DevOps: A Software Architect's Perspective (SEI Series In Software Engineering)

Increase profitability, elevate work culture, and exceed productivity goals through DevOps practices. More than ever, the effective management of technology is critical for business competitiveness. For decades, technology leaders have struggled to balance agility, reliability, and security. The consequences of failure have never been greater?whether it's the healthcare.gov debacle, cardholder data breaches, or missing the boat with Big Data in the cloud. And yet, high performers using DevOps principles, such as Google, Amazon, Facebook, Etsy, and Netflix, are routinely and reliably deploying code into production hundreds, or even thousands, of times per day. Following in the footsteps of The Phoenix Project, The DevOps Handbook shows leaders how to replicate these incredible outcomes, by showing how to integrate Product Management, Development, QA, IT Operations, and Information Security to elevate your company and win in the marketplace.

A Comprehensive Process for Defining Software Architectures That Work A good software architecture is the foundation of any successful software system. Effective architecting requires a clear understanding of organizational roles, artifacts, activities performed, and the optimal sequence for performing those activities. With The Process of Software Architecting , Peter Eeles and Peter Cripps provide guidance on these challenges by covering all aspects of architecting a software system, introducing best-practice techniques that apply in every environment, whether based on Java EE, Microsoft .NET, or other technologies. Eeles and Cripps first illuminate concepts related to software architecture, including architecture documentation and reusable assets. Next, they present an accessible, task-focused guided tour through a typical project, focusing on the architect’s role, with common issues illuminated and addressed throughout. Finally, they conclude with a set of best practices that can be applied to today’s most complex systems. You will come away from this book understanding The role of the architect in a typical software development project How to document a software architecture to satisfy the needs of different stakeholders The applicability of reusable assets in the process of architecting The role of the architect with respect to requirements definition The derivation of an architecture based on a set of requirements The relevance of architecting in creating complex systems The Process of Software Architecting will be an indispensable resource for every working and aspiring software architect—and for every project manager and other software professional who needs to understand how architecture influences their work.

This book constitutes the thoroughly refereed post-conference proceedings of the 14th International Conference on Software Technologies, ICSOFT 2019, held in Prague, Czech Republic, in July 2019. The 10 revised full papers were carefully reviewed and selected from 116 submissions. The topics covered in the papers include: business process modelling, IT service management, interoperability and service-oriented architecture, project management software, scheduling and estimating, software metrics, requirements elicitation and specification, software and systems integration, etc.

The ultimate guide to successful interviews for Enterprise, Business, Domain, Solution, and Technical Architect roles as well as IT Advisory Consultant and Software Designer roles About This Book Learn about Enterprise Architects IT strategy and NFR – this book provides you with methodologies, best practices, and frameworks to ace your interview A holistic view of key architectural skills and competencies with 500+ questions that cover 12 domains 100+ diagrams depicting scenarios, models, and methodologies designed to help you prepare for your interview Who This Book Is For This book is for aspiring enterprise, business, domain, solution, and technical architects. It is also ideal for IT advisory consultants and IT designers who wish to interview for such a role. Interviewers will be able leverage this book to make sure they hire candidates with the right competencies to meet the role requirements. What You Will Learn Learn about IT strategies, NFR, methodologies, best practices, and frameworks to ace your interview Get a holistic view of key concepts, design principles, and patterns related to evangelizing web and Java enterprise applications Discover interview preparation guidelines through case studies Use this as a reference guide for adopting best practices, standards, and design guidelines Get a better understanding with 60+ diagrams depicting various scenarios, models, and methodologies Benefit from coverage of all architecture domains including EA (Business, Data, Infrastructure, and Application), SA, integration, NFRs, security, and SOA, with extended coverage from IT strategies to the NFR domain In Detail An architect attends multiple interviews for jobs or projects during the course of his or her career. This book is an interview resource created for designers, consultants, technical, solution, domain, enterprise, and chief architects to help them perform well in interview discussions and launch a successful career. The book begins by providing descriptions of architecture skills and competencies that cover the 12 key domains, including 350+ questions relating to these domains. The goal of this book is to cover all the core architectural domains. From an architect's perspective, it is impossible to revise or learn about all these key areas without a good reference guide – this book is the solution. It shares experiences, learning, insights, and proven methodologies that will benefit practitioners, SMEs, and aspirants in the long run. This book will help you tackle the NFR domain, which is a key aspect pertaining to architecting applications. It typically takes years to understand the core concepts, fundamentals, patterns, and principles related to architecture and designs. This book is a goldmine for the typical questions asked during an interview and will help prepare you for success! Style and approach This book will help you prepare for interviews for architectural profiles by providing likely questions, explanations, and expected answers. It is an insight-rich guide that will help you develop strategic, tactical, and operational thinking for your interview.

