A Survey Of Distributed File Systems

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J.UCS The Journal of Universal Computer Science - Hermann Maurer 2012-12-06
J.UCS is the electronic journal that covers all areas of computer science. The high quality of all accepted papers is ensured by a strict review process and an international editorial board of distinguished computer scientists. The online journal J.UCS is a prototype for modern electronic publishing. Distributed via the Internet, it supports all the search and navigation tools of advanced online systems. This first annual print and CD-ROM archive edition contains all articles published online in J.UCS during 1995. It allows easy and durable access without logging onto the Internet. Uniform citation of papers is guaranteed by identical page numbering and

layout of all versions. J.UCS is based on HyperWave (formerly Hyper-G), a networked hypermedia information system compatible with other systems.

Distributed Computing - Raman Khanna 1994

Focusing on distributed computing implementation, this work presents the current state-of-the-art in distributed computing in industry and academia. Covers OSF DCE and DME, ONC, NFS, distributed file systems, user services management and security in a distributed environment. Features case studies of actual implementations at leading corporations, universities, and industry consortia.

Catalogue of Distributed File/Operating Systems - Uwe M. Borghoff 2012-12-06

In general, distributed systems can be classified into Distributed File Systems (DFS) and Distributed Operating Systems (DOS). The survey which follows distinguishes be tween DFS approaches in Chapters 2-3, and DOS approaches in Chapters 4-5. Within DFS and DOS, I further distinguish "traditional" and object-oriented approaches. A traditional approach is one where processes are the active components in the systems and where the name space is hierarchically organized. In a centralized environment, UNIX would be a good example of a traditional approach. On the other hand, an object-oriented approach deals with objects in which all information is encapsulated. Some systems of importance do not fit into the DFS/DOS classification. I call these systems "closely related" and put them into Chapter 6. Chapter 7 contains a table of comparison. This table gives a lucid overview summarizing the information provided and allowing for quick access. The last chapter is added for the sake of completeness. It contains very brief descriptions of other related systems. These systems are of minor interest or do not provide transparency at all. Sometimes I had to assign a system to this chapter simply for lack of adequate information about it.

Distributed System Design - Jie Wu 2017-12-14

Future requirements for computing speed, system reliability, and cost-effectiveness entail the development of alternative computers to replace the traditional von Neumann organization. As computing networks come into being, one of the latest dreams is now possible - distributed computing. Distributed computing brings transparent access to as much computer power and data as the user needs for accomplishing any given task - simultaneously achieving high performance and reliability. The subject of distributed computing is diverse, and many researchers are investigating various issues concerning the structure of hardware and the design of distributed software. Distributed System Design defines a distributed system as one that looks to its users like an ordinary system, but runs on a set of autonomous processing elements (PEs) where each PE has a separate physical memory space and the message transmission delay is not negligible. With close cooperation among these PEs, the system supports an arbitrary number of processes and dynamic extensions. Distributed System Design outlines the main motivations for building a distributed system, including: inherently distributed applications performance/cost resource sharing flexibility and extendibility availability and fault tolerance scalability Presenting basic concepts, problems, and possible solutions, this reference serves graduate students in distributed system design as well as computer professionals analyzing and designing distributed/open/parallel systems. Chapters discuss: the scope of distributed computing systems general distributed programming languages and a CSP-like distributed control description language (DCDL) expressing parallelism, interprocess communication and synchronization, and fault-tolerant design two approaches

describing a distributed system: the time-space view and the interleaving view mutual exclusion and related issues, including election, bidding, and self-stabilization prevention and detection of deadlock reliability, safety, and security as well as various methods of handling node, communication, Byzantine, and software faults efficient interprocessor communication mechanisms as well as these mechanisms without specific constraints, such as adaptiveness, deadlock-freedom, and fault-tolerance virtual channels and virtual networks load distribution problems synchronization of access to shared data while supporting a high degree of concurrency

