

# Mastering Ansible

Simplify your DevOps roles with DevOps tools and techniques Key Features Learn to utilize business resources effectively to increase productivity and collaboration Leverage 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 downtime Book 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 learn Become well versed with DevOps culture and its practices Use Terraform and Packer for cloud infrastructure provisioning Implement Ansible for infrastructure configuration Use basic Git commands and understand the Git flow process Build a DevOps pipeline with Jenkins, Azure Pipelines, and GitLab CI Containerize your applications with Docker and Kubernetes Check application quality with SonarQube and Postman Protect DevOps processes and applications using DevSecOps tools Who 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.

"Ansible is a radically simple IT automation engine that automates cloud provisioning, configuration management, application deployment, intra-service orchestration, and many other IT needs. Designed for multi-tier deployments since day one, Ansible models your IT infrastructure by describing how all of your systems inter-relate, rather than just managing one system at a time. This professional video course on Ansible guides the user through a multitude of topics in order to understand and professionally master Ansible. It aims to help you master Ansible while tackling and learning multiple topics. It starts with Ansible's architecture and how to provide effective scalable automation. Then we move on to installing and configuring it with various platforms. Further, we look into Ansible modules and playbooks with YAML syntax and execute it. Next you will get to know about advanced Ansible playbooks, and even structure them. You will learn to use Ansible with cloud services and containers and provision it with AWS and Docker. Finally, you will master troubleshooting, validating, and testing with Ansible."--Resource description page.

Deep dive into the unified, distributed storage system in order to provide excellent performance About This Book Leverage Ceph's advanced features such as erasure coding, tiering, and Bluestore Solve large-scale problems with Ceph as a tool by understanding its strengths and weaknesses to develop the best solutions A practical guide that covers engaging use cases to help you use advanced features of Ceph effectively Who This Book Is For If you are a developer and an administrator who has deployed a Ceph cluster before and are curious about

some of the most advanced features in order to improve performance then this book is for you What You Will Learn Know when and how to use some of Ceph's advanced new features Set up a test cluster with Ansible and some virtual machines using VirtualBox and Vagrant Develop novel solutions to massive problems with librados and shared object classes. Choose intelligent parameters for an erasure coded pool and set it up. Configure the Bluestore settings and see how they interact with different hardware configurations. Keep Ceph running through thick and thin with tuning, monitoring and disaster recovery advice. In Detail Mastering Ceph covers all that you need to know to use Ceph effectively. Starting with design goals and planning steps that should be undertaken to ensure successful deployments, you will be guided through to setting up and deploying the Ceph cluster, with the help of orchestration tools. Key areas of Ceph including Bluestore, Erasure coding and cache tiering will be covered with help of examples. Development of applications which use Librados and Distributed computations with shared object classes are also covered. A section on tuning will take you through the process of optimising both Ceph and its supporting infrastructure. Finally, you will learn to troubleshoot issues and handle various scenarios where Ceph is likely not to recover on its own. By the end of the book, you will be able to successfully deploy and operate a resilient high performance Ceph cluster. Style and Approach A practical guide which has each chapter explaining the concept, sharing tips and tricks and a use case to implement the most powerful features of Ceph

Transform yourself into a Kubernetes specialist in serverless applications. Key Features Get hands-on experience in installing, configuring, and using services such as Kubeless, Funktion, OpenWhisk, and Fission Learn how to launch Kubernetes both locally and in public clouds Explore the differences between using services such as AWS Lambda and Azure Functions and running your own Book Description Kubernetes has established itself as the standard platform for container management, orchestration, and deployment. It has been adopted by companies such as Google, its original developers, and Microsoft as an integral part of their public cloud platforms, so that you can develop for Kubernetes and not worry about being locked into a single vendor. This book will initially start by introducing serverless functions. Then you will configure tools such as Minikube to run Kubernetes. Once you are up-and-running, you will install and configure Kubeless, your first step towards running Function as a Service (FaaS) on Kubernetes. Then you will gradually move towards running Fission, a framework used for managing serverless functions on Kubernetes environments. Towards the end of the book, you will also work with Kubernetes functions on public and private clouds. By the end of this book, we will have mastered using Function as a Service on Kubernetes environments. What you will learn Get a detailed analysis of serverless/Functions as a Service Get hands-on with installing and running tasks in Kubernetes using Minikube Install Kubeless locally and launch your first function Launch Kubernetes in the cloud and move your applications between your local machine and your cloud cluster Deploy applications on Kubernetes using Apache OpenWhisk Explore topics such as Funktion and Fission installation on the cloud followed by launching applications Monitor a serverless function and master security best practices and Kubernetes use cases Who this book is for If you are a DevOps engineer, cloud architect, or a stakeholder keen to learn about serverless functions in Kubernetes environments, then this book is for you.

Configure Ansible and start coding YAML playbooks using the appropriate modules Key Features Create and use Ansible Playbook to script and organise management tasks Benefit from the Ansible community roles and modules to resolve complex and niche tasks Write configuration management code to automate infrastructure Book Description Configuration Management (CM) tools help administrators reduce their workload. Ansible is one of the best Configuration Management tools, and can act as an orchestrator for managing other CMs. This book is the easiest way to learn how to use Ansible as an orchestrator and a Configuration Management tool. With this book, you will

learn how to control and monitor computer and network infrastructures of any size, physical or virtual. You will begin by learning about the Ansible client-server architecture. To get started, you will set up and configure an Ansible server. You will then go through the major features of Ansible: Playbook and Inventory. Then, we will look at Ansible systems and network modules. You will then use Ansible to enable infrastructure automated configuration management, followed by best practices for using Ansible roles and community modules. Finally, you will explore Ansible features such as Ansible Vault, Ansible Containers, and Ansible plugins. What you will learn Implement Playbook YAML scripts and its capacities to simplify day-to-day tasks Setup Static and Dynamic Inventory Use Ansible predefined modules for Linux, Windows, networking, and virtualisation administration Organize and configure the host filesystem using storage and files modules Implement Ansible to enable infrastructure automated configuration management Simplify infrastructure administration Search and install new roles and enable them within Ansible Secure your data using Ansible Vault Who this book is for This book is targeted at System Administrators and Network Administrators who want to use Ansible to automate an infrastructure. No knowledge of Ansible is required.

Leverage the power of Ansible to gain complete control over your systems and automate application deployment Key Features Use Ansible 2.9 to automate and control your infrastructure Delve into advanced functionality such as plugins and custom modules in Ansible Automate and orchestrate major cloud platforms such as OpenStack, AWS, and Azure using Ansible Book Description Ansible enables you to automate software provisioning, configuration management, and application roll-outs, and can be used as a deployment and orchestration tool. While Ansible provides simple yet powerful features to automate multi-layer environments using agentless communication, it can also solve other critical IT challenges, such as ensuring continuous integration and continuous deployment (CI/CD) with zero downtime. In this book, you'll work with Ansible 2.9 and learn to solve complex issues quickly with the help of task-oriented scenarios. You'll start by installing and configuring Ansible on Linux and macOS to automate monotonous and repetitive IT tasks and get to grips with concepts such as playbooks, inventories, and network modules. As you progress, you'll gain insight into the YAML syntax and learn how to port between Ansible versions. In addition to this, you'll also understand how Ansible enables you to orchestrate multi-layer environments such as networks, containers, and the cloud. By the end of this Ansible book, you'll be well - versed in writing playbooks and other related Ansible code to overcome just about all of your IT challenges, from infrastructure-as-code provisioning to application deployments, and even handling the mundane day-to-day maintenance tasks that take up so much valuable time. What you will learn Become familiar with the fundamentals of the Ansible framework Set up role-based variables and dependencies Avoid common mistakes and pitfalls when writing automation code in Ansible Extend Ansible by developing your own modules and plugins Contribute to the Ansible project by submitting your own code Follow best practices for working with cloud environment inventories Troubleshoot issues triggered during Ansible playbook runs Who this book is for If you are a DevOps engineer, administrator, or any IT professional looking to automate IT tasks using Ansible, this book is for you. Prior knowledge of Ansible is not necessary.

