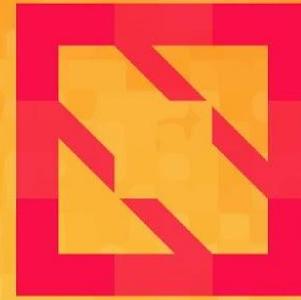




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Deep Dive: cncf.ci v3

*W. Watson & Denver Williams,
Vulk Cooperative*



Agenda:



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- **Quick Intro**
 - **cncf.ci Team, Goals, Key features**
 - **Dashboard Walk-through**
- **Deep Dive: Adding new CNCF-projects**
 - **How to**
 - **Challenges**
 - **Benefits**
 - **Code Review**
- **Stay Connected**
- **Q&A [5-10 minutes]**

Meet Vulk Cooperative



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vulk.coop

- Worker-owned software cooperative
- Since 2013
- Meetups in Austin, TX
 - Austin Software Co-operatives
 - Open Source Axes
- Connect with us
 - twitter.com/vulkcoop
 - twitter.com/opensourceaxes

Meet the cncf.ci Team



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Taylor Carpenter
[@taylor](#)

Lucina Stricko
[@lixuna](#)

W. Watson
[@wavell](#)

Denver Williams
[@denverwilliams](#)



Ashleigh Gregory*
[@ashleighgregory](#)

William Harris*
[@williscool](#)

Joshua Smith*
[@nupejosh](#)

Robert Siekmann*
[@rsiekmann](#)

Intro



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CI DASHBOARD: Overview

🕒 Last updated: 1 minute ago

Test environment



Graduated Projects	Release	Build	Deploy	Test
CoreDNS Service Discovery	v1.6.4	<input checked="" type="checkbox"/> SUCCESS	<input checked="" type="checkbox"/> SUCCESS	<input type="checkbox"/> N/A
	dfcb4ed	<input type="checkbox"/> FAILED	<input type="checkbox"/> FAILED	<input type="checkbox"/> N/A
Envoy Service Mesh	v1.11.1	<input checked="" type="checkbox"/> SUCCESS	<input checked="" type="checkbox"/> SUCCESS	<input type="checkbox"/> N/A
	8438e37	<input type="checkbox"/> FAILED	<input type="checkbox"/> FAILED	<input type="checkbox"/> N/A
Fluentd Logging	v1.7.3	<input checked="" type="checkbox"/> SUCCESS	<input checked="" type="checkbox"/> SUCCESS	<input type="checkbox"/> N/A
	90534ef	<input type="checkbox"/> FAILED	<input type="checkbox"/> FAILED	<input type="checkbox"/> N/A
Jaeger Distributed Tracing	v1.14.0	<input checked="" type="checkbox"/> SUCCESS	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A
	98ae8d	<input checked="" type="checkbox"/> SUCCESS	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A
Prometheus Monitoring	v2.13.0	<input checked="" type="checkbox"/> SUCCESS	<input checked="" type="checkbox"/> SUCCESS	<input type="checkbox"/> N/A
	5f1be2c	<input type="checkbox"/> FAILED	<input type="checkbox"/> FAILED	<input type="checkbox"/> N/A



The cncf.ci project consists of a **CI testing system**, **status repository server** and a **dashboard** -- cncf.ci.

The CI testing system **validates** the build and deployment of each CNCF project for any commit on stable and HEAD using x86 and Arm architectures on bare metal (Packet) servers.

The CI testing system can **reuse** existing artifacts from a project's CI system or generate new build artifacts.

The status repository server **collects** the test results and the dashboard **displays** them.

Goals

Goals:

- To **compliment** the CNCF landscape and trail map -- l.cncf.io
- To **promote** CNCF hosted projects and help attract more projects to CNCF
- To **demonstrate** the use of cloud native technologies on multiple test environments
- To **support** and **contribute** to a sustainable and scalable project ecosystem
- To get **feedback** from cloud native end users and projects
- To **provide** a third party, **unbiased validation** of build, deploy and e2e tests for CNCF Graduated and Incubating projects

Displaying CNCF Projects

Graduated



Incubating



Displaying ONAP SO Project



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CNCF Launches Cross-Cloud CI Project &
Adds ONAP Networking Project to
Dashboard Overview

“...Our CNCF demo at ONS will illustrate to carriers that Kubernetes and ONAP are key to the future of network virtualization.”

