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# TEKTON

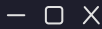
Zoltan Vigh  
Cloud Engineer

@CodeFactory





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- K8s
- CI/CD
- Microservice development



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















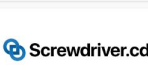



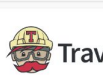






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# /CI/CD LANDSCAPE (OpenSource)

|   |  |   |   |  |  |   |
|---|--|---|---|--|--|---|
| <br><b>Argo</b><br>Saint Lab<br>★ 1,088  | <br><b>AKUITY</b><br>Akuity<br>★ 8,559<br>Funding: \$4.5M   | <br><b>argo</b><br>Argo<br>★ 10,820<br>Funding: \$3M<br>Cloud Native Computing Foundation (CNCF) | <br><b>BRIGADE</b><br>Brigade<br>★ 2,287<br>Funding: \$3M<br>Cloud Native Computing Foundation (CNCF) | <br><b>CARTOGRAPHER</b><br>Cartographer<br>★ 254<br>VMware<br>MCap: \$47.1B                               | <br><b>Concourse</b><br>Concourse<br>★ 4,395<br>VMware<br>MCap: \$47.1B                                     | <br><b>DolphinScheduler</b><br>DolphinScheduler<br>★ 7,818<br>The Apache Software Foundation |
| <br><b>Drone</b><br>Drone.io<br>★ 24,193<br>Funding: \$28K                         | <br><b>flagger</b><br>Flagger<br>★ 3,549<br>Funding: \$3M<br>Cloud Native Computing Foundation (CNCF) | <br><b>flux</b><br>Flux<br>★ 3,085<br>Funding: \$3M<br>Cloud Native Computing Foundation (CNCF)  | <br><b>GitLab</b><br>GitLab<br>★ 22,881<br>MCap: \$6.1B  | <br><b>go</b><br>GoCD<br>★ 4,439<br>MCap: \$6.1B  | <br><b>hyscale</b><br>Hyscale<br>★ 431  | <br><b>Jenkins</b><br>Jenkins<br>★ 18,898<br>Continuous Delivery Foundation (CDF)            |
| <br><b>JENKINSX</b><br>JenkinsX<br>★ 4,125<br>Continuous Delivery Foundation (CDF) | <br><b>k6</b><br>k6<br>★ 16,356<br>Funding: \$335.3M  | <br><b>Keploy</b><br>Keploy<br>★ 443   | <br><b>keptn</b><br>Keptn<br>★ 1,308<br>Funding: \$3M<br>Cloud Native Computing Foundation (CNCF)      | <br><b>OpenGitOps</b><br>OpenGitOps<br>★ 210<br>Funding: \$3M<br>Cloud Native Computing Foundation (CNCF) | <br><b>OpenKruise</b><br>OpenKruise<br>★ 3,872<br>Funding: \$3M<br>Cloud Native Computing Foundation (CNCF) | <br><b>Ortelius</b><br>Ortelius<br>★ 220<br>Continuous Delivery Foundation (CDF)             |
| <br><b>PipeCD</b><br>PipeCD<br>★ 572<br>MCap: \$6B                                 | <br><b>Razee</b><br>Razee<br>★ 404<br>MCap: \$112.9B  | <br><b>Screwdriver.cd</b><br>Screwdriver<br>★ 426<br>Continuous Delivery Foundation (CDF)        | <br><b>Spinnaker</b><br>Spinnaker<br>★ 8,430<br>Continuous Delivery Foundation (CDF)                   | <br><b>TEKTON</b><br>Tekton Pipelines<br>★ 7,817<br>Continuous Delivery Foundation (CDF)                  | <br><b>TESTKUBE</b><br>TestKube<br>★ 210<br>Kubeshop  | <br><b>Travis CI</b><br>Travis CI<br>★ 594<br>Travis CI                                      |
| <br><b>werf</b><br>Flant<br>★ 3,046  | <br><b>Woodpecker CI</b><br>Woodpecker CI<br>★ 891  |   |   |  |  |   |






