

Java Performance Tuning 2nd Edition

Intermediate level, for programmers fairly familiar with Java, but new to the functional style of programming and lambda expressions. Get ready to program in a whole new way. Functional Programming in Java will help you quickly get on top of the new, essential Java 8 language features and the functional style that will change and improve your code. This short, targeted book will help you make the paradigm shift from the old imperative way to a less error-prone, more elegant, and concise coding style that's also a breeze to parallelize. You'll explore the syntax and semantics of lambda expressions, method and constructor references, and functional interfaces. You'll design and write applications better using the new standards in Java 8 and the JDK. Lambda expressions are lightweight, highly concise anonymous methods backed by functional interfaces in Java 8. You can use them to leap forward into a whole new world of programming in Java. With functional programming capabilities, which have been around for decades in other languages, you can now write elegant, concise, less error-prone code using standard Java. This book will guide you through the paradigm change, offer the essential details about the new features, and show you how to transition from your old way of coding to an improved style. In this book you'll see popular design patterns, such as decorator, builder, and strategy, come to life to solve common design problems, but with little ceremony and effort. With these new capabilities in hand, Functional Programming in Java will help you pick up techniques to implement designs that were beyond easy reach in earlier versions of Java. You'll see how you can reap the benefits of tail call optimization, memoization, and effortless parallelization techniques. Java 8 will change the way you write applications. If you're eager to take advantage of the new features in the language, this is the book for you. What you need: Java 8 with support for lambda expressions and the JDK is required to make use of the concepts and the examples in this book.

This insider guide gives the understanding needed to write more effective code for Java programs and get maximum performance from Java applications. Both a tutorial and reference, the book is easy to follow for Java programmers at all levels. Readers learn what's going on underneath their Java programs as they run, and gain valuable insights into garbage collection techniques, multithreading, compilers, bytecodes, the Java interpreter and more. The accompanying CD-ROM contains numerous code examples, as well as interactive illustrations that provide valuable programming insights.

Summary Building on the bestselling first edition, *EJB 3 in Action, Second Edition* tackles EJB 3.2 head-on, through numerous code samples, real-life scenarios, and illustrations. This book is a fast-paced tutorial for Java EE 6 business component development using EJB 3.2, JPA 2, and CDI. Besides covering the basics of EJB 3.2, this book includes in-depth EJB 3.2 internal implementation details, best practices, design patterns, and performance tuning tips. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Book The EJB 3 framework provides a standard way to capture business logic in manageable server-side modules, making it easier to write, maintain, and extend Java EE applications. EJB 3.2 provides more enhancements and intelligent defaults and integrates more fully with other Java technologies, such as CDI, to make development even easier. *EJB 3 in Action, Second Edition* is a fast-paced tutorial for Java EE

business component developers using EJB 3.2, JPA, and CDI. It tackles EJB head-on through numerous code samples, real-life scenarios, and illustrations. Beyond the basics, this book includes internal implementation details, best practices, design patterns, performance tuning tips, and various means of access including Web Services, REST Services, and WebSockets. Readers need to know Java. No prior experience with EJB or Java EE is assumed. What's Inside Fully revised for EJB 3.2 POJO persistence with JPA 2.1 Dependency injection and bean management with CDI 1.1 Interactive application with WebSocket 1.0 About the Authors Debu Panda, Reza Rahman, Ryan Cuprak, and Michael Remijan are seasoned Java architects, developers, authors, and community leaders. Debu and Reza coauthored the first edition of EJB 3 in Action. Table of Contents PART 1 OVERVIEW OF THE EJB LANDSCAPE What's what in EJB 3 A first taste of EJB PART 2 WORKING WITH EJB COMPONENTS Building business logic with session beans Messaging and developing MDBs EJB runtime context, dependency injection, and crosscutting logic Transactions and security Scheduling and timers Exposing EJBs as web services PART 3 USING EJB WITH JPA AND CDI JPA entities Managing entities JPQL Using CDI with EJB 3 PART 4 PUTTING EJB INTO ACTION Packaging EJB 3 applications Using WebSockets with EJB 3 Testing and EJB

Java® Performance Companion shows how to systematically and proactively improve Java performance with today's advanced multicore hardware and complex operating system environments. The authors, who are all leading Java performance and Java HotSpot VM experts, help you improve performance by using modern software engineering practices, avoiding common mistakes, and applying tips and tricks gleaned from years of real-world experience. Picking up where Charlie Hunt and Binu John's classic Java Performance left off, this book provides unprecedented detail on two powerful Java platform innovations: the Garbage First (G1) garbage collector and the HotSpot VM Serviceability Agent. Coverage includes Leveraging G1 to overcome limitations in parallel, serial, and CMS garbage collection Understanding each stage of G1 GC collections, both young and old Getting under the hood with G1 and efficiently fine-tuning it for your application Identifying potential optimizations, interpreting experimental results, and taking action Exploring the internals of the HotSpot VM Using HotSpot VM Serviceability Agent to analyze, triage, and resolve diverse HotSpot VM issues Troubleshooting out of memory errors, Java level deadlocks, and HotSpot VM crashes Extending the Serviceability Agent, and using the Plugin for VisualVM Mastering useful HotSpot VM command line options not covered in Java™ Performance Java® Performance Companion can help you squeeze maximum performance and value from Java with JDK 8 or 9—for any application, in any environment. Register your product at informit.com/register for convenient access to downloads, updates, and corrections as they become available.

