

Progressive Insurance:

Developer Focus

May 3, 2024

Modern Application Development Roadshow

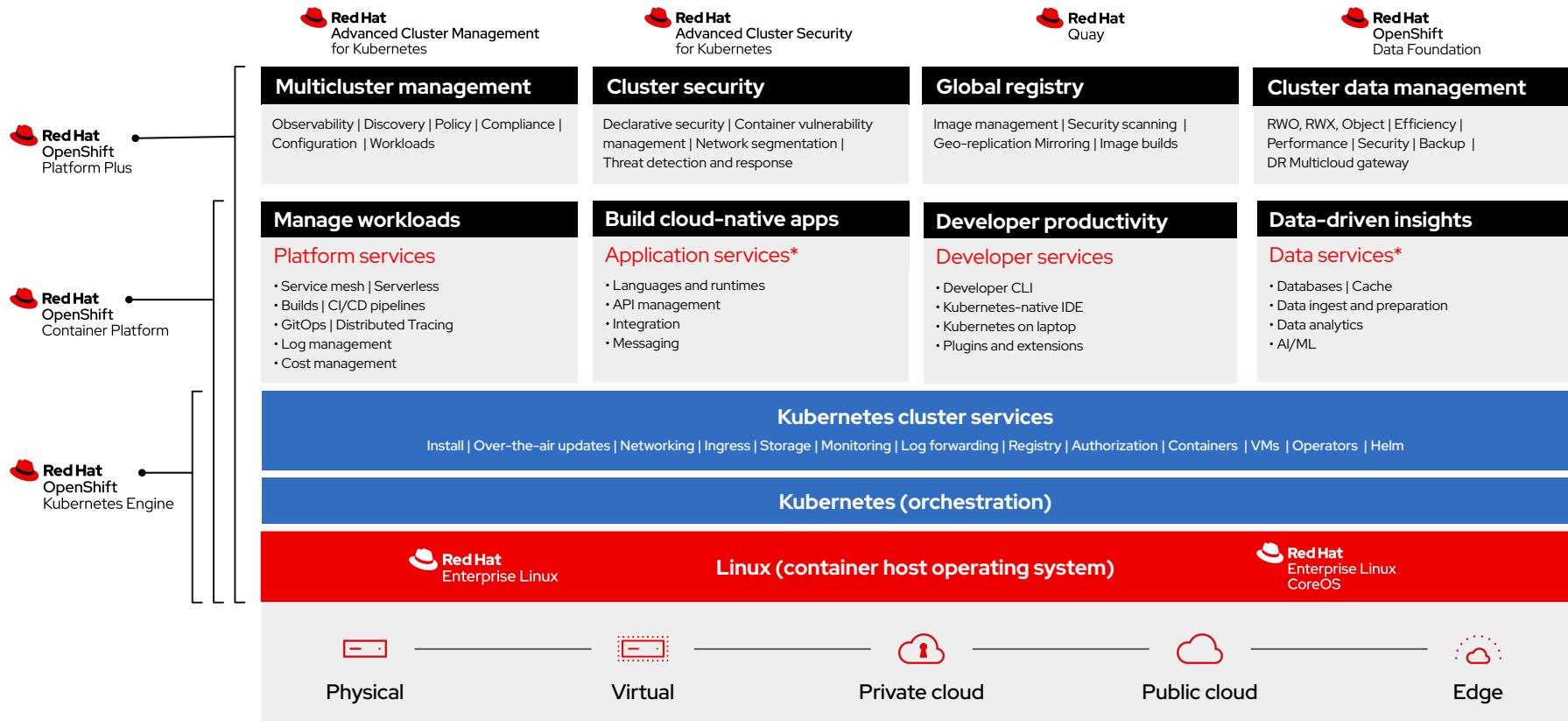
AGENDA

- 10am-11pm Intros and Presentation
- 11am-11:30pm : Learn How to Assess & Analyze an Application for Modernization
- 11:30am-12:15pm Learn How to Refactor & Deploy A Modernized App on OpenShift
- 1:00pm-2:00pm Learn How to Enable PipeLine & GitOPS for An Application on OpenShift
- 2:00pm-3:00pm Build An Event Driven Architecture
- 3:00pm-4:00pm Accelerate Software Development

Red Hat OpenShift



Red Hat OpenShift - Overview



* Red Hat OpenShift® includes supported runtimes for popular languages/frameworks/databases. Additional capabilities listed are from the Red Hat Application Services and Red Hat Data Services portfolios.

