



HP Helion Education Services Course Overview

HP Helion OpenStack® (H8Q14S)

This three-day course will take students through an in depth look at the HP Helion OpenStack® (commercial) edition. The students will get hands-on lab experience of many of the course topics, in order to get experience in installation, management and operation procedures of HP Helion OpenStack® environment.

Audience

- Consultants
- System integrators
- Cloud providers
- Cloud operators
- Cloud administrators

Prerequisites

Attendance of, or the equivalent skills

- Fundamentals of OpenStack® Technology (H6C68S)
- HP Helion OpenStack Community (H4C07S)
- Linux Fundamentals (U8583S)
- Cloud Overview (HK917AAE)

Course objectives

At the conclusion of this course, you should be able to:

- Describe the major features of HP Helion OpenStack®
- Describe the architecture of HP Helion OpenStack®
- Install HP Helion OpenStack® with support for ESX Hypervisor using baremetal servers.
- Install HP Helion OpenStack® with support for KVM Hypervisor using baremetal servers.
- Install and integrate HP StoreVirtual VSA with HP Helion OpenStack®

Benefits to you

- Understand the architecture, hardware and software requirements necessary for HP Helion OpenStack®
- Gain the ability to install HP Helion OpenStack® using dedicated hardware environment
- Gain the ability to configure, administer and use an HP Helion OpenStack®

Course title:	HP Helion OpenStack®
HP product number:	H8Q14S
Category/Subcategory:	Cloud
Course length:	3 days
Level:	Intermediate
Delivery language:	English
To order:	You can register your interest for this course online at http://www.hp.com.au/education . At the site, select the course under Cloud portfolio and you will see dates for the course. Register your interest for the date of your choice.

Why education services from HP?

- Named a 2014 IDC MarketScape leader* in IT education in Cloud, Security, Big Data, Storage, ITIL/ITSM, Project Management training, after being recognized in 2013 for being an IDC MarketScape leader in IT education overall
- Global reach through 90 training centers in 45+ languages, with access to over 800+ experienced instructors
- Job-focused courses on HP technologies leading to HP ExpertOne certifications
- Wide range of education consulting services tailored to your specific needs to prepare you for IT transformation projects

- Flexibility to learn through a wide variety of delivery modalities: traditional ILT (Instructor-led), VILT (Virtual instructor-led), SPEL (Self paced e-learning), games and simulations

* IDC MarketScape: US Cloud , Security, Big Data, Storage, ITIL/ITSM, Project Management Training Ecosystem, August 2014 Vendor Assessments, IDC #250180, IDC #250186 , IDC #250181, IDC #250182, IDC #250185, IDC #250178, #239139.

Detailed course outline

Day I

Module 1 – HP Helion OpenStack® 1.1 Introduction and Functional Overview

- What is HP Helion?
- How is HP Helion OpenStack® different?
- What's new in HP Helion OpenStack® 1.1?
- HP Helion OpenStack® Under the Hood (Services big picture)
- HP Helion OpenStack® Services
- Compute Operations
- Identity
- Image Operations
- Networking Operations
- Object Operations
- Orchestration
- Volume Operations
- Metering
- Ceph
- Helion HP Services
- Sirius (configuration of storage services like Cinder and Swift which run in the Overcloud on various storage devices)
- ESX on border (EON) (inventory which interacts with the VMware vCenter server and collects the information available at the datacenters and clusters)
- Sherpa
- Dashboard Services
- Horizon
- Icinga (monitoring the disk usage of Swift storage nodes)
- Kibana (user interface into the centralized logging service)
- Installation Services
- TripleO (OpenStack-on-OpenStack)
- Ironic (baremetal deployment)
- Other services and features
- Centralized logging
- DNSaaS (DNS as a Service)

Module 2 – HP Helion OpenStack® 1.1 Deployment and Network Architecture

- Deployment architecture – KVM environment
- Deployment architecture – ESX environment
- Network Architecture
- Physical network architecture
- Virtual networks for KVM hypervisor support
- Virtual networks for ESX hypervisor support

Module 3 – HP Helion OpenStack® 1.1 Installation

- Hardware Requirements
- Installation prerequisites
- Hardware and software requirements
- Installation Planning
- Seed VM
- Undercloud
- Overcloud
- Installation options
- KVM Hypervisor
- With HP StoreVirtual VSA storage
- The With HP StoreServ (3PAR) storage
- ESX Hypervisor
- Installation process
- Before you start (Important Installation Notes)
- Perform the Installation
- Perform post installation configuration

Lab 0 – Accessing the HPVL

Lab 1 – HP Helion OpenStack® 1.1: Installation Overview

- Installation lab environment
- TripleO overview
- Installation options
 - KVM Hypervisor
 - ESX Hypervisor
- The Lab Group Information

Lab 2 – Installation Prerequisites

- Hardware and software requirements
- Verifying network settings
- Verifying the Seed Host Software configuration
- Verifying the Network Time Server configuration
- Extracting the installation file
- Editing the JSON environment Variables File for Instalation
- Prepare Baremetal File

Lab 3 – Installation and Configuration for ESX Hypervisor

- Preconfiguration
- Installing HP Helion OpenStack®

- Preparing for installation
 - Verify Prerequisites
- Installing HP Helion OpenStack®
 - Installing the seed VM and building your cloud