Learn how to configure, automate, orchestrate, troubleshoot, and monitor KVM-based environments capable of scaling to private and hybrid cloud models Key Features Gain expert insights into Linux virtualization and the KVM ecosystem with this comprehensive guide Learn to use various Linux tools such as QEMU, oVirt, libvirt, Cloud-Init, and Cloudbase-Init Scale, monitor, and troubleshoot your VMs on various platforms, including OpenStack and AWS Book Description Kernel-based Virtual Machine (KVM) enables you to virtualize your data center by transforming your Linux operating system into a powerful hypervisor that allows you to manage multiple operating systems with minimal fuss. With this book, you'll gain insights into configuring, troubleshooting, and fixing bugs in KVM virtualization and related software. This second

edition of Mastering KVM Virtualization is updated to cover the latest developments in the core KVM components - libvirt and QEMU. Starting with the basics of Linux virtualization, you'll explore VM lifecycle management and migration techniques. You'll then learn how to use SPICE and VNC protocols while creating VMs and discover best practices for using snapshots. As you progress, you'll integrate third-party tools with Ansible for automation and orchestration. You'll also learn to scale out and monitor your environments, and will cover oVirt, OpenStack, Eucalyptus, AWS, and ELK stack. Throughout the book, you'll find out more about tools such as Cloud-Init and Cloudbase-Init. Finally, you'll be taken through the performance tuning and troubleshooting guidelines for KVM-based virtual machines and a hypervisor. By the end of this book, you'll be well-versed with KVM virtualization and the tools and technologies needed to build and manage diverse virtualization environments. What you will learn Implement KVM virtualization using libvirt and oVirt Delve into KVM storage and network Understand snapshots, templates, and live migration features Get to grips with managing, scaling, and optimizing the KVM ecosystem Discover how to tune and optimize KVM virtualization hosts Adopt best practices for KVM platform troubleshooting Who this book is for If you are a systems administrator, DevOps practitioner, or developer with Linux experience looking to sharpen your open-source virtualization skills, this virtualization book is for you. Prior understanding of the Linux command line and virtualization is required before getting started with this book.

Mastering Ubuntu Server, Third Edition not only strengthens your server fundamentals but also equips you with the advanced concepts of Ubuntu 20.04 LTS. It polishes and expands your skill set to prepare you for better business opportunities.

Become an expert in implementing advanced, network-related tasks with Python. About This Book Build the skills to perform all networking tasks using Python with ease Use Python for network device automation, DevOps, and software-defined networking Get practical guidance to networking with Python Who This Book Is For If you are a network engineer or a programmer who wants to use Python for networking, then this book is for you. A basic familiarity with networking-related concepts such as TCP/IP and a familiarity with Python programming will be useful. What You Will Learn Review all the fundamentals of Python and the TCP/IP suite Use Python to execute commands when the device does not support the API or programmatic interaction with the device Implement automation techniques by integrating Python with Cisco, Juniper, and Arista eAPI Integrate Ansible using Python to control Cisco, Juniper, and Arista networks Achieve network security with Python Build Flask-based web-service APIs with Python Construct a Python-based migration plan from a legacy to scalable SDN-based network. In Detail This book begins with a review of the TCP/ IP protocol suite and a refresher of the core elements of the Python language. Next, you will start using Python and supported libraries to automate network tasks from the current major network vendors. We will look at automating traditional network devices based on the command-line interface, as well as newer devices with API support, with hands-on labs. We will then learn the concepts and practical use cases of the Ansible framework in order to achieve your network goals. We will then move on to using Python for DevOps, starting with using open source tools to test, secure, and analyze your network. Then, we will focus on network monitoring and visualization. We will learn how to retrieve network information using a polling mechanism, ?ow-based monitoring, and visualizing the data programmatically. Next, we will learn how to use the Python framework to build your own customized network web services. In the last module, you will use Python for SDN, where you will use a Python-based controller with OpenFlow in a hands-on lab to learn its concepts and applications. We will compare and contrast OpenFlow, OpenStack, OpenDaylight, and NFV. Finally, you will use everything you've learned in the book to construct a migration plan to go from a legacy to a scalable SDN-based network. Style and approach An easy-to-follow guide packed with hands-on examples of using Python for network device automation, DevOps, and SDN.

Configure and extend Jenkins to architect, build, and automate efficient software delivery pipelines About This Book Configure and horizontally scale a Jenkins installation to support a development organization of any size Implement Continuous Integration, Continuous Delivery, and Continuous Deployment solutions in Jenkins A step-by-step guide to help you get the most out of the powerful automation orchestration platform that is Jenkins Who This Book Is For If you are a novice or intermediate-level Jenkins user who has used Jenkins before but are not familiar with architecting solutions and implementing it in your organization, then this is the book for you. A basic understanding of the core elements of Jenkins is required to make the best use of this book. What You Will Learn Create and manage various types of build jobs, and implement automation tasks to support a software project of any kind Get to grips with the automated testing architecture, and scalable automated testing techniques Facilitate the delivery of software across the SDLC by creating scalable automated deployment solutions Manage scalable automation pipelines in Jenkins using the latest build, test, and deployment strategies Implement a scalable master / slave build automation platform, which can support Windows, Mac OSX, and Linux software solutions Cover troubleshooting and advanced configuration techniques for Jenkins slave nodes Support a robust build and delivery system by implementing basic infrastructure as code solutions in configuration management tools such as Ansible In Detail With the software industry becoming more and more competitive, organizations are now integrating delivery automation and automated quality assurance practices into their business model. Jenkins represents a complete automation orchestration system, and can help converge once segregated groups into a cohesive product development and delivery team. By mastering the Jenkins platform and learning to architect and implement Continuous Integration, Continuous Delivery, and Continuous Deployment solutions, your organization can learn to outmanoeuvre and outpace the competition. This book will equip you with the best practices to implement advanced continuous delivery and deployment systems in Jenkins. The book begins with giving you high-level architectural fundamentals surrounding Jenkins and Continuous Integration. You will cover the different installation scenarios for Jenkins, and see how to install it as a service, as well as the advanced XML configurations. Then, you will proceed to learn more about the architecture and implementation of the Jenkins Master/Slave node system, followed by creating and managing Jenkins build jobs effectively. Furthermore, you'll explore Jenkins as an automation orchestration system, followed by implementing advanced automated testing techniques. The final chapters describe in depth the common integrations to Jenkins from third-party tools such as Jira, Artifactory, Amazon EC2, and getting the most out of the Jenkins REST-based API. By the end of this book, you will have all the knowledge necessary to be the definitive resource for managing and implementing advanced Jenkins automation solutions for your organization. Style and approach This book is a step-by-step guide to architecting and implementing automated build solutions, automated testing practices, and automated delivery methodologies. The topics covered are based on industry-proven techniques, and are explained in a simple and easy to understand manner.

