

## Devops By Len Bass

The International Conference on Human-Computer Interaction EWHCI '93 was the third conference in a series which started in 1991 in Moscow. Like its predecessors, it was occasioned by the long separation of workers in HCI from one another and the opportunity to learn from one another and to start cooperations with each other. The conference was international, with participants from 16 countries. This volume contains a selection of the best papers presented at the conference. The papers are grouped into parts on: foundations of HCI; techniques, tools and paradigms for interface design; information visualization; empirical studies; multimedia; hypertext; customizing interfaces; teaching and learning; applications.

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, chatbots, and blockchain

Have we entered the age of NoOps infrastructures? Hardly. Old-style system administrators may be disappearing in the face of automation and cloud computing, but operations have become more significant than ever. As this O'Reilly Radar Report explains, we're moving into a more complex arrangement known as "DevOps." Mike Loukides, O'Reilly's VP of Content Strategy, provides an incisive look into this new world of operations, where IT specialists are becoming part of the development team. In an environment with thousands of servers, these specialists now write the code that maintains the infrastructure. Even applications that run in the cloud have to be resilient and fault tolerant, need to be monitored, and must adjust to huge swings in load. This is underscored by Amazon's EBS outage last year. From the discussions at O'Reilly's Velocity Conference, it's evident that many operations specialists are quickly adapting to the DevOps reality. But as a whole, the industry has just scratched the surface. This report tells you why.

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 engineering 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 worked and what hasn't in large-scale transformation

UAT Defined

A Guide to Practical User Acceptance Testing (Digital Short Cut)

Software Ownership Transfer

Talk and Act Like a Software Architect in One Weekend

In Large Scale and Complex Software-intensive Systems

Engineering DevOps

Product-Focused Software Process Improvement

***Designing Software Architectures will teach you how to design any software architecture in a systematic, predictable, repeatable, and cost-effective way. This book introduces a practical methodology for architecture design that any professional software engineer can use, provides structured methods supported by reusable chunks of design knowledge, and includes rich case studies that demonstrate how to use the methods. Using realistic examples, you'll master the powerful new version of the proven Attribute-Driven Design (ADD) 3.0 method and will learn how to use it to address key drivers, including quality attributes, such as modifiability, usability, and availability, along with functional requirements and architectural concerns. Drawing on their extensive experience, Humberto Cervantes and Rick Kazman guide you through crafting practical designs that support the full software life cycle, from requirements to maintenance and evolution. You'll learn how to successfully integrate design in your organizational context, and how to design systems that will be built with agile methods. Comprehensive coverage includes Understanding what architecture design involves, and where it fits in the full software development life cycle Mastering core design concepts, principles, and processes Understanding how to perform the steps of the ADD method Scaling design and analysis up or down, including design for pre-sale processes or lightweight architecture reviews Recognizing and optimizing critical relationships between analysis and design Utilizing proven, reusable design primitives and adapting them to specific problems and contexts Solving design problems in new domains, such as cloud, mobile, or big data This book provides essential insights on the adoption of modern software engineering practices at large companies producing software-intensive systems, where hundreds or even thousands of 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 unique collaboration between research and industry, with Chalmers University of Technology, Gothenburg University and Malmö University as academic partners and Ericsson, AB Volvo, Volvo Car Corporation, Saab Electronic Defense Systems, Grundfos, Axis Communications, Jeppesen (Boeing) and Sony Mobile as industrial partners. The 17 chapters present the "Stairway to Heaven" model, which represents the typical evolution path companies move through as they develop and mature their software engineering capabilities. The chapters describe theoretical frameworks, 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 six parts. 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 Heaven, in 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. Part IV 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 in large 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 two of the 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 show the 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 large software companies, and on how to effectively tackle them in the context of successful cooperation projects.

