

Developing a CD pipeline with Knative

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DevOps Meetup Singapore

A Bit of History

Knative

- Beginning of 2018...
- Knative:
 - Build
 - Eventing
 - Serving
- Contributors:
 - Google
 - Pivotal
 - IBM
 - RedHat
 - Cloudbees
 - ...and others



~Sept 2018: Knative Pipelines



Latest news!

- Focus on CI/CD
- Deploy “anywhere”
- Compatible with Knative Build
- *tektoncd/pipeline*
 - New logo
 - @CD Foundation
 - Roadmap WIP
 - Alpha APIs



Community

- *Valid for Knative. Tekton TBD.*
- Steering Committee (SC)
- Technical Oversight Committee (TOC)
- Various Contribution profiles
- Design, issues: on GitHub
- Communication:
 - Weekly video meetings, recorded, Build WG
 - Asynch: Knative Users / Developers ML
 - Sync: [slack.knative.dev](#)

Tekton Pipelines

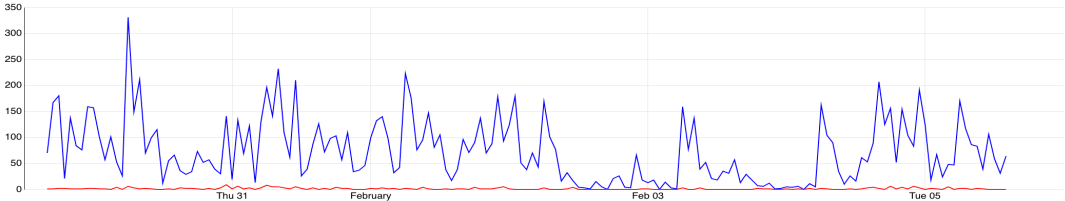
Cloud Native Pipelines



OpenStack Health

is a dashboard for visualizing test results of OpenStack CI jobs.

Total Jobs

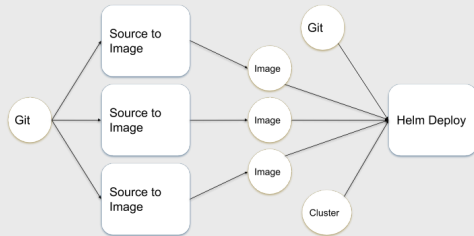


Job Failure Rate



Inputs, Outputs & DAG

- Steps are sequential
- Tasks are a Directed Acyclic Graph
- Order defined by:
 - *from*: input from another task's output
 - *runAfter*: enforced task ordering



Under the Hood

Custom Resources

CRDs: Task(Run), Pipeline(Run), PipelineResource

Services in the *tekton-pipelines* namespace:

- Webhook Service: resource validation
- Controller Service:
 - Handles inputs and outputs
 - Calculates the DAG
 - Provisions pods and containers

Custom Resource Provisioning:

- Via YAML
- Via Go API

Pods, Entrypoints & Volumes

Source to Image to Deploy

IBM Cloud

CD Pipeline as code

Using Kaniko

Cluster resource and secrets

Tekton and Knative

Pipelines and Knative Build

CI for OpenStack Health

CI with Tekton Pipelines

Asynchronous Pipelines

Triggering and Knative Eventing

Tekton and Development

Conclusions

Shall I use Tekton Pipelines?

Roadmap

References

Q&A