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Tail asymptotics for a Lévy-driven tandem queue with an intermediate input. (English)

Zbl 1209.90117

Queueing Syst. 63, No. 1-4, 323-353 (2009).

Summary: We consider a Lévy-driven tandem queue with an intermediate input assuming that its buffer content process obtained by a reflection mapping has the stationary distribution. For this queue, no closed form formula is known, not only for its distribution but also for the corresponding transform. In this paper, we consider only light-tailed inputs. For the Brownian input case, we derive exact tail asymptotics for the marginal stationary distribution of the second buffer content, while weaker asymptotic results are obtained for the general Lévy input case. The results generalize those of *P. Lieshout* and *M. Mandjes* from recent papers [Math. Methods Oper. Res. 66, No. 2, 275–298 (2007; Zbl 1139.60045); Queueing Syst. 60, No. 3–4, 203–226 (2008; Zbl 1156.90334)] for the corresponding tandem queue without an intermediate input.

MSC:

90B22 Queues and service in operations research

60K25 Queueing theory (aspects of probability theory)

68M20 Performance evaluation, queueing, and scheduling in the context of computer systems

90B15 Stochastic network models in operations research

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