Systems Performance Enterprise And The Cloud

STERLING BRANSON

The Goal National Academies Press
BPF and related observability tools give software professionals unprecedented visibility into software, helping them analyze operating system and application performance, troubleshoot code, and strengthen security. BPF Performance Tools: Linux System and Application Observability is the industry's most comprehensive guide to using these tools for observability. Brendan Gregg, author of the industry's definitive guide to system performance, introduces powerful new methods and tools for doing analysis that leads to more robust, reliable, and safer code. This authoritative guide: Explores a wide spectrum of software and hardware targets Thoroughly covers open source BPF tools from the Linux Foundation iovisor project's bcc and bpftrace repositories Summarizes performance engineering and kernel internals you need to understand Provides and discusses 150+ bpftrace tools, including 80 written specifically for this book: tools you can run as-is, without programming — or customize and develop further, using diverse interfaces and the bpftrace front-end You'll learn how to use BPF (eBPF) tracing tools to analyze CPUs, memory, disks, file systems, networking, languages, applications, containers, hypervisors, security, and the Linux kernel. You'll move from basic to advanced tools and techniques, producing new metrics, stack traces, custom latency histograms, and more. It's like having a superpower: with Gregg's guidance and tools, you can analyze virtually everything that impacts system performance, so you can improve virtually any Linux operating system or application.

Learn Azure in a Month of Lunches, Second Edition John Wiley & Sons
Application Performance Management (APM) in the Digital Enterprise enables IT professionals to be more successful in managing their company's applications. It explores the fundamentals of application management, examines how the latest technological trends impact application management, and provides best practices for responding to these changes. The recent surge in the use of containers as a way to simplify management and deploy applications has created new challenges, and the convergence of containerization, cloud, mobile, virtualization, analytics, and automation is reshaping the requirements for application management. This book serves as a guide for understanding these dramatic changes and how they impact the management of applications, showing how to create a management strategy, define the underlying processes and standards, and how to select the appropriate tools to enable management processes. Offers a complete framework for implementing effective application management using clear tips and solutions for those responsible for application management Draws upon primary research to give technologists a current understanding of the latest technologies and processes needed to more effectively manage large-scale applications Includes real-world case studies and business justifications that support application management investments
Enterprise Analytics Morgan Kaufmann
Can a system be considered truly reliable if it isn't fundamentally secure? Or can it be considered secure if it's unreliable? Security is crucial to the design and operation of scalable systems in production, as it plays an important part in product quality, performance, and availability. In this book, experts from Google share best practices to help your organization design scalable and reliable systems that are fundamentally secure. Two previous

O’Reilly books from Google—Site Reliability Engineering and The Site Reliability Workbook—demonstrated how and why a commitment to the entire service lifecycle enables organizations to successfully build, deploy, monitor, and maintain software systems. In this latest guide, the authors offer insights into system design, implementation, and maintenance from practitioners who specialize in security and reliability. They also discuss how building and adopting their recommended best practices requires a culture that’s supportive of such change. You’ll learn about secure and reliable systems through: Design strategies Recommendations for coding, testing, and debugging practices Strategies to prepare for, respond to, and recover from incidents Cultural best practices that help teams across your organization collaborate effectively

Architecting High Performing, Scalable and Available Enterprise Web Applications Manning Publications

Winner of the Shingo Publication Award Accelerate your organization to win in the marketplace. How can we apply technology to drive business value? For years, we've been told that the performance of software delivery teams doesn't matter—that it can't provide a competitive advantage to our companies. Through four years of groundbreaking research to include data collected from the State of DevOps reports conducted with Puppet, Dr. Nicole Forsgren, Jez Humble, and Gene Kim set out to find a way to measure software delivery performance—and what drives it—using rigorous statistical methods. This book presents both the findings and the science behind that research, making the information accessible for readers to apply in their own organizations. Readers will discover how to measure the performance of their teams, and what capabilities they should invest in to drive higher performance. This book is ideal for management at every level.

The Enterprise Cloud CRC Press

Innovation principles to bring about meaningful and sustainablegrowth in your organization Using a list of more than 2,000 successful innovations,including Cirque du Soleil, early IBM mainframes, the Ford Model-T,and many more, the authors applied a proprietary algorithm anddetermined ten meaningful groupings—the Ten Types ofInnovation—that provided insight into innovation. The TenTypes of Innovation explores these insights to diagnosepatterns of innovation within industries, to identify innovationopportunities, and to evaluate how firms are performing againstcompetitors. The framework has proven to be one of the mostenduring and useful ways to start thinking abouttransformation. Details how you can use these innovation principles to bringabout meaningful—and sustainable—growth within yourorganization Author Larry Keeley is a world renowned speaker, innovationconsultant, and president and co-founder of Doblin, the innovationpractice of Monitor Group; BusinessWeek named Keeley one of sevenInnovation Gurus who are changing the field The Ten Types of Innovation concept has influenced thousands ofexecutives and companies around the world since its discovery in1998. The Ten Types of Innovation is the first bookexplaining how to implement it.

