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DISTRIBUTED AND CLOUD COMPUTING

FROM PARALLEL PROCESSING TO THE INTERNET OF THINGS

Morgan Kaufmann Distributed and Cloud Computing: From Parallel Processing to the Internet of Things offers complete coverage of modern distributed computing technology including clusters, the grid, service-oriented architecture, massively parallel processors, peer-to-peer networking, and cloud computing. It is the first modern, up-to-date distributed systems textbook; it explains how to create high-performance, scalable, reliable systems, exposing the design principles, architecture, and innovative applications of parallel, distributed, and cloud computing systems. Topics covered by this book include: facilitating management, debugging, migration, and disaster recovery through virtualization; clustered systems for research or ecommerce applications; designing systems as web services; and social networking systems using peer-to-peer computing. The principles of cloud computing are discussed using examples from open-source and commercial applications, along with case studies from the leading distributed computing vendors such as Amazon, Microsoft, and Google. Each chapter includes exercises and further reading, with lecture slides and more available online. This book will be ideal for students taking a distributed systems or distributed computing class, as well as for professional system designers and engineers looking for a reference to the latest distributed technologies including cloud, P2P and grid computing. Complete coverage of modern distributed computing technology including clusters, the grid, service-oriented architecture, massively parallel processors, peer-to-peer networking, and cloud computing Includes case studies from the leading distributed computing vendors: Amazon, Microsoft, Google, and more Explains how to use virtualization to facilitate management, debugging, migration, and disaster recovery Designed for undergraduate or graduate students taking a distributed systems course—each chapter includes exercises and further reading, with lecture slides and more available online

CLOUD COMPUTING

THEORY AND PRACTICE

Newnes Cloud Computing: Theory and Practice provides students and IT professionals with an in-depth analysis of the cloud from the ground up. Beginning with a discussion of parallel computing and architectures and distributed systems, the book turns to contemporary cloud infrastructures, how they are being deployed at leading companies such as Amazon, Google and Apple, and how they can be applied in fields such as healthcare, banking and science. The volume also examines how to successfully deploy a cloud application across the enterprise using virtualization, resource management and the right amount of networking support, including content delivery networks and storage area networks. Developers will find a complete introduction to application development provided on a variety of platforms. Learn about recent trends in cloud computing in critical areas such as: resource management, security, energy consumption, ethics, and complex systems Get a detailed hands-on set of practical recipes that help simplify the deployment of a cloud based system for practical use of computing clouds along with an in-depth discussion of several projects Understand the evolution of cloud computing and why the cloud computing paradigm has a better chance to succeed than previous efforts in large-scale distributed computing

MASTERING CLOUD COMPUTING

FOUNDATIONS AND APPLICATIONS PROGRAMMING

Newnes Mastering Cloud Computing is designed for undergraduate students learning to develop cloud computing applications. Tomorrow's applications won't live on a single computer but will be deployed from and reside on a virtual server, accessible anywhere, any time. Tomorrow's application developers need to understand the requirements of building apps for these virtual systems, including concurrent programming, high-performance computing, and data-intensive systems. The book introduces the principles of distributed and parallel computing underlying cloud architectures and specifically focuses on virtualization, thread programming, task programming, and map-reduce programming. There are examples demonstrating all of these and more, with exercises and labs throughout. Explains how to make design choices and tradeoffs to consider when building applications to run in a virtual cloud environment Real-world case studies include scientific, business, and energy-efficiency considerations

ARCHITECTING CLOUD COMPUTING SOLUTIONS

BUILD CLOUD STRATEGIES THAT ALIGN TECHNOLOGY AND ECONOMICS WHILE EFFECTIVELY MANAGING RISK

Packt Publishing Ltd Accelerating Business and Mission Success with Cloud Computing. Key Features A step-by-step guide that will practically guide you through implementing Cloud computing services effectively and efficiently. Learn to choose the most ideal Cloud service model, and adopt appropriate Cloud design considerations for your organization. Leverage Cloud computing methodologies to successfully develop a cost-effective Cloud environment successfully. **Book Description** Cloud adoption is a core component of digital transformation. Scaling the IT environment, making it resilient, and reducing costs are what organizations want. **Architecting Cloud Computing Solutions** presents and explains critical Cloud solution design considerations and technology decisions required to choose and deploy the right Cloud service and deployment models, based on your business and technology service requirements. This book starts with the fundamentals of cloud computing and its architectural concepts. It then walks you through Cloud service models (IaaS, PaaS, and SaaS), deployment models (public, private, community, and hybrid) and implementation options (Enterprise, MSP, and CSP) to explain and describe the key considerations and challenges organizations face during cloud migration. Later, this book delves into how to leverage DevOps, Cloud-Native, and Serverless architectures in your Cloud environment and presents industry best practices for scaling your Cloud environment. Finally, this book addresses (in depth) managing essential cloud technology service components such as data storage, security controls, and disaster recovery. By the end of this book, you will have mastered all the design considerations and operational trades required to adopt Cloud services, no matter which cloud service provider you choose. What you will learn **Manage changes in the digital transformation and cloud transition process** Design and build architectures that support specific business cases Design, modify, and aggregate baseline cloud architectures Familiarize yourself with cloud application security and cloud computing security threats Design and architect small, medium, and large cloud computing solutions Who this book is for If you are an IT Administrator, Cloud Architect, or a Solution Architect keen to benefit from cloud adoption for your organization, then this book is for you. Small business owners, managers, or consultants will also find this book useful. No prior knowledge of Cloud computing is needed.

