



Part 1: Data storage

Why should we use relational database systems. Does the investment of time for learning to use this s..., will bring me any advantage.

Tuesday, the 27th January 2006



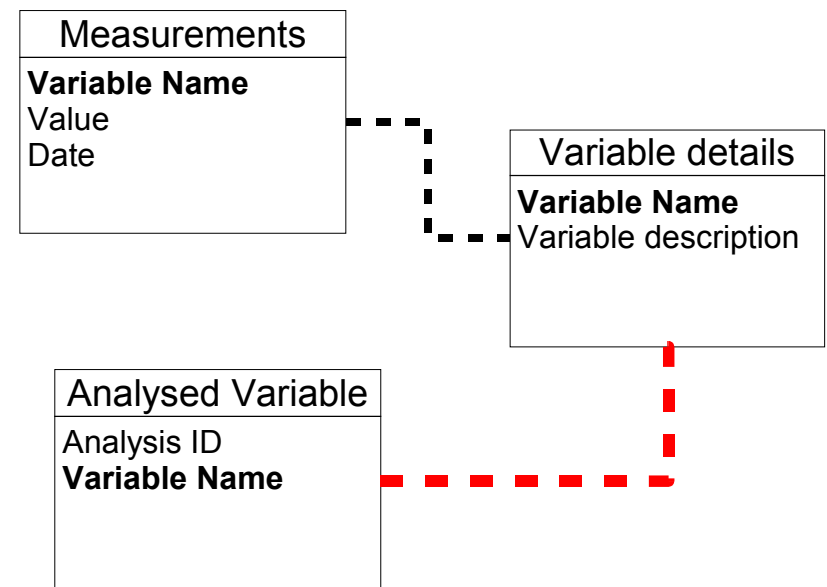
Tutorial - Overview

- What is a relational database?
 - Overview of free software DBMS
 - From the table to the structure
 - Access methods to DBs (API, ODBC and JDBC)
- DB administration tools
- DB clients for querying and DB design
 - The Standard Query Language (SQL)
 - Using SELECT, WHERE, ORDER, ...
 - The benefit of the JOIN relation
- Links, Help and Questions

What is a relational database?

