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Cloud Computing Basics Health Informatics in the Cloud Survey of Cloud Computing QoS Prediction in Cloud and Service Computing Elements of Cloud Computing Security Software Testing in the Cloud Video Processing in the Cloud Health Informatics in the Cloud Rain Formation in Warm Clouds Handling Priority Inversion in Time-Constrained Distributed Databases Combinatorial Testing in Cloud Computing Scalable Signal Processing in Cloud Radio Access Networks The Design of Cloud Workflow Systems Optimal Surface Fitting of Point Clouds Using Local Refinement Secure Compressive Sensing in Multimedia Data, Cloud Computing and IoT Cloud Portability and Interoperability Auction Based Resource Provisioning in Cloud Computing Model-driven Development and Operation of Multi-cloud Applications Edge Computing: A Primer Security for Cloud Storage Systems Inventive Systems and Control Dynamic Cloud Collaboration Platform Digital Entrepreneurship and Global Innovation Resource Management in Utility and Cloud Computing Cloud Based 5G Wireless Networks Crowd-Powered Mobile Computing and Smart Things Service-Oriented Computing--ICSOC 2013 Workshops Proceedings of the 6th International Conference on Advance Computing and Intelligent Engineering Remote Sensing Advances for Earth System Science High-Performance Computational Solutions in Protein Bioinformatics Distributed Denial of Service Attack and Defense Homomorphic Encryption and Applications Model-Driven Development and Operation of Multi-Cloud Applications Virtualized Cloud Data Center Networks: Issues in Resource Management. Research Anthology on Privatizing and Securing Data Dynamic Spectrum Access for Wireless Networks Elements of Cloud Storage Security Big Data Lightning Discharges Big Data 2.0 Processing Systems

Health Informatics in the Cloud Jan 18 2023 Despite its high cost, the US healthcare system produces relatively short life spans, and is wasteful, inefficient and has serious safety and quality issues. While other industries have surmounted similar challenges by transforming themselves through information technology, healthcare lags behind. Major reasons are that our approaches to care delivery and financial incentives were designed for a bygone era. Beyond that the technology offered to practitioners has often been overly expensive, poorly designed, overly proprietary, hard to implement and difficult to use. Spurred by a unique, one-time Federal stimulus and the new mobile, wireless and cloud technologies now available, this landscape is rapidly changing. To succeed going forward practitioners, and those interested in entering the field, need to understand the new driving forces and have a basic understanding of contemporary clinical informatics. Practitioners, in particular, need to understand the alternative technologies and approaches available for their use in individual patient care and more continuous management of their chronic disease patients. To efficiently meet these needs, this book provides an introduction to the rationale for care transformation through clinical informatics; its application to patient care outside of hospitals; and a look at its future. Key points are illustrated throughout by actual examples of open source and commercial health IT products and services. While written with practitioners and students entering the field of clinical informatics in mind, the book eschews technical terminology and is easily accessible by the lay reader not proficient in clinical medicine or information technology.
Rain Formation in Warm Clouds Jun 11 2022 This book aims to promote the understanding of some of the basic mathematical and scientific issues in the subjects relating to climate dynamics, chaos and quantum mechanics. It is based on substantial research work in atmospheric science carried out over twenty years. Atmospheric flows exhibit self similar fractal fluctuations, a signature of long-range correlations on all space-time scales. Realistic simulation and prediction of atmospheric flows requires the incorporation of the physics of observed fractal fluctuation characteristics in traditional meteorological theory. A general systems theory model for fractal space-time fluctuations in turbulent atmospheric flows is presented and applied to the formation of rain in warm clouds. This model gives scale-free universal governing equations for cloud growth processes. The model predicted cloud parameters are in agreement with reported observations, in particular, the cloud drop-size distribution. Rain formation can occur in warm clouds within 30 minutes as observed in practice under favourable conditions of moisture supply in the environment. Traditional cloud physical concepts for rain development requires over an hour for a full-sized raindrop to form. The book provides background reading for postgraduate students of Meteorology, Atmospheric Sciences/Physics, Environmental Sciences, and scientists working in the field of the topic of the book as well as the multidisciplinary field of Nonlinear Dynamics and Chaos.
Dynamic Spectrum Access for Wireless Networks Feb 13 2020 This SpringerBrief presents adaptive resource allocation schemes for secondary users for dynamic spectrum access (DSA) in cognitive radio networks (CRNs) by considering Quality-of-Service requirements, admission control, power/rate control, interference constraints, and the impact of spectrum

sensing or primary user interruptions. It presents the challenges, motivations, and applications of the different schemes. The authors discuss cloud-assisted geolocation-aware adaptive resource allocation in CRNs by outsourcing computationally intensive processing to the cloud. Game theoretic approaches are presented to solve resource allocation problems in CRNs. Numerical results are presented to evaluate the performance of the proposed methods. Adaptive Resource Allocation in Cognitive Radio Networks is designed for professionals and researchers working in the area of wireless networks. Advanced-level students in electrical engineering and computer science, especially those focused on wireless networks, will find this information helpful.

