



IJIRCCCE

e-ISSN: 2320-9801 | p-ISSN: 2320-9798



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

Volume 12, Issue 2, February 2024

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 8.379



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ijircce@gmail.com



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Review on Operating System

¹Neelam Sahu, ²Vaishali Lodhi, ³Geetanjali Soni, ⁴Aakanksha Patel

M. Sc(CS) Student, Department of Computer Science, SAM Girls College, Bhopal, India

ABSTRACT: An Operating System (OS) is a software program that acts as an intermediary between the computer hardware and the user or application software. It provides a platform for running and managing computer programs, coordinating system resources, and facilitating communication between software and hardware components. The primary functions of an operating system include: Process Management: It manages and schedules processes (or tasks) running on the computer system, allocating resources such as CPU time and memory to ensure efficient execution. Memory Management: The OS controls and organizes the computer's memory resources, allocating memory to different processes and managing virtual memory when the physical memory is limited.

KEYWORDS: Operating system, CPU, Task, hardware, Software.

I. INTRODUCTION

The Operating System acts as a platform of information exchange between your computer's hardware and the applications running on it. Most people are familiar with the Windows Operating System family (like Windows 10, XP, or Vista) or Apple's suite of Operating Systems (like Catalina, Mojave, or Sierra), but for the purposes of this course, we will focus on UNIX: the open-source OS deployed all over the world in both personal and commercial systems. First, we will start with a discussion on some of the earliest Operating Systems, including those which are considered precursors to the Operating Systems that we are familiar with today. Then, we will review the general OS structure and give a basic functional overview. We will conclude this module with a discussion of the modern Operating Systems and devices that we are familiar with.

II. OPERATING SYSTEM

The simplest working definition of operating system is:

An operating system (OS) is a collection of software that manages computer hardware resources and provides common services for computer programs. The operating system is an essential component of the system software in a computer system

The father of operating system is GARY KILDALL .garykildal one of the first people to view micro processor as full featured computers rather than equipment controller ,developed the operating system.

The operating system (OS) sets the standards for all application programs that run in the computer. Applications "talk to" the operating system for all user interfaces and file management operations. Also called an "executive" or "supervisor,".

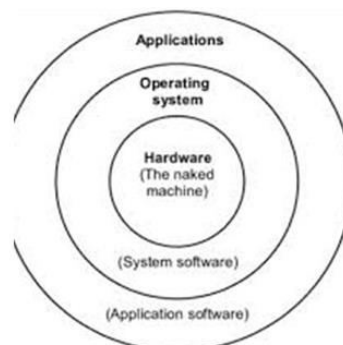


Figure 1: Operating System

Types of Operating System:

1. Multiprogramming operating system.
2. Multiprocessing operating system.

3. Multitasking operating system.
4. Time sharing operating system.
5. Distributed operating system.

1. **Multiprogramming operating system**-multiprogramming is the name given one after another execution of two or more different and independent program by the same computer system.

E.X-MS-excel,firefox,browser.

2. **multiprocessing operating system**-The term multiprocessing defined as collection of computer connected with each other or computer with two or more independent CPU all having the capability to excute several programm at the same time.

E.X-Windows NT,digitalunix .

3-**Multitasking operating system**-In multitasking operating system two or more task active simultaneously .

E.X.-microsoft windows 2000 ,ibms.

4-**time sharing-time sharing- is** the term concern with the allotment of computer resources on a basis of time slice to various programme aat the same time.

E.X-multics,linux.

5-**distributed operating system**-In this type of operating system processor do not share memory or clock.instead each processor has its own memory.

E.x-locus.

