

Solution Manual For Fault Tolerant Systems

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Building Software - Nikhilesh Krishnamurthy
2007-09-07

Novel in its approach to software design, development, and management, Building Software: A Practitioner's Guide shows you how to successfully build and manage a system. The approach the authors recommend is a simple, effective framework known as Solution Engineering Execution (SEE). Through SEE, you

create a successful solution by following a high **Designing Data-Intensive Applications** -
Martin Kleppmann 2017-03-16

Data is at the center of many challenges in system design today. Difficult issues need to be figured out, such as scalability, consistency, reliability, efficiency, and maintainability. In addition, we have an overwhelming variety of tools, including relational databases, NoSQL

datastores, stream or batch processors, and message brokers. What are the right choices for your application? How do you make sense of all these buzzwords? In this practical and comprehensive guide, author Martin Kleppmann helps you navigate this diverse landscape by examining the pros and cons of various technologies for processing and storing data. Software keeps changing, but the fundamental principles remain the same. With this book, software engineers and architects will learn how to apply those ideas in practice, and how to make full use of data in modern applications. Peer under the hood of the systems you already use, and learn how to use and operate them more effectively Make informed decisions by identifying the strengths and weaknesses of different tools Navigate the trade-offs around consistency, scalability, fault tolerance, and complexity Understand the distributed systems research upon which modern databases are built Peek behind the scenes of major online services,

and learn from their architectures

Applications of the Hybrid Automated Reliability Predictor - 1988

Cyber Security and IT Infrastructure Protection - John R. Vacca 2013-08-22

This book serves as a security practitioner's guide to today's most crucial issues in cyber security and IT infrastructure. It offers in-depth coverage of theory, technology, and practice as they relate to established technologies as well as recent advancements. It explores practical solutions to a wide range of cyber-physical and IT infrastructure protection issues. Composed of 11 chapters contributed by leading experts in their fields, this highly useful book covers disaster recovery, biometrics, homeland security, cyber warfare, cyber security, national infrastructure security, access controls, vulnerability assessments and audits, cryptography, and operational and organizational security, as well as an extensive

glossary of security terms and acronyms. Written with instructors and students in mind, this book includes methods of analysis and problem-solving techniques through hands-on exercises and worked examples as well as questions and answers and the ability to implement practical solutions through real-life case studies. For example, the new format includes the following pedagogical elements: • Checklists throughout each chapter to gauge understanding • Chapter Review Questions/Exercises and Case Studies • Ancillaries: Solutions Manual; slide package; figure files This format will be attractive to universities and career schools as well as federal and state agencies, corporate security training programs, ASIS certification, etc. Chapters by leaders in the field on theory and practice of cyber security and IT infrastructure protection, allowing the reader to develop a new level of technical expertise Comprehensive and up-to-date coverage of cyber security issues allows the

reader to remain current and fully informed from multiple viewpoints Presents methods of analysis and problem-solving techniques, enhancing the reader's grasp of the material and ability to implement practical solutions

Software Engineering of Fault Tolerant Systems - P. Pelliccione 2007

In architecting dependable systems, what is required to improve the overall system robustness is fault tolerance. Many methods have been proposed to this end, the solutions are usually considered late during the design and implementation phases of the software life-cycle (e.g., Java and Windows NT exception handling), thus reducing the effectiveness error and fault handling. Since the system design typically models only normal behaviour of the system while ignoring exceptional ones, the implementation of the system is unable to handle abnormal events. Consequently, the system may fail in unexpected ways due to faults. It has been argued that fault tolerance management during

the entire life-cycle improves the overall system robustness and that different classes of threats need to be identified for and dealt with at each distinct phase of software development, depending on the abstraction level of the software system being modelled. This book builds on this trend and investigates how fault tolerance mechanisms can be applied when engineering a software system. In particular, it identifies the new problems arising in this area, introduces the new models to be applied at different abstraction levels, defines methodologies for model-driven engineering of such systems and outlines the new technologies and validation and verification environments supporting this.