Lab 4 – Verifying your installation

- Connecting to the undercloud Horizon console
- Connecting to the overcloud Horizon console
- Connecting to the monitoring and logging interfaces

Day II

Module 4 – HP Helion OpenStack® 1.1 Post installation steps

- Deploying vCenter ESX compute proxy
- Deploying and configuring OVSvApp on ESX host
- Adding HP StoreVirtual VSA support to HP Helion OpenStack®
- Configuring HP Helion OpenStack® to work with HP StoreVirtual VSA
- Adding HP 3PAR StoreServ support to HP Helion OpenStack®
- Configuring HP Helion OpenStack® to work with HP 3PAR StoreServ

Module 5 – HP Helion OpenStack® 1.1 Network Planning and Security

- Network Planning
- Network Topology
- Securing the perimeter
- VLAN configuration recommendations
- IP addressing recommendations
- VLAN routing interface recommendation
- Access control recommendations
- Server connectivity recommendations
- Public endpoint recommendations
- Configuring the load balancer
- Securing the Object Operations (Swift) back-end network connections
- Securing Block Storage network connections – StoreVirtual VSA
- Securing Block Storage network Connections – 3PAR StoreServ
- Securing ESX network connections in Helion
- Service Network

Module 6 – HP Helion OpenStack® 1.1 High Availability

- High Availability (HA) concepts overview
- Highly Available cloud services
- High Availability of Overcloud Controllers (API Request Message Flow, Handling Node Failures, Handling Network Partitions)
- Singleton Services (Cinder Volume, Sherpa, nova-consoleauth)
- Rebuilding or Replacing Failed Controller Nodes
- Highly Available Cloud Infrastructure
- Availability Zones
- Compute with KVM (Nova availability zones)
- Compute with ESX

- Block storage with StoreVirtual VSA and 3PAR StoreServ
- Object Storage with Swift
- Cinder Availability Zones
- Highly Available Cloud Applications and Workloads
- What is not Highly Available?

Module 7 – HP Helion OpenStack® 1.1 Updates and Extensions

- Register on the Helion Distribution Network (HDN)
- Configure credentials
- Import and install
- Download a package

Lab 5 – Post-Installation for ESX Hypervisor

- Creating the VM templates in vCenter

Lab 6 – Deploying the vCenter ESX Compute

- Prerequisites
- Creating a VM Template in vCenter
 - Create a new VM
 - Add a CD-ROM device to the OVF VM
 - Power on the OVF VM using vCenter.
 - Remove the CD-ROM device from the OVF VM
 - Convert the OVF VM into a template
 - Deploy the proxy using the undercloud Horizon dashboard

Lab 7 – Deploying and Configuring OVSvApp on ESX host

- Prerequisites
 - Notes for deploying OVSvApp VM onto ESX hypervisors
- Deploy the OVSvApp
 - Create a VM template in vCenter
 - Install the prerequisite python libraries
 - Modify and execute the installer
- Checking up the Helion Resources
- Clean up or deleting the OVSvApp

Lab 8 – Installation and Configuration for KVM Hypervisor

- Cleanup after HP Helion OpenStack ESX installation
- Installing the KVM Hypervisor
- Verifying the installation

Day III

Module 8 – HP Helion OpenStack® 1.1 Operational Management

- Centralized Logging
- Monitoring
 - Monitor Disk Usage
 - Replication Status using Icinga
 - Service Health Check
 - Check Health Services
 - Object Storage (Swift) Proxy Health Check

- Network Interface Card
- Mount Points
- Disk Drives
- Network Access (Ping)
- Drive Audit
- File Ownership
- Add, remove and replace nodes
- Remove the failed controller from the Heat configuration
- Add the new controller to the configuration and deploy it
- Clean up the environment
- Backup and Restore nodes
- Create a configuration file for restoring the seed VM and undercloud
- Backup and restore the seed VM
- Backup and restore the undercloud
- Backup and restore the overcloud
- Backup command options
- Restore command options
- Undercloud password issues

Module 9 – HP Helion OpenStack® 1.1 Ceph

- Ceph overview
- Lock and Object Storage
- File System
- Ceph Cluster
- Ceph Gateway
- Ceph Architecture
- Storage Prerequisites
- Ceph Installation
- Configuring Client Nodes
- Ceph Monitoring
- Ceph Administration
- Ceph Authentication

Lab 9 – Configuring HP StoreVirtual VSA for Block Storage

- HP StoreVirtual VSA deployment process
- Verifying StoreVirtual installation status
- Installing the Centralized Management Console (CMC)
- Creating a StoreVirtual cluster and adding it to the new Management Group
- Register a StoreVirtual cluster
- Generate configuration
- Update the Overcloud Configuration

- Using the HP StoreVirtual with HP Helion OpenStack

Lab 10 – Backing up the cloud

- Create a configuration file for restoring the seed VM and undercloud
- Back up the seed VM
- Back up the undercloud
- Back up the overcloud
 - Backing up an overcloud server
 - Backing up the overcloud database

For more information

To locate contact information and to learn more about education services, please visit our web site at <http://www.hp.com.au/education> .