Performance Modeling and Design of Computer Systems Routledge

The success of information backup systems does not rest on IT administrators alone. Rather, a well-designed backup system comes about only when several key factors coalesce—business involvement, IT acceptance, best practice designs, enterprise software, and reliable hardware. Enterprise Systems Backup and Recovery: A Corporate Insurance Policy provides organizations with a comprehensive understanding of the principles and features involved in effective enterprise backups. Instead of focusing on any individual backup product, this book recommends corporate procedures and policies that need to be established for comprehensive data protection. It provides relevant information to any organization, regardless of which operating systems or applications are deployed, what backup system is in place, or what planning has been done for business continuity. It explains how backup must be included in every phase of system planning, development, operation, and maintenance. It also provides techniques for analyzing and improving current backup system performance. After reviewing the concepts in this book, organizations will be able to answer these questions with respect to their enterprise: What features and functionality should be expected in a backup environment? What terminology and concepts are unique to backup software, and what can be related to other areas? How can a backup system be monitored successfully? How can the performance of a backup system be improved? What features are just "window dressing" and should be ignored, as opposed to those features that are relevant? Backup and recovery systems touch on just about every system in an organization. Properly implemented, they can provide an enterprise with greater assurance that its information is safe. By utilizing the information in this book, organizations can take a greater step toward improving the security of their data and preventing the devastating loss of data and business revenue that can occur with poorly constructed or inefficient systems.

Designing Distributed Systems Pearson

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® and Unix® 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®, Fedora®, CentOS, and the illumos-based Joyent® SmartOS™ and OmniTI OmniOS®. 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.

Building Secure and Reliable Systems Systems Performance

Enterprise Process Management Systems: Engineering Process-Centric Enterprise Systems using BPMN 2.0 proposes a process-centric paradigm to replace the traditional data-centric paradigm for Enterprise Systems (ES)--ES should be reengineered from the present data-centric enterprise architecture to process-centric process architecture to be called as Enterprise Process Management Systems (EPMS). The real significance of business processes can be understood in the context of current heightened priority on digital transformation or digitalization of enterprises. Conceiving the roadmap to realize a digitalized enterprise via the business model innovation becomes amenable only from the process-centric view of the enterprise. This pragmatic book: Introduces Enterprise Process Management Systems (EPMS) solutions that enable an agile enterprise. Describes distributed systems and Service Oriented Architecture (SOA) that paved the road to EPMS. Leverages SOA to explain the cloud-based realization of business processes in terms of Web Services. Describes how BPMN 2.0 addresses the requirements for agility by ensuring a seamless methodological path from process requirements modeling to execution and back (to enable process improvements). Presents the spreadsheet-driven Spreadsheeter Application Development (SAD) methodology for the design and development of process-centric application systems. Describes process improvement programs ranging right from disruptive programs like BPR to continuous improvement programs like lean, six sigma and TOC. Enterprise Process Management Systems: Engineering Process-Centric Enterprise Systems using BPMN 2.0 describes how BPMN 2.0 can not only capture business requirements but it can also provide the backbone of the actual solution implementation. Thus, the same diagram prepared by the business analyst to describe the business’s desired To-Be process can also be used to automate the execution of that process on a modern process engine.

Lean Enterprise Software and Systems John Wiley & Sons

Architecting High Performing, Scalable and Available Enterprise Web Applications provides in-depth insights into techniques for achieving desired scalability, availability and performance quality goals for enterprise web applications. The book provides an integrated 360-degree view of achieving and maintaining these attributes through practical, proven patterns, novel models, best practices, performance strategies, and continuous improvement methodologies and case studies. The author shares his years of experience in application security, enterprise application testing, caching techniques, production operations and maintenance, and efficient project management techniques. Delivers holistic view of scalability, availability and security, caching, testing and project management Includes patterns and frameworks that are illustrated with end-to-end case studies Offers tips and troubleshooting methods for enterprise application testing, security, caching, production operations and project management Exploration of synergies between techniques and methodologies to achieve end-to-end availability, scalability, performance and security quality attributes 360-degree viewpoint approach for achieving overall quality Practitioner viewpoint on proven patterns, techniques, methodologies, models and best practices. Bulleted summary and tabular representation of concepts for effective understanding Production operations and troubleshooting tips

