Cloud & DevOps Middleware Platform

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Red Hat is the world’s leading provider of open source solutions, using a community-powered approach to provide reliable and high-performing cloud, virtualization, storage, Linux, and middleware technologies. Red Hat also offers award-winning support, training, and consulting services. And as the connective hub in a global network of enterprises, partners, and open source communities, Red Hat enables the creation of relevant, innovative technologies that liberate resources for growth and prepare customers for the future of IT. Red Hat is an S&P company with more than 85 offices spanning 35 countries across the globe, empowering our customers' businesses. More than 90% of the Fortune 500 use Red Hat Products and Solutions

With an open, hybrid cloud infrastructure from Red Hat, your IT organization can better serve your business by delivering more agile and flexible solutions while protecting business assets and preparing for the future.

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Duration: 4 days

CEPH125

Red Hat Ceph Storage Architecture and Administration

Learn to administer Red Hat® Ceph Storage and integrate with Red Hat Enterprise Linux OpenStack Platform.

Course overview:

Red Hat® Ceph Storage Architecture and Administration (CEPH125) is designed for storage administrators or cloud operators who intend to deploy Red Hat® Ceph Storage to their production data center environment or OpenStack installation. Learn how to deploy, manage, and scale out a Ceph storage cluster and use it to provide servers and cloud resources with object storage compatible with the Amazon S3 or OpenStack Swift APIs, Ceph-native or iSCSI-based block storage, and file storage using CephFS.

This course is based on Red Hat® Ceph Storage 3, Red Hat® Enterprise Linux 7, and Red Hat® OpenStack Platform 10.

Prerequisites:

- Red Hat® Certified System Administrator (RHCSA) in Red Hat® Enterprise Linux certification or equivalent Linux system administration skills.
- Some experience with storage administration is recommended but not required.

Course contents

1. **Preparing for Red Hat Ceph Storage**
   Identify challenges faced by traditional storage and explain how Ceph addresses them.

2. **Deploying Red Hat Ceph Storage**
   Deploy and expand the storage capacity of a new Red Hat Ceph Storage cluster.

3. **Configuring Red Hat Ceph Storage**
   Manage how Ceph stores data with pools, configure Red Hat Ceph Storage using its configuration file, and configure users for Ceph clients that may access the Ceph storage cluster.

4. **Providing Block Storage with RBD**
   Configure Ceph to provide block storage for clients by using RADOS block devices (RBDs).

5. **Providing Object Storage with RADOSGW**
   Configure Ceph to provide object storage for clients by using a RADOS gateway (RADOSGW or RGW).

6. **Providing File Storage with CephFS**
   Configure Ceph to provide file storage for clients using the Ceph Filesystem (CephFS).

7. **Configuring the CRUSH Map**
   Adjust the CRUSH map which controls how data is stored, replicated, and distributed across OSDs in the Ceph cluster, in order to optimize resiliency and performance.

8. **Managing and Updating the Cluster Maps**
   Explain how the monitor and OSD Maps are managed in order to maintain cluster operation, quorum, and consistency.

9. **Managing a Red Hat Ceph Storage Cluster**
   Check Ceph cluster status, troubleshoot Ceph daemon problems, and upgrade Ceph software.

10. **Tuning and Troubleshooting Red Hat Ceph Storage**
    Identify the key performance metrics for a Ceph cluster, and use them to help tune and troubleshoot the operating system and Ceph software for optimal performance.

11. **Integrating Red Hat Ceph Storage with OpenStack**
    Configure an OpenStack cloud to use Ceph to provide image, block, object, and file storage.

12. **Comprehensive Review**
    Demonstrate proficiency with the topics, skills, and procedures taught in this course by completing hands-on exercises reviewing the content covered in the preceding chapters.

Duration: 5 days

CL110

Red Hat OpenStack Administration I

Red Hat OpenStack Administration I (CL110) is designed for system administrators who are intending to implement a cloud computing environment using Red Hat OpenStack® Platform. This course is based on Red Hat OpenStack Platform 8.

Course overview:

This course will teach students to install a proof-of-concept, configure, use, and maintain Red Hat OpenStack Platform. The focus on this course will be managing OpenStack using the Horizon dashboard and the command-line interface and managing instances, leaving students with proof-of-concepts.

