

**The Shuttle Dispatch Problem with Compound
Poisson Arrivals: Controls at Two Terminals**

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Abstract

We consider the control of an infinite capacity shuttle which transports passengers between two terminals. The passengers arrive at each terminal according to a compound poisson process and the travel time from one terminal to the other one is a random variable following an arbitrary distribution. The following control limit policy is considered: dispatch the shuttle at terminal i , at the instant that the total number of passengers waiting at terminal i reaches or exceeds a predetermined control limit m_i . The objective of this paper is to obtain the mean waiting time of an arbitrary passenger at each terminal for given control values m_1 and m_2 . We also discuss a search procedure to obtain the optimal control values which minimize the total expected cost per unit time under a linear cost structure.