# Devops Architecture And Security In A Cloud

Use Visual Studio® Team Foundation Server 2012 and Agile Methods to Deliver Higher Value Software Faster This is the definitive guide to applying agile development and modern software engineering practices with Visual Studio Team Foundation Server 2012—Microsoft's complementary Application Lifecycle Management (ALM) platform. Written by the Microsoft Visual Studio product owner and a long-time Team Foundation Server implementation specialist, it focuses on solving real development challenges, systematically eliminating waste, improving transparency, and delivering better software more quickly and painlessly. Coverage includes • Accelerating the "flow of value" to customers, with a transparent backlog, PowerPoint Storyboarding, VS 2012 feedback requests, and a "usability lab" right into your customers' hands • Driving quality upstream to uncover hidden architectural patterns, ensure cleaner code, fix multiple recurring "cloned" bugs at once, ensure the definition of done with continuous integration and deployment in a reliable build process • Eliminating "no repro" bugs with VS 2012's six powerful mechanisms for more accurate fault identification and use of virtualized test environments • Using Scrum or other Agile methods with Process Templates effectively across distributed teams in large organization by automating burndowns and dashboards to identify "early warning signals" of emerging problems with quality or maintainability • Staying in the groove by storing the state of your work

and environment with shelvesets, to let you handle interruptions smoothly • Leveraging VS 2012's new support for multiple Microsoft and open source unit testing frameworks in your IDE and continuous integration pipeline • Performing exploratory testing to uncover bugs in surprising places and testing immersive Windows 8 apps • Rapidly improving team development and collaboration with the hosted Team Foundation Service Whatever your development role, this book will help you apply modern software development practices using Visual Studio Team Foundation Server 2012 to focus on what really matters: building software that begins delivering exceptional value sooner and keeps delighting customers far into the future.

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.

Learn to design, implement, measure, and improve DevOps programs that are tailored to your organization. This concise guide assists leaders who are accountable for the rapid development of high-quality software applications. In DevOps for Digital Leaders, deep collective experience on both sides of the dev–ops divide informs the global thought leadership and penetrating insights of the authors, all three of whom are cross-portfolio DevOps leaders at CA Technologies. Aruna Ravichandran, Kieran Taylor, and Peter Waterhouse analyze the organizational benefits, costs, freedoms, and constraints of DevOps. They chart the coordinated strategy of organizational change, metrics, lean thinking, and investment that an enterprise must undertake to realize the full potential of

DevOps and reach the sweet spot where accelerating code deployments drive increasing customer satisfaction, revenue, and profitability. Digital leaders are charged to bridge the dev–ops disconnect if their organizations are to survive and flourish in a business world increasingly differentiated by the degree to which dynamic application software development harmonizes with operational resilience and reliability. This short book applies the DevOps perspective to the competitive challenge, faced by every high-performance IT organization today, of integrating and automating open source, cloud, and enterprise tools, processes, and techniques across the software development life cycle from requirements to release. What You Will Learn: Remove dependencies and constraints so that parallel practices can accelerate the development of defect-free software Automate continuous delivery across the software life cycle to eliminate release bottlenecks, manual labor waste, and technical debt accumulation Generate virtualized production-style testing of applications through real-time behavioral analytics Adopt agile practices so operations teams can support developer productivity with automated feedback, streamline infrastructure monitoring, spot and resolve operations issues before they impact production, and improve customer experience Identify the DevOps metrics appropriate to your organization and integrate DevOps with your existing best practices and investment Who This Book Is For: IT leaders in large companies and government agencies who have any level of responsibility for the rapid development of high-quality software applications. The secondary readership is

members of development and operations teams, security professionals, and service managers.

This volume constitutes the refereed proceedings of the 26th European Conference on Systems, Software and Services Process Improvement, EuroSPI conference, held in Edinburgh, Scotland, in September 2019. The 18 revised full papers presented were carefully reviewed and selected from 28 submissions. They are organized in topical sections: Visionary Papers, SPI and Safety and Security, SPI and Assessments, SPI and Future Qualification & Team Performance, and SPI Manifesto and Culture. The selected workshop papers are also presented and organized in following topical sections: GamifySPI, Digitalisation of Industry, Infrastructure and E-Mobility. -Best Practices in Implementing Traceability. -Good and Bad Practices in Improvement. -Functional Safety and Cybersecurity. -Experiences with Agile and Lean. -Standards and Assessment Models. -Team Skills and Diversity Strategies. -Recent Innovations.

Enterprises are rapidly adopting containers and other cloud-native technologies to make their application development and release cycle fast, agile, and cost-effective. This e-book delves into the critical challenges faced across the container lifecycle, and shares recommendations and best practices to confidently overcome these. It explores how innovative automation levers can help businesses simplify, fast-track, and de-risk their containerization initiatives, while maximizing ROI in a cloud-first world.

