Essentials of OpenStack Administration (LFS452)

Modality: Virtual Classroom

Duration: 4 Days

About this Course:

There is incredible worth and value of professionals having proficiency in cloud computing software and application. OpenStack is one of the leading cloud computing platforms helping businesses efficiently deploy functions and services in the cloud. Commonly used as an IaaS or Infrastructure-as-a-Service, its integration with the public and private clouds is relatively smooth. Professionals who know how to efficiently manage the OpenStack cloud platform can help businesses augment productivity by streamlining operations and cloud services.

This course is designed to help candidates effectively manage and create public and private cloud platforms. The teachings of this course covers topics relating to administration, deployment, administration, and application of the OpenStack cloud services. This is a perfect course for Linux System Administrators seeking better job opportunities. On average, a Linux System Administrator earns $100,022 annually.

Course Objective:

The core objective of this course is to help professionals gain a better understanding and conceptual knowledge of the following key topics:

- Application, Deployment, Distributed Storage, and Administration of OpenStack Cloud
- Development and deployment of infrastructure in OpenStack Cloud
- Troubleshooting and Running Ceph Services, Neutron Services and Nova Services
- Using OpenStack Services for Virtual Systems Provision
- Deployment of several distros in OpenStack Cloud

Audience:

This course is specifically designed for the following group of professionals and audiences:

- OpenStack Cloud System Administrator
- Linux System Administrator
- Professionals responsible for OpenStack Infrastructure Application Deployment
- IT Developers

Prerequisites:

Professionals planning to enroll in the Essentials of OpenStack Administration (LFS452) must comply with the following set of prerequisites:

- Fundamental knowledge of System Administration in Linux

- Practical know-how of using Command Line in Linux
- Conceptual understanding of Virtual System, Network Storage, and Linux System Administration is highly recommended

Course Outline:

Introduction

- Linux Foundation
- Linux Foundation Training
- Linux Foundation Certifications
- Laboratory Exercises, Solutions and Resources
- Distribution Details
- Labs

Cloud Fundamentals

- The Cloud
- Conventional Data Center Architecture
- Virtualization
- Cloud Architecture
- Basic Tenets of Open Cloud Computing
- Labs

Managing Guests Virtual Machines with OpenStack Compute

- Using OpenStack Dashboard
- Using the python-novaclient Command Line Interfaces
- Labs

Components of an OpenStack Cloud

- General Introduction to OpenStack Components
- OpenStack Compute: Nova
- Overview of Hypervisor Backends
- OpenStack Image Service: Glance
- OpenStack Identity: Keystone
- OpenStack Block Storage: Cinder
- OpenStack Dashboard: Horizon
- Labs

Components of a Cloud – Part Two

- OpenStack Object Storage: Swift
- OpenStack Networking: Neutron
- OpenStack Monitoring: Ceilometer
- OpenStack Orchestration: Heat
- OpenStack DBaaS: Trove

- The Oslo Framework
- Labs

Reference Architecture

- Node Roles
- Best Practices
- Scalability
- Labs

Deploying Prerequisite Services

- Time Management: NTP
- Relational Database
- AMQP Server: RabbitMQ
- Labs

Deploying Services Overview

- Deploying A Service
- Deploying the Glance Image Service
- Deploying Networking with Neutron
- Labs

Advanced Software Defined Networking with Neutron

- An introduction to SDN
- Layer 2 Networking Primer
- An introduction to OpenFlow
- An introduction to Open vSwitch
- L3 and DHCP Primer
- An introduction to Linux Network Namespaces
- Understanding Neutron Packet Flows
- OpenStack Routing Models
- Neutron CLI Options
- Labs

Advanced Software Defined Networking with Neutron – Part Two

- The Neutron ML2 framework
- Alternative Neutron Backends
- Labs

Distributed Cloud Storage with Ceph

- Introduction to Ceph
- RADOS Block Device
- RADOS Gateway

- Deploying a 3-node Ceph Cluster
- Using Ceph RBD for Glance Image Storage
- Using Ceph RBD for Cinder Block Storage
- radosgw for Swift-Compatible Object Access
- Labs

OpenStack Object Storage with Swift

- OpenStack Object Storage: Swift
- Deploying a 3-node Swift Cluster
- Interacting with Swift
- Labs

High Availability in the Cloud

- An introduction to High Availability
- An introduction to the Pacemaker High Availability Stack
- Resource Management in Pacemaker
- Highly Available OpenStack Reference Architecture
- OpenStack VM High Availability
- Labs

Cloud Security with OpenStack

- Keystone Authentication Model
- Network Security
- Hypervisor Security
- Labs

Monitoring and Metering

- Deployment Considerations for Cloud Monitoring
- OpenStack Ceilometer
- Ceilometer Consumers
- Metering
- Labs

Cloud Automation

- Cloud Configuration Management
- Cloud Deployment
- Puppet
- Chef
- Full-Scale Deployment Tools
- Razor
- Crowbar
- MaaS
- Juju

- Heat
- Labs

Conclusion

- Fundamentals
- Components
- Reference Architecture
- High Availability
- Other features
- Labs

Evaluation Survey