Docker has been a game-changer when it comes to how modern applications are deployed and architected. This book shows you how to leverage the power of Docker, you'll find new and innovative ways to use Docker Compose, Docker Swarm, and Kubernetes to help you take control of your containers in an efficient way.

Ubuntu is a Debian-based Linux distribution with versions available for both desktops as well as servers. The Server edition, Ubuntu Server, has set the industry standard for Linux in the data center as well as the cloud. Organizations, inventors, and hobbyists alike will benefit from its flexible configuration, fast deployment, and a plethora ...

Design, develop, and solve real-world automation and orchestration problems by unlocking Ansible's automation capabilities Key Features

Completely revised and updated for Ansible 4.0 and beyond Tackle complex automation challenges with the newly added features in Ansible Learn about the rapidly expanding field of network automation using Ansible, with the help of practical examples for configuring network devices Book Description Ansible is a modern, YAML-based automation tool (built on top of Python, one of the world's most popular programming languages) with a massive and ever-growing user base. Its popularity and Python underpinnings make it essential learning for all in the DevOps space. This fourth edition of Mastering Ansible provides complete coverage of Ansible automation, from the design and architecture of the tool and basic automation with playbooks to writing and debugging your own Python-based extensions. You'll learn how to build automation workflows with Ansible's extensive built-in library of collections, modules, and plugins. You'll then look at extending the modules and plugins with Python-based code and even build your own collections — ultimately learning how to give back to the Ansible community. By the end of this Ansible book, you'll be confident in all aspects of Ansible automation, from the fundamentals of playbook design to getting under the hood and extending and adapting Ansible to solve new automation challenges. What you will learn Gain an in-depth understanding of how Ansible works under the hood Get to grips with Ansible collections and how they are changing and shaping the future of Ansible Fully automate the Ansible playbook executions with encrypted data Use blocks to construct failure recovery or cleanup Explore the playbook debugger and Ansible console Troubleshoot unexpected behavior effectively Work with cloud infrastructure providers and container systems Who this book is for If you are an Ansible developer or operator who has a detailed understanding of its core elements and applications but are now looking to enhance your skills in applying automation using Ansible, this book is for you. Prior experience working with core system administration tasks on Linux and basic familiarity with concepts such as cloud computing, containers, network devices, and fundamentals of a high-level programming language will help you make the most of this book.

Achieve enterprise automation in your Linux environment with this comprehensive guide Key Features Automate your Linux infrastructure with the help of practical use cases and real-world scenarios Learn to plan, build, manage, and customize OS releases in your environment Enhance the scalability and efficiency of your infrastructure with advanced Linux system administration concepts Book Description Automation is paramount if you want to run Linux in your enterprise effectively. It helps you minimize costs by reducing manual operations, ensuring compliance across data centers, and accelerating deployments for your cloud infrastructures. Complete with detailed explanations, practical examples, and self-assessment questions, this book will teach you how to manage your Linux estate and leverage Ansible to achieve effective levels of automation. You'll learn important concepts on standard operating environments that lend themselves to automation, and then build on this knowledge by applying Ansible to achieve standardization throughout your Linux environments. By the end of this Linux automation book, you'll be able to build, deploy, and manage an entire estate of Linux servers with higher reliability and lower overheads than ever before. What you will learn Perform large-scale automation of Linux environments in an enterprise Overcome the common challenges and pitfalls of extensive automation Define the business processes needed to support a large-scale Linux environment Get well-versed with the most effective and reliable patch management strategies Automate a range of tasks from simple user account changes to complex security policy enforcement Learn best practices and procedures to make your Linux environment automatable Who this book is for This book is for anyone who has a Linux environment to design, implement, and maintain. Open source professionals including infrastructure architects and system administrators will find this book useful. You're expected to have experience in implementing and maintaining Linux servers along with knowledge of building, patching, and maintaining server infrastructure. Although not necessary, knowledge of Ansible or other automation technologies will be beneficial.

## Bookmark File PDF Mastering Ansible

This book is your concise guide to Ansible, the simple way to automate apps and IT infrastructure. In less than 250 pages, this book takes you from knowing nothing about configuration management to understanding how to use Ansible in a professional setting. You will learn how to create an Ansible playbook to automatically set up an environment, ready to install an open source project. You'll extract common tasks into roles that you can reuse across all your projects, and build your infrastructure on top of existing open source roles and modules that are available for you to use. You will learn to build your own modules to perform actions specific to your business. By the end you will create an entire cluster of virtualized machines, all of which have your applications and all their dependencies installed automatically. Finally, you'll test your Ansible playbooks. Ansible can do as much or as little as you want it to. Ansible: From Beginner to Pro will teach you the key skills you need to be an Ansible professional. You'll be writing roles and modules and creating entire environments without human intervention in no time at all – add it to your library today. What You Will Learn Learn why Ansible is so popular and how to download and install it Create a playbook that automatically downloads and installs a popular open source project Use open source roles to complete common tasks, and write your own specific to your business Extend Ansible by writing your own modules Test your infrastructure using Test Kitchen and ServerSpec Who This Book Is For Ansible: From Beginner to Pro is for developers that currently create development and production environments by hand. If you find yourself running apt-get install regularly, this book is for you. Ansible adds reproducibility and saves you time all at once. Ansible: From Beginner to Pro is great for any developer wanting to enhance their skillset and learn new tools.

Take charge of SaltStack to automate and configure your enterprise-grade environments About This Book Automate tasks effectively and take charge of your infrastructure Effectively scale Salt to manage thousands of machines and tackle everyday problems Explore Salt's inner workings and advance your knowledge of it Who This Book Is For This book is ideal for IT professionals and ops engineers who already manage groups of servers, but would like to expand their knowledge and gain expertise with SaltStack. This book explains the advanced features and concepts of Salt. A basic knowledge of Salt is required in order to get to grips with advanced Salt features. What You Will Learn Automate tasks effectively, so that your infrastructure can run itself Start building more complex concepts Master user-level internals Build scaling strategies Explore monitoring strategies Learn how to troubleshoot Salt and its subcomponents Explore best practices for Salt In Detail SaltStack is a powerful configuration management and automation suite designed to manage servers and tens of thousands of nodes. This book showcases Salt as a very powerful automation framework. We will review the fundamental concepts to get you in the right frame of mind, and then explore Salt in much greater depth. You will explore Salt SSH as a powerful tool and take Salt Cloud to the next level. Next, you'll master using Salt services with ease in your infrastructure. You will discover methods and strategies to scale your infrastructure properly. You will also learn how to use Salt as a powerful monitoring tool. By the end of this book, you will have learned troubleshooting tips and best practices to make the entire process of using Salt pain-free and easy. Style and approach This book follows a step-by-step conversational tone. Topics are covered in detail through examples and a user-friendly approach.

