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The real-time operating system is designed to support executions of programs within strict time limits. The real-time system requires the correct results within the specified time period. The correctness of the program's result is totally dependent on the completion of the job within the specified period. Many real-time systems are embedded in specialized devices, such as microwave ovens, washing machines, digital cameras, cellular telephones.

For example, human brain works on the principle of real time operating system. Real-time operating systems are used in medical imaging system, airline reservation system, telecommunication system, military weapons control systems, and many other laboratory experiments etc.

Types of Real-Time Systems:

There are two types of real time systems. These are:

i. Hard real-time system

ii. Soft real-time systems

i. Hard Real-Time Systems:

A hard real-time system is one that must meet its deadline. The tasks must be completed within their deadline, otherwise real-time system will fail or breakdown. The examples of hard real-time systems are:

Military weapons control systems like missile systems.

Flight management systems like aero planes operations.

Health control systems used in lCU in hospitals.

ii. Soft Real-Time Systems:

In soft real-time system, the tasks do have associated deadline. But this system is not as restrictive as hard real-time system. The real-time system does not guarantee that a task or job will be completed within a specified time period. This system reschedules and completes a job if it has passed its deadline.

In real-time system, the operating system must assign the priority to the real time tasks over other tasks and they must retain their priority until they complete.

Today, many operating systems are soft real-time. The Linux is also included in these operating systems. Soft real-time systems are used in multimedia environments. For example, if a DVD player cannot process a frame of video still you can continue watching the video.

Distributed Operating System

In a distributed operating system, the users access remote resources in the same way they access local resources. The requests of users are carried out independently in more than one locations.

The computers (or nodes) communicate with each other under the control of distributed operating system. With a distributed operating system, the operating systems on all the machines work together to manage the collective network resources. A single collective distributed operating system manages the network resources, provided by each node of distributed system.

Network Operating System:

A network is a collection of one or more servers and workstations for users to access the servers. The server provides the network services or applications, such as file storage and management. Each computer or node has its own private operating system. With a network operating system, the resources on each machine on the network are managed by that machine's operating system. The network operating system is simply an addition of local operating system that allows application machines to interact with server machines.

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