

RedHat Openstack

What is Openstack?

OpenStack is an open source framework based on Linux for deploying Infrastructure as a Service(IaaS) clouds. You can deploy both private and public cloud with the help of Openstack. It is best known to use the commodity hardware. Openstack can easily be accessed through Horizon Dashboard, RESTful API or CLI.

OpenStack consists of several core projects—Nova for compute, Glance for images, Cinder for block storage, Swift for Object storage, Keystone for Identity, Neutron for networking, Heat for orchestration and so on.

About Course

What is this course about?

This course includes installation of Openstack as a single node layout as well as multi-node layout. There are many real-time scenarios included in the course in order to work with various modules of Openstack. Troubleshooting and managing the infrastructure of Openstack is a challenge. This course is customized to overcome various hurdles in private cloud openstack. After this course you will be successfully able to run an Openstack environment in single node as well as in multi-node.

What are the course objectives?

At the end of this course you will be able to,

- Learn to install Openstack for a private cloud
- Install various modules of Openstack
- Troubleshoot and manage various modules of Openstack
- Work around with the Nova, Neutron, keystone and glance
- Work around with different types of storage (Ceph, Gluster, Cinder, Swift)
- You will be able to orchestrate with the help of HEAT module
- You will be able to generate the alarms with the help of CEILOMETER
- You will be able to work around with a multi-node cluster of Openstack and much more.

Who should do this course?

Openstack concepts are built on the top of Virtualization and Linux platforms. So it is good if you have a basic knowledge of

- Virtualization
- Linux
- Networking

However it is not mandatory. With this course you will still be able to work around with Openstack.

Prerequisites

You must have below prerequisites in order to begin with the course

- Min 8GB ram in your desktop/laptop
- Virtual box or Vmware workstion
- Must know how to install RedHat Linux/CentOS in Vmware workstation or Virtual Box.

Course Roadmap

- Introducing Red Hat Openstack Architecture
 - What is Virtualization and cloud computing?
 - What is IaaS, PaaS and SaaS?
 - What is Openstack?
- Deploying Red Hat Openstack with Packstack
 - Discuss all the modules of Openstack – Keystone, Glance, RabbitMQ, MariaDB, Nova, Swift, Cinder, Horizon, Neutron, Heat and Ceilometer.
 - Discuss various layouts for Openstack installation
 - Learn about packstack
 - Deploying modules of Openstack with packstack
- Launching first instance with Horizon Dashboard
 - Login to the Horizon Dashboard
 - Create a user, project, public and private network
 - Create a router and a security group for SSH and keypair

- Create a cirros image
 - Launch an instance from the image
 - SSH to the instance
- Managing the RabbitMQ Message Broker
 - Verifying and troubleshooting the RabbitMQ Message Broker
- Managing the keystone Identity Service
 - Verifying the Keystone Identity service
 - Creating Users , Tenants, and Roles with keystone command
 - Managing Users with keystone command
 - Troubleshooting the keystone identity services
- Implementing and Managing the Swift Object Storage Service
 - Configuring Swift storage rings
 - Deploying Swift proxy service
 - Managing Objects in Swift Store
 - Troubleshooting the Swift Object Storage Service
- Managing the Glance Image Service
 - Creating Glance Images
 - Deploying VMs from these images
 - Building and sealing an image
 - Troubleshooting Glance Image Service
- Managing the Cinder Block Storage Service
 - Mount a device on the controller/compute node
 - Create a cinder volume
 - Take the backup/snapshot of the Cinder Volume
 - Practice and manage block storage like Ceph, Gluster etc
 - Troubleshooting Cinder Block Storage Service
- Managing, Deploying, Creating Neutron Network
 - Creating private and public network
 - Creating subnets
 - Creating instance and communicate them over the network
 - Deploying LBAAS
 - Troubleshooting Neutron network
- Managing and troubleshooting Nova Compute Services
 - Deploying an instance using Command Line

- Adding and removing Nova Compute Node
 - Launching instance to Verify Nova Compute Node
- Managing Ceilometer Telemetry Services
 - Verifying Ceilometer Telemetry Service
 - Gathering Data from Ceilometer Telemetry Services
- Managing Heat Orchestration Service
 - Launching and verifying a Stack
 - Troubleshooting Heat Orchestration Service
- Central Logging
 - Configure Elasticsearch, logstash and Kibana

Real time automation exercise

1. Auto scaling to verify Heat, Ceilometer, Nova, Neutron and Cinder
2. Using 2 instances to verify the load balancer.
3. Configuring central logging with Master and Slave servers

Certification

At end of our course, you will be able to clear CL210 – Red Hat Openstack Administration