

Technology Primer: OpenStack

Instructor Led Live Virtual Class | Duration: 0.5 Day | Course Number: TPR1013

Cloud computing is transforming enterprise IT as well as communication service provider networks and OpenStack is the open source Infrastructure as a Service (IaaS) solution for building and managing shared clouds. This course provides a conceptual understanding of the benefits, capabilities, architecture as well as the high level architecture of the OpenStack IaaS. Then we explain the functionality provided by each of the key services such as Glance, Keystone, Nova, Glance, Neutron, Cinder, and Swift as well as Heat orchestration. Finally, we will discuss OpenStack orchestration and telemetry services and how it integrates with NFV and SDN.

Intended Audience

This course is designed for professionals in the industry who need to develop a high-level understanding of OpenStack.

Learning Objectives

After completing this course, the student will be able to:

- Explain the motivation for implementing IaaS
- Define IaaS and Cloud Computing Options
- Identify the benefits and applications of IaaS and OpenStack.
- Diagram OpenStack's Logical and Physical architectures.
- Discuss roles of various OpenStack Services
- Describe how OpenStack IaaS can provide redundancy for a tenant Virtual Machine
- List capabilities of Role Based Authentication and Control for OpenStack user management
- Discuss how OpenStack integrates with NFV and SDN
- Describe OpenStack orchestration and Telemetry services

Suggested Prerequisites

- [NWV_116] Welcome to SDN and NFV Introduction (eLearning)
- [NWV_117] Welcome to SDN and NFV Foundations (eLearning)
- [NWV_118] Welcome to SDN and NFV Technologies (eLearning)

Course Outline

1. OpenStack IaaS Architecture and Services

- 1.1. Brief history and releases
- 1.2. OpenStack architecture
- 1.3. OpenStack services

2. Virtualization and Cloud Fundamentals

- 2.1. Physical vs. Virtualized
- 2.2. Hypervisor - What and why?
 - 2.2.1. Resource Virtualization
- 2.3. Virtual machines vs. containers

3. OpenStack Capabilities and Limitations

- 3.1. Key capabilities
 - 3.1.1. Multi-tenancy
 - 3.1.2. Role-based authentication
 - 3.1.3. Lifecycle management
 - 3.1.4. VM instantiation
 - 3.1.5. Message queue (RabbitMQ)
 - 3.1.6. Storage
- 3.2. Limitations and disadvantages

4. OpenStack IaaS Operations

- 4.1. Cloud segregation techniques
- 4.2. End-to-end operation of creating a tenant network
- 4.3. IaaS operational management
- 4.4. Telemetry service

5. Putting it-all-together

- 5.1. Integration with NFV and SDN