Distributed Systems for System Architects - Paulo Veríssimo 2012-12-06

The primary audience for this book are advanced undergraduate students and graduate students. Computer architecture, as it happened in other fields such as electronics, evolved from the small to the large, that is, it left the realm of low-level hardware constructs, and gained new dimensions, as distributed systems became the keyword for system implementation. As such, the system architect, today, assembles pieces of hardware that are at least as large as a computer or a network router or a LAN hub, and assigns pieces of software that are self-contained, such as client or server programs, Java applets or pro tocol modules, to those hardware components. The freedom she/he now has, is tremendously challenging. The problems alas, have increased too. What was before mastered and tested carefully before a fully-fledged mainframe or a closely-coupled computer cluster came out on the market, is today left to the responsibility of computer engineers and scientists invested in the role of system architects, who fulfil this role on behalf of software vendors and in tegrators, add-value system developers, R&D institutes, and final users. As system complexity, size and

diversity grow, so increases the probability of in consistency, unreliability, non responsiveness and insecurity, not to mention the management overhead. What System Architects Need to Know The insight such an architect must have includes but goes well beyond, the functional properties of distributed systems.

Operating Systems (Self Edition 1.1.Abridged) - Sibsankar Haldar 2016-05-29 Some previous editions of this book were published from Pearson Education (ISBN 9788131730225). This book, designed for those who are taking introductory courses on operating systems, presents both theoretical and practical aspects of modern operating systems. Although the emphasis is on theory, while exposing you (the reader) the subject matter, this book maintains a balance between theory and practice. The theories and technologies that have fueled the evolution of operating systems are primarily geared towards two goals: user convenience in maneuvering computers and efficient utilization of hardware resources. This book also discusses many fundamental concepts that have been formulated over the past several decades and that continue to be used in many modern operating systems. In addition, this book also discusses those technologies that prevail in many modern operating systems such as UNIX, Solaris, Linux, and Windows. While the former two have been used to present many in-text examples, the latter two are dealt with as separate technological case studies. They highlight the various issues in the design and development of operating systems and help you correlate theories to technologies. This book also discusses Android exposing you a modern software platform for embedded devices. This book supersedes ISBN 9788131730225 and its other derivatives, from Pearson Education India. (They have been used as textbooks in

many schools worldwide.) You will definitely love this self edition, and you can use this as a textbook in undergraduate-level operating systems courses.

Handbook of Data Intensive Computing - Borko Furht 2011-12-09

Data Intensive Computing refers to capturing, managing, analyzing, and understanding data at volumes and rates that push the frontiers of current technologies. The challenge of data intensive computing is to provide the hardware architectures and related software systems and techniques which are capable of transforming ultra-large data into valuable knowledge. Handbook of Data Intensive Computing is written by leading international experts in the field. Experts from academia, research laboratories and private industry address both theory and application. Data intensive computing demands a fundamentally different set of principles than mainstream computing. Data-intensive applications typically are well suited for large-scale parallelism over the data and also require an extremely high degree of fault-tolerance, reliability, and availability. Real-world examples are provided throughout the book. Handbook of Data Intensive Computing is designed as a reference for practitioners and researchers, including programmers, computer and system infrastructure designers, and developers. This book can also be beneficial for business managers, entrepreneurs, and investors.

Distributed Computing and Networking - Davide Frey 2013-01-05

This book constitutes the refereed proceedings of the 14th International Conference on Distributed Computing and Networking, ICDCN 2013, held in Mumbai, India, during January 3-6, 2013. The 27 revised full papers, 5 short papers presented together with 7 poster papers were carefully reviewed and selected from 149 submissions. The papers cover topics such as distributed

algorithms and concurrent data structures; integration of heterogeneous wireless and wired networks; distributed operating systems; internetworking protocols and internet applications; distributed database systems; mobile and pervasive computing, context-aware distributed systems; embedded distributed systems; next generation and converged network architectures; experiments and performance evaluation of distributed systems; overlay and peer-to-peer networks and services; fault-tolerance, reliability, and availability; home networking and services; multiprocessor and multi-core architectures and algorithms; resource management and quality of service; self-organization, self-stabilization, and autonomic computing; network security and privacy; high performance computing, grid computing, and cloud computing; energy-efficient networking and smart grids; security, cryptography, and game theory in distributed systems; sensor, PAN and ad-hoc networks; and traffic engineering, pricing, network management.