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# /CNCF Tekton





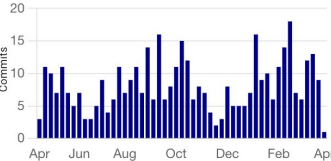

LF Project

Open Source Software

License Apache License 2.0

CII Best Practices 19%

Go 99%  
Shell 1%  
Makefile <1%  
Mustache <1%  
Dockerfile <1%



## Tekton Pipelines

Continuous Delivery Foundation (CDF)


App Definition and Development · Continuous Integration & Delivery

A cloud-native Pipeline resource.

|              |   |
|--------------|---|
| Website      | <a href="https://tekton.dev">tekton.dev</a>   |
| Repository   | <a href="https://github.com/tektoncd/pipeline">github.com/tektoncd/pipeline</a> ★7,017  |
| Crunchbase   | <a href="https://crunchbase.com/organization/continuous-delivery-foundation-cdf">crunchbase.com/organization/continuous-delivery-foundation-cdf</a> |
| Twitter      | <a href="https://twitter.com/tektoncd">@tektoncd</a> Latest Tweet this week   |
| First Commit | 4 years ago Latest Commit this week   |
| Contributors | 253 Latest Release about a month  |
| Headquarters | San Francisco, California Headcount 1-10  |

### Tweets by @tektoncd

tektoncd Retweeted

 **Tom Hennen**  
@inyourbits

I never thought I'd be a dance instructor. Learn how to SLSA: [security.googleblog.com/2022/04/how-to...](https://security.googleblog.com/2022/04/how-to...)



# /WHAT IS TEKTON?



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

Cloud Native  
Powerful and flexible

Allows developers to build,  
test, and deploy across  
cloud providers and  
on-premise systems.

**TEKTON**

Contributions from Google,  
Red Hat, IBM, Cloudbees,  
Pivotal and **many** more

Governed by the Continuous  
Delivery Foundation



# /TEKTON GOALS



## /Standardization

Tekton standardizes CI/CD tooling and processes across vendors, languages, and deployment environments. It works well with many popular CI/CD tools.

## /Built In Best Practices

Tekton lets you create CI/CD systems quickly, giving you scalable, serverless, cloud native execution out of the box.

## /Maximum Flexibility

Tekton abstracts the underlying implementation so that you can choose the build, test, and deploy workflow based on your team's requirements.



# /BUILDING BLOCKS



- › **Pipelines:** Standardized definitions for building CI/CD pipelines such as Tasks, Pipelines, and Steps
- › **Triggers:** Run pipelines from webhook events.





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# /TOOLING



- › **Dashboard:** A web UI for Tekton
- › **tkn:** A CLI for interacting with Tekton
- › **Operator:** Manage Tekton installation and upgrades.







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# /TEKTON PIPELINES



- › **Step:** Run commands in a container with volumes, env vars, etc
- › **Task:** A list of steps that run sequentially in the same pod
- › **Pipeline:** A graph of tasks with inputs and outputs executed in a certain order
- › **TaskRun** and **PipelineRun:** An invocation of a task or pipeline with inputs and outputs



Tekton Dashboard

Tekton resources

Pipelines

PipelineRuns

PipelineResources

Tasks

ClusterTasks

TaskRuns

Conditions

EventListeners

Triggers

TriggerBindings

ClusterTriggerBindings

TriggerTemplates

ClusterInterceptors

Import resources

About Tekton

Settings

About Tekton

Tekton is a powerful and flexible open-source framework for creating CI/CD systems, allowing developers to build, test, and deploy across cloud providers and on-premises systems.