CLOUD COMPUTING SOLUTIONS

ARCHITECTURE, DATA STORAGE, IMPLEMENTATION, AND SECURITY

John Wiley & Sons CLOUD COMPUTING SOLUTIONS The main purpose of this book is to include all the cloud-related technologies in a single platform, so that researchers, academicians, postgraduate students, and those in the industry can easily understand the cloud-

based ecosystems. This book discusses the evolution of cloud computing through grid computing and cluster computing. It will help researchers and practitioners to understand grid and distributed computing cloud infrastructure, virtual machines, virtualization, live migration, scheduling techniques, auditing concept, security and privacy, business models, and case studies through the state-of-the-art cloud computing countermeasures. This book covers the spectrum of cloud computing-related technologies and the wide-ranging contents will differentiate this book from others. The topics treated in the book include: The evolution of cloud computing from grid computing, cluster computing, and distributed systems; Covers cloud computing and virtualization environments; Discusses live migration, database, auditing, and applications as part of the materials related to cloud computing; Provides concepts of cloud storage, cloud strategy planning, and management, cloud security, and privacy issues; Explains complex concepts clearly and covers information for advanced users and beginners. Audience The primary audience for the book includes IT, computer science specialists, researchers, graduate students, designers, experts, and engineers who are occupied with research.

DATA INTENSIVE DISTRIBUTED COMPUTING: CHALLENGES AND SOLUTIONS FOR LARGE-SCALE INFORMATION MANAGEMENT

CHALLENGES AND SOLUTIONS FOR LARGE-SCALE INFORMATION MANAGEMENT

IGI Global "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.

BUILDING THE INFRASTRUCTURE FOR CLOUD SECURITY

A SOLUTIONS VIEW

Apres For cloud users and providers alike, security is an everyday concern, yet there are very few books covering cloud security as a main subject. This book will help address this information gap from an Information Technology solution and usage-centric view of cloud infrastructure security. The book highlights the fundamental technology components necessary to build and enable trusted clouds. Here also is an explanation of the security and compliance challenges organizations face as they migrate mission-critical applications to the cloud, and how trusted clouds, that have their integrity rooted in hardware, can address these challenges. This book provides: Use cases and solution reference architectures to enable infrastructure integrity and the creation of trusted pools leveraging Intel Trusted Execution Technology (TXT). Trusted geo-location management in the cloud, enabling workload and data location compliance and boundary control usages in the cloud. OpenStack-based reference architecture of tenant-controlled virtual machine and workload protection in the cloud. A reference design to enable secure hybrid clouds for a cloud bursting use case, providing infrastructure visibility and control to organizations. "A valuable guide to the next generation of cloud security and hardware based root of trust. More than an explanation of the what and how, is the explanation of why. And why you can't afford to ignore it!" —Vince Lubsey, Vice President, Product Development, Virtustream Inc. "Raghu provides a valuable reference for the new 'inside out' approach, where trust in hardware, software, and privileged users is never assumed—but instead measured, attested, and limited according to least privilege principles." —John Skinner, Vice President, HyTrust Inc. "Traditional parameter based defenses are in sufficient in the cloud. Raghu's book addresses this problem head-on by highlighting unique usage models to enable trusted infrastructure in this open environment. A must read if you are exposed in cloud." —Nikhil Sharma, Sr. Director of Cloud Solutions, Office of CTO, EMC Corporation What you'll learn Usage models, hardware and software technology components to enable trusted clouds. Through solution architecture and descriptions, you will see how to build and enable trusted cloud infrastructure. Who this book is for This book will influence Infrastructure, Application and solution architects along with CTOs and CIOs and make them aware of Cloud Security and how to approach it with real-world examples and case studies. Table of Contents Chapter 1: Cloud Computing Basics Chapter 2: The Trusted Cloud: Addressing Security and Compliance Chapter 3: Platform Boot Integrity: Foundation for Trusted Compute Pools Chapter 4: Attestation: Proving Trustability Chapter 5: Boundary Control in the Cloud: Geo-Tagging and Asset Tagging Chapter 6: Network Security in the Cloud Chapter 7: Identity Management and Control for Clouds Chapter 8: Trusted Virtual Machines: Ensuring the Integrity of Virtual Machines in the Cloud Chapter 9: A Reference Design for Secure Cloud Bursting