** Disaster recovery, volume and multicloud encryption, key management service, and support for multiple clusters and off-cluster workloads requires OpenShift Data Foundation Advanced

Container Development Cycle

CONFIDENTIAL designator

Start



Kube By Example

Start learning Kubernetes today!
<https://kubebvexample.com/>



RH Developer Portal

<https://developers.redhat.com/>



OpenShift Dev Spaces

Centralized, shareable, in-browser Kubernetes-based Integrated Development Environment, focused on OpenShift customers.
https://developers.redhat.com/products/openshift-dev_spaces/overview



OpenShift Toolkit IDE Extension (VSCode, IntelliJ)

Developers can easily create, deploy and live debug container applications running on OpenShift.
<https://marketplace.visualstudio.com/items?itemName=redhat.vscode-openshift-connector>
<https://plugins.jetbrains.com/plugin/1030-openshift-toolkit-by-red-hat>



IDE Extensions (Visual Studio Code, IntelliJ) for Languages (Java, XML, YAML, Apache Camel) and Runtimes (Quarkus, EAP)

Makes it easy for developers to build cloud-native and hybrid cloud applications with RH supported languages, and use RH preferred runtimes.



CLI tools: odo

OpenShift Developer CLI (command-line interface) that helps developers to build on Kubernetes/OpenShift, hiding Kubernetes complexity and supporting developers to get up and running
<https://developers.redhat.com/products/odo/overview>



Maven/Grade tooling (JKube)

Adds the ability to bring Java applications to Kubernetes by extending native Maven/Gradle packaging tools.



Trusted Supply Chain

Provides trusted open source software packages and dependencies, vulnerability information, and remediations engineered by Red Hat, delivered to developer's IDEs.
<https://developers.redhat.com/products/trusted-software-supply-chain/overview>



Red Hat AMQ

<https://developers.redhat.com/products/amq/overview>

Develop



Podman Desktop

This upstream project enables developers to easily build and share containerized applications, facilitating their transition to Kubernetes.
<https://podman.io>



Docker Desktop extension

Enables deployment of local images to OpenShift directly from Docker Desktop.
<https://github.com/redhat-developer/openshift-dd-ext>



OpenShift Dev Spaces

Centralized, shareable, in-browser Kubernetes-based Integrated Development Environment, focused on OpenShift customers.
https://developers.redhat.com/products/openshift-dev_spaces/overview



OpenShift Toolkit IDE Extension (VSCode, IntelliJ)

Developers can easily create, deploy and live debug container applications running on OpenShift.
<https://marketplace.visualstudio.com/items?itemName=redhat.vscode-openshift-connector>
<https://plugins.jetbrains.com/plugin/1030-openshift-toolkit-by-red-hat>



IDE Extensions (Visual Studio Code, IntelliJ) for Languages (Java, XML, YAML, Apache Camel) and Runtimes (Quarkus, EAP)

Makes it easy for developers to build cloud-native and hybrid cloud applications with RH supported languages, and use RH preferred runtimes.



CLI tools: odo

OpenShift Developer CLI (command-line interface) that helps developers to build on Kubernetes/OpenShift, hiding Kubernetes complexity and supporting developers to get up and running
<https://developers.redhat.com/products/odo/overview>



Maven/Grade tooling (JKube)

Adds the ability to bring Java applications to Kubernetes by extending native Maven/Gradle packaging tools.



Trusted Supply Chain

Provides trusted open source software packages and dependencies, vulnerability information, and remediations engineered by Red Hat, delivered to developer's IDEs.
<https://developers.redhat.com/products/trusted-software-supply-chain/overview>



Red Hat AMQ

<https://developers.redhat.com/products/amq/overview>

Deploy & Maintain



Plug-ins for CI/CD tools (GitHub Actions, Microsoft Azure DevOps, GitLab Runner, Jenkins)

Provide templates for automated deployment of applications to OpenShift



OpenShift Pipelines, Tekton Hub, Tekton IDE extension

Is a cloud-native CI/CD solution to securely build containerized applications and deploy to OpenShift. Tekton Hub provides a catalog of Tekton task templates. Tekton IDE extension enables developers to create and manage Tekton pipelines from their IDE



IDE Extensions (for Visual Studio Code, IntelliJ, Eclipse) for Deployment (OpenShift Toolkit, Serverless Functions)

Enable developers to push their code to OpenShift without needing to build containers, and to also configure serverless deployments.