Any organization with valuable data has been or will be attacked, probably successfully,

at some point and with some damage. And, don't all digitally connected organizations have at least some data that can be considered "valuable"? Cyber security is a big, messy, multivariate, multidimensional arena. A reasonable "defense-in-depth" requires many technologies; smart, highly skilled people; and deep and broad analysis, all of which must come together into some sort of functioning whole, which is often termed a security architecture. Secrets of a Cyber Security Architect is about security architecture in practice. Expert security architects have dozens of tricks of their trade in their kips. In this book, author Brook S. E. Schoenfield shares his tips and tricks, as well as myriad tried and true bits of wisdom that his colleagues have shared with him. Creating and implementing a cyber security architecture can be hard, complex, and certainly frustrating work. This book is written to ease this pain and show how to express security requirements in ways that make the requirements more palatable and, thus, get them accomplished. It also explains how to surmount individual, team, and organizational resistance. The book covers: What security architecture is and the areas of expertise a security architect needs in practice The relationship between attack methods and the art of building cyber defenses Why to use attacks and how to derive a set of mitigations and defenses Approaches, tricks, and manipulations proven successful for practicing security architecture Starting, maturing, and running effective security architecture programs Secrets of the trade for the practicing security architecture Tricks to surmount typical problems Filled with practical insight, Secrets of

a Cyber Security Architect is the desk reference every security architect needs to thwart the constant threats and dangers confronting every digitally connected organization. Summary Securing DevOps explores how the techniques of DevOps and security should be applied together to make cloud services safer. This introductory book reviews the latest practices used in securing web applications and their infrastructure and teaches you techniques to integrate security directly into your product. You'll also learn the core concepts of DevOps, such as continuous integration, continuous delivery, and infrastructure as a service. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology An application running in the cloud can benefit from incredible efficiencies, but they come with unique security threats too. A DevOps team's highest priority is understanding those risks and hardening the system against them. About the Book Securing DevOps teaches you the essential techniques to secure your cloud services. Using compelling case studies, it shows you how to build security into automated testing, continuous delivery, and other core DevOps processes. This experience-rich book is filled with mission-critical strategies to protect web applications against attacks, deter fraud attempts, and make your services safer when operating at scale. You'll also learn to identify, assess, and secure the unique vulnerabilities posed by cloud deployments and automation tools commonly used in modern infrastructures. What's inside An approach to continuous security Implementing test-driven security in DevOps Security techniques

for cloud services Watching for fraud and responding to incidents Security testing and risk assessment About the Reader Readers should be comfortable with Linux and standard DevOps practices like CI, CD, and unit testing. About the Author Julien Vehent is a security architect and DevOps advocate. He leads the Firefox Operations Security team at Mozilla, and is responsible for the security of Firefox's high-traffic cloud services and public websites. Table of Contents Securing DevOps PART 1 - Case study: applying layers of security to a simple DevOps pipeline Building a barebones DevOps pipeline Security layer 1: protecting web applications Security layer 2: protecting cloud infrastructures Security layer 3: securing communications Security layer 4: securing the delivery pipeline PART 2 - Watching for anomalies and protecting services against attacks Collecting and storing logs Analyzing logs for fraud and attacks Detecting intrusions The Caribbean breach: a case study in incident response PART 3 - Maturing DevOps security Assessing risks Testing security Continuous security

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.

Can a system be considered truly reliable if it isn't fundamentally secure? Or can it be considered secure if it's unreliable? Security is crucial to the design and operation of scalable systems in production, as it plays an important part in product quality, performance, and availability. In this book, experts from Google share best practices to

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

Boost your organization's growth by incorporating networking in the DevOps culture About This Book Implement networking fundamentals to the DevOps culture with ease, improving your organization's stability Leverage various open source tools such as Puppet and Ansible in order to automate your network This step-by-step learning guide collaborating the functions of developers and network administrators Who This Book Is For The book is aimed for Network Engineers, Developers, IT operations and System admins who are planning to incorporate Networking in DevOps culture and have no knowledge about it. What You Will Learn Learn about public and private cloud

networking using AWS and OpenStack as examples Explore strategies that can be used by engineers or managers to initiate the cultural changes required to enable the automation of network functions Learn about SDN and how an API-driven approach to networking can help solve common networking problems Get the hang of configuration management tools, such as Ansible and Jenkins, that can be used to orchestrate and configure network devices Setup continuous integration, delivery, and deployment pipelines for network functions Create test environments for network changes Understand how load balancing is becoming more software defined with the emergence of microservice applications In Detail Frustrated that your company's network changes are still a manual set of activities that slow developers down? It doesn't need to be that way any longer, as this book will help your company and network teams embrace DevOps and continuous delivery approaches, enabling them to automate all network functions. This book aims to show readers network automation processes they could implement in their organizations. It will teach you the fundamentals of DevOps in networking and how to improve DevOps processes and workflows by providing automation in your network. You will be exposed to various networking strategies that are stopping your organization from scaling new projects quickly. You will see how SDN and APIs are influencing DevOps transformations, which will in turn help you improve the scalability and efficiency of your organizations networks operations. You will also find out how to leverage various configuration management tools such as Ansible, to

automate your network. The book will also look at containers and the impact they are having on networking as well as looking at how automation impacts network security in a software-defined network. Style and approach This will be a comprehensive, learning guide for teaching our readers how networking can be leveraged to improve the DevOps culture for any organization.

