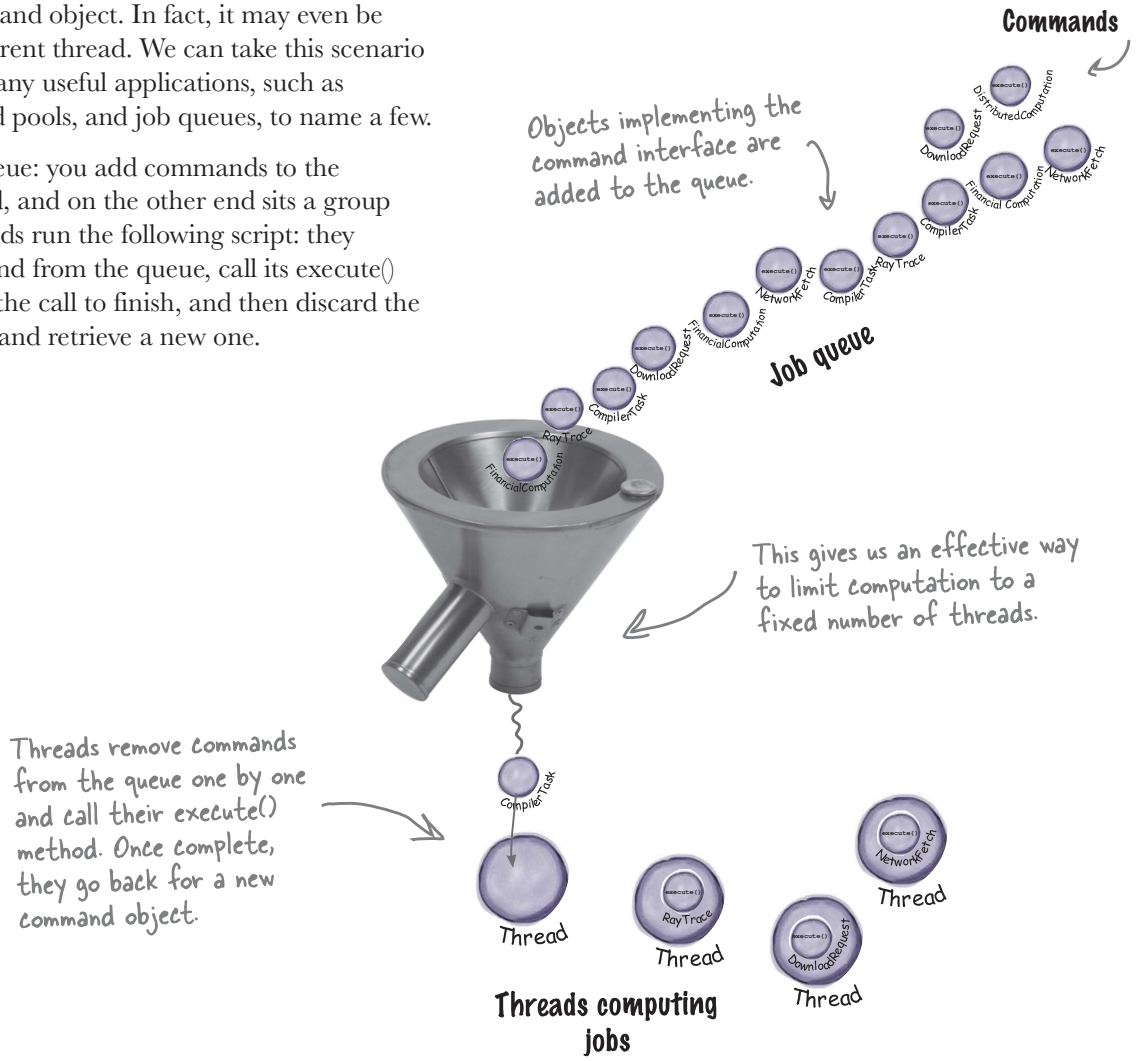
More uses of the Command Pattern: queuing requests

Commands give us a way to package a piece of computation (a receiver and a set of actions) and pass it around as a first-class object. Now, the computation itself may be invoked long after some client application creates the command object. In fact, it may even be invoked by a different thread. We can take this scenario and apply it to many useful applications, such as schedulers, thread pools, and job queues, to name a few.

Imagine a job queue: you add commands to the queue on one end, and on the other end sits a group of threads. Threads run the following script: they remove a command from the queue, call its execute() method, wait for the call to finish, and then discard the command object and retrieve a new one.



Note that the job queue classes are totally decoupled from the objects that are doing the computation. One minute a thread may be computing a financial computation, and the next it may be retrieving something from the network. The job queue objects don't care; they just retrieve commands and call execute(). Likewise, as long as you put objects into the queue that implement the Command Pattern, your execute() method will be invoked when a thread is available.

How might a web server make use of such a queue? What other applications can you think of?