Performance Analysis of Multi-Server based on Processor-Sharing Queue

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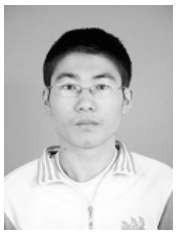
***Abstract*—In the last few decades, the performance analysis of multi-server has become a research hotspot. We consider a distributed server system in which heterogeneous servers operating under the processor sharing (PS) discipline. In this system, when a stream of users' requests arrive at a dispatcher, it will dispatch each user to different servers respectively. In this paper, we analyze the performance of a single server using the finite capacity M/M/1/N-PS model. For this model, two exact expressions are derived for both user's average service time and average waiting time. Then we analyze the performance of the system by adopting different assignment strategies. Finally, considering the limitation of the service time and the waiting time, we give an assignment strategy in order to obtain the best performance.**

***Keyword*—Network performance, Multi-Server system, assignment strategy, Processor-Sharing Queue, M/M/1/N-PS model**



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