Packed with practical examples, this book looks at a different aspect of performance tuning in each chapter and shows you how to apply them to their existing Java applications. Anyone with an interest in learning more and improving the performance of Java-based technology in general, all the way to WildFly in particular, will find this book useful.

Spring 5.0 brings major advancements in the rich APIs provided by the Spring framework and thus creates a need for developers to master its tools and techniques to

achieve high-performing applications. This book will help you improve the speed of your code and optimize the performance of your apps.

Coding and testing are often considered separate areas of expertise. In this comprehensive guide, author and Java expert Scott Oaks takes the approach that anyone who works with Java should be equally adept at understanding how code behaves in the JVM, as well as the tunings likely to help its performance. You'll gain in-depth knowledge of Java application performance, using the Java Virtual Machine (JVM) and the Java platform, including the language and API. Developers and performance engineers alike will learn a variety of features, tools, and processes for improving the way Java 7 and 8 applications perform. Apply four principles for obtaining the best results from performance testing Use JDK tools to collect data on how a Java application is performing Understand the advantages and disadvantages of using a JIT compiler Tune JVM garbage collectors to affect programs as little as possible Use techniques to manage heap memory and JVM native memory Maximize Java threading and synchronization performance features Tackle performance issues in Java EE and Java SE APIs Improve Java-driven database application performance Software -- Programming Languages.

This IBM® Redbooks® publication focuses on gathering the correct technical information, and laying out simple guidance for optimizing code performance on IBM POWER8® processor-based systems that run the IBM AIX®, IBM i, or Linux operating systems. There is straightforward performance optimization that can be performed with a minimum of effort and without extensive previous experience or in-depth knowledge. The POWER8 processor contains many new and important performance features, such as support for eight hardware threads in each core and support for transactional memory. The POWER8 processor is a strict superset of the IBM POWER7+™ processor, and so all of the performance features of the POWER7+ processor, such as multiple page sizes, also appear in the POWER8 processor. Much of the technical information and guidance for optimizing performance on POWER8 processors that is presented in this guide also applies to POWER7+ and earlier processors, except where the guide explicitly indicates that a feature is new in the POWER8 processor. This guide strives to focus on optimizations that tend to be positive across a broad set of IBM POWER® processor chips and systems. Specific guidance is given for the POWER8 processor; however, the general guidance is applicable to the IBM POWER7+, IBM POWER7®, IBM POWER6®, IBM POWER5, and even to earlier processors. This guide is directed at personnel who are responsible for performing migration and implementation activities on POWER8 processor-based systems. This includes system administrators, system architects, network administrators, information architects, and database administrators (DBAs).

Summary Manning's bestselling Java 8 book has been revised for Java 9! In *Modern Java in Action*, you'll build on your existing Java language skills with the newest features and techniques. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Modern applications take advantage of innovative designs, including microservices, reactive architectures, and streaming data. Modern Java features like lambdas, streams, and the long-awaited Java Module System make implementing these designs significantly easier. It's time to upgrade your skills and meet these challenges head on! About the

Book Modern Java in Action connects new features of the Java language with their practical applications. Using crystal-clear examples and careful attention to detail, this book respects your time. It will help you expand your existing knowledge of core Java as you master modern additions like the Streams API and the Java Module System, explore new approaches to concurrency, and learn how functional concepts can help you write code that's easier to read and maintain. What's inside Thoroughly revised edition of Manning's bestselling Java 8 in Action New features in Java 8, Java 9, and beyond Streaming data and reactive programming The Java Module System About the Reader Written for developers familiar with core Java features. About the Author Raoul-Gabriel Urma is CEO of Cambridge Spark. Mario Fusco is a senior software engineer at Red Hat. Alan Mycroft is a University of Cambridge computer science professor; he cofounded the Raspberry Pi Foundation. Table of Contents PART 1 -

