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
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