

Systems Performance Enterprise And The Cloud Brendan Gregg

The Enterprise Cloud James Bond 2015-05-19 Despite the buzz surrounding the cloud computing, only a small percentage of organizations have actually deployed this new style of IT—so far. If you're planning your long-term cloud strategy, this practical book provides insider knowledge and actionable real-world lessons regarding planning, design, operations, security, and application transformation. This book teaches business and technology managers how to transition their organization's traditional IT to cloud computing. Rather than yet another book trying to sell or convince readers on the benefits of clouds, this book provides guidance, lessons learned, and best practices on how to design, deploy, operate, and secure an enterprise cloud based on real-world experience. Author James Bond provides useful guidance and best-practice checklists based on his field experience with real customers and cloud providers. You'll view cloud services from the perspective of a consumer and as an owner/operator of an enterprise private or hybrid cloud, and learn valuable lessons from successful and less-than-successful organization use-case scenarios. This is the information every CIO needs in order to make the business and technical decisions to finally execute on their journey to cloud computing. Get updated trends and definitions in cloud computing, deployment models, and for building or buying cloud services Discover challenges in cloud operations and management not foreseen by early adopters Use real-world lessons to plan and build an enterprise private or hybrid cloud Learn how to assess, port, and migrate legacy applications to the cloud Identify security threats and vulnerabilities unique to the cloud Employ a cloud management system for your enterprise (private or multi-provider hybrid) cloud ecosystem Understand the challenges for becoming an IT service broker leveraging the power of the cloud

Grids, Clouds and Virtualization Massimo Cafaro 2010-09-14

Research into grid computing has been driven by the need to solve large-scale, increasingly complex problems for scientific applications. Yet the applications of grid computing for business and casual users did not begin to emerge until the development of the concept of cloud computing, fueled by advances in virtualization techniques, coupled with the increased availability of ever-greater Internet bandwidth. The appeal of this new paradigm is mainly based on its simplicity, and the affordable price for seamless access to both computational and storage resources. This timely text/reference introduces the fundamental principles and techniques underlying grids, clouds and virtualization technologies, as well as reviewing the latest research and expected future developments in the field. Readers are guided through the key topics by internationally recognized experts, enabling them to develop their understanding of an area likely to play an ever more significant role in coming years. Topics and features: presents contributions from an international selection of experts in the field; provides a thorough introduction and overview of existing technologies in grids, clouds and virtualization, including a brief history of the field; examines the basic requirements for performance isolation of virtual machines on multi-core servers, analyzing a selection of system virtualization technologies; examines both business and scientific applications of grids and clouds, including their use in the life sciences and for high-performance computing; explores cloud building technologies, architectures for enhancing grid infrastructures with cloud computing, and cloud performance; discusses energy aware grids and clouds, workflows on grids and clouds, and cloud and grid programming models. This useful text will enable interested readers to familiarize themselves with the key topics of grids, clouds and virtualization, and to contribute to new advances in the field. Researchers, undergraduate and graduate students, system designers and programmers, and IT policy makers will all benefit from the material covered.

Guide to Cloud Computing for Business and Technology Managers

Vivek Kale 2014-12-17 *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 repackageable building blocks for generating dynamic real-world enterprise business processes.

