

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

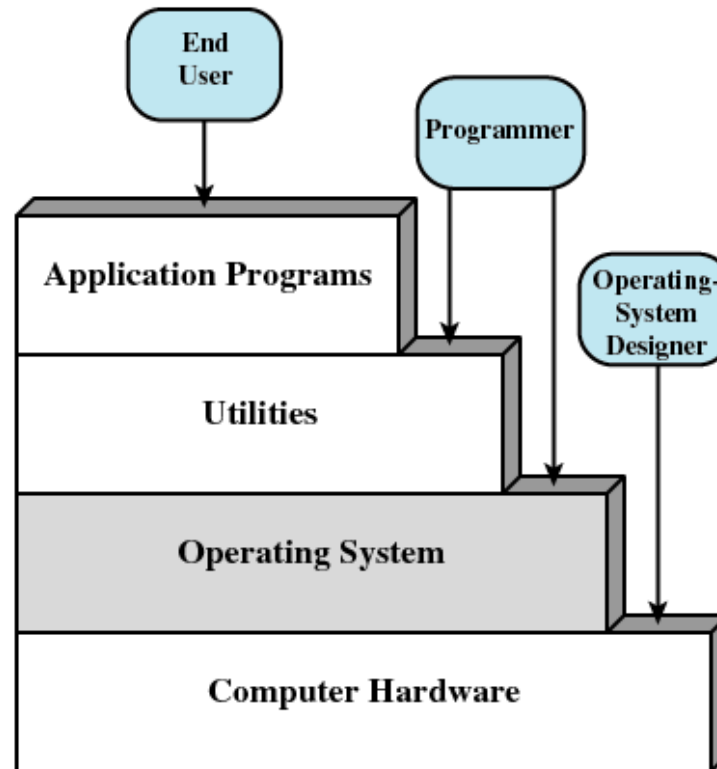


Figure 2.1 Layers and Views of a Computer System

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

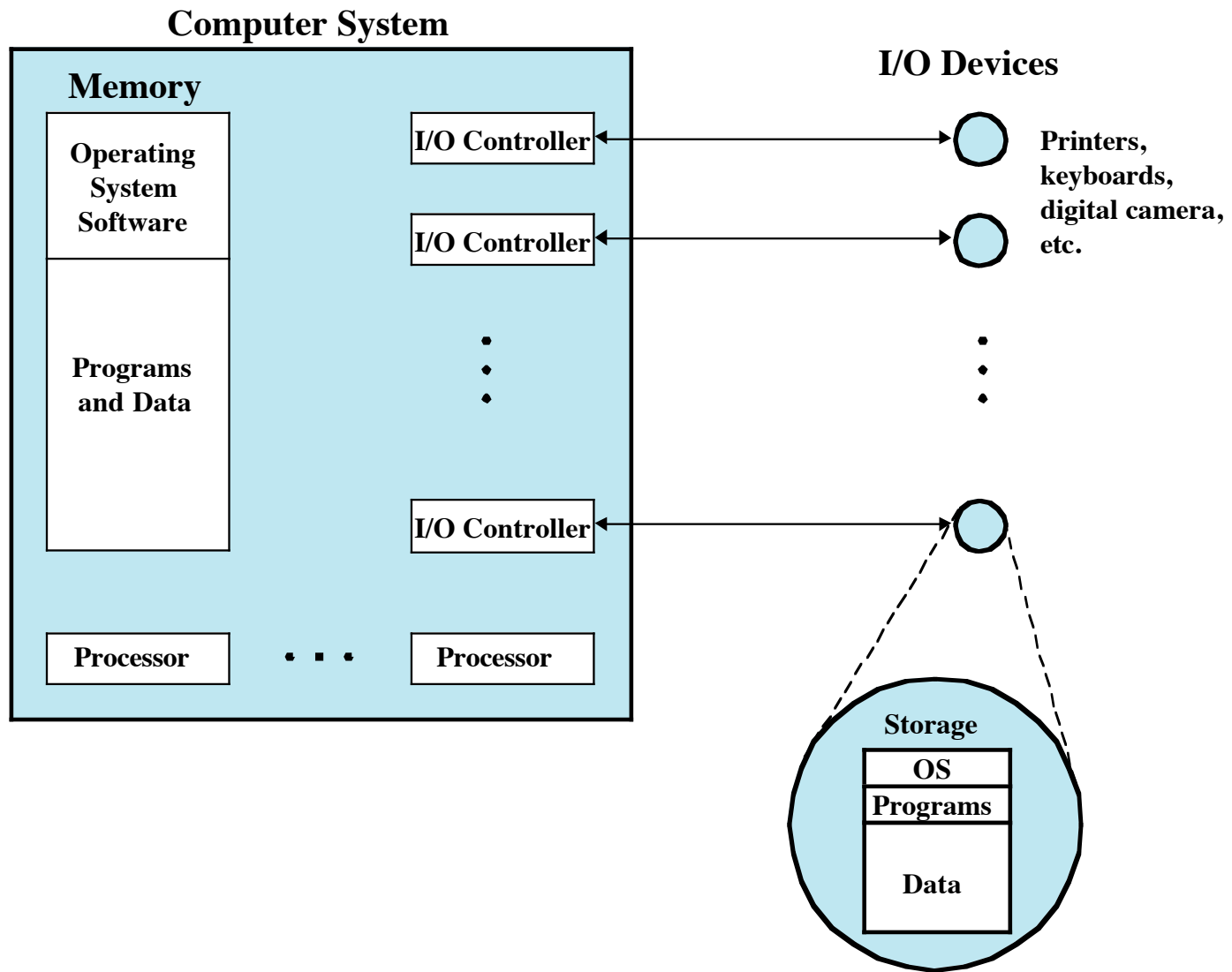


Figure 2.2 The Operating System as Resource Manager

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