

A MEAN FIELD MODEL FOR A JOIN-THE-SHORTEST-QUEUE NETWORK

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Abstract: In this talk, we introduce a mean field model to study a queueing network with N queues (nodes), where N is large. In this system, each queue has a dedicated input stream and in addition there is an extra input stream, which balances the load of the network by directing its arriving customers to the shortest queue. In terms of the mean field limit, studies of the performance of this network are presented. One of our results shows that the stationary behavior of any of the queues can be approximated by that of the $M/M/1$ queue with a modified boundary transition rate.

This talk is based on joint work with Don Dawson and Jiashan Tang.