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KEY=AS - ATKINSON TANIYA

TERRAFORM: UP & RUNNING

WRITING INFRASTRUCTURE AS CODE

"O'Reilly Media, Inc." *Terraform has become a key player in the DevOps world for defining, launching, and managing infrastructure as code (IaC) across a variety of cloud and virtualization platforms, including AWS, Google Cloud, Azure, and more. This hands-on second edition, expanded and thoroughly updated for Terraform version 0.12 and beyond, shows you the fastest way to get up and running. Gruntwork cofounder Yevgeniy (Jim) Brikman walks you through code examples that demonstrate Terraform's simple, declarative programming language for deploying and managing infrastructure with a few commands. Veteran sysadmins, DevOps engineers, and novice developers will quickly go from Terraform basics to running a full stack that can support a massive amount of traffic and a large team of developers. Explore changes from Terraform 0.9 through 0.12, including backends, workspaces, and first-class expressions Learn how to write production-grade Terraform modules Dive into manual and automated testing for Terraform code Compare Terraform to Chef, Puppet, Ansible, CloudFormation, and Salt Stack Deploy server clusters, load balancers, and databases Use Terraform to manage the state of your infrastructure Create reusable infrastructure with Terraform modules Use advanced Terraform syntax to achieve zero-downtime deployment*

INFRASTRUCTURE AS CODE

"O'Reilly Media, Inc." *Six years ago, Infrastructure as Code was a new concept. Today, as even banks and other conservative organizations plan moves to the cloud, development teams for companies worldwide are attempting to build large infrastructure codebases. With this practical book, Kief Morris of ThoughtWorks shows you how to effectively use principles, practices, and patterns pioneered by DevOps teams to manage cloud-age infrastructure. Ideal for system administrators, infrastructure engineers, software developers, team leads, and architects, this updated edition demonstrates how you can exploit cloud and automation technology to make changes easily, safely, quickly, and responsibly. You'll learn how to define everything as code and apply software design and engineering practices to build your system from small, loosely coupled pieces. This book covers: Foundations: Use Infrastructure as Code to drive continuous change and raise the bar of operational quality, using tools and technologies to build cloud-based platforms Working with infrastructure stacks: Learn how to define, provision, test, and continuously deliver changes to infrastructure resources Working with servers and other platforms: Use patterns to design provisioning and configuration of servers and clusters Working with large systems and teams: Learn workflows, governance, and architectural patterns to create and manage infrastructure elements*

INFRASTRUCTURE AS CODE

MANAGING SERVERS IN THE CLOUD

"O'Reilly Media, Inc." *Virtualization, cloud, containers, server automation, and software-defined networking are meant to simplify IT operations. But many organizations adopting these technologies have found that it only leads to a faster-growing sprawl of unmanageable systems. This is where infrastructure as code can help. With this practical guide, author Kief Morris of ThoughtWorks shows you how to effectively use principles, practices, and patterns pioneered through the DevOps movement to manage cloud age infrastructure. Ideal for system administrators, infrastructure engineers, team leads, and architects, this book demonstrates various tools, techniques, and patterns you can use to implement infrastructure as code. In three parts, you'll learn about the platforms and tooling involved in creating and configuring infrastructure elements, patterns for using these tools, and practices for making infrastructure as code work in your environment. Examine the pitfalls that organizations fall into when adopting the new generation of infrastructure technologies Understand the capabilities and service models of dynamic infrastructure platforms Learn about tools that provide, provision, and configure core infrastructure resources Explore services and tools for managing a dynamic infrastructure Learn specific patterns and practices for provisioning servers, building server templates, and updating running servers*

TERRAFORM: UP AND RUNNING

WRITING INFRASTRUCTURE AS CODE

"O'Reilly Media, Inc." *Terraform has emerged as a key player in the DevOps world for defining, launching, and managing infrastructure as code (IAC) across a variety of cloud and virtualization platforms, including AWS, Google Cloud, and Azure. This hands-on book is the fastest way to get up and running with Terraform. Gruntwork co-founder Yevgeniy (Jim) Brikman walks you through dozens of code examples that demonstrate how to use Terraform's simple, declarative programming language to deploy and manage infrastructure with just a few commands. Whether you're a novice developer, aspiring DevOps engineer, or veteran sysadmin, this book will take you from Terraform basics to running a full tech stack capable of supporting a massive amount of traffic and a large team of developers. Compare Terraform to other IAC tools, such as Chef, Puppet, Ansible, and Salt Stack Use Terraform to deploy server clusters, load balancers, and databases Learn how Terraform manages the state of your infrastructure and how it impacts file layout, isolation, and locking Create reusable infrastructure with Terraform modules Try out advanced Terraform syntax to implement loops, if-statements, and zero-downtime deployment Use Terraform as a team, including best practices for writing, testing, and versioning Terraform code*

MICROSERVICES: UP AND RUNNING

"O'Reilly Media, Inc." *Microservices architectures offer faster change speeds, better scalability, and cleaner, evolvable system designs. But implementing your first microservices architecture is difficult. How do you make myriad choices, educate your team on all the technical details, and navigate the organization to a successful execution to maximize your chance of success? With this book, authors Ronnie Mitra and Irakli Nadareishvili provide step-by-step guidance for building an effective microservices architecture. Architects and engineers will follow an implementation journey based on techniques and architectures that have proven to work for microservices systems. You'll build an operating model, a microservices design, an infrastructure foundation, and two working microservices, then put those pieces together as a single implementation. For anyone tasked with building microservices or a microservices architecture, this guide is invaluable. Learn an effective and explicit end-to-end microservices system design Define teams, their responsibilities, and guidelines for working together Understand how to slice a big application into a collection of microservices Examine how to isolate and embed data into corresponding microservices Build a simple yet powerful CI/CD pipeline for infrastructure changes Write code for sample microservices Deploy a working microservices application on Amazon Web Services*

KUBERNETES: UP AND RUNNING

DIVE INTO THE FUTURE OF INFRASTRUCTURE

"O'Reilly Media, Inc." *Legend has it that Google deploys over two billion application containers a week. How's that possible? Google revealed the secret through a project called Kubernetes, an open source cluster orchestrator (based on its internal Borg system) that radically simplifies the task of*

building, deploying, and maintaining scalable distributed systems in the cloud. This practical guide shows you how Kubernetes and container technology can help you achieve new levels of velocity, agility, reliability, and efficiency. Authors Kelsey Hightower, Brendan Burns, and Joe Beda—who've worked on Kubernetes at Google and other organizations—explain how this system fits into the lifecycle of a distributed application. You will learn how to use tools and APIs to automate scalable distributed systems, whether it is for online services, machine-learning applications, or a cluster of Raspberry Pi computers. Explore the distributed system challenges that Kubernetes addresses Dive into containerized application development, using containers such as Docker Create and run containers on Kubernetes, using the docker image format and container runtime Explore specialized objects essential for running applications in production Reliably roll out new software versions without downtime or errors Get examples of how to develop and deploy real-world applications in Kubernetes