Security is usually an afterthought when organizations design microservices for cloud systems. Most companies today are exposed to potential security threats, but their responses are often more reactive than proactive. This leads to unnecessarily complicated systems that are hard to implement and even harder to manage and scale. Author Gaurav Raje shows you how to build highly secure systems on AWS without increasing overhead. Ideal for cloud solution architects and software developers with AWS experience, this practical book starts with a high-level architecture and design discussion, then explains how to implement your solution in the cloud while ensuring that the development and operational experience isn't compromised. By leveraging the AWS Shared Responsibility Model, you'll be able to: Develop a modular architecture using microservices that aims to simplify compliance with various regulations in finance, medicine, and legal services Introduce various AWS-based security controls to help protect your microservices from malicious actors Leverage the modularity of the architecture to independently scale security mechanisms on individual microservices Improve the security posture without compromising the autonomy or efficiency of

software development teams

A collection of best practices and effective implementation recommendations that are proven to work, Secure, Resilient, and Agile Software Development leaves the boring details of software security theory out of the discussion as much as possible to concentrate on practical applied software security for practical people. Written to aid your career as well as your organization, the book shows how to gain skills in secure and resilient software development and related tasks. The book explains how to integrate these development skills into your daily duties, thereby increasing your professional value to your company, your management, your community, and your industry. Secure, Resilient, and Agile Software Development was written for the following professionals: AppSec architects and program managers in information security organizations Enterprise architecture teams with application development focus Scrum teams DevOps teams Product owners and their managers Project managers Application security auditors With a detailed look at Agile and Scrum software development methodologies, this book explains how security controls need to change in light of an entirely new paradigm on how software is developed. It focuses on ways to educate everyone who has a hand in any software development project with appropriate and practical skills to Build Security In. After covering foundational and fundamental principles for secure application design, this book dives into concepts, techniques, and design goals to meet well-understood acceptance criteria on features

an application must implement. It also explains how the design sprint is adapted for proper consideration of security as well as defensive programming techniques. The book concludes with a look at white box application analysis and sprint-based activities to improve the security and quality of software under development.

Have you been looking for a way to boost your skills and become a master in DevOps for your business or career in software development but lack an excellent, high-quality guide to assist you get there? And are you looking for a guide that is simple, assuring and easy to follow? If you've answered YES, keep reading... You Are About To Discover The Ins And Outs Of Dev-Ops, Including How To Leverage Its Power To Your Advantage In Your Business Or Career! It goes without saying that DevOps is one of the greatest inventions in software development. It came to satisfy a need to get away from the traditional software design for efficiency, collaboration and productivity in development processes, and by extension to boost business growth. Did you know that businesses that adopt DevOps enjoy up to 60% more revenue rates and profit than their reticent counterparts? Unfortunately, great as it is, DevOps remains one of the most misunderstood concepts- even by tutors across the world! Similarly, for someone who's just getting into the software development scene or someone wh0 has drowned in the "Waterfall" methodology a couple of times before, it may seem like something a little complex or one that requires some skill, or lots of effort and time to master. If you can relate, you must have wondered: What's DevOps all about, and is there a way to

learn it quickly? What does DevOps entail? How exactly would I benefit from learning DevOps? How and where do I get started? Is DevOps agile? How does it work? So if such questions have been keeping you from making the next important step in your career or business with DevOps, then this simple, clear and straightforward guide is here for you. With it, you'll learn: What DevOps is and why you need it The features of DevOps architecture The potential benefits and risks of using DevOps What you need to know about the DevOps lifecycle The ins and outs of the DevOps architecture The workflow and principles of DevOps The DevOps tools you need to know and use How DevOps automation works Who DevOps engineers are, and the roles they play The methodologies and pipelines of DevOps you need to familiarize yourself with The DevOps Amazon Web Services The tools and tutorials for DevOps, including their features and benefits How to install GIT on Mac, Linux and Windows ...And much more! Do you prefer practical guides that you can implement as you go (not ones that are heavy on theory- that require taking loads of caffeine to complete)? Do you want a beginners' book that is exciting to follow and well-structured for quick comprehension? Then don't let this one slip away. Even if this is your first time actually wanting to learn DevOps, this book will hold you by the hand until you feel confident about it! Don't wait... Scroll up and click Buy Now With 1-Click or Buy Now to get started!