DevOps promises to accelerate the release of new software features and improve monitoring of systems in production, but its crucial implications for software architects and architecture are often ignored. In DevOps: A Software Architect's Perspective, three leading architects address these issues head-on. The authors review decisions software architects must make in order to achieve DevOps' goals and clarify how other DevOps participants are likely to impact the architect's work. They also provide the organizational, technical, and operational context needed to deploy DevOps more

efficiently, and review DevOps' impact on each development phase. The authors also address cross-cutting concerns that link multiple functions, offering practical insights into compliance, performance, reliability, repeatability, and security. This guide demonstrates the authors' ideas in action with three real-world case studies: datacenter maintenance for business continuity, management of a continuous deployment pipeline, and migration to a microservice architecture. Comprehensive coverage includes • Why DevOps can require major changes in both system architecture and IT roles • How virtualization and the cloud can enable DevOps practices • Integrating operations and its service lifecycle into DevOps • Designing new systems to work well with DevOps practices • Overcoming cultural and communication differences between Dev and Ops • Integrating DevOps with agile methods and TDD • Handling failure detection, upgrade planning, and other key issues • Managing consistency issues arising from DevOps' independent deployment models • Integrating security controls, roles, and audits into DevOps • Preparing a business plan for DevOps adoption, rollout, and measurement
The software development ecosystem is constantly changing, providing a constant stream of new tools, frameworks, techniques, and paradigms. Over the past few years, incremental developments in core engineering practices for software development have created the foundations for rethinking how architecture changes over time, along with ways to protect important architectural characteristics as it evolves. This practical guide ties those parts together with a new way to think about architecture and time.
A guide to successfully operating in a lean-agile organization for solutions architects and enterprise architects Key Features Develop the right combination of processes and technical excellence to address architectural challenges Explore a range of architectural techniques to modernize legacy systems Discover how to design and continuously improve well-architected sustainable software Book Description Many organizations have embraced Agile methodologies to transform their ability to rapidly respond to constantly changing customer demands. However, in this melee, many enterprises often neglect to invest in architects by presuming architecture is not an intrinsic element of Agile software development. Since the role of an architect is not pre-defined in Agile, many organizations struggle to position architects, often resulting in friction with other roles or a failure to provide a clear learning path for architects to be productive. This book guides architects and organizations through new Agile ways of incrementally developing the architecture for delivering an uninterrupted, continuous flow of values that meets customer needs. You'll explore various aspects of Agile architecture and how it differs from traditional architecture. The book later covers Agile architects' responsibilities and how architects can add significant value by positioning themselves appropriately in the Agile flow of work. Through examples, you'll also learn concepts such as architectural decision backlog,the last responsible moment, value delivery, architecting for change, DevOps, and evolutionary collaboration. By the end of this Agile book, you'll be able to operate as an architect in Agile development initiatives and successfully architect reliable software systems. What you will learn Acquire clarity on the duties of architects in Agile development Understand architectural styles such as domain-driven design and microservices Identify the pitfalls of traditional architecture and learn how to develop solutions Understand the principles of value and data-driven architecture Discover DevOps and continuous delivery from an architect's perspective Adopt Lean-Agile documentation and governance Develop a set of personal and interpersonal qualities Find out how to lead the transformation to achieve organization-wide agility Who this book is for This agile study guide is for architects currently working on agile development projects or aspiring to work on agile software delivery, irrespective of the methodology they are using. You will also find this book useful if you're a senior developer or a budding architect looking to understand an agile architect's role by embracing agile architecture strategies and a lean-agile mindset. To understand the concepts covered in this book easily, you need to have prior knowledge of basic agile development practices.
A comprehensive guide to exploring software architecture concepts and implementing best practices Key Features Enhance your skills to grow your career as a software architect Design efficient software architectures using patterns and best practices Learn how software architecture relates to an organization as well as software development methodology Book Description The Software Architect’s Handbook is a comprehensive guide to help developers, architects, and senior programmers advance their career in the software architecture domain. This book takes you through all the important concepts, right from design principles to different considerations at various stages of your career in software architecture. The book begins by covering the fundamentals, benefits, and purpose of software architecture. You will discover how software architecture relates to an organization, followed by identifying its significant quality attributes. Once you have covered the basics, you will explore design patterns, best practices, and paradigms for efficient software development. The book discusses which factors you need to consider for performance and security enhancements. You will learn to write documentation for your architectures and make appropriate decisions when considering DevOps. In addition to this, you will explore how to design legacy applications before understanding how to create software architectures that evolve as the market, business requirements, frameworks, tools, and best practices change over time. By the end of this book, you will not only have studied software architecture concepts but also built the soft skills necessary to grow in this field. What you will learn Design software architectures using patterns and best practices Explore the different considerations for designing software architecture Discover what it takes to continuously improve as a software architect Create loosely coupled systems that can support change Understand DevOps and how it affects software architecture Integrate, refactor, and re-architect legacy applications Who this book is for The Software Architect’s Handbook is for you if you are a software architect, chief technical officer (CTO), or senior developer looking to gain a firm grasp of software architecture.

The First Complete Guide to DevOps for Software Architects DevOps promises to accelerate the release of new software features and improve monitoring of systems in production, but its crucial implications for software architects and architecture are often ignored. In DevOps: A Software Architect's Perspective, three leading architects address these issues head-on. The authors review decisions software architects must make in order to achieve DevOps' goals and clarify how other DevOps participants are likely to impact the architect's work. They also provide the organizational, technical, and operational context needed to deploy DevOps more efficiently, and review DevOps' impact on each development phase. The authors address cross-cutting concerns that link multiple functions, offering practical insights into compliance, performance, reliability, repeatability, and security. This guide demonstrates the authors' ideas in action with three real-world case studies: datacenter replication for business continuity, management of a continuous deployment pipeline, and migration to a microservice architecture. Comprehensive coverage includes • Why DevOps can require major changes in both system architecture and IT roles • How virtualization and the cloud can enable DevOps practices • Integrating operations and its service lifecycle into DevOps • Designing new systems to work well with DevOps practices • Integrating DevOps with agile methods and TDD • Handling failure detection, upgrade planning, and other key issues • Managing consistency issues arising from DevOps' independent deployment models • Integrating security controls, roles, and audits into DevOps • Preparing a business plan for DevOps adoption, rollout, and measurement

