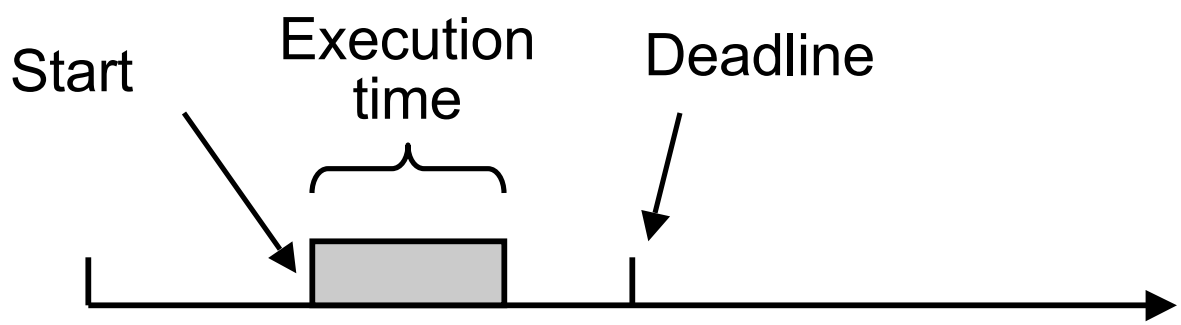
Outline - QNX

- QNX is a real time operating system

- Real time operating systems:
  - Hard real time systems: Serious penalty for missing deadline
    - E.g. air craft fly-by-wire controls
  - Soft real time systems: Tolerable penalty for missing deadline
    - E.g. t.v. remote operation

Real time systems

- Scheduling problem:
  - Given tasks with start, execution and deadlines, can we schedule the processes such that we can meet all dead lines
  - If we can't, then we reject processes
  - Tasks such as VM complicate "execution time"
  - E.g. priority based, preemptive scheduling, rate monotonic scheduling,



Scheduling algorithms

- Priority based:
  - Always run the highest priority process
  - Priority inversion: high priority tasks waiting for resources/locks held by lower priority tasks
- Rate monotonic scheduling
  - Tasks with shortest periods preferred
- Earliest deadline first
  - Choose the tasks with the nearest deadline

QNX

- Microkernel based
- Operating system explicitly invoked (no preemption)
- All services are composed - kernel only provides message passing and process abstraction

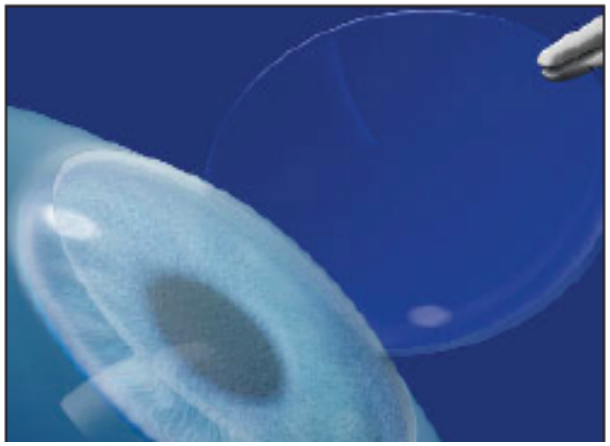
QNX ad

3 Steps of Laser Surgery:

1. Surgeons create and open a flap of tissue on the cornea.

2. An excimer laser beam is focused onto the exposed layer of the cornea to remove a prescribed amount of tissue in order to reshape the cornea.

3. The flap is carefully folded



IntraLase Corp selected the QNX RTOS for its INTRALASE FS LASER, designed to virtually eliminate complications from the first stage of laser surgery.

Says IntraLase's Peter Goldstein: "When a patient's eyesight is on the line, absolute system reliability