Prerequisites:

Red Hat Certified System Administrator (RHCSA®) in Red Hat Enterprise Linux® certification or equivalent experience
For candidates that have not earned their RHCSA, confirmation of the correct skill set knowledge can be obtained by passing the online skills assessment.

Course contents

1. **Launch an instance**
   Launch an instance and describe the terminology and services used in OpenStack.
2. **Manage projects and users**
   Manage projects and users using Horizon.
3. **Manage project quotas**
   Manage project quotas using Horizon.
4. **Manage flavors**
   Manage flavors using Horizon.
5. **Manage images**
   Manage images using Horizon.
6. **Manage networks**
   Manage networks using Horizon.
7. **Manage floating IP addresses**
   Manage floating IP addresses using Horizon.
8. **Manage block storage**
   Manage block storage using Horizon.
9. **Manage security and access**
   Manage security and access to instances using Horizon.
10. **Manage instances**
    Manage instances using Horizon.
11. **Install OpenStack**
    Install an OpenStack proof of concept using PackStack.
12. **Manage the Keystone identity service**
    Manage the Keystone identity service using the command line interface.
13. **Prepare to launch instances with the commandline interface**
    Prepare to launch instances and manage instances using the commandline interface.
14. **Manage instances with the command line interface**
    Manage instances using the command line interface.
15. **Manage block storage with the command line interface**
    Manage block storage using the command line interface.
16. **Comprehensive review of Red Hat OpenStack Administration I**
    Review tasks in the Red Hat OpenStack Administration I course.

Duration: 4 days

CL210

Red Hat OpenStack Administration II

Red Hat® OpenStack® Administration II (CL210) teaches system administrators how to implement a cloud-computing environment using Red Hat OpenStack Platform, including installation, configuration, and maintenance.
This course can also help your prepare for the Red Hat Certified System Administrator in Red Hat OpenStack exam (EX210).
This course is based on Red Hat OpenStack Platform 10.

Course overview:

The focus of this course is managing Red Hat OpenStack Platform using the unified command-line interface, managing instances, and maintaining an enterprise deployment of OpenStack. This course also teaches the management and customization of an enterprise deployment of OpenStack (overcloud) and how to manage compute nodes with Red Hat OpenStack Platform director (undercloud).

Prerequisites:

- Red Hat OpenStack Administration I (CL110) course or equivalent experience
- Red Hat Certified System Administrator (RHCSA) certification or equivalent experience

Course contents

1. **Course introduction**
   Introduce and review the course.

2. **Manage an enterprise OpenStack deployment**
   Manage the undercloud, the overcloud, and related services.

3. **Manage internal OpenStack communication**
   Administer the Keystone identity service and the advanced message queueing protocol (AMQP) messaging service.

4. **Build and customize images**
   Build and customize images.

5. **Manage storage**
   Manage Ceph and Swift storage for OpenStack.

6. **Manage resilient compute resources**
   Add compute nodes, manage shared storage, and perform live instance migration.

7. **Manage and troubleshoot**
   Manage and troubleshoot virtual network infrastructure.

8. **Manage resilient compute resources**
   Add compute nodes, manage shared storage, and perform live instance migration.

9. **Troubleshoot OpenStack issues**
   Diagnose and troubleshoot OpenStack issues and services.

10. **Monitor cloud metrics for autoscaling**
    Monitor and analyze cloud metrics for use in orchestration autoscaling.

11. **Orchestrate deployments**
    Deploy Heat stacks that automatically scale.

Duration: 4 days

CL220

Red Hat CloudForms Hybrid Cloud Management

Learn how to perform an initial configuration and setup of Red Hat CloudForms

Red Hat CloudForms Hybrid Cloud Management teaches you how to perform an initial configuration and setup of Red Hat CloudForms.

Course overview:

Students will learn how to perform an initial configuration of CloudForms, how to implement auditing and compliance policies, how to provision virtual machines (VMs), and produce various reports.

Prerequisites:

- Red Hat Certified System Administrator (RHCSA) or equivalent system administration skills
- Knowledge of Red Hat Enterprise Virtualization, vSphere, or Amazon EC2 is helpful, but not required

Course contents

1. **Architecture overview**
   Learn about the Red Hat CloudForms Management Engine Appliance architecture

2. **Initial setup**
   Deploy a CloudForms Management Engine Appliance

3. **Configuration**
   Configure a CloudForms Management Engine Appliance to work with your cloud environment

4. **Provisioning**
   Deploy a virtual machine (VM) with templates and customization

5. **Policy-based administration**
   Manage and audit VMs from within a policy

6. **Reporting**
   Report on VM and resource usage

Duration: 4 days

CL310

Red Hat OpenStack Administration III: Networking & Foundations of NFV

Red Hat OpenStack Administration III: Networking & Foundations of NFV (CL310) teaches network engineers, network operators, cloud operators, and cloud administrators how to manage and tune Red Hat® OpenStack Platform for network performance.