Apply cloud design patterns to overcome real-world challenges by building scalable, secure, highly available, and cost-effective solutions Key Features Apply AWS Well-

Architected Framework concepts to common real-world use cases Understand how to select AWS patterns and architectures that are best suited to your needs Ensure the security and stability of a solution without impacting cost or performance Book Description One of the most popular cloud platforms in the world, Amazon Web Services (AWS) offers hundreds of services with thousands of features to help you build scalable cloud solutions; however, it can be overwhelming to navigate the vast number of services and decide which ones best suit your requirements. Whether you are an application architect, enterprise architect, developer, or operations engineer, this book will take you through AWS architectural patterns and guide you in selecting the most appropriate services for your projects. AWS for Solutions Architects is a comprehensive guide that covers the essential concepts that you need to know for designing well-architected AWS solutions that solve the challenges organizations face daily. You'll get to grips with AWS architectural principles and patterns by implementing best practices and recommended techniques for real-world use cases. The book will show you how to enhance operational efficiency, security, reliability, performance, and cost-effectiveness using real-world examples. By the end of this AWS book, you'll have gained a clear understanding of how to design AWS architectures using the most appropriate services to meet your organization's technological and business requirements. What you will learn Rationalize the selection of AWS as the right cloud provider for your organization Choose the most appropriate service from AWS for a

particular use case or project Implement change and operations management Find out the right resource type and size to balance performance and efficiency Discover how to mitigate risk and enforce security, authentication, and authorization Identify common business scenarios and select the right reference architectures for them Who this book is for This book is for application and enterprise architects, developers, and operations engineers who want to become well-versed with AWS architectural patterns, best practices, and advanced techniques to build scalable, secure, highly available, and cost-effective solutions in the cloud. Although existing AWS users will find this book most useful, it will also help potential users understand how leveraging AWS can benefit their organization.

Hands-On Security in DevOps explores how the techniques of DevOps and Security should be applied together to make cloud services safer. By the end of this book, readers will be ready to build security controls at all layers, monitor and respond to attacks on cloud services, and add security organization-wide through risk management and training.

Your one stop guide to making the most out of Azure Cloud About This Book Get familiar with the different design patterns available in Microsoft Azure Develop Azure cloud architecture and a pipeline management system Get to know the security best practices for your Azure deployment Who This Book Is For If you are Cloud Architects, DevOps Engineers, or developers who want to learn key architectural aspects of the

Azure Cloud platform, then this book is for you. Prior basic knowledge of the Azure Cloud platform is good to have. What You Will Learn Familiarize yourself with the components of the Azure Cloud platform Understand the cloud design patterns Use enterprise security guidelines for your Azure deployment Design and implement Serverless solutions See Cloud architecture and the deployment pipeline Understand cost management for Azure solutions In Detail Over the years, Azure cloud services has grown quickly, and the number of organizations adopting Azure for their cloud services is also gradually increasing. Leading industry giants are finding that Azure fulfills their extensive cloud requirements. This book will guide you through all the important and tough decision-making aspects involved in architecturing a Azure public cloud for your organization. The book starts with an extensive introduction to all the categories of designs available with Azure. These design patterns focus on different aspects of cloud such as high availability, data management, and so on. Gradually, we move on to various aspects such as building your cloud structure and architecture. It will also include a brief description about different types of services provided by Azure, such as Azure functions and Azure Analytics, which can prove beneficial for an organization. This book will cover each and every aspect and function required to develop a Azure cloud based on your organizational requirements. By the end of this book, you will be in a position to develop a full-fledged Azure cloud. Style and approach This hands-on guide to the Azure Cloud platform covers different architectural concepts

and implementations necessary for any enterprise scale deployment.

Python for DevOps shows you how to harness Python for everyday Linux systems administration tasks, as well as today's most useful devops tools, including Docker, Kubernetes, and Terraform. Embrace automation and you'll never look at a boring task the same way again.

A single dramatic software failure can cost a company millions of dollars - but can be avoided with simple changes to design and architecture. This new edition of the best-selling industry standard shows you how to create systems that run longer, with fewer failures, and recover better when bad things happen. New coverage includes DevOps, microservices, and cloud-native architecture. Stability antipatterns have grown to include systemic problems in large-scale systems. This is a must-have pragmatic guide to engineering for production systems. If you're a software developer, and you don't want to get alerts every night for the rest of your life, help is here. With a combination of case studies about huge losses - lost revenue, lost reputation, lost time, lost opportunity - and practical, down-to-earth advice that was all gained through painful experience, this book helps you avoid the pitfalls that cost companies millions of dollars in downtime and reputation. Eighty percent of project life-cycle cost is in production, yet few books address this topic. This updated edition deals with the production

of today's systems - larger, more complex, and heavily virtualized - and includes information on chaos engineering, the discipline of applying randomness and deliberate stress to reveal systematic problems. Build systems that survive the real world, avoid downtime, implement zero-downtime upgrades and continuous delivery, and make cloud-native applications resilient. Examine ways to architect, design, and build software - particularly distributed systems - that stands up to the typhoon winds of a flash mob, a Slashdotting, or a link on Reddit. Take a hard look at software that failed the test and find ways to make sure your software survives. To skip the pain and get the experience...get this book.