Algorithms and Architectures for Parallel Processing - Guojun Wang 2015-11-16

This four volume set LNCS 9528, 9529, 9530 and 9531 constitutes the refereed proceedings of the 15th International Conference on Algorithms and Architectures for Parallel Processing, ICA3PP 2015, held in Zhangjiajie, China, in November 2015. The 219 revised full papers presented together with 77 workshop papers in these four volumes were carefully reviewed and selected from 807 submissions (602 full papers and 205 workshop papers). The first volume comprises the following topics: parallel and distributed architectures; distributed and network-based computing and internet of things and cyber-physical-social computing. The second volume comprises topics such as big data and its applications and parallel and distributed algorithms. The topics of the third volume are:

applications of parallel and distributed computing and service dependability and security in distributed and parallel systems. The covered topics of the fourth volume are: software systems and programming models and performance modeling and evaluation.

Distributed Operating Systems & Algorithms - Randy Chow 1997

Distributed Operating Systems and Algorithms integrates into one text both the theory and implementation aspects of distributed operating systems for the first time. This innovative book provides the reader with knowledge of the important algorithms necessary for an in-depth understanding of distributed systems; at the same time it motivates the study of these algorithms by presenting a systems framework for their practical application. The first part of the book is intended for use in an advanced course on operating systems and concentrates on parallel systems, distributed systems, real-time systems, and computer networks. The second part of the text is written for a course on distributed algorithms with a focus on algorithms for asynchronous distributed systems. While each of the two parts is self-contained, extensive cross-referencing allows the reader to emphasize either theory or implementation or to cover both elements of selected topics.Features: Integrates and balances coverage of the advanced aspects of operating systems with the distributed algorithms used by these systems. Includes extensive references to commercial and experimental systems to illustrate the concepts and implementation issues. Provides precise algorithm description and explanation of why these algorithms were developed. Structures the coverage of algorithms around the creation of a framework for implementing a replicated server-a prototype for implementing a fault-tolerant and highly available distributed

system. Contains programming projects on such topics as sockets, RPC, threads, and implementation of distributed algorithms using these tools. Includes an extensive annotated bibliography for each chapter, pointing the reader to recent developments. Solutions to selected exercises, templates to programming problems, a simulator for algorithms for distributed synchronization, and teaching tips for selected topics are available to qualified instructors from Addison Wesley.
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Benchmarking, Measuring, and Optimizing - Felix Wolf 2021-03-01
This book constitutes the refereed post-conference proceedings of the Third International Symposium on Benchmarking, Measuring, and Optimization, Bench 2020, held virtually in November 2020. The 12 revised full papers and 1 revised short paper presented were carefully reviewed and selected from 28 submissions. The papers are organized in topical sections named: best paper session; data management and storage; supercomputing; benchmarking on GPU; and application and dataset.

A Survey of Distributed Multimedia - Chris Adie 1993

Cloud Computing - Dan C. Marinescu 2017-11-20
Cloud Computing: Theory and Practice, Second Edition, provides students and IT professionals with an in-depth analysis of the cloud from the ground up. After an introduction to network-centric computing and network-centric content in Chapter One, the book is organized into four sections. Section One reviews basic concepts of concurrency and parallel and distributed systems. Section Two presents such critical components of the cloud ecosystem as cloud service providers, cloud access, cloud data storage, and cloud hardware and software. Section Three covers cloud applications and cloud security, while Section Four presents research topics in cloud

computing. Specific topics covered include resource virtualization, resource management and scheduling, and advanced topics like the impact of scale on efficiency, cloud scheduling subject to deadlines, alternative cloud architectures, and vehicular clouds. An included glossary covers terms grouped in several categories, from general to services, virtualization, desirable attributes and security. Includes new chapters on concurrency, cloud hardware and software, challenges posed by big data and mobile applications and advanced topics Provides a new appendix that presents several cloud computing projects Presents more than 400 references in the text, including recent research results in several areas related to cloud computing

Handbook of Industry 4.0 and SMART Systems - Diego Galar Pascual 2019-09-17

Industry 4.0 refers to fourth generation of industrial activity characterized by smart systems and internet-based solutions. This book describes the fourth revolution based on instrumented, interconnected and intelligent assets. The different book chapters provide a perspective on technologies and methodologies developed and deployed leading to this concept. With an aim to increase performance, productivity and flexibility, major application area of maintenance through smart system has been discussed in detail. Applicability of 4.0 in transportation, energy and infrastructure is explored, with effects on technology, organisation and operations from a systems perspective.

