DISI – University of Trento

Assignment 3 (11 points available)
Approximation and interpretation of a simple queuing network

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June 1, 2015

Take the queuing model of assignment two (not the generic one, but your custom one). Make an approximate model that you know how to solve analytically. It is up to you deciding how much to simplify it, changing service and arrival times, eliminating some queuing station if you need, making queuing stations lossless, etc.

Once you have the closed-form solution of your system (at least for some parameters), solve it numerically and compare the results with the simulation results you obtained.

Finally, give an interpretation of the original model, i.e., try to imagine what it can represent, what system (or systems) it can be representative of.

Preparing the report

The report should not exceed three pages in the given format. It should include a drawing of the approximated model and the equations for closed form solution (possibly for different parameters) you obtained.

The report is indeed better organized "inverting" the logical procedure given in the assignment: you first describe the interpretation of the model, then describe the approximation done, and finally compare simulated and analytic results, possibly giving some reasons why the analytic approximation can be useful. Draw your conclusions.

Good luck!