FUNDAMENTALS Java 8, 9, 10, and 11: what's happening? Passing code with behavior parameterization Lambda expressions PART 2 - FUNCTIONAL-STYLE DATA PROCESSING WITH STREAMS Introducing streams Working with streams Collecting data with streams Parallel data processing and performance PART 3 - EFFECTIVE PROGRAMMING WITH STREAMS AND LAMBDA Collection API enhancements Refactoring, testing, and debugging Domain-specific languages using lambdas PART 4 - EVERYDAY JAVA Using Optional as a better alternative to null New Date and Time API Default methods The Java Module System PART 5 - ENHANCED JAVA CONCURRENCY Concepts behind CompletableFuture and reactive programming CompletableFuture: composable asynchronous programming Reactive programming PART 6 - FUNCTIONAL PROGRAMMING AND FUTURE JAVA EVOLUTION Thinking functionally Functional programming techniques Blending OOP and FP: Comparing Java and Scala Conclusions and where next for Java

Drawing on the authors knowledge of the Java programming language and their extensive experience working on performance issues, the book reveals common mistakes and misconceptions concerning the performance characteristics of Java technologies. It offers overall development strategies and concrete, battle-tested techniques to dramatically improve the performance of applications constructed with the Java programming language. Java Platform Performance highlights the importance of integrating performance evaluation into the application development process and discusses measurement techniques. The book then presents practical tactics for enhancing application performance in the areas of I/O, RAM footprint, small object management, algorithms, data structures, Swing, and deployment. Specific topics covered include: *Incorporating performance evaluation into the development process *Profiling and benchmarking *Building scalable, fast Swing GUIs *Using high-speed I/O *Computing and controlling the RAM footprint *Reducing the number of classes *Eliminating temporary objects *Selecting high-performance algorithms and data structures *Using Java native code and applet packaging efficiently

Targeting the critical issue of performance, this guide shows how to resolve bottlenecks, increase speed, and get better overall performance for Java Websites. The author team is a group of seasoned performance experts who have helped hundreds of customers resolve enterprise Website performance issues.

Jakarta Tomcat is not only the most commonly used open source servlet engine today, it's become the de facto standard by which other servlet engines are measured.

Powerful and flexible, it can be used as a stand-alone web server or in conjunction with another server, like Apache or IIS, to run servlets or JSPs. But mastery of Tomcat is not easy: because it's as complex as it is complete. Tomcat: The Definitive Guide answers vexing questions that users, administrators, and developers alike have been asking. This concise guide provides much needed information to help harness Tomcat's power and wealth of features. Tomcat: The Definitive Guide offers something for everyone who uses Tomcat. System and network administrators will find detailed instructions on installation, configuration, and maintenance. For users, it supplies insightful information on how to deploy Tomcat. And seasoned enterprise Java developers will have a complete reference to setting up, running, and using this powerful software. The book begins with an introduction to the Tomcat server and includes an overview of the three types of server configurations: stand-alone, in-process, and out-of-process. The authors show how directories are laid out, cover the initial setup, and describe how to set the environment variables and modify the configuration files, concluding with common errors, problems, and solutions. In subsequent chapters, they cover: The server.xml configuration file Java Security manager Authentication schemes and Tomcat users The Secure Socket Layer (SSL) Tomcat JDBC Realms Installing servlets and Java Server Pages Integrating Tomcat with Apache Advanced Tomcat configuration and much more. Tomcat: The Definitive Guide covers all major platforms, including Windows, Solaris, Linux, and Mac OS X, contains details on Tomcat configuration files, and has a quick-start guide to get developers up and running with Java servlets and JavaServer Pages. If you've struggled with this powerful yet demanding technology in the past, this book will provide the answers you need.

Java Performance Tuning"O'Reilly Media, Inc."

Queries not running fast enough? Wondering about the in-memory database features in 2014? Tired of phone calls from frustrated users? Grant Fritchey's book SQL Server Query Performance Tuning is the answer to your SQL Server query performance problems. The book is revised to cover the very latest in performance optimization features and techniques, especially including the newly-added, in-memory database features formerly known under the code name Project Hekaton. This book provides the tools you need to approach your queries with performance in mind. SQL Server Query Performance Tuning leads you through understanding the causes of poor performance, how to identify them, and how to fix them. You'll learn to be proactive in establishing performance baselines using tools like Performance Monitor and Extended Events. You'll learn to recognize bottlenecks and defuse them before the phone rings. You'll learn some quick solutions too, but emphasis is on designing for performance and getting it right, and upon heading off trouble before it occurs. Delight your users. Silence that ringing phone. Put the principles and lessons from SQL Server Query Performance Tuning into practice today. Covers the in-memory features from Project Hekaton Helps establish performance baselines and monitor against them Guides in troubleshooting and eliminating of bottlenecks that frustrate users

This book is a collection of developer code recipes and best practices for persisting data using Spring, particularly Spring Boot. The book is structured around practical recipes, where each recipe discusses a performance case or performance-related case, and almost every recipe has one or more applications. Mainly, when we try to accomplish something (e.g., read some data from the database), there are several

approaches to do it, and, in order to choose the best way, you have to know the implied trades-off from a performance perspective. You'll see that in the end, all these penalties slow down the application. Besides presenting the arguments that favor a certain choice, the application is written in Spring Boot style which is quite different than plain Hibernate. Persistence is an important set of techniques and technologies for accessing and using data, and this book demonstrates that data is mobile regardless of specific applications and contexts. In Java development, persistence is a key factor in enterprise, ecommerce, cloud and other transaction-oriented applications. After reading and using this book, you'll have the fundamentals to apply these persistence solutions into your own mission-critical enterprise Java applications that you build using Spring.