Enterprise Systems Backup and Recovery Prentice Hall

Without standardized construction elements such as nuts, bolts, bearings, beams, resistors and the like, the design of physical equipment is hopelessly inefficient, and engineers are continually bogged down with re-designing these elements over and over again. The same can be said for the domain of ideas and performance requirements. Only through a process of standardization of the corresponding functional elements will systems engineering truly live up to its potential of increased efficiency and quality. Designing Complex Systems: Foundations of Design in the Functional Domain introduces students and practitioners in the field of system design to a particular methodology that addresses design issues in a rigorous and consistent top-down fashion. It also reassesses the characteristics of engineering and its place within the field of intellectual activity, in particular, examining the creative aspects of design as reflected in the difference between engineers and technicians. Erik W. Aslaksen brings forty years of experience to the table with this groundbreaking work. He examines how the concept of value can provide a quantitative measure of that wider interaction of the engineered object with its environment. With its forward-looking approach and holistic perspective, this volume is sure to advance the field of knowledge of systems engineering for years to come.

Handbook of Research on Enterprise Systems Routledge

Structured to follow the software life cycle, Patterns for Performance and Operability provides advice and examples-based instructions at every phase. You can read it from start to finish or go directly to those chapters that interest you the most. Whatever approach you choose, you will learn: How to: · Define and document comprehensive non-functional requirements for any software system · Define scope and logistics for non-functional test activities · Execute non-functional tests and report results clearly and effectively · Patterns for defensive software designs in common software scenarios that promote operability and availability · Implement the right level of reporting, monitoring, and trending for highly available production software systems Patterns for: · Software designs that support simpler and more efficient operation in a production environment · Software design that support high-performance and scalability Strategies and Techniques for: · Techniques for managing and troubleshooting during a production crisis · Strategies for resisting project pressure to compromise on quality or completeness of non-functional activities in the software cycle

The Journey to Enterprise Agility AMACOM

"[This book is] the most authoritative assessment of the advantages and disadvantages of recent trends toward the commercialization of health care," says Robert Pear of The New York Times. This major study by the Institute of Medicine examines virtually all aspects of for-profit health care in the United States, including the quality and availability of health care, the cost of medical care, access to financial capital, implications for education and research, and the fiduciary role of the physician. In addition to the report, the book contains 15 papers by experts in the field of for-profit health care covering a broad range of topicsâ€"from trends in the growth of major investor-owned hospital companies to the ethical issues in for-profit health care. "The report makes a lasting contribution to the health policy literature." â€"Journal of Health Politics, Policy and Law.

Business-Oriented Enterprise Integration for Organizational Agility "O'Reilly Media, Inc."

It's no secret that you can't improve your organization's performance without measuring it. In fact, every function, unit, process, and the organization as a whole, is built and run according to the parameters and expectations of its measurement system. So you'd better make sure you're doing it right.

All too often, performance measurement creates dysfunction, whether among individuals, teams, or across entire divisions and companies. Most traditional measurement systems actually encourage unhealthy competition for personal gain, creating internal conflict and breeding distrust of performance measurement. Transforming Performance Measurement presents a breakthrough approach that will not only significantly reduce those dysfunctions, but also promote alignment with business strategy, maximize cross-enterprise integration, and help everyone to work collaboratively to drive value throughout your organization. Performance improvement thought leader Dean Spitzer explains why performance measurement should be less about calculations and analysis and more about the crucial social factors that determine how well the measurements get used. His ""socialization of measurement"" process focuses on learning and improvement from measurement, and on the importance of asking such questions as: How well do our measures reflect our business model? How successfully are they driving our strategy? What should we be measuring and not measuring? Are the right people having the right measurement discussions? Performance measurement is a dynamic process that calls for an awareness of the balance necessary between seemingly disparate ideas: the technical and the social aspects of performance measurement. For example, you need technology to manage the flood of data, but you must make sure that it supports the people who will be making decisions and taking action crucial to your organization's success. This book shows you how to design that technical-social balance into your measurement system. While it is urgent to start taking action now, transforming your organization's performance measurement system will take time. Transforming Performance Measurement gives you assessment tools to gauge where you are now and a roadmap for moving, with little or no disruption, to a more "transformational" and mature measurement system. The book also provides 34 TMAPs, Transformational Measurement Action Plans, which suggest both well-accepted and "emergent" measures (in areas such as marketing, human resources, customer service, knowledge management, productivity, information technology, research and development, costing, and more) that you can use right away. In the end, you get what you measure. If you measure the wrong things, you will take your company farther and farther away from its mission and strategic goals. Transforming Performance Measurement tells you not only what to measure, but how to do it -- and in what context -- to make a truly transformational difference in your enterprise.

