KubeCon
CloudNativeCon
North America 2019

Deep Dive: cncf.ci

W. Watson & Denver Williams,
Vulk Cooperative

Agenda:

- 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

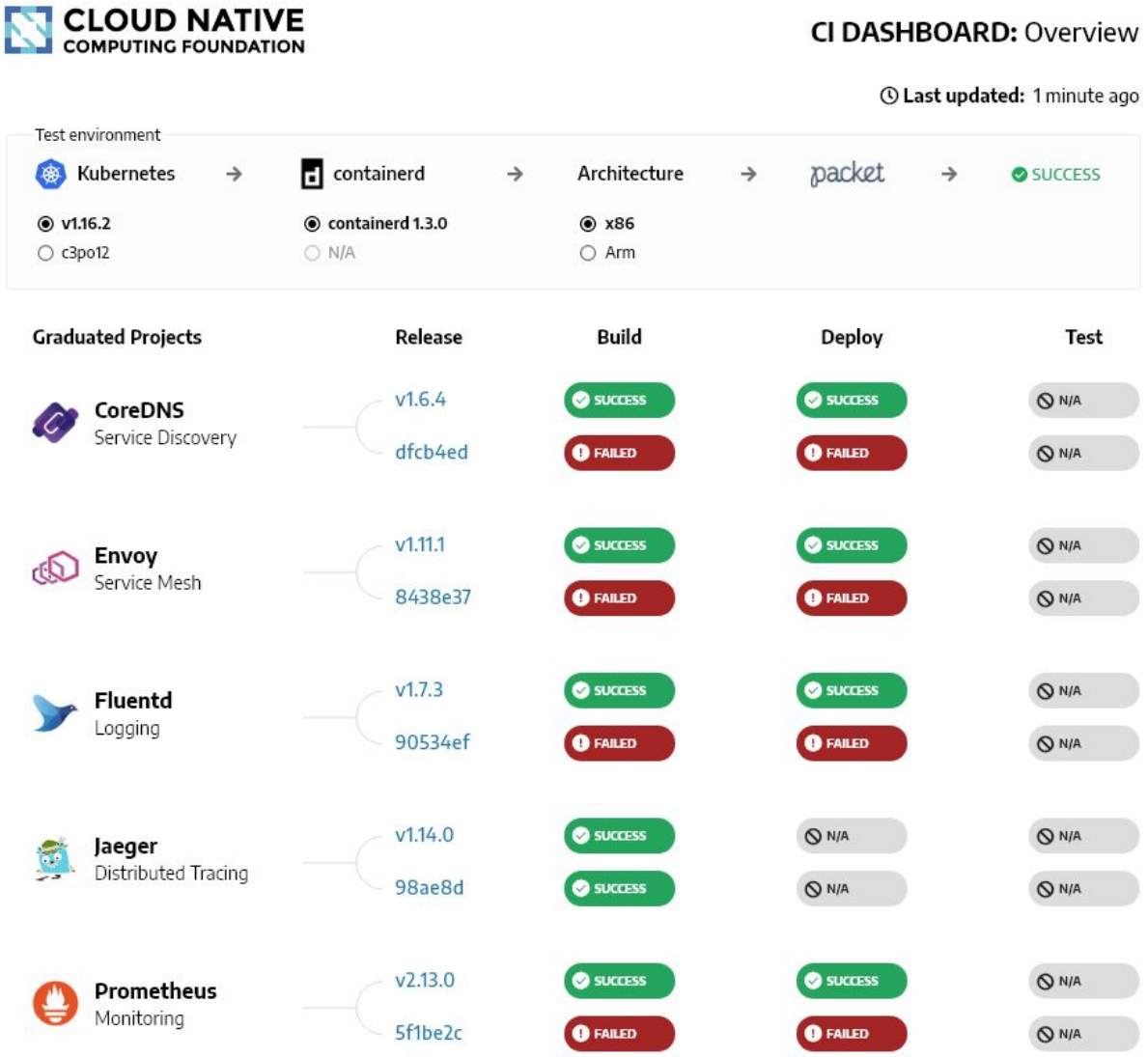
vulk.coop

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

Meet the cncf.ci team

- **Taylor Carpenter**
  @taylor
- **Lucina Stricko**
  @lixuna
- **W. Watson**
  @wavell
- **Denver Williams**
  @denverwilliams
- **Joshua Smith***
  @nupejosh
- **Robert Siekmann***
  @rsiekmann
- **William Harris***
  @williscool