- Dan Kohn, CNCF executive director



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Key features of `cncf.ci`



Key Features



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1. Project-centric -- highlight and validate CNCF-hosted Graduated and Incubating projects:

- Validate stable and HEAD releases of Graduated and Incubating projects
- Re-use build containers that are provided by a project's CI System
- Re-use upstream Helm charts
- Re-use end-to-end tests provided by projects

Key Features

2. Collaboration -- increased engagement with CNCF

Project maintainers:

- Maintainers can update **project** and **release** details via a GitHub pull request
- Maintainers can provide **Helm charts** and **smoke tests** for the **deploy phase**
- Maintainers can provide **end-to-end tests** for the **test phase**
- CI Testing System will integrate with external CI systems to **retrieve** a CNCF Project's **build status** and **container artifacts**

Key Features



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3. Agnostic testing -- validate projects in a configurable and neutral test environment:

- Per Kubernetes Release
 - Stable
 - HEAD
- Per Architecture
 - X86
 - Arm
- Bare Metal
 - Packet



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Dashboard Walk-through



Walk-through: cncf.ci



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CI DASHBOARD: Overview

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Test environment



Graduated Projects	Release	Build	Deploy	Test
CoreDNS Service Discovery	v1.6.4	<input checked="" type="checkbox"/> SUCCESS	<input checked="" type="checkbox"/> SUCCESS	<input type="checkbox"/> N/A
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Fluentd Logging	v1.7.3	<input checked="" type="checkbox"/> SUCCESS	<input checked="" type="checkbox"/> SUCCESS	<input type="checkbox"/> N/A
	90534ef	<input type="checkbox"/> FAILED	<input type="checkbox"/> FAILED	<input type="checkbox"/> N/A
Jaeger Distributed Tracing	v1.14.0	<input checked="" type="checkbox"/> SUCCESS	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A
	98ae8d	<input checked="" type="checkbox"/> SUCCESS	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A
Prometheus Monitoring	v2.13.0	<input checked="" type="checkbox"/> SUCCESS	<input checked="" type="checkbox"/> SUCCESS	<input type="checkbox"/> N/A
	5f1be2c	<input type="checkbox"/> FAILED	<input type="checkbox"/> FAILED	<input type="checkbox"/> N/A

Walk-through: cncf.ci



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CI DASHBOARD: Overview

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Test environment

Kubernetes → **containerd** → **Architecture** → *packet* → **SUCCESS**

v1.16.2 containerd 1.3.0 x86

c3po12 N/A Arm

Graduated Projects



CoreDNS
Service Discovery

Release

v1.6.4

dfcb4ed

Build

SUCCESS

FAILED

Deploy

SUCCESS

FAILED

Test

N/A

N/A



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Deep Dive

How to add a CNCF-project to cncf.ci





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How to Add a Project



Project Maintenance



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1. Go to <https://github.com/crosscloudci>
2. Open the **<project>-configuration** repo for your CNCF Project, ie. [prometheus-configuration](#)
3. Create a **fork of the project** to make updates
4. Open the [cncfci.yml](#) file on the **master** branch
5. Update content, as needed:
 - a. **logo_url**:
"<https://raw.githubusercontent.com/cncf/artwork/master/prometheus/icon/color/prometheus-icon-color.svg?sanitize=true>" (for svg format, append `?sanitize=true` to url)
 - b. **display_name**: (e.g. Prometheus)
 - c. **sub_title**: (e.g. Monitoring)
 - d. **stable_ref**: (e.g. v2.13.0)
 - e. **head_ref**: (e.g. master)
 - f. **project_url**: (e.g..
<https://github.com/prometheus/prometheus>
")
6. Submit a **pull request** to master branch

