Second Lecture

The Linux System

The Linux System

- The Linux system excels in many areas, ranging from end user concerns such as stability, speed, ease of use, to serious concerns such as development and networking.
  - Linux kernel
  - Linux networking



- Linux file system

Linux Kernel

- The kernel is the central nervous system of Linux, include OS code which runs the whole computer. It provides resources to all other programs that you run under Linux, and manages all other programs as they run.
  - The kernel includes the code that performs certain specialized tasks, including TCP/IP networking.
  - The kernel design is modular, so that the actual OS code is very small to be able to load when it needs, and then free the memory afterwards, thus the kernel remains small and fast and highly extensible.



Linux Kernel

- The kernel is the basic core of the operating system.
- It provides all the fundamental services the operating system needs such as file input/output.
- It also contains a process scheduler. It is this scheduler that enables the Linux OS to multi-task.
- An executing program in Linux is known as a process.
- Every user session runs a process known as a user shell.
- Default shell for most Linux is usually ‘bash’.



The Linux Kernel

- The shell provides a command-line to enter text-based commands.
- Other shells that can be found in Linux distributions are:-
- csh
- ksh
- To find out information about any process. We use the command ‘ps’.
- The default ‘ps’ command without any options/ arguments will show only the processes started from within the same user session.



- To find out all the processes on a host we use ‘psaux’ command.

LINUX NETWORKING

- Networking comes naturally to Linux. In a real sense, Linux is a product of the Internet or World Wide Web (www).
- Linux is made for networking. Probably all networking protocols in use on the Internet are native to Unix and/or Linux. A large part of the Web is running on Linux boxes, e.g. : AOL

NETWORKING PROTOCOLS

- The Linux kernel supports several networking protocols:



- TCP/IP - Transport Control Protocol/Internet Protocol
- IP is the primary network protocol supported by Linux
- IPX - Internetwork Packet Exchange
- Applettalk DDP
- Amateur Radio AX.25 Level 2

Supported Features

- Forwarding
- Firewall operations
- Proxy and Masquerading
- Accounting
- Tunneling and Intranets
- Aliasing



Linux File System

- Linux has an hierarchical, unified file system
  - Supports 256-character filenames.
- All command line entries are case sensitive.
- Use the slash(/) rather than the backslash(\) you have been using in DOS.

Types of File

- Ordinary files
  - text files
  - data files
  - command text files
  - executable files
- directories



- links
  - rather than having multiple copies of a file, Linux uses linking to one file to save disk space.
- special device files

Reference

- http://www.Linux.org
- http://www.croftj.net/~jam
- http://metalab.unc.edu/LDP/HOWTO/NET-3HOWTO-4.html#ss4.1

