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Stationary Ergodic Jackson Networks: Results and Counter-Examples

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Abstract

This paper gives a survey of recent results on generalized Jackson networks, where classical exponential or i.i.d. assumptions on services and routings are replaced by stationary and ergodic assumptions. We first show that the most basic features of the network may exhibit unexpected behavior. Several probabilistic properties are then discussed, including a strong law of large numbers for the number of events in the stations, the existence, uniqueness and representation of stationary regimes for queue size and workload.