This is the digital copy of the printed booik (Copyright © 2001). With detailed scenarios, imaginative illustrations, and step-by-step instructions, consultant and speaker Norman L. Kerth guides readers through productive, empowering retrospectives of project performance. Whether your shop calls them postmortems or postpartums or something else, project retrospectives offer organizations a formal method for preserving the valuable lessons learned from the successes and failures of every project. These lessons and the changes identified by the community will foster stronger teams and savings on subsequent efforts. For a retrospective to be effective and successful, though, it needs to be safe. Kerth shows facilitators and participants how to defeat the fear of retribution and establish an air of mutual trust. One tool is Kerth's Prime Directive: Regardless of what we discover, we must understand and truly believe that everyone did the best job he or she could, given what was known at the time, his or her skills and abilities, the resources available, and the situation at hand. Applying years of experience as a project retrospective facilitator for software organizations, Kerth reveals his secrets for managing the sensitive, often emotionally charged issues that arise as teams relive and learn from each project.

Continuous Architecture provides a broad architectural perspective for continuous delivery, and describes a new architectural approach that supports and enables it. As the pace of innovation and software releases increases, IT departments are tasked to deliver value quickly and inexpensively to their business partners. With a focus on getting software into end-users hands faster, the ultimate goal of daily software updates is in sight to allow teams to ensure that they can release every change to the system simply and efficiently. This book presents an architectural approach to support modern application delivery methods and provide a broader architectural perspective, taking architectural concerns into account when deploying agile or continuous delivery approaches. The authors explain how to solve the challenges of implementing continuous delivery at the project and enterprise level, and the impact on IT processes including application testing, software deployment and software architecture. Covering the application of enterprise and software architecture concepts to the Agile and Continuous Delivery models Explains how to create an architecture that can evolve with applications Incorporates techniques

including refactoring, architectural analysis, testing, and feedback-driven development Provides insight into incorporating modern software development when structuring teams and organizations

As the digital economy changes the rules of the game for enterprises, the role of software and IT architects is also transforming. Rather than focus on technical decisions alone, architects and senior technologists need to combine organizational and technical knowledge to effect change in their company's structure and processes. To accomplish that, they need to connect the IT engine room to the penthouse, where the business strategy is defined. In this guide, author Gregor Hohpe shares real-world advice and hard-learned lessons from actual IT transformations. His anecdotes help architects, senior developers, and other IT professionals prepare for a more complex but rewarding role in the enterprise. This book is ideal for: Software architects and senior developers looking to shape the company's technology direction or assist in an organizational transformation Enterprise architects and senior technologists searching for practical advice on how to navigate technical and organizational topics CTOs and senior technical architects who are devising an IT strategy that impacts the way the organization works IT managers who want to learn what's worked and what hasn't in large-scale transformation

"If the purpose is to create one of the best books on requirements yet written, the authors have succeeded." —Capers Jones Software can solve almost any problem. The trick is knowing what the problem is. With about half of all software errors originating in the requirements activity, it is clear that a better understanding of the problem is needed. Getting the requirements right is crucial if we are to build systems that best meet our needs. We know, beyond doubt, that the right requirements produce an end result that is as innovative and beneficial as it can be, and that system development is both effective and efficient. Mastering the Requirements Process: Getting Requirements Right, Third Edition, sets out an industry-proven process for gathering and verifying requirements, regardless of whether you work in a traditional or agile development environment. In this sweeping update of the bestselling guide, the authors show how to discover precisely what the customer wants and needs, in the most efficient manner possible. Features include The Volere requirements process for discovering requirements, for use with both traditional and iterative environments A specification template that can be used as the basis for your own requirements specifications Formality guides that help you funnel your efforts into only the requirements work needed for your particular development environment and project How to make requirements testable using fit criteria Checklists to help identify stakeholders, users, non-functional requirements, and more Methods for reusing requirements and requirements patterns New features include Strategy guides for different environments, including outsourcing Strategies for gathering and implementing requirements for iterative releases "Thinking above the line" to find the real problem How to move from requirements to finding the right solution The Brown Cow model for clearer viewpoints of the system Using story cards as requirements Using the Volere Knowledge Model to help record and communicate requirements Fundamental truths about requirements and system development

Don't engineer by coincidence-design it like you mean it! Filled with practical techniques, Design It! is the perfect introduction to software architecture for programmers who are ready to grow their design skills. Lead your team as a software architect, ask the right stakeholders the right questions, explore design options, and help your team implement a system that promotes the right -ilities. Share your design decisions, facilitate collaborative design workshops that are fast, effective, and fun-and develop more awesome software! With dozens of design methods, examples, and practical know-how, Design It! shows you how to become a software architect. Walk through the core concepts every architect must know, discover how to apply them, and learn a variety of skills that will make you a better programmer, leader, and designer. Uncover the big ideas behind software architecture and gain confidence working on projects big and small. Plan, design, implement, and evaluate software architectures and collaborate with your team, stakeholders, and other architects. Identify the right stakeholders and understand their needs, dig for architecturally significant requirements, write amazing quality attribute scenarios, and make confident decisions. Choose technologies based on their architectural impact, facilitate architecture-centric design workshops, and evaluate architectures using lightweight, effective methods. Write lean architecture descriptions people love to read. Run an architecture design studio, implement the architecture you've designed, and grow your team's architectural knowledge. Good design requires good communication. Talk about your software architecture with stakeholders using whiteboards, documents, and code, and apply architecture-focused design methods in your day-to-day practice. Hands-on exercises, real-world scenarios, and practical team-based decision-making tools will get everyone on board and give you the experience you need to become a confident software architect.

