Intro: CNCF CI

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Agenda:

- Team
- Intro
- Key features
- Walk-through
- Roadmap
- Get Involved
- Q&A

Meet the team:

KubeCon CloudNativeCon Europe 2019

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- Taylor Carpenter
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- Krista Williams*
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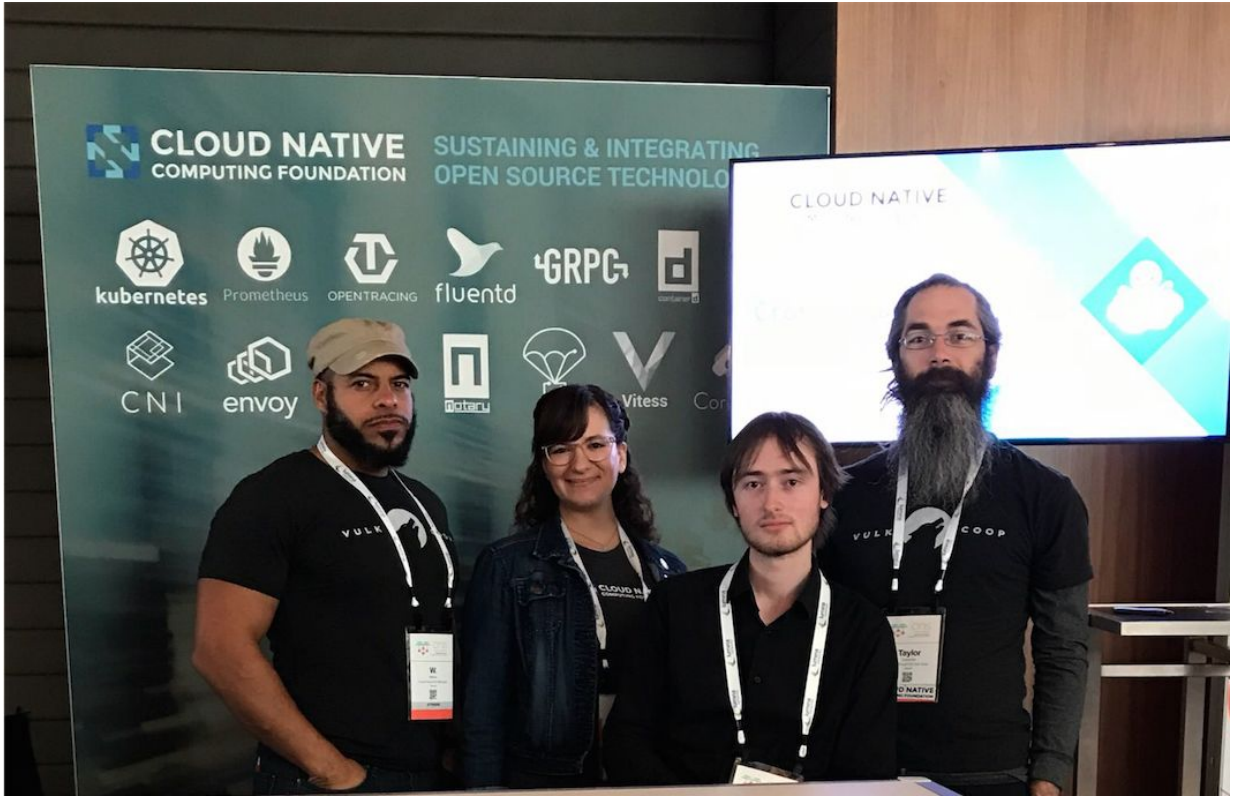

CNCF CI Intro:

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 CNCF 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.

