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PRÉSENTATION DE FATEMEH SARAYLOO DANS LE CADRE DE SON EXAMEN PRÉDOCTORAL

Conférencière : FATEMEH SARAYLOO, DIRO, Université de Montréal
Titre : A Systematic Heuristic Procedure for the Stochastic Network Design Problem with Uncertain Demands
Date et heure : Le mardi 13 mai 2014, à 10h
Salle : 5441, Pavillon André-Aisenstadt, Université de Montréal

Abstract

Network design problems (NDPs) define an important class of discrete optimization problem that naturally appear in a full hierarchy of planning levels. Planning of complex systems is divided in three major levels; strategic, tactical and operational levels that capture many important features in several applications including transportation, logistics and telecommunications. In these applications, it is required to determine a set of links and multi-commodity flows in minimal total fixed and variable costs to enable the network to satisfy the known demands while the capacities on arcs are not violated. In other words, the interplay between fixed cost and variable cost included in the objective function determines if a link should be selected in the final design or not. In the real-life problems, there are various sources of uncertainty preventing us to solve the model with deterministic solution methods. By considering various existing uncertainties, demand uncertainty is the most noticeable issue in the literature of network design and is used in most applications as well.

In order to deal with uncertain demand, we formulate the problem as the two-stage stochastic program with the limited number of scenarios. Since the exact methods are not capable to solve the large-size problems, then the question becomes how to devise a novel heuristic procedure being able to discover structural features of stochastic solutions to efficiently invest in flexibility.

12 mai 2014