

Your Applications

# OPENSTACK

CLOUD OPERATING SYSTEM



OpenStack Dashboard

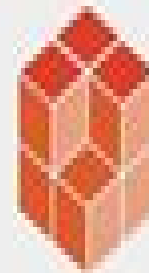
APIs



Compute



Networking



Storage

OpenStack Shared Services

Standard Hardware

# Openstack Essentials

**Sunil Gulabani**



## **Openstack Essentials:**

**OpenStack Essentials** Dan Radez, 2015-05-26 If you need to get started with OpenStack or want to learn more then this book is your perfect companion If you're comfortable with the Linux command line you'll gain confidence in using OpenStack

*OpenStack Essentials - Second Edition* Dan Radez, 2016-08-31 Untangle the complexity of OpenStack clouds through this practical tutorial About This Book Navigate through the complex jungle of components in OpenStack using practical instructions This book helps administrators cloud engineers and even developers to consolidate and control pools of compute networking and storage resources Learn to use the centralized dashboard and administration panel to monitor large scale deployments Who This Book Is For This book is perfect for administrators cloud engineers and operators who want to get started with OpenStack solve basic problems encountered during deployment and get up to speed with the latest release of OpenStack Familiarity with the Linux command line and experience with Linux system administration is expected What You Will Learn Brush up on the latest release and how it affects the various components Install OpenStack using the Packstack and RDO Manager installation tool Learn to convert a computer node that supports Docker containers Implement Ceph Block Device images with OpenStack Create and allocate virtual networks routers and IP addresses to OpenStack Tenants Configuring and Launching a Docker container In Detail OpenStack is a widely popular platform for cloud computing Applications that are built for this platform are resilient to failure and convenient to scale This book an update to our extremely popular OpenStack Essentials published in May 2015 will help you master not only the essential bits but will also examine the new features of the latest OpenStack release Mitaka showcasing how to put them to work straight away This book begins with the installation and demonstration of the architecture This book will teach you the core 8 topics of OpenStack They are Keystone for Identity Management Glance for Image management Neutron for network management Nova for instance management Cinder for Block storage Swift for Object storage Ceilometer for Telemetry and Heat for Orchestration Further more you will learn about launching and configuring Docker containers and also about scaling them horizontally You will also learn about monitoring and Troubleshooting OpenStack Style and approach This book offers step by step practical instructions to help you quickly navigate through the complexities of OpenStack **OpenStack Essentials**

Richard Johnson, 2015-05-30 OpenStack Essentials OpenStack Essentials is a comprehensive guide designed for IT professionals architects and cloud operators seeking a deep understanding of OpenStack's core components and operational intricacies This book methodically covers every major aspect of OpenStack architecture beginning with its origins modular design and community driven governance Readers are introduced to the fundamentals of service intercommunication RESTful APIs and high level deployment topologies laying a solid technical foundation for those aiming to architect or manage OpenStack powered clouds At the heart of the book lies in depth exploration of critical OpenStack services including Keystone for identity and access management Nova for compute orchestration Swift and Cinder for object and block storage

and Neutron for advanced networking Each chapter delivers authoritative guidance on architectural models security scalability and multi tenancy integrating best practices for authentication role based access network segmentation and storage optimization Detailed sections on image life cycle management orchestration with Heat and seamless integration with configuration management tools provide the operational blueprints needed for automating complex cloud deployments The closing chapters address the challenges of deploying scaling and securing OpenStack in real world environments With dedicated coverage of deployment automation tools rolling upgrades monitoring capacity planning disaster recovery and compliance strategies the book equips readers to confidently operate OpenStack at scale The final sections look toward the future of cloud discussing hybrid and multi cloud architectures edge computing regulatory compliance security threat modeling and the vibrant OpenStack ecosystem OpenStack Essentials is an indispensable reference for building optimizing and sustaining enterprise grade private and hybrid clouds