What You Will Learn

- Shape *-to-many associations for best performances
- Effectively exploit Spring Projections (DTO)
- Learn best practices for batching inserts, updates and deletes
- Effectively fetch parent and association in a single SELECT
- Learn how to inspect Persistent Context content
- Dissect pagination techniques (offset and keyset)
- Handle queries, locking, schemas, Hibernate types, and more

Who This Book Is For

Any Spring and Spring Boot developer that wants to squeeze the persistence layer performances.

The ONLY complete, up-to-date guide to all aspects of Java performance

- The first one-stop guide to identifying, isolating, and fixing Java performance issues on multicore and multiprocessor processor platforms - from two of Sun's leading Java performance experts.
- Includes crucial new insights into microbenchmarking found nowhere else.
- Contains up-to-the-minute coverage of Java optimization, including migration of older applications. Given Java's ubiquity and indispensability, Java software performance is of crucial importance to millions of developers worldwide. The emergence of multi-core systems and the evolution of the Java platform give developers many new opportunities to optimize performance. Now, three of Sun's leading Java performance experts have written the first start-to-finish guide to optimizing Java performance in today's multi-core systems. Java Performance gives developers, designers, and architects all the information they need to leverage Java's performance and scalability abilities on any modern multicore or multiprocessor system. This book's end-to-end coverage addresses all these topics: monitoring and profiling; the effective use of garbage collection and other language features; adaptive and platform-specific tuning; techniques for maximizing scalability; and much more. The authors' extensive benchmarking coverage includes an indispensable introduction to effective microbenchmarks - including guidance on avoiding the common microbenchmarking mistakes that mislead developers into writing badlyperforming software. The book also contains a complete section on Java performance enhancement, including opportunities and challenges associated with migrating software from Java 1.4.2 and Java 5 - issues that more and more Java developers are now facing.

Coding and testing are generally considered separate areas of expertise. In this practical book, Java expert Scott Oaks takes the approach that anyone who works with Java should be adept at understanding how code behaves in the Java Virtual Machine—including the tunings likely to help performance. This updated second edition helps you gain in-depth knowledge of Java application performance using both the JVM and the Java platform. Developers and performance engineers alike will learn a variety of features, tools, and processes for improving the way the Java 8 and 11 LTS releases

perform. While the emphasis is on production-supported releases and features, this book also features previews of exciting new technologies such as ahead-of-time compilation and experimental garbage collections. Understand how various Java platforms and compilers affect performance Learn how Java garbage collection works Apply four principles to obtain best results from performance testing Use the JDK and other tools to learn how a Java application is performing Minimize the garbage collector's impact through tuning and programming practices Tackle performance issues in Java APIs Improve Java-driven database application performance

Summary The Well-Grounded Java Developer offers a fresh and practical look at new Java 7 features, new JVM languages, and the array of supporting technologies you need for the next generation of Java-based software. About the Book The Well-Grounded Java Developer starts with thorough coverage of Java 7 features like try-with-resources and NIO.2. You'll then explore a cross-section of emerging JVM-based languages, including Groovy, Scala, and Clojure. You will find clear examples that are practical and that help you dig into dozens of valuable development techniques showcasing modern approaches to the dev process, concurrency, performance, and much more. Written for readers familiar with Java. No experience with Java 7 or new JVM languages required. Purchase of the print book comes with an offer of a free PDF, ePub, and Kindle eBook from Manning. Also available is all code from the book. What's Inside New Java 7 features Tutorials on Groovy, Scala, and Clojure Discovering multicore processing and concurrency Functional programming with new JVM languages Modern approaches to testing, build, and CI Table of Contents PART 1 DEVELOPING WITH JAVA 7 Introducing Java 7 New I/O PART 2 VITAL TECHNIQUES Dependency Injection Modern concurrency Class files and bytecode Understanding performance tuning PART 3 POLYGLOT PROGRAMMING ON THE JVM Alternative JVM languages Groovy: Java's dynamic friend Scala: powerful and concise Clojure: safer programming PART 4 CRAFTING THE POLYGLOT PROJECT Test-driven development Build and continuous integration Rapid web development Staying well-grounded Troubleshoot the most widespread and pernicious Java performance problems using a set of open-source and freely-available tools that will make you dramatically more productive in finding the root causes of slow performance. This is a brief book that focuses on a small number of performance anti-patterns, and you'll find that most problems you encounter fit into one of these anti-patterns. The book provides a specific method in a series of steps referred to as the "P.A.t.h. Checklist" that encompasses persistence, alien systems, threads, and heap management. These steps guide you through a troubleshooting process that is repeatable, that you can apply to any performance problem in a Java application. This technique is especially helpful in 'dark' environments with little monitoring. Performance problems are not always localized to Java, but often fall into the realms of database access and server load. This book gives attention to both of these issues through examples showing how to identify repetitive SQL, and identify architecture-wide performance problems ahead of production rollout. Learn how to apply load like an expert, and determine how much load to apply to determine whether your system scales. Included are walk-throughs of a dozen server-side performance puzzles that are ready to run on your own machine. Following these examples helps you learn to: Assess the performance health of four main problems