This course can also help you prepare for the Red Hat® Certified Engineer (RHCE®) in Red Hat OpenStack exam (EX310).

Course overview:

You will learn how to manage the OpenStack networking service (Neutron) with network functions virtualization to enhance network performance. You will configure distributed virtual routers, Open vSwitch with Data Plane Development Kit datapath, and IPv6 networking in OpenStack. You will also deploy software-defined networking with OpenDaylight.

Prerequisites:

- Red Hat® Certified System Administrator (RHCSA), or demonstrate equivalent experience
- Complete the Red Hat® Certified System Administrator in Red Hat OpenStack exam (EX210), or demonstrate equivalent experience

Course contents

1. **Manage networks in Linux**
   Administer network interfaces, bridges, and virtual networking devices.

2. **Manage OpenStack networking agents**
   Manage the L2, L3, DHCP, and other OpenStack networking agents.

3. **Deploy IPv6 networks**
   Set up IPv6 networks in OpenStack.

4. **Provision OpenStack networks**
   Provision tenant networks and provider networks.

5. **Implement distributed virtual routing**
   Enable distributed virtual routing (DVR) to provide scaling and performance.

6. **Tune NFV performance**
   Tune OpenStack networking performance.

7. **Implement NFV data paths**
   Execute network functions virtualization (NFV) data paths.

8. **Build software-defined networks with OpenDaylight**
   Create software-defined networks with OpenDaylight (ODL).

9. **Comprehensive review of Red Hat OpenStack Administration III**
   Configure advanced networking on Red Hat® OpenStack Platform.

Duration: 2 days

DO180

Introduction to Containers, Kubernetes, and Red Hat OpenShift

Introduction to Containers, Kubernetes, and Red Hat® OpenShift (DO180) introduces building and managing Docker containers for deployment on a Kubernetes cluster. This course helps students build core knowledge and skills in managing containers through hands-on experience with Docker, Kubernetes, and Red Hat OpenShift Container Platform.
This course is based on Red Hat OpenShift Container Platform 3.5 and Red Hat Enterprise Linux® 7.

Course overview:

As a result of attending this class, students should be able to containerize simple software applications and services, deploy them with Docker, Kubernetes, and Red Hat OpenShift, test the containerized version, and troubleshoot issues with deployment.

Prerequisites:

Red Hat recommends these prerequisites:

- Be able to use a Linux terminal session and issue operating system commands
- Have Red Hat Certified System Administrator (RHCSA) certification or equivalent experience
- Have experience with web application architectures and their corresponding technologies

Learn the benefits of containers, Docker, Kubernetes, and Red Hat OpenShift with our free, technical overview Deploying Containerized Applications Technical Overview (DO080).

Course contents

1. **Course introduction**
   Introduce and review the course.

2. **Get started with container technology**
   Describe how software can run in containers orchestrated by Red Hat OpenShift Container Platform.

3. **Create containerized services**
   Provision a server using container technology.

4. **Manage containers**
   Manipulate pre-build container images to create and manage containerized services.

5. **Manage container images**
   Manage the life cycle of a container image from creation to deletion.

6. **Create custom container images**
   Design and code a Docker file to build a custom container image.

7. **Deploy containerized applications on Red Hat OpenShift**
   Deploy single container applications on Red Hat OpenShift Container Platform.

8. **Deploy multi-container applications**
   Deploy applications that are containerized using multiple container images.

9. **Troubleshoot containerized applications**
   Troubleshoot a containerized application deployed on Red Hat OpenShift.

10. **Comprehensive review of Introduction to Container, Kubernetes, and Red Hat OpenShift**
    Demonstrate how to containerize a software application, test it with Docker, and deploy it on a Red Hat OpenShift cluster.

