

# From Zero to Tekton

An introduction to CI/CD with the Robocat 

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# Andrea Frittoli

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- › CDF Technical Oversight Committee  
Governing Board



# Agenda



Introduction  
From 0 to Tekton  
Roadmap  
Q&A

# Introduction



Photo by Mike Benna, CC0



# Tekton is an open-source framework for creating CI/CD systems

Cloud Native  
Serverless,  
Scalable  
Pipelines



Standardization  
Built In Best  
Practices  
Maximum  
Flexibility

Core:  
➤ Pipeline  
➤ Triggers  
➤ Chains

Tools:  
➤ CLI,  
Dashboard  
➤ Operator

Authoring:  
➤ Catalog, Hub  
➤ ArtifactHub  
  
New:  
➤ Results  
➤ Workflows



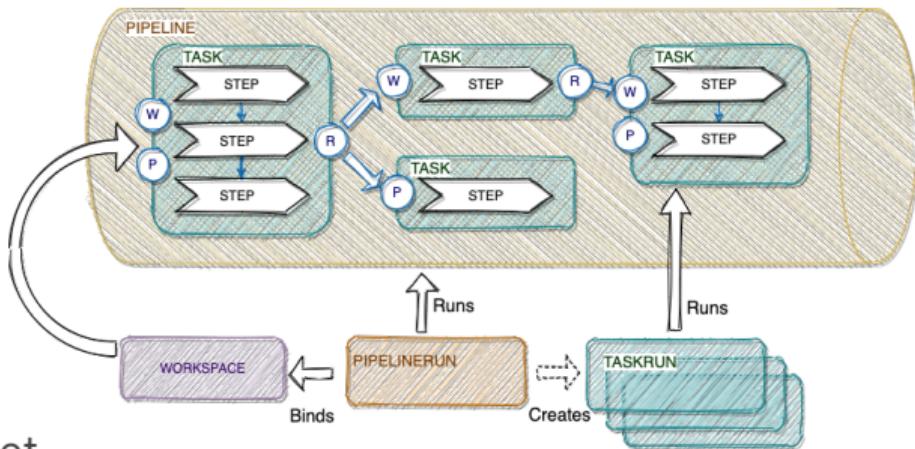
# At a Glance

- › 2018 Initial concept
- › 2019 Donated to CD Foundation
- › 2022 Graduated Project
  - LTS Releases
  - Adoptions
  - Best Practices
  - Security
- › Jan 2023 Tekton v1 API
- › 150+ Companies
- › Google, IBM, RedHat, VMWare & others



# At a Glance

- › Extend the k8s API with CRDs
- › Definitions: Task, Pipeline
- › Execution: TaskRun, PipelineRun
- › Bindings:
  - Workspaces, Parameters, Results
- › TaskRun -> Pod
- › Step -> Container
- › Workspace -> Volume, Configmap, Secret



# From 0 to Tekton ...step by step





# Install

- One-liner (almost)
- Tekton Operator ([OperatorHub](#))
- Nightly Builds (Operator too)
- OpenShift Pipelines
  
- Multi-architecture (amd64, s390x, ppc64le, arm64)
- Multi-OS (Workloads can run on Windows/amd64)
  
- Let's install it!



# Authoring

- › Tasks & Pipelines 
- › Parameters, Results & Workspaces
- › Conditions, Matrices
- › Sidecars, "Final" tasks
- › Catalog & Hub 
- › Git, OCI Registries
- › Trusted Resources 
- › Let's install some tasks and pipelines



Photo by [Thom Milkovic](#), CC0





# Watching

- Running Tasks & Pipelines
- Tekton Dashboard
- tkn, kubectl
- Pods, Volumes & Events
- OpenShift Console