Big Data Dec 13 2019 This Springer Brief provides a comprehensive overview of the background and recent developments of big data. The value chain of big data is divided into four phases: data generation, data acquisition, data storage and data analysis. For each phase, the book introduces the general background, discusses technical challenges and reviews the latest advances. Technologies under discussion include cloud computing, Internet of Things, data centers, Hadoop and more. The authors also explore several representative applications of big data such as enterprise management, online social networks, healthcare and medical applications, collective intelligence and smart grids. This book concludes with a thoughtful discussion of possible research directions and development trends in the field. Big Data: Related Technologies, Challenges and Future Prospects is a concise yet thorough examination of this exciting area. It is designed for researchers and professionals interested in big data or related research. Advanced-level students in computer science and electrical engineering will also find this book useful.

Dynamic Cloud Collaboration Platform Apr 28 2021 Present trends in cloud providers (CPs) capabilities have given rise to the interest in federating or collaborating clouds, thus allowing providers to revel on an increased scale and reach more than that is achievable individually. Current research efforts in this context mainly focus on building supply chain collaboration (SCC) models, in which CPs leverage cloud services from other CPs for seamless provisioning. Nevertheless, in the near future, we can expect that hundreds of CPs will compete to offer services and thousands of users will also compete to receive the services to run their complex heterogeneous applications on a cloud computing environment. In this open federation scenario, existing collaboration models (i.e. SCC) are not applicable since they are designed for static environments where a-priori agreements among the parties are needed to establish the federation. To move beyond these shortcomings, Dynamic Cloud Collaboration Platform establishes the basis for developing dynamic, advanced and efficient collaborative cloud service solutions that are scalable, high performance, and cost effective. We term the technology for inter-connection and inter-operation of CPs in open cloud federation as Dynamic Cloud Collaboration (DCC), in which various CPs (small, medium, and large) of complementary service requirements will collaborate dynamically to gain economies of scale and enlargements of their capabilities to meet quality of service (QoS) requirements of consumers. In this context, this book addresses four key issues - when to collaborate (triggering circumstances), whom to collaborate with (suitable partners), how to collaborate (architectural model), and how to demonstrate collaboration applicability (simulation study). It also provides solutions, which are effective in real environments.

Homomorphic Encryption and Applications Jun 18 2020 This book introduces the fundamental concepts of homomorphic encryption. From these foundations, applications are developed in the fields of private information retrieval, private searching on streaming data, privacy-preserving data mining, electronic voting and cloud computing. The content is presented in an instructional and practical style, with concrete examples to enhance the reader's understanding. This volume achieves a balance between the theoretical and the practical components of modern information security. Readers will learn key principles of homomorphic encryption as well as their application in solving real world problems.

Proceedings of the 6th International Conference on Advance Computing and Intelligent Engineering Oct 23 2020 This book gathers high-quality research papers presented at the 6th International Conference on Advanced Computing and Intelligent Engineering (ICACIE 2021) organized by Bhubaneswar Institute of Technology, Bhubaneswar, Odisha, India, during December 23–24, 2021. It includes sections describing technical advances and the latest research in the fields of computing and intelligent engineering. Intended for graduate students and researchers working in the disciplines of computer science and engineering, the proceedings also appeal to researchers in the field of electronics, as they cover hardware technologies and future communication technologies.

Software Testing in the Cloud Sep 14 2022 For a large, complex system, the amount of test cases in a regression test suite can range from a few hundred to several thousands, which can take hours or even days to execute. Regression testing also requires considerable resources that are often not readily available. This precludes their use in an interactive setting, further contributing to an inefficient testing process. Cloud computing offers the use of virtualized hardware, effectively unlimited storage, and software services that can help reduce the execution time of large test suites in a cost-effective manner. The research presented by Tilley and Parveen leverages the resources provided by cloud computing infrastructure to facilitate the concurrent execution of test cases. They introduce a decision framework called SMART-T to support migration of software testing to the cloud, a distributed environment called HadoopUnit for the concurrent execution of test cases in the cloud, and a series of case studies illustrating the use of the framework and the environment. Experimental results indicate a significant reduction in test execution time is possible when compared with a typical sequential environment. Software testing in the cloud is a subject of high interest for advanced practitioners and academic researchers alike. For advanced practitioners, the issue of cloud computing and its impact on the field of software testing is becoming increasingly relevant. For academic researchers, this is a subject that is replete with interesting challenges; there are so many open problems that graduate students will be busy for years to come.