Duration: 3 days

DO280

OpenShift Enterprise Administration I

Red Hat OpenShift Administration I (DO280) enables system administrators, architects, and developers to acquire the skills they need to administer Red Hat® OpenShift Container Platform. Through numerous hands-on exercises, the student will create, configure, manage, and troubleshoot OpenShift clusters. Students will also deploy sample applications to further understand development use cases. This creates an environment that supports DevOps principles such as reduced time to market and continuous delivery.

This course is based on Red Hat OpenShift Container Platform 3.5.

Course overview:

Red Hat OpenShift Container Platform is a containerized application platform that allows enterprises to manage container deployments and scale their applications using Kubernetes. OpenShift Container Platform provides predefined application environments and builds upon Kubernetes to provide support for DevOps principles such as reduced time to market, infrastructure-as-code, continuous integration (CI), and continuous delivery (CD).

Prerequisites:

- Red Hat Certified System Administrator, or equivalent Red Hat Enterprise Linux system administration experience
- Complete the Introduction to Containers, Kubernetes, and Red Hat OpenShift (DO180) course or have equivalent experience with containers, Kubernetes, and OpenShift basics.

Course contents

1. **Introduction to Red Hat OpenShift Container Platform**
   Review features and architecture of OpenShift Container Platform.
2. **Install OpenShift Container Platform**
   Install OpenShift Container Platform and configure a master and node.
3. **Explore networking concepts**
   Describe and explore OpenShift networking concepts.
4. **Execute commands**
   Execute commands using the command-line interface.
5. **OpenShift Container Platform resources**
   Control access to OpenShift Container Platform resources.
6. **Persistent storage**
   Provision persistent storage and use it for the internal registry.
7. **Manage application deployments**
   Manipulate resources to manage deployed applications.
8. **Metrics subsystem**
   Install and configure the metrics- gathering system.
9. **Manage and monitor**
   Manage and monitor OpenShift Container Platform resources and software.
10. **Comprehensive review**
    Install, configure, and deploy an application on a cluster.

Duration: 5 days

DO285

Containers, Kubernetes, and Red Hat OpenShift Administration I

One of the key tenets of DevOps is continuous integration and continuous deployment. Containers have become a key technology for the configuration and deployment of applications and microservices. Kubernetes is a container orchestration platform that provides foundational services in Red Hat® OpenShift Container Platform. DO285 combines the content from Introduction to Containers, Kubernetes, and Red Hat® OpenShift (DO180) and Red Hat® OpenShift Administration I (DO280). This course is based on Red Hat® OpenShift Container Platform 3.5.

Course overview:

This course helps you build core knowledge and skills in managing containers through hands-on experience with Docker, Kubernetes, and the Red Hat® OpenShift Container Platform. OpenShift Container Platform is a containerized application platform that allows enterprises to manage container deployments and scale their applications using Kubernetes. OpenShift Container Platform provides predefined application environments and builds upon Kubernetes to provide support for DevOps principles such as reduced time to market, infrastructure as code, continuous integration (CI), and continuous delivery (CD). Red Hat®OpenShift Administration I (DO285) is a hands-on, lab-based course that teaches system administrators how to install, configure, and manage OpenShift clusters.

Prerequisites:

- Ability to use a Linux® terminal session and issue operating system commands
- RHCSA®certification or equivalent knowledge
- Experience with web application architectures and their corresponding technologies

Course contents

1. **Getting started with container technology**
   Describe how software can run in containers orchestrated by OpenShift Container Platform.

2. **Creating containerized services**
   Provision a server using container technology.

3. **Managing containers**
   Manipulate pre-build container images to create and manage containerized services.

4. **Managing container images**
   Manage the lifecycle of a container image from creation to deletion.

5. **Creating custom container images**
   Design and code a Dockerfile to build a custom container image.

6. **Deploying containerized applications on OpenShift**
   Deploy single container applications on OpenShift Container Platform.

7. **Deploying multi-container applications**
   Deploy applications that are containerized using multiple container images.

8. **Troubleshooting containerized applications**
   Troubleshoot a containerized application deployed on OpenShift.

9. **Comprehensive review of Introduction to Container, Kubernetes, and Red Hat OpenShift**
   Demonstrate how to containerize a software application, test it with Docker, and deploy it on an OpenShift cluster.

10. **Introducing Red Hat OpenShift Container Platform**
    List the features and describe the architecture of the Openshift Container Platform.

11. **Installing OpenShift Container Platform**
    Install OpenShift and configure the cluster.