Mastering AnsiblePackt Publishing

Create production CoreOS clusters and master the art of deploying Container-based microservicesAbout This Book- Confidently deploy distributed applications and effectively manage distributed infrastructure using Containers and CoreOS- Build secure, scalable CoreOS clusters to deploy distributed applications using open source technologies and industry best practices- Every concept and technology in this book is illustrated with practical examples that can be used in both development and production environments.Who This Book Is ForThis book is intended for Cloud application developers and Cloud infrastructure administrators. If you are looking to deploy a CoreOS cluster or

you already have a CoreOS cluster that you want to manage better in terms of performance, security, and scaling, then this book is perfect for you. To follow the hands-on stuff, you need to have a Google and an AWS Cloud account and be able to run CoreOS VMs on your machine. A basic understanding of public and private clouds, Containers, Docker, Linux, and CoreOS is required.

**What You Will Learn-** Install CoreOS on a VM, on the Cloud, and bare metal, and find out how to keep your cluster secure and up to date- Configure and troubleshoot key CoreOS services, such as etcd, systemd, and fleet, for distributed application deployment- Study container networking using CoreOS Flannel and other solutions, such as Docker libnetwork, Weave, and Calico- Explore the container filesystem and container volume management using Docker volume, NFS, GlusterFS, and Flocker- Get to know the internals of container technologies such as Docker, Rkt, and Container orchestration using Openstack, Kubernetes and Docker native solutions- Troubleshoot CoreOS cluster and Containers using monitoring and logging tools and master production techniques such as staging, security, and automation

**In Detail** CoreOS makes Google and Amazon-style Cloud infrastructure available for anyone building their own private Cloud. This book covers the CoreOS internals and the technologies used in the deployment of container-based distributed applications. It starts with an overview of CoreOS and distributed application development while sharing knowledge on related technologies. Critical CoreOS services and networking and storage considerations for CoreOS are covered next. In latter half of the book, you will learn about Container runtime systems such as Docker and Rkt and Container Orchestration using Kubernetes. You will also find out about the integration of popular orchestration solutions such as OpenStack, the AWS Container service, and the Google Container Engine with CoreOS and Docker. Lastly, we cover troubleshooting as well as production considerations.

**Style and approach** This is an easy-to-follow, comprehensive guide that covers both basic and advanced concepts. All topics are illustrated with practical examples that can be used in both simulation and production environments.

New edition of the bestselling guide to mastering Python Networking, updated to Python 3 and including the latest on network data analysis, Cloud Networking, Ansible 2.8, and new libraries

**Key Features** Explore the power of Python libraries to tackle difficult network problems efficiently and effectively, including pyATS, Nornir, and Ansible 2.8 Use Python and Ansible for DevOps, network device automation, DevOps, and software-defined networking Become an expert in implementing advanced network-related tasks with Python 3

**Book Description** Networks in your infrastructure set the foundation for how your application can be deployed, maintained, and serviced. Python is the ideal language for network engineers to explore tools that were previously available to systems engineers and application developers. In Mastering Python Networking, Third edition, you'll embark on a Python-based journey to transition from traditional network engineers to network developers ready for the next-generation of networks. This new edition is completely revised and updated to work with Python 3. In addition to new chapters on network data analysis with ELK stack (Elasticsearch, Logstash, Kibana, and Beats) and Azure Cloud Networking, it includes updates on using newer libraries such as pyATS and Nornir, as well as Ansible 2.8. Each chapter is updated with the latest libraries with working examples to ensure compatibility and understanding of the concepts. Starting with a basic overview of Python, the book teaches you how it can interact with both legacy and API-enabled network devices. You will learn to leverage high-level Python packages and frameworks to perform network automation tasks, monitoring, management, and enhanced network security followed by Azure and AWS Cloud networking. Finally, you will use Jenkins for continuous integration as well as testing tools to verify your network. What you will learn

**Use Python libraries to interact with your network** Integrate Ansible 2.8 using Python to control Cisco, Juniper, and Arista network devices Leverage existing Flask web frameworks to construct high-level APIs Learn how to build virtual networks in the AWS & Azure Cloud Learn how to use Elastic Stack for network data analysis Understand how Jenkins can be used to automatically deploy changes in your network

Use PyTest and Unittest for Test-Driven Network Development in networking engineering with Python Who this book is for Mastering Python Networking, Third edition is for network engineers, developers, and SREs who want to use Python for network automation, programmability, and data analysis. Basic familiarity with Python programming and networking-related concepts such as Transmission Control Protocol/Internet Protocol (TCP/IP) will be useful.

Discover your complete guide to designing, deploying, and managing OpenStack-based clouds in mid-to-large IT infrastructures with best practices, expert understanding, and more About This Book Design and deploy an OpenStack-based cloud in your mid-to-large IT infrastructure using automation tools and best practices Keep yourself up-to-date with valuable insights into OpenStack components and new services in the latest OpenStack release Discover how the new features in the latest OpenStack release can help your enterprise and infrastructure Who This Book Is For This book is for system administrators, cloud engineers, and system architects who would like to deploy an OpenStack-based cloud in a mid-to-large IT infrastructure. This book requires a moderate level of system administration and familiarity with cloud concepts. What You Will Learn Explore the main architecture design of OpenStack components and core-by-core services, and how they work together Design different high availability scenarios and plan for a no-single-point-of-failure environment Set up a multinode environment in production using orchestration tools Boost OpenStack's performance with advanced configuration Delve into various hypervisors and container technology supported by OpenStack Get familiar with deployment methods and discover use cases in a real production environment Adopt the DevOps style of automation while deploying and operating in an OpenStack environment Monitor the cloud infrastructure and make decisions on maintenance and performance improvement In Detail In this second edition, you will get to grips with the latest features of OpenStack. Starting with an overview of the OpenStack architecture, you'll see how to adopt the DevOps style of automation while deploying and operating in an OpenStack environment. We'll show you how to create your own OpenStack private cloud. Then you'll learn about various hypervisors and container technology supported by OpenStack. You'll get an understanding about the segregation of compute nodes based on reliability and availability needs. We'll cover various storage types in OpenStack and advanced networking aspects such as SDN and NFV. Next, you'll understand the OpenStack infrastructure from a cloud user point of view. Moving on, you'll develop troubleshooting skills, and get a comprehensive understanding of services such as high availability and failover in OpenStack. Finally, you will gain experience of running a centralized logging server and monitoring OpenStack services. The book will show you how to carry out performance tuning based on OpenStack service logs. You will be able to master OpenStack benchmarking and performance tuning. By the end of the book, you'll be ready to take steps to deploy and manage an OpenStack cloud with the latest open source technologies. Style and approach This book will help you understand the flexibility of OpenStack by showcasing integration of several out-of-the-box solutions in order to build a large-scale cloud environment.. It will also cover detailed discussions on the various design and deployment strategies for implementing a fault-tolerant and highly available cloud infrastructure.

Master the ins and outs of advanced operations with Ansible About This Book\* Learn how to extend Ansible with custom modules, plugins, and inventory sources\* Utilize advanced Ansible features to orchestrate rolling updates with little to no service disruptions\* An up-to-date book that brings to light the newly added features in Ansible 2.x Who This Book Is For This book is for Ansible developers and operators who have an understanding of the core elements and applications but are now looking to enhance their skills in applying automation using Ansible. What You Will Learn\* Gain an in-depth understanding of how Ansible works under the covers\* Fully automate the Ansible playbook executions with encrypted data\* Access and manipulate variable data within playbooks\* Use Blocks to construct failure recovery or cleanup\*

Explore the Playbook debugger and Ansible Console\* Troubleshoot unexpected behavior effectively\* Work with cloud infrastructure providers and container systems\* Develop custom modules, plugins, and dynamic inventory sources  
In Detail This book provides you with the knowledge you need to understand how Ansible 2.1 works at a fundamental level and leverage its advanced capabilities. You'll learn how to encrypt Ansible content at rest and decrypt data at runtime. You will master the advanced features and capabilities required to tackle the complex automation challenges of today and beyond. You will gain detailed knowledge of Ansible workflows, explore use cases for advanced features, craft well thought out orchestrations, troubleshoot unexpected behaviour, and extend Ansible through customizations. Finally, you will discover the methods used to examine and debug Ansible operations, helping you to understand and resolve issues. By the end of the book, the readers will be able to unlock the true power of the Ansible automation engine and will tackle complex real world actions with ease.  
Style and approach This clear, practical guide illustrates the advanced functionalities of Ansible, its system architecture, and design aspects that will help you to master Ansible with ease.