To further disseminate results in this field, the authors created a community of interest called “Software Testing in the Cloud” (www.STITC.org), and they encourage all readers to get involved in this exciting new area.

Virtualized Cloud Data Center Networks: Issues in Resource Management. Apr 16 2020 This book discusses the characteristics of virtualized cloud networking, identifies the requirements of cloud network management, and illustrates the challenges in deploying virtual clusters in multi-tenant cloud data centers. The book also introduces network partitioning techniques to provide contention-free allocation, topology-invariant reallocation, and highly efficient resource utilization, based on the Fat-tree network structure. Managing cloud data center resources without considering resource contentions among different cloud services and dynamic resource demands adversely affects the performance of cloud services and reduces the resource utilization of cloud data centers. These challenges are mainly due to strict cluster topology requirements, resource contentions between uncooperative cloud services, and spatial/temporal data center resource fragmentation. Cloud data center network resource allocation/reallocation which cope well with such challenges will allow cloud services to be provisioned with predictable network performance, mitigate service performance degradation and even guarantee service level agreements. Virtualized Cloud Data Center Networks: Issues in Resource Management tackles the challenges of managing cloud data center networks and introduces techniques to efficiently deploy large-scale distributed computing applications that require predictable performance in multi-tenant cloud data centers.

Distributed Denial of Service Attack and Defense Jul 20 2020 This brief provides readers a complete and self-contained resource for information about DDoS attacks and how to defend against them. It presents the latest developments in this increasingly crucial field along with background context and survey material. The book also supplies an overview of DDoS attack issues, DDoS attack detection methods, DDoS attack source traceback, and details on how hackers organize DDoS attacks. The author concludes with future directions of the field, including the impact of DDoS attacks on cloud computing and cloud technology. The concise yet comprehensive nature of this brief makes it an ideal reference for researchers and professionals studying DDoS attacks. It is also a useful resource for graduate students interested in cyberterrorism and networking.

Big Data 2.0 Processing Systems Oct 11 2019 This book provides readers the “big picture” and a comprehensive survey of the domain of big data processing systems. For the past decade, the Hadoop framework has dominated the world of big data processing, yet recently academia and industry have started to recognize its limitations in several application domains and big data processing scenarios such as the large-scale processing of structured data, graph data and streaming data. Thus, it is now gradually being replaced by a collection of engines that are dedicated to specific verticals (e.g. structured data, graph data, and streaming data). The book explores this new wave of systems, which it refers to as Big Data 2.0 processing systems. After Chapter 1 presents the general background of the big data phenomena, Chapter 2 provides an overview of various general-purpose big data processing systems that allow their users to develop various big data processing jobs for different application domains. In turn, Chapter 3 examines various systems that have been introduced to support the SQL flavor on top of the Hadoop infrastructure and provide competing and scalable performance in the processing of large-scale structured data. Chapter 4 discusses several systems that have been designed to tackle the problem of large-scale graph processing, while the main focus of Chapter 5 is on several systems that have been designed to provide scalable solutions for processing big data streams, and on other sets of systems that have been introduced to support the development of data pipelines between various types of big data processing jobs and systems. Lastly, Chapter 6 shares conclusions and an outlook on future research challenges. Overall, the book offers a valuable reference guide for students, researchers and professionals in the domain of big data processing systems. Further, its comprehensive content will hopefully encourage readers to pursue further research on the subject.

Cloud Computing Basics Feb 19 2023 Cloud Computing Basics covers the main aspects of this fast moving technology so that both practitioners and students will be able to understand cloud computing. The author highlights the key aspects of this technology that a potential user might want to investigate before deciding to adopt this service. This book explains how cloud services can be used to augment existing services such as storage, backup and recovery. Addressing the details on how cloud security works and what the users must be prepared for when they move their data to the cloud. Also this book discusses how businesses could prepare for compliance with the laws as well as industry standards such as the Payment Card Industry.

Edge Computing: A Primer Aug 01 2021 The success of the Internet of Things and rich cloud services have helped create the need for edge computing, in which data processing occurs in part at the network edge, rather than completely in the cloud. In Edge Computing: A Primer the vision and definition of Edge computing is introduced, as well as several key techniques that enable Edge computing. Then, four applications that benefit from Edge computing are presented as case studies, ranging from smart homes and public safety to medical services, followed by a discussion of several open challenges and opportunities in Edge computing. Finally, several key tools for edge computing such as virtualization and resource management are explained.