MANUAL OF DIGITAL EARTH

Springer Nature This open access book offers a summary of the development of Digital Earth over the past twenty years. By reviewing the initial vision of Digital Earth, the evolution of that vision, the relevant key technologies, and the role of Digital Earth in helping people respond to global challenges, this publication reveals how and why Digital Earth is becoming vital for acquiring, processing, analysing and mining the rapidly growing volume of global data sets about the Earth. The main aspects of Digital Earth covered here include: Digital Earth platforms, remote sensing and navigation satellites, processing and visualizing geospatial information, geospatial information infrastructures, big data and cloud computing, transformation and zooming, artificial intelligence, Internet of Things, and social media. Moreover, the book covers in detail the multi-layered/multi-faceted roles of Digital Earth in response to sustainable development goals, climate changes, and mitigating disasters, the applications of Digital Earth (such as digital city and digital heritage), the citizen science in support of Digital Earth, the economic value of Digital Earth, and so on. This book also reviews the regional and national development of Digital Earth around the world, and discusses the role and effect of education and ethics. Lastly, it concludes with a summary of the challenges and forecasts the future trends of Digital Earth. By sharing case studies and a broad range of general and scientific insights into the science and technology of Digital Earth, this book offers an essential introduction for an ever-growing international audience.

RESEARCH ANTHOLOGY ON ARCHITECTURES, FRAMEWORKS, AND INTEGRATION STRATEGIES FOR DISTRIBUTED AND CLOUD COMPUTING

IGI Global Distributed systems intertwine with our everyday lives. The benefits and current shortcomings of the underpinning technologies are experienced by a wide range of people and their smart devices. With the rise of large-scale IoT and similar distributed systems, cloud bursting technologies, and partial outsourcing solutions, private entities are encouraged to increase their efficiency and offer unparalleled availability and reliability to their users. The Research Anthology on Architectures, Frameworks, and Integration Strategies for Distributed and Cloud Computing is a vital reference source that provides valuable insight into current and emergent research occurring within the field of distributed computing. It also presents architectures and service frameworks to achieve highly integrated distributed systems and solutions to integration and efficient management challenges faced by current and future distributed systems. Highlighting a range of topics such as data sharing, wireless sensor networks, and scalability, this multi-volume book is ideally designed for system administrators, integrators, designers, developers, researchers, academicians, and students.

GUIDE TO CLOUD COMPUTING FOR BUSINESS AND TECHNOLOGY MANAGERS

FROM DISTRIBUTED COMPUTING TO CLOUDWARE APPLICATIONS

CRC Press Guide to Cloud Computing for Business and Technology Managers: From Distributed Computing to Cloudware Applications unravels the mystery of cloud computing and explains how it can transform the operating contexts of business enterprises. It provides a clear understanding of what cloud computing really means, what it can do, and when it is practical to use. Addressing the primary management and operation concerns of cloudware, including performance, measurement, monitoring, and security, this pragmatic book: Introduces the enterprise applications integration (EAI) solutions that were a first step toward enabling an integrated enterprise Details service-oriented architecture (SOA) and related technologies that paved the road for cloudware applications Covers delivery models like IaaS, PaaS, and SaaS, and deployment models like public, private, and hybrid clouds Describes Amazon, Google, and Microsoft cloudware solutions and services, as well as those of several other players Demonstrates how cloud computing can reduce costs, achieve business flexibility, and sharpen strategic focus Unlike customary discussions of cloud computing, Guide to Cloud Computing for Business and Technology Managers: From Distributed Computing to Cloudware Applications emphasizes the key differentiator—that cloud computing is able to treat enterprise-level services not merely as discrete stand-alone services, but as Internet-locatable, composable, and repackagable building blocks for generating dynamic real-world enterprise business processes.

INTELLIGENT CLOUD COMPUTING

FIRST INTERNATIONAL CONFERENCE, ICC 2014, MUSCAT, OMAN, FEBRUARY 24-26, 2014, REVISED SELECTED PAPERS

Springer This book constitutes the refereed post-conference proceedings of the First International Conference on Intelligent Cloud Computing, held in Muscat, Oman, in February 2014. The 10 revised full papers presented were carefully reviewed and selected from 18 submissions. The papers cover topics in the areas of resource management and energy efficiency and security. They include 5 invited talks from leading organizations working in cloud computing in Oman and in the region.

PRINCIPLES OF DISTRIBUTED DATABASE SYSTEMS

Springer Science & Business Media This third edition of a classic textbook can be used to teach at the senior undergraduate and graduate levels. The material concentrates on fundamental theories as well as techniques and algorithms. The advent of the Internet and the World Wide Web, and, more recently, the emergence of cloud computing and streaming data applications, has forced a renewal of interest in distributed and parallel data management, while, at the same time, requiring a rethinking of some of the traditional techniques. This book covers the breadth and depth of this re-emerging field. The coverage consists of two parts. The first part discusses the fundamental principles of distributed data management and includes distribution design, data integration, distributed query processing and optimization, distributed transaction management, and replication. The second part focuses on more advanced topics and includes discussion of parallel database systems, distributed object management, peer-to-peer data management, web data management, data stream systems, and cloud computing. New in this Edition: • New chapters, covering database replication, database integration, multidatabase query processing, peer-to-peer data management, and web data management. • Coverage of emerging topics such as data streams and cloud computing • Extensive revisions and updates based on years of class testing and feedback Ancillary teaching materials are available.