The screenshot shows the configuration page for CoreDNS in the Kubernetes ecosystem. At the top, there are controls for the test environment, including 'Kubernetes', 'Stable v1.16.2', 'Head 5713c22', 'x86', and 'Arm'. Below this, the 'Graduated Projects' section shows 'CoreDNS Service Discovery'. To the right, the 'Release' section shows 'v1.6.4' with commit '8668079' and two 'SUCCESS' build status buttons. A red circle highlights the 'project:' section of the configuration, which contains the following fields:

```
project:  
  logo_url: "https://raw.githubusercontent.com/cncf/artwork/master/projects/prometheus/icon/color/prometheus-  
icon-color.svg?sanitize=true"  
  display_name: Prometheus  
  sub_title: Monitoring  
  project_url: "https://github.com/prometheus/prometheus"  
  stable_ref: "v2.13.0"  
  head_ref: "master"
```

Red arrows indicate the flow of information: one arrow points from the 'logo_url' field to the 'Graduated Projects' section, another points from the 'display_name' field to the 'Release' section, and a third points from the 'project_url' field to the 'Graduated Projects' section.

CI System Configuration



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```
1  project:
2    logo_url: "https://raw.githubusercontent.com/cncf/artwork/master/other/cncf/horizontal/color/cncf-color.svg?sanitize=true"
3    display_name: Test Project
4    sub_title: Testing
5    project_url: "https://github.com/crosscloudci/testproj"
6    stable_ref: "v0.0.4"
7    head_ref: "master"
8    ci_system:
9      -
10     ci_system_type: "travis-ci"
11     ci_project_url: "https://github.com/crosscloudci/testproj"
12     ci_project_name: "crosscloudci/testproj"
13     arch:
14       - amd64
15
```

- Create a **ci_system** element
 - The **ci_system** element is an array which represents a list of all of the ci_systems (e.g. multiple Travis endpoints, a Travis and a Jenkins endpoint, etc) for a project
 - **ci_system_type** is the type of ci system. Use "travis-ci" for Travis
 - **ci_project_url** is the source control url for the project.
 - **ci_project_name** is the organization and project name of the project in the ci_system (e.g. crosscloudci/testproj)
 - **arch** is a list of architectures that are supported. e.g. amd64, arm64



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Challenges



Cross Pipeline Problem



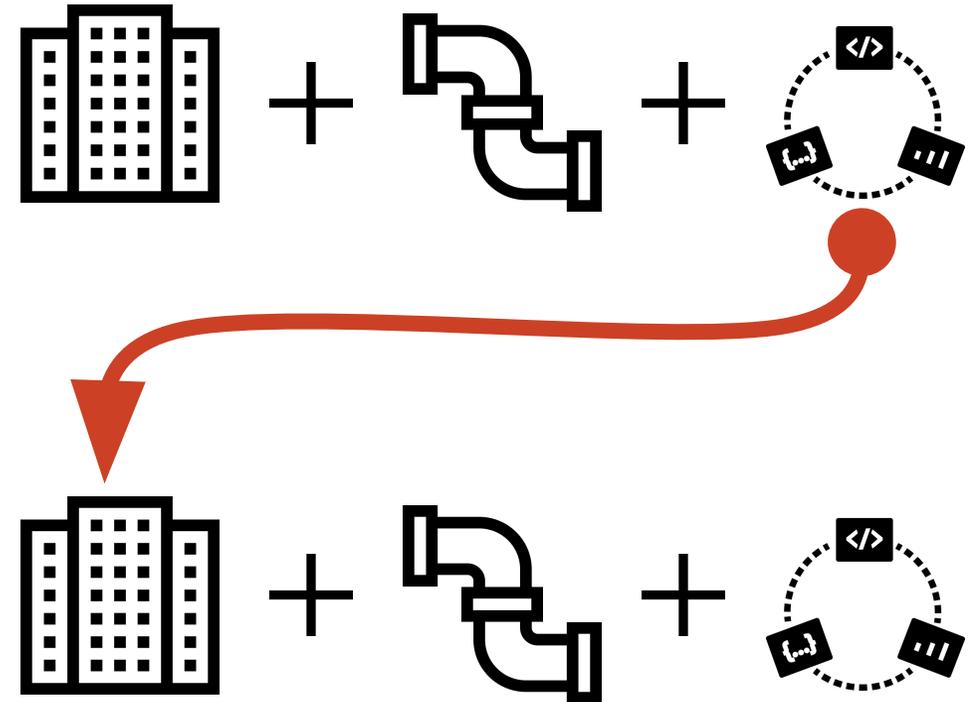
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- One organization
 - A pipeline
 - A ci/cd tool
- Is used by ...
 - **Another** organization
 - A **different** pipeline
 - Which uses **different** CI/CD tool





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Benefits



Clear Engagement Steps



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- Allows project maintainers to have more control over the visibility of their project
 - Branding
 - Logos
 - Names
 - Subtitles
 - Release
 - Stable version
 - HEAD branch

Cross-Pipeline Architecture



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- Standard way to consume
 - Build status
 - Artifacts
 - Test status
- Abstract away changes that occur in versions of the CI/CD tool



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Code Review



Retrieve Build Status



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```
curl -f -X GET "https://productionapi.cncf.ci/ciproxy/v1/ci_status_build/commit_ref?project=${CI_PROJECT_NAME}&ref=${CI_COMMIT_SHA}&arch=$ARCH"
```