Systems Performance Brendan Gregg 2014 The Complete Guide to Optimizing Systems Performance Written by the winner of the 2013 LISA Award for Outstanding Achievement in System Administration Large-scale enterprise, cloud, and virtualized computing systems have introduced serious performance challenges. Now, internationally renowned performance expert Brendan Gregg has brought together proven methodologies, tools, and metrics for analyzing and tuning even the most complex environments. *Systems Performance: Enterprise and the Cloud* focuses on Linux(R) and Unix(R) performance, while illuminating performance issues that are relevant to all operating systems. You'll gain deep insight into how systems work and perform, and learn methodologies for analyzing and improving system and application performance. Gregg presents examples from bare-metal systems and virtualized cloud tenants running Linux-based Ubuntu(R), Fedora(R), CentOS, and the illumos-based Joyent(R) SmartOS(TM) and OmniTI OmniOS(R). He systematically covers modern systems performance, including the "traditional" analysis of CPUs, memory, disks, and networks, and new areas including cloud computing and dynamic tracing. This book also helps you identify and fix the "unknown unknowns" of complex performance: bottlenecks that emerge from elements and interactions you were not aware of. The text concludes with a detailed case study, showing how a real cloud customer issue was analyzed from start to finish. Coverage includes - Modern performance analysis and tuning: terminology, concepts, models, methods, and techniques - Dynamic tracing techniques and tools, including examples of DTrace, SystemTap, and perf - Kernel internals: uncovering what the OS is doing - Using system observability tools, interfaces, and frameworks - Understanding and monitoring application performance - Optimizing CPUs: processors, cores, hardware threads, caches, interconnects, and kernel scheduling - Memory optimization: virtual memory, paging, swapping, memory architectures, busses, address spaces, and allocators - File system I/O, including caching - Storage devices/controllers, disk I/O workloads, RAID, and kernel I/O - Network-related performance issues: protocols, sockets, interfaces, and physical connections - Performance implications of OS and hardware-based virtualization, and new issues encountered with cloud computing - Benchmarking: getting accurate results and avoiding common mistakes This guide is indispensable for anyone who operates enterprise or cloud environments: system, network, database, and web admins; developers; and other professionals. For students and others new to optimization, it also provides exercises reflecting Gregg's extensive instructional experience.

Cloud Computing Nick Antonopoulos 2017-06-12 This practically-focused reference presents a comprehensive overview of the state of the art in Cloud Computing, and examines the potential for future Cloud and Cloud-related technologies to address specific industrial and research challenges. This new edition explores both established and emergent principles, techniques, protocols and algorithms involved with the design, development, and management of Cloud-based systems. The text reviews a range of applications and methods for linking Clouds, undertaking data management and scientific data analysis, and addressing requirements both of data analysis and of management of large scale and complex systems. This new edition also extends into the emergent next generation of mobile telecommunications, relating network function virtualization and mobile edge Cloud Computing, as supports Smart Grids and Smart Cities. As with the first edition, emphasis is placed on the four quality-of-service cornerstones of efficiency, scalability, robustness, and security.

Cloud Native Transformation Pini Reznik 2019-12-05 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

High-Performance IT Services Terry Critchley 2016-10-04 This book on performance fundamentals covers UNIX, OpenVMS, Linux, Windows, and MVS. Most of the theory and systems design principles can be applied to other operating systems, as can some of the benchmarks. The book equips professionals with the ability to assess performance characteristics in unfamiliar environments. It is suitable for practitioners, especially those whose responsibilities include performance management, tuning, and capacity planning. IT managers with a technical outlook also benefit from the book as well as consultants and students in the world of systems for the first time in a professional capacity.

Cloud Computing Zaigham Mahmood 2013-05-16 This book presents both state-of-the-art research developments and practical guidance on approaches, technologies and frameworks for the emerging cloud paradigm. Topics and features: presents the state of the art in cloud technologies, infrastructures, and service delivery and deployment models; discusses relevant theoretical frameworks, practical approaches and suggested methodologies; offers guidance and best practices for the development of cloud-based services and infrastructures, and examines management aspects of cloud computing; reviews consumer perspectives on mobile cloud computing and cloud-based enterprise resource planning; explores software performance testing, open-source cloudware support, and assessment methodologies for modernization, migration and pre-migration; describes emerging new methodologies relevant to the cloud paradigm, and provides suggestions for future developments and research directions.

