CST 126 – LESSON 1

Operation Systems and Unix Overview

Logging on to the System

Overview

- Operating System Overview
- Unix/Linux Overview
- Importance of UNIX/Linux.
- Logging on to the system.

What is an operating system?

- Primary purpose is to facilitate:
  - Easy, Efficient, fair, orderly and secure use of hardware and software resources.
- Allows users to employ application software, language libraries, system calls and program generation tools.
- Two ways of viewing an operating system:
  - Top-down
    - E.g., The OS performs the task of dealing with complicated hardware resources and gives you a comprehensive and simple machine, ready to use.
    - In this way the OS provides a *virtual machine*
  - Bottom up
    - E.g., the OS decides how much space how much RAM space is to be allocated to a program before it is loaded and executed.
    - In this was the OS can be viewed as a *resource manager*.

Layered View of an Operating System

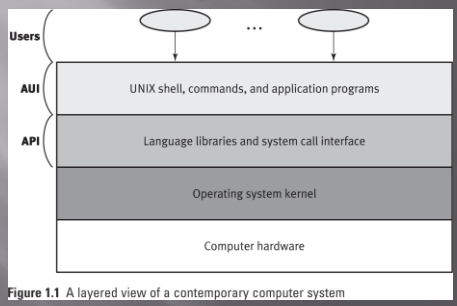


Figure 1.1 A layered view of a contemporary computer system

Operating System Services

- Execution of a program
- Input and output operations performed by programs
- Communication between processes
- Error detection and reporting
- Manipulation of all types of files
- Management of users and security

Development of Unix Operating System

- Beginnings (Bell Labs, ~1969)
- Research Operating System
  - UNIX Version 1 through UNIX Version 6
    - Developed and Written in C
    - Releases distributed as C Source Code
    - The design of the system allowed users to run multiple processes concurrently and to connect these processes with streams.
- AT&T System V
  - Released in 1983
- Berkley Software Distributions
  - 3BSD and 4BSD
- Shells
  - Bourne Shell, C Shell, Korn Shell, Bash Shell.
- Current and Future Developments - LINUX

From a Flow Chart Perspective

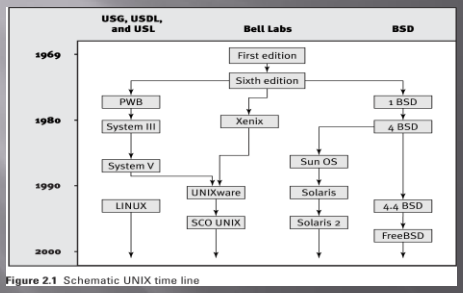


Figure 2.1 Schematic UNIX time line

http://www.levenez.com/unix

Importance of UNIX/Linux

- No Internet: Most Internet servers and essentially all of the fundamental computing structures run on a UNIX or Linux computer.
- No Modern Films: Most of the special effects are generated on Unix/Linux systems.
- No Stocks and Bonds Sales: Nearly all transactions are handled by Unix/Linux systems.
- No ATMs or Banking: Many of the actual ATMs and most of the communication networks are running on Unix/Linux systems.
- No Electronic Games: The development of many electronic games occurs in Unix/Linux environments.

Importance of UNIX/Linux

- No Military: The general infrastructure for communications, programs, smart devices, and critical data is managed on Unix/Linux systems.
- No Operational Government: Tax liens, records, communications, and more are stored on Unix/Linux systems.
- No Functioning Universities: Records, research, communication, development, publications, and more depend on applications provided by Unix/Linux systems.
- No Large Corporations: Data, research, file serving for desktops, e-mail, and an enormous portion of publishing run on Unix/Linux environments.
- Bottom Line: Unix/Linux is a big part of everything!!!

Logging On to the System

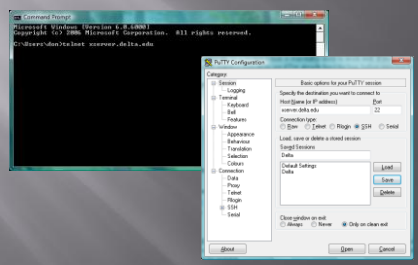
- The UNIX system's ability to serve multiple users at a time is one of its primary features.
- A unique account associated with a login name is created when an administrator adds a new user to a system.
- Your userid and password are the same as your Delta Ids and passwords.

Logging On to the System

- Entry to the UNIX system is granted only if the user provides a login name and a password that match an established user on the system.
- A user having a 'root' login is granted the extensive powers needed to administer the system.

Logging On to the System

Couple of possibilities: Use a telnet session or a terminal application:



Logging On to the System

- Ensure that the username and password is entered using the correct character-case, since UNIX/Linux is case-sensitive.
- In most systems, the login name and the password are in lowercase letters.
- Passwords are not displayed on the screen.

Logging On to the System

- Care should be taken to avoid typing mistakes.
- Confusion between similar looking characters should also be avoided. For example, the alphabet O and the number zero (0).

Terminal Window Interaction

```
Red Hat Linux release 7.2 (Enigma)
Kernel 2.4.7-10 on an i686
login: nate
Password:
Last login: Mon Aug 19 17:18:07
bash-2.05$
```

Terminal Window Screen

Once your in…the fun begins!

Summary

- Unix/Linux are multi-user/multi-processing operating systems.
- Unix has been around since the late 60s and is used in virtually everything that does serious computing.
- Logging in requires either telnet or a terminal application with a properly configured ID and password.