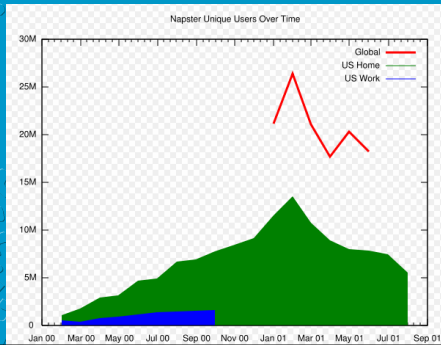
- Founded by 19-year-old Shawn Fanning
- Connected users through central database
- File transfers between users



## Napster History

- Metallica discovered “I Disappear” demo online
- Metallica & Dr. Dre sued Napster
- RIAA (Recording Industry Association of America) also has sued.
- March 2001 – Napster shut down

## Napster History



## Gnutella / FastTrack networks

- Filled Napster vacuum (RIAA missed their chance)
- Second generation P2P (Peer to Peer) networks
- Gnutella: Limewire, Morpheus
- FastTrack: Kazaa, Grokster
- No centralized server

## Bit Torrent

- Peer-to-Peer
- Clients: Azureus, BitComet, UTorrent, ZipTorrent
- Seeds & Peers



## Grid Computing

- Sharing processing power
- SETI @ Home
- New model: like utility grid, renting computer power

## DRM – Digital Rights Management

- New file formats
- Control how files are used:
  - Copying
  - Playing
  - Sharing
- Page 377 – Steven Levy

## Discussion Questions

- Are the files on your computers yours? Under your control?
- Should an author be able to control how their work is copied or viewed?
- Which leads to more creativity? Maybe people are reluctant to create art if they can't control how it will later be used?



## Conflicting Laws

“Fair use” in copyright law vs. illegally  
breaking copy scheme (illegal in Digital  
Millennium Copyright Act)