This book describes in contributions by scientists and practitioners the development of scientific concepts, technologies, engineering

techniques and tools for a service-based society. The focus is on microservices, i.e cohesive, independent processes deployed in isolation and equipped with dedicated memory persistence tools, which interact via messages. The book is structured in six parts. Part 1 "Opening" analyzes the new (and old) challenges including service design and specification, data integrity, and consistency management and provides the introductory information needed to successfully digest the remaining parts. Part 2 "Migration" discusses the issue of migration from monoliths to microservices and their loosely coupled architecture. Part 3 "Modeling" introduces a catalog and a taxonomy of the most common microservices anti-patterns and identifies common problems. It also explains the concept of RESTful conversations and presents insights from studying and developing two further modeling approaches. Next , Part 4 is dedicated to various aspects of "Development and Deployment". Part 5 then covers "Applications" of microservices, presenting case studies from Industry 4.0, Netflix, and customized SaaS examples. Eventually, Part 6 focuses on "Education" and reports on experiences made in special programs, both at academic level as a master program course and for practitioners in an industrial training. As only a joint effort between academia and industry can lead to the release of modern paradigm-based programming languages, and subsequently to the deployment of robust and scalable software systems, the book mainly targets researchers in academia and industry who develop tools and applications for microservices.

In Continuous Architecture in Practice, three leading software architecture experts update the discipline's classic practices for today's environments, software development contexts, and applications. Coverage includes: Discover what's changed, and how the architect's role must change Reflect today's quality attributes in evolvable architectures Understand team-based software architecture, and architecture as a "flow of decisions" Architect for security, including continuous threat modeling and mitigation Explore architectural opportunities to improve performance in continuous delivery environments Architect for scalability, avoid common scalability pitfalls, and scale microservices and serverless environments Improve resilience and reliability in the face of inevitable failures Architect data for NoSQL, big data, and analytics Use architecture to promote innovation: case studies in AI/ML, chatbots, and blockchain

Continuous Software Engineering
Mastering the Requirements Process
Project Retrospectives
Fundamentals of Software Architecture
Rethinking IT in the Digital Service Economy
The DevOps Handbook:
UAT Defined
Software Systems Architecture
Learn Amazon Web Services in a Month of Lunches
The Essence of Software Engineering
Thinking Outside the Box
Analyze and Reduce Technical Debt
The Art and Wisdom of Changing Teams
Software Architecture with Python

This book provides essential insights on the adoption of modern software engineering practices at large companies producing software-intensive systems, where hundreds or even thous
engineers collaborate to deliver on new systems and new versions of already deployed ones. It is based on the findings collected and lessons learned at the Software Center (SC), a uniq
collaboration between research and industry, with Chalmers University of Technology, Gothenburg University and Malmö University as academic partners and Ericsson, AB Volvo, Volvo
Corporation, Saab Electronic Defense Systems, Grundfos, Axis Communications, Jeppesen (Boeing) and Sony Mobile as industrial partners. The 17 chapters present the "Stairway to He
model, which represents the typical evolution path companies move through as they develop and mature their software engineering capabilities. The chapters describe theoretical framew
conceptual models and, most importantly, the industrial experiences gained by the partner companies in applying novel software engineering techniques. The book's structure consists of
Part I describes the model in detail and presents an overview of lessons learned in the collaboration between industry and academia. Part II deals with the first step of the Stairway to He
which R&D adopts agile work practices. Part III of the book combines the next two phases, i.e., continuous integration (CI) and continuous delivery (CD), as they are closely intertwined. P
is concerned with the highest level, referred to as "R&D as an innovation system," while Part V addresses a topic that is separate from the Stairway to Heaven and yet critically important
organizations: organizational performance metrics that capture data, and visualizations of the status of software assets, defects and teams. Lastly, Part VI presents the perspectives of tw

SC partner companies. The book is intended for practitioners and professionals in the software-intensive systems industry, providing concrete models, frameworks and case studies that specific challenges that the partner companies encountered, their approaches to overcoming them, and the results. Researchers will gain valuable insights on the problems faced by larg companies, and on how to effectively tackle them in the context of successful cooperation projects.

Today's programmers don't develop software systems from scratch. instead, they spend their time fixing, extending, modifying, and enhancing existing software. Legacy systems often tu unwieldy mess that becomes increasingly difficult to modify, and with architecture that continually accumulates technical debt. Carola Lilienthal has analyzed more than 300 software syst written in Java, C#, C++, PHP, ABAP, and TypeScript and, together with her teams, has successfully refactored them. This book condenses her experience with monolithic systems, arch and design patterns, layered architectures, domain-driven design, and microservices. With more than 200 color images from real-world systems, good and sub-optimal sample solutions a presented in a comprehensible and thorough way, while recommendations and suggestions based on practical projects allow the reader to directly apply the author's knowledge to their o work. "Throughout the book, Dr. Lilienthal has provided sound advice on diagnosing, understanding, disentangling, and ultimately preventing the issues that make software systems brittle subject to breakage. In addition to the technical examples that you'd expect in a book on software architecture, she takes the time to dive into the behavioral and human aspects that imp sustainability and, in my experience, are inextricably linked to the health of a codebase. She also expertly zooms out, exploring architecture concepts such as domains and layers, and th in to the class level where your typical developer works day-to-day. This holistic approach is crucial for implementing long-lasting change." From the Foreword of Andrea Goulet CEO, Corgibytes, Founder, Legacy Code Rocks

This is the eagerly-anticipated revision to one of the seminal books in the field of software architecture which clearly defines and explains the topic.