The ultimate guide to managing, building, and deploying large-scale clusters with Apache Mesos  
About This Book Master the architecture of Mesos and intelligently distribute your task across clusters of machines  
Explore a wide range of tools and platforms that Mesos works with  
This real-world comprehensive and robust tutorial will help you become an expert  
Who This Book Is For The book aims to serve DevOps engineers and system administrators who are familiar with the basics of managing a Linux system and its tools  
What You Will Learn  
Understand the Mesos architecture  
Manually spin up a Mesos cluster on a distributed infrastructure  
Deploy a multi-node Mesos cluster using your favorite DevOps  
See the nuts and bolts of scheduling, service discovery, failure handling, security, monitoring, and debugging in an enterprise-grade, production cluster deployment  
Use Mesos to deploy big data frameworks, containerized applications, or even custom build your own applications effortlessly  
In Detail Apache Mesos is open source cluster management software that provides efficient resource isolations and resource sharing distributed applications or frameworks. This book will take you on a journey to enhance your knowledge from amateur to master level, showing you how to improve the efficiency, management, and development of Mesos clusters. The architecture is quite complex and this book will explore the difficulties and complexities of working with Mesos. We begin by introducing Mesos, explaining its architecture and functionality. Next, we provide a comprehensive overview of Mesos features and advanced topics such as high availability, fault tolerance, scaling, and efficiency. Furthermore, you will learn to set up multi-node Mesos clusters on private and public clouds. We will also introduce several Mesos-based scheduling and management frameworks or applications to enable the easy deployment, discovery, load balancing, and failure handling of long-running services. Next, you will find out how a Mesos cluster can be easily set up and monitored using the standard deployment and configuration management tools. This advanced guide will show you how to deploy important big data processing frameworks such as Hadoop, Spark, and Storm on Mesos and big data storage frameworks such as Cassandra, Elasticsearch, and Kafka.  
Style and approach This advanced guide provides a detailed step-by-step account of deploying a Mesos cluster. It will demystify the concepts behind Mesos.

Pluggable Authentication Modules: Threat or Menace? PAM is one of the most misunderstood parts of systems administration. Many sysadmins live with authentication problems rather than risk making them worse. PAM's very nature makes it unlike any other Unix access control system. If you have PAM misery or PAM mysteries, you need PAM Mastery! With PAM Mastery, you'll understand:

- the different versions of PAM
- the intricacies of Linux-PAM and OpenPAM
- how PAM policies make decisions
- how to debug PAM
- the most frequently seen PAM modules
- Linux-PAM extended controls and substacks
- time-based one-time passwords
- using SSH keys for more than SSH

password quality testing · policies from CentOS, Debian, and FreeBSD · and more! Transform PAM from a headache to an ally with PAM Mastery.

Design, develop, and solve real world automation and orchestration needs by unlocking the automation capabilities of Ansible

**About This Book** • Discover how Ansible works in detail • Explore use cases for Ansible's advanced features including task delegation, fast failures, and serial task execution • Extend Ansible with custom modules, plugins, and inventory sources

**Who This Book Is For** This book is intended for Ansible developers and operators who have an understanding of the core elements and applications but are now looking to enhance their skills in applying automation using Ansible.

**What You Will Learn** • Understand Ansible's code and logic flow • Safeguard sensitive data within Ansible • Access and manipulate complex variable data within Ansible playbooks • Handle task results to manipulate change and failure definitions • Organize Ansible content into a simple structure • Craft a multi-tier rollout playbook utilizing load balancers and manipulating your monitoring system • Utilize advanced Ansible features to orchestrate rolling updates with almost no service disruptions • Troubleshoot Ansible failures to understand and resolve issues • Extend Ansible with custom modules, plugins, or inventory sources

**In Detail** Automation is critical to success in the world of DevOps. How quickly and efficiently an application deployment can be automated, or a new infrastructure can be built up, can be the difference between a successful product or a failure. Ansible provides a simple yet powerful automation engine. Beyond the basics of Ansible lie a host of advanced features which are available to help you increase efficiency and accomplish complex orchestrations with ease. This book provides you with the knowledge you need to understand how Ansible works at a fundamental level and leverage its advanced capabilities. You'll learn how to encrypt Ansible content at rest and decrypt data at runtime. You will master the advanced features and capabilities required to tackle the complex automation challenges of today and beyond. You will gain detailed knowledge of Ansible workflows, explore use cases for advanced features, craft well thought out orchestrations, troubleshoot unexpected behaviour, and extend Ansible through customizations. Finally, you will discover the methods used to examine and debug Ansible operations, helping you to understand and resolve issues.

**Style and approach** A clear, practical guide that covers best practise, system architecture and design aspects that will help you master Ansible with ease.

An expert guide to helping you use DevOps techniques with the latest GitLab version to optimize and manage your software workflow

**Key Features** Delve into GitLab's architecture, and install and configure it to fit your environment

**Learn about the underlying principles of Agile software development and DevOps** Explore Gitlab's features to manage enterprise cloud-native applications and services

**Book Description** GitLab is an open source repository management and version control toolkit with functions for enterprises and personal software projects. It offers configurability options, extensions, and APIs that make it an ideal tool for enterprises to manage the software development life cycle. This book begins by explaining GitLab options and the components of the GitLab architecture. You will learn how to install and set up GitLab on-premises and in the cloud, along with understanding how to migrate code bases from different systems, such as GitHub, Concurrent Versions System, Team Foundation Version Control, and Subversion. Later chapters will help you implement DevOps culture by introducing the workflow management tools in GitLab and continuous integration/continuous deployment (CI/CD). In addition to this, the book will guide you through installing GitLab on a

range of cloud platforms, monitoring with Prometheus, and deploying an environment with GitLab. You'll also focus on the GitLab CI component to assist you with creating development pipelines and jobs, along with helping you set up GitLab runners for your own project. Finally, you will be able to choose a high availability setup that fits your needs and helps you monitor and act on results obtained after testing. By the end of this book, you will have gained the expertise you need to use GitLab features effectively, and be able to integrate all phases in the development process. What you will learn

- Install GitLab on premises and in the cloud using a variety of configurations
- Conduct data migration from the SVN, TFS, CVS, and GitHub platforms to GitLab
- Use GitLab runners to develop different types of configurations in software development
- Plan and perform CI/CD by using GitLab features
- Monitor and secure your software architecture using Prometheus and Grafana
- Implement DevOps culture by introducing workflow management tools in GitLab

Who this book is for If you are a software developer, DevOps professional, or any developer who wants to master GitLab for productive repository management in your day-to-day tasks, this book is for you. Basic understanding of the software development workflow is assumed.