TERRAFORM COOKBOOK

EFFICIENTLY DEFINE, LAUNCH, AND MANAGE INFRASTRUCTURE AS CODE ACROSS VARIOUS CLOUD PLATFORMS

Packt Publishing Ltd Discover how to manage and scale your infrastructure using Infrastructure as Code (IaC) with Terraform Key Features Get up and running with the latest version of Terraform, v0.13 Design and manage infrastructure that can be shared, tested, modified, provisioned, and deployed Work through practical recipes to achieve zero-downtime deployment and scale your infrastructure effectively Book Description HashiCorp Configuration Language (HCL) has changed how we define and provision a data center infrastructure with the launch of Terraform—one of the most popular and powerful products for building Infrastructure as Code. This practical guide will show you how to leverage HashiCorp's Terraform tool to manage a complex infrastructure with ease. Starting with recipes for setting up the environment, this book will gradually guide you in configuring, provisioning, collaborating, and building a multi-environment architecture. Unlike other books, you'll also be able to explore recipes with real-world examples to provision your Azure infrastructure with Terraform. Once you've covered topics such as Azure Template, Azure CLI, Terraform configuration, and Terragrunt, you'll delve into manual and automated testing with Terraform configurations. The next set of chapters will show you how to manage a balanced and efficient infrastructure and create reusable infrastructure with Terraform modules. Finally, you'll explore the latest DevOps trends such as continuous integration and continuous delivery (CI/CD) and zero-downtime deployments. By the end of this book, you'll have developed the skills you need to get the most value out of Terraform and manage your infrastructure effectively. What you will learn Understand how to install Terraform for local development Get to grips with writing Terraform configuration for infrastructure provisioning Use Terraform for advanced infrastructure use cases Understand how to write and use Terraform modules Discover how to use Terraform for Azure infrastructure provisioning Become well-versed in testing Terraform configuration Execute Terraform configuration in CI/CD pipelines Explore how to use Terraform Cloud Who this book is for This book is for developers, operators, and DevOps engineers looking to improve their workflow and use Infrastructure as Code. Experience with Microsoft Azure, Jenkins, shell scripting, and DevOps practices is required to get the most out of this Terraform book.

CLOUD NATIVE INFRASTRUCTURE

PATTERNS FOR SCALABLE INFRASTRUCTURE AND APPLICATIONS IN A DYNAMIC ENVIRONMENT

"O'Reilly Media, Inc." Cloud native infrastructure is more than servers, network, and storage in the cloud—it is as much about operational hygiene as it is about elasticity and scalability. In this book, you'll learn practices, patterns, and requirements for creating infrastructure that meets your needs, capable of managing the full life cycle of cloud native applications. Justin Garrison and Kris Nova reveal hard-earned lessons on architecting infrastructure from companies such as Google, Amazon, and Netflix. They draw inspiration from projects adopted by the Cloud Native Computing Foundation (CNCF), and provide examples of patterns seen in existing tools such as Kubernetes. With this book, you will: Understand why cloud native infrastructure is necessary to effectively run cloud native applications Use guidelines to decide when—and if—your business should adopt cloud native practices Learn patterns for deploying and managing infrastructure and applications Design tests to prove that your infrastructure works as intended, even in a variety of edge cases Learn how to secure infrastructure with policy as code

INFRASTRUCTURE AS CODE, PATTERNS AND PRACTICES

WITH EXAMPLES IN PYTHON AND TERRAFORM

Simon and Schuster Use Infrastructure as Code (IaC) to automate, test, and streamline infrastructure for business-critical systems. In Infrastructure as Code, Patterns and Practices you will learn how to: Optimize infrastructure for modularity and isolate dependencies Test infrastructure configuration Mitigate, troubleshoot, and isolate failed infrastructure changes Collaborate across teams on infrastructure development Update infrastructure with minimal downtime using blue-green deployments Scale infrastructure systems supporting multiple business units Use patterns for provisioning tools, configuration management, and image building Deliver secure infrastructure configuration to production Infrastructure as Code, Patterns and Practices teaches you to automate infrastructure by applying changes in a codified manner. You'll learn how to create, test, and deploy infrastructure components in a way that's easy to scale and share across an entire organization. The book is full of flexible automation techniques that work whether you're managing your personal projects or making live network changes across a large enterprise. A system administrator or infrastructure engineer will learn essential software development practices for managing IaC, while developers will benefit from in-depth coverage of assembling infrastructure as part of DevOps culture. While the patterns and techniques are tool agnostic, you'll appreciate the easy-to-follow examples in Python and Terraform. About the technology Infrastructure as Code is a set of practices and processes for provisioning and maintaining infrastructure using scripts, configuration, or programming languages. With IaC in place, it's easy to test components, implement features, and scale with minimal downtime. Best of all, since IaC follows good development practices, you can make system-wide changes with just a few code commits! About the book Infrastructure as Code, Patterns and Practices teaches flexible techniques for building resilient, scalable infrastructure, including structuring and sharing modules, migrating legacy systems, and more. Learn to build networks, load balancers, and firewalls using Python and Terraform, and confidently update infrastructure while your software is running. You'll appreciate the expert advice on team collaboration strategies to avoid instability, improve security, and manage costs. What's inside Optimize infrastructure for modularity and isolate dependencies Mitigate, troubleshoot, and isolate failed infrastructure changes Update infrastructure with minimal downtime using blue-green deployments Use patterns for provisioning tools, configuration management, and image building About the reader For infrastructure or software engineers familiar with Python, provisioning tools, and public cloud providers. About the author Rosemary Wang is an educator, contributor, writer, and speaker. She has worked on many infrastructure as code projects, and open source tools such as Terraform, Vault, and Kubernetes. Table of Contents PART 1 FIRST STEPS 1 Introducing infrastructure as code 2 Writing infrastructure as code 3 Patterns for infrastructure modules 4 Patterns for infrastructure dependencies PART 2 SCALING WITH YOUR TEAM 5 Structuring and sharing modules 6 Testing 7 Continuous delivery and branching models 8 Security and compliance PART 3 MANAGING PRODUCTION COMPLEXITY 9 Making changes 10 Refactoring 11 Fixing failures 12 Cost of cloud computing 13 Managing tools

TERRAFORM: UP AND RUNNING

"O'Reilly Media, Inc." Terraform has become a key player in the DevOps world for defining, launching, and managing infrastructure as code (IaC) across a variety of cloud and virtualization platforms, including AWS, Google Cloud, Azure, and more. This hands-on third edition, expanded and thoroughly updated for version 1.0 and beyond, shows you the fastest way to get up and running with Terraform. Gruntwork cofounder Yevgeniy (Jim) Brikman takes you through code examples that demonstrate Terraform's simple, declarative programming language for deploying and managing infrastructure with a few commands. Veteran sysadmins, DevOps engineers, and novice developers will quickly go from Terraform basics to running a full stack that can support a massive amount of traffic and a large team of developers. Compare Terraform with Chef, Puppet, Ansible, CloudFormation, and Pulumi Deploy servers, load balancers, and databases Create reusable infrastructure with Terraform modules Test your Terraform modules with static analysis, unit tests, and integration tests Configure CI/CD pipelines for both your apps and infrastructure code Use advanced Terraform syntax for loops, conditionals, and zero-downtime deployment Get up to speed on Terraform 0.13 to 1.0 and beyond Work with multiple clouds and providers (including Kubernetes!) **"O'Reilly Media, Inc."**

