Quick answers to common problems

OpenStack Cloud Computing Cookbook

Third Edition

Over 110 effective recipes to help you build and operate OpenStack cloud computing, storage, networking, and automation

Foreword by Tim Bell, Infrastructure Manager, CERN

Kevin Jackson   Cody Bunch

Egle Sigler

[PACKT] open source*
PUBLISHING   community experience distilled

Openstack Cloud Computing Cookbook Third Edition

James Denton

Openstack Cloud Computing Cookbook Third Edition:

OpenStack Cloud Computing Cookbook - Third Edition Kevin Jackson,Cody Bunch,Egle Sigler,2015-07-31 Over 110 effective recipes to help you build and operate OpenStack cloud computing storage networking and automationAbout This Book Explore many new features of OpenStack s Juno and Kilo releases Install configure and administer core projects with the help of OpenStack Object Storage Block Storage and Neutron Networking services Harness the abilities of experienced OpenStack administrators and architects and run your own private cloud successfully Practical real world examples of each service and an accompanying Vagrant environment that helps you learn quickly In DetailOpenStack Open Source software is one of the most used cloud infrastructures to support software development and big data analysis It is developed by a thriving community of individual developers from around the globe and backed by most of the leading players in the cloud space today It is simple to implement massively scalable and can store a large pool of data and networking resources OpenStack has a strong ecosystem that helps you provision your cloud storage needs Add OpenStack s enterprise features to reduce the cost of your business This book will show you the steps to build up a private cloud environment At the beginning you ll discover the uses of cloud services such as the identity service image service and compute service You ll dive into Neutron the OpenStack Networking service and get your hands dirty with configuring ML2 networks routers and Distributed Virtual Routers You ll then gather more expert knowledge on OpenStack cloud computing by managing your cloud s security and migration After that we delve in to OpenStack Object storage and how to manage servers and work with objects cluster and storage functionalities Also as you go deeper into the realm of OpenStack you ll learn practical examples of Block storage LBaaS and FWaaS installation and configuration covered ground up Finally you will learn OpenStack dashboard Ansible and Foreman Keystone and other interesting topics What You Will Learn Understand install configure and manage Nova the OpenStack Cloud Compute resource Configure ML2 networks routers and Distributed Virtual Routers with Neutron Use and secure Keystone the OpenStack Authentication service Install and set up Swift and Container Replication between datacenters Gain hands on experience and familiarity with Horizon the OpenStack Dashboard user interface Automate complete solutions with our recipes on Heat the OpenStack Orchestration service Use Ansible and Foreman to automate OpenStack installations successfully Follow practical advice and examples to run OpenStack in productionWho This Book Is ForThis book is aimed at cloud system engineers system administrators and technical architects who are moving from a virtualized environment to cloud environments This book assumes that you are familiar with cloud computing platforms and have knowledge of virtualization networking and managing Linux environments Style and approachClear step by step instructions coupled with practical and applicable recipes that ll enable you to use and implement the latest features of OpenStack **OpenStack Cloud Computing Cookbook** Kevin Jackson,Cody Bunch,2013 Over 100 recipes to successfully set up and manage your OpenStack cloud environments with complete coverage of Nova Swift Keystone Glance Horizon