Intro


CLOUD NATIVE
COMPUTING FOUNDATION
CI DASHBOARD: Overview
Last updated: 1 minute ago
Test environment
Kubernetes
containerd
Architecture
packet
SUCCESS
v1.16.2
c3po12
containerd 1.3.0
N/A
x86
Arm
Graduated Projects
Release
Build
Deploy
Test
CoreDNS
Service Discovery
v1.6.4
dfcb4ed
Envoy
Service Mesh
v1.11.1
8438e37
Fluentd
Logging
v1.7.3
90534ef
Jaeger
Distributed Tracing
v1.14.0
98ae8d
Prometheus
Monitoring
v2.13.0
5f1be2c
SUCCESS
FAILED
N/A

Intro

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 to x86 and Arm architectures on bare metal (Packet) servers.

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

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

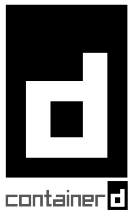
Goals

Goals:

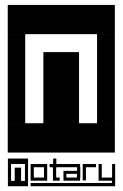
- To compliment the CNCF landscape and trail map -- l.cncf.io
- To promote CNCF hosted projects and help attract more projects to CNCF
- To demonstrate the use of cloud native technologies on multiple test environments
- To support and contribute to a sustainable and scalable project ecosystem
- To get 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

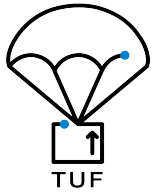
Displaying CNCF Projects

Graduated



Incubating





Displaying ONAP SO Project

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

Key features of cncf.ci

Key Features

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 -- increase engagement with CNCF

Project maintainers:

