TK032: OpenStack Administration

Duration

2.0 Days

Course Content

1. Cloud Fundamentals

- 1.1. Cloud Introduction
- 1.2. Conventional Data Center Architecture
- 1.3. Virtualization
- 1.4. Cloud Architecture
- 1.5. Basic of Open Cloud Computing

2. Managing Guests Virtual Machines with OpenStack Compute

- 2.1. Using OpenStack Dashboard
- 2.2. Using the python-novaclient Command Line Interfaces

3. Components of an OpenStack Cloud

- 3.1. General Introduction to OpenStack Components
- 3.2. OpenStack Compute: Nova
- 3.3. Overview of Hypervisor Backends
- 3.4. OpenStack Image Service: Glance
- 3.5. OpenStack Identity: Keystone
- 3.6. OpenStack Block Storage: Cinder
- 3.7. OpenStack Dashboard: Horizon
- 3.8. OpenStack Object Storage: Swift

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3.9. OpenStack Networking: Neutron

3.10. OpenStack Monitoring: Ceilometer

3.11. OpenStack Orchestration: Heat

3.12. OpenStack DBaaS: Trove

3.13. The Oslo Framework

4. Reference Architecture

4.1. Node Roles

4.2. Best Practices

4.3. Scalability

5. Deploying Prerequisite Services

5.1. Time Management: NTP

5.2. Relational Database

5.3. AMQP Server: RabbitMQ

6. Deploying Services Overview

6.1. Deploying A Service

6.2. Deploying the Glance Image Service

6.3. Deploying Networking with Neutron

7. Advanced Software Defined Networking with Neutron

7.1. An introduction to SDN

7.2. Layer 2 Networking Primer

7.3. An introduction to OpenFlow

7.4. An introduction to Open vSwitch

7.5. L3 and DHCP Primer

7.6. An introduction to Linux Network Namespaces

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7.7. Understanding Neutron Packet Flows

7.8. OpenStack Routing Models

7.9. Neutron CLI Options

7.10. The Neutron ML2 framework

7.11. Alternative Neutron Backends

8. Distributed Cloud Storage with Ceph

8.1. Introduction to Ceph

8.2. RADOS Block Device

8.3. RADOS Gateway

8.4. Deploying a 3-node Ceph Cluster

8.5. Using Ceph RBD for Glance Image Storage

8.6. Using Ceph RBD for Cinder Block Storage

8.7. radosgw for Swift-Compatible Object Access

9. OpenStack Object Storage with Swift

9.1. OpenStack Object Storage: Swift

9.2. Deploying a 3-node Swift Cluster

9.3. Interacting with Swift

10. High Availability in the Cloud

10.1. An introduction to High Availability

10.2. An introduction to the Pacemaker High Availability Stack

10.3. Resource Management in Pacemaker

10.4. Highly Available OpenStack Reference Architecture

10.5. OpenStack VM High Availability

11. Cloud Security with OpenStack

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11.1. Keystone Authentication Model

11.2. Network Security

11.3. Hypervisor Security

12. Monitoring and Metering

12.1. Deployment Considerations for Cloud Monitoring

12.2. OpenStack Ceilometer

12.3. Ceilometer Consumers

12.4. Metering

13. Cloud Automation

13.1. Cloud Configuration Management

13.2. Cloud Deployment

13.3. Puppet

13.4. Chef

13.5. Full-Scale Deployment Tools

13.6. Razor

13.7. Crowbar

13.8. MaaS

13.9. Juju

13.10. Heat

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