Neutron and Cinder   *OpenStack Cloud Computing Cookbook* Kevin Jackson,2012   *OpenStack Cloud Computing Cookbook* Kevin Jackson,Cody Bunch,Egle Sigler,2015-08-19 Over 110 effective recipes to help you build and operate OpenStack cloud computing storage networking and automation About This Book Explore many new features of OpenStack s Juno and Kilo releases Install configure and administer core projects with the help of OpenStack Object Storage Block Storage and Neutron Networking services Harness the abilities of experienced OpenStack administrators and architects and run your own private cloud successfully Practical real world examples of each service and an accompanying Vagrant environment that helps you learn quickly In Detail OpenStack Open Source software is one of the most used cloud infrastructures to support software development and big data analysis It is developed by a thriving community of individual developers from around the globe and backed by most of the leading players in the cloud space today It is simple to implement massively scalable and can store a large pool of data and networking resources OpenStack has a strong ecosystem that helps you provision your cloud storage needs Add OpenStack s enterprise features to reduce the cost of your business This book will show you the steps to build up a private cloud environment At the beginning you ll discover the uses of cloud services such as the identity service image service and compute service You ll dive into Neutron the OpenStack Networking service and get your hands dirty with configuring ML2 networks routers and Distributed Virtual Routers You ll then gather more expert knowledge on OpenStack cloud computing by managing your cloud s security and migration After that we delve in to OpenStack Object storage and how to manage servers and work with objects cluster and storage functionalities Also as you go deeper into the realm of OpenStack you ll learn practical examples of Block storage LBaaS and FWaaS installation and configuration covered ground up Finally you will learn OpenStack dashboard Ansible and Foreman Keystone and other interesting topics What You Will Learn Understand install configure and manage Nova the OpenStack Cloud Compute resource Configure ML2 networks routers and Distributed Virtual Routers with Neutron Use and secure Keystone the OpenStack Authentication service Install and set up Swift and Container Replication between datacenters Gain hands on experience and familiarity with Horizon the OpenStack Dashboard user interface Automate complete solutions with our recipes on Heat the OpenStack Orchestration service Use Ansible and Foreman to automate OpenStack installations successfully Follow practical advice and examples to run OpenStack in production Who This Book Is For This book is aimed at cloud system engineers system administrators and technical architects who are moving from a virtualized environment to cloud environments This book assumes that you are familiar with cloud computing platforms and have knowledge of virtualization networking and managing Linux environments Style and approach Clear step by step instructions coupled with practical and applicable recipes that ll enable you to use and implement the latest features of OpenStack   *OpenStack Orchestration* Adnan Ahmed Siddiqui,2015-10-27 Exploit the power of dynamic cloud formation and auto scaling features to fully implement OpenStack orchestration About This Book Set up manage and troubleshoot Heat and effectively automate

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configuring Container Replication between datacenters Gain hands on experience and familiarity with Horizon the OpenStack Dashboard user interface Learn how to automate OpenStack installations using Ansible and Foreman Follow practical advice and examples for running OpenStack in production Fix common issues with images served through Glance and master the art of troubleshooting Neutron networking In Detail OpenStack is a collection of software projects that work together to provide a cloud fabric Learning OpenStack Cloud Computing course is an exquisite guide that you will need to build cloud environments proficiently This course will help you gain a clearer understanding of OpenStack s components and their interaction with each other to build a cloud environment The first module Learning OpenStack starts with a brief look into the need for authentication and authorization the different aspects of dashboards cloud computing fabric controllers along with Networking as a Service and Software defined Networking Then you will focus on installing configuring and troubleshooting different architectures such as Keystone Horizon Nova Neutron Cinder Swift and Glance After getting familiar with the fundamentals and application of OpenStack let s move deeper into the realm of OpenStack In the second module OpenStack Cloud Computing Cookbook preview how to build and operate OpenStack cloud computing storage networking and automation Dive into Neutron the OpenStack Networking service and get your hands dirty with configuring ML2 networks routers and distributed virtual routers Further you ll learn practical examples of Block Storage LBaaS and FBaaS The final module Troubleshooting OpenStack will help you quickly diagnose troubleshoot and correct problems in your OpenStack We will diagnose and remediate issues in Keystone Glance Neutron networking Nova Cinder block storage Swift object storage and issues caused by Heat orchestration This Learning Path combines some of the best that Packt has to offer in one complete curated package It includes content from the following Packt products Learning OpenStack by Alok Shrivastwa Sunil Sarat OpenStack Cloud Computing Cookbook Third Edition by Kevin Jackson Cody Bunch Egle Sigler Troubleshooting OpenStack by Tony Campbell Style and approach This course aims to create a smooth learning path that will teach you how to get started with setting up private and public clouds using a free and open source cloud computing platform OpenStack Through this comprehensive course you ll learn OpenStack Cloud computing from scratch to finish and more **Preparing for the Certified OpenStack Administrator Exam** Matt Dorn,2017-08-24 Master the objectives required to pass the Certified OpenStack Administrator exam About This Book Focuses on providing a clear concise strategy so you gain the specific skills required to pass the Certified OpenStack Administrator exam Includes exercises and performance based tasks to ensure all exam objectives can be completed via the Horizon dashboard and command line interface Includes a free OpenStack Virtual Appliance to practice the objectives covered throughout the book Includes a practice exam to put your OpenStack skills to the test to prove you have what it takes to conquer the live exam Updated for the 2017 exam featuring OpenStack Newton Who This Book Is For This book is for IT professionals system administrators DevOps engineers and software developers with basic Linux command line and networking knowledge It s also a great guide