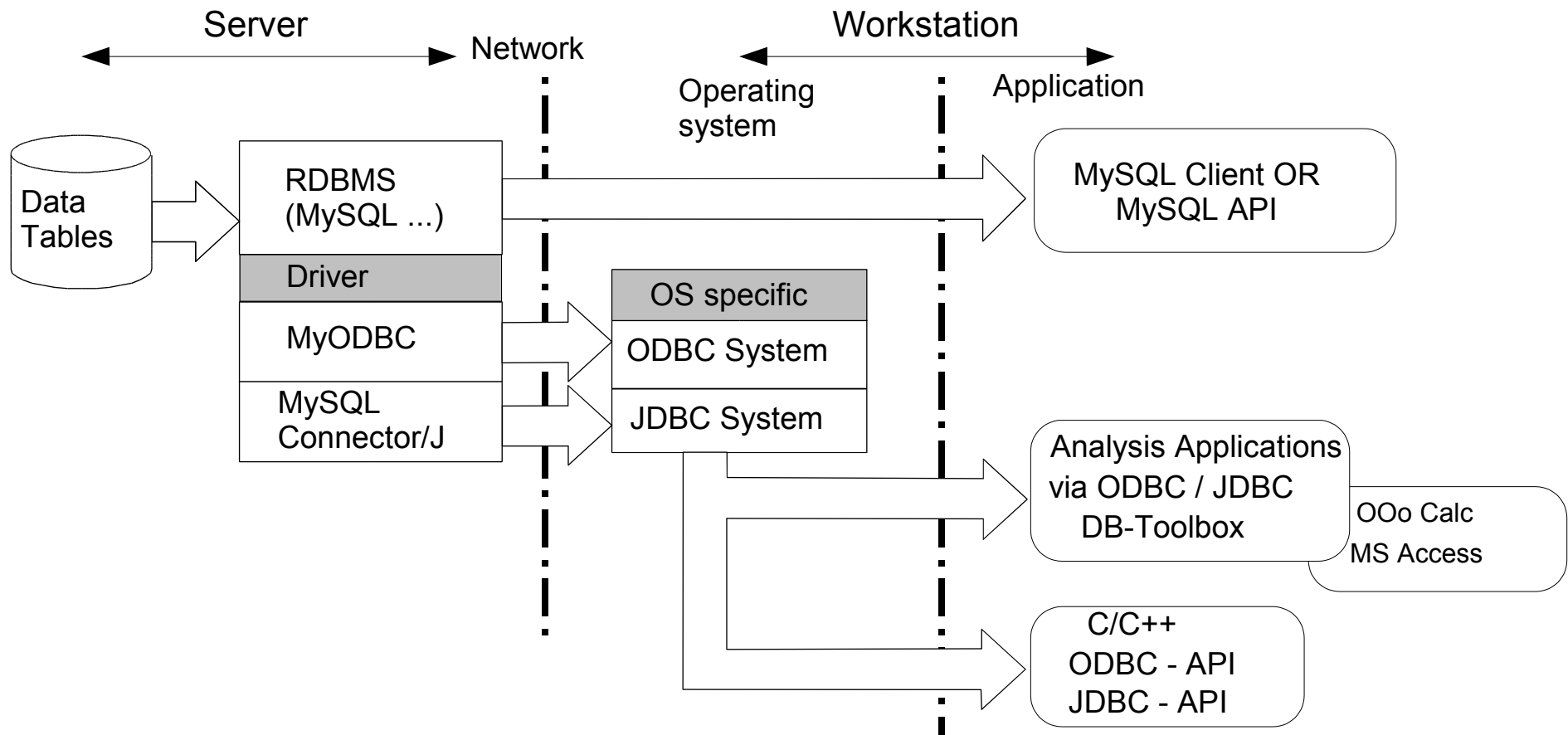
- Simple data table
 - redundant information
 - separate tables
 - link tables
 - reusable for other relations
- Entity Relation Model
 - founded on theories
 - rules to build the ERM
 - Graphical tools
 - Structure and Knowledge

Measurements
Variable Name
Variable description
Value
Date



Relational DB Management Systems

- Free / Open-Source DBMS
 - MySQL, PostgreSQL, LEAP, PicoSQL, SQLite, ...