OpenShift GitOps

Enables developers to declare and version application and cluster configuration in Git, automate application deployments, configuration drift detection and remediation. karm (Kubernetes application management) enables developers to easily seed GitOps declarative application models in Git.



OpenShift UI tools: OpenShift Dev Console

Provides an end-to-end developer experience in OpenShift, across all cloud platforms, for building, deploying, and managing containerized applications and their related services.



Web Terminal/OC

Runs within the OpenShift Dev Console. It provides a command line interface, pre-loaded with developer-focused CLIs.



Helm

is a package manager for Kubernetes. We provide support for that packaging in OpenShift, and a certified catalog for developers to quickly create applications based on curated Helm charts.



Migrate - Toolkit (Now based on Konveyor)

<https://developers.redhat.com/projekte/github.com/varkrish/rh-dev-hub-quickstartducts/mta/overview>



Konveyor

The Konveyor community helps modernize applications by providing open source tools to rehost, replatform, and refactor applications to Kubernetes and cloud-native technologies.

<https://www.konveyor.io/>

V0000000



Overview: OpenShift Developer Console

The screenshot shows the OpenShift Developer Console interface. At the top, there are dropdown menus for 'Project: mschmitt-redhat-dev' and 'Application: all applications'. On the left, a sidebar menu includes 'Developer' (selected), '+Add', 'Topology', 'Monitoring', 'Search', 'Builds', 'Helm', 'Project', 'ConfigMaps', and 'Secrets'. The main content area is titled 'Add' and contains a sub-header: 'Select a way to create an Application, component or service from one of the options.' Below this are several cards:

- Quick Starts**:
 - Get started with Spring
 - Monitor your sample application
 - Binding your Quarkus application to Streams for Apache Kafka[View all Quick Starts →](#)
- Samples**: Create an Application from a code sample.
- From Git**: Import code from your Git repository to be built and deployed.
- From Devfile**: Import your Devfile from your Git repository to be built and deployed.
- Container Image**: Deploy an existing Image from an Image registry or Image stream tag.
- From Dockerfile**: Import your Dockerfile from your Git repository to be built and deployed.
- YAML**: Create resources from their YAML or JSON definitions.
- From Catalog**: Browse the catalog to discover, deploy and connect to services.
- Database**: Browse the catalog to discover database services to add to your Application.
- Operator Backed**: Browse the catalog to discover and deploy operator managed services.
- Helm Chart**: Browse the catalog to discover and install Helm Charts.

 IDP: Internal Developer Portal

 Red Hat
Developer Hub

 Kube Developer
Desktop Experience :
Podman Desktop

 Migration Services
 Red Hat
Migration Services

 IDE Tools
 Red Hat
IDE Plugins
 Red Hat
Dev Spaces

 Trusted Software
Supply Chain

 Red Hat
Trusted Application
Pipeline

 Red Hat
Trusted
Artifact Signer

 Red Hat
Trusted Profile
Analyzer

 Application Networking
Services
 Red Hat
Service
Interconnect

Products that allow
developers to **quickly and
securely deliver
applications to production**

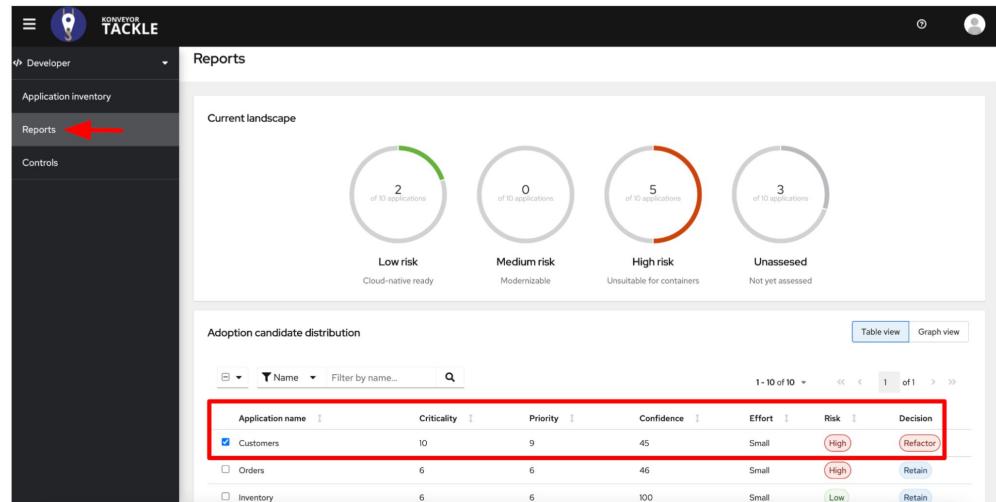
Enabling platform engineers to more
easily enforce operational controls
and compliance across hybrid
multi-cloud environments