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strong ecosystem that helps you provision your cloud storage needs Add OpenStack s enterprise features to reduce the cost of your business This book will begin by showing you the steps to build up an OpenStack private cloud environment using Ansible You ll then discover the uses of cloud services such as the identity service image service and compute service You ll dive into Neutron the OpenStack Networking service and get your hands dirty with configuring networks routers load balancers and more You ll then gather more expert knowledge on OpenStack cloud computing by managing your cloud s security and migration After that we delve into OpenStack Object storage and you ll see how to manage servers and work with objects cluster and storage functionalities Finally you will learn about OpenStack dashboard Ansible Keystone and other interesting topics What you will learn Understand install configure and manage a complete OpenStack Cloud platform using OpenStack Ansible Configure networks routers load balancers and more with Neutron Use Keystone to setup domains roles groups and user access Learn how to use Swift and setup container access control lists Gain hands on experience and familiarity with Horizon the OpenStack Dashboard user interface Automate complete solutions with our recipes on Heat the OpenStack Orchestration service as well as using Ansible to orchestrate application workloads Follow practical advice and examples to run OpenStack in production Who this book is for This book is written for cloud system engineers system administrators and technical architects who are moving from a virtualized environment to cloud environments This book assumes that you are familiar with cloud computing platforms and have knowledge of virtualization networking and managing Linux environments   **Mobile Web and Intelligent Information Systems** Muhammad Younas,Irfan Awan,Irena Holubova,2017-08-04 This book constitutes the refereed proceedings of the 14th International Conference on Mobile Web and Intelligent Information Systems MobiWIS 2017 held in Prague Czech Republic in August 2017 The 23 full papers together with 4 short papers presented in this volume were carefully reviewed and selected from 77 submissions The call for papers of the MobiWis 2017 included new and emerging areas such as mobile web systems recommender systems security and authentication context awareness mobile web and advanced applications cloud and IoT mobility management mobile and wireless networks and mobile web practice and experience   *OpenStack Administration with Ansible* Walter Bentley,2016-01-28 Design build and automate 10 real world OpenStack administrative tasks with Ansible About This Book Automate real world OpenStack cloud operator administrative tasks Construct a collection of automation code to save time on managing your OpenStack cloud Use this step by step tutorial to automate such tasks with Ansible Who This Book Is For If you are an OpenStack based cloud operator and or infrastructure administrator and are interested in automating administrative functions then this book is exactly what you are looking for Having a functioning OpenStack environment is helpful but most certainly not necessary What You Will Learn Efficiently execute OpenStack administrative tasks Familiarize yourself with how Ansible works and assess the defined best practices Create Ansible playbooks and roles Automate tasks to customize your OpenStack cloud Review OpenStack automation considerations when automating administrative tasks

Examine and automate advanced OpenStack tasks and designated use cases Get a high level overview of OpenStack and the current production ready projects Deep dive into OpenStack CLI tools and find out how to use them In Detail Most organizations are seeking methods to improve business agility because they have realized just having a cloud is not enough Being able to improve application deployments reduce infrastructure downtime and eliminate daily manual tasks can only be accomplished through some sort of automation Packed with real world OpenStack administrative tasks this book will walk you through working examples and explain how these tasks can be automated using one of the most popular open source automation tools Ansible We will start with a brief overview of OpenStack and Ansible and highlight some best practices Each chapter will provide an introduction to handling various Cloud Operator administration tasks such as creating multiple users tenants setting up Multi Tenant Isolation customizing your clouds quotas taking instance snapshots evacuating compute hosts for maintenance and running cloud health checks and a step by step tutorial on how to automate these tasks with Ansible Style and approach This easy to follow reference guide is packed with examples of real world OpenStack administration tasks each task is explained in detail and then subsequently turned into automation code **Continued Rise of the Cloud** Zaigham Mahmood,2014-07-07 This book captures the state of the art in cloud technologies infrastructures and service delivery and deployment models The work provides guidance and case studies on the development of cloud based services and infrastructures from an international selection of expert researchers and practitioners Features presents a focus on security and access control mechanisms for cloud environments analyses standards and brokerage services and investigates the role of certification for cloud adoption evaluates cloud ERP suggests a framework for implementing big data science and proposes an approach for cloud interoperability reviews existing elasticity management solutions discusses the relationship between cloud management and governance and describes the development of a cloud service capability assessment model examines cloud applications in higher education including the use of knowledge as a service in the provision of education and cloud based e learning for students with disabilities 区块链技术指南 邹均,张海宁,唐屹,2021-02-08 App *OpenStack Cloud Computing Cookbook - Fourth Edition* Kevin Jackson,Cody Bunch,Egle Sigler,2018-01-25 The Fourth Edition of the industry acclaimed OpenStack Cloud Computing Cookbook from four recognized experts updated to the latest OpenStack build including Cinder Nova and Neutron Key Features Over 100 recipes created by a team of OpenStack experts Updated to work with the latest OpenStack builds with recipes covering the installation and use of OpenStack with Ansible It covers topics such as Keystone Glance Neutron Nova Cinder and more plus recipes for OpenStack storage networking and orchestrating workloads Test drive OpenStack using the accompanying Vagrant environment Book Description This is the fourth edition of the industry acclaimed OpenStack Cloud Computing Cookbook created by four recognized OpenStack experts It has now been updated to work with the latest OpenStack builds using tools and processes based on their collective and vast OpenStack experience OpenStack Open Source Cloud software is one of the most used cloud infrastructures to