Inventive Systems and Control May 30 2021 This book presents selected papers from the 5th International Conference on Inventive Systems and Control (ICISC 2021), held on 7–8 January 2021 at JCT College of Engineering and Technology, Coimbatore, India. The book includes an analysis of the class of intelligent systems and control techniques that utilises various artificial intelligence technologies, where there are no mathematical models and systems available to make them remain controlled. Inspired by various existing intelligent

techniques, the primary goal is to present the emerging innovative models to tackle the challenges faced by the existing computing and communication technologies. The proceedings of ICISC 2021 aim at presenting the state-of-the-art research developments, trends, and solutions for the challenges faced by the intelligent systems and control community with the real-world applications. The included research articles feature the novel and unpublished research works on intelligent system representation and control.

Cloud Portability and Interoperability Nov 04 2021 This book offers readers a quick, comprehensive and up-to-date overview of the most important methodologies, technologies, APIs and standards related to the portability and interoperability of cloud applications and services, illustrated by a number of use cases representing a variety of interoperability and portability scenarios. The lack of portability and interoperability between cloud platforms at different service levels is the main issue affecting cloud-based services today. The brokering, negotiation, management, monitoring and reconfiguration of cloud resources are challenging tasks for developers and users of cloud applications due to the different business models associated with resource consumption, and to the variety of services and features offered by different cloud providers. In chapter 1 the concepts of cloud portability and interoperability are introduced, together with the issues and limitations arising when such features are lacking or ignored. Subsequently, chapter 2 provides an overview of the state-of-the-art methodologies and technologies that are currently used or being explored to enable cloud portability and interoperability. Chapter 3 illustrates the main cross-platform cloud APIs and how they can solve interoperability and portability issues. In turn, chapter 4 presents a set of ready-to-use solutions which, either because of their broad-scale use in cloud computing scenarios or because they utilize established or emerging standards, play a fundamental part in providing interoperable and portable solutions. Lastly, chapter 5 presents an overview of emerging standards for cloud Interoperability and portability. Researchers and developers of cloud-based services will find here a brief survey of the relevant methodologies, APIs and standards, illustrated by case studies and complemented by an extensive reference list for more detailed descriptions of every topic covered.

Combinatorial Testing in Cloud Computing Apr 09 2022 This book introduces readers to an advanced combinatorial testing approach and its application in the cloud environment. Based on test algebra and fault location analysis, the proposed combinatorial testing method can support experiments with 250 components (with 2 * (250) combinations), and can detect the fault location based on the testing results. This function can efficiently decrease the size of candidate testing sets and therefore increase testing efficiency. The proposed solution’s effectiveness in the cloud environment is demonstrated using a range of experiments.

Model-driven Development and Operation of Multi-cloud Applications Sep 02 2021 This book is open access under a CC BY 4.0 license.

Survey of Cloud Computing Dec 17 2022 'A Survey of Cloud Computing' covers a wide range of topics making it a great tool for anyone looking for a quick, yet comprehensive reference on this subject.

Auction Based Resource Provisioning in Cloud Computing Oct 03 2021 The book, while introducing readers to the auction mechanism for resource provisioning in cloud computing, also endeavors to provide structured literature on the subject. Since various models have been proposed, it will help readers to formulate the cloud resource provisioning problem using the auction approach. The book also discusses challenges for resource provisioning in detail, helping to shape future research. The target audience for this book includes computer scientists, economists, industry professionals, research scholars, and postgraduate students. Computer science readers of this book will come to see that economics-based method are quite helpful in computer science, especially for resource provisioning. Readers with a cloud computing background will come to recognize the importance of dynamic pricing, the specific benefits of auctions, and how to formulate auctions for cloud computing. Lastly, readers from the economics community will come to understand their role in cloud computing, as well as where and how they can contribute.

Elements of Cloud Storage Security Jan 14 2020 This work provides guidelines for the practical implementation of security architecture in a particular corporate cloud. The authors are mathematicians and specialists in data modeling and security. Experience of scientific collaboration with industry inspired the authors to attempt to conceptualize the common processes and strategies in cloud security, in order to make security system deployment as simple and transparent as possible. The deployment is broken into several essential steps that allow the functionality of security architecture for any cloud to be split into a set of modules. The continuous verification of security support on all levels (data, processes and communication channels) helps to avoid common security breaches and protect against the most dangerous attacks. Additionally, performing the proposed optimization of the selected set of mechanisms will enhance the efficiency of the security system.