*Amazon S3 Essentials* Sunil Gulabani, 2015-11-03 Get started with Amazon S3 for virtually unlimited cloud and Internet storage About This Book Familiarize yourself with the concepts of Amazon S3 Understand basic operations of bucket folders and objects using Amazon S3 SDK Java Leverage the power of Amazon S3 to effectively store and retrieve data Who This Book Is For This book is intended for System Engineers Developers Software Architects Project managers and users who want to explore Amazon S3 SDK Java If you want to learn about Amazon S3 quickly then this book is for you Basic knowledge of Java programming is expected What You Will Learn Start with the basic concepts of Amazon S3 to get you going Use Copy Object and Multipart Copy Object for objects of different sizes Understand how to use the amazon management console for Amazon S3 Learn how to use the AWS SDK of Java and consume the Amazon S3 Get to grips with managing the bucket life cycle Configure CORS to share resources to a different domain Discover how to develop and deploy the static website on Amazon S3 using different services of Amazon In Detail Amazon Simple Storage Service Amazon S3 provides developers and IT teams with secure durable and highly scalable object storage Amazon S3 is easy to use with a simple web services interface to store and retrieve any amount of data from anywhere on the web S3 is automatically web scalable and responds to the requirements of your application and traffic and therefore offers a key element to help companies deal dynamically with any spike in traffic for their application such as a free e book offer This book starts with the basics of the Amazon S3 and its features and you will quickly get an understanding how to use the Amazon Management Console for Amazon S3 which is the simplest way to manage Amazon S3 Next we will cover basic operations on bucket folder objects Once the basic operations are understood you will know how to use Amazon S3 using Java SDK Following that you will learn about Copy Objects and Multipart copy objects for large objects size You will also learn to manage the life cycle of bucket and how to share resources to the different domain by configuring CORS The book will then guide you through the development and deployment of a static website on Amazon S3 using different services of Amazon By the end of the book you will be able to create a scalable application using Amazon S3 Style and approach This

fast paced book is a pragmatic guide to writing Amazon S3 applications Each chapter is blended beautifully with lucid concepts and pertinent examples      **Mastering KVM Virtualization** Humble Devassy Chirammal,Prasad Mukhedkar,Anil Vettathu,2016-08-19 Dive in to the cutting edge techniques of Linux KVM virtualization and build the virtualization solutions your datacentre demands About This Book Become an expert in Linux virtualization Migrate your virtualized datacenter to the cloud Find out how to build a large scale virtualization solution that will transform your organization Who This Book Is For Linux administrators if you want to build incredible yet manageable virtualization solutions with KVM this is the book to get you there It will help you apply what you already know to some tricky virtualization tasks What You Will Learn Explore the ecosystem of tools that support Linux virtualization Find out why KVM offers you a smarter way to unlock the potential of virtualization Implement KVM virtualization using oVirt Explore the KVM architecture so you can manage scale and optimize it with ease Migrate your virtualized datacenter to the cloud for truly resource efficient computing Find out how to integrate OpenStack with KVM to take full control of the cloud In Detail A robust datacenter is essential for any organization but you don t want to waste resources With KVM you can virtualize your datacenter transforming a Linux operating system into a powerful hypervisor that allows you to manage multiple OS with minimal fuss This book doesn t just show you how to virtualize with KVM it shows you how to do it well Written to make you an expert on KVM you ll learn to manage the three essential pillars of scalability performance and security as well as some useful integrations with cloud services such as OpenStack From the fundamentals of setting up a standalone KVM virtualization platform and the best tools to harness it effectively including virt manager and kimchi project everything you do is built around making KVM work for you in the real world helping you to interact and customize it as you need it With further guidance on performance optimization for Microsoft Windows and RHEL virtual machines as well as proven strategies for backup and disaster recovery you ll can be confident that your virtualized data center is working for your organization not hampering it Finally the book will empower you to unlock the full potential of cloud through KVM Migrating your physical machines to the cloud can be challenging but once you ve mastered KVM it s a little easie Style and approach Combining advanced insights with practical solutions Mastering KVM Virtualization is a vital resource for anyone that believes in the power of virtualization to help a business use resources more effectively      **Composability, Comprehensibility and Correctness of Working Software** Zoltán Porkoláb,Viktória Zsóka,2023-10-17 This book constitutes the revised selected papers of the 8th Summer School CEF 2019 held in Budapest Hungary during June 2019 The 7 full papers and the 4 short papers included in this volume were carefully reviewed and selected The lectures cover various programming subjects with a focus on composability comprehensibility and correctness of working software      000000 0000,0000,0000,2021-02-08 App      **OpenStack Networking Essentials** James Denton,2016-04-19 Build and manage networks in OpenStack using Neutron About This Book Deploy an all in one cloud based on OpenStack Liberty 2015 2 using RDO Learn the fundamentals of the Neutron API including networks subnets and

