Middleware

March 29, 2013

In this homework we are going to use middleware to implement distributed simulation. We will achieve this goal by making changes to your Monte Carlo simulation program.
In this homework you will need to build a client and a server. A client program listen to messages on a queue called simulation request. Every simulation request describe a simulation to run. In essence, a request contains, r, σ, strike, S_0, type of option, duration, etc. In addition, as part of the request, you have the name of the topic for returning an answer. The client, once it gets such a request, it randomize *one* stock path as necessary, and calculate the payout for that particular realization. It sends the payout over the desired topic.
The server side will be just lime the simulation manager in your original homework. It generates a batch of 100 requests for simulations, sends them to the queue, and listen to results. Once it gets all the results it updates its estimated price and accuracy and if necessary asks for another batch of simulations. Note that you should have for every simulation a unique channel for returning results. (Otherwise the results from multiple managers will mixed up.)
You should like in homework #2 use this program to price the same options.