DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
UNIVERSITY OF SOUTHERN DENMARK, ODENSE

COMPUTER SCIENCE COLLOQUIUM

Scheduling of Data Transmission in Grid Computing

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Abstract:

In this talk I present some work from my PhD study at DTU Management, Department of Operations Research at the Technical University of Denmark.

This talk concerns scheduling of data transmission in grid computing. In grid computing, a number of resources are available for computing large jobs. Before a job can be executed, all job data must be present on the resource. The considered problem is thus to schedule jobs on grid resources such that job data arrives in time, i.e., an integrated job scheduling and network routing problem. I consider the offline version of the problem, which is used for emptying job queues, for advance reservation of resources and for analyses of changes to the grid computing system.

The offline grid scheduling problem is NP-hard. In this talk I present greedy heuristics, meta-heuristics and an exact branch-and-price method for the problem. While the heuristics do not always give particularly good solution values, the exact solution method is capable of solving all considered test instances to optimality.

Host: Jørgen Bang-Jensen