Remote Sensing Advances for Earth System Science Sep 21 2020 To better understand the various processes and interactions that govern the Earth system and to determine whether recent human-induced changes could ultimately de-stabilise its dynamics, both natural system variability and the consequences of human activities have to be observed and quantified. In this context, the European Space Agency (ESA) published in 2006 the document “The Changing Earth: New Scientific Challenges for ESA's Living Planet Programme” as the main driver of ESA’s new Earth Observation (EO) science strategy. The document outlines 25 major scientific challenges covering all the different aspects of the Earth system, where EO technology and ESA missions may provide a key contribution. In this framework, and aiming at enhancing the ESA scientific support towards the achievement of “The Challenges”, the Agency has launched in 2008 a new initiative – the Changing Earth Science Network – to support young scientists to undertake leading-edge research activities contributing to achieve the 25 scientific challenges of the LPP by maximising the use of ESA data. The initiative is implemented through a number of research projects proposed and led by early-

stage scientists at post-doctoral level for a period of two years which are summarized in this SpringerBrief. These projects undertake innovative research activities furthering into the most pressing issues of the Earth system, while exploiting ESA missions data with special attention to the ESA data archives and the new Earth Explorer missions.
Secure Compressive Sensing in Multimedia Data, Cloud Computing and IoT Dec 05 2021 This book gives a comprehensive and systematic review of secure compressive sensing (CS) for applications in various fields such as image processing, pattern recognition, Internet of things (IoT), and cloud computing. It will help readers grasp the knowledge of secure CS and its applications, and stimulate more readers to work on the research and development of secure CS. It discusses how CS becomes a cryptosystem, followed by the corresponding designs and analyses. The application of CS in multimedia data encryption is presented, in which the general design framework is given together with several particular frameworks including parallel CS, involvement of image processing techniques, and double protection mechanism. It also describes the applications of CS in cloud computing security and IoT security, i.e., privacy-preserving reconstruction in cloud computing and secure low-cost sampling in IoT, respectively.
The Design of Cloud Workflow Systems Feb 07 2022 Cloud computing is the latest market-oriented computing paradigm which brings software design and development into a new era characterized by “XaaS”, i.e. everything as a service. Cloud workflows, as typical software applications in the cloud, are composed of a set of partially ordered cloud software services to achieve specific goals. However, due to the low QoS (quality of service) nature of the cloud environment, the design of workflow systems in the cloud becomes a challenging issue for the delivery of high quality cloud workflow applications. To address such an issue, this book presents a systematic investigation to the three critical aspects for the design of a cloud workflow system, viz. system architecture, system functionality and quality of service. Specifically, the system architecture for a cloud workflow system is designed based on the general four-layer cloud architecture, viz. application layer, platform layer, unified resources layer and fabric layer. The system functionality for a cloud workflow system is designed based on the general workflow reference model but with significant extensions to accommodate software services in the cloud. The support of QoS is critical for the quality of cloud workflow applications. This book presents a generic framework to facilitate a unified design and development process for software components that deliver lifecycle support for different QoS requirements. While the general QoS requirements for cloud workflow applications can have many dimensions, this book mainly focuses on three of the most important ones, viz. performance, reliability and security. In this book, the architecture, functionality and QoS management of our SwinDeW-C prototype cloud workflow system are demonstrated in detail as a case study to evaluate our generic design for cloud workflow systems. To conclude, this book offers a general overview of cloud workflow systems and provides comprehensive introductions to the design of the system architecture, system functionality and QoS management.
Lightning Discharges Nov 11 2019 This book highlights the basic information about lightning. It is an unpredictable disaster, and it is an extremely complex electrical discharge phenomenon. A complete theory of lightning does not exist till now. This book elaborates on the basic formation of lightning, terminologies related to lightning, and the preliminary lightning theory. There are different types of lightning, such as cloud flashes, ground flashes (both positive and negative), and air discharges. This book explains some unusual events related to lightning and inspects innovation. This book also describes the measurement of electric and magnetic fields generated by lightning, which are the basic parameters for lightning fundamentals.
High-Performance Computational Solutions in Protein Bioinformatics Aug 21 2020 Recent developments in computer science enable algorithms previously perceived as too time-consuming to now be efficiently used for applications in bioinformatics and life sciences. This work focuses on proteins and their structures, protein structure similarity searching at main representation levels and various techniques that can be used to accelerate similarity searches. Divided into four parts, the first part provides a formal model of 3D protein structures for functional genomics, comparative bioinformatics and molecular modeling. The second part focuses on the use of multithreading for efficient approximate searching on protein secondary structures. The third and fourth parts concentrate on finding 3D protein structure similarities with the support of GPUs and cloud computing. Parts three and four both describe the acceleration of different methods. The text will be of interest to researchers and software developers working in the field of structural bioinformatics and biomedical databases.
Service-Oriented Computing--ICSOC 2013 Workshops Nov 23 2020 This book constitutes the revised selected papers of the workshops of the 11th International Conference on Service-Oriented Computing (ICSOC 2013), held in Berlin, Germany, in December 2013. The conference hosted the following five workshops: 3rd International Workshop on Cloud Computing and Scientific Applications (CCSA'13); 1st International Workshop on Cloud Service Brokerage (CSB'13); 1st International Workshop on Pervasive Analytical Service Clouds for the Enterprise and Beyond (PASCEB'13); 9th International Workshop on Semantic Web Enabled Software Engineering (SWESE'13); 9th International Workshop on Engineering Service-Oriented Applications (WESOA'13); and a PhD Symposium, with best papers also being included in this book. The 54 papers included in this volume were carefully reviewed and selected from numerous submissions. They address various topics in the service-oriented computing domain and its emerging applications.
Optimal Surface Fitting of Point Clouds Using Local Refinement Jan 06 2022 This open access book provides insights into the novel Locally Refined B-spline (LR B-spline) surface format, which is suited for representing terrain and seabed data in a compact way. It provides an alternative to the well know raster and triangulated surface representations. An LR B-spline surface has an overall smooth behavior and allows the modeling of local details with only a limited growth in data volume. In regions where many data points belong to the same