TEST-DRIVEN INFRASTRUCTURE WITH CHEF

"O'Reilly Media, Inc." Test-Driven Infrastructure with Chef demonstrates a radical approach to developing web infrastructure that combines the powerful Chef configuration management framework with Cucumber, the leading Behavior-driven development (BDD) tool. Learn how to deliver real business value by developing infrastructure code test-first. Infrastructure consultant Stephen Nelson-Smith shows you how this unique approach allows you to make significant changes without the fear of unexpected side effects—a great benefit when you're developing code to control your production infrastructures. By using the test-first approach introduced in this book, you gain increased security, code quality, and peace of mind. Learn the core principles behind the infrastructure-as-code approach, including modularity, cooperation, extensibility, and flexibility Take a high-level tour of the Chef framework, tool, and API, as well as the community behind the project Set up a workstation to interact with the Chef API Get an overview of Cucumber and learn the principles of BDD Start using Cucumber-Chef, the open source infrastructure testing platform Explore test-driven infrastructure development with a hands-on tutorial

THE TERRAFORM BOOK

James Turnbull A hands-on, introductory book about managing infrastructure with Terraform. Start small and then build on what you learn to scale up to complex infrastructure. Written for both developers and sysadmins. Focuses on how to build infrastructure and applications with Terraform. The book

contains: Chapter 1: An Introduction to Terraform Chapter 2: Installing Terraform Chapter 3: Building our first application Chapter 4: Provisioning and Terraform Chapter 5: Collaborating with Terraform Chapter 6: Building a multi-environment architecture Chapter 7: Infrastructure testing Updated for Terraform 0.12!

INFRASTRUCTURE AS CODE (IAC) COOKBOOK

[Packt Publishing Ltd](#) Over 90 practical, actionable recipes to automate, test, and manage your infrastructure quickly and effectively About This Book Bring down your delivery timeline from days to hours by treating your server configurations and VMs as code, just like you would with software code. Take your existing knowledge and skill set with your existing tools (Puppet, Chef, or Docker) to the next level and solve IT infrastructure challenges. Use practical recipes to use code to provision and deploy servers and applications and have greater control of your infrastructure. Who This Book Is For This book is for DevOps engineers and developers working in cross-functional teams or operations and would now switch to IAC to manage complex infrastructures. What You Will Learn Provision local and remote development environments with Vagrant Automate production infrastructures with Terraform, Ansible and Cloud-init on AWS, OpenStack, Google Cloud, Digital Ocean, and more Manage and test automated systems using Chef and Puppet Build, ship, and debug optimized Docker containers Explore the best practices to automate and test everything from cloud infrastructures to operating system configuration In Detail Infrastructure as Code (IAC) is a key aspect of the DevOps movement, and this book will show you how to transform the way you work with your infrastructure—by treating it as software. This book is dedicated to helping you discover the essentials of infrastructure automation and its related practices; the over 90 organized practical solutions will demonstrate how to work with some of the very best tools and cloud solutions. You will learn how to deploy repeatable infrastructures and services on AWS, OpenStack, Google Cloud, and Digital Ocean. You will see both Ansible and Terraform in action, manipulate the best bits from cloud-init to easily bootstrap instances, and simulate consistent environments locally or remotely using Vagrant. You will discover how to automate and test a range of system tasks using Chef or Puppet. You will also build, test, and debug various Docker containers having developers' interests in mind. This book will help you to use the right tools, techniques, and approaches to deliver working solutions for today's modern infrastructure challenges. Style and approach This is a recipe-based book that allows you to venture into some of the most cutting-edge practices and techniques about IAC and solve immediate problems when trying to implement them.

THE DEFINITIVE GUIDE TO AWS INFRASTRUCTURE AUTOMATION

CRAFT INFRASTRUCTURE-AS-CODE SOLUTIONS

[Apress](#) Discover the pillars of AWS infrastructure automation, starting with API-driven infrastructure concepts and its immediate benefits such as increased agility, automation of the infrastructure life cycle, and flexibility in experimenting with new architectures. With this base established, the book discusses infrastructure-as-code concepts in a general form, establishing principled outcomes such as security and reproducibility. Inescapably, we delve into how these concepts enable and underpin the DevOps movement. The Definitive Guide to AWS Infrastructure Automation begins by discussing services and tools that enable infrastructure-as-code solutions; first stop: AWS's CloudFormation service. You'll then cover the ever-expanding ecosystem of tooling emerging in this space, including CloudFormation wrappers such as Troposphere and orchestrators such as Sceptre, to completely independent third-party tools such as Terraform and Pulumi. As a bonus, you'll also work with AWS' newly-released CDK (Cloud Development Kit). You'll then look at how to implement modular, robust, and extensible solutions across a few examples -- in the process building out each solution with several different tools to compare and contrast the strengths and weaknesses of each. By the end of the journey, you will have gained a wide knowledge of both the AWS-provided and third-party ecosystem of infrastructure-as-code/provisioning tools, and the strengths and weaknesses of each. You'll possess a mental framework for how to craft an infrastructure-as-code solution to solve future problems based on examples discussed throughout the book. You'll also have a demonstrable understanding of the hands-on operation of each tool, situational appropriateness of each tool, and how to leverage the tool day to day. What You Will Learn Discover the technological and organizational benefits to infrastructure-as-code solutions Examine the overall landscape of infrastructure-as-code tooling and solutions available to consumers of AWS services See the strengths and weaknesses of these tools relative to one another as examined through hands-on implementation of several solutions Gain hands-on experience, best practices, and tips and tricks learned through several years' real-world experience delivering solutions using these very tools in a wide variety of scenarios Engineer solid solutions that leave room for new requirements and changes without requiring needless refactoring Who This Book Is For DevOps engineers, cloud engineers and architects focused on the AWS ecosystem, software engineers/developers working within the AWS ecosystem, and engineering leaders looking for best practices.

