

# Why Having a Kind of Process Within a Process?

- ▶ Responsiveness

- ▶ Good for interactive applications.
- ▶ A process with multiple threads makes a great server (e.g. a web server):

Have one server process, many "worker" threads – if one thread blocks (e.g. on a read), others can still continue executing

- ▶ Economy – Threads are cheap!

- ▶ Cheap to create – only need a stack and storage for registers
- ▶ Use very little resources – don't need new address space, global data, program code, or OS resources
- ▶ switches are fast – only have to save/restore PC, SP, and registers

- ▶ Resource sharing – Threads can pass data via shared memory; no need for IPC

- ▶ Can take advantage of multiprocessors