

Introduction to Cloud Native

DevOps

Q & A

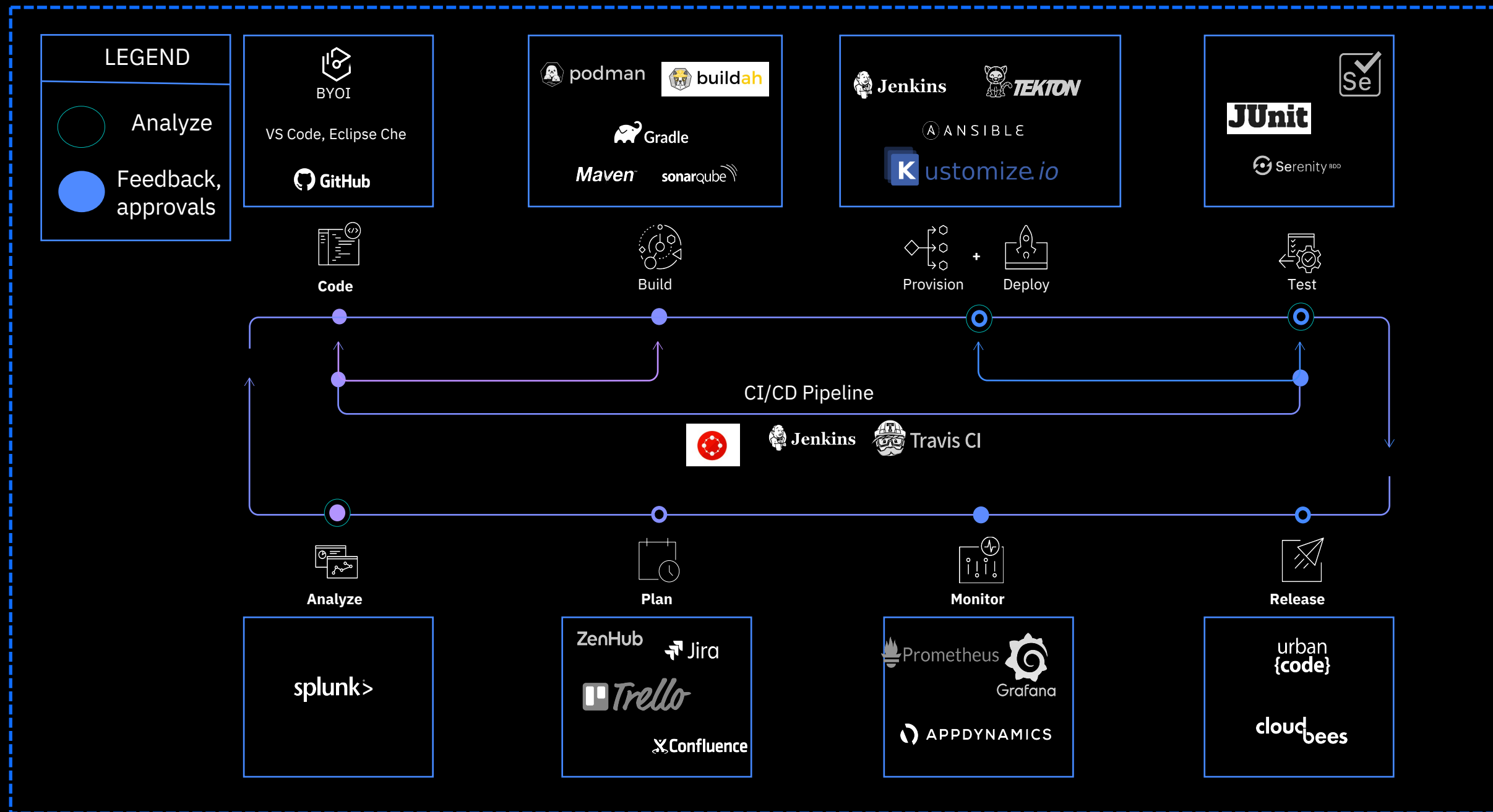
Who is going over this?

