The use of time-dependent markov decision process for stochastic airport gate assignment

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ABSTRACT

Including random disruptions is crucial to have effective flight-gate assignments in the subject of airport traffic. Improper assignment of gates may result in flight delays that occur in airport operations and have to be taken into account. In this paper, we are using time-dependent markov decision process to solve the gate assignment problem (GAP) under uncertainly, we include stochastic parameters that depend on probabilities. The proposed approach will enable the possibility for airport controllers to have a GAP priory solution as a set of policies to apply for every situation of flight delay to have a real time operation support. We present here the corresponding model including strict constraints of GAP and particular soft constraints earlier included in deterministic models of this problem.