Design, develop, and solve real-world automation and orchestration problems by unlocking the automation capabilities of Ansible. Key Features

- Tackle complex automation challenges with the newly added features in Ansible 2.7

Book Description Automation is essential for success in the modern world of DevOps. Ansible provides a simple, yet powerful, automation engine for tackling complex automation challenges. This book will take you on a journey that will help you exploit the latest version's advanced features to help you increase efficiency and accomplish complex orchestrations. This book will help you understand how Ansible 2.7 works at a fundamental level and will also teach you to leverage its advanced capabilities. Throughout this book, you will learn how to encrypt Ansible content at rest and decrypt data at runtime. Next, this book will act as an ideal resource to help you master the advanced features and capabilities required to tackle complex automation challenges. Later, it will walk you through workflows, use cases, orchestrations, troubleshooting, and Ansible extensions. Lastly, you will examine and debug Ansible operations, helping you to understand and resolve issues. By the end of the book, you will be able to unlock the true power of the Ansible automation engine and tackle complex, real- world actions with ease. What you will learn

- Gain an in-depth understanding of how Ansible works under the hood
- Fully automate Ansible playbook executions with encrypted data
- Access and manipulate variable data within playbooks
- Use blocks to perform failure recovery or cleanup
- Explore the Playbook debugger and the Ansible Console
- Troubleshoot unexpected behavior effectively
- Work with cloud infrastructure providers and container systems
- Develop custom modules, plugins, and dynamic inventory sources

Who this book is for This book is for Ansible developers and operators who have an understanding of its core elements and applications but are now

looking to enhance their skills in applying automation using Ansible.

Design, develop, and solve real world automation and orchestration needs by unlocking the automation capabilities of Ansible About This Book Discover how Ansible works in detail Explore use cases for Ansible's advanced features including task delegation, fast failures, and serial task execution Extend Ansible with custom modules, plugins, and inventory sources Who This Book Is For This book is intended for Ansible developers and operators who have an understanding of the core elements and applications but are now looking to enhance their skills in applying automation using Ansible. What You Will Learn Understand Ansible's code and logic flow Safeguard sensitive data within Ansible Access and manipulate complex variable data within Ansible playbooks Handle task results to manipulate change and failure definitions Organize Ansible content into a simple structure Craft a multi-tier rollout playbook utilizing load balancers and manipulating your monitoring system Utilize advanced Ansible features to orchestrate rolling updates with almost no service disruptions Troubleshoot Ansible failures to understand and resolve issues Extend Ansible with custom modules, plugins, or inventory sources In Detail Automation is critical to success in the world of DevOps. How quickly and efficiently an application deployment can be automated, or a new infrastructure can be built up, can be the difference between a successful product or a failure. Ansible provides a simple yet powerful automation engine. Beyond the basics of Ansible lie a host of advanced features which are available to help you increase efficiency and accomplish complex orchestrations with ease. This book provides you with the knowledge you need to understand how Ansible works at a fundamental level and leverage its advanced capabilities. You'll learn how to encrypt Ansible content at rest and decrypt data at runtime. You will master the advanced features and capabilities required to tackle the complex automation challenges of today and beyond. You will gain detailed knowledge of Ansible workflows, explore use cases for advanced features, craft well thought out orchestrations, troubleshoot unexpected behaviour, and extend Ansible through customizations. Finally, you will discover the methods used to examine and debug Ansible operations, helping you to understand and resolve issues. Style and approach A clear, practical guide that covers best practise, system architecture and design aspects that will help you master Ansible with ease.

Design, develop, and solve real-world automation and orchestration problems by unlocking the automation capabilities of Ansible. Key Features Tackle complex automation challenges with the newly added features in Ansible 2.7 Book Description Automation is essential for success in the modern world of DevOps. Ansible provides a simple, yet powerful, automation engine for tackling complex automation challenges. This book will take you on a journey that will help you exploit the latest version's advanced features to help you increase efficiency and accomplish complex orchestrations. This book will help you understand how Ansible 2.7 works at a fundamental level and will also teach you to leverage its

advanced capabilities. Throughout this book, you will learn how to encrypt Ansible content at rest and decrypt data at runtime. Next, this book will act as an ideal resource to help you master the advanced features and capabilities required to tackle complex automation challenges. Later, it will walk you through workflows, use cases, orchestrations, troubleshooting, and Ansible extensions. Lastly, you will examine and debug Ansible operations, helping you to understand and resolve issues. By the end of the book, you will be able to unlock the true power of the Ansible automation engine and tackle complex, real-world actions with ease. What you will learn Gain an in-depth understanding of how Ansible works under the hood Fully automate Ansible playbook executions with encrypted data Access and manipulate variable data within playbooks Use blocks to perform failure recovery or cleanup Explore the Playbook debugger and the Ansible Console Troubleshoot unexpected behavior effectively Work with cloud infrastructure providers and container systems Develop custom modules, plugins, and dynamic inventory sources Who this book is for This book is for Ansible developers and operators who have an understanding of its core elements and applications but are now looking to enhance their skills in applying automation using Ansible. Downloading the example code for this book You can download the example code files for all Packt books you have purchased from your account at <http://www.PacktPub.com>. If you purchased this book elsewhere, you can visit <http://www.PacktPub.com/support> and register to have the files e-mailed directly to you.

"Ansible is set to be the standard in the world of IT infrastructure management. It's a rare combination of simplicity meeting sophistication. Its core principle is simple is reflected in all its design choices such as an agentless setup, small footprint, push model, YAML as a language to define infrastructure state and so on. It's easy to setup, easy to write code with, and easy to extend while writing custom modules. At the same time, it offers everything an IT system, networks or a operations/DevOps person needs. Once you set up the environment with the code spaces tool, you start diving into the simple and sophisticated world of Ansible one concept at a time. By the end of this course, you will have mastered Ansible and should be able to use it to automate servers, applications, and understand all the primitives that Ansible offers."--Resource description page.

Planning to deploy and maintain a public, private, or hybrid cloud service? This cookbook's handy how-to recipes help you quickly learn and install Apache CloudStack, along with several API clients, API wrappers, data architectures, and configuration management technologies that work as part of CloudStack's ecosystem. You'll learn how to use Vagrant, Ansible, Chef, Fluentd, Libcloud, and several other open source tools that let you build and operate CloudStack better and faster. If you're an experienced programmer, system administrator, or DevOps practitioner familiar with bash, Git, package management, and some Python, you're ready to go. Learn basic CloudStack installation from source, including

features such as DevCloud, the CloudStack sandbox Get a step-by-step guide for installing CloudStack from packages on Ubuntu 14.04 using KVM Write your own applications on top of the CloudStack API, using CloudMonkey, Libcloud, jclouds, and CloStack Expose different APIs on CloudStack with the EC2Stack, Boto, and Eutester API wrappers Deploy applications easily, using Puppet, Salt, Ansible, Chef, and Vagrant Dive into cloud monitoring and storage with RiakCS, Fluentd, and Apache Whirr

Ansible is an IT automation and configuration management tool widely used for infrastructure, cloud, and network automation. Trends and surveys say that Ansible is the choice of tool among system administrators as it is so easy to use. In this book, you'll learn how to integrate Ansible into your day-to-day role as a system administrator, ...