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

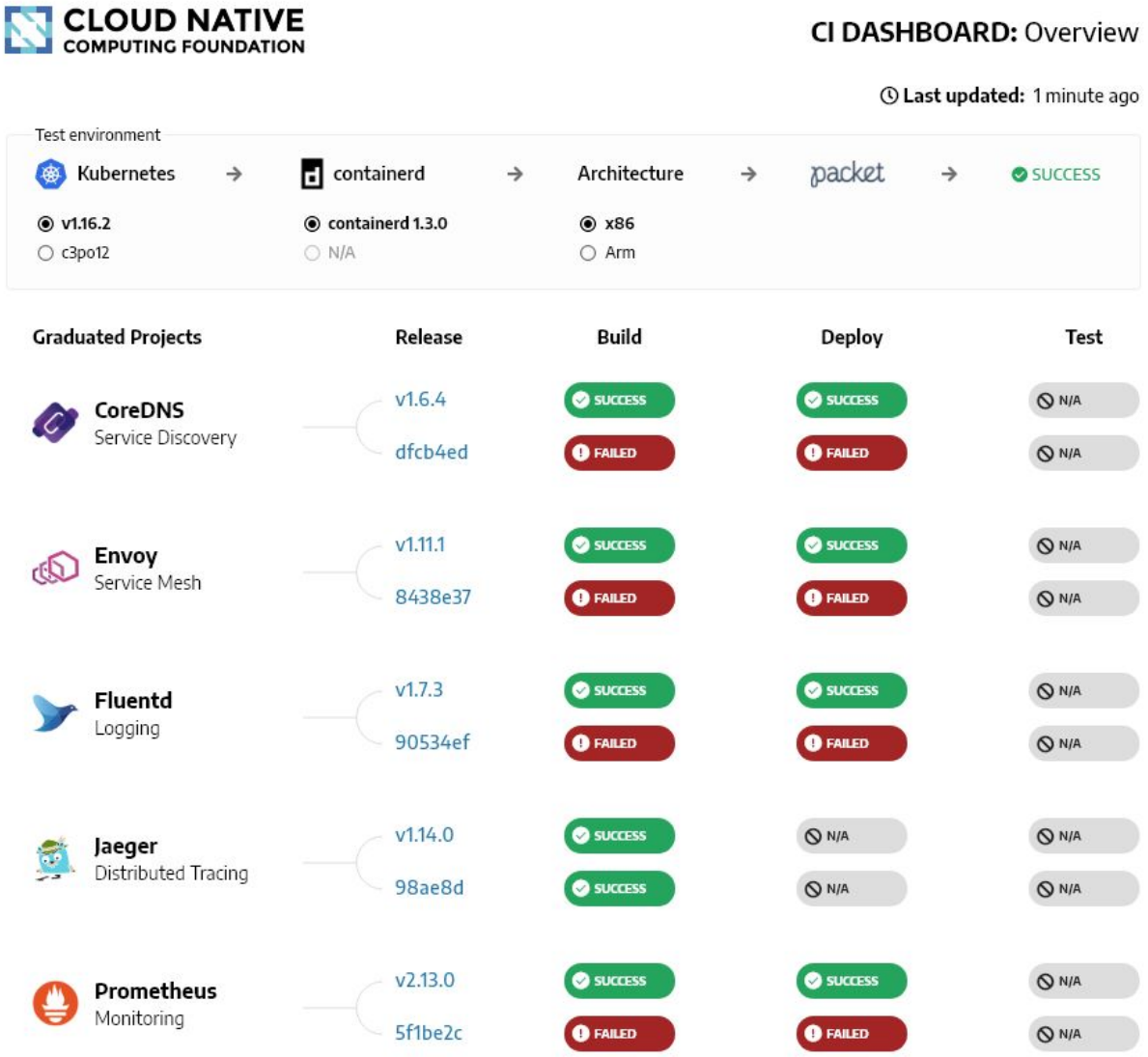
Key Features

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

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

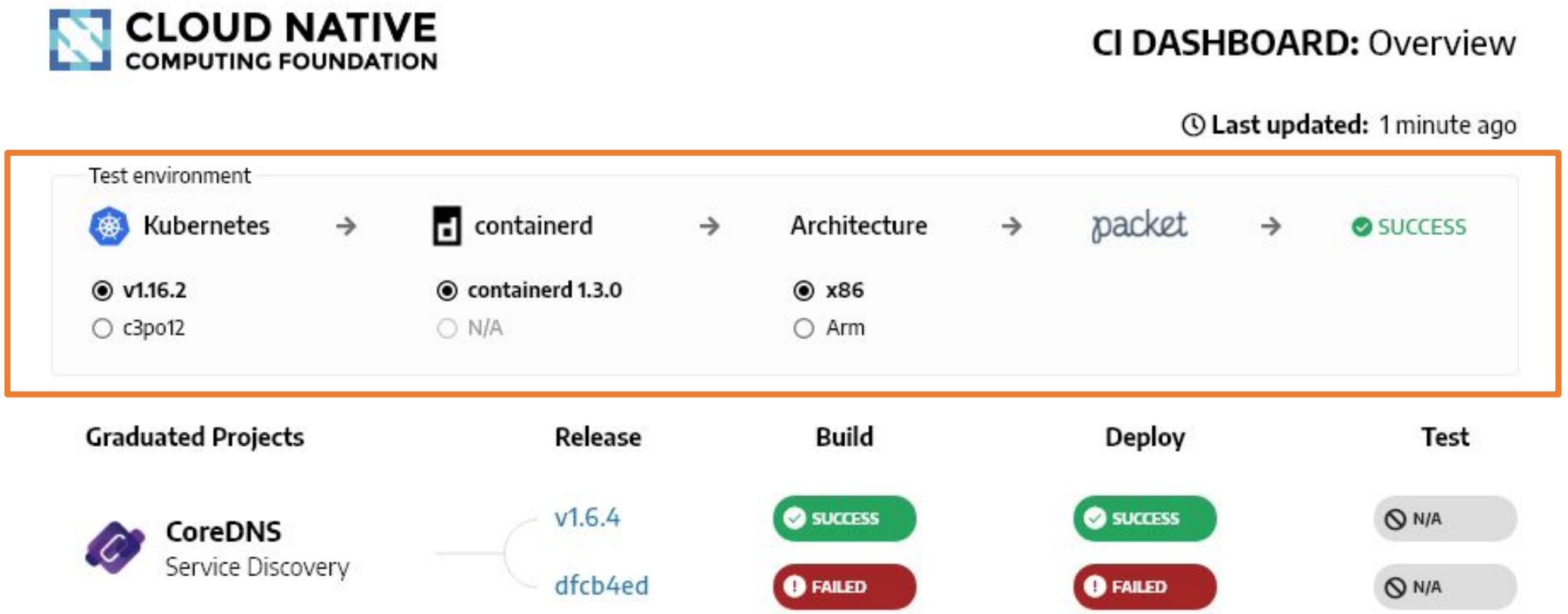
Dashboard Walk-through

Walk-through: cncf.ci



cncf.ci

Walk-through: cncf.ci



cncf.ci

Deep Dive

How to add a CNCF-project to cncf.ci

How to Add a Project

Project Maintenance

1. Go to https://github.com/crosscloudci
2. Open the **<project>-configuration** repo for your CNCF Project, ie. prometheus-configuration
3. Open the cncfci.yml file on the **master** branch
4. Click the **"edit"** icon
5. Create a **new branch** to make updates
6. 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**: (ie. Prometheus)
   c. **sub_title**: (ie. Monitoring)
   d. **project_url**: (ie. "https://github.com/prometheus/prometheus")
7. Submit a **pull request** to master branch