Essentials of Cloud Computing Chellammal Surianarayanan 2019-08-27 This reader-friendly textbook presents a comprehensive overview of the essential aspects of cloud computing, from the origin of the field to the latest developments. Rather than merely discussing the cloud paradigm in isolation, the text also examines how cloud computing can work collaboratively with other computing models to meet the needs of evolving computing trends. This multi-dimensional approach encompasses the challenges of fulfilling the storage requirements of big data, the use of the cloud as a remote server for Internet of Things and sensor networks, and an investigation of how cloud computing is interlinked with edge, fog and mist computing, among other illuminating perspectives. Topics and features: includes learning objectives, motivating questions, and self-test exercises in every chapter; presents an introduction to the underlying concepts, fundamental features, and key technological foundations of cloud computing; examines how enterprise networking and cloud networking can work together to achieve business goals; reviews the different types of cloud storage available to address the evolution of data and the need for digitization; discusses the challenges and approaches to implementing cloud security, and the hot topic of cloud management; highlights the value of cloud brokerage capabilities, and explains the importance of cloud orchestration in multi-cloud environments; describes the details of cloud migration, the crucial role of monitoring in optimizing the cloud, and the basics of disaster recovery using cloud infrastructure. This technically rigorous yet simple-to-follow textbook is an ideal resource for graduate courses on cloud computing. Professional software developers and cloud

architects will also find the work to be an invaluable reference.

Chaos Engineering Mikolaj Pawlikowski 2021-02-14 Chaos Engineering teaches you to design and execute controlled experiments that uncover hidden problems. Summary Auto engineers test the safety of a car by intentionally crashing it and carefully observing the results. Chaos engineering applies the same principles to software systems. In Chaos Engineering: Site reliability through controlled disruption, you'll learn to run your applications and infrastructure through a series of tests that simulate real-life failures. You'll maximize the benefits of chaos engineering by learning to think like a chaos engineer, and how to design the proper experiments to ensure the reliability of your software. With examples that cover a whole spectrum of software, you'll be ready to run an intensive testing regime on anything from a simple WordPress site to a massive distributed system running on Kubernetes. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Can your network survive a devastating failure? Could an accident bring your day-to-day operations to a halt? Chaos engineering simulates infrastructure outages, component crashes, and other calamities to show how systems and staff respond. Testing systems in distress is the best way to ensure their future resilience, which is especially important for complex, large-scale applications with little room for downtime. About the book Chaos Engineering teaches you to design and execute controlled experiments that uncover hidden problems. Learn to inject system-shaking failures that disrupt system calls, networking, APIs, and Kubernetes-based microservices infrastructures. To help you practice, the book includes a downloadable Linux VM image with a suite of preconfigured tools so you can experiment quickly—without risk. What's inside Inject failure into processes, applications, and virtual machines Test software running on Kubernetes Work with both open source and legacy software Simulate database connection latency Test and improve your team's failure response About the reader Assumes Linux servers. Basic scripting skills required. About the author Mikolaj Pawlikowski is a recognized authority on chaos engineering. He is the creator of the Kubernetes chaos engineering tool PowerfulSeal, and the networking visibility tool Goldpinger. Table of Contents 1 Into the world of chaos engineering PART 1 - CHAOS ENGINEERING FUNDAMENTALS 2 First cup of chaos and blast radius 3 Observability 4 Database trouble and testing in production PART 2 - CHAOS ENGINEERING IN ACTION 5 Poking Docker 6 Who you gonna call? Syscall-busters! 7 Injecting failure into the JVM 8 Application-level fault injection 9 There's a monkey in my browser! PART 3 - CHAOS ENGINEERING IN KUBERNETES 10 Chaos in Kubernetes 11 Automating Kubernetes experiments 12 Under the hood of Kubernetes 13 Chaos engineering (for) people **BPF Performance Tools** Brendan Gregg 2019-11-27 Use BPF Tools to Optimize Performance, Fix Problems, and See Inside Running Systems BPF-based performance tools give you unprecedented visibility into systems and applications, so you can optimize performance, troubleshoot code, strengthen security, and reduce costs. BPF Performance Tools: Linux System and Application Observability is the definitive guide to using these tools for observability. Pioneering BPF expert Brendan Gregg presents more than 150 ready-to-run analysis and debugging tools, expert guidance on applying them, and step-by-step tutorials on developing your own. You'll learn how to analyze CPUs, memory, disks, file systems, networking, languages, applications, containers, hypervisors, security, and the kernel. Gregg guides you from basic to advanced tools, helping you generate deeper, more useful technical insights for improving virtually any Linux system or application. • Learn essential tracing concepts and both core BPF front-ends: BCC and bpftrace • Master 150+ powerful BPF tools, including dozens created just for this book, and available for download • Discover practical strategies, tips, and tricks for more effective analysis • Analyze compiled, JIT-compiled, and interpreted code in multiple languages: C, Java, bash shell, and more • Generate metrics, stack traces, and custom latency histograms • Use complementary tools when they offer quick, easy wins • Explore advanced tools built on BPF: PCP and Grafana for remote monitoring, eBPF Exporter, and kubectrl-trace for tracing Kubernetes • Foreword by Alexei Starovoitov, creator of the new BPF BPF Performance Tools will be an indispensable resource for all administrators, developers, support staff, and other IT professionals working with any recent Linux distribution in any enterprise or cloud environment.

