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*Distributed
Programming With Java*

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Distributed Programming with Ruby John Wiley & Sons
 Explore the power of distributed computing to write concurrent, scalable applications in Java About This Book Make the best of Java 9 features to write succinct code Handle large amounts of data using HPC Make use of AWS and Google App Engine along with Java to establish a powerful remote computation system Who This Book Is For This book is for basic to intermediate level Java developers who is aware of object-oriented programming and Java basic concepts. What You Will Learn Understand the basic concepts of parallel and distributed computing/programming Achieve

performance improvement using parallel processing, multithreading, concurrency, memory sharing, and hpc cluster computing Get an in-depth understanding of Enterprise Messaging concepts with Java Messaging Service and Web Services in the context of Enterprise Integration Patterns Work with Distributed Database technologies Understand how to develop and deploy a distributed application on different cloud platforms including Amazon Web Service and Docker CaaS Concepts Explore big data technologies Effectively test and debug distributed systems Gain thorough knowledge of security standards for distributed applications including two-way Secure Socket Layer In Detail Distributed computing is the concept with which a bigger computation process is accomplished by splitting it into multiple smaller logical activities and performed by

diverse systems, resulting in maximized performance in lower infrastructure investment. This book will teach you how to improve the performance of traditional applications through the usage of parallelism and optimized resource utilization in Java 9. After a brief introduction to the fundamentals of distributed and parallel computing, the book moves on to explain different ways of communicating with remote systems/objects in a distributed architecture. You will learn about asynchronous messaging with enterprise integration and related patterns, and how to handle large amount of data using HPC and implement distributed computing for databases. Moving on, it explains how to deploy distributed applications on different cloud platforms and self-contained application development. You will also

learn about big data technologies and understand how they contribute to distributed computing. The book concludes with the detailed coverage of testing, debugging, troubleshooting, and security aspects of distributed applications so the programs you build are robust, efficient, and secure. Style and approach This is a step-by-step practical guide with real-world examples.

Advances in Distributed Systems Springer Science & Business Media

Concurrent and Distributed Computing in Java addresses fundamental concepts in concurrent computing with Java examples. The book consists of two parts. The first part deals with techniques for programming in shared-memory based systems. The book covers concepts in Java such as threads, synchronized methods, waits, and notify to expose students to basic concepts for multi-threaded programming. It also includes algorithms for mutual exclusion, consensus, atomic objects, and wait-free data structures. The second part of the book deals with programming in a message-passing system. This part covers resource allocation problems, logical clocks, global property detection, leader election, message ordering, agreement algorithms, checkpointing, and message logging. Primarily a textbook for upper-level undergraduates and graduate students, this thorough treatment will also be of interest to professional programmers.

Distributed Programming John Wiley & Sons

This book provides graduate students and practitioners with knowledge of the CORBA standard and practical experience of implementing distributed systems with CORBA's Java mapping. With tested code examples that will run immediately!

Java Distributed Computing Springer Harness the hidden power of Java to build network-enabled applications with lower network traffic and faster processes About This Book Learn to deliver superior server-to-server communication through the networking channels Gain expertise of the networking features of your own applications to support various network architectures such as client/server and peer-to-peer Explore the issues that impact scalability, affect security, and allow applications to work in a heterogeneous environment Who This Book Is For Learning Network Programming with Java is oriented to developers who wish to use network technologies to enhance the utility of their applications. You should have a working knowledge of Java and an interest in learning the latest in network

programming techniques using Java. No prior experience with network development or special software beyond the Java SDK is needed. Upon completion of the book, beginner and experienced developers will be able to use Java to access resources across a network and the Internet. What You Will Learn Connect to other applications using sockets Use channels and buffers to enhance communication between applications Access network services and develop client/server applications Explore the critical elements of peer-to-peer applications and current technologies available Use UDP to perform multicasting Address scalability through the use of core and advanced threading techniques Incorporate techniques into an application to make it more secure Configure and address interoperability issues to enable your applications to work in a heterogeneous environment In Detail Network-aware applications are becoming more prevalent and play an ever-increasing role in the world today. Connecting and using an Internet-based service is a frequent requirement for many applications. Java provides numerous classes that have evolved over the years to meet evolving network needs. These range from low-level socket and IP-based approaches to those encapsulated in software services. This book explores how Java supports networks, starting with the basics and then advancing to more complex topics. An overview of each relevant network technology is presented followed by detailed examples of how to use Java to support these technologies. We start with the basics of networking and then explore how Java supports the development of client/server and peer-to-peer applications. The NIO packages are examined as well as multitasking and how network applications can address practical issues such as security. A discussion on networking concepts will put many network issues into perspective and let you focus on the appropriate technology for the problem at hand. The examples used will provide a good starting point to develop similar capabilities for many of your network needs. Style and approach Each network technology's terms and concepts are introduced first. This is followed up with code examples to explain these technologies. Many of the examples are supplemented with alternate Java 8 solutions when appropriate. Knowledge of Java 8 is not necessary but these examples will help you better understand the power of Java 8.

