

1. Objectives

In this project for extra credit, you will introduce priorities in the simulation model and compare your results to those obtained in task 2, where you assumed that all messages are served in a FIFO manner.

This project will be graded from 0 to 100, and then the grade will be linearly transformed to the 0 –3 range. The resulting grade will be added to your final score for the entire semester. Most of the time, this will push you one +/- grade, but there is no guarantee.

2. Project description

Modify your code so that messages in the P-CSCF and S-CSCF queues are served according to the following priority. For the P-CSCF queue, new messages have lower priority than those that came back from the S-CSCF queue. Likewise, for the S-CSCF queue, messages that arrive from the P-CSCF queue have lower priority than those from the AS queue. In other words, messages that have been in the system longer have higher priority. No preemption is assumed.

3. Deliverables

Run your simulation for different values of λ and plot the following results:

- 1) Mean end-to-end delay calculated using batch means with confidence intervals.
- 2) 95th percentile of the end-to-end delay calculated using batch means and confidence intervals.

Compare and discuss the above results to those obtained from task 2.