

MySQL Performance Tuning Ed 3

Duration: 4 Days

What you will learn

The MySQL Performance Tuning course teaches you how to tune MySQL for optimal performance. You will learn best practices for configuring, monitoring, and troubleshooting your server, databases and queries using a range of tools.

Learn To:

Understand performance tuning concepts.

Benchmark your MySQL server.

Tune MySQL server settings.

Investigate performance metrics with a range of system databases, command-line and graphical tools.

Design your databases for optimal performance.

Optimize slow queries.

Troubleshoot common performance problems.

Scale your hardware and application environment as your database grows.

Benefits To You

MySQL is the world's most popular open source database, and the leading database for web applications. The majority of the largest web properties rely on MySQL to cope with huge numbers of transactions simultaneously, while maintaining the integrity of their data.

As users continue to demand better performance and more functionality from web applications, you need to make sure that your database can keep up. The MySQL Performance Tuning course will teach you how to use the vast array of configuration options, monitoring tools, and techniques employed by MySQL database professionals to keep your applications fast, efficient, and safe.

Audience

Application Developers

Database Administrators

Database Designers

Developer

System Administrator

Web Administrator

Related Training

Required Prerequisites

Ability to use MySQL tools to connect to a MySQL server

Experience of maintaining a database server (preferably a MySQL server)

Knowledge of general SQL statement structure and query writing principles

Working knowledge of Linux operating systems

Suggested Prerequisites

Experience of maintaining a MySQL server instance and using

Familiarity with Linux command line tools and scripting

Knowledge of a programming language, such as Java or PHP

Course Objectives

Design a schema for optimal performance

Understand how MySQL optimizes queries

Identify and fix slow queries

Optimize MySQL for your application environment

Identify the performance impact of hardware

Diagnose and resolve common performance issues

Understand performance tuning concepts

List factors that affect performance

Use a range of performance tuning tools

Configure and use the Performance Schema

Tune the MySQL server instance

Course Topics

Introduction

Course Introduction

MySQL Overview

MySQL Products and Tools

MySQL Web Resources

MySQL Courses and Certification

MySQL Services and Support

Performance Tuning Concepts

- Introduction to Performance Tuning
- Performance Tuning Terminology
- Benchmarking
- Tuning
- Deploying and Maintaining MySQL

Performance Tuning Tools

- MySQL Monitoring Tools
- MySQL Enterprise Monitor
- MySQL Utilities
- Community Monitoring Tools
- Linux Tools
- Benchmarking Tools

Performance Schema

- Performance Schema
- Configuring Performance Schema
- Using MySQL Workbench for Performance Monitoring
- The MySQL sys Schema

Memory, Connections, and Threads

- Major Components of the MySQL Server
- Tuning the MySQL server
- Connections
- Thread Reuse

Tables, Files, and Logs

- Table Caching
- Files and File Descriptors
- Binary Logs

Statement Monitoring, Sort Buffer and Query Cache

- SQL Statement Monitoring
- Sizing the Sort Buffer
- The MySQL Query Cache

InnoDB Storage Engine

- List the key benefits of the InnoDB storage engine
- Describe how InnoDB uses log files and buffers
- Explain the SHOW ENGINE INNODB STATUS output
- Use InnoDB monitors
- Access key InnoDB metrics in Information Schema
- Tune InnoDB settings for best performance

Schema Design and Performance

- Schema Design Considerations
- Normalization and Performance
- Data Types
- Indexes
- InnoDB Table Compression
- Partitioning

Query Optimization

MySQL Query Processing

Understanding the Query Plan

Using EXPLAIN

Improving Query Performance

Indexing

MySQL Enterprise Monitor Query Analyzer

Troubleshooting Performance Issues

Key Steps in Troubleshooting

Establishing the Nature of the Problem

Troubleshooting Locks

Troubleshooting Locks with Information Schema

Identifying Slow Queries

Troubleshooting Specific Queries

Optimizing MySQL for Your Application Environment

Improving Connector Performance

Improving InnoDB Performance with the Memcached NoSQL API

Backup Performance

Improving Database Performance with Replication

Improving Application Performance with MySQL Cluster

Hardware Optimization

Hardware Limitations in MySQL

Storage Devices

MySQL and Virtualization

Database-Driven Website Reference Architectures

Conclusion

Course Overview

Training and Certification Website

Course Evaluation

Thank You!

Q&A Session