areas in a Java system: The P.A.t.h. Checklist presents each area with its own set of plug-it-in-now tools Pinpoint the code at fault for CPU and other bottlenecks without a Java profiler Find memory leaks in just minutes using heapSpank, the author's open-source leak detector utility that is freely available from heapSpank.org The repeatable method provided in this book is an antidote to lackluster average response times that are multi-second throughout the industry. This book provides a long absent, easy-to-follow, performance training regimen that will benefit anyone programming in Java. What You'll Learn Avoid the 6 most common ways to mess up a load test Determine the exact number of threads to dial into the load generator to test your system's scalability Detect the three most common SQL performance anti-patterns Measure network response times of calls to back-end systems ('alien systems') Identify whether garbage collection performance is healthy or unhealthy and whether delays are caused by problems in the old or new generation, so you know which generation needs to be adjusted Who This Book Is For Intermediate and expert Java developers and architects. Java experts will be able to update their skill set with the latest and most productive, open-source Java performance tools. Intermediate Java developers are exposed to the most common performance defects that repeatedly show up in Java applications, ones that account for the bulk of slow-performing systems. Experts and intermediates alike will benefit from the chapters on load generation.

Expert Oracle RAC Performance Diagnostics and Tuning provides comprehensive coverage of the features, technology and principles for testing and tuning RAC databases. The book takes a deep look at optimizing RAC databases by following a methodical approach based on scientific analysis rather than using a speculative approach, twisting and turning knobs and gambling on the system. The book starts with the basic concepts of tuning methodology, capacity planning, and architecture. Author Murali Vallath then dissects the various tiers of the testing implementation, including the operating system, the network, the application, the storage, the instance, the database, and the grid infrastructure. He also introduces tools for performance optimization and thoroughly covers each aspect of the tuning process, using many real-world examples, analyses, and solutions from the field that provide you with a solid, practical, and replicable approach to tuning a RAC environment. The book concludes with troubleshooting guidance and quick reference of all the scripts used in the book. Expert Oracle RAC Performance Diagnostics and Tuning covers scenarios and details never discussed before in any other performance tuning books. If you have a RAC database, this book is a requirement. Get your copy today. Takes you through optimizing the various tiers of the RAC environment. Provides real life case studies, analysis and solutions from the field. Maps a methodical approach to testing, tuning and diagnosing the cluster

This IBM® Redbooks® publication provides performance tuning tips and best practices for IBM Business Process Manager (IBM BPM) V8.5.5 (all editions) and IBM Business Monitor V8.5.5. These products represent an integrated development and runtime environment based on a key set of service-oriented architecture (SOA) and business process management (BPM) technologies. Such technologies include Service Component Architecture (SCA), Service Data Object (SDO), Business Process Execution Language (BPEL) for web services, and Business Processing Modeling Notation (BPMN). Both IBM Business Process Manager and Business Monitor build on

the core capabilities of the IBM WebSphere® Application Server infrastructure. As a result, Business Process Manager solutions benefit from tuning, configuration, and best practices information for WebSphere Application Server and the corresponding platform Java virtual machines (JVMs). This book targets a wide variety of groups, both within IBM (development, services, technical sales, and others) and customers. For customers who are either considering or are in the early stages of implementing a solution incorporating Business Process Manager and Business Monitor, this document proves a useful reference. The book is useful both in terms of best practices during application development and deployment and as a reference for setup, tuning, and configuration information. This book talks about many issues that can influence performance of each product and can serve as a guide for making rational first choices in terms of configuration and performance settings. Similarly, customers who already implemented a solution with these products can use the information presented here to gain insight into how their overall integrated solution performance can be improved. Written in Henry Liu's clear, concise style, Java Performance and Scalability gets right to the point. With clearly explained concepts, most pertinent theories, precise step-by-step procedures, and large volume of illustrative charts and tables with highly reliable data supporting behind, you gain quickly the necessary knowledge and skills for being able to cope with Java application performance and scalability issues without having to resort to more experienced professionals or expensive external consultants.

