KubeCon | CloudNativeCon

North America 2017

Deploying to Kubernetes Thousands of Times Per/Day

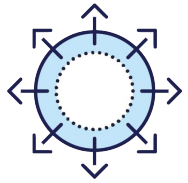
William Denniss, Product Manager, Google Kubernetes Engine
Dan Garfield, Full-Stack Engineer and VP of Marketing, Codefresh

We work with lots of high velocity teams

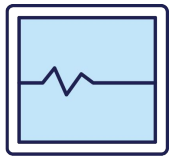
Google Kubernetes Engine

Codefresh

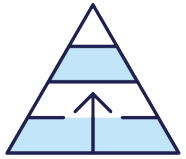
Why do teams choose Kubernetes?



Scalability.



Avoiding Downtime.

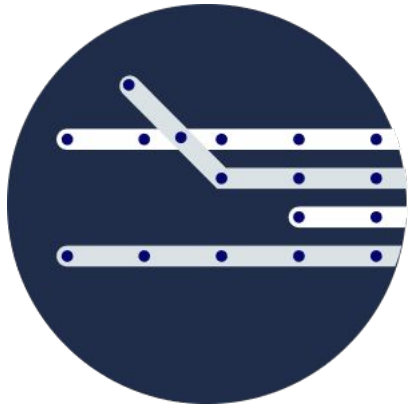


Reducing Costs.

Developer Velocity.

Infrastructure Abstraction.

Why High Velocity is So Important



Reduced Risk

Cost Efficiency

Security

How Teams Become High Velocity

Today we'll skip common stuff

- Agile Planning
- Microservice Architecture
- Better testing

#1
High Velocity Teams Center On Images

Center On Images

Image First

Shift Left

Application Portability

Outsource Cluster Mgmt

Connect the dots

"[O]ur entire develop – test – stage – deploy cycle is Docker native. This reduces the complexity of each step, allowing us to build with a smaller team."

DANIEL STONE Director of Software Engineering

Center On Images

Image First

Shift Left

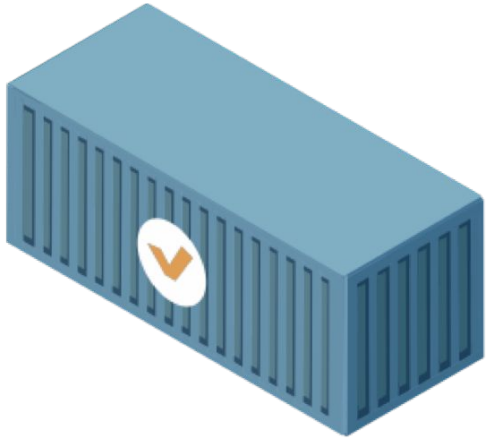
Application Portability

Outsource Cluster Mgmt

Connect the dots

Image is the star of the show.

- Immutable
- Ready to launch
- Validatable
- Connected to every step
  - JIRA Ticket
  - Test Steps
  - Deployment status
  - History



Center On Images

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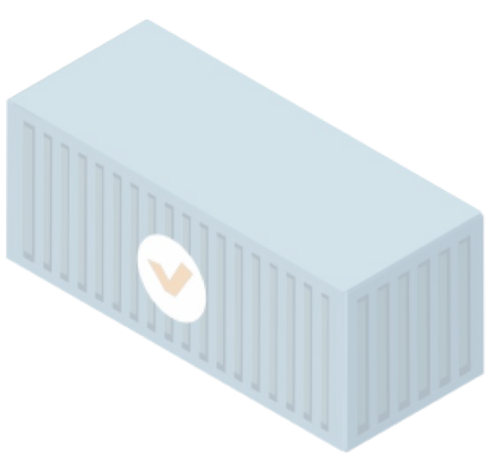
Application Portability