Today's high-speed and rapidly changing development environments demand equally high-speed security practices. Still, achieving security remains a human endeavor, a core part of designing, generating and verifying software. Dr. James Ransome and Brook S.E. Schoenfield have built upon their previous works to explain that security starts with people; ultimately, humans generate software security. People collectively act through a particular and distinct set of methodologies, processes, and technologies that the authors have brought together into a newly designed, holistic, generic software development lifecycle facilitating software security at Agile, DevOps speed. —Eric. S. Yuan, Founder and CEO, Zoom Video Communications, Inc. It is essential that we embrace a

mantra that ensures security is baked in throughout any development process. Ransome and Schoenfield leverage their abundance of experience and knowledge to clearly define why and how we need to build this new model around an understanding that the human element is the ultimate key to success. —Jennifer Sunshine Steffens, CEO of IOActive Both practical and strategic, Building in Security at Agile Speed is an invaluable resource for change leaders committed to building secure software solutions in a world characterized by increasing threats and uncertainty. Ransome and Schoenfield brilliantly demonstrate why creating robust software is a result of not only technical, but deeply human elements of agile ways of working. —Jorgen Hesselberg, author of Unlocking Agility and Cofounder of Comparative Agility The proliferation of open source components and distributed software services makes the principles detailed in Building in Security at Agile Speed more relevant than ever. Incorporating the principles and detailed guidance in this book into your SDLC is a must for all software developers and IT organizations. —George K Tsantes, CEO of Cyberphos, former partner at Accenture and Principal at EY Detailing the people, processes, and technical aspects of software security, Building in Security at Agile Speed emphasizes that the people element remains critical because software is developed, managed, and exploited by humans. This book

presents a step-by-step process for software security that is relevant to today's technical, operational, business, and development environments with a focus on what humans can do to control and manage the process in the form of best practices and metrics.

Use this book as your one-stop shop for architecting a world-class DevOps environment with Microsoft technologies. .NET DevOps for Azure is a synthesis of practices, tools, and process that, together, can equip a software organization to move fast and deliver the highest quality software. The book begins by discussing the most common challenges faced by developers in DevOps today and offers options and proven solutions on how to implement DevOps for your team. Daily, millions of developers use .NET to build and operate mission-critical software systems for organizations around the world. While the marketplace has scores of information about the technology, it is completely up to you to put together all the blocks in the right way for your environment. This book provides you with a model to build on. The relevant principles are covered first along with how to implement that part of the environment. And while variances in tools, language, or requirements will change the needed implementation, the DevOps model is the architecture for the working environment for your team. You can modify parts of the model to customize it to your enterprise, but the architecture

will enable all of your teams and applications to accelerate in performance. What You Will Learn Get your .NET applications into a DevOps environment in Azure Analyze and address the part of your DevOps process that causes delays or bottlenecks Track code using Azure Repos and conduct acceptance tests Apply the rules for segmenting applications into Git repositories Understand the different types of builds and when to use each Know how to think about code validation in your DevOps environment Provision and configure environments; deploy release candidates across the environments in Azure Monitor and support software that has been deployed to a production environment Who This Book Is For .NET Developers who are using or want to use DevOps in Azure but don't know where to begin

Winner of the Shingo Publication Award Accelerate your organization to win in the marketplace. How can we apply technology to drive business value? For years, we've been told that the performance of software delivery teams doesn't matter?that it can't provide a competitive advantage to our companies. Through four years of groundbreaking research to include data collected from the State of DevOps reports conducted with Puppet, Dr. Nicole Forsgren, Jez Humble, and Gene Kim set out to find a way to measure software delivery performance?and what drives it?using rigorous statistical methods. This book presents both the

findings and the science behind that research, making the information accessible for readers to apply in their own organizations. Readers will discover how to measure the performance of their teams, and what capabilities they should invest in to drive higher performance. This book is ideal for management at every level. A comprehensive guide to architecting, managing, implementing, and controlling multi-cloud environments Key Features Deliver robust multi-cloud environments and improve your business productivity Stay in control of the cost, governance, development, security, and continuous improvement of your multi-cloud solution Integrate different solutions, principles, and practices into one multi-cloud foundation Book Description Multi-cloud has emerged as one of the top cloud computing trends, with businesses wanting to reduce their reliance on only one vendor. But when organizations shift to multiple cloud services without a clear strategy, they may face certain difficulties, in terms of how to stay in control, how to keep all the different components secure, and how to execute the cross-cloud development of applications. This book combines best practices from different cloud adoption frameworks to help you find solutions to these problems. With step-by-step explanations of essential concepts and practical examples, you'll begin by planning the foundation, creating the architecture, designing the governance model, and implementing tools, processes, and technologies to

