Operating System Overview

Chapter 2

Operating System

• A program that controls the execution of application programs
• An interface between applications and hardware
Operating System Objectives

- Convenience
  - Makes the computer more convenient to use
- Efficiency
  - Allows computer system resources to be used in an efficient manner
- Ability to evolve
  - Permit effective development, testing, and introduction of new system functions without interfering with service

Layers of Computer System

![Layer Diagram]

Figure 2.1  Layers and Views of a Computer System
Services Provided by the Operating System

• Program development
  – Editors and debuggers
• Program execution
• Access to I/O devices
• Controlled access to files
• Memory management
• System access
• Network support

Services Provided by the Operating System

• Error detection and response
  – Internal and external **hardware** errors
    • Memory error
    • Device failure
  – **Software** errors
    • Arithmetic overflow
    • Access forbidden memory locations
  – Operating system cannot grant request of application
Services Provided by the Operating System

• Accounting
  – Collect usage statistics
  – Monitor performance
  – Used to anticipate future enhancements
  – Used for billing purposes
  – check out the log files of a unix system
    • where do you find this information?

Operating System

• Responsible for managing resources
• An OS is just a program that is executed
Kernel

- Portion of operating system that is in main memory
- Contains most frequently used functions
- Also called the nucleus
Linux

• Brief discussion on linux
• What is in the distributions:
  – http://lxr.linux.no/source/

Why does an OS need to evolve?

• Hardware upgrades plus new types of hardware
• New services
• Fixes