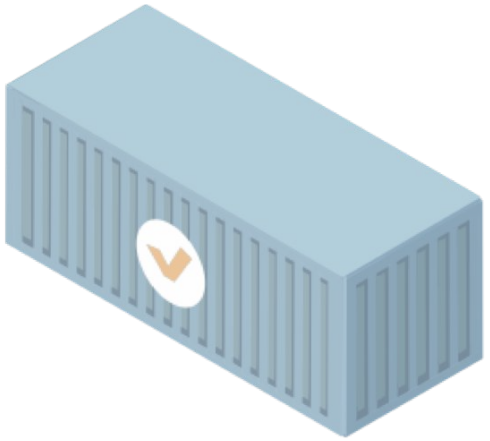
Outsource Cluster Mgmt

Connect the dots

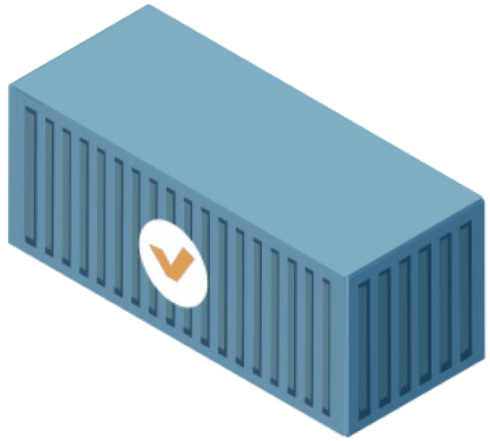
Images Transfer Well



Local



Dev



Production

Center On Images

Image First

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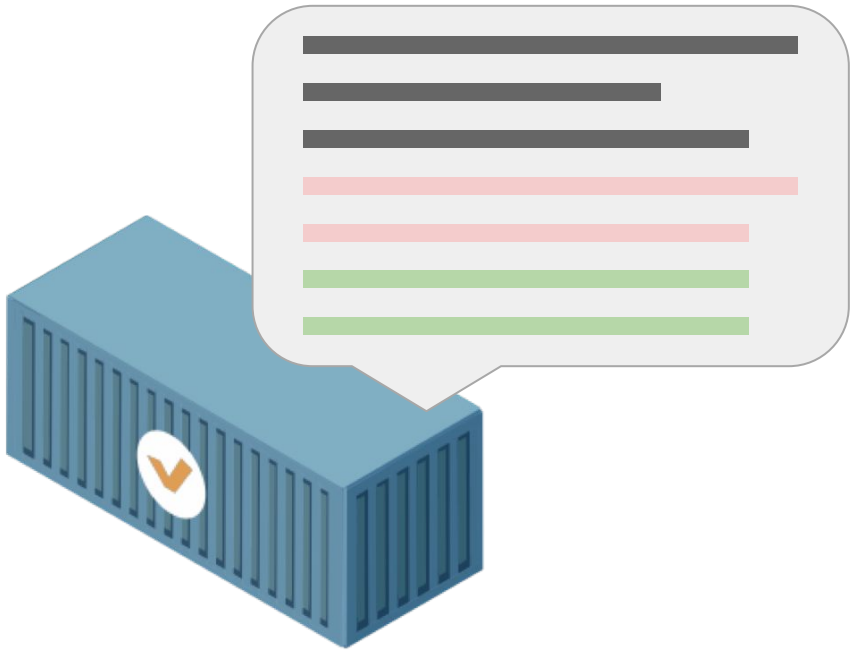
Application Portability

Outsource Cluster Mgmt

Connect the dots

Carry your history with you

- Forget “latest” tag
- Support time travel
- Closely coupled with Git
- Automated builds, no local pushes



#2
High Velocity Teams
Shift Left

Shift Left

Image First

Shift Left

Application Portability

Outsource Cluster Mgmt

Connect the dots

"When our engineers commit code, Codefresh runs all the testing we need and ***spins up an environment just for the feature they worked on****. Our QA and design teams can access this unique environment and do a level of testing that just wasn't possible before. Our test cycle went from three days to three hours."*