manage multi-cloud environments. You'll then discover how to design workload environments using different cloud propositions, understand how to optimize the use of these cloud technologies, and automate and monitor the environments. As you advance, you'll delve into multi-cloud governance, defining clear demarcation models and management processes. Finally, you'll learn about managing identities in multi-cloud: who's doing what, why, when, and where By the end of this book, you'll be able to create, implement, and manage multi-cloud architectures with confidence What you will learn Get to grips with the core functions of multiple cloud platforms Deploy, automate, and secure different cloud solutions Design network strategy and get to grips with identity and access management for multi-cloud Design a landing zone spanning multiple cloud platforms Use automation, monitoring, and management tools for multi-cloud Understand multi-cloud management with the principles of BaseOps, FinOps, SecOps, and DevOps Define multi-cloud security policies and use cloud security tools Test, integrate, deploy, and release using multi-cloud CI/CD pipelines Who this book is for This book is for architects and lead engineers involved in architecting multi-cloud environments, with a focus on getting governance right to stay in control of developments in multi-cloud. Basic knowledge of different cloud platforms (Azure, AWS, GCP, VMWare, and OpenStack) and understanding of IT

governance is necessary.

Hands-On Security in DevOpsEnsure continuous security, deployment, and delivery with DevSecOpsPackt Publishing Ltd

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

Your one stop guide to automating infrastructure security using DevOps and DevSecOps Key Features Secure and automate techniques to protect web, mobile or cloud services Automate secure code inspection in C++, Java, Python, and JavaScript Integrate security testing with automation frameworks like fuzz, BDD, Selenium and Robot Framework Book Description Security automation is the automatic handling of software security assessments tasks. This book helps you to build your security automation framework to scan for vulnerabilities without human intervention. This book will teach you to adopt security automation techniques to continuously improve your entire software development and security testing. You will learn to use open source tools and techniques to integrate security testing tools directly into your CI/CD framework. With this book, you will see how to implement security inspection at every layer, such as secure code inspection, fuzz testing, Rest API, privacy, infrastructure security, and web UI testing. With the help of practical examples, this book will teach you to implement the combination of automation and Security in DevOps. You will learn about the integration of security testing results for an overall security status for projects. By the end of this book, you

will be confident implementing automation security in all layers of your software development stages and will be able to build your own in-house security automation platform throughout your mobile and cloud releases. What you will learn Automate secure code inspection with open source tools and effective secure code scanning suggestions Apply security testing tools and automation frameworks to identify security vulnerabilities in web, mobile and cloud services Integrate security testing tools such as OWASP ZAP, NMAP, SSLyze, SQLMap, and OpenSCAP Implement automation testing techniques with Selenium, JMeter, Robot Framework, Gauntlt, BDD, DDT, and Python unittest Execute security testing of a Rest API Implement web application security with open source tools and script templates for CI/CD integration Integrate various types of security testing tool results from a single project into one dashboard Who this book is for The book is for software developers, architects, testers and QA engineers who are looking to leverage automated security testing techniques.

Enhance DevOps workflows by integrating the functionalities of Docker, Kubernetes, Spinnaker, Ansible, Terraform, Flux CD, CaaS, and more with the help of practical examples and expert tips Key Features Get up and running with containerization-as-a-service and infrastructure automation in the public cloud Learn container security techniques and secret management with Cloud KMS, Anchore Grype, and Grafeas Kritis Leverage the combination of DevOps, GitOps, and automation to continuously ship a package of software Book Description Containers have entirely changed how developers and end-users see applications as a whole. With this book, you'll learn all about containers, their architecture and benefits, and how to implement them within your development lifecycle. You'll discover how you can transition from the traditional world of virtual machines and adopt modern ways of using DevOps to ship a

package of software continuously. Starting with a quick refresher on the core concepts of containers, you'll move on to study the architectural concepts to implement modern ways of application development. You'll cover topics around Docker, Kubernetes, Ansible, Terraform, Packer, and other similar tools that will help you to build a base. As you advance, the book covers the core elements of cloud integration (AWS ECS, GKE, and other CaaS services), continuous integration, and continuous delivery (GitHub actions, Jenkins, and Spinnaker) to help you understand the essence of container management and delivery. The later sections of the book will take you through container pipeline security and GitOps (Flux CD and Terraform). By the end of this DevOps book, you'll have learned best practices for automating your development lifecycle and making the most of containers, infrastructure automation, and CaaS, and be ready to develop applications using modern tools and techniques. What you will learn Become well-versed with AWS ECS, Google Cloud Run, and Knative Discover how to build and manage secure Docker images efficiently Understand continuous integration with Jenkins on Kubernetes and GitHub actions Get to grips with using Spinnaker for continuous deployment/delivery Manage immutable infrastructure on the cloud with Packer, Terraform, and Ansible Explore the world of GitOps with GitHub actions, Terraform, and Flux CD Who this book is for If you are a software engineer, system administrator, or operations engineer looking to step into the world of DevOps within public cloud platforms, this book is for you. Existing DevOps engineers will also find this book useful as it covers best practices, tips, and tricks to implement DevOps with a cloud-native mindset. Although no containerization experience is necessary, a basic understanding of the software development life cycle and delivery will help you get the most out of the book.

