

Transforming Applications with IBM WebSphere Hybrid Edition

WA615 (Classroom)

Course description

This course teaches students how to transform traditional (monolithic) WebSphere applications to run in a containerized environment – Red Hat OpenShift - by using WebSphere Hybrid Edition. It covers two key reference implementations:

**Operational Modernization**: Repackage the application to deploy in a container while maintaining the monolithic architecture. This solution does not require changes to the application or runtime. It uses Transformation Advisor (part of WebSphere Hybrid Edition) to assess the application, and the Runtime Operator to manage the containerized application on Red Hat OpenShift.

**Runtime Modernization**: Update the application to run on Open Liberty, a modern cloud-native runtime. Modernize some aspects of the application by taking advantage of MicroProfile specifications. This solution uses Transformation Advisor (part of WebSphere Hybrid Edition), and the Open Liberty Operator to deploy and manage the modernized application on Red Hat OpenShift.

For information about other related courses, see the IBM Training website:

**ibm.com**/training

General information

Delivery method

Classroom (ILT)

Course level

ERC 1.0

Product and version

IBM WebSphere Hybrid Edition V5

Audience

The primary audience for this course is the Application Developer. Their company is driven by the need to build new capabilities and deliver them quickly. Modernizing applications can provide the immediate benefits of improving developer productivity and operational efficiency.

Learning objectives

After completing this course, you should be able to:

* Describe the key concepts and reference implementations for application modernization
* Use Podman to create and manage container images
* Use Transformation Advisor to assess an application
* Implement operational modernization: repackage and deploy a traditional WebSphere application to a container runtime
* Implement runtime modernization: repackage and deploy a Liberty application to a container runtime

Prerequisites

Before taking this course, you should have:

* Experience with WebSphere application development and deployment
* Familiarity with WebSphere Application Server or Liberty system administration tools
* Familiarity with the Red Hat OpenShift console and command line interface (CLI)
* Experience using the Linux operating system
* Recommended prerequisite course: DL10031 - Application Migration and Modernization with IBM WebSphere Hybrid Edition - <https://learn.ibm.com/course/view.php?id=9154>

Duration

2 days

Skill level

Intermediate

Notes

The following unit and exercise durations are estimates and might not reflect every class experience. If the course is customized or abbreviated, the duration of unchanged units might increase.

Course Agenda

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| Course IntroductionDuration: 20 minutes |

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| Unit 1. Introduction to application modernizationDuration: 1 hour |
| Overview | This unit introduces application modernization and describes the capabilities and use cases for WebSphere Hybrid Edition. |
| Learning objectives | After completing this unit, you should be able to:* Describe the benefits of modernizing applications
* List the steps involved in modernization applications
* Define the strategies for moving to cloud
* Describe WebSphere Hybrid Edition capabilities and use cases
* Define operational and runtime modernization
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| Unit 2. Working with containersDuration: 1 hour and 20 minutes |
| Overview | This unit introduces containers and container orchestration. |
| Learning objectives | After completing this unit, you should be able to:* Describe key cloud native principles
* Describe key microservices principles
* Define containers
* List the benefits of using containers
* Describe the container lifecycle
* Describe container orchestration
* Describe Kubernetes features and components
* Describe Podman
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| Exercise 1. Introduction to containersDuration: 1 hour and 30 minutes |
| Overview | This exercise introduces basic skills for managing containers and container images.  |
| Learning objectives | After completing this exercise, you should be able to:* Start, stop, and remove containers
* Create container images
* Apply versions to container images
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| Unit 3. Introduction to Red Hat OpenShiftDuration: 1 hour and 10 minutes |
| Overview | This unit introduces Red Hat OpenShift Container Platform. |
| Learning objectives | After completing this unit, you should be able to:* Describe OpenShift architecture
* Use the OpenShift console to view cluster information
* Use the OpenShift command-line interface to work with pods, containers, and deployments
* Deploy an application to Red Hat OpenShift by using the web console
* Deploy an application to Red Hat OpenShift by using the command-line interface (CLI)
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| Exercise 2. Introduction to Red Hat OpenShiftDuration: 1 hour |
| Overview | This exercise introduces basic container orchestration skills that use Red Hat OpenShift.  |
| Learning objectives | After completing this exercise, you should be able to:* Use the Red Hat OpenShift web console to view and manage cluster resources
* Deploy an application by using the Red Hat OpenShift web console
* Deploy an application by using the Red Hat OpenShift command-line interface (CLI)
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| Unit 4. Introduction to IBM Cloud Transformation AdvisorDuration: 40 minutes |
| Overview | This unit introduces IBM Cloud Transformation Advisor. |
| Learning objectives | After completing this unit, you should be able to:* Describe the main functions of Transformation Advisor
* Describe how to use Transformation Advisor to assess application cloud readiness
* Describe the reports that Transformation Advisor provides
* Describe Transformation Advisor architecture and components
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| Exercise 3. Use Transformation Advisor to assess an applicationDuration: 1 hour and 30 minutes |
| Overview | In this exercise, you use IBM Cloud Transformation Advisor to assess on-premises Java EE applications and estimate the effort that is required to deploy them to the cloud.  |
| Learning objectives | After completing this exercise, you should be able to:* Install Transformation Advisor
* Collect Java application and configuration data by using the Transformation Advisor Data Collector tool
* Examine the collected data to evaluate and identify a good candidate application for migration
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| Unit 5. Operational modernizationDuration: 30 minutes |
| Overview | This unit describes operational modernization.  |
| Learning objectives | After completing this unit, you should be able to:* Define operational modernization
* Explain how to use Transformation Advisor to repackage an application
* Deploy a repackaged application to Red Hat OpenShift
* Use the Runtime Component Operator to deploy an application to Red Hat OpenShift
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| Exercise 4. Operational modernizationDuration: 2 hours |
| Overview | This exercise demonstrates an operational modernization scenario. Operational modernization provides an opportunity to embrace modern operations practices without requiring code changes to an application. |
| Learning objectives | After completing this exercise, you should be able to:* Upload a data collection to Transformation Advisor for analysis
* Prepare an application for deployment to Red Hat OpenShift by building a docker image
* Deploy an application to Red Hat OpenShift without using an Operator
* Deploy an application to Red Hat OpenShift by using the Runtime Component Operator
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| Unit 6. Runtime modernizationDuration: 30 minutes |
| Overview | This unit describes runtime modernization.  |
| Learning objectives | After completing this unit, you should be able to:* Define runtime modernization
* Describe the Open Liberty Operator
* Use the Open Liberty Operator to deploy an application to Red Hat OpenShift
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| Exercise 5. Runtime modernizationDuration: 2 hours |
| Overview | This exercise demonstrates a runtime modernization scenario. Runtime modernization moves an application to a modern (built for the cloud) runtime environment, with a minimal amount of code change.  |
| Learning objectives | After completing this exercise, you should be able to:* Upload a data collection to Transformation Advisor for analysis
* Prepare an application for deployment to Red Hat OpenShift by building a docker image
* Deploy an application to Red Hat OpenShift by using the Open Liberty Operator
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For more information

To learn more about this course and other related offerings, and to schedule training, see **ibm.com**/training

To learn more about validating your technical skills with IBM certification, see **ibm.com**/certify