



Scheduling Network of Queues: Heavy Traffic Analysis of a Multistation Network with Controllable Inputs (Classic Reprint)

By Lawrence M Wein

Forgotten Books, United States, 2015. Paperback. Book Condition: New. 229 x 152 mm. Language: English . Brand New Book ***** Print on Demand *****. Excerpt from Scheduling Network of Queues: Heavy Traffic Analysis of a Multistation Network With Controllable Inputs Motivated by a factory scheduling problem, we consider the problem of input control (subject to a specified input mix) and priority sequencing in a multistation, multiclass queueing network with general service time distributions and a general routing structure. The objective is to minimize the long-run expected average number of customers in the system subject to a constraint on the longrun expected average output rate. Under balanced heavy loading conditions, this scheduling problem can be approximated by a control problem involving Brownian motion. Linear programming is used to reduce the workload formulation of this control problem to a constrained singular control problem for a multidimensional Brownian motion. The finite difference approximation method is then used to find a linear programming solution to the latter problem. The solution is interpreted in terms of the original queueing system in order to obtain an effective scheduling policy. The priority sequencing policy is based on dynamic reduced costs from a linear program, and the workload regulating...



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