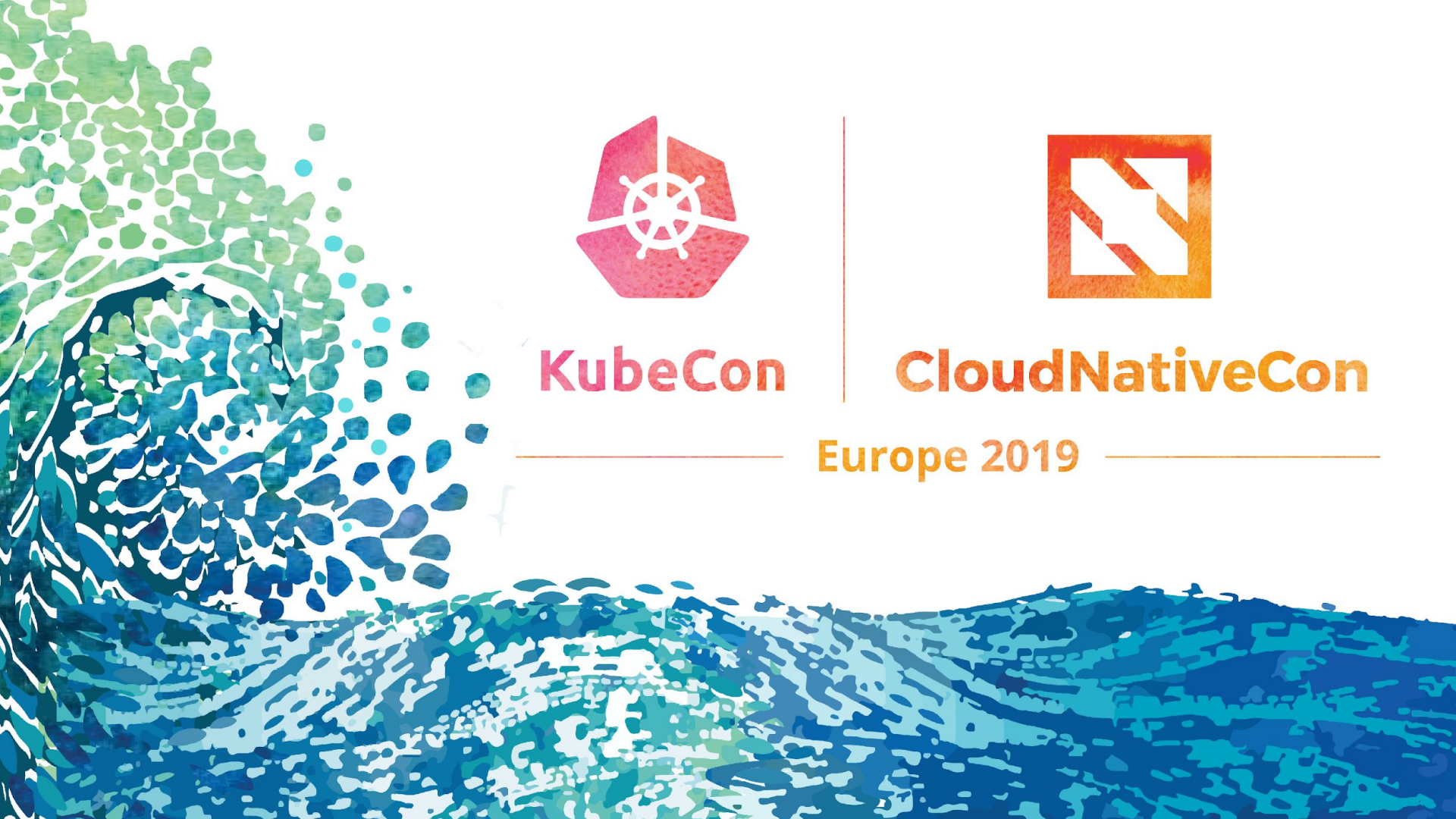
KubeCon
CloudNativeCon
Europe 2019

Deep Dive: CNCF CI

Lucina Stricko & Denver Williams,
Vulk Coop & CNCF

Agenda:

- Team
- Intro
- Key features
- Overview
- Deep Dive: Adding Arm Support
  - Demo
  - Code Review
- Get Involved
- Q&A

