OpenShift:

OpenShift is a family of containerization software products developed by Red Hat. Its flagship product is the OpenShift Container Platform — an on-premises platform as a service built around Docker containers orchestrated and managed by Kubernetes on a foundation of Red Hat Enterprise Linux.

Features:

Operators:

An Operator is a method of packaging, deploying and managing a Kubernetes-native application. A Kubernetes-native application is an application that is both deployed on Kubernetes and managed using the Kubernetes APIs and kubectl tooling.

**An Operator is essentially a custom controller.**

A controller is a core concept in Kubernetes and is implemented as a software loop that runs continuously on the Kubernetes master nodes comparing, and if necessary, reconciling the expressed desired state and the current state of an object. Objects are well known resources like Pods, Services, ConfigMaps, or PersistentVolumes. Operators apply this model at the level of entire applications and are, in effect, application-specific controllers.

The Operator is a piece of software running in a Pod on the cluster, interacting with the Kubernetes API server. It introduces new object types through Custom Resource Definitions, an extension mechanism in Kubernetes. These custom objects are the primary interface for a user; consistent with the resource-based interaction model on the Kubernetes cluster.

**Self-service, on-demand application stacks:**

Develop your apps with the language and tools you want. Red Hat® OpenShift® includes pre-created quick start application templates that allow you to build and deploy your favorite application languages, frameworks, and databases with one click—Java, Node.js, .NET, Ruby, Python, PHP and more.

Istio:

Istio is an open-source project for integrating and managing traffic flow across services. It works in concert with an underlying cluster manager (like Kubernetes). Centralized components, sidecar proxies, and node agents work together to create the data and control planes over a distributed application.

**Singularity Hub:**

Description on the Container tools of singularity Hub:

<https://singularityhub.github.io/>