Advances in Computing and Communications, Part IV - Ajith Abraham 2011-07-06

This volume is the fourth part of a four-volume set (CCIS 190, CCIS 191, CCIS 192, CCIS 193), which constitutes the refereed proceedings of the First International Conference on on Computing and Communications, ACC 2011, held in Kochi, India, in July 2011. The 62 revised full

papers presented in this volume were carefully reviewed and selected from a large number of submissions. The papers are the papers of the Workshop on Cloud Computing: Architecture, Algorithms and Applications (CloudComp2011), of the Workshop on Multimedia Streaming (MultiStreams2011), and of the Workshop on Trust Management in P2P Systems (IWTMP2PS2011).

DISTRIBUTED OPERATING SYSTEMS - PRADEEP K. SINHA 1998-01-01

The highly praised book in communications networking from IEEE Press, now available in the Eastern Economy Edition.This is a non-mathematical introduction to Distributed Operating Systems explaining the fundamental concepts and design principles of this emerging technology. As a textbook for students and as a self-study text for systems managers and software engineers, this book provides a concise and an informal introduction to the subject.

Big Data Management, Technologies, and Applications - Hu, Wen-Chen 2013-10-31

"This book discusses the exponential growth of information size and the innovative methods for data capture, storage, sharing, and analysis for big data"--Provided by publisher.

Modern Approaches in Machine Learning and Cognitive Science: A Walkthrough - Vinit Kumar Gunjan 2021-04-26

This book provides a systematic and comprehensive overview of machine learning with cognitive science methods and technologies which have played an important role at the core of practical solutions for a wide scope of tasks between handheld apps, industrial process control, autonomous vehicles, environmental policies, life sciences, playing computer games, computational theory, and engineering development. The chapters in this book focus on readers interested in machine learning, cognitive and neuro-inspired computational systems

– theories, mechanisms, and architecture, which underline human and animal behaviour, and their application to conscious and intelligent systems. In the current version, it focuses on the successful implementation and step-by-step explanation of practical applications of the domain. It also offers a wide range of inspiring and interesting cutting-edge contributions to applications of machine learning and cognitive science such as healthcare products, medical electronics, and gaming. Overall, this book provides valuable information on effective, cutting-edge techniques and approaches for students, researchers, practitioners, and academicians working in the field of AI, neural network, machine learning, and cognitive science. Furthermore, the purpose of this book is to address the interests of a broad spectrum of practitioners, students, and researchers, who are interested in applying machine learning and cognitive science methods in their respective domains.

Descriptive Name Services for Large Internets - Joann Janet Ordille 1993

High Performance Computing - HiPC 2006 - Yves L. Robert 2006-11-27

This book constitutes the refereed proceedings of the 13th International Conference on High-Performance Computing, HiPC 2006, held in Bangalore, India in December 2006. The 52 revised full papers presented together with the abstracts of 7 invited talks were carefully reviewed and selected from 335 submissions. The papers are organized in topical sections on scheduling and load balancing, architectures, network and distributed algorithms, application software, network services, applications, ad-hoc networks, systems software, sensor networks and performance evaluation, as well as routing and data management algorithms.

Design of a High Performance, High Availability, Distributed

File System - Chetan Ahuja 2001

Stabilization, Safety, and Security of Distributed Systems - Rachid Guerraoui 2009-11-04
This book constitutes the refereed proceedings of the 11th International Symposium on Stabilization, Safety, and Security of Distributed Systems, SSS 2009, held in Lyon, France, in November 2009. The 49 revised full papers and 14 brief announcements presented together with three invited talks were carefully reviewed and selected from 126 submissions. The papers address all safety and security-related aspects of self-stabilizing systems in various areas. The most topics related to self-* systems. The special topics were alternative systems and models, autonomic computational science, cloud computing, embedded systems, fault-tolerance in distributed systems / dependability, formal methods in distributed systems, grid computing, mobility and dynamic networks, multicore computing, peer-to-peer systems, self-organizing systems, sensor networks, stabilization, and system safety and security.

