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CS2750

* Dotted Decimal ( base 256 )
  + 192.168.2.1
    - See notes
* Binary - Decimal
* Binary - Hexadecimal
* Decimal - Hexadecimal
* IP Address
  + Unique. One and only one
    - Aliasing
      * Network interface card with multiple IP addresses
    - Universal
      * accepted/recognized by everyone on the network
  + 4 bytes long, or 32 bits
* IPv4
  + 2^32 = 4.29 billion
  + Two - Level addressing
    - Network
      * NETID
    - Host
      * HOSTID
* Classful-addressing (see notes)
  + Take all of our 4 billion addresses and split them into 5 classes
    - Class A
      * Largest Class
      * 50% of all IP addresses
      * 0-127.x.x.x
      * Binary
        + 0…..
    - Class B
      * 25% of all addresses
      * 128-191.x.x.x
      * Binary
        + 10…..
    - Class C
      * 12.5% of all addresses
      * 192-223.x.x.x
      * Binary
        + 110….
    - Class D
      * 6.25%
      * 224-239
      * Binary
        + 1110...
    - Class E
      * 6.25%
      * 240-255.x.x.x
      * Binary
        + 1111….
* Classless Addressing
  + Variable length
  + No Classes
  + Address Aggregation
  + Number of host in power’s of 2
  + prefix/suffix
  + slash notation
  + CIDR
  + 13.27.0.5/12
    - Number of bytes in the prefix
* Network Layer
  + Routing (network of networks)
  + Circuit switched
  + Packet switched
    - Lines are shared
    - Connection - oriented approach(virtual circuits)
    - Connectionless - oriented
      * Routes any different way
      * Each Packet is independent
      * Routing is based on dest. address
      * Delay between routing decision
    - Connection - Oriented
      * Establish virtual circuit all packets will be routed through
      * Route based on flow label / circuit id
      * 3 phases
        + Setup
        + Data Transfer
        + Tear-Down