An architect's guide to designing, implementing, and integrating DevOps in the enterprise Key Features Design a DevOps architecture that is aligned with the overall enterprise architectu Design systems that are ready for AIOps and make the move toward NoOps Architect and implement DevSecOps pipelines, securing the DevOps enterprise Book Description Digital transformation is the new paradigm in enterprises, but the big question remains: is the enterprise ready for transformation using native technology embedded in Agile/DevOps? With this b you'll see how to design, implement, and integrate DevOps in the enterprise architecture while keeping the Ops team on board and remaining resilient. The focus of the book is not to intr hundreds of different tools that are available for implementing DevOps, but instead to show you how to create a successful DevOps architecture. This book provides an architectural over DevOps, AIOps, and DevSecOps – the three domains that drive and accelerate digital transformation. Complete with step-by-step explanations of essential concepts, practical examples assessment questions, this DevOps book will help you to successfully integrate DevOps into enterprise architecture. You'll learn what AIOps is and what value it can bring to an enterpris you will learn how to integrate security principles such as zero-trust and industry security frameworks into DevOps with DevSecOps. By the end of this DevOps book, you'll be able to dev robust DevOps architectures, know which toolsets you can use for your DevOps implementation, and have a deeper understanding of next-level DevOps by implementing Site Reliability Engineering (SRE). What you will learn Create DevOps architecture and integrate it with the enterprise architecture Discover how DevOps can add value to the quality of IT delivery Explo strategies to scale DevOps for an enterprise Architect SRE for an enterprise as next-level DevOps Understand AIOps and what value it can bring to an enterprise Create your AIOps arch and integrate it into DevOps Create your DevSecOps architecture and integrate it with the existing DevOps setup Apply zero-trust principles and industry security frameworks to DevOps book is for This book is for enterprise architects and consultants who want to design DevOps systems for the enterprise. It provides an architectural overview of DevOps, AIOps, and Dev If you're looking to learn about the implementation of various tools within the DevOps toolchain in detail, this book is not for you.

Making Sense of Design Effective design is at the heart of everything from software development to engineering to architecture. But what do we really know about the design process? W to effective, elegant designs? The Design of Design addresses these questions. These new essays by Fred Brooks contain extraordinary insights for designers in every discipline. Brooks constants inherent in all design projects and uncovers processes and patterns likely to lead to excellence. Drawing on conversations with dozens of exceptional designers, as well as his experiences in several design domains, Brooks observes that bold design decisions lead to better outcomes. The author tracks the evolution of the design process, treats collaborative ar distributed design, and illuminates what makes a truly great designer. He examines the nuts and bolts of design processes, including budget constraints of many kinds, aesthetics, design empiricism, and tools, and grounds this discussion in his own real-world examples—case studies ranging from home construction to IBM's Operating System/360. Throughout, Brooks re to success that every designer, design project manager, and design researcher should know.

ICPE '17: ACM/SPEC International Conference on Performance Engineering Apr 22, 2017-Apr 26, 2017 L'Aquila, Italy. You can view more information about this proceeding and all of AC other published conference proceedings from the ACM Digital Library: http://www.acm.org/dl.

Software maintenance work is often considered a dauntingly rigid activity – this book proves the opposite: it demands high levels of creativity and thinking outside the box. Highlighting the creative aspects of software maintenance and combining analytical and systems thinking in a holistic manner, the book motivates readers not to blithely follow the beaten tracks of "techn rationality". It delivers the content in a pragmatic fashion using case studies which are woven into long running story lines. The book is organized in four parts, which can be read in any o except for the first chapter, which introduces software maintenance and evolution and presents a number of case studies of software failures. The "Introduction to Key Concepts" briefly introduces the major elements of software maintenance by highlighting various core concepts that are vital in order to see the forest for the trees. Each such concept is illustrated with a v example. Next, the "Forward Engineering" part debunks the myth that being fast and successful during initial development is all that matters. To this end, two categories of forward engine

are considered: an inept initial project with a multitude of hard evolutionary phases and an effective initial project with multiple straightforward future increments. “Reengineering and Reve
Engineering” shows the difficulties of dealing with a typical legacy system, and tackles tasks such as retrofitting tests, documenting a system, restructuring a system to make it amenable
improvements, etc. Lastly, the “DevOps” section focuses on the importance and benefits of crossing the development versus operation chasm and demonstrates how the DevOps paradi
a loosely coupled design into a loosely deployable solution. The book is a valuable resource for readers familiar with the Java programming language, and with a basic understanding an
experience of software construction and testing. Packed with examples for every elaborated concept, it offers complementary material for existing courses and is useful for students and
professionals alike.
Architect and design highly scalable, robust, clean, and highly performant applications in Python About This Book Identify design issues and make the necessary adjustments to achieve
performance Understand practical architectural quality attributes from the perspective of a practicing engineer and architect using Python Gain knowledge of architectural principles and h
they can be used to provide accountability and rationale for architectural decisions Who This Book Is For This book is for experienced Python developers who are aspiring to become the
architects of enterprise-grade applications or software architects who would like to leverage Python to create effective blueprints of applications. What You Will Learn Build programs with
right architectural attributes Use Enterprise Architectural Patterns to solve scalable problems on the Web Understand design patterns from a Python perspective Optimize the performanc
tools in Python Deploy code in remote environments or on the Cloud using Python Secure architecture applications in Python In Detail This book starts off by explaining how Python fits i
application architecture. As you move along, you will understand the architecturally significant demands and how to determine them. Later, you'll get a complete understanding of the diffe
architectural quality requirements that help an architect to build a product that satisfies business needs, such as maintainability/reusability, testability, scalability, performance, usability, a
security. You will use various techniques such as incorporating DevOps, Continuous Integration, and more to make your application robust. You will understand when and when not to us
orientation in your applications. You will be able to think of the future and design applications that can scale proportionally to the growing business. The focus is on building the business l
based on the business process documentation and which frameworks are to be used when. We also cover some important patterns that are to be taken into account while solving design
as well as those in relatively new domains such as the Cloud. This book will help you understand the ins and outs of Python so that you can make those critical design decisions that not j
to but also surpass the expectations of your clients. Style and approach Filled with examples and use cases, this guide takes a no-nonsense approach to help you with everything it takes
a successful software architect.

