Network Design and Optimization in Amazon's Supply Chain

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Abstract: Amazon operates a large-scale supply chain to get items from Fulfillment Centers (FCs) to end customers. In this talk, we will focus on the middle-mile component of this supply chain: the network between the FCs and the delivery nodes from where items are dispatched in last-mile vans. We will describe the optimization problem faced in designing the middle-mile network and explain the complexity that arises from operational realities between the planning and execution. We will also raise some open methodological research questions in this area.

Bio: Amitabh Sinha is a Principal Scientist in the Modeling and Optimization group at Amazon. He works on several areas in the optimization and data science space, primarily in the context of network optimization of Amazon's outbound supply chain. Before joining Amazon in 2017, he was an Associate Professor of Technology and Operations at the Ross School of Business at the University of Michigan. At UM, he taught classes in operations, statistics and data science. His academic research areas included omnichannel operations, supply chain management, networks, and optimization algorithms. He received his PhD in Algorithms, Combinatorics and Optimization from the Tepper School of Business at Carnegie Mellon University and his MS in Mathematics and Computer Applications from the Indian Institute of Technology, Delhi.