TEST-DRIVEN INFRASTRUCTURE WITH CHEF

BRING BEHAVIOR-DRIVEN DEVELOPMENT TO INFRASTRUCTURE AS CODE

["O'Reilly Media, Inc."](#) Since Test-Driven Infrastructure with Chef first appeared in mid-2011, infrastructure testing has begun to flourish in the web ops world. In this revised and expanded edition, author Stephen Nelson-Smith brings you up to date on this rapidly evolving discipline, including the philosophy driving it and a growing array of tools. You'll get a hands-on introduction to the Chef framework, and a recommended toolchain and workflow for developing your own test-driven production infrastructure. Several exercises and examples throughout the book help you gain experience with Chef and the entire infrastructure-testing ecosystem. Learn how this test-first approach provides increased security, code quality, and peace of mind. Explore the underpinning philosophy that infrastructure can and should be treated as code Become familiar with the MASCOT approach to test-driven infrastructure Understand the basics of test-driven and behavior-driven development for managing change Dive into Chef fundamentals by building an infrastructure with real examples Discover how Chef works with tools such as Virtualbox and Vagrant Get a deeper understanding of Chef by learning Ruby language basics Learn the tools and workflow necessary to conduct unit, integration, and acceptance tests

CLOUD NATIVE AUTOMATION WITH GOOGLE CLOUD BUILD

EASILY AUTOMATE TASKS IN A FULLY MANAGED, SCALABLE, AND SECURE PLATFORM

[Packt Publishing Ltd](#) Written by two Google Cloud experts, this book will help you to create a concrete foundation of Cloud Build so that you can define workflows and pipelines as builds in Google Cloud Build Key Features Learn Cloud Build's API and build configuration/schema Apply scalability and security best practices for using Cloud Build Integrate Cloud Build with external systems critical to workflows Book Description When adopting cloud infrastructure, you are often looking to modernize the automation of workflows such as continuous integration and software delivery. Minimizing operational overhead via fully managed solutions such as Cloud Build can be tough. Moreover, learning Cloud Build's API and build schema, scalability, security, and integrating Cloud Build with other external systems can be challenging. This book helps you to overcome these challenges by cementing a Google Cloud Build foundation. The book starts with an introduction to Google Cloud Build and explains how it brings value via automation. You will then configure the architecture and environment in which builds run while learning how to execute these builds. Next, you will focus on writing and configuring fully featured builds and executing them securely. You will also review Cloud Build's functionality with practical applications and set up a secure delivery pipeline for GKE. Moving ahead, you will learn how to manage safe roll outs of cloud infrastructure with Terraform. Later, you will build a workflow from local source to production in Cloud Run. Finally, you will integrate Cloud Build with external systems while leveraging Cloud Deploy to manage roll outs. By the end of this book, you'll be able to automate workflows securely by leveraging the principles of Google Cloud Build. What you will learn Get started with Cloud Build the right way Define new workflows using the Cloud Build schema Implement a secure build and deployment environment for GKE Automate serverless workflows for Cloud Run and Cloud Functions Integrate Cloud Build with source code management and artifact stores Develop a Cloud Build strategy for your organization Who this book is for This book is for cloud engineers and DevOps engineers who manage cloud environments and desire to automate workflows in a fully managed, scalable, and secure platform. You are expected to have an understanding of cloud fundamentals, software delivery, and containerization fundamentals to get the most out of this book.

CLOUD-NATIVE COMPUTING

TECHNOLOGIES AND TOOLS TOWARDS ENTERPRISE-SCALE MICROSERVICES-CENTRIC APPLICATIONS

[John Wiley & Sons](#) Explore the cloud-native paradigm for event-driven and service-oriented applications In Cloud-Native Computing: The Technologies and Tools towards Enterprise-scale Microservices-centric Applications, a team of distinguished professionals delivers a comprehensive and insightful treatment of cloud-native computing technologies and tools. With a particular emphasis on the Kubernetes platform, as well as service mesh and API gateway solutions, the book demonstrates the need for reliability assurance in any distributed environment. The authors explain the application engineering and legacy modernization aspects of the technology at length, along with agile programming models. Descriptions of MSA and EDA as tools for accelerating software design and development accompany discussions of how cloud DevOps tools empower continuous integration, delivery, and deployment. Cloud-Native Computing also introduces proven edge devices and clouds used to construct microservices-centric and real-time edge applications. Finally, readers will benefit from: Thorough introductions to the demystification of digital transformation Comprehensive explorations of distributed computing in the digital era, as well as reflections on the history and technological development of cloud computing Practical discussions of cloud-native computing and microservices architecture, as well as event-driven architecture and serverless computing In-depth examinations of the

Akka framework as a tool for concurrent and distributed applications development Perfect for graduate and postgraduate students in a variety of IT- and cloud-related specialties, Cloud-Native Computing also belongs in the libraries of IT professionals and business leaders engaged or interested in the application of cloud technologies to various business operations.

INFRASTRUCTURE AS CODE

A COMPREHENSIVE GUIDE TO MANAGING INFRASTRUCTURE AS CODE

This book attempts to explore all you need to know regarding Infrastructure-as-Code (IaC). It will assist you in making informed decisions, if you have plans to implement IaC. As part of the DevOps practices, IaC offers the ability to manage, configure, and create complex infrastructures by means of executable code. When adopting IaC, the infrastructure is managed by defining the preferred state of the infrastructure in source files, and using a tool to help facilitate that. The source files consist of templates, policy definitions, configuration, code, and other related assets. A better infrastructure delivery can help improve the important aspects of software delivery performance that drive business outcomes. These include time to restore service, change failure rate, lead time for changes, and deployment frequency. What You'll Learn: Understand how IaC works. Explore tools and services for updating running servers, building server templates, and provisioning servers. Learn about immutable infrastructure and the tools needed to implement it. Comprehend how to make an object reproducible. Discover the best practices for managing a dynamic infrastructure. And lots more...

PROMETHEUS: UP & RUNNING

INFRASTRUCTURE AND APPLICATION PERFORMANCE MONITORING

"O'Reilly Media, Inc." Get up to speed with Prometheus, the metrics-based monitoring system used by tens of thousands of organizations in production. This practical guide provides application developers, sysadmins, and DevOps practitioners with a hands-on introduction to the most important aspects of Prometheus, including dashboarding and alerting, direct code instrumentation, and metric collection from third-party systems with exporters. This open source system has gained popularity over the past few years for good reason. With its simple yet powerful data model and query language, Prometheus does one thing, and it does it well. Author and Prometheus developer Brian Brazil guides you through Prometheus setup, the Node exporter, and the Alertmanager, then demonstrates how to use them for application and infrastructure monitoring. Know where and how much to apply instrumentation to your application code Identify metrics with labels using unique key-value pairs Get an introduction to Grafana, a popular tool for building dashboards Learn how to use the Node Exporter to monitor your infrastructure Use service discovery to provide different views of your machines and services Use Prometheus with Kubernetes and examine exporters you can use with containers Convert data from other monitoring systems into the Prometheus format

ARCHITECTING DEPENDABLE SYSTEMS IV

Springer Science & Business Media As software systems become ubiquitous, the issues of dependability become more and more crucial. This state-of-the-art survey contains 18 expanded and peer-reviewed papers based on the carefully selected contributions to the Workshop on Architecting Dependable Systems (WADS 2006) organized at the 2006 International Conference on Dependable Systems and Networks (DSN 2006), held in Philadelphia, PA, USA, in June 2006.

