Networking

TCP/IP

What You Will Learn

- TCP/IP
- Classful networks
- Subnet masks
- Broadcast addresses
- CIDR
- Private address space

TCP/IP

- TCP/IP
  - Used for network communications
  - TCP = Transmission Control Protocol
  - IP = Internet Protocol
- TCP - controls data exchange
- IP - sends data from one device to another
- Hosts
  - devices on a network that have an IP address

IP Networking

- IP address
  - Example: 199.83.131.186
- subnet mask
  - Example: 255.255.255.0
- broadcast address
  - Example: 199.83.131.255
- octet.octet.octet.octet
  - octet values can be from 0 to 255

IP Networking

- Network Address
- Host Address
- Each must be unique for proper routing
- Address Classes
  - Used to determine the network address and host address

Classful Networks

Class	Network	Hosts Allowed
A	1.0 -> 127.0 Ex: 17.24.88.9	16,777,216
B	128.0 -> 191.255 Ex: 183.194.46.31	65,536
C	192.0.0 -> 233.255.255 Ex: 199.83.131.186	255

Subnet Masks

Class	Subnet Mask
A	255.0.0.0
B	255.255.0.0
C	255.255.255.0

255	255	0	0
183	194	46	31

Broadcast Addresses

Class	Network	Subnet Mask	Broadcast
A	17.0.0.0	255.0.0.0	17.255.255.255
B	183.194.0.0	255.255.0.0	183.194.255.255
C	199.83.131.0	255.255.255.0	199.83.131.255

Classless Inter-Domain Routing / CIDR

- IP: 121.67.198.94
  - Class A network: 121.0.0.0
  - Class A subnet: 255.0.0.0
  - Class A broadcast: 121.255.255.255
- IP: 121.67.198.94 Subnet: 255.255.255.0
  - CIDR network: 121.67.198.0
  - CIDR subnet: 255.255.255.0
  - CIDR broadcast: 121.67.198.255

Reserved Private Address Space

Class	Range	Private Address Space
A	1.0.0.0 - 127.255.255.255	10.0.0.0 - 10.255.255.255
B	128.0.0.0 - 191.255.255.255	172.16.0.0 - 172.31.255.255
C	192.0.0.0 - 233.255.255.255	192.168.0.0 - 192.168.255.255

Summary

- TCP/IP
- Classful networks
- Subnet masks
- Broadcast addresses
- CIDR
- Private Address Space