Cloud Computing Lizhe Wang 2017-12-19 Cloud computing has created a shift from the use of physical hardware and locally managed software-enabled platforms to that of virtualized cloud-hosted services. Cloud

assembles large networks of virtual services, including hardware (CPU, storage, and network) and software resources (databases, message queuing systems, monitoring systems, and load-balancers). As Cloud continues to revolutionize applications in academia, industry, government, and many other fields, the transition to this efficient and flexible platform presents serious challenges at both theoretical and practical levels—ones that will often require new approaches and practices in all areas. Comprehensive and timely, *Cloud Computing: Methodology, Systems, and Applications* summarizes progress in state-of-the-art research and offers step-by-step instruction on how to implement it. Summarizes Cloud Developments, Identifies Research Challenges, and Outlines Future Directions Ideal for a broad audience that includes researchers, engineers, IT professionals, and graduate students, this book is designed in three sections: Fundamentals of Cloud Computing: Concept, Methodology, and Overview Cloud Computing Functionalities and Provisioning Case Studies, Applications, and Future Directions It addresses the obvious technical aspects of using Cloud but goes beyond, exploring the cultural/social and regulatory/legal challenges that are quickly coming to the forefront of discussion. Properly applied as part of an overall IT strategy, Cloud can help small and medium business enterprises (SMEs) and governments in optimizing expenditure on application-hosting infrastructure. This material outlines a strategy for using Cloud to exploit opportunities in areas including, but not limited to, government, research, business, high-performance computing, web hosting, social networking, and multimedia. With contributions from a host of internationally recognized researchers, this reference delves into everything from necessary changes in users' initial mindset to actual physical requirements for the successful integration of Cloud into existing in-house infrastructure. Using case studies throughout to reinforce concepts, this book also addresses recent advances and future directions in methodologies, taxonomies, IaaS/SaaS, data management and processing, programming models, and applications.