Distributed Programming with Java Packt Publishing Ltd

Foundations of Multithreaded, Parallel, and Distributed Programming covers, and then applies, the core concepts and techniques needed for an introductory course in this subject. Its emphasis is on the practice and application of parallel systems, using real-world examples throughout. Greg Andrews teaches the fundamental concepts of multithreaded, parallel and distributed computing and relates them to the implementation and performance processes. He presents the appropriate breadth of topics and supports these discussions with an emphasis on performance. Features Emphasizes how to solve problems, with correctness the primary concern and performance an important, but secondary, concern Includes a number of case studies which cover such topics as pthreads, MPI, and OpenMP libraries, as well as programming languages like Java, Ada, high performance Fortran, Linda, Occam, and SR Provides examples using Java syntax and discusses how Java deals with monitors, sockets, and remote method invocation Covers current programming techniques such as semaphores, locks, barriers, monitors, message passing, and remote invocation Concrete examples are executed with complete programs, both shared and distributed Sample applications include scientific computing and distributed systems 0201357526B04062001

Introduction to Reliable and Secure Distributed Programming "O'Reilly Media, Inc."

Principles of Concurrent and Distributed Programming provides an introduction to concurrent programming focusing on general principles and not on specific systems. Software today is inherently concurrent or distributed - from event-based GUI designs to operating and real-time systems to Internet applications. This edition is an introduction to concurrency and examines the growing importance of concurrency constructs embedded in programming languages and of formal methods such as model checking.

Introduction to Reliable Distributed Programming Addison-Wesley Professional

If you're a distributed Java or Enterprise JavaBeans programmer, then you've undoubtedly heard of Java's Remote Method Invocation (RMI). Java programmers use RMI to write efficient, fault-tolerant distributed applications with very little time or effort. Whether you're networking across a LAN or across the Internet, RMI provides Java programmers with a lightweight solution to a heavyweight problem. Java RMI contains a wealth of experience in designing and

implementing applications that use Remote Method Invocation. Novice readers will quickly be brought up to speed on why RMI is such a powerful yet easy-to-use tool for distributed programming, while experts can gain valuable experience for constructing their own enterprise and distributed systems. The book also provides strategies for working with: Serialization, Threading, The RMI registry, Sockets and socket factories, Activation, Dynamic class downloading, HTTP tunnelling, Distributed garbage collection, JNDI, CORBA. In short, a treasure trove of valuable RMI knowledge packed into one book!

Parallel and Distributed Programming Using C++ "O'Reilly Media, Inc."

Large and complex software systems, such as Internet applications, depend on distributed applications. Although Java has helped reduce the complexity of distributed systems, developers still have to contend with diverse hardware platforms, remote communication over networks, and system failures. Java in Distributed Systems provides a comprehensive guide for anyone wishing to deepen their knowledge of Java in distributed applications. Beginning with a tutorial guide to distributed programming in the Java environment, it shows you how building blocks from threads to Jini can help you to fulfil Sun's vision, that 'the Network is the Computer'. It then goes on to focus on aspects that are still challenging researchers such as concurrency, distribution, and persistence. Key Features: - One of the few books to focus specifically on Java for building distributed applications - Coverage includes threads & sockets, RMI, CORBA, Voyager, Mobile agents, JDBC, object-oriented databases, Java spaces and Jini - Includes advanced chapters on the cutting edge of Java language development, including the author's own proposed Dejay (Distributed Java), an open-source project that offers a unified approach to concurrency, distribution and persistence

Secure Internet Programming Sams Publishing

Content Description #Includes bibliographical references and index.

