**Week 03 - Principle of network applications, Web, & HTTP**

Client-server architecture

* Server
  + Always on standby
  + Permanent IP address
  + Uses data centers for scalability
* Clients
  + Communicate with server
  + May be intermittently connected
  + May have dynamic IP addresses
  + Do not communicate directly with each other

P2P architecture

* On and off servers
* End-systems directly communicate
* Peers request service from other peers, provide service in return to other peers
* Self-scalability: new peers bring new service capacity, as well as new service demands
* Peers are intermittently connected and change IP addresses

Processes communicating

* Process: program running within a host
  + Client process : initiate comms
  + Server process : waits to be contacted

TCP vs UDP

* TCP
  + Reliable in sending and receiving data
  + Have control in sending data so that sender cannot overwhelm the receiver
  + Congestion control  
    throttle sender when network overloaded
  + does not provide: timing, minimum throughput guarantee, security
  + Requires setup between client and server processes
* UDP
  + Bad
* HTTP Uses TCP
* HTTP connection
  + Non-Persistent
    - HTTP/1.0
    - Disconnect after responded
  + Persistent
    - HTTP/1.1
    - Always waits for response except disconnected