

# GUIDE

## Training Services



OpenNebula is the most advanced and flexible open-source platform for data center virtualization and enterprise cloud computing, offering unique, state-of-the-art features for cloud management and providing the integration capabilities that many enterprise IT shops need for internal cloud adoption. OpenNebula is certified and long-term, commercially supported for its operation in production environments.

OpenNebula Systems offers **comprehensive training classes** conducted by OpenNebula experts with years of experience working in cloud design, deployment, integration and operation. As core contributors to OpenNebula, our trainers are the authority on the cloud management platform. We offer live, hands-on, instructor-led training remotely over the internet.

### Public and Private Training

We have a schedule for public classes at OpenNebula Offices in Europe and USA, and remotely over the internet.

Private standard or customized courses are available on request at your facility or remotely over the internet.

### Remote Training

OpenNebula courses are available remotely over the internet. The remote courses are given by instructors in an interactive, virtual environment and feature exactly the same contents and hands-on labs as an on-site training. Remote training is a solution more:

- Affordable because it eliminates travel expenses.
- Flexible because it allows training from different locations and for partial work days.
- Agile for private training because it allows us to accommodate most scheduling requirements.

### Standard and Customized Courses

Our Training Services team offers several beginner, intermediate and advanced courses that provide with the skills they need to install, configure, customize and operate OpenNebula. For customers or partners that require training to meet specific needs, we offer custom-designed courses.

### Private Training Pricing

- Cost of remote 4-hour introductory course is €3.000 (\$3,750) for up to 10 students, then €300 (\$375) per additional student.
- Cost of remote 4-hour administration course is €4.000 (\$5,000) for up to 10 students, then €400 (\$500) per additional student.
- Cost of remote 4-hour integration course is €5.000 (\$6,250) for up to 10 students, then €500 (\$625) per additional student.

Additional fees apply for customized training. There is a 10% discount on private training for active customers and partners, and for Education, Government and Non-Profit institutions or organizations working in research projects.

**More details about Training Services at [OpenNebula.systems/training](https://OpenNebula.systems/training)**

## OpenNebula Introductory Tutorial

### Overview

This is a beginner level course designed to introduce IT professionals to OpenNebula. The course covers the process of installing, configuring and operating enterprise clouds and virtualized data centers using OpenNebula. This course helps anyone who wants to set up a small scale OpenNebula test environment to gain experience working with OpenNebula. Students will be able to learn cloud architecture design, planning and installation, a general understanding of technical and business capabilities of an OpenNebula cloud, and basic configuration and usage of its main components.

### Methodology

This is an interactive course, where the attendees operate on their own labs with a 3-node OpenNebula cloud, which are provided during the course. OpenNebula provides an abstraction layer on top of the infrastructure and technologies deployed in the datacenter. In order for the attendees to get the best understanding possible of OpenNebula as a whole, the labs used during the course make use of the most common open-source technologies that can be used to deploy an OpenNebula cloud. For example, the hypervisor technology used during the course will be KVM, shared file-system for storage, and regular linux bridges and linux firewall for networking. Other technologies supported by OpenNebula will be addressed and discussed as well.

### Location

Private courses are available on-site at your facility or remotely over the internet. The remote courses are given by the same instructors in an interactive, virtual environment and feature exactly the same contents and hands-on labs as the on-site training.

### Audience

Specifically designed for IT Administrators, System Administrators, Systems Integrators and System Architects.

### Contents

- An introduction to cloud computing with OpenNebula
- The architecture of the cloud
- Planning and installing OpenNebula
- Virtualization hosts management
- Basic datastore configuration
- Basic virtual network creation
- VM Template creation & instantiation

### Hands-on Labs

Attendees are grouped into groups of one or two people. Each group receives a lab, consisting of one OpenNebula frontend node and two hypervisors, accessible through SSH. Attendees are the owners and administrators of their labs. They are able to launch virtual machine, make any configuration changes, debug any problems, access the GUI and the CLI.

### Length

4 hours

### Skills Gained

- Describe the features and benefits of using virtualization and clouds
- Describe different architectures for a cloud that can be deployed with OpenNebula
- Installation of OpenNebula
- Basic configuration and use of main cloud components

### Prerequisites

No prior OpenNebula skills are required, but participants should have working knowledge of virtualization, networking and Unix/Linux systems.

### Material

The instructor will rely on a set of PDF documents that will be explained throughout the course. These documents will be made available to the attendees right at the very beginning of the course. Attendees need a laptop to connect to their hands-on labs.

