

Building Cloud Native Event Driven applications with Knative and CloudEvents

Hugo Hiden and Simon Woodman

Red Hat

hhidden@redhat.com and swoodman@redhat.com

Adopting an Event Driven microservices model allows developers to build applications that are loosely coupled, scalable and easier to maintain. However, in order to develop and operate these architectures at scale requires a significant set of components:

- Scalable service deployment and execution
- Event queuing and distribution
- Auto-scaling
- Build and deployment tooling

Although attempts have been made to address these issues (for example, Apache Openwhisk), Knative represents an attempt at providing a community supported platform that incorporates the following technologies:

Knative Build: A standard API for managing the process of building containers using one of a number of supported build tools.

Knative Serving: Provides function as a service like semantics to microservices including scaling to and from zero in response to HTTP traffic levels.

Knative Eventing: Is an early stage eventing environment that can deliver events via subscriptions and channels asynchronously to Knative Serving functions.

Taken together, these components form the basis of a platform that will, as it matures, allow developers to construct sophisticated applications using modern primitives and deploy them at scale in one of several supported container orchestration platforms.

This talk describes the current state of the Knative platform both on native Kubernetes and also some of the work done by Red Hat to deliver a robust Knative installation running within the Openshift platform. In addition, we will describe a high level abstraction that allows users to build and provision microservices, connect them together to perform a range of stream processing operations and deploy them into one of several supported container environments using a graphical editor which aims to simplify the process of deploying event driven applications within container orchestration environments.