Diagnosis and Fault-Tolerant Control - Mogens Blanke 2015-08-11

Fault-tolerant control aims at a gradual shutdown response in automated systems when faults occur. It satisfies the industrial demand for enhanced availability and safety, in contrast

to traditional reactions to faults, which bring about sudden shutdowns and loss of availability. The book presents effective model-based analysis and design methods for fault diagnosis and fault-tolerant control. Architectural and structural models are used to analyse the propagation of the fault through the process, to test the fault detectability and to find the redundancies in the process that can be used to ensure fault tolerance. It also introduces design methods suitable for diagnostic systems and fault-tolerant controllers for continuous processes that are described by analytical models of discrete-event systems represented by automata. The book is suitable for engineering students, engineers in industry and researchers who wish to get an overview of the variety of approaches to process diagnosis and fault-tolerant control. The authors have extensive teaching experience with graduate and PhD students, as well as with industrial experts. Parts of this book have been used in courses for this

audience. The authors give a comprehensive introduction to the main ideas of diagnosis and fault-tolerant control and present some of their most recent research achievements obtained together with their research groups in a close cooperation with European research projects. The third edition resulted from a major restructuring and re-writing of the former edition, which has been used for a decade by numerous research groups. New material includes distributed diagnosis of continuous and discrete-event systems, methods for reconfigurability analysis, and extensions of the structural methods towards fault-tolerant control. The bibliographical notes at the end of all chapters have been up-dated. The chapters end with exercises to be used in lectures.

Fault-Tolerant Systems - Israel Koren
2020-09-01

Fault-Tolerant Systems, Second Edition, is the first book on fault tolerance design utilizing a systems approach to both hardware and

software. No other text takes this approach or offers the comprehensive and up-to-date treatment that Koren and Krishna provide. The book comprehensively covers the design of fault-tolerant hardware and software, use of fault-tolerance techniques to improve manufacturing yields, and design and analysis of networks. Incorporating case studies that highlight more than ten different computer systems with fault-tolerance techniques implemented in their design, the book includes critical material on methods to protect against threats to encryption subsystems used for security purposes. The text's updated content will help students and practitioners in electrical and computer engineering and computer science learn how to design reliable computing systems, and how to analyze fault-tolerant computing systems. Delivers the first book on fault tolerance design with a systems approach Offers comprehensive coverage of both hardware and software fault tolerance, as well as information and time

redundancy Features fully updated content plus new chapters on failure mechanisms and fault-tolerance in cyber-physical systems Provides a complete ancillary package, including an on-line solutions manual for instructors and PowerPoint slides

NASA Information Sciences and Human Factors Program Annual Report, 1988 - United States. National Aeronautics and Space Administration. Information Sciences and Human Factors Division 1989

Fault-Tolerant Systems - Israel Koren
2010-07-19

Fault-Tolerant Systems is the first book on fault tolerance design with a systems approach to both hardware and software. No other text on the market takes this approach, nor offers the comprehensive and up-to-date treatment that Koren and Krishna provide. This book incorporates case studies that highlight six different computer systems with fault-tolerance

techniques implemented in their design. A complete ancillary package is available to lecturers, including online solutions manual for instructors and PowerPoint slides. Students, designers, and architects of high performance processors will value this comprehensive overview of the field. The first book on fault tolerance design with a systems approach Comprehensive coverage of both hardware and software fault tolerance, as well as information and time redundancy Incorporated case studies highlight six different computer systems with fault-tolerance techniques implemented in their design Available to lecturers is a complete ancillary package including online solutions manual for instructors and PowerPoint slides [Advanced Solutions in Diagnostics and Fault Tolerant Control](#) - Jan M. Kościelny 2017-07-28 This book highlights the latest achievements concerning the theory, methods and practice of fault diagnostics, fault tolerant systems and cyber safety. When considering the diagnostics

of industrial processes and systems, increasingly important safety issues cannot be ignored. In this context, diagnostics plays a crucial role as a primary measure of the improvement of the overall system safety integrity level. Obtaining the desired diagnostic coverage or providing an appropriate level of inviolability of the integrity of a system is now practically inconceivable without the use of fault detection and isolation methods. Given the breadth and depth of its coverage, the book will be of interest to researchers faced with the challenge of designing technical and medical diagnosis systems, as well as junior researchers and students in the fields of automatic control, robotics, computer science and artificial intelligence.

