

From Zero to Tekton

An introduction to CI/CD with the Robocat 

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Agenda



Introduction
From 0 to Tekton
Roadmap
Q&A

Introduction



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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



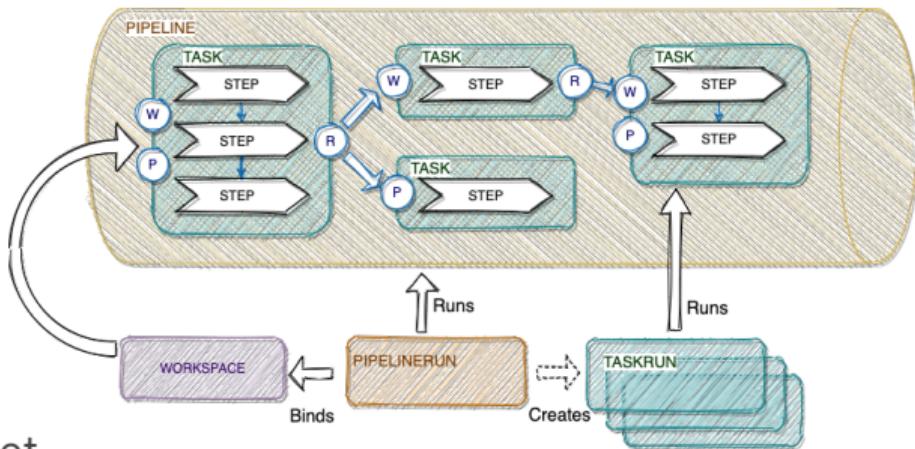
At a Glance

- › 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



Monitoring & Observability

- Unattended Execution
- Events, CloudEvents
 - Notifications:
GitHub, Slack and more
- Long term result storage
- Metrics
- 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
- › Slides: github.com/afrittoli/zero_to_tekton
- › Tekton: tekton.dev
- › Tekton Docs: tekton.dev/docs
- › Tekton on GitHub: github.com/tektoncd
- › Tekton on Operator Hub:
<https://operatorhub.io/operator/tektoncd-operator>
- › Tekton Enhancement Proposals (TEPs):
github.com/tektoncd/community/tree/main/teps

