Operating Systems - Notes

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1 Introduction

An Operating System is a program that acts as an intermediary between a user and computer hardware. The goal is to make the system easy to use while utilizing hardware efficiently.

Resource Allocator The OS manages all resources and resolves conflicting requests for resource use (e.g. allocating memory or disk space)

Control System The OS controls execution of programs to prevent errors (e.g. preventing one process from crashing another)

A Computer System can be divided into four components:

Hardware Basic computing resources - CPU, Memory, I/O etc.

Operating System Coordinates use of hardware among processes

Application Programs Defines the way hardware resources are used to solve problems - Word processors, compilers, video games etc.

Users People, machines, other computers

Bootstrapping A small bootstrap program is loaded at power-up. The Firmware (BIOS) containing this program is usually stored on ROM or EEPROM. This program initializes the system - detecting connected devices and checking for memory errors - then loads the OS Kernel.

Computer System Organization