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Programa de Engenharia de Sistemas e Computação

Ciclo de Seminários

Sem Borst

Eindhoven University of Technology & Nokia Bell Labs

Scalable Load Balancing in Networked Systems

We will discuss scalable load balancing algorithms, which provide favorable delay performance in large-scale systems, and yet only require minimal implementation overhead. Through the initial stages of the talk we focus on a basic setup - commonly referred to as the supermarket model - with a single dispatcher and N identical parallel servers. A popular class of load balancing algorithms are so-called JSQ(d) policies, where an incoming task is assigned to a server with the shortest queue among d servers selected uniformly at random. As the name reflects, this class includes the celebrated Join-the-Shortest-Queue (JSQ) policy as a special case (d = N), which has strong stochastic optimality properties.

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Sem Borst has been a professor in Stochastic Operations Research at Eindhoven University of Technology since 1998. He also has a part-time position with Nokia Bell Labs in Murray Hill, NJ, USA. His main research areas are performance evaluation and resource allocation for stochastic systems, in particular computer-communication networks. He has published over 170 refereed papers and holds 28 patents in various areas. Sem serves or has served on the editorial boards ofseveral journals, such as ACM Transactions on Modeling and PerformanceEvaluation of Computing Systems, IEEE/ACM Transactions on Networking,Mathematical Methods of Operations Research, Performance Evaluation,Queueing Systems and Wireless Networks. He was recipient of thebest-paper awards at ACM SIGMETRICS/Performance 1992 and Infocom 2003,the 1994 Gijs de Leve Prize, the 2001 Yosef Levy Prize, the 2005 VanDantzig Prize, and the 2017 ACM SIGMETRICS Achievement Award.

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