Disconnected Operation in a Distributed File System - James J. Kistler 1995-12-13
This book is based on the author's PhD thesis which was selected during the 1993 ACM Doctoral Dissertation Competition as one of the three best submissions. The focus of this work is on the issue of availability in distributed file systems. It presents the important new technique called disconnected operation, in which clients mask failures and voluntary network detachments by emulating the functionality of servers where actual server-oriented solutions are inadequate. This permits client operation even under complete isolation from the server; the clean integration of mobile computers into the system is an important side-effect of the new technique. The design and implementation of disconnected file service in a

working system, the Coda file system, is described in detail.

A FRAMEWORK FOR SCALABLE DISTRIBUTED JOB PROCESSING WITH DYNAMIC LOAD BALANCING USING DECENTRALIZED APPROACH - Dr P. SrinivasaRao

Advanced Industrial Control Technology - Peng Zhang 2010-08-26

Control engineering seeks to understand physical systems, using mathematical modeling, in terms of inputs, outputs and various components with different behaviors. It has an essential role in a wide range of control systems, from household appliances to space flight. This book provides an in-depth view of the technologies that are implemented in most varieties of modern industrial control engineering. A solid grounding is provided in traditional control techniques, followed by detailed examination of modern control techniques such as real-time, distributed, robotic, embedded, computer and wireless control technologies. For each technology, the book discusses its full profile, from the field layer and the control layer to the operator layer. It also includes all the interfaces in industrial control systems: between controllers and systems; between different layers; and between operators and systems. It not only describes the details of both real-time operating systems and distributed operating systems, but also provides coverage of the microprocessor boot code, which other books lack. In addition to working principles and operation mechanisms, this book emphasizes the practical issues of components, devices and hardware circuits, giving the specification parameters, install procedures, calibration and configuration methodologies needed for engineers to put the theory into practice. Documents all the key technologies of a wide range of industrial control systems Emphasizes practical application and methods

alongside theory and principles An ideal reference for practicing engineers needing to further their understanding of the latest industrial control concepts and techniques

Distributed Operating Systems - Andrzej Gościński 1991

Catalogue of Distributed File/Operating Systems - Uwe M. Borghoff 1992-01-09

In general, distributed systems can be classified into Distributed File Systems (DFS) and Distributed Operating Systems (DOS). The survey which follows distinguishes be tween DFS approaches in Chapters 2-3, and DOS approaches in Chapters 4-5. Within DFS and DOS, I further distinguish "traditional" and object-oriented approaches. A traditional approach is one where processes are the active components in the systems and where the name space is hierarchically organized. In a centralized environment, UNIX would be a good example of a traditional approach. On the other hand, an object-oriented approach deals with objects in which all information is encapsulated. Some systems of importance do not fit into the DFS/DOS classification. I call these systems "closely related" and put them into Chapter 6. Chapter 7 contains a table of comparison. This table gives a lucid overview summarizing the information provided and allowing for quick access. The last chapter is added for the sake of completeness. It contains very brief descriptions of other related systems. These systems are of minor interest or do not provide transparency at all. Sometimes I had to assign a system to this chapter simply for lack of adequate information about it.

Data Intensive Distributed Computing: Challenges and Solutions for Large-scale Information Management - Kosar, Tevfik 2012-01-31

"This book focuses on the challenges of distributed systems imposed by the data intensive applications, and on the different state-of-the-art solutions proposed to overcome these challenges"--Provided by

publisher.

ACM SIGMETRICS and Performance ... International Conference on Measurement and Modelling, Proceedings - 1992

Distributed Operating Systems - Doreen L. Galli 2000
This book explores the concepts and practice in distributed computing, and is designed to be useful in helping practitioners and corporate training keep up with software technology that pertains to a majority of all computers and their applications. A two-part approach presents the basic foundation for distributed computing and then expands on these topics to cover advanced distributed operating systems. It describes in detail every major aspect of the topics, and includes relevant examples of real operating systems to reinforce concepts and illustrate decisions that must be made by distributed system designers. Chapters include information on interprocess communication, memory management, concurrency control, and object-based operating systems. More advance material covers distributed process management, file systems, synchronization, and security. For developers and managers active in the client/server technology industry who want to update and enhance their knowledge base.