Environment details

Dashboard

Namespace  
tekton-pipelines

Version  
v0.25.0

Pipelines

Namespace  
tekton-pipelines

Version  
v0.34.1

Triggers

Namespace  
tekton-pipelines

Version  
v0.19.1

Documentation

Overview of Tekton


Components, benefits and caveats, common usage


Concepts


Technical information and architecture


Tasks and Pipelines

Building blocks of Tekton CI/CD workflow







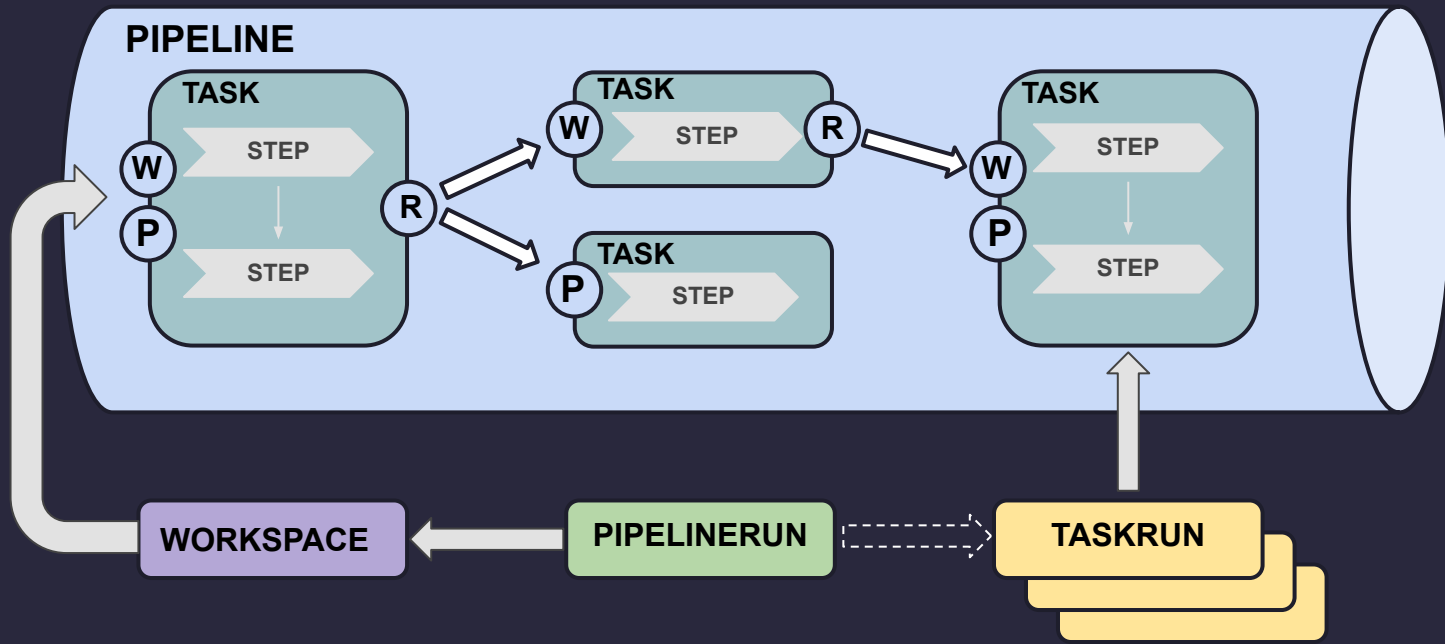




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— □ ×

# /TEKTON PIPELINES





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```
apiVersion: tekton.dev/v1beta1
kind: Task
metadata:
  name: mytask
spec:
  steps:
    - name: writesomething
      image: ubuntu
      command: ["bash", "-c"]
      args: ["echo 'foo' > /my-cache/bar"]
      volumeMounts:
        - name: my-cache
          mountPath: /my-cache
```

```
apiVersion: tekton.dev/v1beta1
kind: Pipeline
metadata:
  name: mypipeline
spec:
  tasks:
    - name: task1
      taskRef:
        name: mytask
```

