

Technology Primer: Orchestration

Orchestration is a requirement to achieve virtualized network automation. The drive towards an automated and virtualized network requires a paradigm shift in the way services are deployed. On demand services can be accomplished by the use of end-to-end orchestration which involves service orchestration, resource orchestration, and network orchestration. In addition, service fulfillment, service assurance, and service billing play a key role in making the automation a system wide end-to-end orchestration. We will present some use cases and scenarios of applying orchestration in a network that has Network Functions Virtualization (NFV), Software Defined Networking (SDN), and OpenStack technologies.

Intended Audience

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

Objectives

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

- Sketch the end-to-end orchestration framework
- Differentiate among the main components of end-to-end orchestration
- Answer the questions of what is orchestration and why orchestration
- Differentiate between the components for resource, service and network orchestration
- Walk-through orchestration use cases
- List the different benefits of orchestration
- Explain how service fulfillment, assurance and billing fit in with end-to-end orchestration
- Sketch end-to-end orchestration in a network with NFV, SDN, and OpenStack technologies

Prerequisites

- Welcome to SDN and NFV Foundations (eLearning)
- Technology Primer: Cloud and Virtualization (Instructor Led)

Required Equipment

- None

Course Outline

1. Introduction to Orchestration

- 1.1 What and why automation and orchestration?
- 1.2 Role of orchestration in the cloud

2. Orchestration framework

- 2.1 NFV MANO model
- 2.2 Types of Orchestration
- 2.3 Orchestrators in the cloud infrastructure

3. Definition of Network Service and VNF

- 3.1 Definition of Network Service
- 3.2 Definition of VNF
- 3.3 VNF package components

4. Service and VNF Onboarding

- 4.1 VNF life cycle events
- 4.2 Onboarding and Service orchestration
- 4.3 Creating a VNF catalog

5. Instantiation and Service Assurance

- 5.1 VNF instantiation process
- 5.2 Resource orchestration needs
- 5.3 Network orchestration needs
- 5.4 Role of the SDN controller
- 5.5 Service assurance through orchestration

6. Putting it-all-together

- 6.1 Summary: Benefits of Orchestration
- 6.2 Summary: Orchestration process