

Operating System

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ABSTRACT

In this paper we are discussing the basic of operating system. This is just generalized information of the operating system. This research paper is dealing with the functions of operating system and its evolution.

I. INTRODUCTION

Windows, Windows Phone and z/OS, share roots in UNIX. An operating system (OS) is software that manages computer hardware and software resources and provides common services for computer programs.[3] The operating system is an essential component of the system software in a computer system.[4] Application programs usually require an operating system to function.[5]

Time-sharing operating systems schedule tasks for efficient use of the system and may also include accounting software for cost allocation of processor time, mass storage, printing, and other resources.[1]

For hardware functions such as input and output and memory allocation, the operating system acts as an intermediary between programs and the computer hardware, although the application code is usually executed directly by the hardware and will frequently make a system call to an OS function or be interrupted by it.[5] Operating systems can be found on almost any device that contains a computer—from cellular phones and video game consoles to supercomputers and web servers.

Examples of popular modern operating systems include Android, BSD, iOS, Linux, OS X, QNX, Microsoft Windows,^[3] Windows Phone, and IBM z/OS. All these examples, except.

II. TYPES OF OPERATING SYSTEM

Real-time

A real-time operating system is a multitasking operating system that aims at executing real-time applications.[3] Real-time operating systems often use specialized scheduling algorithms so that they can achieve a deterministic nature of behavior. The main objective of real-time operating systems is their quick and predictable response to events.[11] They have an event-driven or time-sharing design and often aspects of both.[8] An event-driven system switches between tasks based on their priorities or external events while time-sharing operating systems switch tasks based on clock interrupts.[12]

Time-sharing operating systems schedule tasks for efficient use of the system and may also include accounting software for cost allocation of processor time, mass storage, printing, and other resources.[2]

Multi-user

A multi-user operating system allows multiple users to access a computer system at the same

time.[3] Time-sharing systems and Internet servers can be classified as multi-user systems as they enable multiple-user access to a computer through the sharing of time.[12] Single-user operating systems have only one user but may allow multiple programs to run at the same time.

Multi-tasking vs. single-tasking

A multi-tasking operating system allows more than one program to be running at the same time, from the point of view of human time scales.[8] A single-tasking system has only one running program.[2] Multi-tasking can be of two types: pre-emptive and co-operative. [9]In pre-emptive multitasking, the operating system slices the CPU time and dedicates one slot to each of the programs.[6] Unix-like operating systems such as Solaris and Linux support pre-emptive multitasking, as does AmigaOS. Cooperative multitasking is achieved by relying on each process to give time to the other processes in a defined manner.[10] 16-bit versions of Microsoft Windows used cooperative multi-tasking. 32-bit versions of both Windows NT and Win9x, used pre-emptive multi-tasking. Mac OS prior to OS X used to support cooperative multitasking.

III. FUNCTIONS OF OPERATING SYSTEM

There are Many Functions those are Performed by the Operating System But the Main Goal of Operating System is to Provide the Interface between the user and the hardware Means Provides the Interface for Working on the System by the user. [6]The various Functions those are Performed by the Operating System are as Explained below:-

Operating System Also Known as the Resource Manager Means Operating System will Manages all the Resources those are Attached to the System means all the Resource like Memory and Processor and all the Input output Devices those are Attached to the

System are Known as the Resources of the Computer System and the Operating system will Manage all the Resources of the System. The Operating System will identify at which Time the CPU will perform which Operation and in which Time the Memory is used by which Programs. And which Input Device will respond to which Request of the user means When the Input and Output Devices are used by the which Programs. So this will manage all the Resources those are attached to the Computer System.

Storage Management

Operating System also Controls the all the Storage Operations means how the data or files will be Stored into the computers and how the Files will be Accessed by the users etc.[14] All the Operations those are Responsible for Storing and Accessing the Files is determined by the Operating System Operating System also Allows us Creation of Files, Creation of Directories and Reading and Writing the data of Files and Directories and also Copy the contents of the Files and the Directories from One Place to Another Place.[11]

IV. EVOLUTION OF OPERATING SYSTEM

- In the early computers there were no Operating Systems.[5]
- By in the early 1960s, when the commercial computer services and commercial computer merchants started supplying the extensive apparatus for reformation of the development, execution of jobs, and scheduling on batch processing systems.[12]
- With the advancement of the commercial computer services we have come across a number of Operating Systems software.[11]
- Starting from the DOS, a lot much Operating Systems software has got developed through

out the ages like the UNIX, Oracle etc depending on the requirement.

- The most commonly-used Operating Systems for laptops and modern Desktops Operating Systems were the Microsoft Windows.[4]
- Though more powerful servers make the use of FreeBSD, Linux, and other Unix-like systems a lot.[7]
- Though, these types of Operating Systems, particularly Mac OS X, are also installed on the personal computers.[5]

V. CONCLUSION

By studying a basic depth of operating system, it shows that operating system is a basic need for any software to work.

Without an operating system its not possible to conclude to a result, operating system have many functions that lead to development of nay task and completion of that task too.[8]

VI. REFERENCES

1. Brinch-Hansen, P. Structured multiprogramming. Comm. ACM 15, 7 (July 1972), 574-577.
2. Brinch-Hansen, P. "A comparison of two synchronizing concepts," Aeta Information 1 (1972), 190-199.
3. Brinch-Hansen, P. Operating System Principles. Prentice-Hall, Englewood Cliffs, N.J., 1973.
4. Courtois, P. J., Heymans, F., Parnas, D.L. Concurrent control with readers and writers. Comm. ACM 14, 10 (Oct. 1971), 667-668.
5. Courtois, P.J., Heymans, F., Parnas, D.L. Comments on [2]. Acta Informatica 1 (1972), 375-376.
6. Dahl, O.J. Hierarchical program structures. In Structured Programming, Academic Press, New York, 1972.
7. Dijkstra, E.W. Cooperating Sequential Processes. In Programming Languages (Ed. F. Genuys), Academic Press, New York, 1968.
8. Dijkstra, E.W. A constructive approach to the problem of program correctness. BIT8 (1968), 174-186.
9. Dijkstra, E.W. Hierarchical ordering of sequential processes. In Operating Systems Techniques, Academic Press, New York, 1972.
10. Dijkstra, E.W. Information streams sharing a finite buffer. Information Processing Letters 1, 5 (Oct. 1972), 179-180.
11. Dijkstra, E.W. A class of allocation strategies inducing bounded delays only. Proc AFIPS 1972 SJCC, Vol. 40, AFIPS Press, Montvale, N.J., pp. 933-936.
12. Hoare, C.A.R. Towards a theory of parallel programming. In Operating Systems Techniques, Academic Press, New York, 1972.
13. Hoare, C.A.R. Proof of correctness of data representations. Acta Informatica 1 (1972), 271-281.
14. Hoare, C.A.R. A structured paging system. Computer J. 16, 3 (1973), 209-215.
15. Wirth, N. The programming language PASCAL. Acta