

LARGE DEVIATIONS FOR PROPORTIONAL FAIRNESS ALLOCATIONS

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Resumo/Abstract:

Bandwidth-sharing networks describe the number of flows in a communication network where different classes of traffic compete for the bandwidth. An allocation is a deterministic rule to distribute this bandwidth, given the stochastic network of flows is in some state. Several attention is given in the last years to the *Proportional fairness allocation* which tries to balance two interests: to maximize the total flow through the system giving and to give all users some minimum level of service. In the case of markovian networks, we prove that proportional fair and an associated reversible allocation are (exponentially fast) recurrent to empty state and have the same large deviations characteristics. This allow us to compute explicitly the rate function of proportional fair allocation.

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