Java Performance Tuning Ed 1

This Java Performance Tuning training teaches performance tuning concepts applicable to the Java programming language. Learn the conceptual background for Java garbage collection, how it applies to Java garbage collectors on the Hotspot JVM, and more.

Objectives

- Monitor operating system performance on Solaris, Linux, and Windows
- Describe basic principles of performance
- Describe the operation of generational garbage collection
- List the garbage collectors available in Java including the G1 collector
- Monitor performance at the JVM and application level
- Monitor and analyze Java application performance using Java Mission Control and Flight Recorder
- Profile the performance of a Java application
- Tune garbage collection in a Java application
- Apply basic performance tuning principles to a Java application

Topics

- Course Overview
    - Enter course
- Java Virtual Machine and Performance Overview
    - JVM Overview
    - What is Performance?
    - Performance Methodology
- The JVM and Java Garbage Collection
    - HotSpot GC Basics
    - The GC Aging Process
    - G1 CG
- Java Garbage Collectors
    - Garbage Collecting Algorithms
    - Types of GC Collectors
    - JVM Ergonomics
- Command Line JVM Monitoring
    - GC Monitoring Options
    - JIT Monitoring Options
- Mission Control and JVM Monitoring Tools
    - Monitoring with VisualVM
    - Monitoring with Mission Control

- Java Flight Recorder
    - Creating Flight Recordings
    - Analyze a Flight Recording
- Monitoring Operating System Performance
    - Monitoring CPU Usage
    - Monitoring Memory Usage
    - Monitoring Network I/O
    - Monitoring Disk I/O
    - Monitoring Processes
- Performance Profiling Tools
    - Overview of Profiling Tools
    - CPU Profiling
    - Heap Profiling
- Troubleshoot Performance Issues by Profiling
    - Memory Leak Profiling
    - Detect Memory leaks
    - Detecting Contention and Locking Issues
- Garbage Collection Tuning
    - Tuning with Serial GC
    - Tuning with Parallel GC
    - Tuning with Concurrent GC
    - Tuning with G1 GC
- Language Level Concerns and Garbage Collection
    - ObjectAllocation
    - Working with Large Objects
    - Explicit Garbage Collection
    - Finalizers
    - Memory Leak Detection Tools
    - Object references