An Efficient Approach to Calculate Dynamic Time Quantum in Round Robin Algorithm for Efficient Load Balancing

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Abstract

Cloud computing is one of the most emerging technologies in the world. Cloud service providers deals with huge amount of data and processes huge number of requests. It faces various challenges. Load ballancing is one of the major challenges. Load ballancing is basically the distribution of the tasks among different nodes for perfect utilization of resources and time. Different techniques have been proposed like Shortest Job First, First Comr First Serve, Round Robin e.t.c. The main goal of the different load balancing algorithms is to reduce the average waiting time and average turn around time. Round Robin scheduling algorithm is the widely accepted scheduling algorithm in multitasking and real time load balancing environment. It is the most popular algorithm due to its fairness and starvation free nature towards the processes, which is achieved by using the time quantum. As the time quantum is static, it causes less context switching in case of high time quantum and high context switching incase of less time quantum. Increasing context switch leads to high avg. waiting time, high avg. turnaround time which is a overhead and degrades the system performance. So, the performance of the system solely depends upon the choice of optimal time quantum which is dynamic in nature. In this
paper, some variants of RR scheduling algorithm have been proposed which can dynamically compute the time quantum. Results of these methods are provided and compared it with other existing methods.

**References**


**Index Terms**

Computer Science Information Sciences
Keywords

Cloud computing, load balancing, round-robin scheduling, dynamic time quantum.