Execution Environments for Distributed Computation Issues - Norbert Martínez Bazán 2008

Enterprise Service Computing - Robin G. Qui 2007-01-01
"This book focuses on providing readers a comprehensive understanding of the development cycle of enterprise service computing. Covered topics range from concept development, system design, modeling, and development technologies, to final deployment. Both theoretical research results and practical applications are provided"--Provided by

publisher.

The Ultimate Security Survey - James L Schaub 1998-08-28

This new edition of The Ultimate Security Survey has been revised and updated to include more topics than the original 1994 edition. The book and its accompanying disk have been completely overhauled and now address the current electronic information security environment. Contains more than 3,000 questions for security professionals to use in designing their own security surveys An accompanying disk allows users to create surveys without typing Completely up-to-date

Further with Knowledge Graphs - M. Alam 2021-09-23

The field of semantic computing is highly diverse, linking areas such as artificial intelligence, data science, knowledge discovery and management, big data analytics, e-commerce, enterprise search, technical documentation, document management, business intelligence, and enterprise vocabulary management. As such it forms an essential part of the computing technology that underpins all our lives today. This volume presents the proceedings of SEMANTiCS 2021, the 17th International Conference on Semantic Systems. As a result of the continuing Coronavirus restrictions, SEMANTiCS 2021 was held in a hybrid form in Amsterdam, the Netherlands, from 6 to 9 September 2021. The annual SEMANTiCS conference provides an important platform for semantic computing professionals and researchers, and attracts information managers, ITarchitects, software engineers, and researchers from a wide range of organizations, such as research facilities, NPOs, public administrations and the largest companies in the world. The subtitle of the 2021 conference's was "In the Era of Knowledge Graphs", and 66 submissions were received, from which the 19 papers included here were selected following a rigorous single-

blind reviewing process; an acceptance rate of 29%. Topics covered include data science, machine learning, logic programming, content engineering, social computing, and the Semantic Web, as well as the additional sub-topics of digital humanities and cultural heritage, legal tech, and distributed and decentralized knowledge graphs. Providing an overview of current research and development, the book will be of interest to all those working in the field of semantic systems.

Information Logistics. Decentralized Approaches of Information Allocation in Information Exchange Networks - Sven Grolik 2012-02-24

The use of modern planning and optimization systems for process synchronization in value networks requires the optimal information exchange between the entities involved. The central focus of Sven Grolik's study is the development of efficient mechanisms for the coordination of information allocation by the example of interconnected transportation marketplaces. Unlike traditional information allocation algorithms, the algorithms developed in his analysis are based on update mechanisms which maintain a weak consistency of replicated information in the network. Sven Grolik shows that these algorithms enable savings concerning the update costs as well as increase the performance within the network, but at the same time guarantee compliance with quality of service levels concerning the currency of information. The focus of this work is the development of decentralized, online algorithms which make a logically distributed computation possible on the basis of local information. The development of these innovative algorithms is based on approaches of multi-agent system theory as well as distributed simulated annealing techniques.

The MOSIX Distributed Operating System - Amnon

Barak 1993-05-27
This book describes the design and internals of the MOSIX distributed operating system. MOSIX, an acronym for Multicomputer Operating System for UNIX, integrates a cluster of loosely integrated computers into a virtual single-machine UNIX environment. The main property of MOSIX is the high degree of integration among the processors, which may include personal workstations and shared memory and non-shared memory multiprocessors, connected by fast communication links. This integration includes network transparency, cooperation between the processors to provide services across machine boundaries, support of dynamic configuration, and system-initiated load balancing by process migration. Another property of MOSIX is the ability to scale up the system configuration to encompass a large number of computers. The development of MOSIX was begun in 1981. The book is intended primarily for readers who are interested in distributed and multiprocessor systems. The reader is assumed to have some knowledge in programming and operating systems, preferably UNIX. Readers without this background will still benefit from thetechniques and algorithms discussed.
Annual Review of Computer Science - Joseph F. Traub 1990
The series will be suspended after this volume. Although critical reception has been good, according to the preface written by the editor-in-chief, finding computer scientists willing to write critical review articles has been difficult and the editors have concluded that the series was launched prematurely. The impact of computers on all of modern science, technology, and society is indisputably enormous, but the pool of available writing talent is too small. This volume contains ten review articles and a special topics section with ten presentations. Annotation copyrighted by Book News, Inc., Portland, OR