12. **Describing and exploring OpenShift networking concepts**
    Describe and explore OpenShift networking concepts.

13. **Executing commands**
    Execute commands using the command-line interface.

14. **Controlling access to OpenShift resources**
    Control access to OpenShift resources.

15. **Allocating persistent storage**
    Implement persistent storage.

16. **Managing application deployments**
    Manipulate resources to manage deployed applications.

17. **Installing and configuring the metrics subsystem**
    Install and configure the metrics gathering system.

18. **Managing and monitoring OpenShift Container Platform**
    Manage and monitor OpenShift resources and software.

19. **Comprehensive review of Red Hat OpenShift Administration I**
    Install, configure, and deploy an application on a cluster.

Duration: 3 days

DO288

Red Hat OpenShift Development I: Containerizing Applications

Red Hat® OpenShift Container Platform provides developers an enterprise-ready solution for developing and deploying containerized software applications. Red Hat OpenShift Development I: Containerizing Applications provides hands-on training to boost developer productivity powered by Red Hat OpenShift Container Platform.
This course is based on Red Hat OpenShift Container Platform 3.6.

Course overview:

In this course, you will learn how to design, build, and deploy containerized software applications on an OpenShift cluster. Whether writing container-native applications or migrating existing applications, this course provides hands-on training to boost developer productivity powered by Red Hat® OpenShift Container Platform.

Prerequisites:

- Completed the Introduction to Containers, Kubernetes, and Red Hat OpenShift course (Do180), or have equivalent knowledge
- Red Hat Certified System Administrator or having earned a higher certification is helpful for navigation and usage of the command line, but is not required

Course contents

1. **Deploy and manage applications on an OpenShift cluster**
   Deploy an application to an OpenShift Cluster.

2. **Design containerized applications for OpenShift**
   Build container images with advanced Dockerfile directives.

3. **Publish enterprise container images**
   Create an enterprise registry and allow access to the OpenShift registry.

4. **Build applications**
   Describe the OpenShift build process and implement post-commit build hooks.

5. **Customize Source-to-Image builds**
   Customize an existing S2I base image.

6. **Create applications from OpenShift templates**
   Describe the elements of an OpenShift template and create a multi-container template.

7. **Manage application deployments**
   Monitor application health and select the appropriate deployment strategy.

8. **Migrate applications to OpenShift**
   Integrate external services and migrate applications deployed on Red Hat JBoss Middleware.

Duration: 3 days

DO290

OpenShift Enterprise Development

OpenShift Enterprise is a key technology in Red Hat's DevOps story. Using PaaS has proven to accelerate time to market for many organizations already. This course provides the knowledge necessary to take advantage of the platform in a popular DevOps environment. This course is part of a series of DevOps courses that centeraround the use of OSE to enable continuous delivery a key goal in the DevOps philosophy. Red Hat is committed in being a leader in providing prescriptive approaches to DevOps using Red Hat and other open source technologies.

Course overview:

Agile Development with OpenShift Enterprise by Red Hat (DO290) is part of a series of courses that focus on using OpenShift Enterprise by Red Hat to automate a portion of the software delivery pipeline. The course immerses the student in a DevOps environment through the use of agile software development methodology, test-driven development, continuous integration, and a standard operating environment through the use of Platform-as-a-Service (PaaS). Through hands-on labs, the student will implement user stories for an existing Java EE application and deploy the application to an OpenShift Enterprise instance. The student will learn how to create, update, and maintain applications using OpenShift Enterprise.

Prerequisites:

Java EE programming skills are helpful - we are going to try to keep the programming tasks simple like changing the color of an item on an HTML page - so generally HTML skills which are common to many programming environments

Course contents

1. **Development Environment Review**
   Developer's tools, agile practices, and development environment
2. **Bookstore Application Review**
   Application architecture, features, and project layout
3. **Introduction to OpenShift Enterprise**
   Features and architecture of OpenShift Enterprise
4. **Deploying Applications on OpenShift Enterprise**
   Define, build, and deploy an application on OpenShift Enterprise
5. **Implementing Continuous Integration**
   Establish continuous integration with Jenkinsent Storage and using it for the internal registry
6. **Managing OpenShift Enterprise Applications**
   Control and maintain applications using the OpenShift Enterprise command-line interface
7. **Creating Complex Deployments**
   Create deployments that utilize clustering, load balancing, and customized node scheduling
8. **Troubleshooting Applications**
   Use debugging and logs to troubleshoot problems with application performance or deployment issues
9. **Customizing OpenShift Enterprise**
   Create custom source image containers, templates, and builders
10. **Course Review**
    Practice the skills learned in this course

Duration: 4 days

DO380

Red Hat OpenShift Administration II: High Availability

Red Hat OpenShift Administration II teaches you how to build robust clusters that provide high availability and the ability to run large numbers of applications. You will learn about OpenShift integration with datacenter infrastructure such as load balancers, identity management, monitoring, proxies, and storage. You will also develop more troubleshooting and Day 2 operations skills in this course.