Explore the architecture, product offerings, and the various stages of implementation processes in Azure DevOps. The book starts with the basic concepts of DevOps and moves on to discuss project management in Azure DevOps. Next, you will learn requirement management and version control in DevOps. Along the way, you will go through test management followed by continuous integration and build automation with more details on code quality and security implementations. Moving forward, you will learn release pipeline and infrastructure as code implementation including ARM-based environment provisioning and execution. Finally, you'll cover DevOps architecture blueprints used for deploying your web applications to different platforms . After reading this book, you will be able to understand each stage of Azure DevOps and master its implementation. What You Will Learn Understand the various concepts of Azure DevOps Apply DevOps concepts in a variety of application contexts including web applications, containers, and database Understand the implementation of end-to-end DevOps in Azure Work with the different DevOps design patterns and architectures in Azure Who Is This Book For: Developers and architects working with Azure.

This book provides practical guidance for adopting a high velocity, continuous delivery process to create reliable, scalable, Software-as-a-Service (SaaS) solutions that are designed and built using a microservice architecture, deployed to the Azure cloud, and managed through automation. Microservices, IoT, and Azure offers software developers, architects, and operations engineers' step-by-step directions for building SaaS applications—applications that are available 24x7, work on any device, scale elastically, and are resilient to change--through code, script, exercises, and a working reference implementation. The book provides a working definition of microservices and contrasts this approach with traditional monolithic Layered

Architecture. A fictitious, homebiomedical startup is used to demonstrate microservice architecture and automation capabilities for cross-cutting and business services as well as connected device scenarios for Internet of Things (IoT). Several Azure PaaS services are detailed including Storage, SQL Database, DocumentDb, Redis Cache, Cloud Services, Web API's, API Management, IoT Hub, IoT Suite, Event Hub, and Stream Analytics. Finally the book looks to the future and examines Service Fabric to see how microservices are becoming the de facto approach to building reliable software in the cloud. In this book, you'll learn: What microservices are and why are they're a compelling architecture pattern for SaaS applications How to design, develop, and deploy microservices using Visual Studio, PowerShell, and Azure Microservice patterns for cross-cutting concerns and business capabilities Microservice patterns for Internet of Things and big data analytics solutions using IoT Hub, Event Hub, and Stream Analytics Techniques for automating microservice provisioning, building, and deployment What Service Fabric is and how it's the future direction for microservices on Microsoft Azure

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
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.
Kubernetes is the operating system of the cloud native world, providing a reliable and scalable platform for running containerized workloads. In this friendly, pragmatic book, cloud experts John Arundel and Justin Domingus show you what Kubernetes can do—and what you can do with it. You'll learn all about the Kubernetes ecosystem, and use battle-tested solutions to everyday problems. You'll build, step by step, an example cloud native application and its supporting infrastructure, along with a development environment and continuous deployment

pipeline that you can use for your own applications. Understand containers and Kubernetes from first principles; no experience necessary Run your own clusters or choose a managed Kubernetes service from Amazon, Google, and others Use Kubernetes to manage resource usage and the container lifecycle Optimize clusters for cost, performance, resilience, capacity, and scalability Learn the best tools for developing, testing, and deploying your applications Apply the latest industry practices for security, observability, and monitoring Adopt DevOps principles to help make your development teams lean, fast, and effective

Apply cloud design patterns to overcome real-world challenges by building scalable, secure, highly available, and cost-effective solutions Key Features: Apply AWS Well-Architected Framework concepts to common real-world use cases Understand how to select AWS patterns and architectures that are best suited to your needs Ensure the security and stability of a solution without impacting cost or performance Book Description: One of the most popular cloud platforms in the world, Amazon Web Services (AWS) offers hundreds of services with thousands of features to help you build scalable cloud solutions; however, it can be overwhelming to navigate the vast number of services and decide which ones best suit your requirements. Whether you are an application architect, enterprise architect, developer, or operations engineer, this book will take you through AWS architectural patterns and guide you in selecting the most appropriate services for your projects. AWS for Solutions Architects is a comprehensive guide that covers the essential concepts that you need to know for designing well-architected AWS solutions that solve the challenges organizations face daily. You'll get to grips with AWS architectural principles and patterns by implementing best practices and recommended techniques for real-world use cases. The book will show you how to enhance

operational efficiency, security, reliability, performance, and cost-effectiveness using real-world examples. By the end of this AWS book, you'll have gained a clear understanding of how to design AWS architectures using the most appropriate services to meet your organization's technological and business requirements. What You Will Learn: Rationalize the selection of AWS as the right cloud provider for your organization Choose the most appropriate service from AWS for a particular use case or project Implement change and operations management Find out the right resource type and size to balance performance and efficiency Discover how to mitigate risk and enforce security, authentication, and authorization Identify common business scenarios and select the right reference architectures for them Who this book is for: This book is for application and enterprise architects, developers, and operations engineers who want to become well-versed with AWS architectural patterns, best practices, and advanced techniques to build scalable, secure, highly available, and cost-effective solutions in the cloud. Although existing AWS users will find this book most useful, it will also help potential users understand how leveraging AWS can benefit their organization.