Reactive Systems in Java CRC Press Research on real-time Java technology has been prolific over the past decade, leading to a large number of corresponding hardware and software solutions, and frameworks for distributed and embedded real-time Java systems. This book is aimed primarily at researchers in real-time embedded systems, particularly those who wish to understand the current state of the art in using Java in this domain. Much of

the work in real-time distributed, embedded and real-time Java has focused on the Real-time Specification for Java (RTSJ) as the underlying base technology, and consequently many of the Chapters in this book address issues with, or solve problems using, this framework. Describes innovative techniques in: scheduling, memory management, quality of service and communication systems supporting real-time Java applications; Includes coverage of multiprocessor embedded systems and parallel programming; Discusses state-of-the-art resource management for embedded systems, including Java's real-time garbage collection and parallel collectors; Considers hardware support for the execution of Java programs including how programs can interact with functional accelerators; Includes coverage of Safety Critical Java for development of safety critical embedded systems.

ECOOP 2008 - Object-Oriented Programming Pearson

The leading guide for Java developers who build business applications with CORBA Acknowledged experts present advanced techniques and real-world examples for building both simple and complex programs using Java with CORBA. The authors begin with a quick overview of CORBA, Java, object request brokers (ORBs), and EJB components, then quickly move on to show how to use them to build complete Java applications. This new volume features in-depth code examples, as well as expanded coverage of cutting-edge topics, including Portable Object Adaptor (POA), Remote Method Invocation (RMI) over IIOP, and EJB.

Concurrent Programming in Java John Wiley & Sons

In modern computing a program is usually distributed among several processes. The fundamental challenge when developing reliable distributed programs is to support the cooperation of processes required to execute a common task, even when some of these processes fail. Guerraoui and Rodrigues present an introductory description of fundamental reliable distributed programming abstractions as well as algorithms to implement these abstractions. The authors follow an incremental approach by first introducing basic abstractions in simple distributed environments, before moving to more sophisticated abstractions and more challenging environments. Each core chapter is devoted to one specific class of abstractions, covering reliable delivery, shared memory, consensus and various forms of agreement. This textbook comes with a companion set of running examples

implemented in Java. These can be used by students to get a better understanding of how reliable distributed programming abstractions can be implemented and used in practice. Combined, the chapters deliver a full course on reliable distributed programming. The book can also be used as a complete reference on the basic elements required to build reliable distributed applications.

Foundations of Multithreaded, Parallel, and Distributed Programming Springer Science & Business Media

In 1992 we initiated a research project on large scale distributed computing systems (LSDCS). It was a collaborative project involving research institutes and universities in Bologna, Grenoble, Lausanne, Lisbon, Rennes, Rocquencourt, Newcastle, and Twente. The World Wide Web had recently been developed at CERN, but its use was not yet as common place as it is today and graphical browsers had yet to be developed. It was clear to us (and to just about everyone else) that LSDCS comprising several thousands to millions of individual computer systems (nodes) would be coming into existence as a consequence both of technological advances and the demands placed by applications. We were excited about the problems of building large distributed systems, and felt that serious rethinking of many of the existing computational paradigms, algorithms, and structuring principles for distributed computing was called for. In our research proposal, we summarized the problem domain as follows: "We expect LSDCS to exhibit great diversity of node and communications capability. Nodes will range from (mobile) laptop computers, workstations to supercomputers. Whereas mobile computers may well have unreliable, low bandwidth communications to the rest of the system, other parts of the system may well possess high bandwidth communications capability. To appreciate the problems posed by the sheer scale of a system comprising thousands of nodes, we observe that such systems will be rarely functioning in their entirety. Fundamentals of Distributed Object Systems Oxford University Press, USA Large-scale open distributed systems provide an infrastructure for assembling global applications on the basis of software and hardware components originating from multiple sources. Open systems rely on publicly available standards to permit heterogeneous components to interact. The Internet is the archetype of a large-scale open distributed system; standards such as HTTP, HTML,

and XML, together with the widespread adoption of the Java language, are the cornerstones of many distributed systems. This book surveys security in large-scale open distributed systems by presenting several classic papers and a variety of carefully reviewed contributions giving the results of new research and development. Part I provides background requirements and deals with fundamental issues in trust, programming, and mobile computations in large-scale open distributed systems. Part II contains descriptions of general concepts, and Part III presents papers detailing implementations of security concepts.

Distributed Services with Go Springer Science & Business Media

This book provides an introduction to concurrent, real-time, distributed programming with Java object-oriented language support as an algorithm description tool. It describes in particular the mechanisms of synchronization (cooperative and competitive) and sharing of data (internal class, static variables) between threads in Java. He then discusses the use of Java for real-time applications. Consequently, a presentation of the RTSJ (Real Time Specification for Java) specification dedicated to the development of real-time applications in Java is also introduced in this book. Finally, a presentation of programming distributed in Java is presented in this book. We are particularly interested in communication using the TCP Sockets and high-level communication using Java Remote Method Invocation (RMI). The book also contains an annex which contains a practical set of application exercises in relation to the theme of the book. Knowledge of the Java language is a prerequisite for understanding the book.

