

# Announcements

- Start your project and don't wait until the day before is due

# VPN

- Virtual Private Network
- How it works
  - Machine within trusted network runs VPN server
  - Outside computers runs VPN client
  - VPN client registers with the VPN server
  - From this point on any message sent to by the client is sent to server.
  - Server sends out client message using an IP recognized in the trusted network
- Example
  - Some resources of the University are accessible by using university IPs. You need a VPN to get access from home.

# Instant Messaging Systems

- Initial System: talk
  - You needed to know the target machine IP address.
  - The finger command helped in this process
- Example:
  - talk [nelson@junkfood.cs.umd.edu](mailto:nelson@junkfood.cs.umd.edu)
- To address the problem “RELAY Servers” were developed
  - Those that wanted to communicate just connected to a RELAY server
  - Those connected to different servers could not communicate

# Instant Messaging

- Systems
  - IRC (Internet Relay Chat)
  - ICQ (“I Seek You”)
  - AOL Instance Messenger
- All the above systems rely on a centralized server

# Instant Messaging Architecture

- Capabilities of IM systems like AOL IM and Microsoft Messages
  - Real-time communication (one-on-one chat, chatrooms)
  - File transfers
  - Audio/Video conversations
- Components of IM systems
  - IM User Application –
    - Allows user to connect to the central IM server or directly to another user
  - IM Server –
    - Allows user to “register” (among other things providing IP address)
    - Coordinates alerts between buddies
    - Supports message delivery
    - Facilitates direct connections between users

# Instant Messaging Modes

- Standard IM
  - All messages go through the central server
- Peer To Peer
  - For those IM client applications that allows it you can make a direct connection to another user's computer to send information (e.g., data, video, etc.)

# IM Security

- Clients providing encryption services
  - Trillian chat client with encryption built in
  - GAIM plug-in called OTR (“Off the Record”)