STABILITY OF TWO FAMILIES OF REAL-TIME QUEUEING NETWORKS

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Abstract: We study open multiclass queueing networks with renewal arrival streams and general service time distributions. Upon arrival to the network, customers from each class are assigned a random deadline drawn from a distribution associated with this class. We show that preemptive subcritical EDF networks with fixed customer routes are stable. We also prove that a broad class of (not necessarily subcritical) networks with reneging and Markovian routing, including EDF, FIFO, LIFO, SRPT, fixed priorities and processor sharing, is stable.

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