- **Review `.gitlab-ci.yml`** and make a note of the curl command that calls the **external ci proxy** (i.e. <https://github.com/crosscloudci/<your-project>-configuration/blob/master/.gitlab-ci.yml>)
- Artifacts and test statuses will be retrieved in a similar manner in the future

Optional: Build a CI Proxy Plugin



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https://github.com/crosscloudci/ex_ci_proxy/blob/master/README.md

What is a ci proxy plugin?

A Simple CLI tool for consuming status information from a project's CI/CD pipeline

CI CLI API

```
./ci_plugin_travis_go status -p "linkerd/linkerd2" -c f27d7b6545bf1597b7d5faa9a81b6a05c1667b2
status build_url
success https://travis-ci.org/linkerd/linkerd2/builds/315084566
```

Arguments

1. -p or --project is the **project name** in the format of orgname/project
2. -c or --commit is the **commit reference**
3. -t or --tag is the **tag name**

Status executable and response format

1. The output is **tab delimited**
2. The **first line** is a **header**
3. The **second line** is **data**
4. The **status** should be success, failure, or running
5. The **build_url** should be the url where the status was found

Optional: Build a Proxy Plugin



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Why have a CI Proxy?

- One stop shop for statuses
 - **Build** status
 - **Artifact** links
 - **Integration test** results

Add CI Proxy plugin configuration

- **Name** is the name of the plugin
- **Interface** type of plugin
- **Repo** is the github location of the plugin
- **Ref** is the branch or tag of the plugin

ex_ci_proxy / ci_plugins.yml

Cancel

<> Edit file

Preview changes

```
1 plugins:
2   - name: "travis-ci"
3     interface: "cli"
4     repo: "http://github.com/crosscloudci/ci_plugin_travis_go"
5     ref: "v0.0.5"
6
```



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Get Connected



How to Collaborate



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- **Add/update a CNCF project, see the Contributing Guide:**
 - <https://github.com/crosscloudci/crosscloudci/blob/master/CONTRIBUTING.md>
- **Create issues/PR on GitHub:**
 - <https://github.com/crosscloudci/ci-dashboard/issues>
- **Subscribe to the CNCF CI public mailing list:**
 - <https://lists.cncf.io/g/cncf-ci-public>
- **Join #cncf-ci on CNCF Slack:**
 - <https://slack.cncf.io>
- **Attend CI WG Public Meetings:**
 - <https://github.com/cncf/wg-ci>
 - **4th Tuesday of month > Next Meeting: January 28th**

Connect with the Team

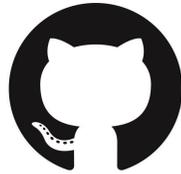


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@crosscloudci



@cncfci / @vulkcoop



#cncf-ci



cncfci@vulk.coop



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Q&A



Thank You!



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Presentation prepared by:



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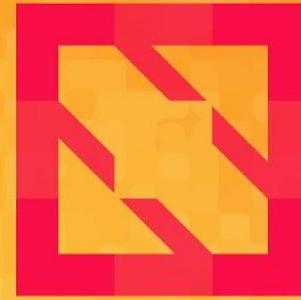
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