Meet Vulk Cooperative

- Worker-owned software consultancy
- 4 worker-owners, 5-10 associates
- Geographically distributed team
- Celebrating 5 years in operation
- Hosts Austin Software Co-operatives monthly meetup in Austin, TX USA
- Learn more at vulk.coop
- Follow at twitter.com/vulkcoop

Meet the team:

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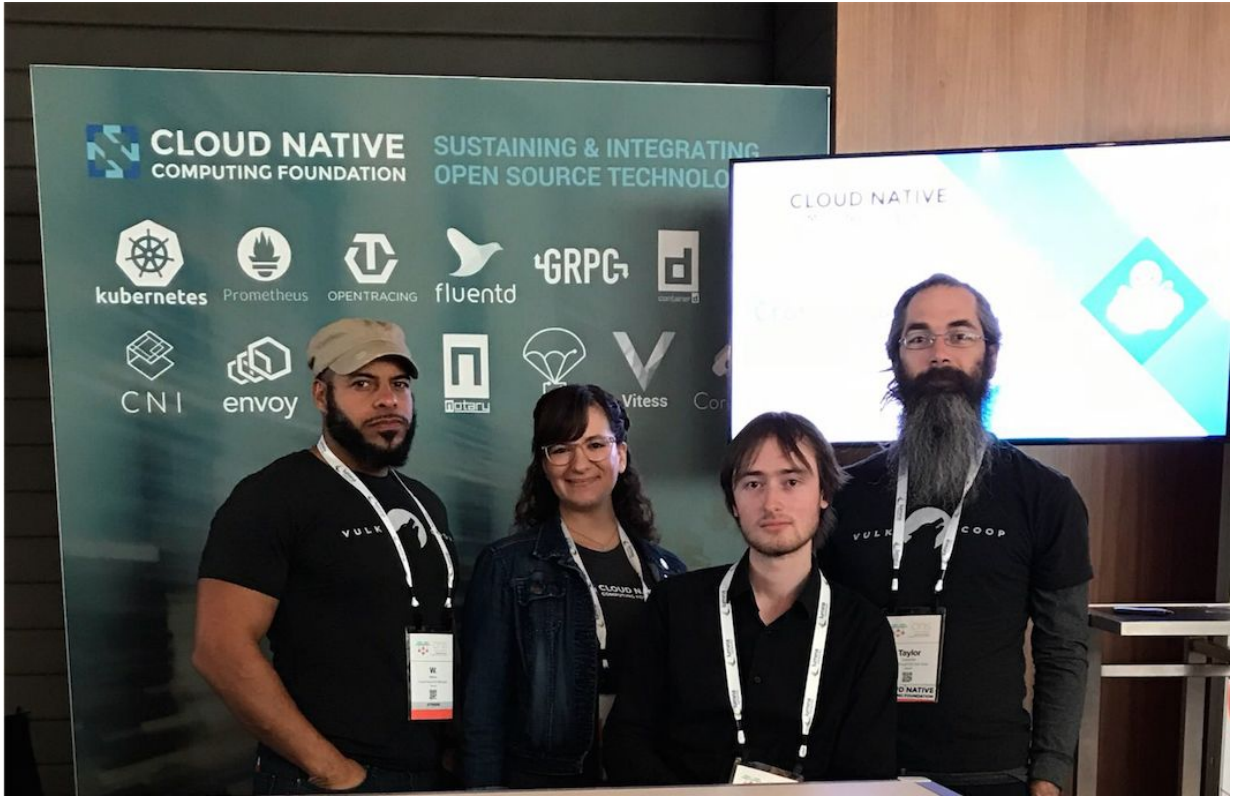
- W. Watson
  @wavell
- Lucina Stricko
  @lixuna
- Denver Williams
  @denverwilliams
- Taylor Carpenter
  @taylor
- Joshua Smith*
  @nupejosh
- Robert Siekmann*
  @rsiekmann
- Krista Williams*
  @rystakei



CNCF CI Intro

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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.