III. FUNCTIONS OF OPERATING SYSTEM

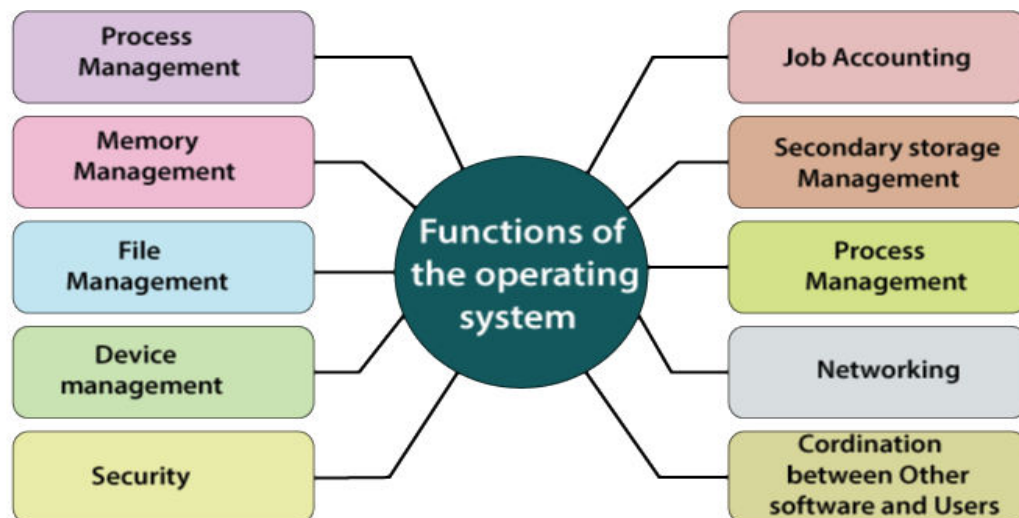


Figure 2: Function of OS

Some typical operating system functions may include managing memory, files, processes, I/O system & devices, security, etc. Below are the main functions of Operating System:

1. Process management: This feature enables the OS to add and remove processes. Additionally, it offers systems for inter process communication and synchronisation.
2. Memory management: The memory management module manages the process of allocating and releasing memory to applications that require it.
3. File management: It controls all operations involving files, including naming, storing, organising, retrieving, sharing, and protecting them.
4. Device Management: All devices are monitored by device management. The I/O controller is a module that is also in charge of this duty. Additionally, it manages the devices' allocation and de-allocation.
5. I/O System Management: One of the key goals of any OS is to conceal from the user the quirks of that hardware.

6. System storage levels include primary storage, secondary storage, and cache storage. Secondary-Storage Management: Data and instructions must be kept in primary storage or cache in order for a running programme to refer to them.

7. Security: The security module guards a computer system's data and information against authorised access and malware threats.

8. Command interpretation: This module interprets commands from the system and uses the appropriate system resources to process them.

9. Networking: A distributed system is a collection of processors that do not share a clock, clock frequency, or any hardware components. Through the network, the processors talk to one another.

ADVANTAGES:

- Provides a user-friendly GUI for ease of use
- Provides an environment in which a user may run programmes or applications
- Allows you to hide hardware specifics by creating an abstraction
- The operating system must make sure that the computer system convenient to use
- The operating system serves as a bridge between applications and hardware components.
- It offers an intuitive interface for the computer system's resources.
- Serves as a liaison between all of the system's hardware and software

DISADVANTAGES

- System Failure. We are aware of the fact that the OS is the heart of a computer system without which the system won't be able to run.
- Operating system software is fairly expensive for small size organisations, which increases strain on them.
- Because threats might appear at any time, there is never complete security.

IV. CONCLUSION

Operating systems have been invented to reduce human effort and save time. Our attention to operating systems (OS) concerns the machine and the results of our analysis show that there is no good or bad operating system. The goal was to broaden the user's understanding of the variety of systems. If their concern is security and stable operation, Mac and Linux may be the best choice; their security classification is high. In addition, in terms of application and availability, Windows and Mac are the market leaders; are supported by millions of developers. When users are concerned about the latest hardware technologies, Linux and Windows operating systems may fall into this category. In addition to personal computer knowledge, after careful analysis of industry leaders, we can conclude that the main factors that determine the choice of an operating system are the user requirements and the intended use of the system exploitation itself.

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