To the Cloud: Cloud Powering an Enterprise Pankaj Arora 2012-03-07 This invaluable guide addresses the Why, What, and How of enterprise cloud adoption, leveraging a clear framework and proven best practices from Microsoft's own experience. "Great book. What's particularly impressive is the outline of steps Microsoft itself is taking in its move to the cloud. Do as I do is always more powerful than do as I say."—Al Ries, Coauthor, *War in the Boardroom* "This book takes on enterprise cloud adoption to a level I've not seen before—made even more elegant with its structured framework and crisp approach."—Anthony D. Christie, CMO, Level 3 Communications, Former CTO/CIO, Global Crossing "A practical and timely guide that covers the entire journey to the cloud from an enterprise perspective, including business, technology, and organizational impact."—Bart Luijten, CIO Corporate Functions & Corporate Technology, Philips "The cloud powers business solutions for building tomorrow's enterprise and this book offers a simple, well-structured, and high-level process map for cloud adoption."—Kris Gopalakrishnan, Executive Co-Chairman, Infosys Limited Cloud computing is full of tremendous opportunity, but is also riddled with hype and confusion. Business and technology leaders know the cloud is essential, but lack clarity and experience. *To the Cloud* cuts through the noise and addresses the Why, What, and How of enterprise cloud adoption. The book lays out a four-step framework leveraging the experience and best practices of Microsoft's own IT group. It provides end-to-end business and technology guidance, including how to analyze application portfolios to identify good cloud candidates, choose the right cloud models, consider architecture and security, and understand how shifting operations to the cloud affects budgeting and staffing. The book is applicable to all cloud platforms and providers, and debunks myths in its clear and concise style (e.g., real clouds are more than just web hosting, virtualization, or the Internet itself rebranded). It takes a balanced approach, addressing concerns and hybrid adoption scenarios alike. Leveraging the authors' proven expertise working for Microsoft's CIO on cloud migration and with cloud platform development teams, the book is supported by clear frameworks, graphics, tables, summaries, and checklists to provide a true practitioner's guide to the cloud. In this book, you will learn how to Explore cloud computing to understand its promise and challenges Envision how cloud computing can transform your organization Enable your organization with the necessary resources and skills Execute the design, development, and operation of cloud workloads *To the Cloud* is an essential guide for IT professionals seeking to lower total cost of ownership, improve the return on IT investment of existing services, or help the business bring new products to market more quickly.

Oracle Solaris 11.2 System Administration Handbook (Oracle Press) Harry Foxwell 2015-10-23 This Oracle Press guide offers complete coverage of Oracle Solaris 11.2 installation, configuration, management, security, and tuning This handbook includes cutting-edge information on Oracle Solaris 11.2, providing you the essential skills needed to successfully set up, deploy, and maintain a Solaris system. Every aspect of Solaris system administration is explained in full detail, including configuration, networking, performance, security, virtualization, and cloud computing. *Oracle Solaris 11 System Administration Handbook* features up-to-date details on new technologies such as OpenStack cloud support, Unified Archives provisioning, Kernel Zone virtualization, and software defined networking. You will learn the keys to optimizing Oracle Solaris 11.2 instances with the hands-on technical instruction and shared best practices contained in this authoritative volume from Oracle Press. Real-world case studies provide detailed scenarios and ready-to-deploy solutions Tips and best practices for administration are included throughout Covers brand-new configuration tools and techniques

The Cloud at Your Service Arthur Mateos 2010-11-21 Cloud Computing is here to stay. As an economically viable way for businesses of all sizes to distribute computing, this technology shows tremendous promise. But the intense hype surrounding the Cloud is making it next to impossible for responsible IT managers and business decision-makers to get a clear understanding of what the Cloud really means, what it might do for them, when it is practical, and what their future with the Cloud looks like. *The Cloud at Your Service* helps cut through all this fog to help enterprises make these critical decisions based on facts and the authors' informed unbiased recommendations and predictions. Purchase of the print book comes with an offer of a free PDF, ePub, and Kindle eBook from Manning. Also available is all code from the book.

Cloud Computing Venkata Josyula 2011-11-29 The complete guide to provisioning and managing cloud-based Infrastructure as a Service (IaaS) data center solutions Cloud computing will revolutionize the way IT resources are deployed, configured, and managed for years to come. Service providers and customers each stand to realize tremendous value from this paradigm shift—if they can take advantage of it. Cloud Computing brings together the realistic, start-to-finish guidance they need to plan, implement, and manage cloud solution architectures for tomorrow's virtualized data centers. It introduces cloud "newcomers" to essential concepts, and offers experienced operations professionals detailed guidance on delivering Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS). This book's replicable solutions and fully-tested best practices will help enterprises, service providers, consultants, and Cisco partners meet the challenge of provisioning end-to-end cloud infrastructures. Drawing on extensive experience working with leading cloud vendors and integrators, the authors present detailed operations workflow examples, proven techniques for operating cloud-based network, compute, and storage infrastructure; a comprehensive management reference architecture; and a complete case study demonstrating rapid, lower-cost solutions design. Cloud Computing will be an indispensable resource for all network/IT professionals and managers involved with planning, implementing, or managing the next generation of cloud computing services. Venkata (Josh) Josyula, Ph.D., CCIE® No. 13518 is a Distinguished Services Engineer in Cisco Services Technology Group (CSTG) and advises Cisco customers on OSS/BSS architecture and solutions. Malcolm Orr, Solutions Architect for Cisco's Services Technology Solutions, advises telecoms and enterprise clients on architecting, building, and operating OSS/BSS and cloud management stacks. He is Cisco's lead architect for several Tier 1 public cloud projects. Greg Page has spent the last eleven years with Cisco in technical consulting roles relating to data center architecture/technology and service provider security. He is now exclusively focused on developing cloud/IaaS solutions with service providers and systems integrator partners.