This is the eBook version of the printed book. This digital 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

A quick start guide to learning essential software architecture tools, frameworks, design patterns, and best practices Key Features: Apply critical thinking to your software development and architecture practices and bring structure to your approach using well-known IT standards Understand the impact of cloud-native approaches on software architecture Integrate the latest technology trends into your architectural designs Book Description: Are you a seasoned developer who likes to add value to a project beyond just writing code? Have you realized that good development practices are not enough to make a project successful, and you now want to embrace the bigger picture in the IT landscape? If so, you're ready to become a software architect; someone who can deal with any IT stakeholder as well as add value to the numerous dimensions of software development. The sheer volume of content on software architecture can be overwhelming, however. Software Architecture for Busy Developers is here to help. Written by Stéphane Eyskens, author of The Azure Cloud Native Mapbook, this book guides you through your software architecture journey in a pragmatic way using real-world scenarios. By drawing on over 20 years of consulting experience, Stéphane will help you understand the role of a software architect, without the fluff or unnecessarily complex theory. You'll begin by understanding what non-functional requirements mean and how they concretely impact target architecture. The book then covers different frameworks used across the entire enterprise landscape with the help of use cases and examples. Finally, you'll discover ways in which the cloud is becoming a game changer in the world of software architecture. By the end of this book, you'll have gained a holistic understanding of the architectural landscape, as well as more specific software architecture skills. You'll also be ready to pursue your software architecture journey on your own - and in just one weekend! What You Will Learn: Understand the roles and responsibilities of a software architect Explore enterprise architecture tools and frameworks such as The Open Group Architecture Framework (TOGAF) and ArchiMate Get to grips with key design patterns used in software development Explore the widely adopted Architecture Tradeoff Analysis Method (ATAM) Discover the benefits and drawbacks of monoliths, service-oriented architecture (SOA), and microservices Stay on top of trending architectures such as API-driven, serverless, and cloud native Who this book is for: This book is for developers who want to move up the organizational ladder and become software architects by understanding the broader application landscape and discovering how large enterprises deal with software architecture practices. Prior knowledge of software development is required to get the most out of this book.

Real-World Algorithms

Become a successful software architect by implementing effective architecture concepts

Moving to the Cloud

Enterprise Web Development

Continuous Software Engineering

Software Architect's Handbook

Third International Conference, EWHCI '93, Moscow, Russia, August 3-7, 1993. Selected Papers

Flex your project management muscle Agile project management is a fast and flexible approach to managing all projects, not just software development. By learning the principles and techniques in this book, you'll be able to create a product roadmap, schedule projects, and prepare for product launches with the ease of Agile software developers. You'll discover how to manage scope, time, and cost, as well as team dynamics, quality, and risk of every project. As mobile and web technologies continue to evolve rapidly, there is added pressure to

develop and implement software projects in weeks instead of months—and Agile Project Management For Dummies can help you do just that. Providing a simple, step-by-step guide to Agile project management approaches, tools, and techniques, it shows product and project managers how to complete and implement projects more quickly than ever. Complete projects in weeks instead of months Reduce risk and leverage core benefits for projects Turn Agile theory into practice for all industries Effectively create an Agile environment Get ready to grasp and apply Agile principles for faster, more accurate development.

This Geometry workbook makes the fundamental concepts of geometry accessible and interesting for college students and incorporates a variety of basic algebra skills in order to show the connection between Geometry and Algebra. Topics include: A Brief History of Geometry 1. Basic Geometry Concepts 2. More about Angles 3. Triangles 4. More about Triangles: Similarity and Congruence 5. Quadrilaterals 6. Polygons 7. Area and Perimeter 8. Circles 9. Volume and Surface Area 10. Basic Trigonometry

This open access book presents the outcomes of the “ Design for Future – Managed Software Evolution ” priority program 1593, which was launched by the German Research Foundation ( “ Deutsche Forschungsgemeinschaft (DFG) ” ) to develop new approaches to software engineering with a specific focus on long-lived software systems. The different lifecycles of software and hardware platforms lead to interoperability problems in such systems. Instead of separating the development, adaptation and evolution of software and its platforms, as well as aspects like operation, monitoring and maintenance, they should all be integrated into one overarching process. Accordingly, the book is split into three major parts, the first of which includes an introduction to the nature of software evolution, followed by an overview of the specific challenges and a general introduction to the case studies used in the project. The second part of the book consists of the main chapters on knowledge carrying software, and cover tacit knowledge in software evolution, continuous design decision support, model-based round-trip engineering for software product lines, performance analysis strategies, maintaining security in software evolution, learning from evolution for evolution, and formal verification of evolutionary changes. In turn, the last part of the book presents key findings and spin-offs. The individual chapters there describe various case studies, along with their benefits, deliverables and the respective lessons learned. An overview of future research topics rounds out the coverage. The book was mainly written for scientific researchers and advanced professionals with an academic background. They will benefit from its comprehensive treatment of various topics related to problems that are now gaining in importance, given the higher costs for maintenance and evolution in comparison to the initial development, and the fact that today, most software is not developed from scratch, but as part of a continuum of former and future releases.

