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Distributed Operating System

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Abstract: - A distributed system is a collection of independent computers that appear to the users of the system as a single computer. The distributed operating system has two aspects. The first one deals with hardware: the machines are autonomous. The second one deal with software: the users think of the system as a single computer. Both are essential. If the system as a whole looked and acted like a classical single-processor timesharing system, it would qualify as a distributed system. Usually Users are unaware of multiplicity of machines. Access to remote resources similar to access to local resources
Keywords: - Mapping, addressing processes, centralized operating system, kernel, intercommunicating cells, transparency

I. INTRODUCTION

An operating system should control resource allocation and provide the user with a virtual computer that serves as a convenient environment. In the case of local computer networks, the construction of an operating system fulfilling the requirements of the definition given above implies design and implementation problems not known in the area of operating systems for centralized computer systems. The partial answer of this question could be found on the basis of an informal definition of a distributed operating system as being an extension of the definition given above. A distributed operating system should control Network resource allocation to allow their use in the most effective way; provide the user with a convenient virtual computer that serves as high level programming Environment and hide the distribution of the resources this means that in a given network node there is the possibility of a demand for access to a resource not known in that node. On the basis of these two definitions one can Say that problems mentioned above are implied by the geographic distribution of resources, access to and management of resources, protection and reliability of the system as a whole and ways of distribution of the operating system between several nodes of the network.

It should be pointed out that the latest do not solve in an optimal way all construction problems presented above and use many solutions for centralized operating systems. There are hypotheses that the distribution of the control of a computer system (e.g., resource management) will improve the effectiveness of the distributed operating system. This factor is used to point out the importance of research in distributed operating systems [Dav 81, Len 81, and Jen 84] to create a good base for design and implementation. These efforts are very closely connected with the development of adequate tools to describe and carry out research in Distributed operating systems.

This paper presents a logical model of a distributed operating system constructed as a base model to carry on a synthesis of simulation models of distributed operating systems. The existing simulation tools making possible the comparison of centralized operating systems developed [Dav 79, Mad 80] have been constructed on the basis of well-known logical models of centralized operating systems [Bri 73, Pet 85]. There is a lack of logical models to guide development of simulation tools for distributed operating systems.

The presented logical model of the distributed operating system is oriented towards problems of extending centralized operating systems as well as problems of searching for an effective structure of newly constructed distributed operating systems

The object approach used to develop a logical model of a distributed operating system simplifies a synthesis of simulation models - tools to study distributed operating systems. The construction of a simulation tool based on the logical model presented here for a given research problem statement is as follows: (i) choose from the logical model processes managing resources, and their connections and (ii) define operations for the chosen processes.

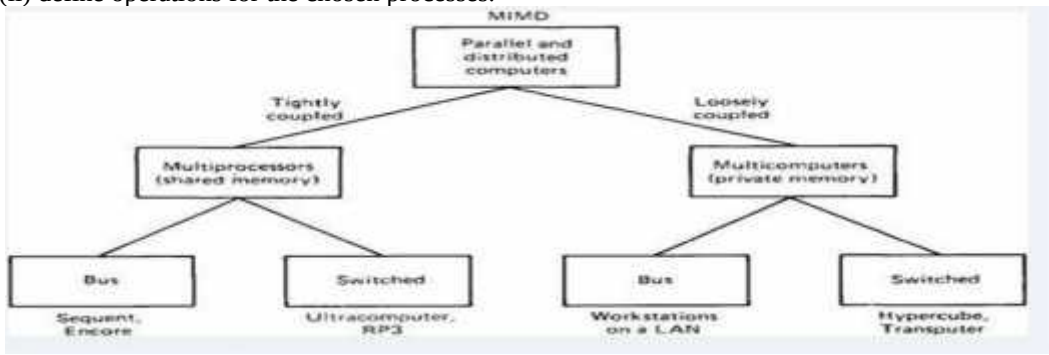

Fig:-A taxonomy of parallel and distributed computer systems.

II. IMPLEMENTATION

A. At first, operating systems were written in assembly, but now a days C/C++ is the language commonly used

B. Small blocks of assembly code are still needed, especially related to some low level I/O functions in device drivers, turning interrupts on and off and the Test for Synchronization Facilities.

C. Using higher level languages allow code to be written faster, is easier to read, and can be debugged easier. It also makes the OS much easier to port to different hardware platforms.

III. GOAL

Just because it is possible to build distributed systems does not necessarily mean that it is a good idea. After all, with current technology it is possible to put four floppy disk drives on a personal computer. It is just that doing so would be pointless.

IV. CONCLUSION

In the paper the logical model of the distributed operating system has been presented. This model introduces the fundamental new types of resources implied by properties of local computer networks. These new types of resources are messages and data structures defining the location of resources in the network. In the model the operations on these resources and the connections of processes managing the new types of resources with other processes managing the resources of the distributed operating system have been defined.