- Review the key concepts needed to successfully deploy clouds and cloud-based services
- Transition common enterprise design patterns and use cases to the cloud
- Master architectural principles and infrastructure designs for "real-time" managed IT services
- Understand the Cisco approach to cloud-related technologies, systems, and services
- Develop a cloud management architecture using ITIL, TMF, and ITU-TMN standards
- Implement best practices for cloud service provisioning, activation, and management
- Automate cloud infrastructure to simplify service delivery, monitoring, and assurance
- Choose and implement the right billing/chargeback approaches for your business
- Design and build IaaS services, from start to finish
- Manage the unique capacity challenges associated with sporadic, real-time

demand · Provide a consistent and optimal cloud user experience This book is part of the Networking Technology Series from Cisco Press®, which offers networking professionals valuable information for constructing efficient networks, understanding new technologies, and building successful careers. Category: Cloud Computing Covers: Virtualized Data Centers

Cloud Service Benchmarking David Bernbach 2017-03-27 Cloud service benchmarking can provide important, sometimes surprising insights into the quality of services and leads to a more quality-driven design and engineering of complex software architectures that use such services. Starting with a broad introduction to the field, this book guides readers step-by-step through the process of designing, implementing and executing a cloud service benchmark, as well as understanding and dealing with its results. It covers all aspects of cloud service benchmarking, i.e., both benchmarking the cloud and benchmarking in the cloud, at a basic level. The book is divided into five parts: Part I discusses what cloud benchmarking is, provides an overview of cloud services and their key properties, and describes the notion of a cloud system and cloud-service quality. It also addresses the benchmarking lifecycle and the motivations behind running benchmarks in particular phases of an application lifecycle. Part II then focuses on benchmark design by discussing key objectives (e.g., repeatability, fairness, or understandability) and defining metrics and measurement methods, and by giving advice on developing own measurement methods and metrics. Next, Part III explores benchmark execution and implementation challenges and objectives as well as aspects like runtime monitoring and result collection. Subsequently, Part IV addresses benchmark results, covering topics such as an abstract process for turning data into insights, data preprocessing, and basic data analysis methods. Lastly, Part V concludes the book with a summary, suggestions for further reading and pointers to benchmarking tools available on the Web. The book is intended for researchers and graduate students of computer science and related subjects looking for an introduction to benchmarking cloud services, but also for industry practitioners who are interested in evaluating the quality of cloud services or who want to assess key qualities of their own implementations through cloud-based experiments.

Systems Performance Brendan Gregg 2021 Systems performance analysis and tuning lead to a better end-user experience and lower costs, especially for cloud computing environments that charge by the OS instance. *Systems Performance, 2nd Edition* covers concepts, strategy, tools, and tuning for operating systems and applications, using Linux-based operating systems as the primary example. World-renowned systems performance expert Brendan Gregg summarizes relevant operating system, hardware, and application theory to quickly get professionals up to speed even if they've never analyzed performance before, and to refresh and update advanced readers' knowledge. Gregg illuminates the latest tools and techniques, including extended BPF, showing how to get the most out of your systems in cloud, web, and large-scale enterprise environments. He covers these and other key topics: Hardware, kernel, and application internals, and how they perform Methodologies for rapid performance analysis of complex systems Optimizing CPU, memory, file system, disk, and networking usage Sophisticated profiling and tracing with perf, Ftrace, and BPF (BCC and bpftrace) Performance challenges associated with cloud computing hypervisors Benchmarking more effectively Fully updated for current Linux operating systems and environments, *Systems Performance, 2nd Edition* addresses issues that apply to any computer system. The book will be a go-to reference for many years to come and recommended reading at many tech companies, like its predecessor first edition.

