Design of Stochastic Simulator for Analyzing the Impact of Scalability on CPU Scheduling Algorithms

Abstract

Process scheduling with scalable performance is an issue in computer system. Scalability of scheduling algorithm is its ability to don’t decrease the performance when large processes are under run. The performance of job scheduling policies strongly depends on the properties of the incoming jobs. In this paper, we have analyzed the impact of scalability on different CPU scheduling algorithms with reference to average waiting time, average turnaround time and average response time to determine which algorithm is most suitable for uniprocessor environment. The burst time, arrival time and priority is randomly generated using exponential probability distribution and the performance of all algorithms has been evaluated with reference to arrival time or without arrival time. We use a simulative approach to evaluate the performance and scalability of each algorithm with reference to different number of processes.

References

- Stallings, William, "Operating Systems: Internals and Design Principles";
Design of Stochastic Simulator for Analyzing the Impact of Scalability on CPU Scheduling Algorithms

- H. H. S. Lee, "Lecture: CPU Scheduling, School of Electrical and Computer Engineering", Georgia Institute of Technology.

Index Terms
Keywords
Uniprocessor environment  Scalability  CPU scheduling algorithms  Simulation