ABSTRACT

Project Title: User level scheduling
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Group member:

-Dharit Parikh 121010
-Dhruvi Pandya 121011
-Hemil Modi 121016

Abstract:
The problem of scheduling in a multicore system is one of the challenging topic in system research. There can be two approach to achieve multi-thread scheduling. One is that you we create kernel level thread for each application and because scheduling of kernel level thread are managed by OS, threads of our application will also be scheduled.

The other approach can be, we map the abstraction of multiple threads onto 1+ kernel threads. Supposingly we have 2 user level threads which are mapped with a kernel thread, just like kernel threads we have seperate stack and register for user level threads. We than use yield to switch between the threads. We programmers will decide time given to a particular thread. Note, that here kernel thread does not know that applicaiton is controlled by many user threads rather kernel thread approaches each thread as a single thread.

Now, the above mentioned idea of 2 user level thread mapped onto single kernel level thread can be extended to M-user level thread which are mapped onto N kernel level threads. Where M>N should hold true. Since, these threads are not kernel threads we will have to design and program some scheduling algorithm which can schedule the user level thread and does context swithching between the threads