Specifically, it helps you learn the following knowledge and skills that are essential for you to become more effective in contributing to the success of your organization: *

- * What you need to know at minimum about the architecture of modern hardware so that you can make smart decisions on when you should pour your time on your application and when you can just throw in more advanced hardware to get by.
- * What you need to know about garbage collection theories in general and how they are implemented with widely used Java Virtual Machines like HotSpot JVMs.
- * Precise methodologies, procedures, and programs that you can start to use immediately to help you profile and tune your Java applications.
- * How you can design and build performance and scalability into your product proactively without having to face tough retrofitting decisions or even torrents of customer escalations later on.

In addition, the book contains interesting data for your reference, associated with oops compression, CMS garbage collection tuning, DoEscapeAnalysis, G1 versus CMS comparison, etc., all based on full scale, rigorous performance and scalability tests with real products. Build faster, more efficient enterprise Java applications.

PLEASE PROVIDE DESCRIPTION

Virtualizing and Tuning Large-Scale Java Platforms Technical best practices and real-world tips for optimizing enterprise Java applications on VMware vSphere® Enterprises no longer ask, "Can Java be virtualized"? Today, they ask, "Just how large can we scale virtualized Java application platforms, and just how efficiently can we tune them?" Now, the leading expert on Java virtualization answers these questions, offering detailed technical information you can apply in any production or QA/test environment. Emad Benjamin has spent nine years virtualizing VMware's own enterprise Java applications and working with nearly 300 leading VMware customers on projects of all types and sizes—from 100 JVMs to 10,000+, with heaps from 1GB to 360GB, and including massive big-data applications built on clustered JVMs. Reflecting all this experience, he shows you how to successfully size and tune any Java workload. This reference and performance "cookbook" identifies high-value optimization

opportunities that apply to physical environments, virtual environments, or both. You learn how to rationalize and scale existing Java infrastructure, modernize architecture for new applications, and systematically benchmark and improve every aspect of virtualized Java performance. Throughout, Benjamin offers real performance studies, specific advice, and “from-the-trenches” insights into monitoring and troubleshooting. Coverage includes

- Performance issues associated with large-scale Java platforms, including consolidation, elasticity, and flexibility
- Technical considerations arising from theoretical and practical limits of Java platforms
- Building horizontal in-memory databases with VMware vFabric SQLFire to improve scalability and response times
- Tuning large-scale Java using throughput/parallel GC and Concurrent Mark and Sweep (CMS) techniques
- Designing and sizing a new virtualized Java environment
- Designing and sizing new large-scale Java platforms when migrating from physical to virtualized deployments
- Designing and sizing large-scale Java platforms for latency-sensitive in-memory databases
- Real-world performance studies: SQLFire vs. RDBMS, Spring-based Java web apps, vFabric SpringTrader, application tiers, data tiers, and more
- Performance differences between ESXi3, 4.1, and 5
- Best-practice considerations for each type of workload: architecture, performance, design, sizing, and high availability
- Identifying bottlenecks in the load balancer, web server, Java application server, or DB Server tiers
- Advanced vSphere Java performance troubleshooting with esxtop
- Performance FAQs: answers to specific questions enterprise customers have asked

Unique and clever ideas are important when building a hot-selling Android app, but the real drivers for success are speed, efficiency, and power management. With this practical guide, you'll learn the major performance issues confronting Android app developers, and the tools you need to diagnose problems early. Customers are finally realizing that apps have a major role in the performance of their Android devices. Author Doug Sillars not only shows you how to use Android-specific testing tools from companies including Google, Qualcomm, and AT&T, but also helps you explore potential remedies. You'll discover ways to build apps that run well on all 19,000 Android device types in use. Understand how performance issues affect app sales and retention Build an Android device lab to maximize UI, functional, and performance testing Improve the way your app interacts with device hardware Optimize your UI for fast rendering, scrolling, and animations Track down memory leaks and CPU issues that affect performance Upgrade communications with the server, and learn how your app performs on slower networks Apply Real User Monitoring (RUM) to ensure that every device is delivering the optimal user experience

A high-performance data access layer must resonate with the underlying database system. Knowing the inner workings of a relational database and the data access frameworks in use can make the difference between a high-performance enterprise application and one that barely crawls. This book is a journey into Java data access performance tuning. From connection management, to batch updates, fetch sizes and concurrency control mechanisms, it unravels the inner workings of the most common Java data access frameworks. The first part aims to reduce the gap between application developers and database administrators. For this reason, it covers both JDBC and the database fundamentals that are of paramount importance when reducing transaction response times. In this first part, you'll learn about connection management, batch updates, statement caching, result set fetching and database transactions. The second part demonstrates how you can take advantage of JPA and Hibernate without compromising application performance. In this second part, you'll learn about the most efficient Hibernate mappings (basic types, associations, inheritance), fetching best practices, caching and concurrency control mechanisms. The third part is dedicated to jOOQ and its powerful type-safe querying capabilities, like window functions, common table expressions, upsert, stored procedures and database functions.