Journal of Design Automation & Fault-tolerant Computing - 1976

NASA Technical Paper - 1988

Introduction to Distributed Algorithms - Gerard Tel 2000-09-28

Introduction : distributed systems - The model - Communication protocols - Routing algorithms - Deadlock-free packet switching - Wave and traversal algorithms - Election algorithms - Termination detection - Anonymous networks - Snapshots - Sense of direction and orientation - Synchrony in networks - Fault tolerance in distributed systems - Fault tolerance in asynchronous systems - Fault tolerance in synchronous systems - Failure detection - Stabilization.

Sharing CIM Solutions - J. K. H. Knudsen 1994

This work is the result of the proceedings of the 10th Annual Conference '94: ESPRIT CIM-Europe. It reports on the results in development and implementation of CIM technologies. The key technologies which are being developed, and the results emerging from the collaborative projects, have contributed to the establishment of an integrative approach to manufacturing

problems which embraces engineering, logistics, process automation, business functions, organizational and environmental concerns.

Electronic Systems Effectiveness and Life Cycle Costing - J. K. Skwirzynski 2012-12-06

This volume contains the complete proceedings of a NATO Advanced Study Institute on various aspects of the reliability of electronic and other systems. The aim of the Institute was to bring together specialists in this subject. An important outcome of this Conference, as many of the delegates have pointed out to me, was complementing theoretical concepts and practical applications in both software and hardware. The reader will find papers on the mathematical background, on reliability problems in establishments where system failure may be hazardous, on reliability assessment in mechanical systems, and also on life cycle cost models and spares allocation. The proceedings contain the texts of all the lectures delivered and also verbatim accounts of panel discussions on

subjects chosen from a wide range of important issues. In this introduction I will give a short account of each contribution, stressing what I feel are the most interesting topics introduced by a lecturer or a panel member. To visualise better the extent and structure of the Institute, I present a tree-like diagram showing the subjects which my co-directors and I would have wished to include in our deliberations (Figures 1 and 2). The names of our lecturers appear underlined under suitable headings. It can be seen that we have managed to cover most of the issues which seemed important to us.

VI SYSTEM EFFECTIVENESS - Performance
Safety Reliability Maintenance Lethality
Hazards Support S.N.R. JARDINE Max. Vel. etc.

Diagnosis and Fault-Tolerant Control - Mogens Blanke 2013-03-14

This book presents model-based analysis and design methods for fault diagnosis and fault-tolerant control. Architectural and structural models are used to analyse the propagation of

the fault through the process, test fault detectability and reveal redundancies that can be used to ensure fault tolerance. Case studies demonstrate the methods presented. The second edition includes new material on reconfigurable control, diagnosis of nonlinear systems, and remote diagnosis, plus new examples and updated bibliography.

Large-Scale Distributed Computing and Applications: Models and Trends - Cristea, Valentin 2010-05-31

Many applications follow the distributed computing paradigm, in which parts of the application are executed on different network-interconnected computers. The extension of these applications in terms of number of users or size has led to an unprecedented increase in the scale of the infrastructure that supports them.

Large-Scale Distributed Computing and Applications: Models and Trends offers a coherent and realistic image of today's research results in large scale distributed systems,

explains state-of-the-art technological solutions for the main issues regarding large scale distributed systems, and presents the benefits of using large scale distributed systems and the development process of scientific and commercial distributed applications.

Measurement, Modelling, and Evaluation of Computing Systems and Dependability in Fault Tolerance - Erwin Rathgeb 2010-05-28

This book constitutes the refereed proceedings of the 15th International GI/ITG Conference on "Measurement, Modelling and Evaluation of Computing Systems" and "Dependability and Fault Tolerance", held in Essen, Germany, in March 2010. The 19 revised full papers presented together with 5 tool papers and 2 invited lectures were carefully reviewed and selected from 42 initial submissions. The papers cover all aspects of performance and dependability evaluation of systems including networks, computer architectures, distributed systems, software, fault-tolerant and secure

systems.