ports and how to manage these resources in the cloud Build simple virtual network infrastructures in the cloud Who This Book Is For The book is for those who are new to OpenStack and Neutron who want to learn the cloud networking fundamentals and get started with OpenStack networking Prior networking experience along with a virtual or physical server is recommended to follow along with the concepts demonstrated in the book What You Will Learn Install the latest Liberty 2015 2 release of OpenStack using RDO in VirtualBox Discover the basics of the Neutron API including networks subnets and ports Interact with Neutron using the CLI and Horizon dashboard Create networks and subnets that provide connectivity to instances Implement software routers that connect networks and provide network address translation Secure instances using Neutron s security group functionality In Detail The OpenStack Networking API offers users the ability to create and manage both basic and complex network architectures that blend the virtual and physical network infrastructure This book kicks off by describing various components of Openstack Neutron and installing Ubuntu OpenStack based on Canonical s process Further on you will use various methods to interface with Neutron to create and manage network resources You will also get to grips with the relationship between ports networks and subnets through diagrams and explanations and see how the logical components are implemented via plugins and agents Moving forward you will learn how virtual switches are implemented and how to build Neutron routers You will also configure networks subnets and routers to provide connectivity to instances using simple examples At the end you will configure and manage security groups and will observe how these rules translate to iptables rules on the host machines By the end of the book you will be able to build basic network architectures using Neutron networks and routers in no time Style and approach An easy to follow guide that covers the networking features of OpenStack and the core Neutron API components providing a solid foundation to deploy networks and instances

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

*OpenStack Sahara Essentials* Omar Khedher, 2016-04-25 Integrate deploy rapidly configure and successfully manage your own big data intensive clusters in the cloud using OpenStack Sahara About This Book A fast paced guide to help you utilize the benefits of Sahara in OpenStack to meet the Big Data world of Hadoop A step by step approach to simplify the complexity of Hadoop configuration deployment and maintenance Who This Book Is For This book targets data scientists cloud developers and Devops Engineers who would like to become proficient with OpenStack Sahara Ideally this book is well suitable for readers who are familiar with databases Hadoop and Spark solutions Additionally a basic prior knowledge of OpenStack is expected The readers should also be familiar with different Linux boxes distributions and virtualization technology What You Will Learn Integrate and Install Sahara with OpenStack environment Learn Sahara architecture under the hood Rapidly configure and scale Hadoop clusters on top of OpenStack Explore the Sahara REST API to create deploy and manage a Hadoop cluster Learn the Elastic Processing Data EDP facility to execute jobs in clusters from Sahara Cover other Hadoop stable plugins existing supported by Sahara Discover different features provided by Sahara for Hadoop provisioning and deployment Learn how to troubleshoot OpenStack Sahara issues In Detail The Sahara project is a module that aims to simplify the building of data processing capabilities on OpenStack The goal of this book is to provide a focused fast paced guide to installing configuring and getting started with integrating Hadoop with OpenStack using Sahara The book should explain to users how to deploy their data intensive Hadoop and Spark clusters on top of OpenStack It will also cover how to use the Sahara REST API how to develop applications for Elastic Data Processing on Openstack and setting up hadoop or spark clusters on Openstack Style and approach This book takes a step by step approach teaching how to integrate deploy and manage data using OpenStack Sahara It will teach how the OpenStack Sahara is beneficial by simplifying the complexity of Hadoop configuration deployment and maintenance **GSEC GIAC Security Essentials Certification**

**All-in-One Exam Guide, Second Edition** Ric Messier, 2019-08-02 Publisher's Note Products purchased from Third Party sellers are not guaranteed by the publisher for quality authenticity or access to any online entitlements included with the product Fully updated coverage of every topic on the current version of the GSEC exam Get complete coverage of all the

objectives on Global Information Assurance Certification's Security Essentials GSEC exam inside this comprehensive resource GSEC GIAC Security Essentials Certification All in One Exam Guide Second Edition provides learning objectives at the beginning of each chapter exam tips practice exam questions and in depth explanations Designed to help you pass the exam with ease this authoritative resource also serves as an essential on the job reference Covers all exam topics including Networking fundamentals Network design Cloud computing Authentication and access control Unix Linux Windows Encryption Risk management Virtual machines Vulnerability control Malware Incident response Wireless technologies Log Management IoT and embedded devices Online content features Two practice exams Test engine that provides full length practice exams and customizable quizzes Author videos

