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An Automated Multi-level Partitioning Tool on Analytical Workloads

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Abstract. Typically, it is a daunting task for a database administrator (DBA) to devise a solution to partitioning a huge fact table accessed by query workloads, for better performance. To relieve such a burden for the DBA, we introduce an intelligent physical database designer to recommend an optimized partitioning on the fact table. This designer uses a greedy algorithm for search space enumeration. This space is driven by predicates of a given query workload. The designer takes advantage of the cost model of a query optimizer to prune the search space. The wizard resides completely on a client and interacts with the optimizer via APIs. Thus, there is no overhead to instrument the optimizer code. Furthermore, the predicate-driven method can be applied to any clustering or partitioning schemes. We show that the designers recommendation outperforms a human experts solution. We also demonstrate that the recommendation scale very well with increasing workload and growing fact table.

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1. Introduction

The text of the paper...