The Evolution of Fault-Tolerant Computing -

A. Avizienis 2012-12-06

For the editors of this book, as well as for many other researchers in the area of fault-tolerant computing, Dr. William Caswell Carter is one of the key figures in the formation and development of this important field. We felt that the IFIP Working Group 10.4 at Baden, Austria, in June 1986, which coincided with an important step in Bill's career, was an appropriate occasion to honor Bill's contributions and achievements by organizing a one day "Symposium on the Evolution of Fault-Tolerant Computing" in the honor of William C. Carter. The Symposium, held on June 30, 1986, brought together a group of eminent scientists from all over the world to discuss the evolution, the state of the art, and the future perspectives of the field of fault-tolerant computing. Historic developments in academia and industry were presented by individuals who themselves have actively been

involved in bringing them about. The Symposium proved to be a unique historic event and these Proceedings, which contain the final versions of the papers presented at Baden, are an authentic reference document.

Fault-Tolerant Computing Systems - Mario Dal Cin 2012-12-06

5th International GI/ITG/GMA Conference, Nürnberg, September 25-27, 1991. Proceedings
Fault Tolerant Flight Control - Christopher Edwards 2010-06-29

Written by leading experts in the field, this book provides the state-of-the-art in terms of fault tolerant control applicable to civil aircraft. The book consists of five parts and includes online material.

Probability and Statistics with Reliability, Queuing, and Computer Science Applications - Kishor S. Trivedi 2016-07-11

An accessible introduction to probability, stochastic processes, and statistics for computer science and engineering applications Second

edition now also available in Paperback. This updated and revised edition of the popular classic first edition relates fundamental concepts in probability and statistics to the computer sciences and engineering. The author uses Markov chains and other statistical tools to illustrate processes in reliability of computer systems and networks, fault tolerance, and performance. This edition features an entirely new section on stochastic Petri nets—as well as new sections on system availability modeling, wireless system modeling, numerical solution techniques for Markov chains, and software reliability modeling, among other subjects. Extensive revisions take new developments in solution techniques and applications into account and bring this work totally up to date. It includes more than 200 worked examples and self-study exercises for each section. Probability and Statistics with Reliability, Queuing and Computer Science Applications, Second Edition offers a comprehensive introduction to

probability, stochastic processes, and statistics for students of computer science, electrical and computer engineering, and applied mathematics. Its wealth of practical examples and up-to-date information makes it an excellent resource for practitioners as well. An Instructor's Manual presenting detailed solutions to all the problems in the book is available from the Wiley editorial department.

Handbook of Research on Industrial Informatics and Manufacturing Intelligence: Innovations and Solutions -

Khan, Mohammad Ayoub 2012-03-31

"This book is the best source for the most current, relevant, cutting edge research in the field of industrial informatics focusing on different methodologies of information technologies to enhance industrial fabrication, intelligence, and manufacturing processes"-- Provided by publisher.

Fault-tolerant Systems - Israel Koren 2007

There are many applications in which the

reliability of the overall system must be far higher than the reliability of its individual components. In such cases, designers devise mechanisms and architectures that allow the system to either completely mask the effects of a component failure or recover from it so quickly that the application is not seriously affected. This is the work of fault-tolerant designers and their work is increasingly important and complex not only because of the increasing number of "mission critical" applications, but also because the diminishing reliability of hardware means that even systems for non-critical applications will need to be designed with fault-tolerance in mind. Reflecting the real-world challenges faced by designers of these systems, this book addresses fault tolerance design with a systems approach to both hardware and software. No other text on the market takes this approach, nor offers the comprehensive and up-to-date treatment Koren and Krishna provide. Students, designers and architects of high performance

processors will value this comprehensive overview of the field. * The first book on fault tolerance design with a systems approach * Comprehensive coverage of both hardware and software fault tolerance, as well as information and time redundancy * Incorporated case studies highlight six different computer systems with fault-tolerance techniques implemented in their design * Available to lecturers is a complete ancillary package including online solutions manual for instructors and PowerPoint slides