CNCF CI Intro

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

CNCF CI Intro

CNCF.CI 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

Goal: Target CNCF Projects

Graduated

Incubating

Goal: Target ONAP SO Project

"...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

Key Features: CNCF CI v2

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: CNCF CI v2

2. Collaboration -- increase engagement 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: CNCF CI v2

3. Comprehensive testing -- validate projects in configurable Test Environments:

- Kubernetes Releases:
  - Stable
  - HEAD
- Architectures:
  - Arm
  - x86
- Bare Metal
  - Packet

Dashboard Overview

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

Arm is a CNCF Gold Member

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Cloud Native Computing Foundation Welcomes Arm as Gold Member

By cncf | February 19, 2019 | Announcement

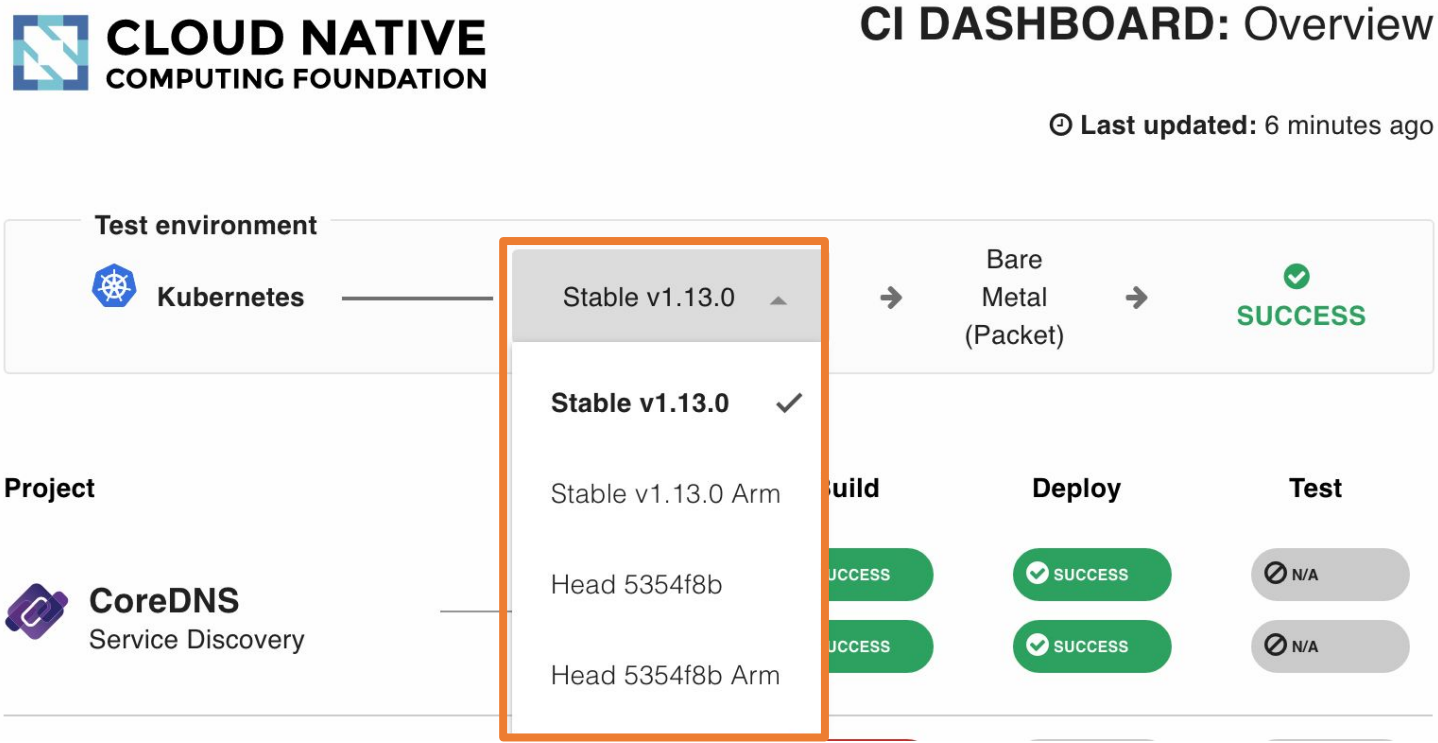
Arm joins CNCF as Gold Member

"In joining CNCF, Arm plans to build on the significant work from the community to ensure that Kubernetes and other CNCF-hosted projects run well on Arm-based platforms."

https://www.cncf.io/announcement/2019/02/19/cncf-welcomes-arm-as-gold-member/

Deep Dive: Adding Arm Support

Arm Support for K8s



Code Review

Kubernetes build process on Arm architecture:

- https://github.com/crosscloudci/kubernetes-configuration/blob/master/.gitlab-ci.yml#L8