Cloud FinOps
Become a successful software architect by implementing effective architecture concepts
A Handbook for Team Reviews
Continuous Delivery Pipeline - Where Does It Choke?
How to Create World-Class Agility, Reliability, and Security in Technology Organizations
Working With Stakeholders Using Viewpoints and Perspectives
Leading Lean
Becoming an Agile Software Architect
Solutions Architect's Handbook
Leverage AIOps and DevSecOps for secure digital transformation
An Engineering Approach
Explore Microsoft Cloud’s infrastructure, application, data, and security architecture
Cracking the IT Architect Interview
Kick-start your solutions architect career by learning architecture design principles and strategies

Salary surveys worldwide regularly place software architect in the top 10 best jobs, yet no real guide exists to help developers become architects. Until now. This book provides the first comprehensive overview of software architecture ’ s many aspects. Aspiring and existing architects alike will examine architectural characteristics, architectural patterns, component determination, diagramming and presenting architecture, evolutionary architecture, and many other topics. Mark Richards and Neal Ford—hands-on practitioners who have taught software architecture classes professionally for years—focus on architecture principles that apply across all technology stacks. You ’ ll explore software architecture in a modern light, taking into account all the innovations of the past decade. This book examines: Architecture patterns: The technical basis for many architectural decisions Components: Identification, coupling, cohesion, partitioning, and granularity Soft skills: Effective team management, meetings, negotiation, presentations, and more Modernity: Engineering practices and operational approaches that have changed radically in the past few years Architecture as an engineering discipline: Repeatable results, metrics, and concrete valuations that add rigor to software architecture

“ There ’ s an incredible amount of depth and thinking in the practices described here, and it ’ s impressive to see it all in one place. ” —Win Treese, coauthor of Designing

Systems for Internet Commerce The Practice of Cloud System Administration, Volume 2, focuses on “ distributed ” or “ cloud ” computing and brings a DevOps/SRE sensibility to the practice of system administration. Unsatisfied with books that cover either design or operations in isolation, the authors created this authoritative reference centered on a comprehensive approach. Case studies and examples from Google, Etsy, Twitter, Facebook, Netflix, Amazon, and other industry giants are explained in practical ways that are useful to all enterprises. The new companion to the best-selling first volume, The Practice of System and Network Administration, Second Edition, this guide offers expert coverage of the following and many other crucial topics: Designing and building modern web and distributed systems Fundamentals of large system design Understand the new software engineering implications of cloud administration Make systems that are resilient to failure and grow and scale dynamically Implement DevOps principles and cultural changes IaaS/PaaS/SaaS and virtual platform selection Operating and running systems using the latest DevOps/SRE strategies Upgrade production systems with zero down-time What and how to automate; how to decide what not to automate On-call best practices that improve uptime Why distributed systems require fundamentally different system administration techniques Identify and resolve resiliency problems before they surprise you Assessing and evaluating your team ’ s operational effectiveness Manage the scientific process of continuous improvement A forty-page, pain-free assessment system you can start using today
Companies from startups to corporate giants face massive amounts of disruption today. Now more than ever, organizations need nimble and responsive leaders who know how to exploit the opportunities that change brings. In this insightful book, Jean Dahl, a senior executive and expert in the Lean mindset and its methods, demonstrates why you need to embrace Modern Lean principles and thinking to redefine leadership in this age of digital disruption in order to continuously evolve the Lean enterprise. Drawing on nearly three decades of corporate and consulting experience, Ms. Dahl lays out a new holistic framework for developing Modern Lean leaders. Through personal experiences and compellingreal-world case studies, she explains specific steps necessary for you and your company to proactively understand and respond to change. Understand the leadership challenges Lean leaders face in our 21st century global economy Explore the six dimensions of the Modern Lean Framework™ Learn and apply the nine steps necessary to become a Lean leader Use Modern Lean methods to build a culture of continuous learning that can be sustained and maintained within your organization Seize competitive advantage by embracing Modern Lean to tbuild an enterprise that understands how to respond to disruption
This is the eBook version of the printed book. This digtial Short Cut provides a concise and supremely useful guide to the emerging trend of User Acceptance Testing (UAT). The ultimate goal of UAT is to validate that a system of products is of sufficient quality to be accepted by the users and, ultimately, the sponsors. This Short Cut is unique in that it views UAT through the concept that the user should be represented in every step of the software delivery lifecycle--including requirements, designs, testing, and maintenance--so that the user community is prepared, and even eager, to accept the software once it is completed. Rob Cimperman offers an informal explanation of testing, software development, and project management to equip business testers with both theory and practical examples, without the overwhelming details often associated with books written for "professional" testers. Rather than simply explaining what to do, this resource is the only one that explains why and how to do it by addressing this market segment in simple, actionable language. Throughout the author ’ s considerable experience coordinating UAT and guiding business testers, he has learned precisely what testers do and do not intuitively understand about the software development process. UAT Defined informs the reader about the unfamiliar political landscape they will encounter. Giving the UAT team the tools they need to comprehend the process on their own saves the IT staff from having to explain test management from the beginning. The result is a practice that increases productivity and eliminates the costs associated with unnecessary mistakes, tedious rework, and avoidable delays. Chapter 1 Introduction Chapter 2 Defining UAT–What It Is…and What It Is Not Chapter 3 Test Planning–Setting the Stage for UAT Success Chapter 4 Building the Team–Transforming Users into Testers Chapter 5 Executing UAT–Tracking and Reporting Chapter 6 Mitigating Risk–Your Primary Responsibility
Now that we ’ re moving from a product economy to a digital service economy, software is becoming critical for navigating our everyday lives. The quality of your service depends on how well it helps customers accomplish goals and satisfy needs. Service quality is not about designing capabilities, but about making—and keeping—promises to customers. To help you improve customer satisfaction and create positive brand experiences, this pragmatic book introduces a transdisciplinary approach to digital service delivery. Designing a resilient service today requires a unified effort across front-office and back-office functions and technical and business perspectives. You ’ ll learn how make IT a full partner in the ongoing conversations you have with your customers. Take a unique customer-centered approach to the entire service delivery lifecycle Apply this perspective across development, operations, QA, design, project management, and marketing Implement a specific quality assurance methodology that unifies those disciplines Use the methodology to achieve true resilience, not just stability
Software Systems Architecture is a practitioner-oriented guide to designing and implementing effective architectures for information systems. It is both a readily accessible introduction to software architecture and an invaluable handbook of well-established best practices. It shows why the role of the architect is central to any successful information-systems development project, and, by presenting a set of architectural viewpoints and perspectives, provides specific direction for improving your own and your organization's approach to software systems architecture. With this book you will learn how to Design an architecture that reflects and balances the different needs of its stakeholders Communicate the architecture to stakeholders and demonstrate that it has met their requirements Focus on architecturally significant aspects of design, including frequently overlooked areas such as performance, resilience, and location Use scenarios and patterns to drive the creation and validation of your architecture