Assured Cloud Computing Roy H. Campbell 2018-08-06 Explores key challenges and solutions to assured cloud computing today and provides a provocative look at the face of cloud computing tomorrow This book offers readers a comprehensive suite of solutions for resolving many of the key challenges to achieving high levels of assurance in cloud computing. The distillation of critical research findings generated by the Assured Cloud Computing Center of Excellence (ACC-UCoE) of the University of Illinois, Urbana-Champaign, it provides unique insights into the current and future shape of robust, dependable, and secure cloud-based computing and data cyberinfrastructures. A survivable and distributed cloud-computing-based infrastructure can enable the configuration of any dynamic systems-of-systems that contain both trusted and partially trusted resources and services sourced from multiple organizations. To assure mission-critical computations and workflows that rely on such systems-of-systems it is necessary to ensure

that a given configuration does not violate any security or reliability requirements. Furthermore, it is necessary to model the trustworthiness of a workflow or computation fulfillment to a high level of assurance. In presenting the substance of the work done by the ACC-UCoE, this book provides a vision for assured cloud computing illustrating how individual research contributions relate to each other and to the big picture of assured cloud computing. In addition, the book: Explores dominant themes in cloud-based systems, including design correctness, support for big data and analytics, monitoring and detection, network considerations, and performance Synthesizes heavily cited earlier work on topics such as DARE, trust mechanisms, and elastic graphs, as well as newer research findings on topics, including R-Storm, and RAMP transactions Addresses assured cloud computing concerns such as game theory, stream processing, storage, algorithms, workflow, scheduling, access control, formal analysis of safety, and streaming Bringing together the freshest thinking and applications in one of today's most important topics, Assured Cloud Computing is a must-read for researchers and professionals in the fields of computer science and engineering, especially those working within industrial, military, and governmental contexts. It is also a valuable reference for advanced students of computer science.

Systems Performance, 2nd Edition Brendan Gregg 2020 *Systems Performance, Second Edition*, covers concepts, strategy, tools, and tuning for operating systems and applications, using Linux-based operating systems as the primary example. A deep understanding of these tools and techniques is critical for developers today. Implementing the strategies described in this thoroughly revised and updated edition can lead to a better end-user experience and lower costs, especially for cloud computing environments that charge by the OS instance. Systems performance expert and best-selling author Brendan Gregg summarizes relevant operating system, hardware, and application theory to quickly get professionals up to speed even if they've never analyzed performance before. Gregg then provides in-depth explanations of the latest tools and techniques, including extended BPF, and shows how to get the most out of cloud, web, and large-scale enterprise systems. Key topics covered include Hardware, kernel, and application internals, and how they perform Methodologies for rapid performance analysis of complex systems Optimizing CPU, memory, file system, disk, and networking usage Sophisticated profiling and tracing with perf, Ftrace, and BPF (BCC and bpftrace) Performance challenges associated with cloud computing hypervisors Benchmarking more effectively Featuring up-to-date coverage of Linux operating systems and environments, *Systems Performance, Second Edition*, also addresses issues that apply to any computer system. The book will be a go-to reference for many years to come and, like the first edition, required reading at leading tech companies. Register your book for convenient access to downloads, updates, and/or corrections as they become available. See inside book for details.

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Brendan Gregg PDF eBook download haven that beckons readers into a world of literary wonders. In this Systems Performance Enterprise And The Cloud Brendan Gregg review, we will delve into the intricacies of the platform, exploring its features, content diversity, user interface, and the overall reading experience it promises.

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