



Séminaires du CIRRELT

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Centre de Recherche en Informatique, Signal et Automatique de Lille
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SOME LOGISTICS AND TRANSPORTATION PROBLEMS IN THE E-COMMERCE INDUSTRY

Abstract: E-commerce has been continuously growing in the last years to become a major retail market. In Europe, the percentage of turnover on e-sales in 2016 rose 18 % of the total turnover of enterprises with 10 or more employees, and this percentage increases with the size of the company. 44% of large enterprises made e-sales corresponding to 26% of total turnover in this size class. At the same time, new challenges arise in the e-commerce supply chain management due to demand variations and to higher requirements in delivery services. This leads to address new optimization problems which are by nature stochastic and/or dynamic. In this presentation, we first describe their main characteristics and the challenges they raise. Next, we illustrate these issues on problems ranging from warehouse management to transportation problems, which we tackled recently. For each problem, we center the talk on its description, on a proposed formulation and on some computational results. Last, we conclude by presenting some research opportunities in E-commerce logistics.

Biography: Pr. Frederic Semet received his Ph.D. from the École Polytechnique Fédérale de Lausanne in Switzerland. He is now a full professor at the École Centrale de Lille and is deputy director of CRISTAL (Centre de Recherche en Informatique, Signal et Automatique de Lille). His main research activities are in the field of combinatorial optimization, mostly in the area of vehicle routing and location. He has been involved in a variety of projects for distribution companies. He has authored or co-authored more than 50 scientific papers or book chapters. He is also associate editor or editorial board member of Advances in Operations Research, Computers & Operations Research and INFOR.



VENDREDI

11 MAI 2018
10 h 00

Local 1307
Pavillon Palasis-Prince
Université Laval

Ouvert à tous
Café et viennoiseries à 9h30

Organisateur:
Yan Cimon

Pr. Bernard Fortz

Université Libre de Bruxelles, Belgique

UNIT COMMITMENT UNDER MARKET EQUILIBRIUM CONSTRAINTS

Abstract: We consider an extension of the Unit Commitment problem with a second level of decisions ensuring that the produced quantities are cleared at market equilibrium. In their simplest form, market equilibrium constraints are equivalent to the first-order optimality conditions of a linear program. The UC in contrast is usually a mixed-integer nonlinear program (MINLP), that is linearized and solved with traditional Mixed Integer (linear) Programming (MIP) solvers. Taking a similar approach, we are faced to a bilevel optimization problem where the first level is a MIP and the second level linear.

Biography: Bernard Fortz is Professor in the Computer Science Department of the Université libre de Bruxelles (ULB) since 2006. He is currently head "Graphs and Mathematical Optimization" team. He holds a master degree in mathematics from the University of Namur (1993) and a Ph.D. degree in Operations Research, obtained in ULB in 1998. He then worked as postdoctoral researcher at AT&T Research-Labs and Maastricht University. From 2000 to 2006, he was associate professor at the Louvain School of Management (Université catholique de Louvain).

His main research interests are combinatorial optimization, network design applications, optimization of routing protocols in the telecommunications networks, bilevel optimization and applications in energy. He is associate editor of INFORMS Journal on Computing and International Transactions on Operational Research and coordinator of the EURO Working Group on Network Optimization (ENOG). From 2012 to 2017, he has also been coordinator of the inter-university attraction centre "Combinatorial Optimization: Meta-heuristics and Exact Methods" funded by the Belgian federal government. Since May 2015, he is vice-head of the cross-border team INOCS, partnership between INRIA Lille and ULB.



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