smooth area, LR B-splines allow a very lean representation of the shape by locally adapting the resolution of the spline space to the size and local shape variations of the region. The iterative method can be modified to improve the accuracy in particular domains of a point cloud. The use of statistical information criterion can help determining the optimal threshold, the number of iterations to perform as well as some parameters of the underlying mathematical functions (degree of the splines, parameter representation). The resulting surfaces are well suited for analysis and computing secondary information such as contour curves and minimum and maximum points. Also deformation analysis are potential applications of fitting point clouds with LR B-splines.

Research Anthology on Privatizing and Securing Data Mar 16 2020 With the immense amount of data that is now available online, security concerns have been an issue from the start, and have grown as new technologies are increasingly integrated in data collection, storage, and transmission. Online cyber threats, cyber terrorism, hacking, and other cybercrimes have begun to take advantage of this information that can be easily accessed if not properly handled. New privacy and security measures have been developed to address this cause for concern and have become an essential area of research within the past few years and into the foreseeable future. The ways in which data is secured and privatized should be discussed in terms of the technologies being used, the methods and models for security that have been developed, and the ways in which risks can be detected, analyzed, and mitigated. The Research Anthology on Privatizing and Securing Data reveals the latest tools and technologies for privatizing and securing data across different technologies and industries. It takes a deeper dive into both risk detection and mitigation, including an analysis of cybercrimes and cyber threats, along with a sharper focus on the technologies and methods being actively implemented and utilized to secure data online. Highlighted topics include information governance and privacy, cybersecurity, data protection, challenges in big data, security threats, and more. This book is essential for data analysts, cybersecurity professionals, data scientists, security analysts, IT specialists, practitioners, researchers, academicians, and students interested in the latest trends and technologies for privatizing and securing data.

Handling Priority Inversion in Time-Constrained Distributed Databases May 10 2022 In the computer science industry, high levels of performance remain the focal point in software engineering. This quest has made current systems exceedingly complex, as practitioners strive to discover novel approaches to increase the capabilities of modern computer structures. A prevalent area of research in recent years is scalable transaction processing and its usage in large databases and cloud computing. Despite its popularity, there remains a need for significant research in the understanding of scalability and its performance within distributed databases. Handling Priority Inversion in Time-Constrained Distributed Databases provides emerging research exploring the theoretical and practical aspects of database transaction processing frameworks and improving their performance using modern technologies and algorithms. Featuring coverage on a broad range of topics such as consistency mechanisms, real-time systems, and replica management, this book is ideally designed for IT professionals, computing specialists, developers, researchers, data engineers, executives, academics, and students seeking research on current trends and developments in distributed computing and databases.

Digital Entrepreneurship and Global Innovation Mar 28 2021 Succeeding in the modern business world is a multi-faceted endeavor that involves numerous parts. By implementing effective strategies, companies can strive toward achieving a competitive advantage. Digital Entrepreneurship and Global Innovation is a pivotal reference source for the latest academic material on strategic entrepreneurship initiatives to facilitate organizational growth and success, focusing on the role of digital technologies in business environments. Highlighting theoretical frameworks, industry perspectives, and emerging methodologies, this book is ideally designed for professionals, practitioners, upper-level students, and researchers involved in the field of entrepreneurship.

