

Paper: Exokernel: Lottery Scheduling: Flexible Proportional-Share Resource Management

This paper presents lottery scheduling, that resource rights are represented by lottery tickets. The scheduling algorithm selects a lottery ticket and the client that has the lottery ticket get the resource. Therefore, the more the client has lottery ticket, the more opportunity the client has. Every client has at least one ticket, so there is no starvation problem as the lottery proceeds. As the scheduler selects the winning ticket randomly, lottery scheduling can fairly distribute resources to clients. Also, the simple implementation of lottery scheduling is one of the advantages. The fairness of this scheduling comes from the random selection of the winning ticket therefore, the reliability of random generation can impact the fairness of this scheduling. Also, it randomly choses the winning ticket it is hard to predict which client will get resource, that leads some optimization cannot be used to it. These two problems are kind of trade-off that if the scheduler selects more efficient ticket, then the scheduler looses fairness.