Document your architecture as a set of related views Use perspectives to ensure that your architecture exhibits important qualities such as performance, scalability, and security The architectural viewpoints and perspectives presented in the book also provide a valuable long-term reference source for new and experienced architects alike. Whether you are an aspiring or practicing software architect, you will find yourself referring repeatedly to the practical advice in this book throughout the lifecycle of your projects. A supporting Web site containing further information can be found at www.viewpoints-and-perspectives.info

This open access book includes contributions by leading researchers and industry thought leaders on various topics related to the essence of software engineering and their application in industrial projects. It offers a broad overview of research findings dealing with current practical software engineering issues and also pointers to potential future developments. Celebrating the 20th anniversary of adesso AG, adesso gathered some of the pioneers of software engineering including Manfred Broy, Ivar Jacobson and Carlo Ghezzi at a special symposium, where they presented their thoughts about latest software engineering research and which are part of this book. This way it offers readers a concise overview of the essence of software engineering, providing valuable insights into the latest methodological research findings and adesso ' s experience applying these results in real-world projects.

Master the Crucial Non -Technical Skills Every Software Architect Needs! Thousands of software professionals have the necessary technical qualifications to become architects, but far fewer have the crucial non-technical skills needed to get hired and succeed in this role. In today's agile environments, these "soft" skills have grown even more crucial to success as an architect. For many developers, however, these skills don't come naturally-and they're rarely addressed in formal training. Now, long-time software architect Dave Hendricksen helps you fill this gap, supercharge your organizational impact, and quickly move to the next level in your career. In 12 Essential Skills for Software Architects, Hendricksen begins by pinpointing the specific relationship, personal, and business skills that successful architects rely upon. Next, he presents proven methods for systematically developing and sharpening every one of these skills, from negotiation and leadership to pragmatism and vision. From start to finish, this book's practical insights can help you get the architect position you want-and thrive once you have it! The soft skills you need... ...and a coherent framework and practical methodology for mastering them! Relationship skills Leadership, politics, gracious behavior, communication, negotiation Personal skills Context switching, transparency, passion Business skills Pragmatism, vision, business knowledge, innovation

Software Technologies
Continuous Architecture in Practice
Building Evolutionary Architectures
Dynamic Reteaming
Documenting Software Architectures
The Design of Design
Designing Delivery
DevOps and SRE Practices for Web Services, Volume 2
Unraveling Software Maintenance and Evolution
Software Architecture in Practice
Enterprise DevOps for Architects
Devops
Redefining the Architect's Role in the Digital Enterprise
12 Essential Skills for Software Architects