This course is based on Red Hat® OpenShift Container Platform 3.6.

Course overview:

You will design an OpenShift HA cluster, then build and test it. You will use this cluster to examine more advanced topics in the administration and operation of a robust OpenShift cluster in the remainder of the course.

Prerequisites:

Red Hat recommends these prerequisites:

- Become a Red Hat Certified System Administrator, or demonstrate equivalent experience
- Attend Introduction to Containers, Kubernetes, and Red Hat OpenShift (DO180) or demonstrate equivalent experience with containers, Kubernetes, and OpenShift
- Attend Red Hat OpenShift Administration I (DO280) or demonstrate equivalent experience with OpenShift
- Recommended, but not required: become a Red Hat Certified Specialist in OpenShift Administration (EX280)

Course contents

1. **Design a highly available cluster**
   Design an OpenShift cluster that supports high availability and resiliency.

2. **Prepare to install an HA cluster**
   Configure the advanced installer and prepare the cluster environment for HA installation.

3. **Configure OpenShift to use custom certificates**
   Configure the OpenShift cluster to use custom certificates.

4. **Build an HA cluster**
   Use the advanced installation method to build an HA OpenShift cluster.

5. **Provision persistent storage**
   Describe storage providers, configure a provider, create a storage class, and test the configuration.

6. **Enable log aggregation**
   Consolidate useful data for analysis by enabling the log aggregation feature.

7. **Maintain an OpenShift cluster**
   Perform recurring maintenance activities on an OpenShift cluster.

8. **Manage system resources**
   Manage operating system and cluster resources for optimal performance.

9. **Configure security providers**
   Configure security providers and advanced security options.

10. **Configure networking options**
    Configure various advanced networking features and options.

Duration: 4 days

DO405

Configuration Management with Puppet

Configure Red Hat Enterprise Linux hosts in a DevOps environment using Puppet.

Course overview:

The Configuration Management with Puppet (DO405) course is part of the Emerging Technology series of courses from Red Hat Training. This course is designed for system administrators and cloud administrators who are intending to implement Puppet as integrated with Red Hat products in an operations environment or a cloud computing environment. This course will cover case studies involving Red Hat products that use Puppet: Red Hat Enterprise Linux OpenStack Platform and Red Hat Satellite. Key Puppet concepts will be introduced, including language constructs, modules, classes, and resources. This course will cover the deployment of Puppet server on Red Hat Enterprise Linux and the deployment of Puppet as a client.

Prerequisites:

Red Hat Certified Engineer (RHCE) certification or equivalent experience.

Course contents

1. **Identify System Administration Functions in Puppet**
   Identify system administration functions in Puppet code
2. **Puppet Architecture**
   Describe the puppet architecture and describe a state model
3. **Implementing a Puppet Manifest**
   Build, validate, and deploy a Puppet manifest
4. **Troubleshooting Puppet Manifests**
   Find documentation and diagnose errors in Puppet manifests
5. **Implementing Git**
   Implement Git to manage software
6. **Finding Information with Facter**
   View information about systems using Facter
7. **Implementing Puppet Modules**
   Create Puppet modules and implement classes in a manifest
8. **Implementing Relationships in a Puppet Module**
   Implement namespaces, relationships, and dependencies in a Puppet module
9. **Implementing Variables and Conditionals in a Puppet Module**
   Implement variables and conditionals in a Puppet module
10. **Identify Advanced System Administration Functions in Puppet**
    Identify advanced system administration functions in Puppet code
11. **Implementing Puppet**
    Deploy and configure a Puppet master and a Puppet client
12. **Implementing External Puppet Modules**
    Implement Puppet modules from Puppet Forge
13. **Implementing Puppet in a DevOps Environment**
    Implement Puppet in a DevOps environment
14. **Implementing Puppet in Red Hat Satellite 6**
    Implement Puppet in a Red Hat Satellite 6 environment

Duration: 4 days

DO407

Automation with Ansible

Automation with Ansible (DO407) is designed for system administrators who are intending to use Ansible for automation, configuration, and management. Learn how to install and configure Ansible, create and run playbooks to configure systems, and learn to manage inventories.
This course is based on Red Hat® Enterprise Linux® 7.