support a wide variety of use cases from software development to big data analysis It is developed by a thriving community of individual developers from around the globe and backed by most of the leading players in the cloud space today We make it simple to implement massively scalable and able to store a large pool of data and networking resources OpenStack has a strong ecosystem that helps you provision your cloud storage needs Add OpenStack s enterprise features to reduce the cost of your business This book will begin by showing you the steps to build up an OpenStack private cloud environment using Ansible You ll then discover the uses of cloud services such as the identity service image service and compute service You ll dive into Neutron the OpenStack Networking service and get your hands dirty with configuring networks routers load balancers and more You ll then gather more expert knowledge on OpenStack cloud computing by managing your cloud s security and migration After that we delve into OpenStack Object storage and you ll see how to manage servers and work with objects cluster and storage functionalities Finally you will learn about OpenStack dashboard Ansible Keystone and other interesting topics What you will learn Understand install configure and manage a complete OpenStack Cloud platform using OpenStack Ansible Configure networks routers load balancers and more with Neutron Use Keystone to setup domains roles groups and user access Learn how to use Swift and setup container access control lists Gain hands on experience and familiarity with Horizon the OpenStack Dashboard user interface Automate complete solutions with our recipes on Heat the OpenStack Orchestration service as well as using Ansible to orchestrate application workloads Follow practical advice and examples to run OpenStack in production Who this book is for This book is written for cloud system engineers system administrators and technical architects who are moving from a virtualized environment to cloud environments This book assumes that you are familiar with cloud computing platforms and have knowledge of virtualization networking and managing Linux environments   *Learning OpenStack Networking* James Denton,2018-08-31 Discover the basics of virtual networking in OpenStack to implement various cloud network architectures Key Features Learn the difference between Open vSwitch and Linux bridge switching technologies Connect virtual machine instances to virtual networks subnets and ports Implement virtual load balancers firewalls and routers in your network Book Description OpenStack Networking is a pluggable scalable and API driven system to manage physical and virtual networking resources in an OpenStack based cloud Like other core OpenStack components OpenStack Networking can be used by administrators and users to increase the value and maximize the use of existing datacenter resources This third edition of Learning OpenStack Networking walks you through the installation of OpenStack and provides you with a foundation that can be used to build a scalable and production ready OpenStack cloud In the initial chapters you will review the physical network requirements and architectures necessary for an OpenStack environment that provide core cloud functionality Then you ll move through the installation of the new release of OpenStack using packages from the Ubuntu repository An overview of Neutron networking foundational concepts including networks subnets and ports will segue into advanced topics such as security groups distributed virtual routers

virtual load balancers and VLAN tagging within instances By the end of this book you will have built a network infrastructure for your cloud using OpenStack Neutron What you will learn Get familiar with Neutron constructs including agents and plugins Build foundational Neutron resources to provide connectivity to instances Work with legacy Neutron routers and troubleshoot traffic through them Explore high availability routing capabilities utilizing Virtual Router Redundancy Protocol VRRP Create and manage load balancers and associated components Manage security groups as a method of securing traffic to and from instances Who this book is for If you are an OpenStack based cloud operator and administrator who is new to Neutron networking and wants to build your very own OpenStack cloud then this book is for you Prior networking experience and a physical server and network infrastructure is recommended to follow along with concepts demonstrated in the book