Module 1 - Assessment & Analysis

Modern
Application
Development
Roadshow

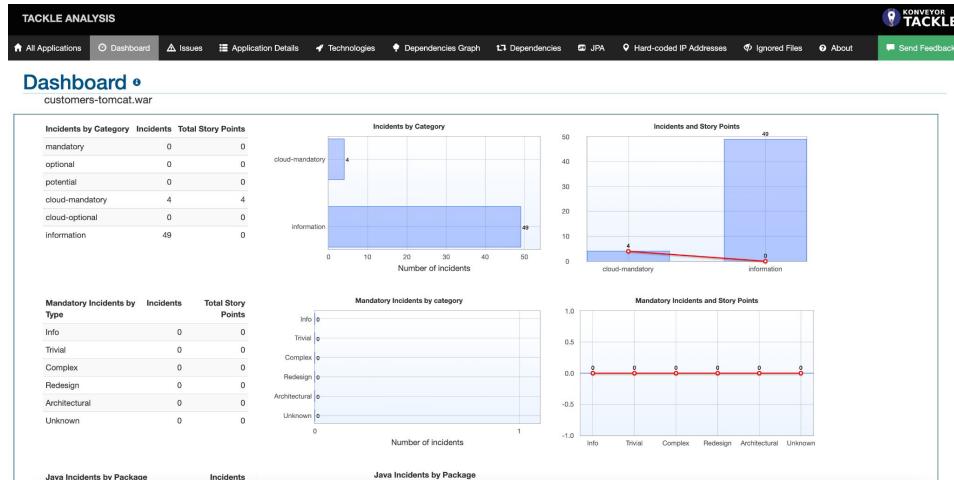
Assessment

- Assess the siloed current application portfolio
- Identify potential issues and risks
- Decide your application modernization journey along with 6Rs' strategy



Application Analysis

- Analyze the siloed application by scanning all source code and properties
- Understand how to get started with the code modification along with the analysis report



<https://get-a-username-dev-guides.apps.cluster-dmpnh.sandbox2841.opentlc.com/>

Password = openshift



Account Assignment

Enter your E-Mail Address and password in the form below to request lab access

E-Mail Address

e.g jane@doe.com

Password

e.g labsecret

Submit

Password = openshift



Credentials for cduffiel@redhat.com

Username

user1

Password

openshift

Modules

Module

[Assessment and Analysis](#)

Module

[Refactor and Deployment](#)

Module

[Enable CI/CD Pipeline and GitOps](#)

Module

[Build Event-driven Architecture](#)

Module

[Accelerating Software Development with Red Hat Developer Hub](#)

[OpenShift Console](#) | [VS Code Server](#)