Garrett Woodworth
IBM Z Technical Specialist
Blockchain & Kubernetes

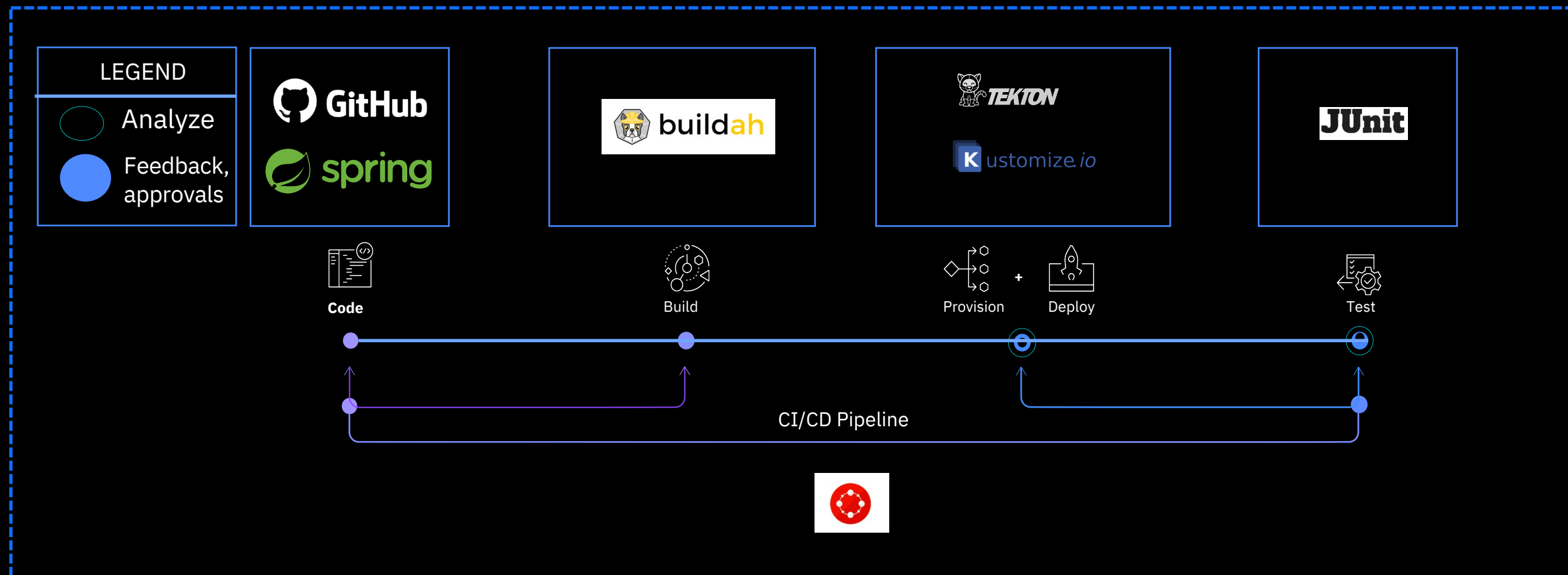
DevOps ?

1. **A portmanteau of development and operations**
2. Signifies the fusion of these 2 formerly disparate IT teams under 1 methodology
3. Uses automation (CI/CD) systems to seamlessly transition code across stages (development, QA, staging) in a multitude of environments
4. Improves delivery speed + quickly identifies problems in code => increases efficiency and hardens code

What is the current state of DevOps?



Where are we focusing today?



Cloud Native DevOps

How are we doing all of that?

OpenShift Pipelines Operator



Red Hat OpenShift Pipelines
Operator
provided by Red Hat

Red Hat OpenShift Pipelines is a
cloud-native CI/CD solution for
building pipelines using Tekton...