Arm Support for CoreDNS

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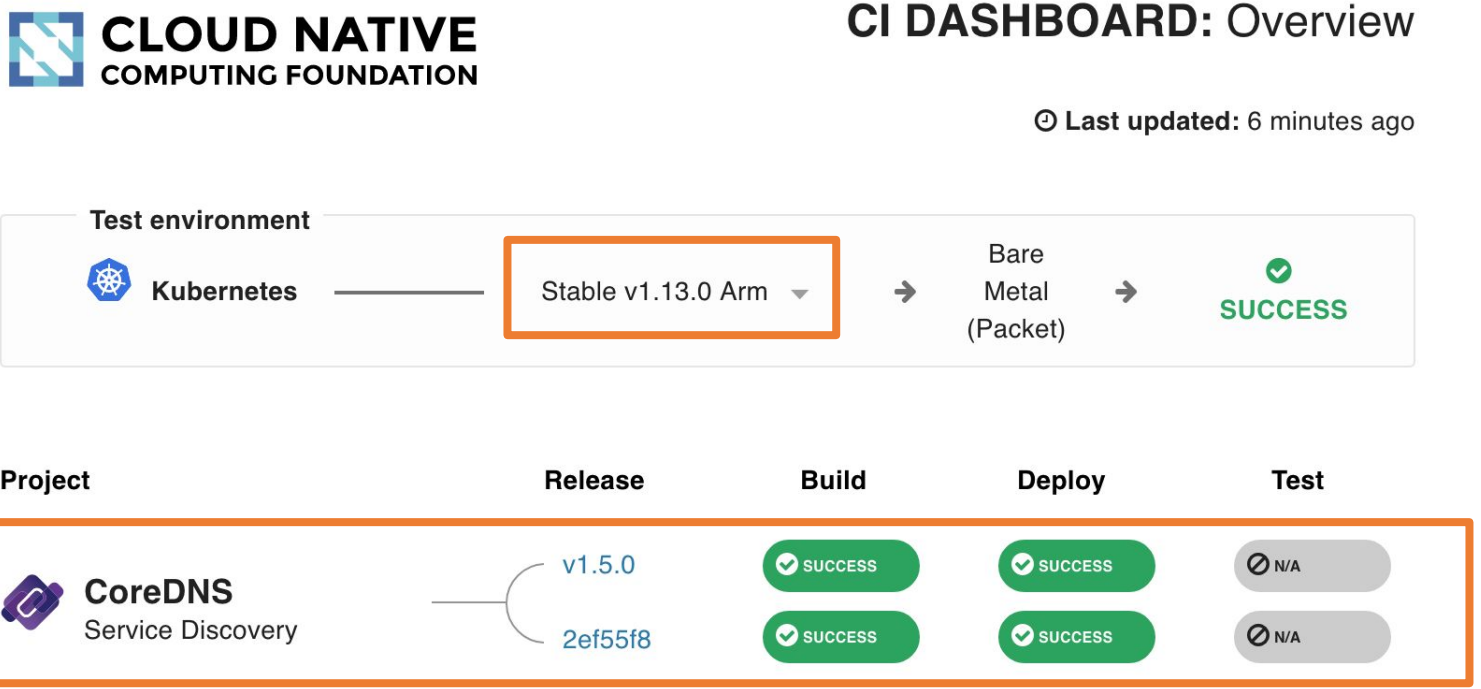

Code Review

Building CoreDNS on Arm:

- https://github.com/crosscloudci/coredns-configuration/blob/master/.gitlab-ci.yml

Arm Support for Prometheus

Test environment

Kubernetes

Stable v1.13.0 Arm → Bare Metal (Packet) → SUCCESS

Project	Release	Build	Deploy	Test
CoreDNS Service Discovery	v1.5.0	SUCCESS	SUCCESS	N/A
	118b0c9	SUCCESS	SUCCESS	N/A
Envoy Service Mesh	N/A	N/A	N/A	N/A
	N/A	N/A	N/A	N/A
Fluentd Logging	v1.4.2	SUCCESS	SUCCESS	N/A
	31cd8ca	SUCCESS	SUCCESS	N/A
Prometheus Monitoring	v2.9.2	SUCCESS	SUCCESS	N/A
	6b95670	SUCCESS	SUCCESS	N/A

Code Review

Building Prometheus on Arm:

- https://github.com/crosscloudci/prometheus-configuration/blob/master/server/.gitlab-ci.yml#L30

Code Review

Building Envoy on Arm:

- https://github.com/crosscloudci/envoy-configuration/blob/master/.gitlab-ci.yml

Get Involved

How to Contribute

How to Add Arm Support to Projects on the CNCF CI Dashboard:

- Look at Gitlab CI system and use existing project builds as reference
- Ex. Add Arm support for Linkerd
  - https://github.com/crosscloudci/linkerd-configuration/blob/master/.gitlab-ci.yml

Connect with the Team

- **Attend CI WG meetings:**
  - https://github.com/cncf/wg-ci
  - **4th Tuesday of month > Next Meeting: June 25th**
- **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

@cncfci

@vulkcoop

cncfci@vulk.coop

Q&A

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Thank you!