This handbook is for anyone responsible for a Web site, from the person running a personal

site off a Linux PC at home up to large corporate site managers who wants to improve their performance right now.

Best practices to adapt and bottlenecks to avoid About This Book Tackle all kinds of performance-related issues and streamline your development Master the new features and new APIs of Java 9 to implement highly efficient and reliable codes Gain an in-depth knowledge of Java application performance and obtain best results from performance testing Who This Book Is For This book is for Java developers who would like to build reliable and high-performance applications. Prior Java programming knowledge is assumed. What You Will Learn Work with JIT compilers Understand the usage of profiling tools Generate JSON with code examples Leverage the command-line tools to speed up application development Build microservices in Java 9 Explore the use of APIs to improve application code Speed up your application with reactive programming and concurrency In Detail Finally, a book that focuses on the practicalities rather than theory of Java application performance tuning. This book will be your one-stop guide to optimize the performance of your Java applications. We will begin by understanding the new features and APIs of Java 9. You will then be taught the practicalities of Java application performance tuning, how to make the best use of garbage collector, and find out how to optimize code with microbenchmarking. Moving ahead, you will be introduced to multithreading and learning about concurrent programming with Java 9 to build highly concurrent and efficient applications. You will learn how to fine tune your Java code for best results. You will discover techniques on how to benchmark performance and reduce various bottlenecks in your applications. We'll also cover best practices of Java programming that will help you improve the quality of your codebase. By the end of the book, you will be armed with the knowledge to build and deploy efficient, scalable, and concurrent applications in Java. Style and approach This step-by-step guide provides real-world examples to give you a hands-on experience.

Explains how to use Java's portable platforms to program and use threads effectively and efficiently while avoiding common mistakes

Every enterprise application creates data, whether it's log messages, metrics, user activity, outgoing messages, or something else. And how to move all of this data becomes nearly as important as the data itself. If you're an application architect, developer, or production engineer new to Apache Kafka, this practical guide shows you how to use this open source streaming platform to handle real-time data feeds. Engineers from Confluent and LinkedIn who are responsible for developing Kafka explain how to deploy production Kafka clusters, write reliable event-driven microservices, and build scalable stream-processing applications with this platform. Through detailed examples, you'll learn Kafka's design principles, reliability guarantees, key APIs, and architecture details, including the replication protocol, the controller, and the storage layer. Understand publish-subscribe messaging and how it fits in the big data ecosystem. Explore Kafka producers and consumers for writing and reading messages Understand Kafka patterns and use-case requirements to ensure reliable data delivery Get best practices for building data pipelines and applications with Kafka Manage Kafka in production, and learn to perform monitoring, tuning, and maintenance tasks Learn the most critical metrics among Kafka's operational measurements Explore how Kafka's stream delivery capabilities make it a perfect source for stream processing systems

An overview of the programming language's fundamentals covers syntax, initialization, implementation, classes, error handling, objects, applets, multiple threads, projects, and network programming.

First book to address and assess performance of enterprise Java-based applications using the new Java EE 5 Presents Java EE 5 Performance Management as a proven methodology, featuring a set of common problems that have been observed in real-world customer environments Presents "wait-based" performance tuning methodology, the most efficient Java

EE 5 tuning methodology, but one previously neglected in the Java EE 5 space

Helps readers eliminate performance problems, covering topics including bottlenecks, profiling tools, strings, algorithms, distributed systems, and servlets.

This book is an indispensable reference for developers and administrators who want to maximize the performance of their Sun systems. Revised and updated to cover the latest SPARC and software release (including Solaris 2.6). This book presents a collaboration of configuration and performance information not available anywhere else.

- Make your SAP system run quickly and efficiently
- Master core concepts like sizing, memory management, and database monitoring
- Explore new topics such as SAP HANA, SAP Sybase ASE, and innovations in SAP NetWeaver AS Java
- 7th Edition Updated for SAP NetWeaver 7.3

In today's high-stakes business environment, system performance is the king of the jungle. From system and load distribution, to memory management, to buffering and locks, you know there's a lot of ground to cover—and many pitfalls to avoid. Up to date for SAP NetWeaver 7.3, this authoritative guide to analysis and tuning offers the practical tips and real-world examples to reach your tuning potential day in and day out. Anticipate, identify, analyze, and solve performance problems to keep your SAP system on top.

SAP BasisGet complete coverage of the SAP Basis hardware, database, memory configuration, and work processes to maximize system analysis and tuning.

Analysis ToolsExplore the analysis and tuning tools integrated with SAP NetWeaver 7.3 and get previews of version 7.4. Everything JavaLearn to evaluate CPU performance and available memory, use the SAP Management Console, and clear memory with garbage collection in the SAP Java Virtual Machine.