Master the art of using Python for a diverse range of network engineering tasks Key Features Explore the power of Python libraries to tackle difficult network problems efficiently and effectively Use Python for network device automation, DevOps, and software-defined networking Become an expert in implementing advanced network-related tasks with Python Book Description Networks in your infrastructure set the foundation for how your application can be deployed, maintained, and serviced. Python is the ideal language for network engineers to explore tools that were previously available to systems engineers and application developers. In this second edition of Mastering Python Networking, you'll embark on a Python-based journey to transition from traditional network engineers to network developers ready for the next-generation of networks. This book begins by reviewing the basics of Python and teaches you how Python can interact with both legacy and API-enabled network devices. As you make your way through the chapters, you will then learn to leverage high-level Python packages and frameworks to perform network engineering tasks for automation, monitoring, management, and enhanced security. In the concluding chapters, you will use Jenkins for continuous network integration as well as testing tools to verify your network. By the end of this book, you will be able to perform all networking tasks with ease using Python. What you will learn Use Python libraries to interact with your network Integrate Ansible 2.5 using Python to control Cisco, Juniper, and Arista eAPI network devices Leverage existing frameworks to construct high-level APIs Learn how to build virtual networks in the AWS Cloud Understand how Jenkins can be used to automatically deploy changes in your network Use PyTest and Unittest for Test-Driven Network Development Who this book is for Mastering Python Networking is for network engineers and programmers who want to use Python for networking. Basic familiarity with Python programming and networking-related concepts such as Transmission Control Protocol/Internet Protocol (TCP/IP) will be useful.

Take your C++ coding to the next level by leveraging the latest features and advanced techniques to building high performing, reliable applications. About This Book Get acquainted with the latest features in C++ 17 Take advantage of

the myriad of features and possibilities that C++ offers to build real-world applications Write clear and expressive code in C++, and get insights into how to keep your code error-free Who This Book Is For This book is for experienced C++ developers. If you are a novice C++ developer, then it's highly recommended that you get a solid understanding of the C++ language before reading this book What You Will Learn Write modular C++ applications in terms of the existing and newly introduced features Identify code-smells, clean up, and refactor legacy C++ applications Leverage the possibilities provided by Cucumber and Google Test/Mock to automate test cases Test frameworks with C++ Get acquainted with the new C++17 features Develop GUI applications in C++ Build portable cross-platform applications using standard C++ features In Detail C++ has come a long way and has now been adopted in several contexts. Its key strengths are its software infrastructure and resource-constrained applications. The C++ 17 release will change the way developers write code, and this book will help you master your developing skills with C++. With real-world, practical examples explaining each concept, the book will begin by introducing you to the latest features in C++ 17. It encourages clean code practices in C++ in general, and demonstrates the GUI app-development options in C++. You'll get tips on avoiding memory leaks using smart-pointers. Next, you'll see how multi-threaded programming can help you achieve concurrency in your applications. Moving on, you'll get an in-depth understanding of the C++ Standard Template Library. We show you the concepts of implementing TDD and BDD in your C++ programs, and explore template-based generic programming, giving you the expertise to build powerful applications. Finally, we'll round up with debugging techniques and best practices. By the end of the book, you'll have an in-depth understanding of the language and its various facets. Style and approach This straightforward guide will help you level up your skills in C++ programming, be it for enterprise software or for low-latency applications like games. Filled with real-world, practical examples, this book will take you gradually up the steep learning curve that is C++.

Ansible is an open source automation platform that assists organizations with tasks. This book will teach you to create and deploy playbooks to automate some simple tasks that you already perform on a daily basis. You will also learn to debug and test Ansible to ensure that your playbooks will always work. Towards the end, you will learn how to ...

Develop advanced skills for working with Linux systems on-premises and in the cloud Key Features Become proficient in everyday Linux administration tasks by mastering the Linux command line and using automation Work with the Linux filesystem, packages, users, processes, and daemons Deploy Linux to the cloud with AWS, Azure, and Kubernetes Book Description Linux plays a significant role in modern data center management and provides great versatility in deploying and managing your workloads on-premises and in the cloud. This book covers the important topics you need to know about for your everyday Linux administration tasks. The book starts by helping you understand the Linux command line

and how to work with files, packages, and filesystems. You'll then begin administering network services and hardening security, and learn about cloud computing, containers, and orchestration. Once you've learned how to work with the command line, you'll explore the essential Linux commands for managing users, processes, and daemons and discover how to secure your Linux environment using application security frameworks and firewall managers. As you advance through the chapters, you'll work with containers, hypervisors, virtual machines, Ansible, and Kubernetes. You'll also learn how to deploy Linux to the cloud using AWS and Azure. By the end of this Linux book, you'll be well-versed with Linux and have mastered everyday administrative tasks using workflows spanning from on-premises to the cloud. If you also find yourself adopting DevOps practices in the process, we'll consider our mission accomplished. What you will learn

- Understand how Linux works and learn basic to advanced Linux administration skills
- Explore the most widely used commands for managing the Linux filesystem, network, security, and more
- Get to grips with different networking and messaging protocols
- Find out how Linux security works and how to configure SELinux, AppArmor, and Linux iptables
- Work with virtual machines and containers and understand container orchestration with Kubernetes
- Work with containerized workflows using Docker and Kubernetes
- Automate your configuration management workloads with Ansible

Who this book is for If you are a Linux administrator who wants to understand the fundamentals and as well as modern concepts of Linux system administration, this book is for you. Windows System Administrators looking to extend their knowledge to the Linux OS will also benefit from this book.

Ansible is an IT automation tool that lets you manage your Infrastructure as a Code. It helps you deploy your applications and manage configurations, thus making life easier. Ansible, in most ways, is self sufficient to address most of your requirements. Ideally, standard modules, libraries, or plugins are used to automate a given IT platform. Customizing Ansible can be done by custom module and plugin development. This book shows you how to automate most of the tasks in your IT environment, thus minimizing the need to manually perform scheduled tasks and extend your Ansible implementation by developing customized modules and plugins. You'll begin by getting an understanding of the fundamental aspects of extending the Ansible framework, such as custom functions and reusable modules. You'll then progress to building custom plugins and extensions using the fundamental building blocks explained earlier. We'll also show you how to automate some tasks using scripts. Finally, we'll demonstrate how these extensions can be seamlessly integrated into existing Ansible installations and explain how to conduct unit testing on these extensions to ensure they work as desired.

