

Beginning System Administration DeCal

Week 8

November 3, 2008

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 is 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?