IT Revolution

The topic of Enterprise Information Systems (EIS) is having an increasingly relevant strategic impact on global business and the world economy, and organizations are undergoing hard investments in search of the rewarding benefits of efficiency and effectiveness that these ranges of solutions promise. Organizational Integration of Enterprise Systems and Resources: Advancements and Applications show that EIS are at the same time responsible for tremendous gains in some companies and tremendous losses in others. Therefore, their adoption should be carefully planned and managed. This title highlights new ways to identify opportunities and overtake trends and challenges of EIS selection, adoption, and exploitation as it is filled with models, solutions, tools, and case studies. The book provides researchers, scholars, and professionals with some of the most advanced research, solutions, and discussions of Enterprise Information Systems design, implementation, and management.

Patterns for Performance and Operability Cambridge University Press

Power and Performance: Software Analysis and Optimization is a guide to solving performance problems in modern Linux systems. Power-efficient chips are no help if the software those chips run on is inefficient. Starting with the necessary architectural background as a foundation, the book demonstrates the proper usage of performance analysis tools in order to pinpoint the cause of performance problems, and includes best practices for handling common performance issues those tools identify. Provides expert perspective from a key member of Intel’s optimization team on how processors and memory systems influence performance Presents ideas to improve architectures running mobile, desktop, or enterprise platforms Demonstrates best practices for designing experiments and benchmarking throughout the software lifecycle Explains the importance of profiling and measurement to determine the source of performance issues

Designing Complex Systems CRC Press

Data is at the center of many challenges in system design today. Difficult issues need to be figured out, such as scalability, consistency, reliability, efficiency, and maintainability. In addition, we have an overwhelming variety of tools, including relational databases, NoSQL datastores, stream or batch processors, and message brokers. What are the right choices for your application? How do you make sense of all these buzzwords? In this practical and comprehensive guide, author Martin Kleppmann helps you navigate this diverse landscape by examining the pros and cons of various technologies for processing and storing data. Software keeps changing, but the fundamental principles remain the same. With this book, software engineers and architects will learn how to apply those ideas in practice, and how to make full use of data in modern applications. Peer under the hood of the systems you already use, and learn how to use and operate them more effectively Make informed decisions by identifying the strengths and weaknesses of different tools Navigate the trade-offs around consistency, scalability, fault tolerance, and complexity Understand the distributed systems research upon which modern databases are built Peek behind the scenes of major online services, and learn from their architectures

Enterprise Performance Management Done Right Pearson Education

Written with computer scientists and engineers in mind, this book brings queueing theory decisively back to computer science.

Enterprise Java Performance "O'Reilly Media, Inc."

"International Institute for Analytics"--Dust jacket.

Enterprise IT Governance, Business Value and Performance Measurement John Wiley & Sons

Alex Rogo is a harried plant manager working ever more desperately to try and improve performance. His factory is rapidly heading for disaster. So is his marriage. He has ninety days to save his plant - or it will be closed by corporate HQ, with hundreds of job losses. It takes a chance meeting with a colleague from student days - Jonah - to help him break out of conventional ways of thinking to see what needs to be done. Described by Fortune as a 'guru to industry' and by Businessweek as a 'genius', Eliyahu M. Goldratt was an internationally recognized leader in the development of new business management concepts and systems. This 20th anniversary edition includes a series of detailed case study interviews by David Whitford, Editor at Large, Fortune Small Business, which explore how organizations around the world have been transformed by Eli Goldratt's ideas. The story of Alex's fight to save his plant contains a serious message for all managers in industry and explains the ideas which underline the Theory of Constraints (TOC) developed by Eli Goldratt. Written in a fast-paced thriller style, The Goal is the gripping novel which is transforming management thinking throughout the Western world. It is a book to recommend to your friends in industry - even to your bosses - but not to your competitors!

Transforming Performance Measurement O'Reilly Media

Poorly performing enterprise applications are the weakest links in a corporation's management chain, causing delays and disruptions of critical business functions. This groundbreaking book frames enterprise application performance engineering not as an art but as applied science built on model-based methodological foundation. The book introduces queuing models of enterprise application that visualize, demystify, explain, and solve system performance issues. Analysis of these models will help to discover and clarify unapparent connections and correlations among workloads, hardware architecture, and software parameters.

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