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.

Software Architecture in Practice

DevOps

Software Systems Architecture

Building HTML5 Applications: From Desktop to Mobile

Cloud Computing

Evolving Knowledge Transfer for the Agile World

Software Architecture in the Age of Agility and Devops

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 introduction to algorithms for readers with no background in advanced mathematics or computer science, emphasizing examples and real-world problems. Algorithms are what we do in order not to have to do something. Algorithms consist of instructions to carry out tasks—usually dull, repetitive ones. Starting from simple building blocks, computer algorithms enable machines to recognize and produce speech, translate texts, categorize and summarize documents, describe images, and predict the weather. A task that would take hours can be completed in virtually no time by using a few lines of code in a modern scripting program. This book offers an introduction to algorithms through the real-world problems they solve. The algorithms are presented in pseudocode and can readily be implemented in a computer language. The book presents algorithms simply and accessibly, without overwhelming readers or insulting their intelligence. Readers should be comfortable with mathematical fundamentals and have a basic understanding of how computers work; all other necessary concepts are explained in the text. After presenting background in pseudocode conventions, basic terminology, and data structures, chapters cover compression, cryptography, graphs, searching and sorting, hashing, classification, strings, and chance. Each chapter describes real problems and then presents algorithms to solve them. Examples illustrate the wide range of applications, including shortest paths as a solution to paragraph line breaks, strongest paths in elections systems, hashes for song recognition, voting power Monte Carlo methods, and entropy for machine learning. Real-World Algorithms can be used by students in disciplines from economics to applied sciences. Computer science majors can read it before using a more technical text.

This book provides an effective overview of the state-of-the art in software engineering, with a projection of the future of the discipline. It includes 13 papers, written by leading researchers in the respective fields, on important topics like model-driven software development, programming language design, microservices, software reliability, model checking and simulation. The papers are edited and extended versions of the presentations at the PAUSE symposium, which marked the completion of 14 years of work at the Chair of Software Engineering at ETH Zurich. In this inspiring context, some of the greatest minds in the field extensively discussed the past, present and future of software engineering. It guides readers on a voyage of discovery through the discipline of software engineering today, offering unique food for thought for researchers and professionals, and inspiring future research and development.

If you want to build your organization's next web application with HTML5, this practical book will help you sort through the various frameworks, libraries, and development options that populate this stack. You'll learn several of these approaches hands-on by writing multiple versions of a sample web app throughout the book, so you can determine the right strategy for your enterprise. What's the best way to reach both mobile and desktop users? How about modularization, security, and test-driven development? With lots of working code samples, this book will help web application developers and software architects navigate the growing number of HTML5 and JavaScript choices available. The book's sample apps are available at <http://savesickchild.org>. Mock up the book's working app with HTML, JavaScript, and CSS Rebuild the sample app, first with jQuery and then Ext JS Work with different build tools, code generators, and package managers Build a modularized version of the app with RequireJS Apply test-driven development with the Jasmine framework Use WebSocket to build an online auction for the app Adapt the app for both PCs and mobile with responsive web design Create mobile versions with jQuery Mobile, Sencha Touch, and PhoneGap

Winning Practices to Transform Legacy IT Organizations

A Guide to Adopting DevOps in a Multi-Speed IT Enterprise

Geometry

Agile Project Management For Dummies

Reducing Friction in Software Development

Software Architecture with C++

Fundamental Concepts and Applications

This book constitutes the refereed proceedings of the 20th International Conference on Product-Focused Software Process Improvement, PROFES 2019, held in Barcelona, Spain, in November 2019. The 24 revised full papers 4 industry papers, and 11 short papers presented were carefully reviewed and selected from 104 submissions. The papers cover a broad range of topics related to professional software development and process improvement driven by product and service quality needs. They are organized in topical sections on testing, software development, technical debt, estimations, continuous delivery, agile, project management, microservices, and continuous experimentation. This book also includes papers from the co-located events: 10 project papers, 8 workshop papers, and 4 tutorial summaries.