Assured Cloud Computing - Roy H. Campbell 2018-10-02 Explores key challenges and solutions to assured cloud computing today and provides a provocative look at the face of cloud computing tomorrow This book offers readers a comprehensive suite of solutions for resolving many of the key challenges to achieving high levels of assurance in cloud computing. The distillation of critical research findings generated by the Assured Cloud Computing Center of Excellence (ACC-UCoE) of the University of Illinois, Urbana-Champaign, it provides unique insights into the current and future shape of robust, dependable, and secure cloud-based computing and data cyberinfrastructures. A survivable and distributed cloud-computing-based infrastructure can enable the configuration of any dynamic systems-of-systems that contain both trusted and partially trusted resources and services sourced from multiple organizations. To assure mission-critical computations and workflows that rely on such systems-of-systems it is necessary to ensure that a given configuration does not violate any security or reliability requirements. Furthermore, it is necessary to model the trustworthiness of a workflow or computation fulfillment to a high level of assurance. In presenting the substance of the work done by the ACC-UCoE, this book provides a vision for assured cloud computing illustrating how individual research contributions relate to each other and to the big picture of assured cloud computing. In addition, the book: Explores dominant themes in cloud-based systems, including design correctness, support for big data and analytics, monitoring and detection, network considerations, and performance Synthesizes heavily cited earlier work on topics such as DARE, trust mechanisms, and elastic graphs, as well as newer research findings on topics, including R-Storm, and RAMP transactions Addresses assured

cloud computing concerns such as game theory, stream processing, storage, algorithms, workflow, scheduling, access control, formal analysis of safety, and streaming Bringing together the freshest thinking and applications in one of today's most important topics, Assured Cloud Computing is a must-read for researchers and professionals in the fields of computer science and engineering, especially those working within industrial, military, and governmental contexts. It is also a valuable reference for advanced students of computer science.

Distributed Applications and Interoperable Systems - Lydia Y. Chen 2017-06-06

This book constitutes the proceedings of the 17th IFIP International Conference on Distributed Applications and Interoperable Systems, DAIS 2017, held in Neuchâtel, Switzerland, in June 2017. The 11 papers presented together with 4 short papers in this volume were carefully reviewed and selected from 23 submissions. The papers are organized in topical sections on running system efficiently, storing data smartly, roaming in graph, building collaborative services, and making things safe.

Distributed Programming with Ruby - Mark Bates 2009-11-05

Complete, Hands-On Guide to Building Advanced Distributed Applications with Ruby Distributed programming techniques make applications easier to scale, develop, and deploy—especially in emerging cloud computing environments. Now, one of the Ruby community's leading experts has written the first definitive guide to distributed programming with Ruby. Mark Bates begins with a simple distributed application, and then walks through an increasingly complex series of examples, demonstrating solutions to the most common distributed programming problems. Bates presents the industry's most useful coverage of Ruby's standard distributed programming libraries, DRb

and Rinda. Next, he introduces powerful third-party tools, frameworks, and libraries designed to simplify Ruby distributed programming, including his own Distribunaut. If you’re an experienced Ruby programmer or architect, this hands-on tutorial and practical reference will help you meet any distributed programming challenge, no matter how complex. Coverage includes Writing robust, secure, and interactive applications using DRb—and managing its drawbacks Using Rinda to build applications with improved flexibility, fault tolerance, and service discovery Simplifying DRb service management with RingyDingy Utilizing Starfish to facilitate communication between distributed programs and to write MapReduce functions for processin large data sets Using Politics to customize the processes running on individual server instances in a cloud computing environment Providing reliable distributed queuing with the low-overhead Starling messaging server Implementing comprehensive enterprise messaging with RabbitMQ and Advanced Message Queuing Protocol (AMQP) Offloading heavyweight tasks with BackgrounDRb and DelayedJob