CI System Configuration

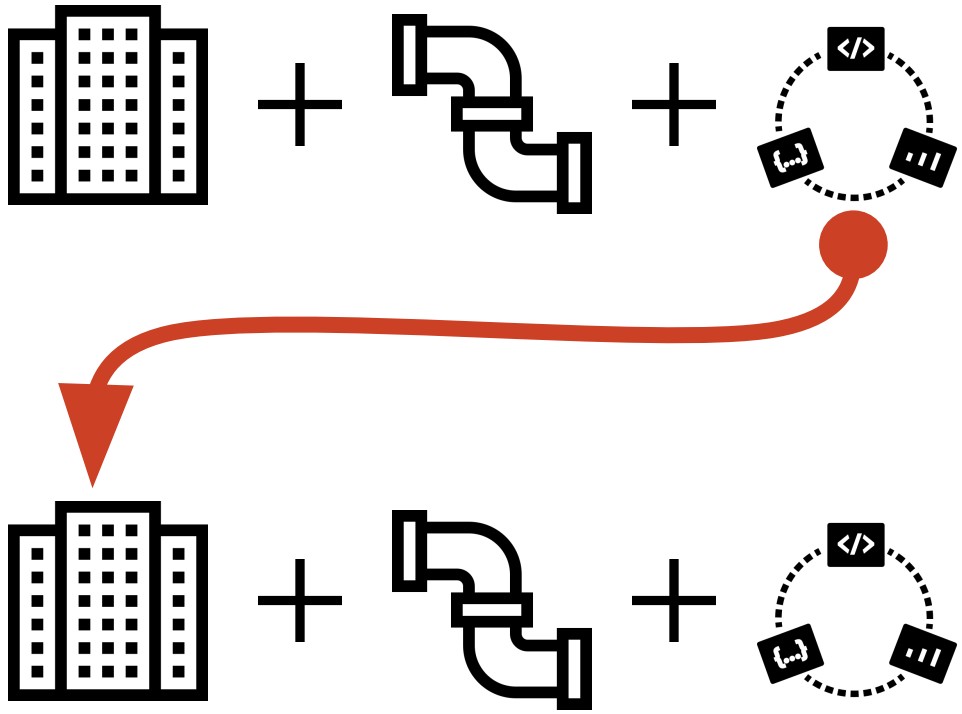

```
1   project:
2    logo_url: "https://raw.githubusercontent.com/cncf/artwork/master/other/cncf/horizontal/color/cncf-color.svg?sanitize=true"
3    display_name: Test Project
4    sub_title: Testing
5    project_url: "https://github.com/crosscloudci/testproj"
6    stable_ref: "v0.0.4"
7    head_ref: "master"
8    ci_system:
9      -
10       ci_system_type: "travis-ci"
11       ci_project_url: "https://example.com/cncfci/testproj"  # can be anything for citest
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 gitlab 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

Challenges

Cross Pipeline Problem

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



Benefits

Clear Engagement Steps

- 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

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

Code Review

Retrieve Build Status


```
curl -f -X GET "https://productionapi.cncf.ci/ciproxy/v1/ci_status_build/commit_ref?project=testproj&ref=${CI_COMMIT_SHA}&arch=AMD64"
curl -f -X GET "https://productionapi.cncf.ci/ciproxy/v1/ci_status_build/commit_ref?project=testproj&ref=${CI_COMMIT_SHA}&arch=ARM64"
```

- **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**: Write a ci proxy plugin for your ci tool and submit a pull request (see https://github.com/crosscloudci/ex_ci_proxy/blob/master/README.md)

Optional: Build a Proxy Plugin

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

The CLI needs to accept the following args

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

```
./ci_plugin_travis_go status -p "linkerd/linkerd2" -c f27d7b65
```

```
status  build url
success https://travis-ci.org/crosscloudci/testproj/builds/572521581
```

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Get Connected

Connect with the Team

- **Attend CI WG meetings:**
  - https://github.com/cncf/wg-ci
  - **4th Tuesday of month > Next Meeting: January 28th**
- **Subscribe to the CNCF CI public mailing list:**
  - https://lists.cncf.io/g/cncf-ci-public
- **Create issues on GitHub:**
  - https://github.com/crosscloudci/ci-dashboard/issues
- **Join #cncf-ci on CNCF Slack:**
  - https://slack.cncf.io

Connect with the Team

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Q&A

Thank you!

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