CNCF CI Intro:

Goals:

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

Goal: target CNCF projects

Goal: target LF project

Implemented

Key Features

Key Features

1. Highlight and validate CNCF Hosted Graduated and Incubating projects:

- Validate stable and HEAD releases of Graduated/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. Increase collaboration with CNCF Project maintainers:

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

Key Features

3. Validate projects in various Test Environments:

- Kubernetes Releases:
  - Stable
  - HEAD
  - *Future: Release Candidate*
- Architectures:
  - Arm
  - x86
- Bare Metal
  - Packet

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Europe 2019
Dashboard
Walk-through

CNCF CI Status Dashboard

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CLOUD NATIVE COMPUTING FOUNDATION

CI DASHBOARD: Overview

Last updated: 11 hours ago

Test environment

Kubernetes — Stable v1.13.0 → Bare Metal (Packet) → SUCCESS

Project	Release	Build	Deploy	Test
CoreDNS Service Discovery	v1.5.0	SUCCESS	SUCCESS	N/A
	6e1c57a	SUCCESS	SUCCESS	N/A
Envoy Service Mesh	v1.10.0	FAILED	RUNNING	N/A
	ac1757f	SUCCESS	FAILED	N/A
Fluentd Logging	v1.4.2	SUCCESS	SUCCESS	N/A
	add2af9	SUCCESS	SUCCESS	N/A

CNCF CI Dashboard Overview

CI Dashboard Overview:

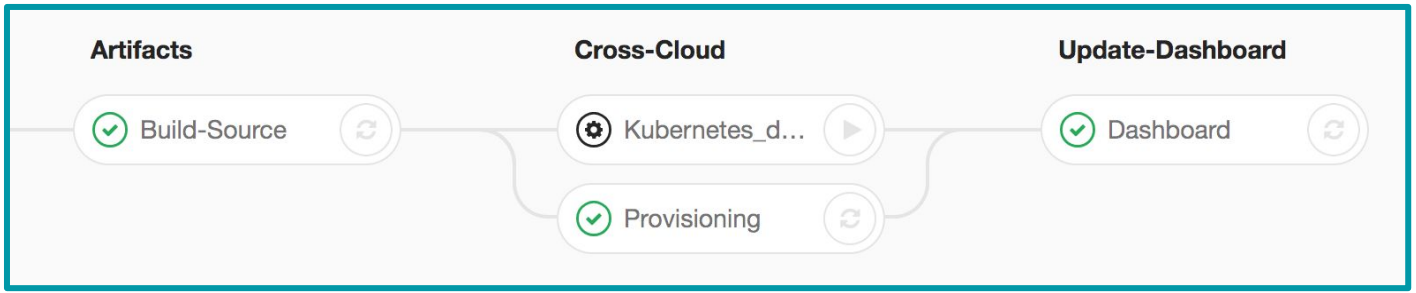
- Overview of cncf.ci
  - Refreshes daily at 3:00am Eastern Time
  - Provisions Test Environments for K8s release and architecture
  - Shows status of K8s Provisioning to Packet
  - Supports status of Build, App Deployments and e2e testing per project
  - Clicking on Build status badge opens CI system build job URL
  - Clicking on Release Name opens project's GitHub commit URL
  - Clicking on Deploy status badge opens "provisioning/app-deploy" job URL

Testing System Overview

- **Provisioning the K8s Test Environment**
- **Build pipeline per project** (optional, can use project's build artifacts)
- **App deployment pipeline per project**
- **E2e testing stage per project**

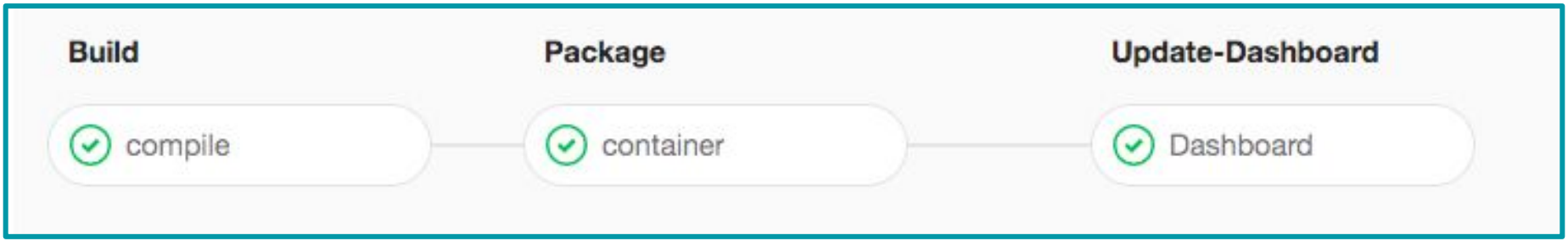
Provisioning K8s test environment

1. **Artifacts:** Collect K8s artifact pinnings from the previous K8s builds
2. **Environment Provisioning:** Provision hardware and bootstrap K8s
3. **Update-Dashboard:** Update deployment badges