QoS Prediction in Cloud and Service Computing Nov 16 2022 This book offers a systematic and practical overview of Quality of Service prediction in cloud and service computing. Intended to thoroughly prepare the reader for research in cloud performance, the book first identifies common problems in QoS prediction and proposes three QoS prediction models to address them. Then it demonstrates the benefits of QoS prediction in two QoS-aware research areas. Lastly, it collects large-scale real-world temporal QoS data and publicly releases the datasets, making it a valuable resource for the research community. The book will appeal to professionals involved in cloud computing and graduate students working on QoS-related problems.

Video Processing in the Cloud Aug 13 2022 As computer systems evolve, the volume of data to be processed increases significantly, either as a consequence of the expanding amount of available information, or due to the possibility of performing highly complex operations that were not feasible in the past. Nevertheless, tasks that depend on the manipulation of large amounts of information are still performed at large computational cost, i.e., either the processing time will be large, or they will require intensive use of computer resources. In this scenario, the efficient use of available computational resources is paramount, and creates a demand for systems that can optimize the use of resources in relation to the amount of data to be processed. This problem becomes increasingly critical when the volume of information to be processed is variable, i.e., there is a seasonal variation of demand. Such demand variations are caused by a variety of factors, such as an unanticipated burst of client requests, a time-critical simulation, or high volumes of simultaneous video uploads, e.g. as a consequence of a public contest. In these cases, there are moments when the demand is very low (resources are almost idle) while, conversely, at other moments, the processing demand exceeds the resources capacity. Moreover, from an economical perspective, seasonal demands do not justify a massive investment in infrastructure, just to provide enough

computing power for peak situations. In this light, the ability to build adaptive systems, capable of using on demand resources provided by Cloud Computing infrastructures is very attractive.

Model-Driven Development and Operation of Multi-Cloud Applications May 18 2020 This books is open access under a CC BY 4.0 license. This book summarizes work being undertaken within the collaborative MODAClouds research project, which aims to facilitate interoperability between heterogeneous Cloud platforms and remove the constraints of deployment, portability, and reversibility for end users of Cloud services. Experts involved in the project provide a clear overview of the MODAClouds approach and explain how it operates in a variety of applications. While the wide spectrum of available Clouds constitutes a vibrant technical environment, many early-stage issues pose specific challenges from a software engineering perspective. MODAClouds will provide methods, a decision support system, and an open source IDE and run-time environment for the high-level design, early prototyping, semiautomatic code generation, and automatic deployment of applications on multiple Clouds. It will free developers from the need to commit to a fixed Cloud technology stack during software design and offer benefits in terms of cost savings, portability of applications and data between Clouds, reversibility (moving applications and data from Cloud to non-Cloud environments), risk management, quality assurance, and flexibility in the development process.

Crowd-Powered Mobile Computing and Smart Things Dec 25 2020 This SpringerBrief provides a synergistic overview of technology trends by emphasizing five linked perspectives: crowd+cloud machines, extreme cooperation with smart things, scalable context-awareness, drone services for mobile crowds and social links in mobile crowds. The authors also highlight issues and challenges at the intersection of these trends. Topics covered include cloud computing, Internet of Things, mobile and wearable computing, crowd computing, the culture of thing sharing, collective computing, and swarm dynamics. The brief is a useful resource and a starting point for researchers, students or anyone interested in the contemporary computing landscape.

Resource Management in Utility and Cloud Computing Feb 24 2021 This SpringerBrief reviews the existing market-oriented strategies for economically managing resource allocation in distributed systems. It describes three new schemes that address cost-efficiency, user incentives, and allocation fairness with regard to different scheduling contexts. The first scheme, taking the Amazon EC2TM market as a case of study, investigates the optimal resource rental planning models based on linear integer programming and stochastic optimization techniques. This model is useful to explore the interaction between the cloud infrastructure provider and the cloud resource customers. The second scheme targets a free-trade resource market, studying the interactions amongst multiple rational resource traders. Leveraging an optimization framework from AI, this scheme examines the spontaneous exchange of resources among multiple resource owners. Finally, the third scheme describes an experimental market-oriented resource sharing platform inspired by eBay's transaction model. The study presented in this book sheds light on economic models and their implication to the utility-oriented scheduling problems.