GETTING STARTED WITH TERRAFORM

Packt Publishing Ltd Build, Manage and Improve your infrastructure effortlessly. About This Book An up-to-date and comprehensive resource on Terraform that lets you quickly and efficiently launch your infrastructure Learn how to implement your infrastructure as code and make secure, effective changes to your infrastructure Learn to build multi-cloud fault-tolerant systems and simplify the management and orchestration of even the largest scale and most complex cloud infrastructures Who This Book Is For This book is for developers and operators who already have some exposure to working with infrastructure but want to improve their workflow and introduce infrastructure as a code practice. Knowledge of essential Amazon Web Services components (EC2, VPC, IAM) would help contextualize the examples provided. Basic understanding of Jenkins and Shell scripts will be helpful for the chapters on the production usage of Terraform. What You Will Learn Understand what Infrastructure as Code (IaC) means and why it matters Install, configure, and deploy Terraform Take full control of your infrastructure in the form of code Manage complete infrastructure, starting with a single server and scaling beyond any limits Discover a great set of production-ready practices to manage infrastructure Set up CI/CD pipelines to test and deliver Terraform stacks Construct templates to simplify more complex provisioning tasks In Detail Terraform is a tool used to efficiently build, configure, and improve the production infrastructure. It can manage the existing infrastructure as well as create custom in-house solutions. This book shows you when and how to implement infrastructure as a code practices with Terraform. It covers everything necessary to set up the complete management of infrastructure with Terraform, starting with the basics of using providers and resources. It is a comprehensive guide that begins with very small infrastructure templates and takes you all the way to managing complex systems, all using concrete examples that evolve over the course of the book. The book ends with the complete workflow of managing a production infrastructure as code—this is achieved with the help of version control and continuous integration. The readers will also learn how to combine multiple providers in a single template and manage different code bases with many complex modules. It focuses on how to set up continuous integration for the infrastructure code. The readers will be able to use Terraform to build, change, and combine infrastructure safely and efficiently. Style and approach This book will help and guide you to implement Terraform in your infrastructure. The readers will start by working on very small infrastructure templates and then slowly move on to manage complex systems, all by using concrete examples that will evolve during the course of the book.

TERRAFORM IN ACTION

Simon and Schuster Terraform in Action shows you how to automate and scale infrastructure programmatically using the Terraform toolkit. Summary In Terraform in Action you will learn: Cloud architecture with Terraform Terraform module sharing and the private module registry Terraform security in a multitenant environment Strategies for performing blue/green deployments Refactoring for code maintenance and reusability Running Terraform at scale Creating your own Terraform provider Using Terraform as a continuous development/continuous delivery platform Terraform in Action introduces the infrastructure-as-code (IaC) model that lets you instantaneously create new components and respond efficiently to changes in demand. You'll use the Terraform automation tool to design and manage servers that can be provisioned, shared, changed, tested, and deployed with a single command. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Provision, deploy, scale, and clone your entire stack to the cloud at the touch of a button. In Terraform, you create a collection of simple declarative scripts that define and manage application infrastructure. This powerful infrastructure-as-code approach automates key tasks like versioning and testing for everything from low-level networking to cloud services. About the book Terraform in Action shows you how to automate and scale infrastructure programmatically using the Terraform toolkit. Using practical, relevant examples, you'll use Terraform to provision a Kubernetes cluster, deploy a multiplayer game, and configure other hands-on projects. As you progress to advanced techniques like zero-downtime deployments, you'll discover how to think in Terraform rather than just copying and pasting scripts. What's inside Cloud architecture with Terraform Terraform module sharing and the private module registry Terraform security in a multitenant environment Strategies for performing blue/green deployments About the reader For readers experienced with a major cloud platform such as AWS. Examples in JavaScript and Golang. About the author Scott Winkler is a DevOps engineer and a distinguished Terraform expert. He has spoken multiple times at HashiTalks and HashiConf, and was selected as a HashiCorp Ambassador and Core Contributor in 2020. Table of Contents PART 1 TERRAFORM BOOTCAMP 1 Getting started with Terraform 2 Life cycle of a Terraform resource 3 Functional programming 4 Deploying a multi-tiered web application in AWS PART 2 TERRAFORM IN THE WILD 5 Serverless made easy 6 Terraform with friends 7 CI/CD pipelines as code 8 A multi-cloud MMORPG PART 3 MASTERING TERRAFORM 9 Zero-downtime deployments 10 Testing and refactoring 11 Extending Terraform by writing a custom provider 12 Automating Terraform 13 Security and secrets management

FOUNDATIONS OF SOFTWARE ENGINEERING

CRC Press The best way to learn software engineering is by understanding its core and peripheral areas. Foundations of Software Engineering provides in-depth coverage of the areas of software engineering that are essential for becoming proficient in the field. The book devotes a complete chapter to each of the core areas. Several peripheral areas are also explained by assigning a separate chapter to each of them. Rather than using UML or other formal notations, the content in this book is explained in easy-to-understand language. Basic programming knowledge using an object-oriented language is helpful to understand the material in this book. The knowledge gained from this book can be readily used in other relevant courses or in real-world software development environments. This textbook educates students in software engineering principles. It covers almost all facets of software engineering, including requirement engineering, system specifications, system modeling, system architecture, system implementation, and system testing. Emphasizing practical issues, such as feasibility studies, this book explains how to add and develop software requirements to evolve software systems. This book was written after receiving feedback from several professors and software engineers. What resulted is a textbook on software engineering that not only covers the theory of software engineering but also presents real-world insights to aid students in proper implementation. Students learn key concepts through carefully explained and illustrated theories, as well as concrete examples and a complete case study using Java. Source code is also available on the book's website. The examples and case studies increase in complexity as the book progresses to help students build a practical understanding of the required theories and applications.

TEST-DRIVEN INFRASTRUCTURE WITH CHEF

BRING BEHAVIOR-DRIVEN DEVELOPMENT TO INFRASTRUCTURE AS CODE

"O'Reilly Media, Inc." Since *Test-Driven Infrastructure with Chef* first appeared in mid-2011, infrastructure testing has begun to flourish in the web ops world. In this revised and expanded edition, author Stephen Nelson-Smith brings you up to date on this rapidly evolving discipline, including the philosophy driving it and a growing array of tools. You'll get a hands-on introduction to the Chef framework, and a recommended toolchain and workflow for developing your own test-driven production infrastructure. Several exercises and examples throughout the book help you gain experience with Chef and the entire infrastructure-testing ecosystem. Learn how this test-first approach provides increased security, code quality, and peace of mind. Explore the underpinning philosophy that infrastructure can and should be treated as code Become familiar with the MASCOT approach to test-driven infrastructure Understand the basics of test-driven and behavior-driven development for managing change Dive into Chef fundamentals by building an infrastructure with real examples Discover how Chef works with tools such as Virtualbox and Vagrant Get a deeper understanding of Chef by learning Ruby language basics Learn the tools and workflow necessary to conduct unit, integration, and acceptance tests