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

Key concepts and best practices for new software engineers — stuff critical to your workplace success that you weren't taught in school. For new software engineers, knowing how to program is only half the battle. You'll quickly find that many of the skills and processes key to your success are not taught in any school or bootcamp. The Missing README fills in that gap—a distillation of workplace lessons, best practices, and engineering fundamentals that the authors have taught rookie developers at top companies for more than a decade. Early chapters explain what to expect when you begin your career at a company. The book's middle section expands your technical education, teaching you how to work with existing codebases, address and prevent technical debt, write production-grade software, manage dependencies, test effectively, do code reviews, safely deploy software, design evolvable architectures, and handle incidents when you're on-call. Additional chapters cover planning and interpersonal skills such as Agile planning, working effectively with your manager, and growing to senior levels and beyond. You'll learn: • How to use the legacy code change algorithm, and leave code cleaner than you found it • How to write operable code with logging, metrics, configuration, and defensive programming • How to write deterministic tests, submit code reviews, and give feedback on other people's code • The technical design process, including experiments, problem definition, documentation, and collaboration • What to do when you are on-call, and how to navigate production incidents • Architectural techniques that make code change easier • Agile development practices like sprint planning, stand-ups, and retrospectives This is the book your tech lead wishes every new engineer would read before they start. By the end, you'll know what it takes to transition into the workplace—from CS classes or bootcamps to professional software engineering.

Achieve streamlined, rapid production with enterprise-level DevOps Awarded DevOps 2017 Book of the Year, The DevOps Adoption Playbook provides practical, actionable, real-world guidance on implementing DevOps at enterprise scale. Author Sanjeev Sharma heads the DevOps practice for IBM; in this book, he provides unique guidance and insight on implementing DevOps at large organizations. Most DevOps literature is aimed at startups, but enterprises have unique needs, capabilities, limitations, and challenges; "DevOps for startups" doesn't work at this scale, but the DevOps paradigm can revolutionize enterprise IT. Deliver high-

value applications and systems with velocity and agility by adopting the necessary practices, automation tools, and organizational and cultural changes that lead to innovation through rapid experimentation. Speed is an advantage in the face of competition, but it must never come at the expense of quality; DevOps allows your organization to keep both by intersecting development, quality assurance, and operations. Enterprise-level DevOps comes with its own set of challenges, but this book shows you just how easily they are overcome. With a slight shift in perspective, your organization can stay ahead of the competition while keeping costs, risks, and quality under control. Grasp the full extent of the DevOps impact on IT organizations Achieve high-value innovation and optimization with low cost and risk Exceed traditional business goals with higher product release efficiency Implement DevOps in large-scale enterprise IT environments DevOps has been one of IT's hottest trends for the past decade, and plenty of success stories testify to its effectiveness in organizations of any size, industry, or level of IT maturity, all around the world. The DevOps Adoption Playbook shows you how to get your organization on board so you can slip production into the fast lane and innovate your way to the top.