CLOUD COMPUTING

THEORY AND PRACTICE

Morgan Kaufmann Cloud Computing: Theory and Practice provides students and IT professionals with an in-depth analysis of the cloud from the ground up. The third edition updates content throughout the book while retaining the popular features and organization of the second edition. 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 updated content throughout chapters on concurrency, cloud hardware and software, challenges posed by big data and mobile applications and advanced topics Expanded 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

AN INTRODUCTION TO PARALLEL PROGRAMMING

Morgan Kaufmann An Introduction to Parallel Programming, Second Edition presents a tried-and-true tutorial approach that shows students how to develop effective parallel programs with MPI, Pthreads and OpenMP. As the first undergraduate text to directly address compiling and running parallel programs on multi-core and cluster architecture, this second edition carries forward its clear explanations for designing, debugging and evaluating the performance of distributed and shared-memory programs while adding coverage of accelerators via new content on GPU programming and heterogeneous programming. New and improved user-friendly exercises teach students how to compile, run and modify example programs. Takes a tutorial approach, starting with small programming examples and building progressively to more challenging examples Explains how to develop parallel programs using MPI, Pthreads and OpenMP programming models A robust package of online ancillaries for instructors and students includes lecture slides, solutions manual, downloadable source code, and an image bank New to this edition: New chapters on GPU programming and heterogeneous programming New examples and exercises related to parallel algorithms

HANDBOOK OF CLOUD COMPUTING

Springer Science & Business Media Cloud computing has become a significant technology trend. Experts believe cloud computing is currently reshaping information technology and the IT marketplace. The advantages of using cloud computing include cost savings, speed to market, access to greater computing resources, high availability, and scalability. Handbook of Cloud Computing includes contributions from world experts in the field of cloud computing from academia, research laboratories and private industry. This book presents the systems, tools, and services of the leading providers of cloud computing; including Google, Yahoo, Amazon, IBM, and Microsoft. The basic concepts of cloud computing and cloud computing applications are also introduced. Current and future technologies applied in cloud computing are also discussed. Case studies, examples, and exercises are provided throughout. Handbook of Cloud Computing is intended for advanced-level students and researchers in computer science and electrical engineering as a reference book. This handbook is also beneficial to computer and system infrastructure designers, developers, business managers, entrepreneurs and investors within the cloud computing related industry.

CLOUD COMPUTING

CONCEPTS, TECHNOLOGY & ARCHITECTURE

Pearson Education Explores cloud computing, breaking down the concepts, models, mechanisms, and architectures of this technology while allowing for the financial assessment of resources and how they compare to traditional storage systems.

CLOUD COMPUTING BIBLE

John Wiley & Sons The complete reference guide to the hot technology of cloud computing Its potential for lowering IT costs makes cloud computing a major force for both IT vendors and users; it is expected to gain momentum rapidly with the launch of Office Web Apps later this year. Because cloud computing involves various technologies, protocols, platforms, and infrastructure elements, this comprehensive reference is just what you need if you'll be using or implementing cloud computing. Cloud computing offers significant cost savings by eliminating upfront expenses for hardware and software; its growing popularity is expected to skyrocket when Microsoft introduces Office Web Apps This comprehensive guide helps define what cloud computing is and thoroughly explores the technologies, protocols, platforms and infrastructure that make it so desirable Covers mobile cloud computing, a significant area due to ever-increasing cell phone and smartphone use Focuses on the platforms and technologies essential to cloud computing Anyone involved with planning, implementing, using, or maintaining a cloud computing project will rely on the information in Cloud Computing Bible.

CLOUD COMPUTING

11TH EAI INTERNATIONAL CONFERENCE, CLOUDCOMP 2021, VIRTUAL EVENT, DECEMBER 9-10, 2021, PROCEEDINGS

Springer Nature This book constitutes the refereed proceedings of the 11th International Conference on Cloud Computing, CloudComp 2021, held in December 2021. Due to COVID-19 pandemic the conference was held virtually. The 17 full papers were carefully reviewed and selected from 40 submissions and detail cloud computing technologies for efficient and intelligent computing in secure and smart environments with distributed devices. The theme of CloudComp 2021 was "Cloud Computing for Secure and Smart Applications". The book is organized in three general areas of data analytics for cloud systems with distributed applications, cloud architecture and challenges in real-world use, and security in cloud/edge platforms.

