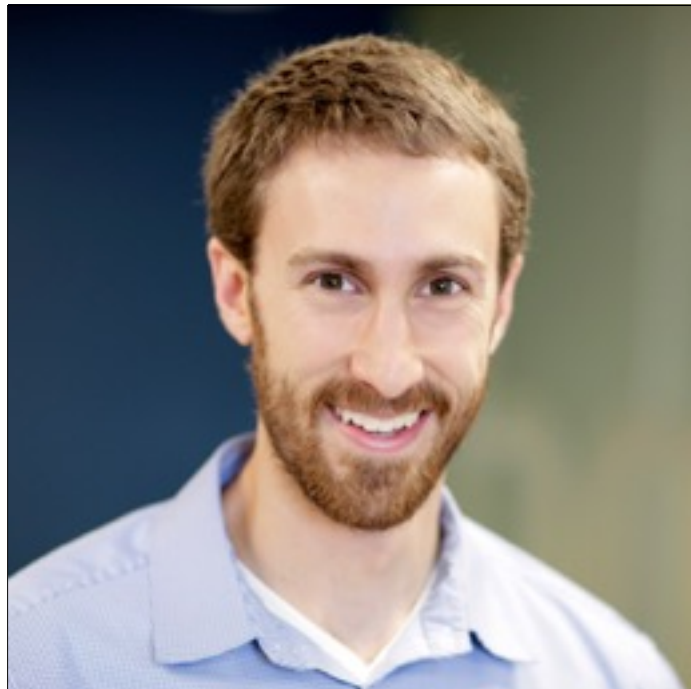


Database Optimization



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Module Outline



Relational vs. Non-Relational Databases

Which MySQL Fork to Use

MySQL Server Configuration

The MySQL Slow Query Log

Query Optimization

Denormalization and Constraints

*Optimization, Backups,
Replication, and more*

3rd Edition
Covers Version 5.5



High Performance MySQL

O'REILLY®

*Baron Schwartz,
Peter Zaitsev &
Vadim Tkachenko*

Popular Relational and Non-Relational DBs

Relational Databases

- Oracle
- MySQL
- SQL Server
- PostgreSQL

Non-Relational Databases

- MongoDB
- Cassandra
- CouchDB
- Riak

Popular Relational and Non-Relational DBs

Relational Databases

- Oracle
- MySQL
- SQL Server
- PostgreSQL

Non-Relational Databases

- MongoDB (Document Store)
- Cassandra (Wide Column)
- CouchDB (Document Store)
- Riak (Key-Value Store)

Popular Relational and Non-Relational DBs

Relational Databases

- Oracle
- MySQL
- SQL Server
- PostgreSQL

Non-Relational Databases

- MongoDB
- Cassandra
- CouchDB
- Riak



MySQL Community Edition

Percona

MariaDB

WebScaleSQL



MySQL Community Edition

Percona

MariaDB

WebScaleSQL



MySQL Community Edition

Percona

MariaDB

WebScaleSQL



MySQL Community Edition

Percona

MariaDB

WebScaleSQL



MySQL Community Edition

Percona

MariaDB

WebScaleSQL



MySQL Community Edition

Percona

MariaDB

WebScaleSQL

InnoDB vs MyISAM

InnoDB

Row Level Locking

Supports Foreign Keys

Supports Transactions

Default as of MySQL 5.5

MyISAM

Table Level Locking

No Foreign Keys

No Transactions

Rarely Useful in Modern Apps

$$\text{max_connections} =$$
$$\text{pm.max_children} *$$
$$\text{\# of app servers}$$

innodb_buffer_pool_size =
90% Server Memory

innodb_io_capacity

Drive Type	Value
Enterprise SSD	50,000
Single Consumer SSD	10,000
Single 7200 RPM Drive	200

Configuration Values We Changed




max_connections

innodb_buffer_pool_size

innodb_io_capacity

query_cache_limit

query_cache_size



Denormalization is the process of attempting to optimize the read performance of a database by adding redundant data or by grouping data

- Wikipedia



Glossary



[Database Engine Rankings](#)