

# Beginning System Administration DeCal

Week 8

April 13, 2009

# Resource Sharing - Resources

- In the media, you have unlimited everything
- In the real world, you what you have
  - limited resources, unlimited demands
  - hardware - memory, processing speed, storage, space

# Resource Sharing - Costs

- Costs
  - Initial rampup costs
    - Servers
    - Networking
    - Data Storage
    - Consulting
  - Maintenance costs
    - Power - cooling, backup generators, servers
    - Bandwidth - cost per MB transferred
    - System upgrades/maintenance
    - Personnel - sysadmins, network admins

# Resource Sharing - The SysAdmin

- Decisions
  - Fair access for all clients according to roles
  - Where/How to improve resource utilization
    - Spend more money on ram!?
    - Money is not the answer to everything
  - Upgrade Plans
    - Do you have the physical space for your equipment?
    - How will you maintain the new equipment?

# Resource Sharing - Why!?

- Limited Disk Space
  - Some people use more space than they are entitled to
  - Illegal materials, policy enforcement
- Limited Bandwidth
  - No you cannot serve your entire music collection here
- Denial of Service (DOS)
  - an attempt to make a computer resource unavailable to its intended users - wikipedia

# Resource Sharing - Problems

- Problems
  - Legal issues
  - Security issues
  - Availability Issues

# Resource Sharing - Quota

- Quotas
  - Impose a limit on user's resources
  - The quota command
- Accounting
  - Processor usage
  - Bandwidth
  - Disk Usage
  - Command logging

# Security - Permissions

- Permissions revisited
  - Three sets of read/write/execute
- Tools
  - The find utility can search for files based on permissions
  - Exercise - What is the command to list all files with permissions of 777



# Security - ACLs

- Access Control Lists
  - Sometimes the default groups - owner/group/everyone are too broad
  - What if you want to share with a single user or multiple groups?
- setfacl, getfacl
- allow for more fine-grained control over permissions

# Security - Privileges

- Privilege escalation
  - sudo, su
- Non-privileges users
  - Security vulnerabilities
  - Compromised accounts
  - Look at ps -ef. How many processes actually run as root?