The model could be treated as a basis for construction of simulation tools to carry out the performance study of distributed operating systems with different Processes managing resources. The simulation tools could be used to search the effective service modes in processes managing new types of resources as well as resources known from centralized operating systems. The method of the effective service of the last, because of the distribution of resources in the network, is not known also.

In the implementation of that model the structuring of the distributed operating system used in the logical model has been kept out. That made possible the relatively simple modification of that model to carry out simulation studies for different goals, e.g., the effectiveness of process synchronization in the distributed operating system. The simplicity of all modifications has been implied by the possibility of utilization of many modules implementing processes managing resources in the newly constructed tools. It concerns these processes which have the same operations on resources and the same levels of abstraction when defining these operations. As a result the cost of the construction of each next simulation tool is decreased and that feature confines the applicability and utility of the logical Model of the distributed operating system developed.

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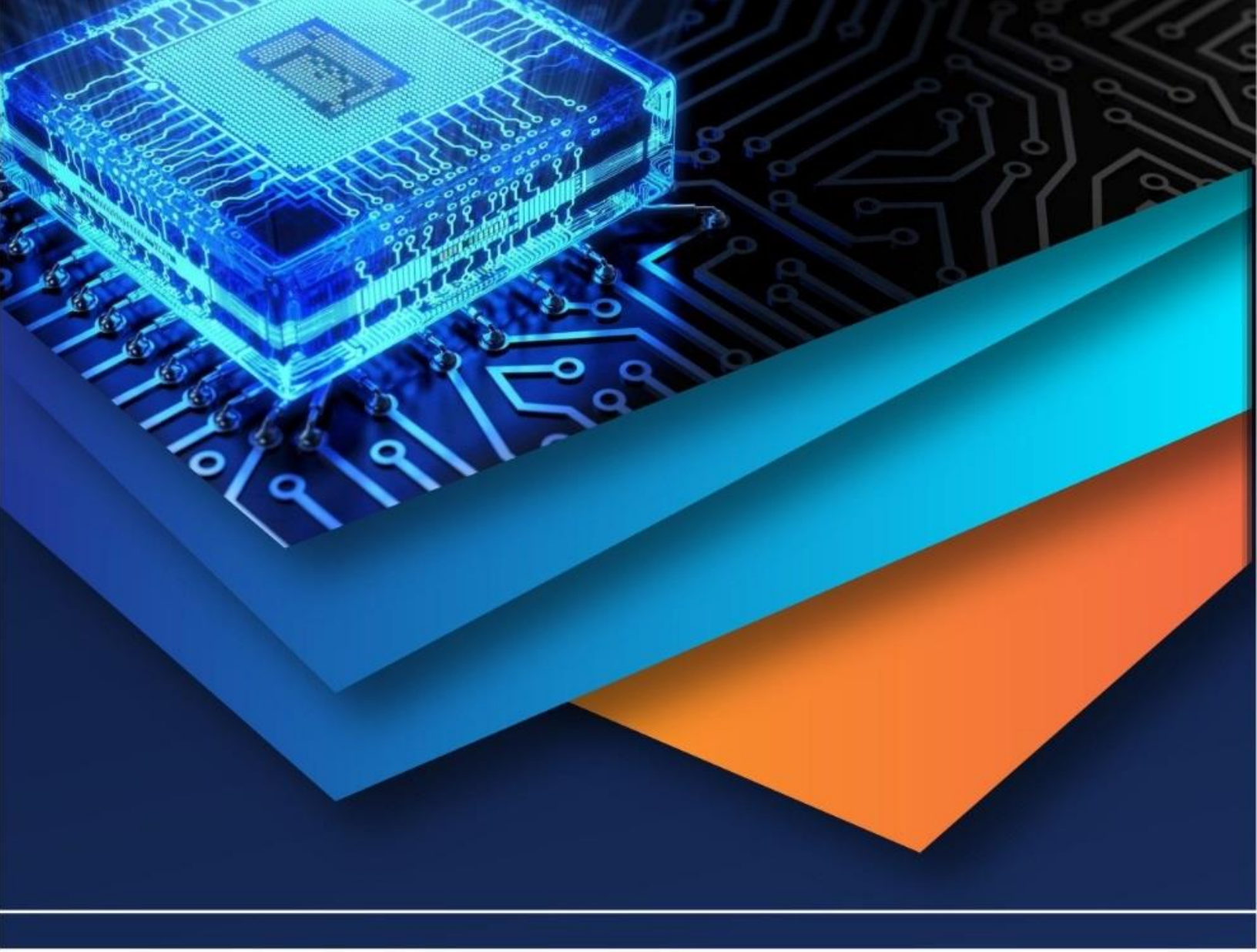

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