



LECTURE SERIES



Thursday, February 25, 2010

12:00 noon

Lawson 2150

Riham Abdel Kadar

The traditional optimization paradigm relies on cardinality estimation techniques and cost models which are supposed to accurately estimate the result size and the cost of operators. But these estimations are not always accurate. The inaccuracy in cardinality and cost estimations grows exponentially when

propagated through the plan, causing serious optimization mistakes. This failure is more acute in the XML case, where much of the progress achieved in the relational context is missing. To overcome the vulnerabilities of traditional optimizers, we propose ROX, a Run-time Optimizer for XQueries. ROX focuses on optimizing the execution order of the path steps and relational joins in an XQuery. It does not depend on any statistics nor cost model and uses sampling techniques to estimate cardinalities of operators. It consists of interleaving optimization and execution steps, where the first initiates a sampling-based search to identify the sequence of operators most efficient to execute. The execution step executes the chosen sequence of operators and materializes the result. This allows the subsequent optimization phase to analyze the newly materialized results to update the previously estimated cardinalities and to detect correlations. In this talk, the ROX algorithm will be described, along with some experimental results. We will also present a demo that illustrates the steps of ROX and compare its performance to other plans.

Bio:

Riham Abdel Kadar has graduated from the American University of Beirut in Lebanon receiving her BS (June 2003) and MS (June 2006) degrees in Computer Science. In July 2006, Riham joined the Database Group at the University of Twente as a PhD student. Her promoter is Peter Apers and her supervisor is Maurice van Keulen, and she works in close cooperation with the database team in CWI. Her current research focuses on the optimization of XQueries in the context of relational database systems.

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