DAMON ZIRKLER Solutions Architect

Shift Left

Image First

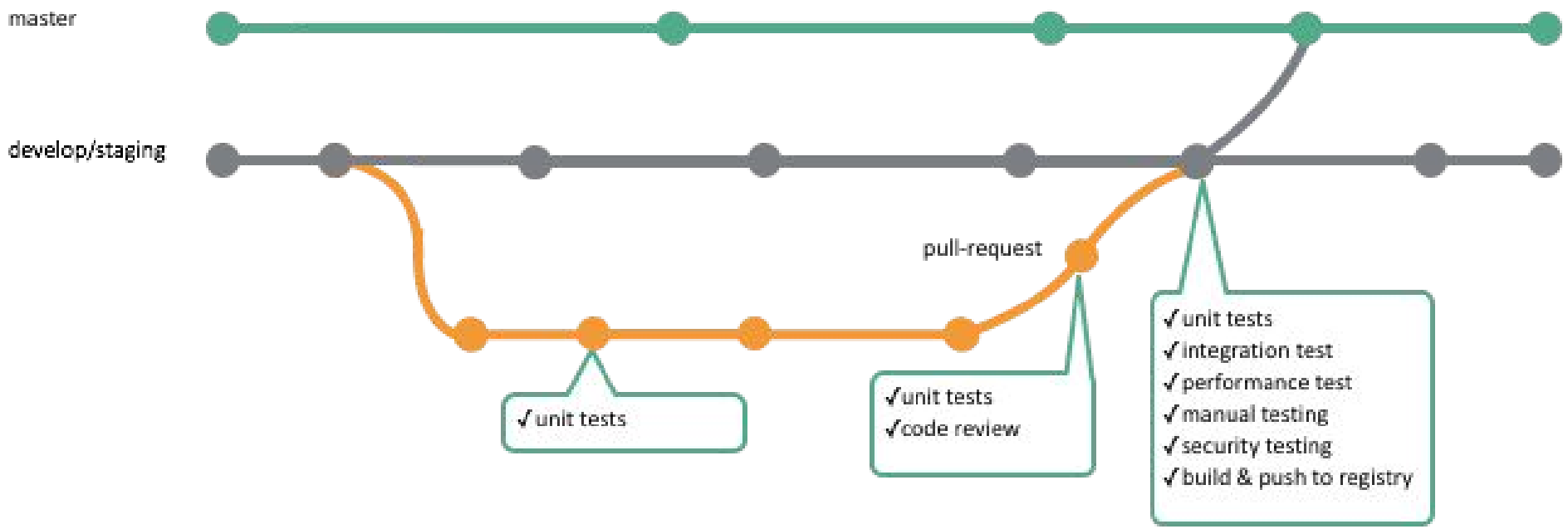
Shift Left

Application Portability

Outsource Cluster Mgmt

Connect the dots

Typical Dev/Release Process



Shift Left

Image First

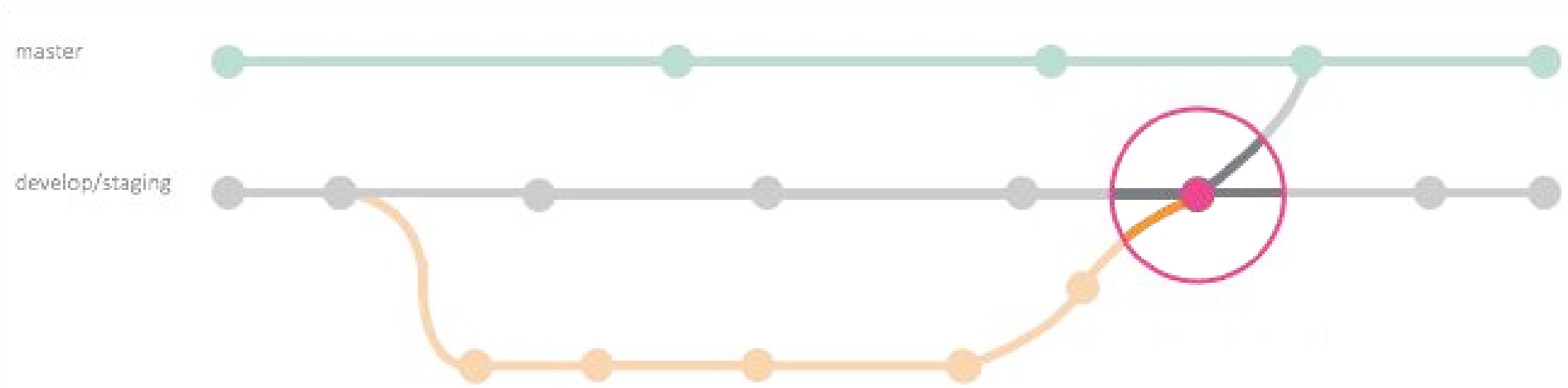
Shift Left

Application Portability

Outsource Cluster Mgmt

Connect the dots

Staging becomes a bottleneck



Shift Left

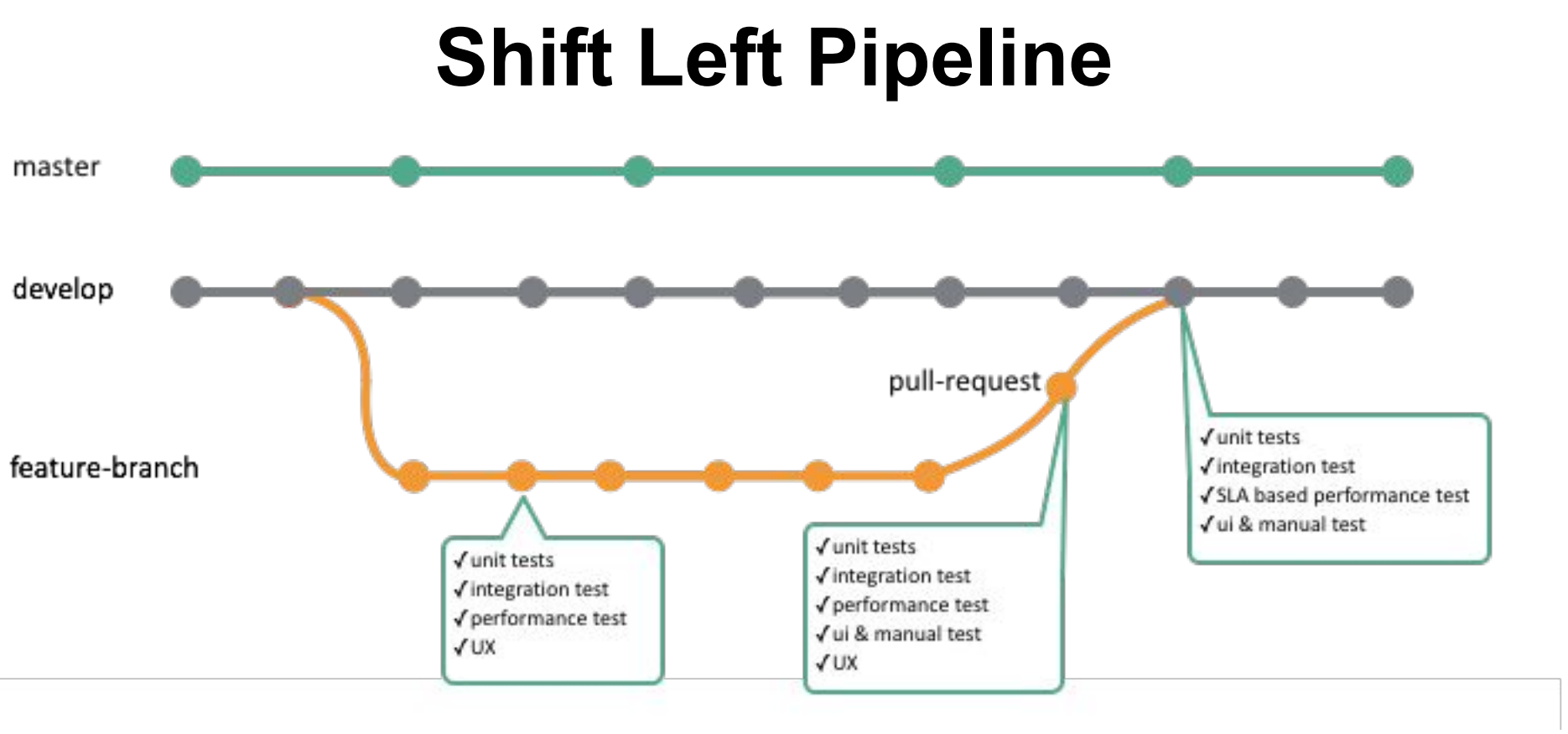
Image First

Shift Left

Application Portability

Outsource Cluster Mgmt

Connect the dots



#3