LEARNING DEVOPS

THE COMPLETE GUIDE TO ACCELERATE COLLABORATION WITH JENKINS, KUBERNETES, TERRAFORM AND AZURE DEVOPS

Packt Publishing Ltd Simplify your DevOps roles with DevOps tools and techniques Key FeaturesLearn to utilize business resources effectively to increase productivity and collaborationLeverage the ultimate open source DevOps tools to achieve continuous integration and continuous delivery (CI/CD)Ensure faster time-to-market by reducing overall lead time and deployment downtimeBook Description The implementation of DevOps processes requires the efficient use of various tools, and the choice of these tools is crucial for the sustainability of projects and collaboration between development (Dev) and operations (Ops). This book presents the different patterns and tools that you can use to provision and configure an infrastructure in the cloud. You'll begin by understanding DevOps culture, the application of DevOps in cloud infrastructure, provisioning with Terraform, configuration with Ansible, and image building with Packer. You'll then be taken through source code versioning with Git and the construction of a DevOps CI/CD pipeline using Jenkins, GitLab CI, and Azure Pipelines. This DevOps handbook will also guide you in containerizing and deploying your applications with Docker and Kubernetes. You'll learn how to reduce deployment downtime with blue-green deployment and the feature flags technique, and study DevOps practices for open source projects. Finally, you'll grasp some best practices for reducing the overall application lead time to ensure faster time to market. By the end of this book, you'll have built a solid foundation in DevOps, and developed the skills necessary to enhance a traditional software delivery process using modern software delivery tools and techniques What you will learnBecome well versed with DevOps culture and its practicesUse Terraform and Packer for cloud infrastructure provisioningImplement Ansible for infrastructure configurationUse basic Git commands and understand the Git flow processBuild a DevOps pipeline with Jenkins, Azure Pipelines, and GitLab CIContainereize your applications with Docker and KubernetesCheck application quality with SonarQube and PostmanProtect DevOps processes and applications using DevSecOps toolsWho this book is for If you are a developer or a system administrator interested in understanding continuous integration, continuous delivery, and containerization with DevOps tools and techniques, this book is for you.

HASHICORP INFRASTRUCTURE AUTOMATION CERTIFICATION GUIDE

PASS THE TERRAFORM ASSOCIATE EXAM AND MANAGE IAC TO SCALE ACROSS AWS, AZURE, AND GOOGLE CLOUD

Packt Publishing Ltd Leverage Terraform's capabilities to reuse code, write modules, automate deployments, and manage infrastructure state Key FeaturesPerform complex enterprise-grade infrastructure deployments using Terraform v1.0, the latest version of TerraformLearn to scale your infrastructure without introducing added deployment complexitiesUnderstand how to overcome infrastructure deployment challengesBook Description Terraform is a highly sought-after technology for orchestrating infrastructure provisioning. This book is a complete reference guide to enhancing your infrastructure automation skills, offering up-to-date coverage of the HashiCorp infrastructure automation certification exam. This book is written in a clear and practical way with self-assessment questions and mock exams that will help you from a HashiCorp infrastructure automation certification exam perspective. This book covers end-to-end activities with Terraform, such as installation, writing its configuration file, Terraform modules, backend configurations, data sources, and infrastructure provisioning. You'll also get to grips with complex enterprise infrastructures and discover how to create thousands of resources with a single click. As you advance, you'll get a clear understanding of maintaining infrastructure as code (IaC) in Repo/GitHub, along with learning how to create, modify, and remove infrastructure resources as and when needed. Finally, you'll learn about Terraform Cloud and Enterprise and their enhanced features. By the end of this book, you'll have a handy, up-to-date desktop reference guide along with everything you need to pass the HashiCorp Certified: Terraform Associate exam with confidence. What you will learnEffectively maintain the life cycle of your infrastructure using Terraform 1.0Reuse Terraform code to provision any cloud infrastructureWrite Terraform modules on multiple cloud providersUse Terraform workflows with the Azure DevOps pipelineWrite Terraform configuration files for AWS, Azure, and Google CloudDiscover ways to securely store Terraform state filesUnderstand Policy as Code using Terraform SentinelGain an overview of Terraform Cloud and Terraform EnterpriseWho this book is for This book is for experienced cloud engineers, DevOps engineers, system administrators, and solution architects interested in developing industry-grade skills with Terraform. You will also find this book useful if you want to pass the HashiCorp Certified: Terraform Associate exam. Basic command-line skills and prior knowledge of cloud environments and their services are required before getting started with this book.

ANSIBLE: UP AND RUNNING

AUTOMATING CONFIGURATION MANAGEMENT AND DEPLOYMENT THE EASY WAY

"O'Reilly Media, Inc." Among the many configuration management tools available, Ansible has some distinct advantages—it's minimal in nature, you don't need to install anything on your nodes, and it has an easy learning curve. This practical guide shows you how to be productive with this tool quickly, whether you're a developer deploying code to production or a system administrator looking for a better automation solution. Author Lorin Hochstein shows you how to write playbooks (Ansible's configuration management scripts), manage remote servers, and explore the tool's real power: built-in declarative modules. You'll discover that Ansible has the functionality you need and the simplicity you desire. Understand how Ansible differs from other configuration management systems Use the YAML file format to write your own playbooks Learn Ansible's support for variables and facts Work with a complete example to deploy a non-trivial application Use roles to simplify and reuse playbooks Make playbooks run faster with ssh multiplexing, pipelining, and parallelism Deploy applications to Amazon EC2 and other cloud platforms Use Ansible to create Docker images and deploy Docker containers

HELLO, STARTUP

A PROGRAMMER'S GUIDE TO BUILDING PRODUCTS, TECHNOLOGIES, AND TEAMS

"O'Reilly Media, Inc." This book is the "Hello, World" tutorial for building products, technologies, and teams in a startup environment. It's based on the experiences of the author, Yevgeniy (Jim) Brikman, as well as interviews with programmers from some of the most successful startups of the last decade, including Google, Facebook, LinkedIn, Twitter, GitHub, Stripe, Instagram, AdMob, Pinterest, and many others. Hello, Startup is a practical, how-to guide that consists of three parts: Products, Technologies, and Teams. Although at its core, this is a book for programmers, by programmers, only Part II (Technologies) is significantly technical, while the rest should be accessible to technical and non-technical audiences alike. If you're at all interested in startups—whether you're a programmer at the beginning of your career, a seasoned developer bored with large company politics, or a manager looking to motivate your engineers—this book is for you.

HANDS-ON INFRASTRUCTURE MONITORING WITH PROMETHEUS

IMPLEMENT AND SCALE QUERIES, DASHBOARDS, AND ALERTING ACROSS MACHINES AND CONTAINERS

Packt Publishing Ltd Build Prometheus ecosystems with metric-centric visualization, alerting, and querying Key FeaturesIntegrate Prometheus with Alertmanager and Grafana for building a complete monitoring systemExplore PromQL, Prometheus' functional query language, with easy-to-follow examplesLearn how to deploy Prometheus components using Kubernetes and traditional instancesBook Description Prometheus is an open source monitoring system. It provides a modern time series database, a robust query language, several metric visualization possibilities, and a reliable alerting solution for traditional and cloud-native infrastructure. This book covers the fundamental concepts of monitoring and explores Prometheus architecture, its data model, and how metric aggregation works. Multiple test environments are included to help explore different configuration scenarios, such as the use of various exporters and integrations. You'll delve into PromQL, supported by several examples, and then apply that knowledge to alerting and recording rules, as well as how to test them. After that, alert routing with Alertmanager and creating visualizations with Grafana is thoroughly covered.

