OS Features and Drawbacks

1 BATCH OPERATING SYSTEM

Features

1. CPU executes commands on a *"First come, First serve"* basis.
2. It runs a set of user-supplied instructions composed of distinct instructions and programs with several similarities.
3. When a task is successfully executed, the OS releases the memory space held by that job.
4. Processors of the batch systems know how long the job would be when it is in queue.
5. The idle time for the batch system is very less.

DrawBacks

1. Due to the lack of knowledge for how long a job takes to execute, batch OS is hard to debug.
2. It is sometimes costly.
3. When a job fails once, it must be scheduled to be completed, and it may take a long time to complete the task.
4. If a job enters an infinite loop, other jobs must wait for an unknown period of time.
5. The computer operators must have decent knowledge about the batch operating system, in order towork on it comfortably

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2 TIME-SHARING OPERATING SYSTEMS

Features

1. The CPU time is split among the different users, this is called *"Time Slice or Quantum"*
2. This OS provides 3 states:
    a. Active State: User program has CPU control
    b. Ready State: User program is in execution queue
    c. Waiting State: User program is waiting for few I/O operations
3. Each user grabs dedicated time for all operations.
4. User's request can be made in small time respond.
5. It has ability to make quick processing with lot of tasks.

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OS Features and Drawbacks

DrawBacks

1. It creates reliability issue.
2. Less security and integrity data and user programs
3. Issue of data communication
4. It consumes much system resources.
5. Hang up problem, so it must have higher specification hardware components because there are lot of users and other applications working at once.

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3 DISTRIBUTED OPERATING SYSTEM

Features

1. Here multiple autonomous computer systems are interconnected with each other using a shared communication network, but each individual computer retains its own memory and CPU, thus known as *"loosly coupled OS"*
2. ***Resource Sharing:*** Here the hardware and software resources are shared in order to have higher consistency and reduction of cost
3. ***Openess:*** is a provision for uniform interprocess communications and published interfaces for access
4. ***Concurrency:*** Here the OS can perform parallel executions of distributed systems
5. ***Scalability:*** The lack of a centralized support helps to scale these systems and if the developers name and number the nodes methodolically

DrawBacks

1. Reliability problem
2. One must have to take care of the security and integrity of user programs and data
3. Data communication problem.
4. Overloading is another problem in distributed operating systems.
5. Bandwidth is another problem if there is large data then all network wires to be replaced which tends to become expensive.

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4 NETWORK OPERATING SYSTEM

Features

1. Network Operating System presents a few protection functions inclusive of login regulations via way of means of
2. This kind of Operating System presents numerous net offerings and backup offerings.
3. It presents numerous functions inclusive of guide for processors, computerized hardware detection, and guide multiprocessing of numerous
4. It helps diverse auditing equipment with graphical interfaces.
5. This type of system is less expensive to set up.

DrawBacks

1. High cost of buying and running a server.
2. Dependency on a central location for most operations.
3. Regular maintenance and updates are required.
4. Lack of central control over the Network.
5. In Peer to Peer Network, each shared resource you wish to control must have its password. These multiple passwords may be difficult to remember.

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5 REAL-TIME OPERATING SYSTEM

Features

1. ***Maximum consumption:*** Maximum utilization of devices and systems. Thus more output from all the resources.
2. ***Error Free:*** These types of systems are error-free.
3. Memory allocation is best managed in these types of systems.
4. Since the size of programs is small, RTOS can also be embedded systems like in transport and others.
5. Focus on running applications and less importance to applications that are in the queue.

DrawBacks

1. ***Limited Tasks:*** Very few tasks run simultaneously, and their concentration is very less on few applications to avoid errors.
2. ***Cost:*** Sometimes the system resources are not so good and they are expensive as well.

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3. The algorithms are very complex and difficult for the designer to write on.
4. ***Thread Priority:*** It is not good to set thread priority as these systems are very less prone to switching tasks.
5. ***Minimum Switching:*** RTOS performs minimal task switching.

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