A Software Architect's Perspective

Redefining the Architect's Role in the Digital Enterprise

From Chaos to Continuous Improvement... and Beyond

The DevOps Adoption Playbook

Designing Software Architectures

The Nintendo Wii Pocket Guide

Continuous Architecture in Practice

***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***

***The Definitive, Practical, Proven Guide to Architecting Modern Software--Fully Updated with New Content on Mobility, the Cloud, Energy Management, DevOps, Quantum Computing, and More Updated with eleven new chapters, Software Architecture in Practice, Fourth Edition, thoroughly explains what software architecture is, why it's important, and how to design, instantiate, analyze, evolve, and manage it in disciplined and effective ways. Three renowned software architects cover the entire lifecycle, presenting practical guidance, expert methods, and tested models for use in any project, no matter how complex. You'll learn how to use architecture to address accelerating growth in requirements, system size, and abstraction, and to manage emergent quality attributes as systems are dynamically combined in new ways. With insights for utilizing architecture to optimize key quality attributes--including performance, modifiability, security, availability, interoperability, testability, usability, deployability, and more--this guide explains how to manage and refine existing architectures, transform them to solve new problems, and build reusable architectures that become strategic business assets. Discover how architecture influences (and is influenced by) technical environments, project lifecycles, business profiles, and your own practices Leverage proven patterns, interfaces, and practices for optimizing quality through architecture Architect for mobility, the cloud, machine learning, and quantum computing Design for increasingly crucial attributes such as energy efficiency and safety Scale systems by discovering architecturally significant influences, using DevOps and deployment pipelines, and managing architecture debt Understand architecture's role in the organization, so you can deliver more value Register your book for convenient access to downloads, updates, and/or corrections as they become available. See inside book for details.***

***The primary purpose of this book is to capture the state-of-the-art in Cloud Computing technologies and applications. The book will also aim to identify potential research directions and technologies that will facilitate creation a global market-place of cloud computing services supporting scientific, industrial, business, and consumer applications. We expect the book to serve as a reference for larger audience such as systems architects, practitioners, developers,***

**new researchers and graduate level students. This area of research is relatively recent, and as such has no existing reference book that addresses it. This book will be a timely contribution to a field that is gaining considerable research interest, momentum, and is expected to be of increasing interest to commercial developers. The book is targeted for professional computer science developers and graduate students especially at Masters level. As Cloud Computing is recognized as one of the top five emerging technologies that will have a major impact on the quality of science and society over the next 20 years, its knowledge will help position our readers at the forefront of the field.**

**"A comprehensive overview of the challenges teams face when moving to microservices, with industry-tested solutions to these problems." - Tim Moore, Lightbend** **44 reusable patterns to develop and deploy reliable production-quality microservices-based applications, with worked examples in Java** **Key Features** **44 design patterns for building and deploying microservices applications** **Drawing on decades of unique experience from author and microservice architecture pioneer Chris Richardson** **A pragmatic approach to the benefits and the drawbacks of microservices architecture** **Solve service decomposition, transaction management, and inter-service communication** **Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.** **About The Book** **Microservices Patterns teaches you 44 reusable patterns to reliably develop and deploy production-quality microservices-based applications. This invaluable set of design patterns builds on decades of distributed system experience, adding new patterns for composing services into systems that scale and perform under real-world conditions. More than just a patterns catalog, this practical guide with worked examples offers industry-tested advice to help you design, implement, test, and deploy your microservices-based application. What You Will Learn** **How (and why!) to use microservices architecture** **Service decomposition strategies** **Transaction management and querying patterns** **Effective testing strategies** **Deployment patterns** **This Book Is Written For** **Written for enterprise developers familiar with standard enterprise application architecture. Examples are in Java.** **About The Author** **Chris Richardson is a Java Champion, a JavaOne rock star, author of Manning's POJOs in Action, and creator of the original CloudFoundry.com.** **Table of Contents** **Escaping monolithic hell** **Decomposition strategies** **Interprocess communication in a microservice architecture** **Managing transactions with sagas** **Designing business logic in a microservice architecture** **Developing business logic with event sourcing** **Implementing queries in a microservice architecture** **External API patterns** **Testing microservices: part 1** **Testing microservices: part 2** **Developing production-ready services** **Deploying microservices** **Refactoring to microservices** **More Working Effectively with Legacy Code** **Present and Ulterior Software Engineering** **Human-Computer Interaction** **Software Architecture for Busy Developers** **Managing Technical Debt** **Microservices Patterns** **A Practical Approach**