SMART SOA PLATFORMS IN CLOUD COMPUTING ARCHITECTURES

John Wiley & Sons This book is intended to introduce the principles of the Event-Driven and Service-Oriented Architecture (SOA 2.0) and its role in the new interconnected world based on the cloud computing architecture paradigm. In this new context, the concept of "service" is widely applied to the hardware and software resources available in the new generation of the Internet. The authors focus on how current and future SOA technologies provide the basis for the smart management of the service model provided by the Platform as a Service (PaaS) layer.

SERVICE-ORIENTED AND CLOUD COMPUTING

FIRST EUROPEAN CONFERENCE, ESOCC 2012, BERTINORO, ITALY, SEPTEMBER 19-21, 2012, PROCEEDINGS

Springer This book constitutes the refereed proceedings of the First European Conference on Service-Oriented and Cloud Computing, ESOCC, held in Bertinoro, Italy, in September 2012. The 12 full papers, 3 short papers and 3 poster papers were carefully reviewed and selected from 57 submissions. The volume also contains 7 papers from the industrial track. The papers cover the following topics: cloud computing; service quality and analysis; service composition and evolution; composition; security; modeling; adaption.

ADVANCES IN SERVICE-ORIENTED AND CLOUD COMPUTING

WORKSHOPS OF ESOCC 2015, TAORMINA, ITALY, SEPTEMBER 15-17, 2015, REVISED SELECTED PAPERS

Springer This volume contains the technical papers presented in the seven high-quality workshops associated with the European Conference on Service-Oriented and Cloud Computing, ESOCC 2015, held in Taormina, Italy, in September 2015: Third International Workshop on Cloud for IoT (CLIoT 2015), 5th International Workshop on Adaptive Services for the Future Internet (WAS4FI 2015), Second Workshop on Seamless Adaptive Multi-cloud Management of Service-Based Applications (SeaClouds 2015), First International Workshop on Cloud Adoption and Migration (CloudWay 2015), First International Workshop on Digital Enterprise Architecture and Engineering (IDEA 2015), First Workshop on Federated Cloud Networking (FedCloudNet 2015). Abstracts of the presentations held at the European Projects Forum (EU Projects 2015) are included in the back matter of this volume. The 25 full papers and 6 short papers were carefully reviewed and selected from 48 submissions. They focus on specific topics in service-oriented and cloud computing domains such as limits and /or advantages of existing cloud solutions, Future Internet technologies, efficient and adaptive deployment and management of service-based applications across multiple clouds, novel cloud service migration practices and solutions, digitization of enterprises in the cloud computing era, federated cloud networking services.

DISTRIBUTED SYSTEMS

PRINCIPLES AND PARADIGMS

Createspace Independent Publishing Platform This second edition of Distributed Systems, Principles & Paradigms, covers the principles, advanced concepts, and technologies of distributed systems in detail, including: communication, replication, fault tolerance, and security. Intended for use in a senior/graduate level distributed systems course or by professionals, this text systematically shows how distributed systems are designed and implemented in real systems.

CLOUD COMPUTING

PRINCIPLES AND PARADIGMS

Wiley The primary purpose of this book is to capture the state-of-the-art in Cloud Computing technologies and applications. The book will also aim to identify potential research directions and technologies that will facilitate creation a global market-place of cloud computing services supporting scientific, industrial, business, and consumer applications. We expect the book to serve as a reference for larger audience such as systems architects, practitioners, developers, new researchers and graduate level students. This area of research is relatively recent, and as such has no existing reference book that addresses it. This book will be a timely contribution to a field that is gaining considerable research interest, momentum, and is expected to be of increasing interest to commercial developers. The book is targeted for professional computer science developers and graduate students especially at Masters level. As Cloud Computing is recognized as one of the top five emerging technologies that will have a major impact on the quality of science and society over the next 20 years, its knowledge will help position our readers at the forefront of the field.

EMERGING RESEARCH IN CLOUD DISTRIBUTED COMPUTING SYSTEMS

IGI Global Traditional computing concepts are maturing into a new generation of cloud computing systems with wide-spread global applications. However, even as these systems continue to expand, they are accompanied by overall performance degradation and wasted resources. Emerging Research in Cloud Distributed Computing Systems covers the latest innovations in resource management, control and monitoring applications, and security of cloud technology. Compiling and analyzing current trends, technological concepts, and future directions of computing systems, this publication is a timely resource for practicing engineers, technologists, researchers, and advanced students interested in the domain of cloud computing.

