CI/CD with OpenShift and Jenkins

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Agenda

- Introduction and Goals
- Jenkins Master/Slave Setup and Tools
- CI/CD Workflow and Pipeline
- Demo
- Q&A

Why Containers?

- Speed
- Agility (Cattle vs Pets)
- Microservices are real
- Ephemeral nature enforces persistent data volume
- Portability / reproducibility

Why OpenShift?

- Run containers in cluster, DNS routing
- Application blueprints (templatize microservices)
- Integrated components and services: Builds, Docker Registry, Jenkins and more...
- Source-to-Image (S2I)

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Goals

- Generalize a container-based CI/CD pipeline
    1. Test every code change automatically
    2. Build image and promote manually
    3. Deploy to Stage
    4. Deploy to Production

- Prevent promotion of broken builds

Jenkins on OpenShift

- Master / Slave

- S2I allows customization of Jenkins image

- Template to turn any builder image into a Jenkins slave
  - Slaves reach out to Jenkins and download JNLP Java agent
  - Slave provides same environment as application runtime
  - Slaves run as Pods and are started on-demand
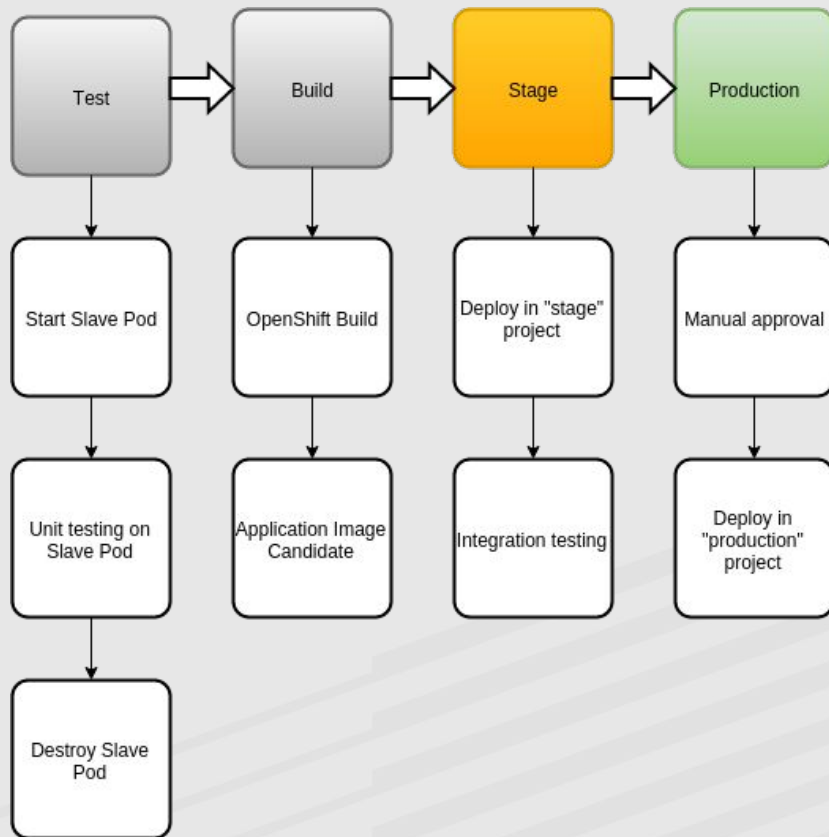
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Jenkins Job Builder

- Jenkins jobs defined locally as YAML templates, uploaded as XML to any Jenkins Master
- Templating reduces redundancy in Jenkins jobs
- Maintain YAML, not XML
- Promotes source control management

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CI/CD Workflow/Pipeline

Enough talk

Show me the demo!

Conclusion

- Creating a custom CI/CD pipeline should be easy
- Openshift Roadmap, release v3.3
    - Example https://github.com/arilivigni/openshift-ci-pipeline
    - Openshift Jenkins Plugin
- Add Delivery Pipeline plugin to show visualization
- Add more features to JJB for Promoted Build plugin

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References

- OpenShift CI

  - **Openshift Jenkins** https://github.com/openshift/jenkins

  - **Example** https://github.com/arilivigni/openshift-ci-pipeline

  - **Vagrant quickstart** https://www.openshift.org/vm/

  - **Video** https://youtu.be/IreIK-jICgY

- Jenkins Plugins

  - Promoted builds plugin https://wiki.jenkins-ci.org/display/JENKINS/Promoted+Builds+Plugin

  - OpenShift pipeline plugin https://wiki.jenkins-ci.org/display/JENKINS/OpenShift+Pipeline+Plugin