

Workshop

MicroStrategy Modelling & SQL Performance Optimization

best practices and selected tasks
from real life projects

This practical 3-day workshop is designed for MicroStrategy architects and developers who want to

- go beyond the scope of standard courses;
- get to know solutions to typical problems from real life projects;
- try out how these concepts work practically;
- share experience and ideas with other MicroStrategy professionals.

Overview

In most cases over 90% of report duration is consumed only by the execution of generated queries in the database. Therefore the best results in performance optimization can be achieved by SQL tuning. The aim of this workshop is to show corresponding modelling techniques in MicroStrategy.

In general, such performance optimization process can be divided into three steps.

First we try to **reduce the number of queries** that access big (fact) tables. Then we **improve remaining queries** helping database optimizer to find a good execution plan. Finally, if neither the number of queries nor their complexity can be reduced, **using aggregations** provides another way to improve performance of the report.

In our workshop we will discuss optimizations on each of these levels.

Agenda

1st Part: Improving queries on fact tables

Star Transformation

In most warehouse database systems (including Oracle, DB2, SQL Server and Teradata) so called "Star Join" is the fastest way to access data. In this part we will discuss how to improve performance by utilizing this feature.

Partitioning

Partitioning is another feature of modern database systems that helps to reduce the execution time of queries. We will consider criteria for the selection of partitioning and discuss appropriate modelling techniques in MicroStrategy.

Statistics

Statistics help cost-based optimizers to find the best access path to the queried data. In this part we will discuss in which situation it makes sense to collect statistics and how this can be done in MicroStrategy.

2nd Part: Reducing number of queries on fact tables

Global Optimization

In previous MicroStrategy releases two metrics with different conditionality would always require two separate SQL passes. New optimization level, introduced in MicroStrategy 9.0, allows combining them within single query. Here we will learn more about this feature.

Smart Metrics

So called “smart metrics” allow an adequate calculation of Report Totals, but can also cause unexpected performance problems. We will consider some special situations and discuss possible solutions.

Cumulative Metrics

There are several techniques to compute cumulative metrics: using MicroStrategy transformation objects, OLAP functions or pre-calculated values. In this part we will compare these methods and discuss their benefits and disadvantages.

3rd Part: Using Aggregations

Logical Key, Logical Size & Aggregate Awareness

MicroStrategy automatically selects the best available aggregation by evaluation of the Logical Key and Logical Size of the available tables. Here we will discuss how this algorithm works and why it sometimes fails.

Relationships between Attributes

In this part we will consider some modelling problems and discuss how changing of relationships between attributes and modification of their cardinalities can affect the generation of SQL.

Pass-through Functions

Pass-through functions allow utilization of database features that are not known to MicroStrategy. We will discuss how the functions `ApplySimple` and `ApplyAgg` can be used to solve some tricky problems.

Trainer

This workshop will be held by Slavik Taubkin, a DWH specialist with over 10 years of experience in MicroStrategy performance optimization.

Slavik started his career in 2001 as BI consultant at Teradata in Germany. In the next nine years he has been engaged in many MicroStrategy performance-tuning activities for European customers. In 2010 he left Teradata and became an independent DWH architect and trainer.

More information about Slavik’s professional experience is available on his website <http://www.taubkin.de>