

Optimal Gate Assignment Under Consideration of the Ground Infrastructure

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Abstract— Besides safety, the main philosophy of a five-star airport is to ensure the highest achievable level of quality in terms of comfort and passenger transfer efficiency, measured by short paths and low connecting times. In the event of critical connecting times, an optimal assignment of gates may decide whether passengers reach their onward flights or not. In this paper, we address the modeling and solving of the Airport Gate Assignment Problem with a focus on the properties of a five-star hub airport. Besides general ground infrastructure properties, we also discuss the gate assignment under consideration of the aircraft wingspan. Finally, we will use a model of the Terminal 2 at Munich Airport as a basis for case studies. The underlying problem is a binary quadratic optimization problem, and we will discuss techniques for solving the problem by means of fast solution procedures. In the near future, an extension will be introduced that will consider the selection of seats depending on the passenger's preference, the estimated connecting time and the yields generated by reservation fees.