GRID AND CLOUD COMPUTING: CONCEPTS, METHODOLOGIES, TOOLS AND APPLICATIONS

CONCEPTS, METHODOLOGIES, TOOLS AND APPLICATIONS

IGI Global "This reference presents a vital compendium of research detailing the latest case studies, architectures, frameworks, methodologies, and research on Grid and Cloud Computing"--

TRUSTED CLOUD COMPUTING

Springer This book documents the scientific results of the projects related to the Trusted Cloud Program, covering fundamental aspects of trust, security, and quality of service for cloud-based services and applications. These results aim to allow trustworthy IT applications in the cloud by providing a reliable and secure technical and legal framework. In this domain, business models, legislative circumstances, technical possibilities, and realizable security are closely interwoven and thus are addressed jointly. The book is organized in four parts on "Security and Privacy", "Software Engineering and Software Quality", "Platforms, Middleware and Integration", and "Social Aspects, Business Models and Standards". It thus provides a holistic view on technological, societal, and legal aspects, which are indispensable not only to ensure the security of cloud services and the data they process, but also to gain the trust of society, business, industry, and science in these services. The ultimate goal of the book, as well as of the Trusted Cloud Program in general, is to distribute these results to a broader audience in both academia and industry, and thus to help with the proliferation of "Industry 4.0" services.

CHINA CLOUD RISING

CHINA'S JOURNEY TOWARDS TECHNOLOGY SUPREMACY

Springer In twenty years, China's expenditures for research and development will surpass those of the United States, a trend that epitomizes nationalistic ambitions to regain intellectual prestige for a country that had once invented paper and gunpowder. Tens of billions of dollars have been poured into a new technology superstructure as China seeks to transform its economy from a crippling reliance on manufacturing outsourcing. Cloud computing represents a dynamic foundation for the new superstructure that can foster the growth of a socio-capitalistic ecosystem, creating a new class of green exports in the form of highly sophisticated software and services. With Cloud computing, China is seeking to establish a new Silk Road, where its cultural products will once again change the world.

NETWORK AND SYSTEM SECURITY

Elsevier Network and System Security provides focused coverage of network and system security technologies. It explores practical solutions to a wide range of network and systems security issues. Chapters are authored by leading experts in the field and address the

immediate and long-term challenges in the authors' respective areas of expertise. Coverage includes building a secure organization, cryptography, system intrusion, UNIX and Linux security, Internet security, intranet security, LAN security; wireless network security, cellular network security, RFID security, and more. Chapters contributed by leaders in the field covering foundational and practical aspects of system and network security, providing a new level of technical expertise not found elsewhere Comprehensive and updated coverage of the subject area allows the reader to put current technologies to work Presents methods of analysis and problem solving techniques, enhancing the reader's grasp of the material and ability to implement practical solutions

CLLOUD COMPUTING AND SOFTWARE SERVICES

THEORY AND TECHNIQUES

CRC Press Whether you're already in the cloud, or determining whether or not it makes sense for your organization, Cloud Computing and Software Services: Theory and Techniques provides the technical understanding needed to develop and maintain state-of-the-art cloud computing and software services. From basic concepts and recent research findings to fut

TECHNOLOGICAL SOLUTIONS FOR MODERN LOGISTICS AND SUPPLY CHAIN MANAGEMENT

IGI Global Technological Solutions for Modern Logistics and Supply Chain Management highlights theories and technological growth in applied research as well as advances in logistics, supply chains, and industry experiences. Aiming to enhance the expansions made towards an efficient and sustainable economy, this book is essential for providing researchers, practitioners and academicians with insight into a wide range of topics.

DATA MINING: CONCEPTS AND TECHNIQUES

Elsevier Data Mining: Concepts and Techniques provides the concepts and techniques in processing gathered data or information, which will be used in various applications. Specifically, it explains data mining and the tools used in discovering knowledge from the collected data. This book is referred as the knowledge discovery from data (KDD). It focuses on the feasibility, usefulness, effectiveness, and scalability of techniques of large data sets. After describing data mining, this edition explains the methods of knowing, preprocessing, processing, and warehousing data. It then presents information about data warehouses, online analytical processing (OLAP), and data cube technology. Then, the methods involved in mining frequent patterns, associations, and correlations for large data sets are described. The book details the methods for data classification and introduces the concepts and methods for data clustering. The remaining chapters discuss the outlier detection and the trends, applications, and research frontiers in data mining. This book is intended for Computer Science students, application developers, business professionals, and researchers who seek information on data mining. Presents dozens of algorithms and implementation examples, all in pseudo-code and suitable for use in real-world, large-scale data mining projects Addresses advanced topics such as mining object-relational databases, spatial databases, multimedia databases, time-series databases, text databases, the World Wide Web, and applications in several fields Provides a comprehensive, practical look at the concepts and techniques you need to get the most out of your data

CLLOUD COMPUTING FOR OPTIMIZATION: FOUNDATIONS, APPLICATIONS, AND CHALLENGES

Springer This book discusses harnessing the real power of cloud computing in optimization problems, presenting state-of-the-art computing paradigms, advances in applications, and challenges concerning both the theories and applications of cloud computing in optimization with a focus on diverse fields like the Internet of Things, fog-assisted cloud computing, and big data. In real life, many problems - ranging from social science to engineering sciences - can be identified as complex optimization problems. Very often these are intractable, and as a result researchers from industry as well as the academic community are concentrating their efforts on developing methods of addressing them. Further, the cloud computing paradigm plays a vital role in many areas of interest, like resource allocation, scheduling, energy management, virtualization, and security, and these areas are intertwined with many optimization problems. Using illustrations and figures, this book offers students and researchers a clear overview of the concepts and practices of cloud computing and its use in numerous complex optimization problems.

