Many-server queues: ED, QD, and QED

Rhodes Hall 310: September 4, 2013 @ 12:00PM

ISN Seminar Speaker:
Jim Dai
Cornell University

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Abstract

Parallel-server queues with customer abandonment serve as a building block to model service systems. The performance of a many-server queue can be qualitatively different from that of a queue with a small number of servers. I will explain how a many-server queue can be operated in the quality- and efficiency-driven (QED) regime to achieve both quality of service and high server utilization. I will also survey recent results on distributional sensitivity for many-server queues.

Part of this talk is based on joint work with Shuangchi He (National University of Singapore).

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Biography

Jim Dai is a professor in the School of Operations Research and Information Engineering (ORIE) of Cornell University. He is currently on leave from his Edenfield Professor of Industrial and Systems Engineering at Georgia Institute of Technology, where he has been a faculty member for 22 years. He is a Special Term Professor at Tsinghua University and a Visiting Professor in Decision Sciences at National University of Singapore. For more than twenty years, he has worked on stochastic models arising from communications, manufacturing, and service systems that include data switches, semiconductor wafer fabrication lines, call centers, and healthcare-delivery systems.

Jim Dai received B.A. and M.S. degrees from Nanjing University and a Ph.D. degree from Stanford University, all in mathematics. He is an elected fellow of Institute of Mathematical Statistics and an elected fellow of Institute for Operations Research and the Management Sciences (INFORMS). His awards for research contributions include the Best Publication Award in 1997 and The Erlang Prize in 1998, both from the Applied Probability Society of INFORMS. He delivered the Markov Lecture at INFORMS national meeting in October 2012. He is the Editor-in-Chief for Mathematics of Operations Research, a past Area Editor for Operations Research, and a past Series Editor for Handbooks in Operations Research and Management Science.