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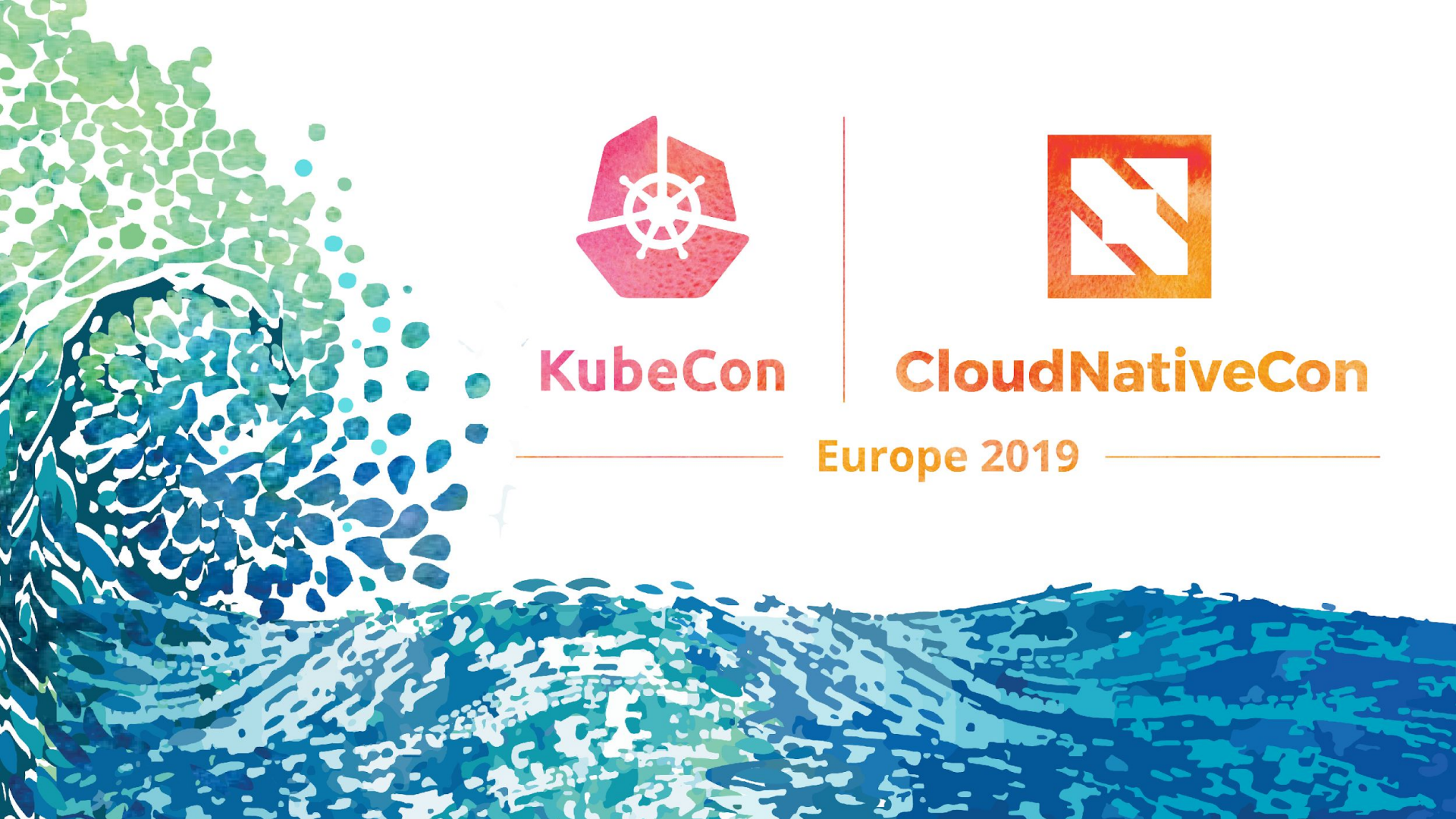
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