

HPI Kolloquium

02.03.2017, 16:00 Uhr

Hasso-Plattner-Institut, Vorlesungsgebäude, Auditorium 1
Campus Griebnitzsee, 14482 Potsdam

“From Theory to Practice and back to Theory: Query Optimization for Big Data Problems”

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Abstract

One of the fundamental problems still to be solved in database management systems (DBMS) is the management and self-tuning of data statistics which are used by the query optimizer as well as by the execution engines for runtime optimizations. After decades of research, there is universal agreement that the absence of data statistics results in poor performance of a DBMS. This talk will give an overview the research problems related to data statistics management and usage, and present a novel architecture for the data statistics management in highly distributed systems. Next, going back to theory, we will introduce a new concept of leveraging traditional data statistics as dynamic data integrity constraints which are transient database constraints valid as long as it can be determined that they are consistent with the current data. As valid integrity constraints, such data statistics are powerful query optimization tools employed in semantic query transformation (aka query reformulation), partition pruning, and runtime optimizations. We will cover practical aspects of how to add support for this type of integrity constraints in a DBMS.

Short CV

Dr. Nica holds a Ph.D. in Computer Science and Engineering from the University of Michigan, Ann Arbor, USA, with the dissertation in the areas of information integration systems and data warehousing. She is currently a Research Expert in SAP HANA Data Platform in SAP Labs, Waterloo, Canada, and, previously, she was a Distinguished Engineer in SQL Anywhere Research and Development team, Sybase Canada. Her research interests and expertise are focused on database management systems, in particular query processing and query optimization, materialized views, self-managing systems, and data warehousing. She is currently SAP representative on the US ANSI INCITS DM32.2 Database committee, ISO/ANSI SQL standard. Her work experience includes Lawrence Berkeley National Laboratory and International Computer Science Institute in Berkeley. The lists of research publications and patents can be found here: <https://www.linkedin.com/in/aninica/>

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