Scientific and Technical Aerospace Reports - 1994

Instructors Manual with Solutions - George Bodnar 2000-07-17

Reliability of Computer Systems and Networks - Martin L. Shooman 2003-04-08

With computers becoming embedded as controllers in everything from network servers to

the routing of subway schedules to NASA missions, there is a critical need to ensure that systems continue to function even when a component fails. In this book, bestselling author Martin Shooman draws on his expertise in reliability engineering and software engineering to provide a complete and authoritative look at fault tolerant computing. He clearly explains all fundamentals, including how to use redundant elements in system design to ensure the reliability of computer systems and networks. Market: Systems and Networking Engineers, Computer Programmers, IT Professionals. NASA Tech Briefs - 1991

Solutions on Embedded Systems - Massimo Conti 2011-04-11

Embedded systems have an increasing importance in our everyday lives. The growing complexity of embedded systems and the emerging trend to interconnections between them lead to new challenges. Intelligent

solutions are necessary to overcome these challenges and to provide reliable and secure systems to the customer under a strict time and financial budget. Solutions on Embedded Systems documents results of several innovative approaches that provide intelligent solutions in embedded systems. The objective is to present mature approaches, to provide detailed information on the implementation and to discuss the results obtained.

Modeling for Reliability Analysis - Jan Pukite 1998-06-22

"Markov modeling has long been accepted as a fundamental and powerful technique for the fault tolerance analysis of mission-critical applications. However, the elaborate computations required have often made Markov modeling too time-consuming to be of practical use on these complex systems. With this hands-on tool, designers can use the Markov modeling technique to analyze safety, reliability, maintainability, and cost-effectiveness factors in

the full range of complex systems in use today. Featuring ground-breaking simulation software and a comprehensive reference manual, MARKOV MODELING FOR RELIABILITY ANALYSIS helps system designers surmount the mathematical computations that have previously prevented effective reliability analysis. The text and software compose a valuable self-study tool that is complete with detailed explanations, examples, and a library of Markov models that can be used for experiments and as derivations for new simulation models. The book details how these analyses are conducted, while providing hands-on instruction on how to develop reliability models for the full range of system configurations. Computer-Aided Rate Modeling and Simulation (CARMS) software is an integrated modeling tool that includes a diagram-based environment for model setup, a spreadsheet like interface for data entry, an expert system link for automatic model construction, and an interactive graphic

interface for displaying simulation results." *Adaptable Embedded Systems* - Antonio Carlos Schneider Beck 2012-11-27
As embedded systems become more complex, designers face a number of challenges at different levels: they need to boost performance, while keeping energy consumption as low as possible, they need to reuse existent software code, and at the same time they need to take advantage of the extra logic available in the chip, represented by multiple processors working together. This book describes several strategies to achieve such different and interrelated goals, by the use of adaptability. Coverage includes reconfigurable systems, dynamic optimization techniques such as binary translation and trace reuse, new memory architectures including homogeneous and heterogeneous multiprocessor systems, communication issues and NOCs, fault tolerance against fabrication defects and soft errors, and finally, how one can combine several of these

techniques together to achieve higher levels of performance and adaptability. The discussion also includes how to employ specialized software to improve this new adaptive system, and how this new kind of software must be designed and programmed.

Principles of Computer System Design - Jerome H. Saltzer 2009-05-21

Principles of Computer System Design is the first textbook to take a principles-based approach to the computer system design. It identifies, examines, and illustrates fundamental concepts in computer system design that are common across operating systems, networks, database systems, distributed systems, programming languages, software engineering, security, fault tolerance, and architecture. Through carefully analyzed case studies from each of these disciplines, it demonstrates how to apply these concepts to tackle practical system design problems. To support the focus on design, the text identifies and explains abstractions that

have proven successful in practice such as remote procedure call, client/service organization, file systems, data integrity, consistency, and authenticated messages. Most computer systems are built using a handful of such abstractions. The text describes how these abstractions are implemented, demonstrates how they are used in different systems, and prepares the reader to apply them in future designs. The book is recommended for junior and senior undergraduate students in Operating Systems, Distributed Systems, Distributed Operating Systems and/or Computer Systems Design courses; and professional computer systems designers. Features: Concepts of computer system design guided by fundamental principles. Cross-cutting approach that identifies abstractions common to networking, operating systems, transaction systems, distributed systems, architecture, and software engineering. Case studies that make the abstractions real: naming (DNS and the URL); file systems (the

UNIX file system); clients and services (NFS); virtualization (virtual machines); scheduling (disk arms); security (TLS). Numerous pseudocode fragments that provide concrete examples of abstract concepts. Extensive support. The authors and MIT OpenCourseWare provide on-line, free of charge, open educational resources, including additional chapters, course syllabi, board layouts and slides, lecture videos, and an archive of lecture schedules, class assignments, and design projects.