Why are we using **OpenShift Pipelines (Cloud Native DevOps)**?

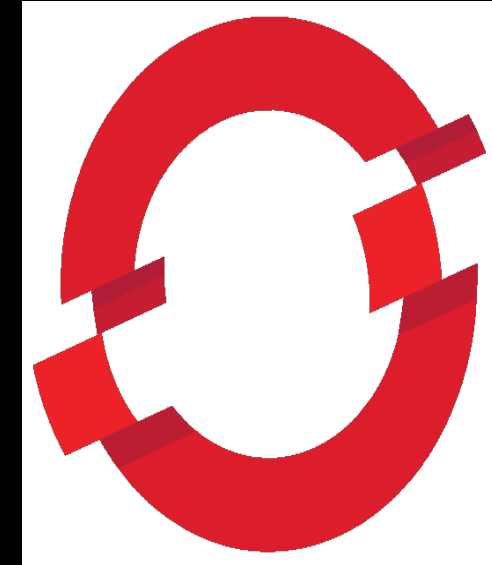
1. **Kubernetes native resources in yaml**
2. **Serverless** with no central server
3. integrates with OpenShift via **easy operator install**
4. **Red Hat supports** the platform with constant improvements and patches
5. Red Hat provides **310+ s390x images** for users that they scan for security vulnerabilities and provide patches
6. Red Hat leverages their images to make cluster tasks that use multi-architecture images and run seamlessly on multiple architectures such as **s390x (IBM Z and LinuxONE)** and amd64 (x86)
7. OpenShift's **interactive pipeline UI** gets users up and running quickly

How does IBM LinuxONE & IBM Z fit?

- includes the fastest commercial processor on the market today at 5.2 GHz, a state-of-the-art four-level cache, and a dedicated I/O subsystem that supports high I/O-bandwidth workloads
- up to 1 trillion HTTPS transactions per day and scale-out to 2.4 million Docker containers in a single system.
- IBM Z provides the highest levels of reliability, availability (up to 99.9999%), and security of any server platform on the market, as cited in the recent independent study which polled 800 organizations worldwide.
- Leverage it as a target with unique benefits in your multcloud

When are the best times to use IBM Z / LinuxONE?

1. Data Gravity
2. Consolidation and TCO Reduction
3. Modernize Existing Applications
4. Blockchain and Digital Assets Management
5. Specific languages such as Java



IBM **LinuxONE™**

So What about Java on **LinuxONE and IBM Z (s390x)?**

1. Java JVM hw + os detection => **optimize existing java code for newest IBM Z / LinuxONE hw without application code changes** (just need to upgrade JVM and underlying stack)
2. Optimizations for **s390x include SIMD, pause-less garbage collection, and on-chip compression**
3. **OpenJ9 is a container-aware JVM** supported by AdoptOpenJDK and IBM SDK Java Tech Edition, Version 8 and 11 => **faster, smaller, more efficient java microservices**

When will we get to the good stuff?

Now

Where can I find some of the best resources?

Lab Site:

- <https://ibm-wsc.github.io/cloud-native-linuxone/>

Lab Resources

- <https://github.com/ibm-wsc/spring-petclinic>
- <https://github.com/tektoncd/cli>
- <https://linuxone.cloud.marist.edu/#/register?flag=OCP>

OpenShift Pipelines:

- <https://docs.openshift.com/container-platform/4.7/cicd/pipelines/understanding-openshift-pipelines.html>
- <https://www.openshift.com/learn/topics/pipelines>
- <https://www.openshift.com/blog/guide-to-openshift-pipelines-part-1-introducing-openshift-pipelines>

OpenShift Multi-architecture Java Images

- https://docs.openshift.com/online/pro/using_images/s2i_images/java.html
- <https://catalog.redhat.com/software/containers/open-liberty-s2i/5d7bf0add095e36f9d387b17>
- <https://catalog.redhat.com/software/containers/search?q=openj9%2F&p=1>

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