

SEMINAR SERIES
Department of Quantitative Analysis and Operations Management
University of Cincinnati

Waiting Strategies for Anticipating Service Request from Known Customer Locations

Barrett W. Thomas
Department of Management Sciences
University of Iowa

Friday, November 17, 2006
1:30 p.m.
214 Lindner Hall

This talk discusses a dynamic and stochastic routing problem in which information about customer locations and probabilistic information about future service requests are used to maximize the expected number of customers served by a single uncapacitated vehicle. The problem is modeled as a Markov decision process and analytical results on the structure of the optimal policy are derived. For the case of a single dynamic customer, we completely characterize the optimal policy. Using the analytical results, we propose a real-time heuristic and demonstrate its effectiveness compared to a series of other intuitively appealing heuristics. We also use the heuristic to determine the value knowing both customer locations and probabilistic information about future service requests.

Barrett Thomas is an assistant professor in the Department of Management Sciences at the Tippie College of Business at the University of Iowa. Barrett received his Ph.D. and M.S. degrees in Industrial and Operations Engineering from the University of Michigan. He holds B.A. degrees in mathematics and economics from Grinnell College in Grinnell, Iowa. Barrett's research focuses on developing mathematical models and solution techniques for complex vehicle routing applications. He is particularly interested in problems in which information arrives dynamically over the problem horizon and in which advance information is known only in the form of probability distributions. In his research work, Barrett works with UPS and Transfreight, a third-party logistics provider to Toyota. Previously, he has done work with the LTL-company USF Holland and the truckload-carrier Schneider National. Barrett is the Secretary/Treasurer for the Transportation and Logistics Society of the Institute for Operations Research and Management Sciences. Barrett also serves as an associate editor for *INFOR: The Canadian Journal of Information Processing and Operational Research* and is a member of the Grinnell College Board of Trustees.

For more on the QAOM Seminar Series, contact david.kelton@uc.edu
QAOM Department: <http://www.business.uc.edu/departments/qaom>
QAOM Seminar Series: <http://www.business.uc.edu/departments/qaom/seminar>