CLLOUD NATIVE TRANSFORMATION

PRACTICAL PATTERNS FOR INNOVATION

"O'Reilly Media, Inc." In the past few years, going cloud native has been a big advantage for many companies. But it's a tough technique to get right, especially for enterprises with critical legacy systems. This practical hands-on guide examines effective architecture, design, and cultural patterns to help you transform your organization into a cloud native enterprise—whether you're moving from older architectures or creating new systems from scratch. By following Wealth Grid, a fictional company, you'll understand the challenges, dilemmas, and considerations that accompany a move to the cloud. Technical managers and architects will learn best practices for taking on a successful company-wide transformation. Cloud migration consultants Pini Reznik, Jamie Dobson, and Michelle Gienow draw patterns from the growing community of expert practitioners and enterprises that have successfully built cloud native systems. You'll learn what works and what doesn't when adopting cloud native—including how this transition affects not just your technology but also your organizational structure and processes. You'll learn: What cloud native means and why enterprises are so interested in it Common barriers and pitfalls that have affected other companies (and how to avoid them) Context-specific patterns for a successful cloud native transformation How to implement a safe, evolutionary cloud native approach How companies addressed root causes and misunderstandings that hindered their progress Case studies from real-world companies that have succeeded with cloud native transformations

RELIABILITY AND AVAILABILITY OF CLLOUD COMPUTING

John Wiley & Sons A holistic approach to service reliability and availability of cloud computing Reliability and Availability of Cloud Computing provides IS/IT system and solution architects, developers, and engineers with the knowledge needed to assess the impact of virtualization and cloud computing on service reliability and availability. It reveals how to select the most appropriate design for reliability diligence to assure that user expectations are met. Organized in three parts (basics, risk analysis, and recommendations), this resource is accessible to readers of diverse backgrounds and experience levels. Numerous examples and more than 100 figures throughout the book help readers visualize problems to better understand the topic—and the authors present risks and options in bulleted lists that can be applied directly to specific applications/problems. Special features of this book include: Rigorous analysis of the reliability and availability risks that are inherent in cloud computing Simple formulas that explain the quantitative aspects of reliability and availability Enlightening discussions of the ways in which virtualized applications and cloud deployments differ from traditional system implementations and deployments Specific recommendations for developing reliable virtualized applications and cloud-based solutions Reliability and Availability of Cloud Computing is the guide for IS/IT staff in business, government, academia, and non-governmental organizations who are moving their applications to the cloud. It is also an important reference for professionals in technical sales, product management, and quality management, as well as software and quality engineers looking to broaden their expertise.

SOFTWARE BUSINESS. FROM PHYSICAL PRODUCTS TO SOFTWARE SERVICES AND SOLUTIONS

4TH INTERNATIONAL CONFERENCE, ICSOB 2013, POTSDAM, GERMANY, JUNE 11-14, 2013, PROCEEDINGS

Springer This book contains the refereed proceedings of the 4th International Conference on Software Business (ICSOB) held in Potsdam, Germany, in June 2013. The theme of the event was "From Physical Products to Software Services and Solutions." The 15 full papers, seven short papers, and six doctoral symposium papers accepted for ICSOB were selected from 44 submissions and are organized in sections on: software business models and business process modeling; IT markets and software industry; IT within organizations; software product management; cloud computing; entrepreneurship and startup companies; software platforms and software ecosystems; and doctoral symposium.

CYBER SECURITY IN PARALLEL AND DISTRIBUTED COMPUTING

CONCEPTS, TECHNIQUES, APPLICATIONS AND CASE STUDIES

John Wiley & Sons The main objective of this book is to explore the concept of cybersecurity in parallel and distributed computing along with recent research developments in the field. It also includes various real-time/offline applications and case studies in the fields of engineering and computer science and the modern tools and technologies used. Information on cybersecurity technologies is organized in the fifteen chapters of this book. This important book cover subjects such as: Research and solutions for the problem of hidden image detection Security aspects of data mining and possible solution techniques A comparative analysis of various methods used in e-commerce security and how to perform secure payment transactions in an efficient manner Blockchain technology and how it is crucial to the security industry Security for the Internet of Things Security issues and challenges in distributed computing security such as heterogeneous computing, cloud computing, fog computing, etc. Demonstrates the administration task issue in unified cloud situations as a multi-target enhancement issue in light of security Explores the concepts of cybercrime and cybersecurity and presents the statistical impact it is having on organizations Highlights some strategies for maintaining the privacy, integrity, confidentiality and availability of cyber information and its real-world impacts such as mobile security software for secure email and online banking, cyber health check programs for business, cyber incident response management, cybersecurity risk management Security policies and mechanisms, various categories of attacks (e.g., denial-of-service), global security architecture, along with distribution of security mechanisms Security issues in the healthcare sector with existing solutions and emerging threats.

