Homework 4

Networking

# Goals

* Determining which incremental backups need to be used to guarantee restoration of a filesystem.
* Learning more about subnetting, routing, and network connections.

Rubric

* 4 points for problem 1.
* 3 points each for scripts.

# Procedure

1. Given a computer with an IP address of 10.3.12.2, provide the following information:

* What class of network is it on?
* What would you expect the netmask to be, in both CIDR (/24 for example) and base 10 formats (255.255.255.0 for example)?
* If you were told that in fact it had a netmask of /24, and it was using the default gateway IP address for that network, provide:
  + The gateway IP address (not the network ID)
  + The broadcast address

2. Write a script in bash, perl, or python3 named 'gateway' that prints out the IP address of the default gateway of the system that it's run on (assuming the same OS as you are using in your labs for the course), the netmask of the network that hosts the gateway in decimal format, and which device that gateway IP address is associated with.

Example: ./gateway(.sh/.pl/.py)

gateway: 169.235.28.1 netmask: 255.255.254.0 device: eth0

3. Write a script in bash, perl, or python3, named 'netmask', that takes a single command line argument, the number of bits in the network part of an address. Given that input, it prints out the number of addresses in the host part of that subnet, the number of usable addresses (subtract out the network address and broadcast address!), and the netmask in digital format.

Example: ./netmask 30(.sh/.pl/.py)

addresses: 4 usable: 2 netmask: 255.255.255.252

# Turnin

* .tgz (tarred and gzipped) file containing homework4.txt (with answers to problems 1) and scripts 'gateway', and 'netmask'.