Module 2 - Refactor & Deployment

Modern
Application
Development
Roadshow

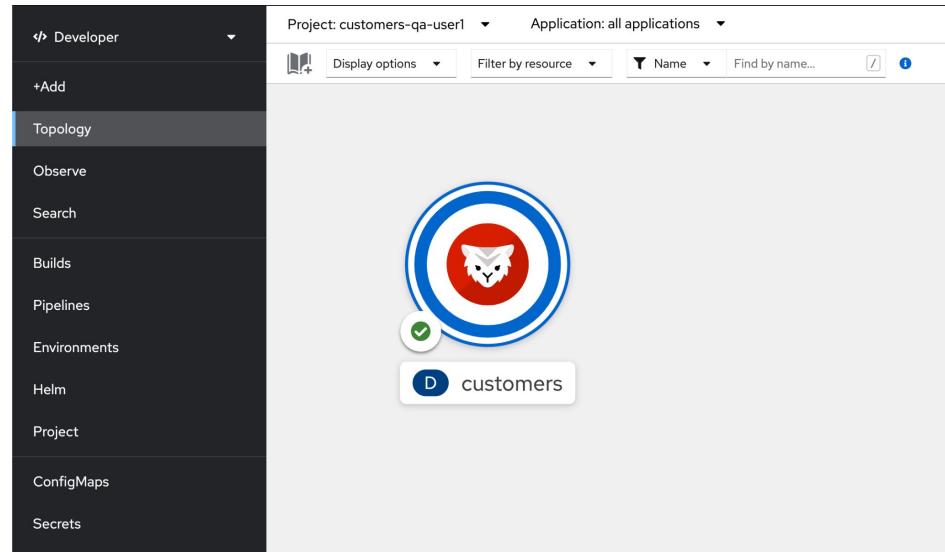
Refactor

- Resolve the migration issues by code modification along with Analysis report
- Use the recommended solutions for the refactoring

```
21  @Configuration
22  @EnableJpaRepositories(basePackages = {
23  |     "io.konveyor.demo.ordermanagement.repository"
24  |})
25  @EnableTransactionManagement
26  @EnableSpringDataWebSupport
27  @PropertySource("classpath:persistence.properties")
28  public class PersistenceConfig {
29
30      @Autowired
31      private Environment env;
32
33      @Bean
34      public LocalContainerEntityManagerFactoryBean entityManagerFactory() {
35          final LocalContainerEntityManagerFactoryBean em = new LocalContainerEntityManagerFactoryBean();
36          em.setDataSource(dataSource());
37          em.setPackagesToScan("io.konveyor.demo.ordermanagement.model");
38          em.setJpaVendorAdapter(new HibernateJpaVendorAdapter());
39          em.setJpaProperties(additionalProperties());
40
41          return em;
42      }
43
44      @Bean
45      public DataSource dataSource() {
46          final DriverManagerDataSource dataSource = new DriverManagerDataSource();
47          dataSource.setDriverClassName(env.getProperty("jdbc.driverClassName"));
48          dataSource.setUrl(env.getProperty("jdbc.url"));
49          dataSource.setUsername(env.getProperty("jdbc.user"));
50          dataSource.setPassword(env.getProperty("jdbc.password"));
51
52          return dataSource;
53      }
54
```

Deploy to Kubernetes

- Build a modernized application using the OpenShift binary build strategy
- Deploy and run the new application on Red Hat JBoss Web Server



Lunch Break

Back at 1 PM

Modern Application Development Roadshow

A red outline icon of a cloud with a single white cube inside it, positioned between the word "Development" and "Roadshow".

Module 3 - Enable Pipeline & GitOps

Modern
Application
Development
Roadshow

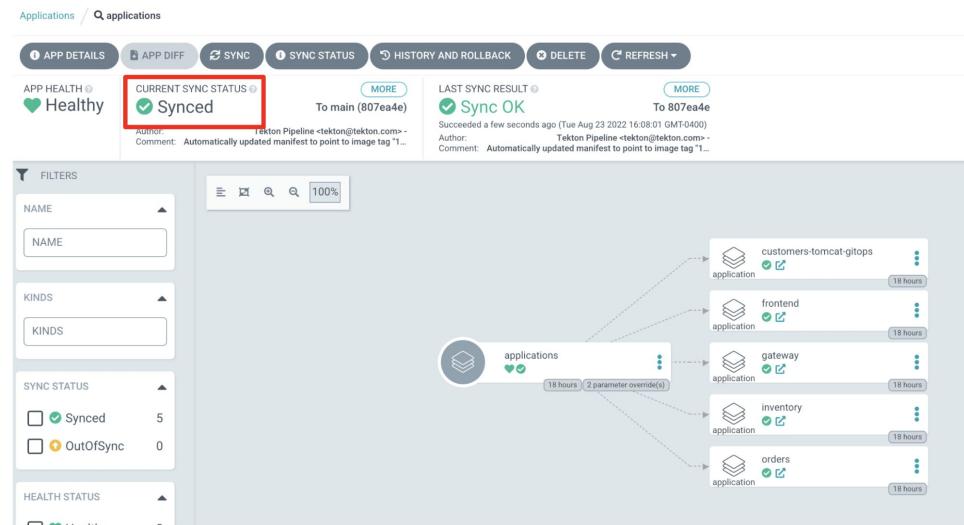
Build CI/CD Pipelines

- Automate build and deployment processes using OpenShift pipeline
- Use Helm charts to externalize the application configurations for the CI/CD pipeline



Integrate OpenShift GitOps

- Synchronize OpenShift pipeline with OpenShift GitOps for advanced deployment practices
- Update the configuration for the frontend service to refer to the new modernized application