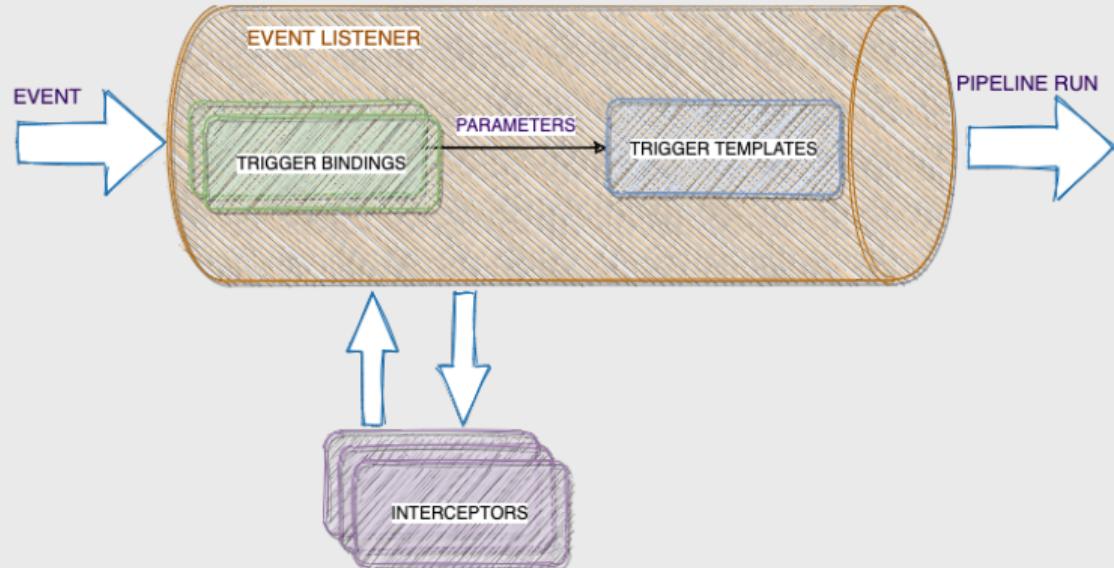
# Launching

- › Tekton Triggers
- › Setting up a Webhook
- › Filtering with Interceptors
- › Filtering with When Expressions



# Launching

- › Event Listener
- › Triggers
- › Interceptors
- › Bindings
- › Templates



# Monitoring & Observability

- Unattended Execution
- Events, CloudEvents
  - Notifications:  
GitHub, Slack and more
- Metrics
- Long term result storage
- Tracing (coming soon)



# Advanced & Security

## Tekton Chains

- Artifact signing
- Artifact provenance
- Sigstore integration

## Custom Task

- Pipeline in Pipelines
- Wait Task, GitHub Status

## Custom Interceptors Trigger Groups

## Tekton Pipelines

- Trusted Resources (alpha)
- Non-falsifiable Provenance (alpha)
- Hermetic Builds (alpha)
- Working towards SLSA lvl3

## Workflows

- Quick-start Tekton CI
- Configuration in Git
- SCM Webhooks & Notifications
- Concurrency controls





# Roadmap



# Roadmap & Vision

## Mission:

- › Be the industry-standard, cloud-native CI/CD platform components and ecosystems

## Vision:

- › A rich catalog of high quality, reusable Tasks which work with Tekton conformant systems

## Vision:

- › Tekton API conformance across as many CI/CD platforms as possible

## Roadmap 2023:

- › Tekton V1 API
- › Security Features
- › Observability
- › Workflows
- › User stories, Documentation





# Thank You! Questions?

# References

- › Come and Join Us at Tekton!
- › Tekton community: [github.com/tektoncd/community](https://github.com/tektoncd/community)
- › Slides: [github.com/afrittoli/zero\\_to\\_tekton](https://github.com/afrittoli/zero_to_tekton)
- › Tekton: [tekton.dev](https://tekton.dev)
- › Tekton Docs: [tekton.dev/docs](https://tekton.dev/docs)
- › Tekton on GitHub: [github.com/tektoncd](https://github.com/tektoncd)
- › Tekton on Operator Hub:  
<https://operatorhub.io/operator/tektoncd-operator>
- › Tekton Enhancement Proposals (TEPs):  
[github.com/tektoncd/community/tree/main/teps](https://github.com/tektoncd/community/tree/main/teps)