High Velocity Teams Maintain Application Portability

Maintain Application Portability

Image First

Shift Left

Application Portability

Outsource Cluster Mgmt

Connect the dots

Define your application

- If a meteor wiped out production and staging, how long would it take you to recover?
- Disaster recovery testing
- Helm Charts

Maintain Application Portability

Image First

Shift Left

Application Portability

Outsource Cluster Mgmt

Connect the dots

- Don’t bake configuration into images.
- Run the same image in test and production.
- Kubernetes ConfigMaps and Secrets are a great way to define environment configuration.

#4
High Velocity Teams Outsource Cluster Management

Outsource Cluster Management

Image First

Shift Left

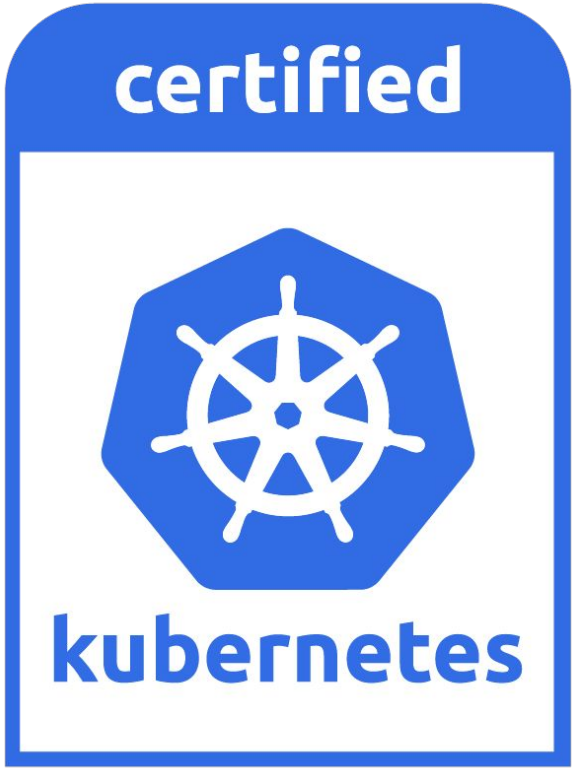
Application Portability

Outsource Cluster Mgmt

Connect the dots

- Focus on building your application.
- Rely on a dedicated cluster-ops team, be it an internal team or hosted cloud offering.
- Have a plan for scalability and redundancy.

Build on Open Standards



- Kubernetes is open, so don’t compromise it.
- Look for conformant offerings of Kubernetes.