Databases and SQL ProcessingFrom SAP MaxDB to DB2 to SAP Sybase ASE, find the most important information about database monitoring and optimizing SQL statements.

Performance Optimization with SAP HANAMake your SAP system faster, sleeker, and stronger with new SAP HANA technologies like in-memory and column-based data storage.

Highlights

- SAP NetWeaver AS ABAP and Java
- Performance problem troubleshooting
- Workload analysis
- Remote function calls
- Memory configuration
- SQL statements, locks, and buffering
- System architecture
- SAP NetWeaver BW and queries
- SAP Java Virtual Machine
- Hardware sizing and system distribution
- Main memory data with TRENDS
- SAP HANA
- SAP Sybase ASE

Performance tuning is an experimental science, but that doesn't mean engineers should resort to guesswork and folklore to get the job done. Yet that's often the case. With this practical book, intermediate to advanced Java technologists working with complex technology stacks will learn how to tune Java applications for performance using a quantitative, verifiable approach. Most resources on performance tend to discuss the theory and internals of Java virtual machines, but this book focuses on the practicalities of performance tuning by examining a wide range of aspects. There are no simple recipes, tips and tricks, or algorithms to learn. Performance tuning is a process of defining and determining desired outcomes. And it requires diligence. Learn how Java principles and technology make the best use of modern hardware and operating systems

Explore several performance tests and common anti-patterns that can vex your team

Understand the pitfalls of measuring Java performance numbers and the drawbacks of microbenchmarking

Dive into JVM garbage collection logging, monitoring, tuning, and tools

Explore JIT compilation and Java language performance techniques

Learn performance aspects of the Java Collections API and get an overview of Java concurrency

Get more control of your applications performances in development and production and know how to meet your Service Level Agreement on critical microservices.

Key Features

Learn how to write a JavaEE application with performance constraints (Service Level Agreement—SLA) leveraging the platform

Learn how to identify bottlenecks and hotspots in your application to fix them

Ensure that you are able to continuously control your performance in production and during development

Book Description

The ease with which we write applications has been increasing, but with this comes the need to address their performance. A balancing act

between easily implementing complex applications and keeping their performance optimal is a present-day need. In this book, we explore how to achieve this crucial balance while developing and deploying applications with Java EE 8. The book starts by analyzing various Java EE specifications to identify those potentially affecting performance adversely. Then, we move on to monitoring techniques that enable us to identify performance bottlenecks and optimize performance metrics. Next, we look at techniques that help us achieve high performance: memory optimization, concurrency, multi-threading, scaling, and caching. We also look at fault tolerance solutions and the importance of logging. Lastly, you will learn to benchmark your application and also implement solutions for continuous performance evaluation. By the end of the book, you will have gained insights into various techniques and solutions that will help create high-performance applications in the Java EE 8 environment.

What you will learn

- Identify performance bottlenecks in an application
- Locate application hotspots using performance tools
- Understand the work done under the hood by EE containers and its impact on performance
- Identify common patterns to integrate with Java EE applications
- Implement transparent caching on your applications
- Extract more information from your applications using Java EE without modifying existing code
- Ensure constant performance and eliminate regression

Who this book is for

If you're a Java developer looking to improve the performance of your code or simply wanting to take your skills up to the next level, then this book is perfect for you.

The MATLAB® programming environment is often perceived as a platform suitable for prototyping and modeling but not for "serious" applications. One of the main complaints is that MATLAB is just too slow. *Accelerating MATLAB Performance* aims to correct this perception by describing multiple ways to greatly improve MATLAB program speed. Packed with thousands of helpful tips, it leaves no stone unturned, discussing every aspect of MATLAB. Ideal for novices and professionals alike, the book describes MATLAB performance in a scale and depth never before published. It takes a comprehensive approach to MATLAB performance, illustrating numerous ways to attain the desired speedup. The book covers MATLAB, CPU, and memory profiling and discusses various tradeoffs in performance tuning. It describes both the application of standard industry techniques in MATLAB, as well as methods that are specific to MATLAB such as using different data types or built-in functions. The book covers MATLAB vectorization, parallelization (implicit and explicit), optimization, memory management, chunking, and caching. It explains MATLAB's memory model and details how it can be leveraged. It describes the use of GPU, MEX, FPGA, and other forms of compiled code, as well as techniques for speeding up deployed applications. It details specific tips for MATLAB GUI, graphics, and I/O. It also reviews a wide variety of utilities, libraries, and toolboxes that can help to improve performance. Sufficient information is provided to allow readers to immediately apply the suggestions to their own MATLAB programs. Extensive references are also included to allow those who wish to expand the treatment of a particular topic to do so easily. Supported by an active website, and numerous code examples, the book will help readers rapidly attain significant reductions in development costs and program run times.

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