Java in Distributed Systems Prentice Hall PTR

It is a pleasure to present the proceedings of the 22nd European Conference on Object-Oriented Programming (ECOOP 2008) held in Paphos, Cyprus. The conference continues to serve a broad object-oriented community with a technical program spanning theory and practice and a healthy mix of industrial and academic participants. This year a strong workshop and tutorial program complemented the main technical track. We had 13 workshops and 8 tutorials, as well as the co-located Dynamic Language Symposium (DLS). Finally, the program was rounded out with a keynote by Rachid Guerraoui and a banquet speech by James Noble. As in previous years, two Dahl-Nygaard awards were selected by AITO, and for the

first time, the ECOOP Program Committee gave a best paper award. The proceedings include 27 papers selected from 138 submissions. The papers were reviewed in a single-blind process with three to five reviews per paper. Preliminary versions of the reviews were made available to the authors a week before the PC meeting to allow for short (500 words or less) author responses. The responses were discussed at the PC meeting and were instrumental in reaching decisions. The discussions followed Oscar Nierstrasz' Champion pattern. PC papers had five reviews and were held at a higher standard.

Distributed Computing Packt Publishing Ltd

Distributed Object Computing teaches readers the fundamentals of CORBA, the leading architecture for design of software used in parallel and distributed computing applications. Since CORBA is based on open standards, it is the only effective way to learn object-oriented programming for distributed systems. This language independent book allows material to be taught using Java, C++ or other Object Oriented Programming Languages. *Distributed Java 2 Platform* "O'Reilly Media, Inc."

Reactive systems and event-driven architecture are becoming indispensable to application design, and companies are taking note. Reactive systems ensure that applications are responsive, resilient, and elastic no matter what failures or errors may be occurring, while event-driven architecture offers a flexible and composable option for distributed systems. This practical book helps Java developers bring these approaches together using Quarkus 2.x, the Kubernetes-native Java framework. Clement Escoffier and Ken Finnigan show you how to take advantage of event-driven and reactive principles to build robust distributed systems, reducing latency and increasing throughput, particularly in microservices and serverless applications. You'll also get a foundation in Quarkus to help you create true Kubernetes-native applications for the cloud. Understand the fundamentals of reactive systems and event-driven architecture Learn how to use Quarkus to build reactive applications Combine Quarkus with Apache Kafka or AMQP to build reactive systems Develop microservices that utilize messages with Quarkus for use in event-driven architectures Learn how to integrate external messaging systems, such as Apache Kafka, with Quarkus Build

applications with Quarkus using reactive systems and reactive programming concepts

Worldwide Computing and Its Applications Manning Publications

An introduction to fundamental theories of concurrent computation and associated programming languages for developing distributed and mobile computing systems. Starting from the premise that understanding the foundations of concurrent programming is key to developing distributed computing systems, this book first presents the fundamental theories of concurrent computing and then introduces the programming languages that help develop distributed computing systems at a high level of abstraction. The major theories of concurrent computation—including the π -calculus, the actor model, the join calculus, and mobile ambients—are explained with a focus on how they help design and reason about distributed and mobile computing systems. The book then presents programming languages that follow the theoretical models already described, including Pict, SALSA, and JoCaml. The parallel structure of the chapters in both part one (theory) and part two (practice) enable the reader not only to compare the different theories but also to see clearly how a programming language supports a theoretical model. The book is unique in bridging the gap between the theory and the practice of programming distributed computing systems. It can be used as a textbook for graduate and advanced undergraduate students in computer science or as a reference for researchers in the area of programming technology for distributed computing. By presenting theory first, the book allows readers to focus on the essential components of concurrency, distribution, and mobility without getting bogged down in syntactic details of specific programming languages. Once the theory is understood, the practical part of implementing a system in an actual programming language becomes much easier.

Practical Distributed Processing

Addison-Wesley Professional

For programmers already familiar with Java, this book offers new techniques on how to develop distributed applications. Although it discusses four paradigms—low-level Sockets, Remote Method Invocation, CORBA, and Mobile Agents—this book does not favor any one of these technologies. It also allows the reader to judge the easiest approach for a particular domain of applications.