Software architecture—the conceptual glue that holds every phase of a project together for its many stakeholders—is widely recognized as a critical element in modern software development. Practitioners have increasingly discovered that close attention to a software system’s architecture pays valuable dividends. Without an architecture that is appropriate for the problem being solved, a project will stumble along or, most likely, fail. Even with a superb architecture, if that architecture is not well understood or well communicated the project is unlikely to succeed. Documenting Software Architectures, Second Edition, provides the most complete and current guidance, independent of language or notation, on how to capture an architecture in a commonly understandable form. Drawing on their extensive experience, the authors first help you decide what information to document, and then, with guidelines and examples (in various notations, including UML), show you how to express an architecture so that others can successfully build, use, and maintain a system from it. The book features rules for sound documentation, the goals and strategies of documentation, architectural views and styles, documentation for software interfaces and software behavior, and templates for capturing and organizing information to generate a coherent package. New and improved in this second edition: Coverage of architectural styles such as service-oriented architectures, multi-tier architectures, and data models Guidance for documentation in an Agile development environment Deeper treatment of documentation of rationale, reflecting best industrial practices Improved templates, reflecting years of use and feedback, and more documentation layout options A new, comprehensive example (available online), featuring documentation of a Web-based service-oriented system Reference guides for three important architecture documentation languages: UML, AADL, and

SysML
Your team will change whether you like it or not. People will come and go. Your company might double in size or even be acquired. In this practical book, author Heidi Helfand shares techniques for reteaming effectively. Engineering leaders will learn how to catalyze team change to reduce the risk of attrition, learning and career stagnation, and the development of knowledge silos. Based on research into well-known software companies, the patterns in this book help CTOs and team managers effectively integrate new hires into an existing team, manage a team that has lost members, or deal with unexpected change. You'll learn how to isolate teams for focused innovation, rotate team members for knowledge sharing, break through organizational apathy, and more. You'll explore: Real-world examples that demonstrate why and how organizations reteam Five reteaming patterns: One by One, Grow and Split, Isolation, Merging, and Switching Tactics to help you master dynamic reteaming in your company Stories that demonstrate problems caused by reteaming anti-patterns
Despite many uncertainties in cloud computing, one truth is evident: costs will always tend to go up unless you're actively engaged in the process. Whether you're new to managing cloud spend or a seasoned pro, this book will clarify the often misunderstood workings of cloud billing fundamentals and provide expert strategies on creating a culture of cloud cost management in your organization. Drawing on real-world examples of successes and failures of large-scale cloud spenders, this book outlines a road map for building a culture of FinOps in your organization. Beginning with the fundamental concepts required to understand cloud billing concepts, you'll learn how to enable an efficient and effective FinOps machine. Learn how the cloud works when it comes to financial management Set up a FinOps team and build a framework for making spend efficiency a priority Examine the anatomy of a cloud bill and learn how to manage it Get operational recipes for maximizing cloud efficiency Understand how to motivate engineering teams to take cost-saving actions Explore the FinOps lifecycle: Inform, Optimize, and Operate Learn the DNA of a highly functional cloud FinOps culture
Avoid getting lost in the complexity of Azure with The Azure Cloud Native Architecture Mapbook. This book will give you an expert-guided tour of Azure and help you map different architectural perspectives for various architecture disciplines. You'll learn how to apply the different architectural styles and become a better Azure Architect.
This book will show you how to create robust, scalable, highly available and fault-tolerant solutions by learning different aspects of Solution architecture and next-generation architecture design in the Cloud environment.
Summary Learn Amazon Web Services in a Month of Lunches guides you through the process of building a robust and secure web application using the core AWS services you really need to know. You'll be amazed by how much you can accomplish with AWS! Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Cloud computing has transformed the way we build and deliver software. With the Amazon Web Services cloud platform, you can trade expensive glass room hardware and custom infrastructure for virtual servers and easy-to-configure storage, security, and networking services. Better, because you don't own the hardware, you only pay for the computing power you need! Just learn a few key ideas and techniques and you can have applications up and running in AWS in minutes. About the Book Learn Amazon Web Services in a Month of Lunches gets you started with AWS fast. In just 21 bite-size lessons, you'll learn the concepts and practical techniques you need to deploy and manage applications. You'll learn by doing real-world labs that guide you from the core AWS tool set through setting up security and storage and planning for growth. You'll even deploy a public-facing application that's highly available, scalable, and load balanced. What's Inside First steps with AWS - no experience required Deploy web apps using EC2, RDS, S3, and Route 53 Cheap and fast system backups Setting up cloud automation About the Reader If you know your way around Windows or Linux and have a basic idea of how web applications work, you're ready to start using AWS. About the Author David Clinton is a system administrator, teacher, and writer. He has administered, written about, and created training materials for many important technology subjects including Linux systems, cloud computing (AWS in particular), and container technologies like Docker. Many of his video training courses can be found on Pluralsight.com, and links to his other books (on Linux administration and server virtualization) can be found at https://bootstrap-it.com. Table of Contents Before you begin PART 1 - THE CORE AWS TOOLS The 10-minute EC2 web server Provisioning a more robust EC2 website Databases on AWS DNS: whatâ€™s in a name? S3: cheap, fast file storage S3: cheap, fast system backups AWS security: working with IAM users, groups, and roles Managing growth Pushing back against the chaos: using resource tags CloudWatch: monitoring AWS resources for fun and profit Another way to play: the command-line interface PART 2 - THE AWS POWER USER: OPTIMIZING YOUR INFRASTRUCTURE Keeping ahead of user demand High availability: working with AWS networking tools High availability: load balancing High availability: auto scaling High availability: content-delivery networks PART 3 - FOOD FOR THOUGHT: WHAT ELSE CAN AWS DO FOR YOU? Building hybrid infrastructure Cloud automation: working with Elastic Beanstalk, Docker, and Lambda Everything else (nearly) Never the end