



## **OpenStack Training Courses**

**Aptira Pty Ltd  
43 Marshall Street  
Surry Hills NSW, Australia 2010  
1800 APTIRA  
[info@aptira.com](mailto:info@aptira.com)**

[1.1 OpenStack Core Cloud Administration Course \(OST-104\):](#)

[1.2 OpenStack Advanced Cloud Administration Course \(OST-203\):](#)

## 1.1 OpenStack Core Cloud Administration Course (OST-104):

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| Overview        | This online OpenStack Private Cloud Administration 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 introduces 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 and the Swift object store. Besides in-depth theoretical coverage students also do hands-on exercises with all studied OpenStack components in their own OpenStack lab system. |
| Structure       | 50% theory 50% hands on lab exercises.   |
| Target audience | Developers, Sys Admins and DevOps wanting to obtain an initial knowledge about the OpenStack open source cloud system.   |
| Prerequisites   | Basic Linux sysadmin, networking as well as virtualisation knowledge.  |
| Course Duration | 4 days (32 hours)  |
| Course Outline  | <ul style="list-style-type: none"><li>● Introduction<ul style="list-style-type: none"><li>○ Overview</li><li>○ Core Projects<ul style="list-style-type: none"><li>■ Nova</li><li>■ Neutron</li></ul></li></ul></li></ul>   |

- Glance, Cinder
  - Ceilometer
  - Heat
  - Swift
- OpenStack Architecture
- Virtual Machine Provisioning Walk-Through
- Lab1
  - Understanding the classroom environment
  - Perform initial health check
  - Test instance creation
- 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 Storage (Cinder)
    - Cinder CLI overview
    - Managing volumes
  - Lab2
    - 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
  - Lab3
    - 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
  - Lab4
    - Create routers, networks, subnets
    - Associate floating IPs
    - Troubleshoot Neutron networking
- Ceilometer
  - Ceilometer background and usecases
  - Ceilometer architecture
  - Ceilometer meters and pipelines
  - Ceilometer deployment
  - Lab5
    - Working with ceilometer
- Heat
  - Heat Overview
  - Architecture
    - AWS CloudFormation template format

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|  | <ul style="list-style-type: none"><li>■ Heat services<ul style="list-style-type: none"><li>■ heat-api</li><li>■ heat-cfn-api</li><li>■ heat-engine</li></ul></li><li>○ Configuring Heat<ul style="list-style-type: none"><li>■ Configuring images for use with Heat</li><li>■ Creating a stack</li></ul></li><li>○ Lab6<ul style="list-style-type: none"><li>■ Creating a stack</li></ul></li><li>● Openstack Object Store (Swift)<ul style="list-style-type: none"><li>○ Swift Overview</li><li>○ Swift Architecture<ul style="list-style-type: none"><li>■ Accounts, containers, objects, rings</li><li>■ Nodes types : auth, proxy, storage</li><li>■ Partitions, zones, replication</li></ul></li><li>○ Using Swift<ul style="list-style-type: none"><li>■ Accounts</li><li>■ Creating and managing objects</li><li>■ Object server management</li><li>■ Container server management</li><li>■ Account server management</li><li>■ Proxy server management</li><li>■ Ring management</li><li>■ Large objects</li></ul></li></ul></li><li>● Openstack Installation<ul style="list-style-type: none"><li>○ Online</li></ul></li></ul> |
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# 1.2 OpenStack Advanced Cloud Administration

## Course (OST-203):

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| Overview        | This online OpenStack Advanced course is designed for OpenStack devops professionals, system administrators and developers who want to understand the structure and operation of OpenStack in more depth. Users will learn how to add high availability (HA) features to OpenStack, to build up and administer CEPH based Openstack storage systems and to analyze and troubleshoot common OpenStack problems.                |
| Structure       | 50% theory 50% hands on lab exercises.  |
| Target Audience | OpenStack devops professionals, system administrators and developers who want to understand the structure and operation of OpenStack in more depth.   |
| Prerequisites   | OST-104 Openstack private cloud administration (OST-104) or equivalent basic Openstack administration knowledge.  |
| Course Duration | 3 days (24 hours)   |
| Course Outline  | <ul style="list-style-type: none"><li>• General introduction to OpenStack High Availability solutions</li><li>• High availability solutions of core OpenStack elements: Glance, Nova, Cinder, Heat, Ceilometer, Neutron</li><li>• MySQL + Galera Cluster High Availability solution</li><li>• Rabbit MQ message broker service</li><li>• Ceph storage basics</li><li>• Openstack fault analysis and troubleshooting</li></ul> |

