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Review on Operating Systems

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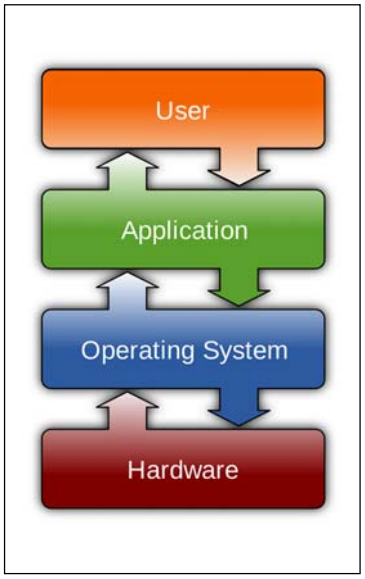
Abstract :

An operating system (OS) is system software that manages computer hardware and software resources and provides common services for computer programs.

Operating systems provide a software platform on top of which other programs, called *application programs,* can run. The application programs must be written to run on top of a particular operating system. Your choice of operating system, therefore, determines to a great extent the applications you can run. This article provide you the basic introduction to operating system.

Introduction:

The **o***perating* ***s****ystem (***OS***)* is the most important program that runs on a computer. Every general-purpose computer must have an operating system to run other programs and applications. Computer operating systems perform basic tasks, such as recognizing input from the keyboard, sending output to the display screen, keeping track of files and directories on the storage drives, and controlling peripheral devices, such as printers.



Conceptual view of Operating System

For large s[illegible] greater responsibilities and powers. It is like a traffic cop — it makes sure that different programs and users running at the same time do not interfere with each other. The operating system

is also responsible for *security*, ensuring that unauthorized users do not access the system.

Classification of Operating systems :

- Multi-user: Allows two or more users to run programs at the same time. Some operating systems permit hundreds or even thousands of concurrent users.
- Multiprocessing : Supports running a program on more than one CPU.
- Multitasking : Allows more than one program to run concurrently.
- Multithreading : Allows different parts of a single program to run concurrently.
- Real time: Responds to input instantly. General-purpose operating systems, such as DOS and UNIX, are not real-time.

Components of operating system :

- **KERNEL :**

The kernel provides the most basic level of control over all of the computer's hardware devices. It manages memory access for programs in the RAM, it determines which programs get access to which hardware resources, it sets up or resets the CPU's operating states for optimal operation at all times, and it organizes the data for long-term non-volatile storage with file systems on such media as disks, tapes, flash memory, etc.

- **NETWORKING :**

Currently most operating systems support a variety of networking protocols, hardware, and applications for using them. This means that computers running dissimilar operating systems can participate in a common network for sharing resources such as computing, files, printers, and scanners using either wired or wireless connections. Networks can essentially allow a computer's operating system to access the resources of a remote computer to support the same functions as it could if those resources were connected directly to the local computer.

- **SECURITY :**

A computer being secure depends on a number of technologies working properly. A modern operating system provides access to a number of resources, which are available to software running on the system, and to external devices like networks via the kernel.The operating system must be capable of distinguishing between requests which should be allowed to be processed, and others which should not be processed.

- **USER INTERFACE :**

Every computer that is to be operated by an individual requires a user interface. The user interface is usually referred to as a shell and is essential if human interaction is to be supported.
The operating system will acquire data from input hardware devices, such as a keyboard, mouse or credit card reader, and requests operating system services to display prompts, status messages and such on output hardware devices, such as a video monitor or printer.

Two common forms of user interface
Command line interface : Where commands are typed line by line.
Graphical user interface : Where visual environment is present.

Clockwise
a. Apple
b. Linux
c. Microsoft Windows
d. Ubuntu
e. Android
f. iOS for I Phone

Fig – 5.2
Popular Operating System Logos

Most Popular Desktop Operating Systems

The three most popular types of operating systems for personal and business computing include Linux, Windows and Mac.

Windows

Microsoft Windows is a family of operating systems for personal and business computers. Windows dominates the personal computer world, offering a graphical user interface (GUI), virtual memory management, multitasking, and support for many peripheral devices**.**

Mac

Mac OS is the official name of the Apple Macintosh operating system. Mac OS features a graphical user interface (GUI) that utilizes windows, icons, and all applications that run on a Macintosh computer have a similar user interface.

Linux **Linux**

is a freely distributed open source operating system that runs on a number of hardware platforms. The Linux kernel was developed mainly by Linus Torvalds and it is based on Unix.

Mobile Operating Systems:

In the same way that a desktop OS controls your desktop or laptop computer, a mobile operating system is the software platform on top of which other programs can run on mobile devices, however, these systems are designed specifically to run on mobile devices such as mobile phones, smartphones, PDAs, tablet computers and other handhelds.

Conclusion :

An Operating System performs all the basic tasks like managing file, process, and memory. It provides common services for computer programs. Thus operating system acts as manager of all the resources ie **resource manager**. Thus operating system becomes an interface between user and machine.

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