Container Development Environment Scenarios

Container images are usually developed locally on the developer's workstation. After a container image has been tested and accepted, there are many ways to automate building container images. In this course we develop container images using Docker. Containers are deployed and tested on both Docker and Red Hat OpenShift Container Platform.

The following scenarios represent three development environments to containerize applications:

- Installed OpenShift Cluster
- Red Hat Container Development Kit
- Local OpenShift Cluster

Installed OpenShift Cluster

An installed OpenShift cluster is one in which the OpenShift software is installed using the RPM method. The OpenShift and Kubernetes processes run as services on the operating system. The cluster might be installed by the customer or the customer might use the Red OpenShift Online or Red Hat OpenShift Dedicated environments. All of these types of clusters are accessed remotely using the OpenShift web console or the command-line interface. This method of installing OpenShift is designed for permanent clusters, usually used by many users simultaneously. This installation method is beyond the scope of this course.

Local OpenShift Cluster

Anywhere Docker is supported and the OpenShift client can be installed, a local OpenShift cluster can be created using the **`oc cluster up`** command. In this configuration, OpenShift runs a single-node, single-master cluster in a single container. Internal cluster services such as the router runs as additional containers. The cluster can be ephemeral or persistent.

Red Hat Container Development Kit

Red Hat Container Development Kit (CDK) version 3 is developed from an upstream project called Minishift. The CDK contains a single binary called **`minishift`**. From this binary a virtual machine disk image can be extracted. This disk image is built using Red Hat Enterprise Linux 7. The **`minishift`** command is used to create a virtual machine that runs Docker and a local OpenShift cluster. Developers can access the OpenShift cluster with the command-line interface installed by the **`minishift`** command. Minishift supports the Linux, MacOS, and Windows operating systems and many types of virtualization technologies, including KVM, VirtualBox, HyperV, and more.