Course overview:

Through hands-on labs, students will learn to automate system administration tasks on managed hosts with Ansible, learn how to write Ansible playbooks to standardize task execution, centrally manage playbooks and schedule recurring execution through a web interface with Ansible Tower. Students will also learn to manage encryption for Ansible with Ansible Vault, deploy Ansible Tower and use it to manage systems, and use Ansible in a DevOps environment with Vagrant.

Prerequisites:

Have basic Red Hat Enterprise Linux administration skills or have a Red Hat Certified System Administrator (RHCSA) certification is recommended.

Course contents

1. **Course introduction**
   Introduce and review the course
2. **Introduce Ansible**
   Describe the terminology and architecture of Ansible.
3. **Deploy Ansible**
   Install Ansible and run ad hoc commands.
4. **Implement playbooks**
   Write Ansible plays and execute a playbook.
5. **Manage variables and inclusions**
   Describe variable scope and precedence, manage variables and facts in a play, and manage inclusions.
6. **Implement task control**
   Manage task control, handlers, and tags in Ansible playbooks.
7. **Implement Jinja2 templates**
   Implement a Jinja2 template.
8. **Implement roles**
   Create and manage roles.
9. **Configure complex playbooks**
   Configure connection types, delegations, and parallelism.
10. **Implement Ansible Vault**
    Manage encryption with Ansible Vault.
11. **Troubleshoot Ansible**
    Troubleshoot the Ansible control machine and managed nodes.
12. **Implement Ansible Tower**
    Implement Ansible Tower.
13. **Implement Ansible in a DevOps environment**
    Implement Ansible in a DevOps environment using Vagrant
14. **Comprehensive review**
    Review tasks from the Automation with Ansible course.

Duration: 2 days

DO409

Automation with Ansible II: Ansible Tower

Take your automation to the next level with Ansible Tower

Automation with Ansible II: Ansible Tower (DO409) is designed for IT professionals who use Ansible by Red Hat® and need to centrally manage their Ansible projects in a way that scales to large teams and complex enterprise installations using Ansible Tower by Red Hat.

This Ansible training is based on Ansible Tower 3, Ansible 2, and Red Hat Enterprise Linux® 7.

Course overview:

This course will teach students how to deploy and use Ansible Tower by Red Hat to manage their existing Ansible projects, playbooks, and roles, perform basic maintenance and administration of the Ansible Tower installation, and configure users and teams and use them to control access to systems, projects, and other resources through role-based access controls. Students will also learn to use the visual dashboard to centrally launch, control, and monitor Ansible jobs, use the Ansible Tower application programming interface (API) to launch jobs from existing templates, and automatically schedule Ansible jobs and update the host inventory.

Prerequisites:

Red Hat recommends these prerequisites:

- Successfully completed Automation with Ansible I (DO407) or equivalent experience with Ansible, Ansible playbooks, and roles
- Have Red Hat Certified System Administrator (RHCSA) certification in Red Hat Enterprise Linux or equivalent Linux system administration skills

Course contents

1. **Course introduction**
   Introduce and review the course

2. **Install Ansible Tower by Red Hat and describe its architecture**
   Explain what Ansible Tower is and demonstrate a basic ability to navigate and use its web user interface.

3. **Create users and teams for role-based access control**
   Create user accounts and organize them into teams that can be used in conjunction with role-based access control to manage administration and access to organization resources in Ansible Tower.

4. **Create and manage inventories and credentials**
   Create inventories of machines to manage and set up credentials that will allow Ansible Tower to run jobs on those systems.

5. **Manage projects for provisioning with Ansible Tower**
   Create basic projects and job templates in Ansible Tower that can be used to run Ansible playbooks in order to provision and configure managed systems.

6. **Construct advanced job workflows**
   Use additional features of job templates to improve workflows by creating simple job launch forms, templates to launch multiple jobs in sequence, and to report job success or failure through external notification systems.