Workshop Proceedings of the 10th International Conference on Intelligent Environments - J.C.

Augusto 2014-07-03

Advances in the engineering of sensing and acting capabilities, distributed in a wide range of specialized devices nowadays, provide an opportunity for the fundamental advances in computer science made in the past few decades to impact our daily lives. Sensors/actuators deployed in a physical space - a house, an office, a classroom, a car, a street - facilitate a link

between an automated decision-making system and a technologically-enriched space. The Intelligent Environment, a digital environment that supports people in their daily lives, is a very active area of research which is attracting an increasing number of professionals (both in academia and industry) worldwide. The prestigious 10th International Conference on Intelligent Environments (IE'14) is focused on the development of advanced Intelligent Environments and stimulates the discussion on several specific topics that are crucial to the future of the area. This volume is the combined proceedings of the workshops co-located with IE'14: 9th Workshop on Artificial Intelligence Techniques for Ambient Intelligence (AITAmI'14); 2nd International Workshop on Applications of Affective Computing in Intelligent Environments (ACIE'14); 3rd edition of the Workshop on Future Intelligent Educational Environments (WOFIEE'14); 2nd Workshop on Cloud-of-Things 2014 (CoT'14); 3rd

International Workshop on the Reliability of Intelligent Environments (WoRIE 2014); 4th Workshop on Creative Science 2014 (CS'14); and 1st Workshop on Hyperrealistic Intelligent Environments 2014 (HyperRealitIE'14). This book offers an overview of the latest developments in key areas of the development of Intelligent Environments.

Data-Centric Business and Applications - Tamara Radivilova 2020-06-20

This book addresses the challenges and opportunities of information/data processing and management. It also covers a range of methods, techniques and strategies for making it more efficient, approaches to increasing its usage, and ways to minimize information/data loss while improving customer satisfaction. Information and Communication Technologies (ICTs) and the Service Systems associated with them have had an enormous impact on businesses and our day-to-day lives over the past three decades, and continue to do so. This development has led to

the emergence of new application areas and relevant disciplines, which in turn present new challenges and opportunities for service system usage. The book provides practical insights into various aspects of ICT technologies for service systems: Techniques for information/data processing and modeling in service systems Strategies for the provision of information/data processing and management Methods for collecting and analyzing information/data Applications, benefits, and challenges of service system implementation Solutions to increase the performance of various service systems using the latest ICT technologies

Fault-Tolerant Design - Elena Dubrova 2013-03-15

This textbook serves as an introduction to fault-tolerance, intended for upper-division undergraduate students, graduate-level students and practicing engineers in need of an overview of the field. Readers will develop skills in modeling and evaluating fault-tolerant

architectures in terms of reliability, availability and safety. They will gain a thorough understanding of fault tolerant computers, including both the theory of how to design and evaluate them and the practical knowledge of achieving fault-tolerance in electronic, communication and software systems. Coverage includes fault-tolerance techniques through hardware, software, information and time redundancy. The content is designed to be highly accessible, including numerous examples and exercises. Solutions and powerpoint slides are available for instructors.

Formal Techniques, Modelling and Analysis of Timed and Fault-Tolerant Systems -

Yassine Lakhnech 2004-09-20

This book constitutes the refereed proceedings of the joint International Conferences Formal Modeling and Analysis of Timed Systems, FORMATS 2004, and Formal Techniques in Real-Time and Fault-Tolerant Systems, FTRTFT 2004, held in Grenoble, France, in September 2004.

The 24 revised full papers presented together with abstracts of 2 invited talks were carefully reviewed and selected from 70 submissions. Among the topics addressed are formal verification, voting systems, formal specification, dependable automation systems, model checking, timed automata, real-time testing, fault-tolerance protocols, fail-safe fault tolerance, real-time scheduling, satisfiability checking, symbolic model checking, stochastic hybrid systems, timed Petri nets, and event recording automata.