In addition, this book covers several service discovery mechanisms and even provides an example of how to create your own. Finally, you'll learn about Prometheus federation, cross-sharding aggregation, and also long-term storage with the help of Thanos. By the end of this book, you'll be able to implement and scale Prometheus as a full monitoring system on-premises, in cloud environments, in standalone instances, or using container orchestration with Kubernetes. What you will learn Grasp monitoring fundamentals and implement them using Prometheus Discover how to extract metrics from common infrastructure services Find out how to take full advantage of Prometheus Design a highly available, resilient, and scalable Prometheus stack Explore the power of Kubernetes Prometheus Operator Understand concepts such as federation and cross-shard aggregation Unlock seamless global views and long-term retention in cloud-native apps with Thanos Who this book is for If you're a software developer, cloud administrator, site reliability engineer, DevOps enthusiast or system admin looking to set up a fail-safe monitoring and alerting system for sustaining infrastructure security and performance, this book is for you. Basic networking and infrastructure monitoring knowledge will help you understand the concepts covered in this book.

IMPLEMENTING AWS: DESIGN, BUILD, AND MANAGE YOUR INFRASTRUCTURE

LEVERAGE AWS FEATURES TO BUILD HIGHLY SECURE, FAULT-TOLERANT, AND SCALABLE CLOUD ENVIRONMENTS

Packt Publishing Ltd Work through exciting recipes to administer your AWS cloud Key Features Build secure environments using AWS components and services Explore core AWS features with real-world applications and best practices Design and build Lambda functions using real-world examples Book Description With this Learning Path, you'll explore techniques to easily manage applications on the AWS cloud. You'll begin with an introduction to serverless computing, its advantages, and the fundamentals of AWS. The following chapters will guide you on how to manage multiple accounts by setting up consolidated billing, enhancing your application delivery skills, with the latest AWS services such as CodeCommit, CodeDeploy, and CodePipeline to provide continuous delivery and deployment, while also securing and monitoring your environment's workflow. It'll also add to your understanding of the services AWS Lambda provides to developers. To refine your skills further, it demonstrates how to design, write, test, monitor, and troubleshoot Lambda functions. By the end of this Learning Path, you'll be able to create a highly secure, fault-tolerant, and scalable environment for your applications. This Learning Path includes content from the following Packt products: AWS Administration: The Definitive Guide, Second Edition by Yohan Wadia AWS Administration Cookbook by Rowan Udell, Lucas Chan Mastering AWS Lambda by Yohan Wadia, Udita Gupta What you will learn Explore the benefits of serverless computing and applications Deploy apps with AWS Elastic Beanstalk and Amazon Elastic File System Secure environments with AWS CloudTrail, AWSConfig, and AWS Shield Run big data analytics with Amazon EMR and Amazon Redshift Back up and safeguard data using AWS Data Pipeline Create monitoring and alerting dashboards using CloudWatch Effectively monitor and troubleshoot serverless applications with AWS Design serverless apps via AWS Lambda, DynamoDB, and API Gateway Who this book is for This Learning Path is specifically designed for IT system and network administrators, AWS architects, and DevOps engineers who want to effectively implement AWS in their organization and easily manage daily activities. Familiarity with Linux, web services, cloud computing platforms, virtualization, networking, and other administration-related tasks will assist in understanding the concepts in the book. Prior hands-on experience with AWS core services such as EC2, IAM, S3, and programming languages, such as Node.js, Java, and C#, will also prove beneficial.

PYTHON FOR DEVOPS

LEARN RUTHLESSLY EFFECTIVE AUTOMATION

O'Reilly Media Much has changed in technology over the past decade. Data is hot, the cloud is ubiquitous, and many organizations need some form of automation. Throughout these transformations, Python has become one of the most popular languages in the world. This practical resource shows you how to use Python for everyday Linux systems administration tasks with today's most useful DevOps tools, including Docker, Kubernetes, and Terraform. Learning how to interact and automate with Linux is essential for millions of professionals. Python makes it much easier. With this book, you'll learn how to develop software and solve problems using containers, as well as how to monitor, instrument, load-test, and operationalize your software. Looking for effective ways to "get stuff done" in Python? This is your guide. Python foundations, including a brief introduction to the language How to automate text, write command-line tools, and automate the filesystem Linux utilities, package management, build systems, monitoring and instrumentation, and automated testing Cloud computing, infrastructure as code, Kubernetes, and serverless Machine learning operations and data engineering from a DevOps perspective Building, deploying, and operationalizing a machine learning project

97 THINGS EVERY CLOUD ENGINEER SHOULD KNOW

O'Reilly Media, Inc." 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

BUILDING A NATIONAL DISTRIBUTED E-INFRASTRUCTURE -- PL-GRID

SCIENTIFIC AND TECHNICAL ACHIEVEMENTS

Springer Science & Business Media This book describes scientific results obtained by project partners and outcomes of research and development activities carried out within the Polish Infrastructure for Information Science Support in the European Research Space PL-Grid (PL-Grid 2011).

OPENGL PROGRAMMING ON MAC OS X

ARCHITECTURE, PERFORMANCE, AND INTEGRATION (ADOBE READER)

Pearson Education The Mac has fully embraced OpenGL throughout its visual systems. In fact, Apple's highly efficient, modern OpenGL implementation makes Mac OS X one of today's best platforms for OpenGL development. OpenGL® Programming on Mac OS® X is the first comprehensive resource for every graphics programmer who wants to create, port, or optimize OpenGL applications for this high-volume platform. Leading OpenGL experts Robert Kuehne and J. D. Sullivan thoroughly explain the Mac's diverse OpenGL APIs, both old and new. They illuminate crucial OpenGL setup, configuration, and performance issues that are unique to the Mac platform. Next, they offer practical, start-to-finish guidance for integrating key Mac-native APIs with OpenGL, and leveraging the full power of the Mac platform in your graphics applications. Coverage includes A thorough review of Mac hardware and software architectures and their performance implications In-depth, expert guidance for accessing OpenGL from each of the Mac's core APIs: CGL, AGL, and Cocoa Interoperating with other Mac APIs: incorporating video with QuickTime, performing image effects with Core Image, and processing CoreVideo data Analyzing Mac OpenGL application performance, resolving bottlenecks, and leveraging optimizations only available on the Mac Detecting, integrating, and using OpenGL extensions An accompanying Web site (www.macopenglbook.com) contains the book's example code, plus additional OpenGL-related resources. OpenGL® Programming on Mac OS® X will be valuable to Mac programmers seeking to leverage OpenGL's power, OpenGL developers porting their applications to the Mac platform, and cross-platform graphics developers who want to take advantage of the Mac platform's uniquely intuitive style and efficiency.