   <u>OpenStack Cloud Computing Cookbook - Fourth Edition</u> ,2017 The Fourth Edition of the industry acclaimed OpenStack Cloud Computing Cookbook from four recognized experts updated to the latest OpenStack build including Cinder Nova and Neutron About This Book Over 100 recipes created by a team of OpenStack experts Updated to work with the latest OpenStack builds with recipes covering the installation and use of OpenStack with Ansible It covers topics such as Keystone Glance Neutron Nova Cinder and more plus recipes for OpenStack storage networking and orchestrating workloads Test drive OpenStack using the accompanying Vagrant environment Who This Book Is For This book is written for cloud system engineers system administrators and technical architects who are moving from a virtualized environment to cloud environments This book assumes that you are familiar with cloud computing platforms and have knowledge of virtualization networking and managing Linux environments What You Will Learn Understand install configure and manage a complete OpenStack Cloud platform using OpenStack Ansible Configure networks routers load balancers and more with Neutron Use Keystone to setup domains roles groups and user access Learn how to use Swift and setup container access control lists Gain hands on experience and familiarity with Horizon the OpenStack Dashboard user interface Automate complete solutions with our recipes on Heat the OpenStack Orchestration service as well as using Ansible to orchestrate application workloads Follow practical advice and examples to run OpenStack in production In Detail This is the fourth edition of the industry acclaimed OpenStack Cloud Computing Cookbook created by four recognized OpenStack experts It has now been updated to work with the latest OpenStack builds using tools and processes based on their collective and vast OpenStack experience OpenStack Open Source Cloud software is one of the most used cloud infrastructures to support a wide variety of use cases from software development to big data analysis It is developed by a thriving community of individual developers from around the globe and backed by most of the leading players in the cloud space today We make it simple to implement massively scalable and able to store a large pool of data and networking resources OpenStack has a strong ecosystem that helps you provision your cloud storage needs Add OpenStack s enterprise features to reduce the cost of your business This book will begin by s   *Mastering OpenStack* Omar Khedher,2015-07-30 This comprehensive guide will help you to choose the right

practical option and make strategic decisions about the OpenStack cloud environment to fit your infrastructure in production At the start this book will explain the OpenStack core architecture You will soon be shown how to create your own OpenStack private cloud Next you will move on to cover the key security layer and network troubleshooting skills along with some advanced networking features Finally you will gain experience of centralizing and logging OpenStack The book will show you how to carry out performance tuning based on OpenStack service logs By the end of this book you will be ready to take steps to deploy and manage an OpenStack cloud with the latest open source technologies *OpenStack Networking Cookbook* Sriram Subramanian,Chandan Dutta Chowdhury,2015-10-23 **Openstack Administration with Ansible** Walter Bentley,2016-01-28 OpenStack Operations Guide Tom Fifield,Diane Fleming,Anne Gentle,Lorin Hochstein,Jonathan Proulx,Everett Toews,Joe Topjian,2014-04-24 Design deploy and maintain your own private or public Infrastructure as a Service IaaS using the open source OpenStack platform In this practical guide experienced developers and OpenStack contributors show you how to build clouds based on reference architectures as well as how to perform daily administration tasks Designed for horizontal scalability OpenStack lets you build a cloud by integrating several technologies This approach provides flexibility but knowing which options to use can be bewildering Once you complete this book you ll know the right questions to ask while you organize compute storage and networking resources If you already know how to manage multiple Ubuntu machines and maintain MySQL you re ready to Set up automated deployment and configuration Design a single node cloud controller Use metrics to improve scalability Explore compute nodes network design and storage Install OpenStack packages Use an example architecture to help simplify decision making Build a working environment to explore an IaaS cloud Manage users projects and quotas Tackle maintenance debugging and network troubleshooting Monitor log backup and restore Mastering OpenStack - Second Edition Omar Khedher,Chandan Dutta,2017-04-26 Discover your complete guide to designing deploying and managing OpenStack based clouds in mid to large IT infrastructures with best practices expert understanding and moreAbout 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 infrastructureWho This Book Is ForThis 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 improvementIn DetailIn 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 approachThis 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

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Table of Contents Openstack Cloud Computing Cookbook Third Edition

1. Understanding the eBook Openstack Cloud Computing Cookbook Third Edition
    - The Rise of Digital Reading Openstack Cloud Computing Cookbook Third Edition
    - Advantages of eBooks Over Traditional Books
2. Identifying Openstack Cloud Computing Cookbook Third Edition
    - Exploring Different Genres
    - Considering Fiction vs. Non-Fiction
    - Determining Your Reading Goals
3. Choosing the Right eBook Platform
    - Popular eBook Platforms
    - Features to Look for in an Openstack Cloud Computing Cookbook Third Edition
    - User-Friendly Interface

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