# HPE Performance Cluster  Management Administration

## Duration: 1.5 Days  Course Code: H8PE9S  Delivery Method: Virtual Learning

### Overview:

The HPE Performance Cluster Manager (HPCM) administration course provides knowledge and practice installing HPCM, managing data networks, provisioning servers, creating and modifying server images, working with software repositories and image version control, automating post installation tasks, configuring services, reviewing security features, and troubleshooting.

Virtual Learning

This interactive training can be taken from any location, your office or home and is delivered by a trainer. This training does not have any delegates in the class with the instructor, since all delegates are virtually connected.  Virtual delegates do not travel to this course, Global Knowledge will send you all the information needed before the start of the course and you can test the logins.

### Target Audience:

• Attend this class if you need to learn toinstall, configure and administer clustersmanaged with the HPE Performance ClusterManager (HPCM)
• Experienced Linux system administrators

### Objectives:

- At the conclusion of this course, you should be
- able to:
- • Install HPCM
- • Add servers to the cluster
- • Manage data networks
- • Provision nodes
- • Create and modify images and software
- repositories
- • Use image version control
- • Automate post installation tasks
- • Configure shared filesystem, user accounts,
- applications and updates
- • Troubleshoot cluster services
- • Review cluster security features

### Prerequisites:

H8PE8S: HPE Performance Cluster

Management Foundations

• The following Linux system administration

skills are prerequisites for this course:

– Edit text with the vi editor

– Recognize regular expression syntax

– Access documentation with man and info file

viewers

– Monitor, manage and maintain log files

– Enter common commands at the bash command line; create and interpret basic bash shell scripts

– Install and configure standard software components, services and security features

– Configure basic communication protocols

– Create and modify crontabs

– Monitor resources usage; be familiar with basic monitoring tools

– Install and configure a Linux distribution on a server

– Create, modify, and delete user accounts and group accounts

– Partition disks, manage filesystems and logical volumes

– Use RPM package management

– Install and use virtualized systems

– Understand basic hardware and hardware troubleshooting

## Content:

Module 1: Install Cluster

• Describe HPCM features

• Define operating system slots

• Build cluster from ground up

• Provision node with GUI

• Provision node with command line

• Add nodes to the cluster

• Explore auto installation tools

Module 2: Discover

• Discover nodes

• Interpret cluster configuration files

• Review cluster services

Module 3: Data Networks

• Describe technologies

• Describe InfiniBand configuration

• Describe Intel Omni-Path configuration

• Describe software components

• Use diagnostic commands

Module 4: Manage Images

• Manage software repositories

• List software repositories

• Configure array services

• Install batch scheduler server on a compute node

• Install batch scheduler client on a compute node and in

ICE compute node

• Configure HPCM connectors to job schedulers

• Capture an image from a node (golden)

• Add RPMs to, remove RPMs from, and version control

compute images

• Add and remove RPMs from running compute nodes

• Clone an ICE-compute image

• Clean up old images on the lead node

• Add RPMs to ICE compute image Compare when and

when not to use tmpfs root

• Determine which nodes use tmpfs root

• Configure nodes to use tmpfs root

• List tmpfs quota difference (rack leader quotas do not

apply when ICE-compute nodes are in tmpfs)

• Set tmpfs mode

• Set disk mode

• Update kernel

• Update distribution

• Update HPCM

Module 7: Troubleshoot Cluster • Backup cluster

configuration

• Backup managed network switch configuration

• Use the central log repository

• Investigate log files

• Gather system information

• Interrogate iLOs, BMCs

• Confirm resources

• Create pdsh groups

• Investigate bond devices

• Inspect VLAN devices

• Capture a node crash dump

• Transfer an image from another slot or another system

and confirm that the image can be used.

• Inject faults

Module 8: Review Cluster Security

• Describe system administrator configurable security

tasks

• Add software repositories

• Remove software repositories

• Create repository groups

• Customize an image by using RPM lists

• Create a compute node image

• Create an ICE-compute node image

• Manage image version control

• Check in an image into version control

• Compare differences between two versions of an

image

• List the versions of an image

• Deploy a specific version of an image

• Push an ICE-compute image to a rack

• Use parallel tools and inbuilt functionality to check

differences between nodes

• Enable hyperthreading

• Disable hyperthreading

• Show which mode a node has booted with

• Show which mode a node is scheduled to boot into

• Perform a clone operating system slot operation

Module 5: Automate Post Installation Tasks • Review conf.d

scripts

• Exclude a conf.d script

• Use pre_reconf.sh

• Use reconfig.sh

• Develop post install and per-host customization scripts

Module 6: Configure Shared Filesystem, User Accounts,

Applications, and Updates

• NFS Export a filesystem on a compute node

• Mount an NFS filesystem and create a user on an ICE

compute node

• Manage user accounts

• Synchronize UIDs and GIDs, LDAP, etc.

• Run an application on compute and ICE compute

nodes

• Display BIOS settings

• Upgrade firmware

• Describe what makes cluster security different from

standalone security (how would change X break the

cluster)

• List ports used for each node role and for which

interfaces

• List components with passwords

– Admin node

– Flat compute nodes

– Rack leader nodes

– ICE compute nodes

– BMCs

– CMCs

– Ethernet network switches

– InfiniBand and Omni-Path switches

– IB/OPA switch BMCs

– Storage controllers

• List components that can have passwords applied

## Further Information:

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

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