Time Slice Encyclopedia Article

Time Slice

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Time Slice

Time slice is a short interval of time during which a particular task (or process) is allowed to run uninterrupted within a **microprocessor** in a pre-emptive **multitasking** operating system. Multitasking is a type of microprocessor that is able to process multiple tasks apparently at the same time by piecing out the microprocessor's time among different tasks. Pre-emptive multitasking is a type of multitasking where a scheduler within the operating system uses the computer's **central processing unit** (**CPU**, commonly also called the microprocessor) to **interrupt** and suspend (or "swap out") the currently running task in order to start or continue running ("swap in") another task. The length of time for which a process runs is known as its "time slice" and may depend on the priority of the task or its use of resources such as **memory** and I/O (input/output). Time slices are typically in the order of fractions of seconds, with several milliseconds being a common time slice. The scheduler is run once every time slice in order to choose the next process to run. If the time slice is too short then the scheduler itself will consume too much processing time, but if it is too long then processes may not be able to respond to external events quickly enough.

In order to efficiently schedule tasks, each task in time slicing is given the attention of the microprocessor for a fraction of a second. To maintain order, tasks are either assigned priority levels or processed in sequential order. Because the user senses time much slower than the processing speed of the computer, time slice multitasking operations seem to be simultaneous. An example of an operating system that uses time-slice multitasking is **Microsoft**'s **Windows** 2000.