On a generic class of Lévy-driven vacation models

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Abstract

This paper analyzes a generic class of queueing systems with server vacation. The special feature of the models considered is that the duration of the vacations explicitly depends on the buffer content evolution during the previous active period (i.e., the time elapsed since the previous vacation). During both active periods and vacations the buffer content evolves as a Lévy process. For two specific classes of models the Laplace-Stieltjes transform of the buffer content distribution at switching epochs between successive vacations and active periods, and in steady state, is derived.

Keywords: Lévy process, storage process, queues with server vacations

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