## OpenNebula Administration Tutorial

### Overview

This is an intermediate level course designed to explain the configuration and management of the different subsystems of a cloud infrastructure. This course is for system Administrators who are primarily responsible for operating OpenNebula clouds.

### Methodology

This is an interactive course, where the attendees operate on their own labs with a 3-node OpenNebula cloud, which are provided during the course. OpenNebula provides an abstraction layer on top of the infrastructure and technologies deployed in the datacenter. In order for the attendees to get the best understanding possible of OpenNebula as a whole, the labs used during the course make use of the most common open-source technologies that can be used to deploy an OpenNebula cloud. For example, the hypervisor technology used during the course will be KVM, shared file-system for storage, and regular linux bridges and linux firewall for networking. Other technologies supported by OpenNebula will be addressed and discussed as well.

### Location

Private courses are available on-site at your facility or remotely over the internet. The remote courses are given by the same instructors in an interactive, virtual environment and feature exactly the same contents and hands-on labs as the on-site training.

### Audience

Specifically designed for IT Administrators, System Administrators, Systems Integrators and System Architects.

### Contents

- Host Subsystem: Monitoring configuration and cluster management
- Storage Subsystem: Datastores configuration and image management
- Network Subsystem: Network configuration and virtual network management
- Virtualization Subsystem: Hypervisor configuration and VM management
- Cluster Subsystem: Cluster configuration and management
- Users Subsystem: AAA (Authentication, authorization and accounting) and VDCs
- Scheduler: Scheduling configuration and policies

### Hands-on Labs

Attendees are grouped into groups of one or two people. Each group receives a lab, consisting of one OpenNebula frontend node and two hypervisors, accessible through SSH. Attendees are the owners and administrators of their labs. They are able to launch virtual machine, make any configuration changes, debug any problems, access the GUI and the CLI.

### Length

4 hours

### Skills Gained

- Advanced configuration and operation of OpenNebula

### Prerequisites

OpenNebula Introductory Tutorial, or working knowledge in OpenNebula administration, Linux administration, and administration of network, storage and virtual systems.

### Material

The instructor will rely on a set of PDF documents that will be explained throughout the course. These documents will be made available to the attendees right at the very beginning of the course. Attendees need a laptop to connect to their hands-on labs.

## OpenNebula Integration Tutorial

### Overview

This is an advanced level course that addresses the main advanced components and provides a brief introduction to integration of OpenNebula with other components in the data center. This course is for cloud architects and administrators, and for developers deploying applications and infrastructure on OpenNebula.

### Methodology

This is an interactive course, where the attendees operate on their own labs with a 3-node OpenNebula cloud, which are provided during the course. OpenNebula provides an abstraction layer on top of the infrastructure and technologies deployed in the datacenter. In order for the attendees to get the best understanding possible of OpenNebula as a whole, the labs used during the course make use of the most common open-source technologies that can be used to deploy an OpenNebula cloud. For example, the hypervisor technology used during the course will be KVM, shared file-system for storage, and regular linux bridges and linux firewall for networking. Other technologies supported by OpenNebula will be addressed and discussed as well.

### Location

Private courses are available on-site at your facility or remotely over the internet. The remote courses are given by the same instructors in an interactive, virtual environment and feature exactly the same contents and hands-on labs as the on-site training.

### Audience

Specifically designed for IT Administrators, System Administrators, Systems Integrators and System Architects.

### Contents

- Multi-VM applications and auto-scaling
- Hybrid drivers and cloud bursting
- Front-end and VM high availability
- Federation of multiple cloud instances
- Marketplace
- Integration APIs
- Hooks
- Customization of subsystems

### Hands-on Labs

Attendees are grouped into groups of one or two people. Each group receives a lab, consisting of one OpenNebula frontend node and two hypervisors, accessible through SSH. Attendees are the owners and administrators of their labs. They are able to launch virtual machine, make any configuration changes, debug any problems, access the GUI and the CLI.

### Length

4 hours

### Skills Gained

- Design and deploy advanced cloud environments
- Understand how to customize the Cloud by developing scripts using the API

### Prerequisites

OpenNebula Introductory and Administration Tutorials, or advanced working knowledge in OpenNebula administration, Linux administration, and administration of network, storage and virtual systems.

### Material

The instructor will rely on a set of PDF documents that will be explained throughout the course. These documents will be made available to the attendees right at the very beginning of the course. Attendees need a laptop to connect to their hands-on labs.