QMIPS

Quantitative
Modeling
In
Parallel
Systems

Response time distributions in tandem G-networks

Peter G. Harrison Edwige Pitel
Department of Computing
Imperial College
180 Queen's Gate
London SW7 2BZ

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Abstract The Laplace transform of the probability distribution of the end-to-end delay in tandem networks is obtained where the first and/or second queue are G-queues, i.e. have negative arrivals. For the most general case the method is based on the solution of a boundary value problem on a closed contour in the complex plane, which itself reduces to the solution of a Fredholm integral equation of the second kind. We also consider the dependence or independence of sojourn times at each queue in the two special cases where only one of the queues is a G-queue, the other having no negative arrivals.

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