This book is filled with techniques, tips, and tricks that secure software architects and developers can apply directly. From assessing the sensitivity of data in a system through actually getting requirements implemented, this book offers readers practical, how-to advice in small, focused and directly applicable gems of insight, knowledge, and wisdom from secure software principal architect Brook S.E. Schoenfield. The book is organized by applicability of topics that include getting security architecture started, helping architects be effective, working with

partner teams, assessing systems, driving security requirements to completion, and programmatic hints.

Agile continues to be the most adopted software development methodology among organizations worldwide, but it generally hasn't integrated well with traditional security management techniques. And most security professionals aren’t up to speed in their understanding and experience of agile development. To help bridge the divide between these two worlds, this practical guide introduces several security tools and techniques adapted specifically to integrate with agile development. Written by security experts and agile veterans, this book begins by introducing security principles to agile practitioners, and agile principles to security practitioners. The authors also reveal problems they encountered in their own experiences with agile security, and how they worked to solve them. You’ll learn how to: Add security practices to each stage of your existing development lifecycle Integrate security with planning, requirements, design, and at the code level Include security testing as part of your team’s effort to deliver working software in each release Implement regulatory compliance in an agile or DevOps environment Build an effective security program through a culture of empathy, openness, transparency, and collaboration

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.

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 architecture 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 book, 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 introduce the 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 overview of DevOps, AIOps, and DevSecOps – the three domains that drive and accelerate digital transformation. Complete with step-by-step explanations of essential concepts, practical examples, and self-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 enterprise. Lastly, 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 develop 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 Explore 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 architecture 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 Who this 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 DevSecOps. If you're looking to learn about the implementation of various tools within the DevOps toolchain in detail, this book is not for you.

As workloads are being offloaded to IBM® LinuxONE based cloud environments, it is important to ensure that these workloads and environments are secure. This IBM Redbooks® publication describes the necessary steps to secure your environment from the hardware level through all of the components that are involved in a LinuxONE cloud infrastructure that use Linux and IBM z/VM®. The audience for this book is IT architects, IT Specialists, and those users who plan to use LinuxONE for their cloud environments.

Nowadays it is impossible to imagine a business without technology as most industries are becoming "smarter" and more tech-driven, ranging from small individual tech initiatives to complete business models with intertwined supply chains and "platform"-based business models. New ways of working, such as

agile and DevOps, have been introduced, leading to new risks. These risks come in the form of new challenges for teams working together in a distributed manner, privacy concerns, human autonomy, and cybersecurity concerns. Technology is now integrated into the business discipline and is here to stay leading to the need for a thorough understanding of how to address these risks and all the potential problems that could arise. With the advent of organized crime, such as hacks and denial-of-service attacks, all kinds of malicious actors are infiltrating the digital society in new and unique ways. Systems with poor design, implementation, and configurations are easily taken advantage of. When it comes to integrating business and technology, there needs to be approaches for assuring security against risks that can threaten both businesses and their digital platforms. Strategic Approaches to Digital Platform Security Assurance offers comprehensive design science research approaches to extensively examine risks in digital platforms and offer pragmatic solutions to these concerns and challenges. This book addresses significant problems when transforming an organization embracing API-based platform models, the use of DevOps teams, and issues in technological architectures. Each section will examine the status quo for business technologies, the current challenges, and core success factors and approaches that have been used. This book is ideal for security analysts,

software engineers, computer engineers, executives, managers, IT consultants, business professionals, researchers, academicians, and students who want to gain insight and deeper knowledge of security in digital platforms and gain insight into the most important success factors and approaches utilized by businesses. If you create, manage, operate, or configure systems running in the cloud, you're a cloud engineer--even if you work as a system administrator, software developer, data scientist, or site reliability engineer. With this book, professionals from around the world provide valuable insight into today's cloud engineering role. These concise articles explore the entire cloud computing experience, including fundamentals, architecture, and migration. You'll delve into security and compliance, operations and reliability, and software development. And examine networking, organizational culture, and more. You're sure to find 1, 2, or 97 things that inspire you to dig deeper and expand your own career. "Three Keys to Making the Right Multicloud Decisions," Brendan O'Leary "Serverless Bad Practices," Manases Jesus Galindo Bello "Failing a Cloud Migration," Lee Atchison "Treat Your Cloud Environment as If It Were On Premises," Iyana Garry "What Is Toil, and Why Are SREs Obsessed with It?", Zachary Nickens "Lean QA: The QA Evolving in the DevOps World," Theresa Neate "How Economies of Scale Work in the Cloud," Jon Moore "The Cloud Is Not About the Cloud," Ken

Corless "Data Gravity: The Importance of Data Management in the Cloud," Geoff Hughes "Even in the Cloud, the Network Is the Foundation," David Murray "Cloud Engineering Is About Culture, Not Containers," Holly Cummins