Module 4 - Build Event-Driven Architecture

Modern
Application
Development
Roadshow

Event-Driven Architecture

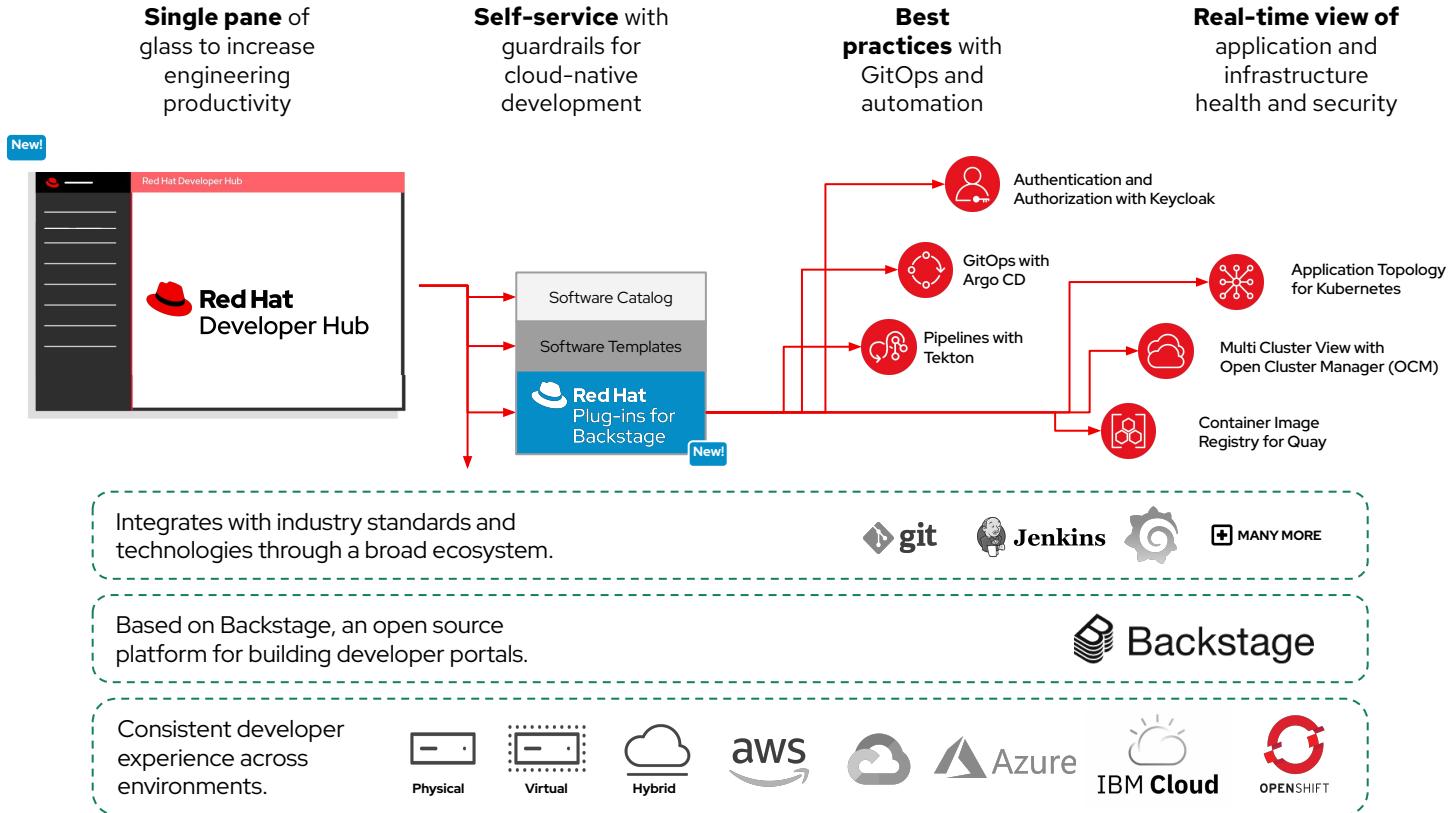
- Build event streaming applications using AMQ Streams (Kafka optimized for OpenShift/Kubernetes)
- Use the Kafka ecosystem to process events at real-time and at scale



Module 5 - Accelerating Software Development

Modern
Application
Development
Roadshow

Empowering engineering to deliver business value faster



Follow Up Questions? Have an App or Solution You'd Like to Discuss?

Athena Diamantis
Emerging Tech Exec
athena@redhat.com
216.469.8607

Chris Duffield
Emerging Tech SSA
cduffiel@redhat.com
513.225.9585

Thank you

Modern Application Development Roadshow

A red outline icon of a cloud with a single white cube inside it, positioned below the word "Development".