

Jenkins X

Easy CI/CD for Kubernetes



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CloudBees
[@jdrawlings](#)

<https://jenkins-x.io/>
<https://github.com/jenkins-x/jx>

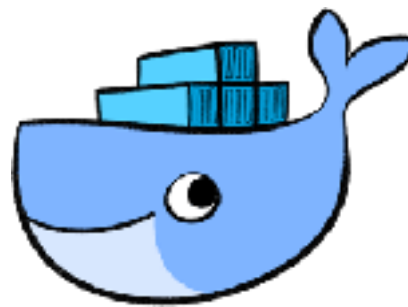
Why Kubernetes?



Google Cloud Platform



CLOUD **FOUNDRY**



IBM **Cloud**



DigitalOcean



OPENSIFT



MESOSPHERE



Briefly what does Kubernetes give us?

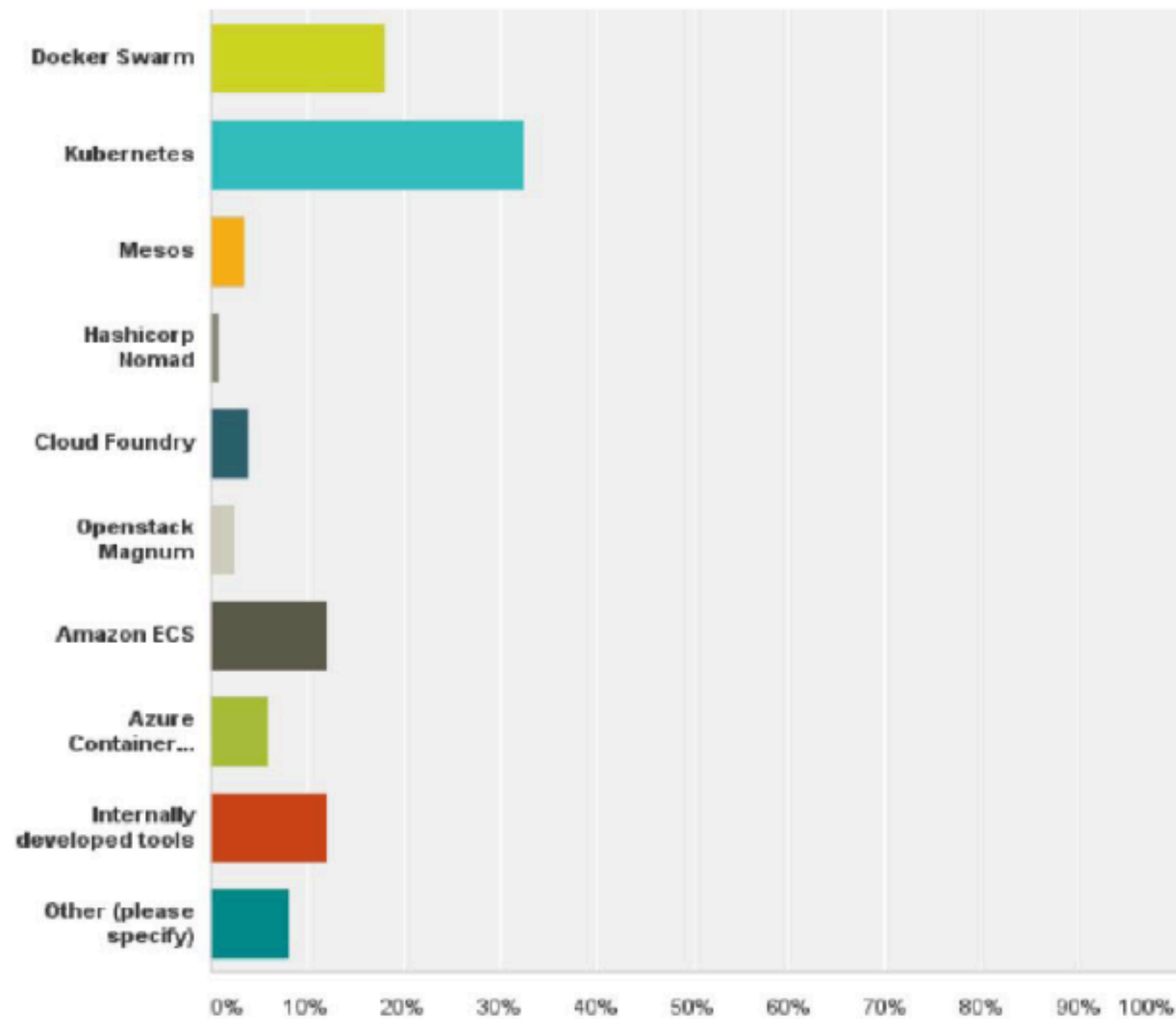
- Container scheduling
- Container orchestration
- Scalability
- Resource limits
- Container probes
- Service discovery
- Rolling upgrades
- Cluster elasticity

What are the benefits?

- Application Portability
- Standardisation
- Rich open source ecosystem
- Tooling
- Incredible and vibrant community
- Savings in operational costs running applications in containers



Which container orchestration tools does your organization use most frequently?



Source: <https://portworx.com/2017-container-adoption-survey/>

$T_{\text{off}} = 10 \mu$

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Handwritten notes on a sticky note:

- Final
- ALARM to call/see/Remind
- IF (like CAP) underdiff!

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What are the challenges?

- How to get started?
- How do I wire everything together?
- What do I need to start developing, building and deploying?
- How do I access my applications?
- How do my teams work with Kubernetes?
- How do I migrate my applications to the cloud?

