

1. Exokernel: An Operating System Architecture for Application-Level Resource Management

Exokernel is a scheme that provides an interface for a microkernel. It is light-weighted and faster than a normal kernel, because it can only contain libraries needed at the application level. It is also good for experimenting with abstractions for new kernel schemes. However, for the kernel technology that is developing day by day, it is difficult for an application to deploy new dependency from a practical point of view. And security problems look worse than regular kernels because it access hardware directly. So, I suggest a mechanism to deploy the latest kernel modules.

2. Lottery Scheduling: Flexible Proportional-Share Resource Management

Lottery scheduling is a preemptive scheduling scheme. Lottery scheduling assigns a ticket to each process and votes each time to schedule a winner. Lottery scheduling effectively guarantees fairness by calculating the associated execution time for the rate. However, because Lottery scheduling is a random scheduling technique and have granularity of ticket, it does not guarantee fairness for short execution times. So, I suggest a way to assign timeslice to ticket.