**Many organizations are facing the uphill battle of modernizing their legacy IT infrastructure. Most have evolved over the years by taking lessons from traditional or legacy manufacturing: creating a production process that puts the emphasis on the process instead of the people performing the tasks, allowing the organization to treat people like resources to try to achieve high-quality outcomes. But those practices and ideas are failing modern IT, where collaboration and creativeness are required to achieve high-performing, high-quality success. Mirco Hering, a thought leader in managing IT within legacy organizations, lays out a roadmap to success for IT managers, showing them how to create the right ecosystem, how to empower people to bring their best to work every day, and how to put the right technology in the driver's seat to propel their organization to success. But just having the right methods and tools will not magically transform an organization; the cultural change that is the hardest is also the most impactful. Using principles from Agile, Lean, and DevOps as well as first-hand examples from the enterprise world, Hering addresses the different challenges that legacy organizations face as they transform into modern IT departments.**

**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

**Introduction. Architectural styles. Case studies. Shared information systems. Architectural design guidance. Formal models and specifications. Linguistics issues. Tools for architectural design. Education of software architects.**

**This book is an engineering reference manual that explains "How to do DevOps?". It is targeted to people and organizations that are "doing DevOps" but not satisfied with the results that they are getting. There are plenty of books that describe different aspects of DevOps and customer user stories, but up until now there has not been a book that frames DevOps as an engineering problem with a step-by-step engineering solution and a clear list of recommended engineering practices to guide implementors. The step-by-step engineering prescriptions can be followed by leaders and practitioners to understand, assess, define, implement, operationalize, and evolve DevOps for their organization. The book provides a unique collection of engineering practices and solutions for DevOps. By confining the scope of the content of the book to the level of engineering practices, the content is applicable to the widest possible range of implementations. This book was born out of the author's desire to help others do DevOps, combined with a burning personal frustration. The frustration comes from hearing leaders and practitioners say, "We think we are doing DevOps, but we are not getting the business results we had expected." Engineering DevOps describes a strategic approach, applies engineering implementation discipline, and focuses operational expertise to define and accomplish specific goals for each leg of an organization's unique DevOps journey. This book guides the reader through a journey from defining an engineering strategy for DevOps to implementing The Three Ways of DevOps maturity using engineering practices: The First Way (called "Continuous Flow") to The Second Way (called "Continuous Feedback") and finally The Third Way (called "Continuous Improvement"). This book is intended to be a guide that will continue to be relevant over time as your specific DevOps and DevOps more generally evolves.**

**Documenting Software Architectures**

**Developing Apps in the New World of Cloud Computing**

**Software Quality Assurance**

**What is DevOps?**

**Brutal Refactoring**

**A Beginner's Guide**

**Continuous Delivery**

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 improved performance Understand practical architectural quality attributes from the perspective of a practicing engineer and architect using Python Gain knowledge of architectural principles and how 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 the right architectural attributes Use Enterprise Architectural Patterns to solve scalable problems on the Web Understand design patterns from a Python perspective Optimize the performance testing 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 into an 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 different architectural quality requirements that help an architect to build a product that satisfies business needs, such as maintainability/reusability, testability, scalability, performance, usability, and 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 use object 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 logic 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 problems 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 just live up 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 to become a successful software architect. Here's your essential companion to the best-selling Wii game console. This handy, low-priced Nintendo

Wii Pocket Guide steers you through how to Set up your Wii and connect it to your network. Make your way around the Wii Channels. Pick and use Wii controllers, including the Wii Remote, Nunchuk, and Classic and GameCube controllers. Create and edit your own Mii—using Wii software or third-party tools—and take charge of other Miis. Go beyond games and use the Wii to browse the Internet, send and receive email, set parental controls, and create memos and calendars. Shop the Wii Shop Channel and buy and spend Wii Points to purchase Virtual Console games. Choose the best Wii games and play older Nintendo games on the Wii. Find handy accessories. Tinker with your Wii to get the most out of the game console.