Certified Kubernetes Conformance Program

Google Cloud Platform
heptio
docker
RED HAT OPENSHIFT
IBM Cloud
Azure
TECTONIC by CoreOS
Tencent Cloud
CLOUD FOUNDRY CONTAINER RUNTIME
CANONICAL
MESOSPHERE
SUSE
Alibaba Cloud
cisco
ORACLE
AppsCode
Pivotal Cloud Foundry
RANCHER
HUAWEI
loodse
NetEase Games
MIRANTIS
STACK POINT CLOUD
SAP
weave
vmware
wise2c TECHNOLOGY
KISMATIC
DaoCloud
caicloud
SAMSUNG SDS

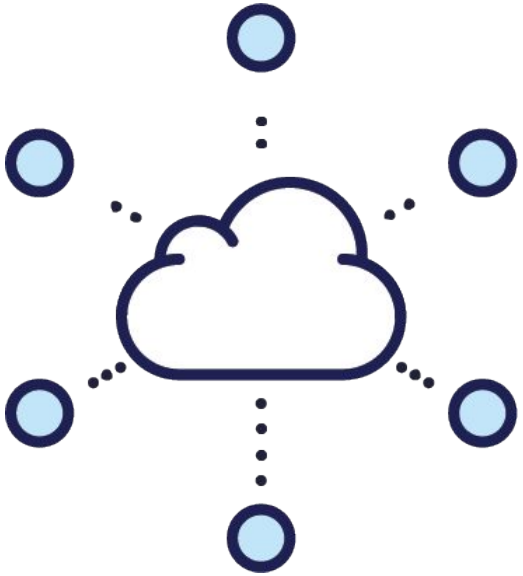
#5
High Velocity Teams
Connect all the dots

DemoTime

We win when you win

High Velocity Teams...

- Image First
- Shift Left
- Application Portability
- Outsource Cluster Mgmt
- Connect the Dots



Developer Velocity.

Google Cloud + Codefresh

Create and Manage Clusters

Google Cloud Platform

Deploy Containers and Automate

codefresh

Google Cloud + Codefresh

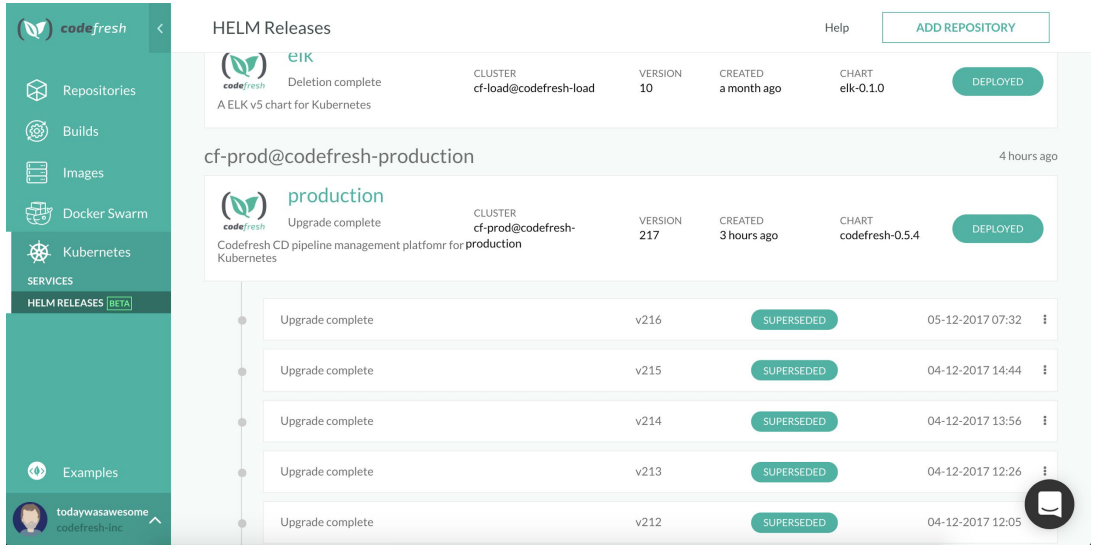
You can try everything we've talked about for free

Stop by our booths for details.

GCP & Codefresh Credits

Codes from Kubecon

https://Codefresh.io

Use code *KUBECON17* to get 220 Builds/mo free and up to $500 in Google Cloud Credits.

To redeem code, sign up for Codefresh, goto "Account" then "Billing" and select "Upgrade" under the basic plan, then enter the Code. Instructions for claiming GCP credit will be emailed to you once the upgrade is complete.