Cisco Ultra M Deployment and Operations (SPMBL301) v1.0 - On Demand

Modality: On Demand

Duration: 40 Hours

CLC: 10 Units

Course Information

About this course:

This course will help you learn the hardware components of the Cisco Ultra M virtual packet core solution, including the Cisco Unified Computing System (Cisco UCS) C240 M4S (Small Form Factor) servers and Cisco Nexus® spine and leaf switches.

The course also covers the software components of the solution, including the Ultra M virtual network function (VNF) architecture, the OpenStack Virtual Infrastructure Manager (VIM), and the Cisco Elastic Services Controller and how the different components operate. Lastly, you will learn how the virtual packet core distributed instance (VPC-DI) operates.

Ultra M is a pre-packaged deployment model designed to simplify the deployment of VNFs. The solution combines the Cisco Ultra Services Platform™ architecture, Cisco validated OpenStack infrastructure, and Cisco networking and computing hardware platforms into a fully integrated and scalable stack. As such, Ultra M provides the Ultra Automation Services (UAS) suite of automation tools to instantiate and provide basic lifecycle management for VNF components on a complete OpenStack VIM.

This Ultra M model is a VPC-DI deployment option and distributes the processes across multiple virtual machines (VMs) in a manner that is similar, but not identical, to the distribution of processes across multiple SMC, PSC, and LC cards in a Cisco Aggregation Services Router (Cisco ASR) 5000 Series chassis. It addresses scaling and redundancy by extending the StarOS boundaries beyond a single VM.

This course covers the operation and administration of the Red Hat Enterprise Linux operating system as it pertains to the Ultra M Undercloud and Overcloud deployments, since Red Hat Enterprise Linux is the underlying operating system used in the Ultra M deployment. What this course does not cover, is how to configure the StarOS component of the use cases, such as SAEGW, ePDG, or MME/SGSN, that are part of the Ultra M deployment model.

Course Objective:

You will have the following skills after taking this course:

- Describe the Cisco hardware components used in the Cisco Ultra virtualized packet core solution

- Deploy the Ultra M Solution and Ultra Automation Services Tools
- Use the Elastic Services Controller virtual network function manager to maintain and operate the Ultra M virtualized packet core solution.
- Identify the Openstack components and functions used in the Cisco Ultra virtualized packet core solution.
- Describe Ultra services platform virtual network function components.
- Identify potential issues and maintenance items in the Ultra M virtualized packet core solution.

Audience:

The primary audience for this course is technical professionals who will be deploying or have deployed the Ultra M virtual packet core solution in their network, such as:

- Systems engineers
- Channel partners and resellers
- Technical support personnel

Prerequisite:

You should have the following knowledge and skills to take full advantage of this course:

- Familiarity with the operation and administration of Red Hat Enterprise Linux
- Familiarity with TripleO (OpenStack on OpenStack)
- Cisco Service Provider Mobility Foundation LTE (LTE100) (or equivalent knowledge)
- Cisco Service Provider Mobility Intermediate LTE (LTE200) (or equivalent knowledge)

Course Outline:

Cisco Ultra M Hardware and Topology Overview

- Cisco Ultra M Hardware Components
- Cisco Ultra M UCS Components
- Cisco Ultra M UCS Interfaces
- Cisco Ultra M Networking Components
- Cisco Ultra M Physical Network Topology

OpenStack Deployment Architecture and Components

- OpenStack Overview
- Nova – OpenStack Compute Service
- Glance – OpenStack Image Service
- Neutron – OpenStack Network Service
- Keystone – OpenStack Identity Service
- Cinder – OpenStack Block Storage Service
- OpenStack Horizon Dashboard

Ultra M Services Platform

- Ultra Services Platform Architecture
- Ultra M VNF Architecture
- Ultra Automation Services (UAS)
- Elastic Services Controller
- OpenStack and Ultra Automation Services

VPC-DI Overview and Operation

- Virtual Packet Core Evolution
- Ultra M Layer 3 Network Topology
- VPC-DI Network Topology
- VPC-DI Packet Flows

Ultra M Installation and Deployment

- Reviewing the Ultra M System Components
- Planning the Network for Installation and Deployment
- Deploying Hyperconverged Ultra M Models Using UAS
- Deploying VNFs Using AutoVNF
- Ultra Automation Services