FUTURE INTENT-BASED NETWORKING

ON THE QOS ROBUST AND ENERGY EFFICIENT HETEROGENEOUS SOFTWARE DEFINED NETWORKS

Springer Nature So-called Intent-Based Networking (IBN) is founded on well-known SDN (Software-Defined Networking) and represents one of the most important emerging network infrastructure opportunities. The IBN is the beginning of a new era in the history of networking, where the network itself translates business intentions into appropriate network configurations for all devices. This minimizes manual effort, provides an additional layer of network monitoring, and provides the ability to perform network analytics and take full advantage of machine learning. The centralized, software-defined solution provides process automation and proactive problem solving as well as centralized management of the network infrastructure. With software-based network management, many operations can be performed automatically using intelligent control algorithms (artificial intelligence and machine learning). As a result, network operation costs, application response times and energy consumption are reduced, network reliability and performance are improved, network security and flexibility are enhanced. This will be a benefit for existing networks as well as evolved LTE-based mobile networks,

emerging Internet of Things (IoT), Cloud systems, and soon for the future 5G/6G networks. The future networks will reach a whole new level of self-awareness, self-configuration, self-optimization, self-recovery and self-protection. This volume consists of 28 chapters, based on recent research on IBN. The volume is a collection of the most important research for the future intent-based networking deployment provided by different groups of researchers from Ukraine, Germany, Slovak Republic, Switzerland, South Korea, China, Czech Republic, Poland, Brazil, Belarus and Israel. The authors of the chapters from this collection present in depth extended research results in their scientific fields. The presented contents are highly interesting while still being rather practically oriented and straightforward to understand. Herewith we would like to wish all our readers a lot of inspiration by studying of the volume!

CRITICAL INFRASTRUCTURE PROTECTION V

5TH IFIP WG 11.10 INTERNATIONAL CONFERENCE ON CRITICAL INFRASTRUCTURE PROTECTION, ICCIP 2011, HANOVER, NH, USA, MARCH 23-25, 2011, REVISED SELECTED PAPERS

Springer The information infrastructure---comprising computers, embedded devices, networks and software systems---is vital to day-to-day operations in every sector: information and telecommunications, banking and finance, energy, chemicals and hazardous materials, agriculture, food, water, public health, emergency services, transportation, postal and shipping, government and defense. Global business and industry, governments, indeed society itself, cannot function effectively if major components of the critical information infrastructure are degraded, disabled or destroyed. *Critical Infrastructure Protection V* describes original research results and innovative applications in the interdisciplinary field of critical infrastructure protection. Also, it highlights the importance of weaving science, technology and policy in crafting sophisticated, yet practical, solutions that will help secure information, computer and network assets in the various critical infrastructure sectors. Areas of coverage include: Themes and Issues, Control Systems Security, Infrastructure Security, and Infrastructure Modeling and Simulation. This book is the 5th volume in the annual series produced by the International Federation for Information Processing (IFIP) Working Group 11.10 on Critical Infrastructure Protection, an international community of scientists, engineers, practitioners and policy makers dedicated to advancing research, development and implementation efforts focused on infrastructure protection. The book contains a selection of 14 edited papers from the 5th Annual IFIP WG 11.10 International Conference on Critical Infrastructure Protection, held at Dartmouth College, Hanover, New Hampshire, USA in the spring of 2011. *Critical Infrastructure Protection V* is an important resource for researchers, faculty members and graduate students, as well as for policy makers, practitioners and other individuals with interests in homeland security. Jonathan Butts is an Assistant Professor of Computer Science at the Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, USA. Sujeet Shenoi is the F.P. Walter Professor of Computer Science at the University of Tulsa, Tulsa, Oklahoma, USA.

MASTERING SQL SERVER 2005 REPORTING SERVICES INFRASTRUCTURE DESIGN

John Wiley & Sons Reporting Services is a powerful tool for SQL Server 2005 database administrators, developers, and other IT professionals, enabling them to make sense of the immense amount of data generated by enterprises of all sizes Shows readers how to create, manage, and distribute information as well as how to design, produce, and distribute reports that meet the needs of the stakeholder Contains practical insights and real-world solutions not found in other books Bridges the gap between those who manage data and those who need it

JENKINS 2: UP AND RUNNING

EVOLVE YOUR DEPLOYMENT PIPELINE FOR NEXT GENERATION AUTOMATION

"O'Reilly Media, Inc." Design, implement, and execute continuous delivery pipelines with a level of flexibility, control, and ease of maintenance that was not possible with Jenkins before. With this practical book, build administrators, developers, testers, and other professionals will learn how the features in Jenkins 2 let you define pipelines as code, leverage integration with other key technologies, and create automated, reliable pipelines to simplify and accelerate your DevOps environments. Author Brent Laster shows you how Jenkins 2 is significantly different from the more traditional, web-only versions of this popular open source automation platform. If you're familiar with Jenkins and want to take advantage of the new technologies to transform your legacy pipelines or build new modern, automated continuous delivery environments, this is your book. Create continuous delivery pipelines as code with the Jenkins domain-specific language Get practical guidance on how to migrate existing jobs and pipelines Harness best practices and new methods for controlling access and security Explore the structure, implementation, and use of shared pipeline libraries Learn the differences between declarative syntax and scripted syntax Leverage new and existing project types in Jenkins Understand and use the new Blue Ocean graphical interface Take advantage of the capabilities of the underlying OS in your pipeline Integrate analysis tools, artifact management, and containers

HANDBOOK ON SECURING CYBER-PHYSICAL CRITICAL INFRASTRUCTURE

Elsevier The worldwide reach of the Internet allows malicious cyber criminals to coordinate and launch attacks on both cyber and cyber-physical infrastructure from anywhere in the world. This purpose of this handbook is to introduce the theoretical foundations and practical solution techniques for securing critical cyber and physical infrastructures as well as their underlying computing and communication architectures and systems. Examples of such infrastructures include utility networks (e.g., electrical power grids), ground transportation systems (automotives, roads, bridges and tunnels), airports and air traffic control systems, wired and wireless communication and sensor networks, systems for storing and distributing water and food supplies, medical and healthcare delivery systems, as well as financial, banking and commercial transaction assets. The handbook focus mostly on the scientific foundations and engineering techniques - while also addressing the proper integration of policies and access control mechanisms, for example, how human-developed policies can be properly enforced by an automated system. Addresses the technical challenges facing design of secure infrastructures by providing examples of problems and solutions from a wide variety of internal and external attack scenarios Includes contributions from leading researchers and practitioners in relevant application areas such as smart power grid, intelligent transportation systems, healthcare industry and so on Loaded with examples of real world problems and pathways to solutions utilizing specific tools and techniques described in detail throughout