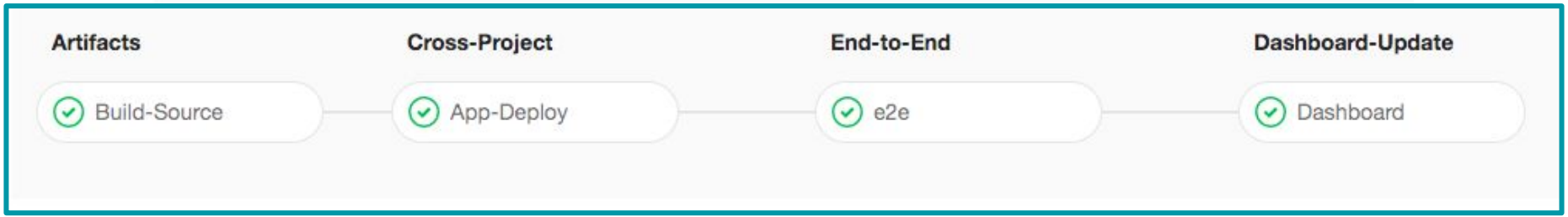
Build Pipeline Stage

1. **Build:** Compile or retrieve binaries and e2e tests
2. **Package:** Create containers, create artifact pinning config and push to registry
3. **Update-Dashboard:** Update build status badges



App Deployment Pipeline Stage

1. **Artifacts:** Collect project artifact pinnings from the previous build stages
2. **Cross-Project:** Use Helm charts to deploy each project
3. **End-to-End:** Run e2e tests for each project
4. **Dashboard-Update:** Update deployment status badges



CI System Technology Overview

- **Unified CI/CD platform:** GitLab
- **Environment provisioning:** Terraform, Cloud-init, and per cloud K8s configuration
- **App deployments:** K8s manifest management with Helm
- **E2e tests:** Custom containers + Helm
- **Automated builds and deployments:** Git + per project yaml configuration

Dashboard Technology Overview

- **Frontend:** Vue.js
- **Status repository:** Elixir and Erlang
- **Automated builds and deployments:** Git + per project yaml configuration

Roadmap

CNCF CI Roadmap

CNCF CI Roadmap (cncf.ci)

Date	Milestone	Features	Events
January 2019	n/a	Announce cncf.ci v2.0	CI Working group
February 2019	v2.0.0	Release cncf.ci v2.0.0	CI Working group
March 2019	v2.1.0	Change how project details are added	ONS NA (April 3-5)
April 2019	v2.2.0	Add Test Environment Dropdown	CI Working group
April 2019	v2.3.0	Add Arm support to K8s	CI Working group
May 2019	v2.4.0	Intro & Deep Dive on cncf.ci, Add Arm support to CoreDNS, Prometheus, Fluentd, Envoy	KubeCon EU (May 20-23)
June 2019	[v2.5.0]	Add Kubeadm to CI system, Update K8s Stable release	CI Working group
July 2019	[v2.6.0]	Add support for external project contributions	CI Working group
September 2019	TBD	TBD: Maintaining projects	ONS EU (Sept 23-25)
November 2019	TBD	TBD: Intro and Deep Dive on cncf.ci	KubeCon NA (Nov 18-21)

Upcoming Events

KubeCon CloudNativeCon Europe 2019

CNCF CI Deep Dive at KubeCon EU 2019

- Day: Wednesday, May 22
- Time: 11:05 - 11:40
- Location: Hall 8.0 E4
- https://sched.co/MPj8

CI WG Public Meetings

- Day: 4th Tuesday of month
- Time: 11:00am Pacific Time (US and Canada)
- Location: https://zoom.us

Get Involved

How to Collaborate

- Attend CI WG meetings:
  - https://github.com/cncf/wg-ci
- 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

@crosscloudci

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Q&A

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Thank you!