Winner of the 2011 Jolt Excellence Award! Getting software released to users is often a painful, risky, and time-consuming process. This groundbreaking new book sets out the principles and technical practices that enable rapid, incremental delivery of high quality, valuable new functionality to users. Through automation of the build, deployment, and testing process, and improved collaboration between developers, testers, and operations, delivery teams can get changes released in a matter of hours—sometimes even minutes—no matter what the size of a project or the complexity of its code base. Jez Humble and David Farley begin by presenting the foundations of a rapid, reliable, low-risk delivery process. Next, they introduce the “deployment pipeline,” an automated process for managing all changes, from check-in to release. Finally, they discuss the “ecosystem” needed to support continuous delivery, from infrastructure, data and configuration management to governance. The authors introduce state-of-the-art techniques, including automated infrastructure management and data migration, and the use of virtualization. For each, they review key issues, identify best practices, and demonstrate how to mitigate risks. Coverage includes • Automating all facets of building, integrating, testing, and deploying software • Implementing deployment pipelines at team and organizational levels • Improving collaboration between developers, testers, and operations • Developing features incrementally on large and distributed teams • Implementing an effective configuration management strategy • Automating acceptance testing, from analysis to implementation • Testing capacity and other non-functional requirements • Implementing continuous deployment and zero-downtime releases • Managing infrastructure, data, components and dependencies • Navigating risk management, compliance, and auditing Whether you’re a developer, systems administrator, tester, or manager, this book will help your organization move from idea to release faster than ever—so you can deliver value to your business rapidly and reliably.

“This is an incredibly wise and useful book. The authors have considerable real-world experience in delivering quality systems that matter, and their expertise shines through in these pages. Here you will learn what technical debt is, what is it not, how to manage it, and how to pay it down in responsible ways. This is a book I wish I had when I was just beginning my career. The authors present a myriad of case studies, born from years of experience, and offer a multitude of actionable insights for how to apply it to your project.” —Grady Booch, IBM Fellow Master Best Practices for Managing Technical Debt to Promote Software Quality and Productivity As software systems mature, earlier design or code decisions made in the context of budget or schedule constraints increasingly impede evolution and innovation. This phenomenon is called technical debt, and practical solutions exist. In *Managing Technical Debt*, three leading experts introduce integrated, empirically developed principles and practices that any software professional can use to gain control of technical debt in any software system. Using real-life examples, the authors explain the forms of technical debt that afflict software-intensive systems, their root causes, and their impacts. They introduce proven approaches for identifying and assessing specific sources of technical debt, limiting new debt, and “paying off” debt over time. They describe how to establish managing technical debt as a core software engineering practice in your organization. Discover how technical debt damages manageability, quality, productivity, and morale—and what you can do about it Clarify root causes of debt, including the linked roles of business goals, source code, architecture, testing, and infrastructure Identify technical debt items, and analyze their costs so you can prioritize action Choose the right solution for each technical debt item: eliminate, reduce, or mitigate Integrate software engineering practices that minimize new debt *Managing Technical Debt* will be a valuable resource for every software professional who wants to accelerate innovation in existing systems, or build new systems that will be easier to maintain and evolve.

*Principles and Paradigms*

*Views and Beyond*

*Continuous Practices: A Strategic Approach to Accelerating the Software Production System*

*Continuous Architecture*

*Software Architecture*

*Perspectives on an Emerging Discipline*

*Reliable Software Releases through Build, Test, and Deployment Automation (Adobe Reader)*

**Organizations invest immense amounts of time, resources, and attention in their software projects. But all too often, when it's time to transfer the finished project to new "owners," they settle for the most superficial classroom training, documentation, and code walkthroughs. These conventional approaches to knowledge transfer often fail, dramatically reducing the value of new systems in production. You can do much better - and *Software Ownership Transfer* will show you how. This is the first practical, hands-on guide to knowledge transfer in today's agile environments. Using a realistic, large-scale case study, ThoughtWorks expert Vinod Sankaranarayanan shows how to elevate knowledge transfer from "necessary evil" to an activity full of agility and innovation, and bring together multiple organizations and cultures to make ownership transfer work. Sankaranarayanan explains why mere documentation of error reports and processes isn't enough, and shows how to successfully craft a knowledge transfer program that's more substantive and effective. Along the way, he offers guidance on overcoming the commercial compromises and personal tensions often associated with transferring systems to new ownership; and on transforming mere "knowledge transfer" into something much better: "taking ownership."**