Cloud Based 5G Wireless Networks Jan 26 2021 This SpringerBrief introduces key techniques for 5G wireless networks. The authors cover the development of wireless networks that led to 5G, and how 5G mobile communication technology (5G) can no longer be defined by a single business model or a typical technical characteristic. The discussed networks functions and services include Network Foundation Virtualization (N-FV), Cloud Radio Access Networks (Cloud-RAN), and Mobile Cloud Networking (MCN). The benefits of cloud platforms are examined, as are definable networking and green wireless networking. Other related and representative projects on 5G are mobile and wireless communications enablers for the Twenty-Twenty Information Society, Multi-hop Cellular Networks, Network Function as-a-Service over Virtualized Infrastructures, iJOIN, and Nuage Virtualized Services Platform. Major applications of 5G range from RAN sharing and Multi-Operator Core Networks to mobile convergence. Enhancing the user experience by providing smart and customized services, 5G will support the explosive growth of big data, mobile internet, digital media, and system efficiency. This SpringerBrief is designed for professionals, researchers, and academics working in networks or system applications. Advanced-level students of computer science or computer engineering will also find the content valuable.

Elements of Cloud Computing Security Oct 15 2022 This book offers a thorough yet easy-to-read reference guide to various aspects of cloud computing security. It begins with an introduction to the general concepts of cloud computing, followed by a discussion of security aspects that examines how cloud security differs from conventional information security and reviews cloud-specific classes of threats and attacks. A range of varying threats in cloud computing are covered, from threats of data loss and data breaches, to threats to availability and threats posed by malicious insiders. Further, the book discusses attacks launched on different levels, including attacks on the hypervisor, and on the confidentiality of data. Newer types, such as side-channel attacks and resource-freeing attacks, are also described. The work closes by providing a set of general security recommendations for the cloud.

Health Informatics in the Cloud Jul 12 2022 Despite its high cost, the US healthcare system produces relatively short life spans, and is wasteful, inefficient and has serious safety and quality issues. While other industries have surmounted similar challenges by transforming themselves through information technology, healthcare lags behind. Major reasons are that our approaches to care delivery and financial incentives were designed for a bygone era. Beyond that the technology offered to practitioners has often been overly expensive, poorly designed, overly proprietary, hard to implement and difficult to use. Spurred by a unique, one-time Federal stimulus and the new mobile, wireless and cloud technologies now available, this landscape is rapidly changing. To succeed going forward practitioners, and those interested in entering the field, need to understand the new driving forces and have a basic understanding of contemporary clinical informatics. Practitioners, in particular, need to understand the alternative technologies and approaches available for their use in

individual patient care and more continuous management of their chronic disease patients. To efficiently meet these needs, this book provides an introduction to the rationale for care transformation through clinical informatics; its application to patient care outside of hospitals; and a look at its future. Key points are illustrated throughout by actual examples of open source and commercial health IT products and services. While written with practitioners and students entering the field of clinical informatics in mind, the book eschews technical terminology and is easily accessible by the lay reader not proficient in clinical medicine or information technology.

Scalable Signal Processing in Cloud Radio Access Networks Mar 08 2022 This Springerbreif introduces a threshold-based channel sparsification approach, and then, the sparsity is exploited for scalable channel training. Last but not least, this brief introduces two scalable cooperative signal detection algorithms in C-RANs. The authors wish to spur new research activities in the following important question: how to leverage the revolutionary architecture of C-RAN to attain unprecedented system capacity at an affordable cost and complexity. Cloud radio access network (C-RAN) is a novel mobile network architecture that has a lot of significance in future wireless networks like 5G. the high density of remote radio heads in C-RANs leads to severe scalability issues in terms of computational and implementation complexities. This Springerbrief undertakes a comprehensive study on scalable signal processing for C-RANs, where ‘scalable’ means that the computational and implementation complexities do not grow rapidly with the network size. This Springerbrief will be target researchers and professionals working in the Cloud Radio Access Network (C-Ran) field, as well as advanced-level students studying electrical engineering.

Security for Cloud Storage Systems Jun 30 2021 Cloud storage is an important service of cloud computing, which offers service for data owners to host their data in the cloud. This new paradigm of data hosting and data access services introduces two major security concerns. The first is the protection of data integrity. Data owners may not fully trust the cloud server and worry that data stored in the cloud could be corrupted or even removed. The second is data access control. Data owners may worry that some dishonest servers provide data access to users that are not permitted for profit gain and thus they can no longer rely on the servers for access control. To protect the data integrity in the cloud, an efficient and secure dynamic auditing protocol is introduced, which can support dynamic auditing and batch auditing. To ensure the data security in the cloud, two efficient and secure data access control schemes are introduced in this brief: ABAC for Single-authority Systems and DAC-MACS for Multi-authority Systems. While Ciphertext-Policy Attribute-based Encryption (CP-ABE) is a promising technique for access control of encrypted data, the existing schemes cannot be directly applied to data access control for cloud storage systems because of the attribute revocation problem. To solve the attribute revocation problem, new Revocable CP-ABE methods are proposed in both ABAC and DAC-MACS.