INNOVATIVE APPROACHES AND SOLUTIONS IN ADVANCED INTELLIGENT SYSTEMS

Springer This volume is a selected collection of papers presented and discussed at the International Conference "Advanced Computing for Innovation (ACoIn 2015)". The Conference was held at 10th -11th of November, 2015 in Sofia, Bulgaria and was aimed at providing a forum for international scientific exchange between Central/Eastern Europe and the rest of the world on several fundamental topics of computational intelligence. The papers report innovative approaches and solutions in hot topics of computational intelligence - advanced computing, language and semantic technologies, signal and image processing, as well as optimization and intelligent control.

CLOUD ENTERPRISE ARCHITECTURE

CRC Press Cloud Enterprise Architecture examines enterprise architecture (EA) in the context of the surging popularity of Cloud computing. It explains the different kinds of desired transformations the architectural blocks of EA undergo in light of this strategically significant convergence. Chapters cover each of the contributing architectures of EA-business, information, application, integration, security, and technology-illustrating the current and impending implications of the Cloud on each. Discussing the implications of the Cloud paradigm on EA, the book details the perceptible and positive changes that will affect EA design, governance, strategy, management, and sustenance. The author ties these topics together with chapters on Cloud integration and composition architecture. He also examines the Enterprise Cloud, Federated Clouds, and the vision to establish the InterCloud. Laying out a comprehensive strategy for planning and executing Cloud-inspired transformations, the book: Explains how the Cloud changes and affects enterprise architecture design, governance, strategy, management, and sustenance Presents helpful information on next-generation Cloud computing Describes additional architectural types such as enterprise-scale integration, security, management, and governance architectures This book is an ideal resource for enterprise architects, Cloud evangelists and enthusiasts, and Cloud application and service architects. Cloud center administrators, Cloud business executives, managers, and analysts will also find the book helpful and inspirational while formulating appropriate mechanisms and schemes for sound modernization and migration of traditional applications to Cloud infrastructures and platforms.

97 THINGS EVERY CLOUD ENGINEER SHOULD KNOW

"O'Reilly Media, Inc." If you create, manage, operate, or configure systems running in the cloud, you're a cloud engineer--even if you work as a system administrator, software developer, data scientist, or site reliability engineer. With this book, professionals from around the world provide valuable insight into today's cloud engineering role. These concise articles explore the entire cloud computing experience, including fundamentals, architecture, and migration. You'll delve into security and compliance, operations and reliability, and software development. And examine networking, organizational culture, and more. You're sure to find 1, 2, or 97 things that inspire you to dig deeper and expand your own career. "Three Keys to Making the Right Multicloud Decisions," Brendan O'Leary "Serverless Bad Practices," Manases Jesus Galindo Bello "Failing a Cloud Migration," Lee Atchison "Treat Your Cloud Environment as If It Were On Premises," Iyana Garry "What Is Toil, and Why Are SREs Obsessed with It?," Zachary Nickens "Lean QA: The QA Evolving in the DevOps World," Theresa Neate "How Economies of Scale Work in the Cloud," Jon Moore "The Cloud Is Not About the Cloud," Ken Corless "Data Gravity: The Importance of Data Management in the Cloud," Geoff Hughes "Even in the Cloud, the Network Is the Foundation," David Murray "Cloud Engineering Is About Culture, Not Containers," Holly Cummins

COMPUTER ORGANIZATION, DESIGN, AND ARCHITECTURE, FIFTH EDITION

CRC Press Suitable for a one- or two-semester undergraduate or beginning graduate course in computer science and computer engineering, Computer Organization, Design, and Architecture, Fifth Edition presents the operating principles, capabilities, and limitations of digital computers to enable the development of complex yet efficient systems. With 11 new sections and four revised sections, this edition takes students through a solid, up-to-date exploration of single- and multiple-processor systems, embedded architectures, and performance evaluation. See What's New in the Fifth Edition Expanded coverage of embedded systems, mobile processors, and cloud computing Material for the "Architecture and Organization" part of the 2013 IEEE/ACM Draft Curricula for Computer Science and Engineering Updated commercial machine architecture examples The backbone of the book is a description of the complete design of a simple but complete hypothetical computer. The author then details the architectural features of contemporary computer systems (selected from Intel, MIPS, ARM, Motorola, Cray and various microcontrollers, etc.) as enhancements to the structure of the simple computer. He also introduces performance enhancements and advanced architectures including networks, distributed systems, GRIDs, and cloud computing. Computer organization deals with providing just enough details on the operation of the computer system for sophisticated users and programmers. Often, books on digital systems' architecture fall into four categories: logic design, computer organization, hardware design, and system architecture. This book captures the important attributes of these four categories to present a comprehensive text that includes pertinent hardware, software, and system aspects.