

NFVI domains, features and management

(2 days)

Course Objective:

By the end of the course, the participant will:

- Gain advanced understanding on NFVI functional blocks and reference points
- Understand data plane optimization technique and storage solutions for NFVI
- Understand NFVI-PoP Interconnection Solutions
- Understand Openstack as an open source VIM
- Understand SDN based networking and service chaining

Course Content

Chaper 1: NFVI Domains and features

Architecture and Functional Blocks of the Compute Domain

Storage Topologies and interconnection: Fiber channel & FCoE

Block-based Storage

File-based Storage

Object-based Storage, Vmawre vSAN

Redhat Ceph Storage description

Architecture and Functional Blocks of the Network Domain

VM to VM communication solutions

NFVI PoPs interconnection using EVPN and VxLAN

Virtual Networks, L2/L3 Interconnection Options

Architecture and Functional Blocks of the Hypervisor Domain

Accelerating the NFV Data Plane with DPDK

Accelerating the NFV Data Plane: using VMdq

Accelerating the NFV Data Plane: using SR-IOV

Understanding PCI Pass through

Huge Pages and Transparent Huge Pages

Accelerating the processor core with Hyperthreading and Non-uniform memory access (NUMA)

Chapter 2: NFVI and Virtual Infrastructure Manager

Review the VIM role in ETSI architecture

Hypervisor to VIM Interface

VIM Components in VMware vCloud

Open Source VIM: OpenStack

Openstack description and releases

Understanding OpenStack logical architecture

Keystone Project (Identity)

Neutron Project (Networking)

Cinder Project (Block Storage)

Glance Project (Image)

Nova Project (Compute)

Heat Project (Orchestration)

Swift Project (Object Storage)

Chapter 3 : SDN technology integration options with NFV

Interconnecting VNFC using SDN

VNFs across multiple NFVI-PoP locations
SDN across multiple VIM in different NFVI-PoPs
Service Function Chaining (SFC)
SFC, SDN and NFV with a single NFVI domain
Service function chain in the NFVI
Service function chain in the tenant domain
End to end carrier network with SFC, SDN and NFV
The need for Multi Access Edge Computing (MEC)
MEC interworking with SFC/NFV