Discrete Event Systems 2004 (WODES'04) -

Verronique Carre-Menetrier 2005-12-22

Computer and Information Security Handbook -

John R. Vacca 2012-11-05

The second edition of this comprehensive handbook of computer and information security provides the most complete view of computer security and privacy available. It offers in-depth coverage of security theory, technology, and

practice as they relate to established technologies as well as recent advances. It explores practical solutions to many security issues. Individual chapters are authored by leading experts in the field and address the immediate and long-term challenges in the authors' respective areas of expertise. The book is organized into 10 parts comprised of 70 contributed chapters by leading experts in the areas of networking and systems security, information management, cyber warfare and security, encryption technology, privacy, data storage, physical security, and a host of advanced security topics. New to this edition are chapters on intrusion detection, securing the cloud, securing web apps, ethical hacking, cyber forensics, physical security, disaster recovery, cyber attack deterrence, and more. Chapters by leaders in the field on theory and practice of computer and information security technology, allowing the reader to develop a new level of technical expertise Comprehensive and up-to-

date coverage of security issues allows the reader to remain current and fully informed from multiple viewpoints Presents methods of analysis and problem-solving techniques, enhancing the reader's grasp of the material and ability to implement practical solutions

Mastering MongoDB 4.x - Alex Giamas

2019-03-30

Leverage the power of MongoDB 4.x to build and administer fault-tolerant database applications

Key Features Master the new features and

capabilities of MongoDB 4.x Implement

advanced data modeling, querying, and

administration techniques in MongoDB Includes

rich case-studies and best practices followed by

expert MongoDB developers Book Description

MongoDB is the best platform for working with

non-relational data and is considered to be the

smartest tool for organizing data in line with

business needs. The recently released MongoDB

4.x supports ACID transactions and makes the

technology an asset for enterprises across the IT

and fintech sectors. This book provides expertise in advanced and niche areas of managing databases (such as modeling and querying databases) along with various administration techniques in MongoDB, thereby helping you become a successful MongoDB expert. The book helps you understand how the newly added capabilities function with the help of some interesting examples and large datasets. You will dive deeper into niche areas such as high-performance configurations, optimizing SQL statements, configuring large-scale sharded clusters, and many more. You will also master best practices in overcoming database failover, and master recovery and backup procedures for database security. By the end of the book, you will have gained a practical understanding of administering database applications both on premises and on the cloud; you will also be able to scale database applications across all servers. What you will learn Perform advanced querying techniques such as indexing and

expressions Configure, monitor, and maintain a highly scalable MongoDB environment Master replication and data sharding to optimize read/write performance Administer MongoDB-based applications on premises or on the cloud Integrate MongoDB with big data sources to process huge amounts of data Deploy MongoDB on Kubernetes containers Use MongoDB in IoT, mobile, and serverless environments Who this book is for This book is ideal for MongoDB developers and database administrators who wish to become successful MongoDB experts and build scalable and fault-tolerant applications using MongoDB. It will also be useful for database professionals who wish to become certified MongoDB professionals. Some understanding of MongoDB and basic database concepts is required to get the most out of this book.

**Principles of Performance and Reliability
Modeling and Evaluation** - Lance Fiondella
2016-04-06

This book presents the latest key research into the performance and reliability aspects of dependable fault-tolerant systems and features commentary on the fields studied by Prof. Kishor S. Trivedi during his distinguished career. Analyzing system evaluation as a fundamental tenet in the design of modern systems, this book uses performance and dependability as common measures and covers novel ideas, methods, algorithms, techniques, and tools for the in-depth study of the performance and reliability aspects of dependable fault-tolerant systems. It identifies the current challenges that designers and practitioners must face in order to ensure

the reliability, availability, and performance of systems, with special focus on their dynamic behaviors and dependencies, and provides system researchers, performance analysts, and practitioners with the tools to address these challenges in their work. With contributions from Prof. Trivedi's former PhD students and collaborators, many of whom are internationally recognized experts, to honor him on the occasion of his 70th birthday, this book serves as a valuable resource for all engineering disciplines, including electrical, computer, civil, mechanical, and industrial engineering as well as production and manufacturing.