**Network Function Virtualization** Ying Zhang, 2017-12-08 A horizontal view of newly emerged technologies in the field of network function virtualization NFV introducing the open source implementation efforts that bring NFV from design to reality This book explores the newly emerged technique of network function virtualization NFV through use cases architecture and challenges as well as standardization and open source implementations It is the first systematic source of information about cloud technologies usage in the cellular network covering the interplay of different technologies the discussion of different design choices and its impact on our future cellular network Network Function Virtualization Concepts and Applicability in 5G Networks reviews new technologies that enable NFV such as Software Defined Networks SDN network virtualization and cloud computing It also provides an in depth investigation of the most advanced open source initiatives in this area including OPNFV Openstack and Opendaylight Finally this book goes beyond literature review and industry survey by describing advanced research topics such as service chaining VNF orchestrations and network verification of NFV systems In addition this resource Introduces network function virtualization NFV from both industrial and academic perspectives Describes NFV's usage in mobile core networks which is the essence of 5G implementation Offers readers a deep dive on NFV's enabling techniques such as SDN virtualization and cloud computing Network Function Virtualization Concepts and Applicability in 5G Networks is an ideal book for researchers and university students who want to keep up with the ever changing world of network function virtualization

[Learning OpenStack Networking \(Neutron\)](#) James Denton, 2014-10-10 If you are an OpenStack based cloud operator with experience in OpenStack Compute and nova network but are new to Neutron networking then this book is for you Some networking experience is recommended and a physical network infrastructure is required to provide connectivity to instances and other network resources configured in the book

**Essentials of Library Planning** Karel Axel Lodewycks, 1961

**Dr. Dobb's Essential HyperTalk Handbook** Michael Swaine, 1988

**OpenStack Trove Essentials** Alok Shrivastwa, Sunil Sarat, 2016-03-30 Build your own cloud based Database as a Service using OpenStack Trove About This Book Familiarize yourself with the concept of Database as a Service and make your existing system scalable and efficient with OpenStack Trove Minimize the administrative tasks and complexities of managing your cloud infrastructure This is a fast paced guide to



datastore management on the OpenStack platform using OpenStack Trove Who This Book Is For If you are a DBA system administrator architect or a student who wants to build a Database as a Service based on OpenStack this book is for you You should have a basic knowledge of OpenStack components RDBMS NoSQL IaaS and cloud computing What You Will Learn Get to grips with the basics of OpenStack and the prerequisites to install Trove Understand the expectations of DBaaS and how Trove can help you achieve them Set up a basic installation of DevStack Development Stack in a virtual box Install Trove and utilize its configuration groups to manage and tune databases Use Image builder to create guest images for Trove Utilize Trove to provision your first database instance Back up and restore your databases with the help of Trove In Detail OpenStack has become an extremely popular solution to build public and private clouds with Database as a Service DBaaS enables the delivery of more agile database services at lower costs Some other benefits of DBaaS are secure database deployments and compliance to standards and best practices Trove is a DBaaS built on OpenStack and is becoming more popular by the day Since Trove is one of the most recent projects of OpenStack DBAs and system administrators can find it difficult to set up and run a DBaaS using OpenStack Trove This book helps DBAs make that step We start by introducing you to the concepts of DBaaS and how is it implemented using OpenStack Trove Following this we look at implementing OpenStack and deploying Trove Moving on you will learn to create guest images to be used with Trove We then look at how to provision databases in self service mode and how to perform administration tasks such as backup and recovery and fine tuning databases At the end of the book we will examine some advanced features of Trove such as replication Style and approach This fast paced step by step guide introduces you to DBaaS OpenStack Trove and its components leading you through building your own Cloud based DBaaS Using the DevStack deployment method you will spend less time on installing OpenStack so you can devote more time to learning how to provision and manage databases in a DBaaS environment

**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 **The Open Stack** ,1987

**OpenStack A Complete Guide - 2020 Edition** Gerardus Blokdyk,2020-02-20 How do you manage deployment of IoT applications Which operating systems are running OpenStack deployments Is RFP requirement that login access to the platform is differentiated by tenant or should all logs be created differently per tenant What are your edge computing characteristics use cases and scenarios What container and PaaS tools are used to manage OpenStack applications This

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