**Apply business requirements to IT infrastructure and deliver a high-quality product by understanding architectures such as microservices, DevOps, and cloud-native using modern C++ standards and features**

**Key Features**

- Design scalable large-scale applications with the C++ programming language**
- Architect software solutions in a cloud-based environment with continuous integration and continuous delivery (CI/CD)**
- Achieve architectural goals by leveraging design patterns, language features, and useful tools**

**Book Description**

Software architecture refers to the high-level design of complex applications. It is evolving just like the languages we use, but there are architectural concepts and patterns that you can learn to write high-performance apps in a high-level language without sacrificing readability and maintainability. If you're working with modern C++, this practical guide will help you put your knowledge to work and design distributed, large-scale apps. You'll start by getting up to speed with architectural concepts, including established patterns and rising trends, then move on to understanding what software architecture actually is and start exploring its components. Next, you'll discover the design concepts involved in application architecture and the patterns in software development, before going on to learn how to build, package, integrate, and deploy your components. In the concluding chapters, you'll explore different architectural qualities, such as maintainability, reusability, testability, performance, scalability, and security. Finally, you will get an overview of distributed systems, such as service-oriented architecture, microservices, and cloud-native, and understand how to apply them in application development. By the end of this book, you'll be able to build distributed services using modern C++ and associated tools to deliver solutions as per your clients' requirements.

**What you will learn**

- Understand how to apply the principles of software architecture**
- Apply design patterns and best practices to meet your architectural goals**
- Write elegant, safe, and performant code using the latest C++ features**
- Build applications that are easy to maintain and deploy**
- Explore the different architectural approaches and learn to apply them as per your requirement**
- Simplify development and operations using application containers**
- Discover various techniques to solve common problems in software design and development**

**Who this book is for**

This software architecture C++ programming book is for experienced C++ developers looking to become software architects or develop enterprise-grade applications.

**Software Quality Assurance in Large Scale and Complex Software-intensive Systems** presents novel and high-quality research related approaches that relate the quality of software architecture to system requirements, system architecture and enterprise-architecture, or software testing. Modern software has become complex and adaptable due to the emergence of globalization and new software technologies, devices and networks. These changes challenge both traditional software quality assurance techniques and software engineers to ensure software quality when building today (and tomorrow's) adaptive, context-sensitive, and highly diverse applications. This edited volume presents state of the art techniques, methodologies, tools, best practices and guidelines for software quality assurance and offers guidance for future software engineering research and practice. Each contributed chapter considers the practical application of the topic through case studies, experiments, empirical validation, or systematic comparisons with other approaches already in practice. Topics of interest include, but are not limited, to: quality attributes of system/software architectures; aligning enterprise, system, and software architecture from the point of view of total quality; design decisions and their influence on the quality of system/software architecture; methods and processes for evaluating architecture quality; quality assessment of legacy systems and third party applications; lessons learned and empirical validation of theories and frameworks on architectural quality; empirical validation and testing for assessing architecture quality. Focused on quality assurance at all levels of software design and development

**Covers domain-specific software quality assurance issues e.g. for cloud, mobile, security, context-sensitive, mash-up and autonomic systems**

**Explains likely trade-offs from design decisions in the context of complex software system engineering and quality assurance**

**Includes practical case studies of software quality assurance for complex, adaptive and context-critical systems**

**Chapter 1: Introduction -- Chapter 2: Infrastructure as a Service -- Chapter 3: Platform as a Service -- Chapter 4: Application as a Service -- Chapter 5: Paradigms for Developing Cloud Applications -- Chapter 6: Addressing the Cloud Challenges -- Chapter 7: Security -- Chapter 8: Managing the Cloud Infrastructure -- Chapter 9: Related Technologies -- Chapter 10: Future trends and Research Directions.**

**Software Architecture with Python**

**20th International Conference, PROFES 2019, Barcelona, Spain, November 27–29, 2019, Proceedings**

**With examples in Java**

**The Software Architect Elevator**

**Design modern systems using effective architecture concepts, design patterns, and techniques with C++**

**20 Managed Software Evolution**

**A Guide for the New Software Engineer**