```
apiVersion: tekton.dev/v1beta1
kind: PipelineRun
metadata:
  name: mypipelinerun
spec:
  pipelineRef:
    name: mypipeline
  podTemplate:
    securityContext:
      runAsNonRoot: true
      runAsUser: 1001
    volumes:
      - name: my-cache
        persistentVolumeClaim:
          claimName: my-volume-claim
```



Last updated 3 days ago

Rerun Succeeded Tasks Completed: 11 (Failed: 0, Cancelled 0), Skipped: 0 

✓ validate-runfile ▾

✓ create-namespace ▾

✓ create-rolebinding ▾

✓ create-network-policy ▾

✓ create-resourcequota ▾

✓ create-secrets ▾

✓ create-gitlab ▾

✓ create-artifactory ▾

✓ create-artifactory-repository

✓ create-service-user

✓ create-artifactory-permission

✓ install-ingress-nginx ▾

✓ install-blackbox-exporter ▾

✓ create-dns-record ▾

✓  create-artifactory Succeeded

Duration: 12 seconds

Parameters

Status

Pod

Name

Value

Description

dps

Defines the dps name

tekton-dps-env-create-secrets

tekton-dps-env-create-secrets

name of the secret holding the github-token





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# /TEKTON TRIGGERS

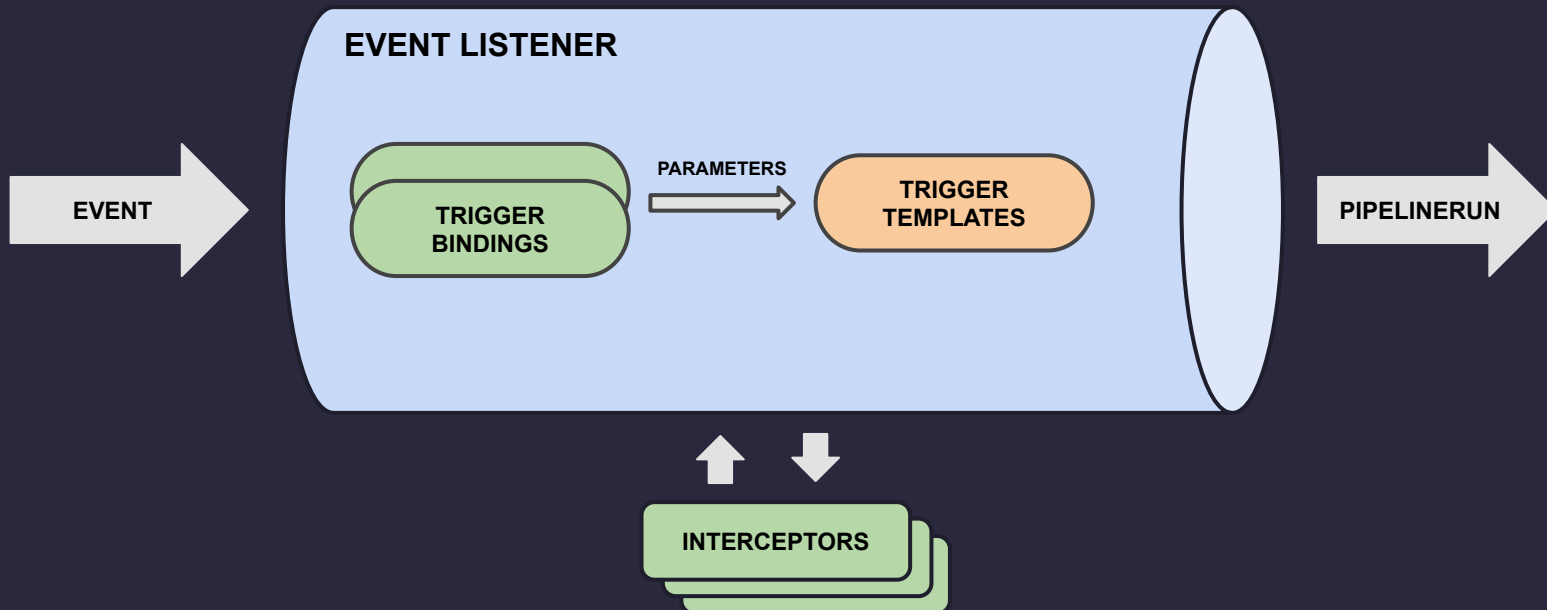
- › **Event Listener:** Listen and process incoming events
- › **Interceptors:** Filter and validate incoming events
- › **Trigger Binding:** Extract params from incoming events
- › **Trigger Template:** An invocation of a pipeline with inputs and outputs





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# /TEKTON TRIGGERS





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/DEMO



DEMO

