File Management

文件管理

Chapter 5

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第49讲 文件管理概述

§5.1 File Management

File Management

- ❖ **File management system is considered part of the operating system.**

- ❖ **Input to applications is by means of a file.**

- ❖ **Output is saved in a file for long-term storage.**

Objectives for a File Management System

- ❖ **Meet the data management needs and requirements of the user.(符合系统管理数据的需要及用户的需求)**

- ❖ **Guarantee that the data in the file are valid.**

- ❖ **Optimize performance.(保证系统性能及用户对响应时间的要求)**

- ❖ **Provide I/O support for a variety of storage device types.**

Objectives for a File Management System

❖ **Minimize or eliminate the potential for lost or destroyed data.(** 减少或避免数据丢失及损坏 **)**

❖ **Provide a standardized set of I/O interface routines.(** 提供标准的 I/O 接口 **)**

❖ **Provide I/O support for multiple users.(** 支持多用户环境下多个用户的 I/O 操作 **)**

File Management Functions

❖ **Identify and locate a selected file.**

❖ **Use a directory to describe the location of all files plus their attributes.**

❖ **On a shared system describe user access control.**

❖ **Blocking for access to files.**

❖ **Allocate files to free blocks.**

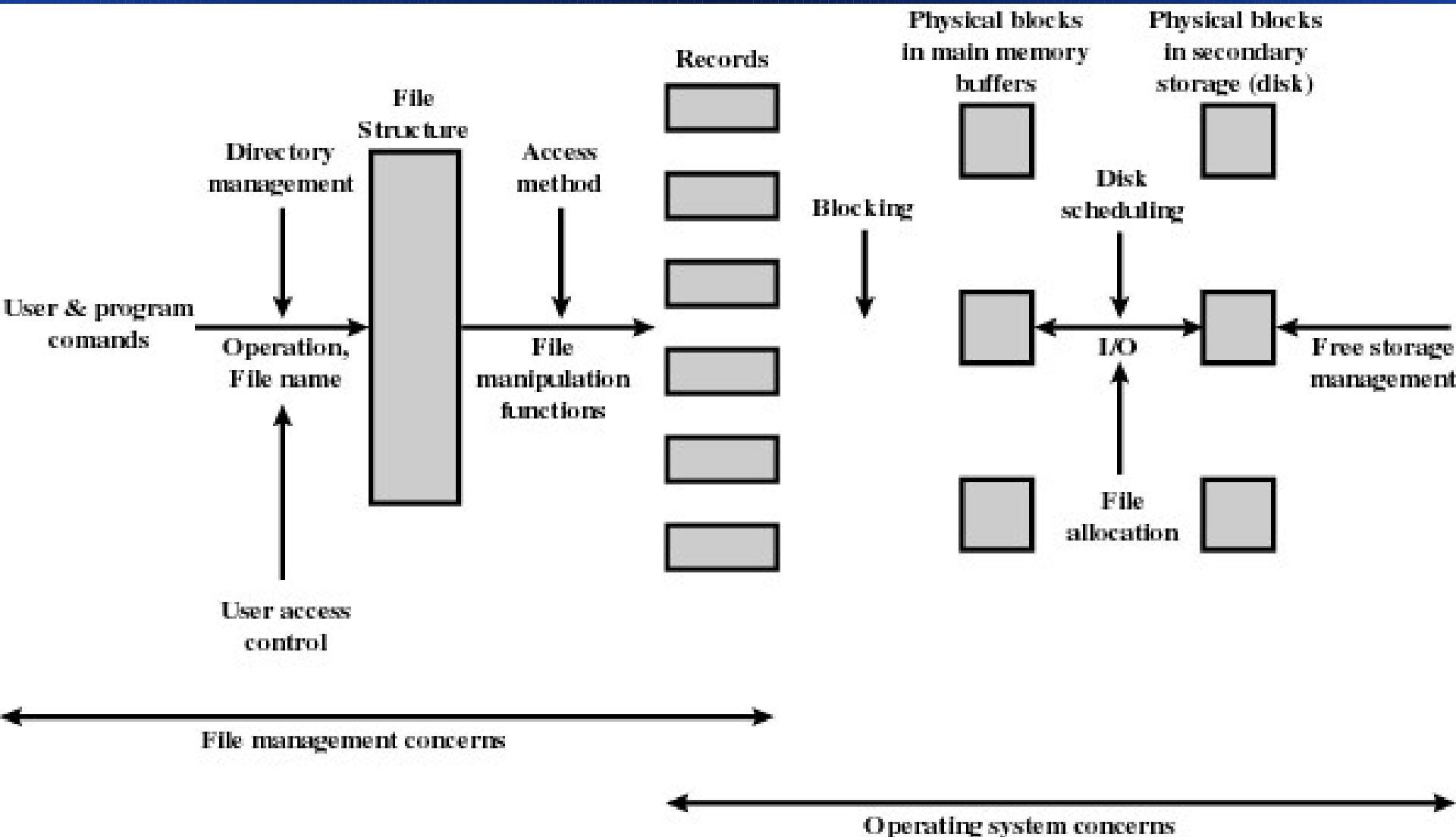❖ **Manage free storage for available blocks.**
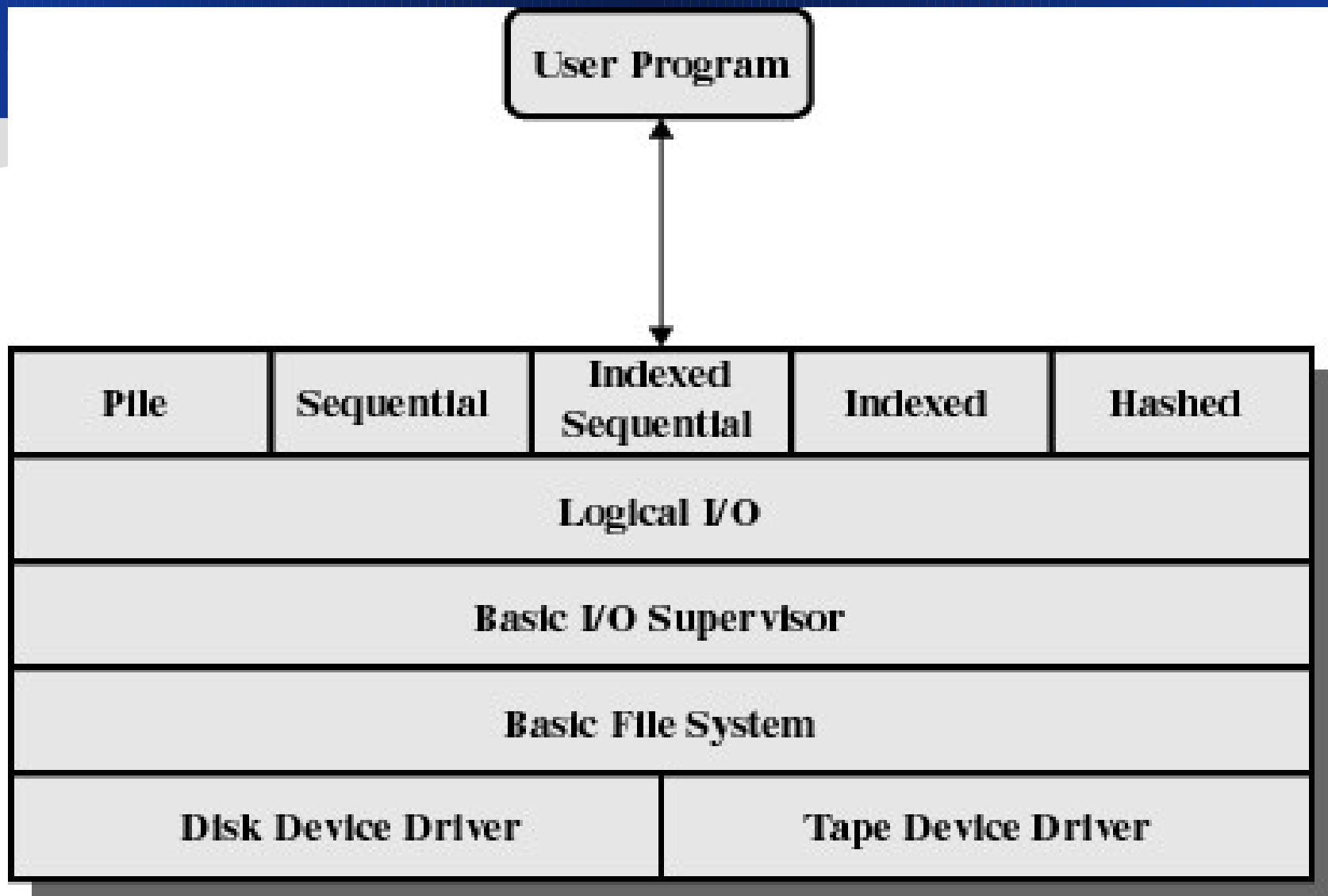
Figure 12.2   Elements of File Management

Figure 12.1 File System Software Architecture [GROS86]

Device Drivers

❖ **Lowest level.**

❖ **Communicates directly with peripheral devices.**

❖ **Responsible for starting I/O operations on a device.**

❖ **Processes the completion of an I/O request.**

Basic File System

❖ **Physical I/O.**

❖ **Deals with exchanging blocks of data.**

❖ **Concerned with the placement of blocks.**

❖ **Concerned with buffering blocks in main memory.**

Basic I/O Supervisor

❖ **Responsible for file I/O initiation and termination.**

❖ **Control structures are maintained.**

❖ **Concerned with scheduling access to optimize performance.**

❖ **I/O buffers are assigned and secondary memory is allocated.**

❖ **Part of the operating system.**

Logical I/O

❖ **Enables users and applications to access records.**

❖ **Provides general-purpose record I/O capability.**

❖ **Maintains basic data about file.**

❖ **Reflect different file structures.**

❖ **Different ways to store and process data.**

❖ **如 Pile 、顺序访问、索引顺序访问、索引访问、 Hash 访问法等访问方法**