Advantages / Inconveniences

☺ Centralized management

- ☺ Backup
- ☺ Consistency

☺ Access control

- ☺ Confidentiality

☺ Access flexibility

- ☺ Powerful Query, DB level (Data transfer)
- ☺ Network access

☺ Structured Data

☹ Management Overhead

- ☹ User management
- ☹ Access rights
- ☹ Data Import
- ☹ Off-Line work

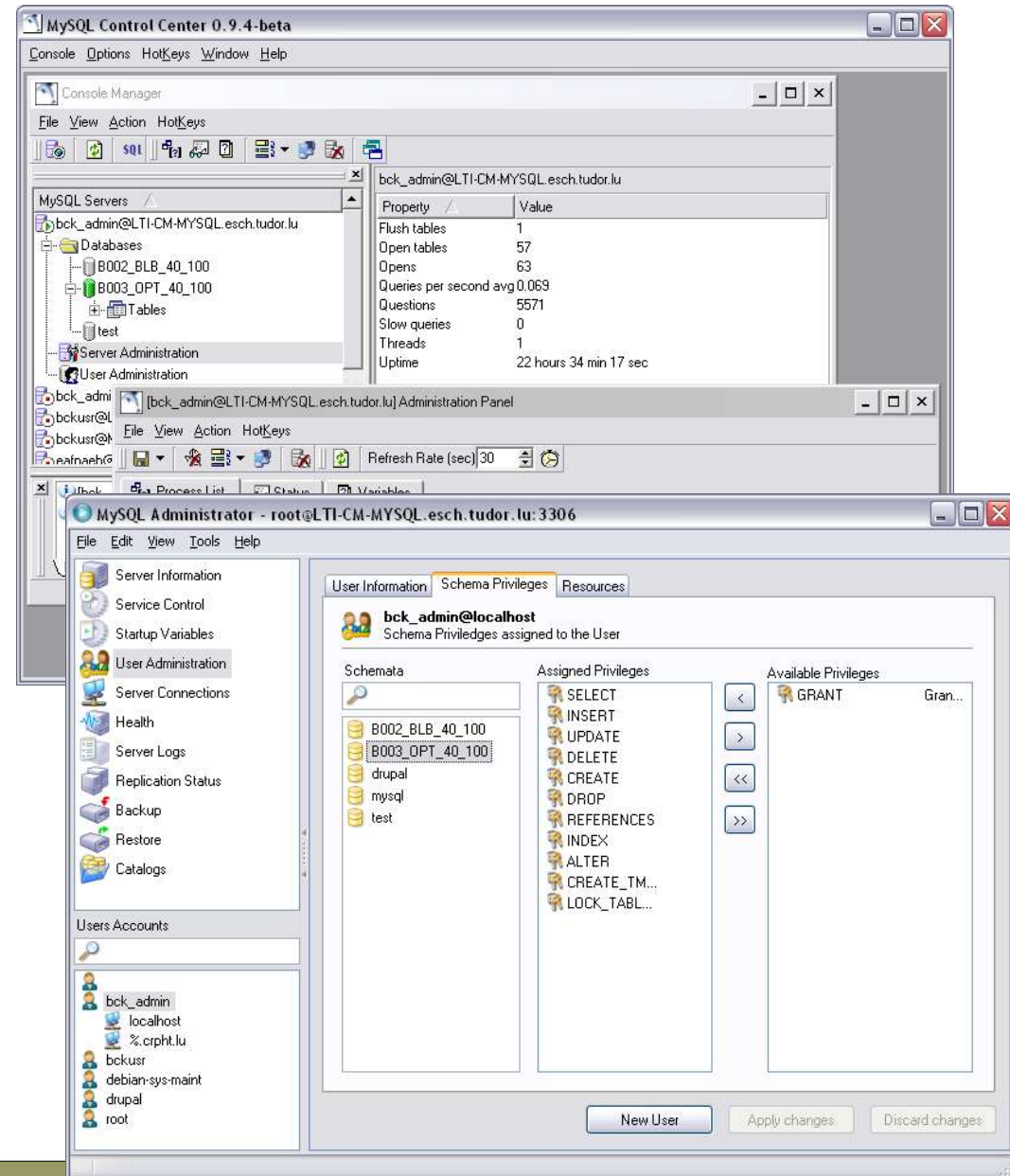
☹ Build ER-Models

☹ SQL Knowledge

☹ Query management

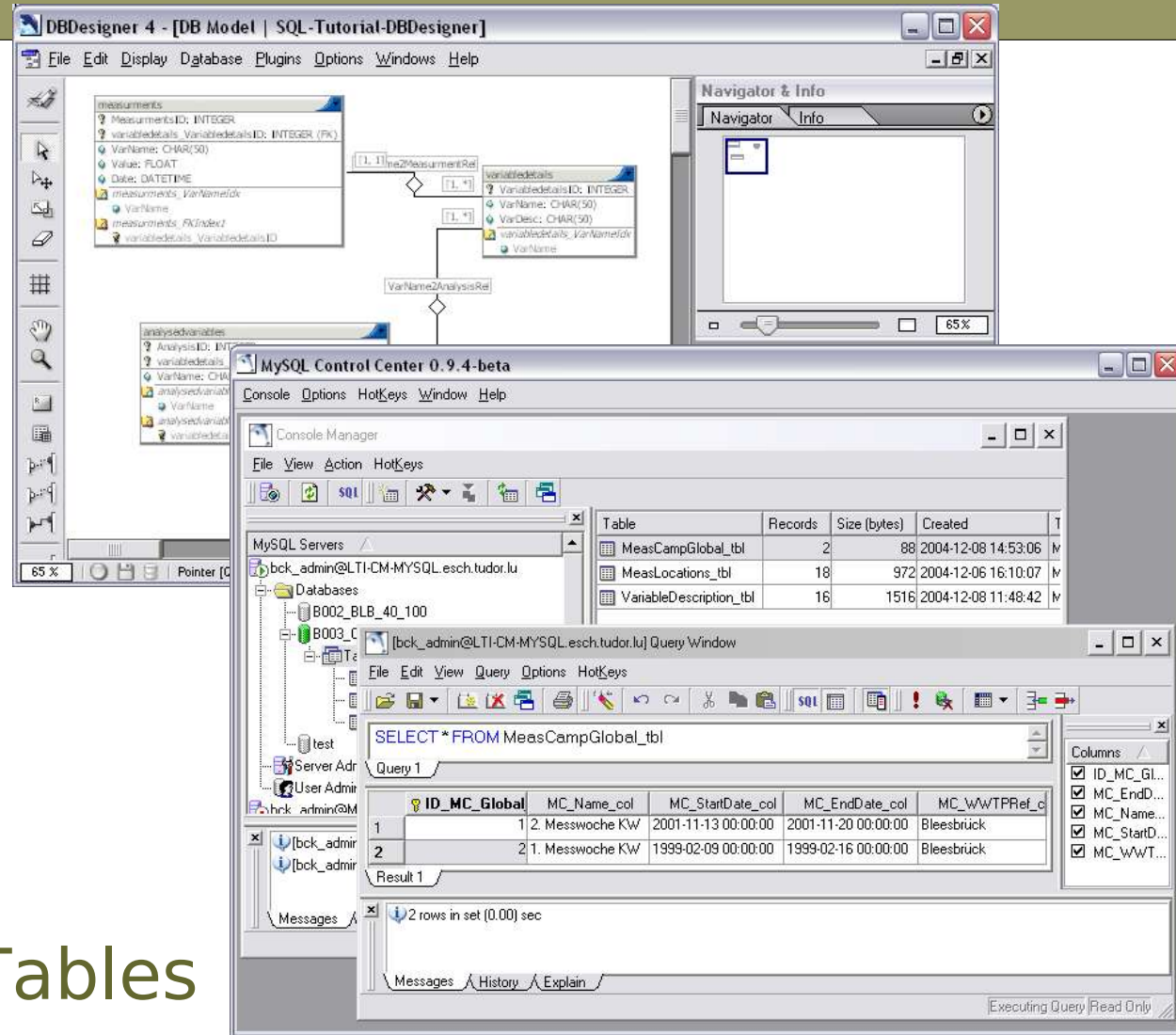
DB administration tools

- Command line
 - mysqadmin
 - mysql + SQL
- GUI Tools
 - mysqlcc (old)
 - MySQL Administrator (new)
- Tasks
 - User management
 - DB management



DB clients

- Command line
 - mysql + SQL
- GUI-Tools
 - DBDesigner
 - mysqlcc (old)
 - MySQL Query Browser (new)
- Tasks
 - Create Dbs & Tables
 - Build and manage queries



The Standard Query Language (SQL)

SELECT [STRAIGHT_JOIN]
[SQL_SMALL_RESULT] [SQL_BIG_RESULT] [SQL_BUFFER_RESULT]
[SQL_CACHE | SQL_NO_CACHE] [SQL_CALC_FOUND_ROWS] [HIGH_PRIORITY]
[**DISTINCT** | DISTINCTROW | ALL]
select_expression,...
[INTO {OUTFILE | DUMPFILE} 'file_name' export_options]
[**FROM** table_references
[**WHERE** where_definition]
[**GROUP BY** {unsigned_integer | col_name | formula} [ASC | DESC], ...
[WITH ROLLUP]]
[HAVING where_definition]
[**ORDER BY** {unsigned_integer | col_name | formula} [ASC | DESC] ,...]
[**LIMIT** [offset,] row_count | row_count OFFSET offset]
[PROCEDURE procedure_name(argument_list)]
[FOR UPDATE | LOCK IN SHARE MODE]]

Links, Help and Questions

- Links
 - <http://www.mysql.com>
 - <http://www.programmingtutorials.com/sql.aspx>
- Help
 - **Web:** <http://www.mysql.com/documentation/index.html>
 - **Local:**
 - Build in the Query Browser
 - HTML format: [MySQL HTML](#)
 - Even in Win Hlp format: [MySQL Hlp](#)
 - **MySQL Books**
- Questions