Take charge of SaltStack to automate and configure enterprise-grade environments About This Book Automate tasks effectively, so that your infrastructure can run itself Take advantage of cloud-based services that can expand the

capabilities of your own data centers Tackle real-world problems that appear in everyday situations In Detail SaltStack is known as a popular configuration management system, but that barely scratches the surface. It is, in fact, a powerful automation suite, which is designed not only to help you manage your servers, but to help them manage themselves. SaltStack is used worldwide by organizations ranging from just a few servers, to tens of thousands of nodes across data centers in multiple continents. This award-winning software is fast becoming the standard for systems management in the cloud world. This book will take you through the advanced features of SaltStack, bringing forward capabilities that will help you excel in the management of your servers. You will be taken through the the mind of the modern systems engineer, and discover how they use Salt to manage their infrastructures, and why those design decisions are so important. The inner workings of Salt will be explored, so that as you advance your knowledge of Salt, you will be able to swim with the current, rather than against it. Various subsystems of Salt are explained in detail, including Salt SSH, Salt Cloud, and external pillars, filesystems, and job caches. You will be taken through an in-depth discussion of how to effectively scale Salt to manage thousands of machines, and how to troubleshoot issues when things don't go exactly the way you expect them to. You will also be taken through an overview of RAET, Salt's new transport protocol, and given an insight into how this technology improves Salt, and the possibilities that it brings with it. What You Will Learn Learn how the pros are managing their infrastructures, and what techniques they use to keep everything running smoothly with Salt Understand what makes Salt tick, and how that affects the way you use it Take a look at familiar features in a new light, so that you have a better handle on how to approach tasks Use Salt SSH to manage servers that don't fit Salt's traditional use cases Besides automating your configuration, you will be able to automate your servers, and make them behave more intelligently Make better use of cloud-based services, including compute clouds such as EC2, Azure and Openstack Learn about the new RAET protocol, and how it changes the way automation works Who This Book Is For This book is ideal for professionals who have been managing groups of servers, and want to learn how to add functionality and expand their tool set. This book will also explain some of the more advanced features of Salt, and explore how to use them to bring additional power to the fundamentals that the professionals have already been using. Style and approach This book speaks informally, sometimes almost conversationally, to the user. Topics are covered in detail, using examples that should be comfortable to most users.

Leverage Docker to unlock efficient and rapid container deployments to improve your development workflow Key Features Reconfigure Docker hosts to create a logging system with the ElasticSearch-Logstash-Kibana (ELK) stack Tackle the challenges of large-scale container deployment with this fast-paced guide Benchmark the performance of your Docker containers using Apache JMeter Book Description Docker is an enterprise-grade container platform that allows

you to build and deploy your apps. Its portable format lets you run your code right from your desktop workstations to popular cloud computing providers. This comprehensive guide will improve your Docker workflows and ensure your application's production environment runs smoothly. This book starts with a refresher on setting up and running Docker and details the basic setup for creating a Docker Swarm cluster. You will then learn how to automate this cluster by using Chef Server and Cookbook. After that, you will run the Docker monitoring system with Prometheus and Grafana, and deploy the ELK stack. You will also learn some tips for optimizing Docker images. After deploying containers with the help of Jenkins, you will then move on to a tutorial on using Apache JMeter to analyze your application's performance. You will learn how to use Docker Swarm and NGINX to load-balance your application and how common debugging tools in Linux can be used to troubleshoot Docker containers. By the end of this book, you will be able to integrate all the optimizations that you have learned and put everything into practice in your applications. What you will learn Automate provisioning and setting up nodes in a Docker Swarm cluster Configure a monitoring system with Prometheus and Grafana Use Apache JMeter to create workloads for benchmarking the performance of Docker containers Understand how to load-balance an application with Docker Swarm and Nginx Deploy strace, tcdump, blktrace, and other Linux debugging tools to troubleshoot containers Integrate Docker optimizations for DevOps, Site Reliability Engineering, CI, and CD Who this book is for If you are a software developer with a good understanding of managing Docker services and the Linux file system and are looking for ways to optimize working with Docker containers, then this is the book for you. Developers fascinated with containers and workflow automation will benefit from this book.

Unlock the full potential of the Docker containerization platform with this practical guide Key Features Explore tools such as Docker Engine, Machine, Compose, and Swarm Discover how you can integrate Docker into your everyday workflows Get well-versed with Kubernetes options such as Minikube, Kind, and MicroK8s Book Description Docker has been a game changer when it comes to how modern applications are deployed and created. It has now grown into a key driver of innovation beyond system administration, with a significant impact on the world of web development. Mastering Docker shows you how you can ensure that you're keeping up with the innovations it's driving and be sure you're using it to its full potential. This fourth edition not only demonstrates how to use Docker more effectively but also helps you rethink and reimagine what you can achieve with it. You'll start by building, managing, and storing images along with exploring best practices for working with Docker confidently. Once you've got to grips with Docker security, the book covers essential concepts for extending and integrating Docker in new and innovative ways. You'll also learn how to take control of your containers efficiently using Docker Compose, Docker Swarm, and Kubernetes. By the end of this Docker book, you'll have a broad yet detailed sense of what's possible with Docker and how seamlessly it fits in with a range of other

platforms and tools. What you will learn Get to grips with essential Docker components and concepts Discover the best ways to build, store, and distribute container images Understand how Docker can fit into your development workflow Secure your containers and files with Docker's security features Explore first-party and third-party cluster tools and plugins Launch and manage your Kubernetes clusters in major public clouds Who this book is for If you are a software architect, DevOps engineer, sysadmin, or IT professional looking to leverage Docker's extensive features for innovating any process from system administration to web development, Mastering Docker will show you how you can use it to its full potential. A basic understanding of containerization and prior Docker experience is necessary.

Configure, manage, and secure a CentOS 7 Linux server to serve a variety of services provided in a sustainable computer's infrastructure. About This Book Learn how to efficiently set up and manage a Linux server using one of the best suited technologies for this purpose, CentOS 7 Personalize your Linux server and familiarize yourself with the latest tools and utilities setup provided by the new CentOS distribution Follow a step-by-step tutorial through the configuration of the requested services with the capacity to personalize them as per your needs Who This Book Is For If you are a Linux system administrator with an intermediate administration level, this is your opportunity to master the brand new distribution of CentOS. If you wish to possess a fully sustainable Linux server, with all its new tools and tweaks, that serves a variety of services to your users and customers, this book is ideal for you. It is your ticket to easily adapt to all the changes made in the latest shift. What You Will Learn Manage CentOS 7 users, groups, and root access privileges Enhance the server's security through its firewall and prevent the most common attacks from penetrating or disabling the server Explore and implement the common, useful services that a CentOS 7 server can provide Monitor your server infrastructure for system or hardware issues Create and configure a virtual machine using virtualization technologies Implement a cloud computing solution on a single node system Get an introduction to the configuration management tools and their usage Discover the importance of the tools that provide remote connection, server service security, and system and process monitoring tools In Detail Most server infrastructures are equipped with at least one Linux server that provides many essential services, both for a user's demands and for the infrastructure itself. Setting up a sustainable Linux server is one of the most demanding tasks for a system administrator to perform. However, learning multiple, new technologies to meet all of their needs is time-consuming. CentOS 7 is the brand new version of the CentOS Linux system under the RPM (Red Hat) family. It is one of the most widely-used operating systems, being the choice of many organizations across the world. With the help of this book, you will explore the best practices and administration tools of CentOS 7 Linux server along with implementing some of the most common Linux services. We start by explaining the initial steps you need to carry out after installing CentOS 7 by briefly explaining the concepts related to users, groups,

and right management, along with some basic system security measures. Next, you will be introduced to the most commonly used services and shown in detail how to implement and deploy them so they can be used by internal or external users. Soon enough, you will be shown how to monitor the server. We will then move on to master the virtualization and cloud computing techniques. Finally, the book wraps up by explaining configuration management and some security tweaks. All these topics and more are covered in this comprehensive guide, which briefly demonstrates the latest changes to all of the services and tools with the recent shift from CentOS 6 to CentOS 7. Style and approach This is a detailed and in-depth guide to help you administrate CentOS 7 for the usage of your server's infrastructure and also for personal network security. Each section shows a list of tools and utilities that are useful to perform the required task, in an easy to understand manner.

[Copyright: f2a7f1cf433034861c6012e53d1b2d20](#)