

Abstract:

Simultaneous customer interaction in online booking systems for attended home delivery

In many delivery and service settings, the customer must be home when the provider arrives. If the customer is not at home, the delivery or service fails and the provider may have to return at a later point, needlessly creating additional vehicle miles and emission. To prevent such missed deliveries, it is increasingly common for providers to let customers choose from a menu of narrow time slots in which the delivery or service will take place. An important decision problem in this setting is which time slots to offer to maximize the expected number of placed orders while guaranteeing a feasible delivery schedule. In this paper, we identify several issues that may arise when multiple customers simultaneously interact with a booking system. That is, customers may arrive while the system is still processing a previous customer or while another customer is still deciding on his or her preferred time slot. Such simultaneous interactions lead to additional waiting time and invalid service offers, as we demonstrate in this paper. We argue that state-of-the-art procedures are not yet equipped to deal with this and present new approaches for this purpose. Our findings provide insights that may help to improve the design of current online booking systems, and opens up new areas of research.