7. **Update inventories dynamically and compare inventory members**
   Use advanced techniques to work with inventories, including dynamic generation of inventories from centralized information sources and monitoring of hosts in an inventory for configuration deviations or differences.

8. **Maintenance and administration of Ansible Tower**
   Perform routine maintenance and administration on Ansible Tower and get a basic familiarity with the command line tools and Ansible Tower API.

9. **Comprehensive review of provisioning and managing systems using Ansible Tower**
   Demonstrate skills learned in this course by using a provided specification to configure and operate a new organization in Ansible Tower with certain users and teams, an inventory of hosts to manage, and an Ansible project containing playbooks and other supporting files.

Duration: 5 days

DO410

Automation with Ansible and Ansible Tower

Automation with Ansible and Ansible Tower (DO410) is designed for IT professionals who want to develop standardized automation of the enterprise IT environment in order to improve operational efficiency by using Ansible. You will learn how to use Ansible for automation, configuration, provisioning, and management, and how to use Red Hat® Ansible Tower to centrally manage Ansible at an enterprise scale. This course combines the content from Automation with Ansible (DO407) and Automation with Ansible II: Ansible Tower (DO409).

This course is based on Ansible 2.3, Ansible Tower 3.1, and Red Hat® Enterprise Linux® 7.3.

Course overview:

Through hands-on labs, you will learn to automate system administration tasks on managed hosts with Ansible, learn how to write Ansible playbooks to standardize task execution, and manage encryption for Ansible with Ansible Vault. This course will also teach you how to deploy and use Red Hat® Ansible Tower to centrally manage existing Ansible projects, playbooks, and roles; perform basic maintenance and administration of the Ansible Tower installation; and configure users and teams and use them to control access to systems, projects, and other resources through role-based access controls. You will learn to use Ansible Tower's visual dashboard to launch, control, and monitor Ansible jobs; use the Ansible Tower application programming interface (API) to launch jobs from existing templates; automatically schedule Ansible jobs; and dynamically update host inventories.

Prerequisites:

- Red Hat Certified System Administrator, or demonstrate equivalent experience

Course contents

1. **Introduce Ansible**
   Describe the terminology and architecture of Ansible.

2. **Deploy Ansible**
   Configure Ansible and run ad hoc commands.

3. **Implement playbooks**
   Write Ansible plays and execute a playbook.

4. **Manage variables and inclusions**
   Describe variable scope and precedence, manage variables and facts in a play, and manage inclusions.

5. **Implement task control**
   Manage task control, handlers, and tags in Ansible playbooks.

6. **Implement Jinja2 templates**
   Employ a Jinja2 template.

7. **Implement roles**
   Create and manage roles.

8. **Configure complex playbooks**
   Learn and replicate how Ansible executes plays and tasks using host patterns, delegation, and parallelism.

9. **Implement Ansible Vault**
   Manage encryption with Ansible Vault.

10. **Troubleshoot Ansible**
    Troubleshoot the Ansible control machine and managed nodes.

11. **Install Ansible Tower and describe Ansible Tower's architecture**
    Explain what Ansible Tower is and demonstrate a basic ability to navigate and use its web user interface.

12. **Create users and teams for role-based access control**
    Create user accounts and organize them into teams that can be used in conjunction with role-based access control to manage administration and access to organizational resources in Ansible Tower.

13. **Create and manage inventories and credentials**
    Build inventories of machines to manage and set up credentials that will allow Ansible Tower to run jobs on those systems.

14. **Manage projects for provisioning with Ansible Tower**
    Create basic projects and job templates in Ansible Tower that can be used to run Ansible playbooks in order to provision and configure managed systems.

15. **Construct advanced job workflows**
    Use additional features of job templates to improve workflows by creating simple job launch forms and templates to launch multiple jobs in sequence, and also to report job success or failure through external notification systems.

16. **Update inventories dynamically and compare inventory members**
    Use advanced techniques to work with inventories, including dynamic generation of inventories from centralized information sources and monitoring of hosts in an inventory for configuration deviations or differences.

17. **Maintenance and administration of Ansible Tower**
    Perform routine maintenance and administration on Ansible Tower and establish a basic familiarity with the command line tools and the Ansible Tower API.

Course outline is subject to change with technology advances and as the nature of the underlying job evolves. For questions or confirmation on a specific objective or topic, contact a training specialist.

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