Openstack private cloud workshop (Extended) OST-104

Kód kurzu: OST-104

This course covers the fundamentals of the Openstack open source IAAS (Infrastructure As A Service) cloud solution, used for creating private clouds. After a short cloud and Openstack primer it presents the architecture of Openstack and introduce its base components in details such as the Horizon GUI dashboard and the Openstack CLI, the Keystone identity system, the Nova compute service, the Neutron network service and software defined networking, the Glance image service, the Cinder block storage service, the Ceilometer metering solution, the Heat orchestration services, the Swift object store and the Ceph as a scalable distributed backend.

Objectives

- Describing the basics of cloud systems generally and the open source
- Openstack solution specifically
- Presenting the Openstack architecture
- Identifying the main components of an Openstack cloud system
- Learning the details of the controller node
- Learning the details of the compute node
- Learning the details of the networking node
- Learning the details of the Ceilometer metering solution
- Learning the details of the Heat orchestration services
- Using Swift as an object store
- Using Ceph as a scalable distributed backend for OpenStack services

Structure

50% theory 50% hands on lab exercises

Target audience

Developers, Sys.Admins and Dev.Ops wanting to obtain an initial knowledge about the Openstack open source cloud system.

Prerequisite

Basic Linux sys.admin, networking as well as virtualization knowledge,

Duration

4 day

Detailed Course Outline

- Introduction
- Overview
- Core Projects
- Nova
- Neutron
- Glance, Cinder
- Ceilometer
- Heat
- Swift
- OpenStack Architecture
- Virtual Machine Provisioning Walk-Through
- Lab 1
- Understanding the classroom environment
- Perform initial health check
- Test instance creation

GOPAS Praha
Kodaňská 1441/46
101 00 Praha 10
Tel.: +420 234 064 900-3
info@gopas.cz

GOPAS Brno
Nové sady 996/25
602 00 Brno
Tel.: +420 542 422 111
info@gopas.cz

GOPAS Bratislava
Dr. Vladimíra Clementisa 10
Bratislava, 821 02
Tel.: +421 248 282 701-2
info@gopas.sk

- Controller Node
- Overview Horizon and OpenStack
- Keystone Architecture
- User Management
- Keystone CLI overview
- OpenStack Messaging and Queues
- Message Queue Configuration
- Image Management (Glance)
- Glance CLI overview
- Creation of custom images
- OpenStack Block Storage (Cinder)
- Cinder CLI overview
- Managing volumes
- Lab 2
- Create and manage users, roles, tenants, quotas
- Create and manage images
- Create and manage volumes
- Check messaging
- Compute Node
- Linux virtualization basics
- Hypervisors, KVM, Linux bridges
- VM Placement
- VM provisioning in-depth
- Instance management
- Nova CLI overview
- Boot/Terminate instance
- Attach volume to instance
- Lab 3
- Configure flat networking
- Create and manage vm instances
- Configure VM metadata
- Network node
- Networking in OpenStack
- OpenStack Networking Concepts
- nova-network vs. Neutron
- Neutron architecture and plugins
- OpenVSwitch concepts
- Neutron agents
- Network management
- Neutron CLI overview
- Manage networks
- Manage subnets
- Manage routers
- Manage ports
- Manage floating IPs
- Lab 4
- Create routers, networks, subnets
- Associate floating IPs

GOPAS Praha
Kodaňská 1441/46
101 00 Praha 10
Tel.: +420 234 064 900-3
info@gopas.cz

GOPAS Brno
Nové sady 996/25
602 00 Brno
Tel.: +420 542 422 111
info@gopas.cz

GOPAS Bratislava
Dr. Vladimíra Clementisa 10
Bratislava, 821 02
Tel.: +421 248 282 701-2
info@gopas.sk

- Troubleshoot Neutron networking
- **Ceilometer**
- Ceilometer background and usecases
- Ceilometer architecture
- Ceilometer meters and pipelines
- Ceilometer deployment
- **Lab 5**
- Working with ceilometer
- **Heat**
- Heat Overview
- Architecture
- AWS CloudFormation template format
- Heat services
- heat-api
- heat-cfn-api
- heat-engine
- Configuring Heat
- Configuring images for use with Heat
- Creating a stack
- **Lab 6**
- Creating a stack
- **Openstack Object Store (Swift)**
- Swift Overview
- Swift Architecture
- Accounts, containers, objects, rings
- Nodes types : auth, proxy, storage
- Partitions, zones, replication
- Using Swift
- Accounts
- Creating and managing objects
- Object server management
- Container server management
- Account server management
- Proxy server management
- Ring management
- Large objects

GOPAS Praha
Kodaňská 1441/46
101 00 Praha 10
Tel.: +420 234 064 900-3
info@gopas.cz

GOPAS Brno
Nové sady 996/25
602 00 Brno
Tel.: +420 542 422 111
info@gopas.cz

GOPAS Bratislava
Dr. Vladimíra Clementisa 10
Bratislava, 821 02
Tel.: +421 248 282 701-2
info@gopas.sk