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Today's Demo Prepared by:

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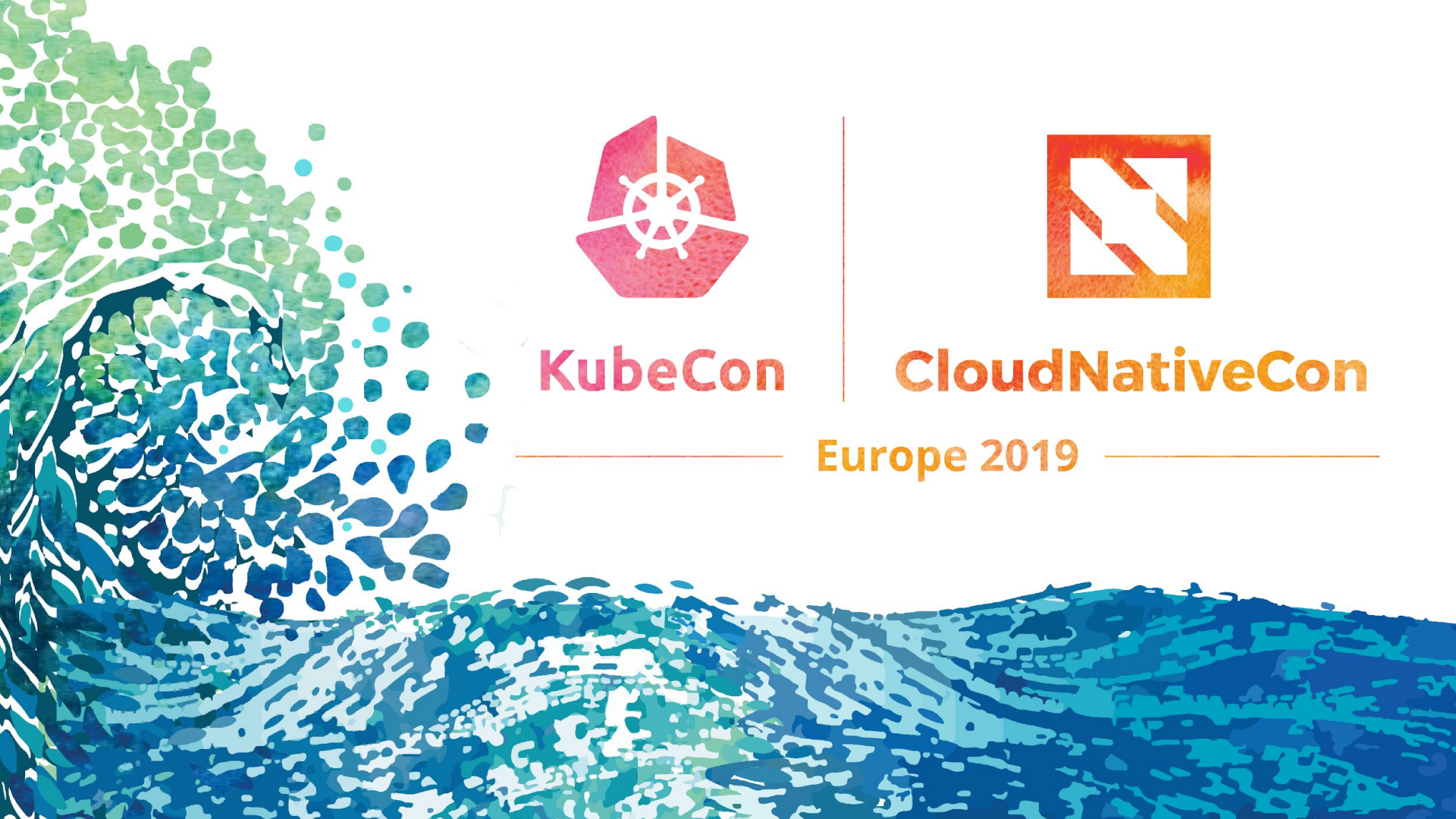
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