Jenkins X



Jenkins X is not Jenkins on Kubernetes



Jenkins X is an opinionated CI/CD solution for Kubernetes

- ☑ Cloud native journey for Jenkins
- ☑ Automated installation of breed from Kubernetes ecosystem
- ☑ Integrated OOTB experience
- ☑ Command Line Interface
- ☑ Environments
- ☑ Bootstrapping applications
- ☑ GitOps
- ☑ Developer tooling
- ☑ Feedback

How do I get started?

Install the command line tool: jx

<https://jenkins-x.io/getting-started/install/>

macOs:

```
brew tap jenkins-x/jx
```

```
brew install jx
```

linux:

```
curl -L https://github.com/jenkins-x/jx/releases/download/v1.2.16/jx-linux-amd64.tar.gz | tar xzv
```

```
sudo mv jx /usr/local/bin
```

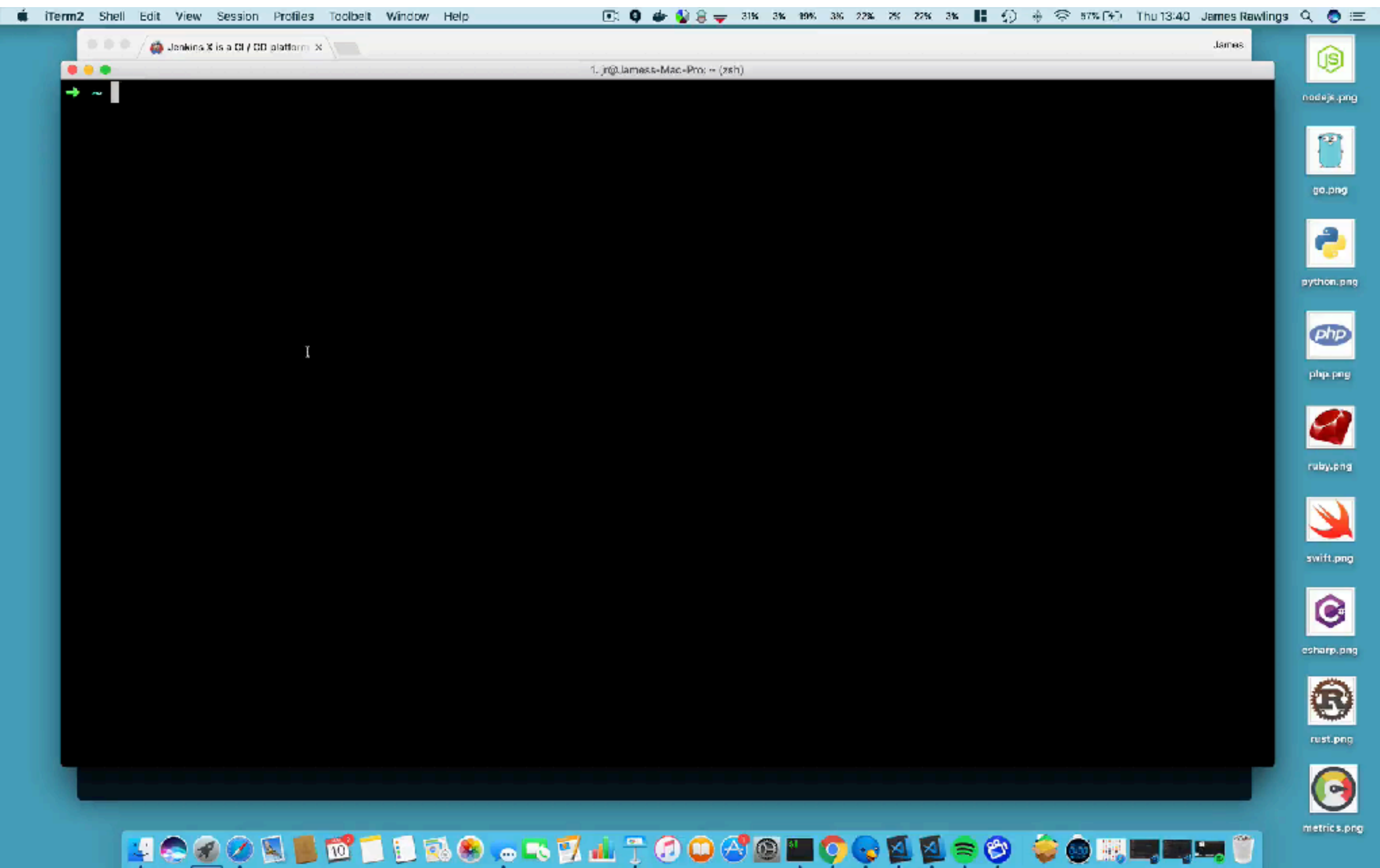
Jenkins X: setup Kubernetes + Jenkins X

- If using the public cloud use:
 - `jx create cluster aws`
 - `jx create cluster gke`
 - `jx create cluster aks`
- If you have a cluster already - ensure RBAC enabled then:
 - `jx install`

More help here: <https://jenkins-x.io/getting-started/>

What does that give me?

- Team home environment
 - Jenkins master
 - Elastic pool of build agents
 - Nexus + chartmuseum + monocular
- Staging environment
- Production environment
- Initialises local machine for developing



How do I create applications?

- Available commands:
 - `jx create spring`
 - `jx create quickstart`
 - `jx import`
- Automatically set up CI/CD pipelines for new + imported projects
 - Setups up git repository
 - Registers webhooks to trigger pipelines for PR / master
 - Triggers the first pipeline

Live demo time!!

- <https://helm.sh> - package manager for Kubernetes
- <https://draft.sh> - build packs used to bootstrap applications so they build and run on Kubernetes
- [Skaffold](#) - enabled RAD development, abstracts building and pushing images
- [Anchore](#) - service that analyzes docker images and applies user-defined acceptance policies to allow automated container image validation and certification



Jenkins X: on pull requests (CI)

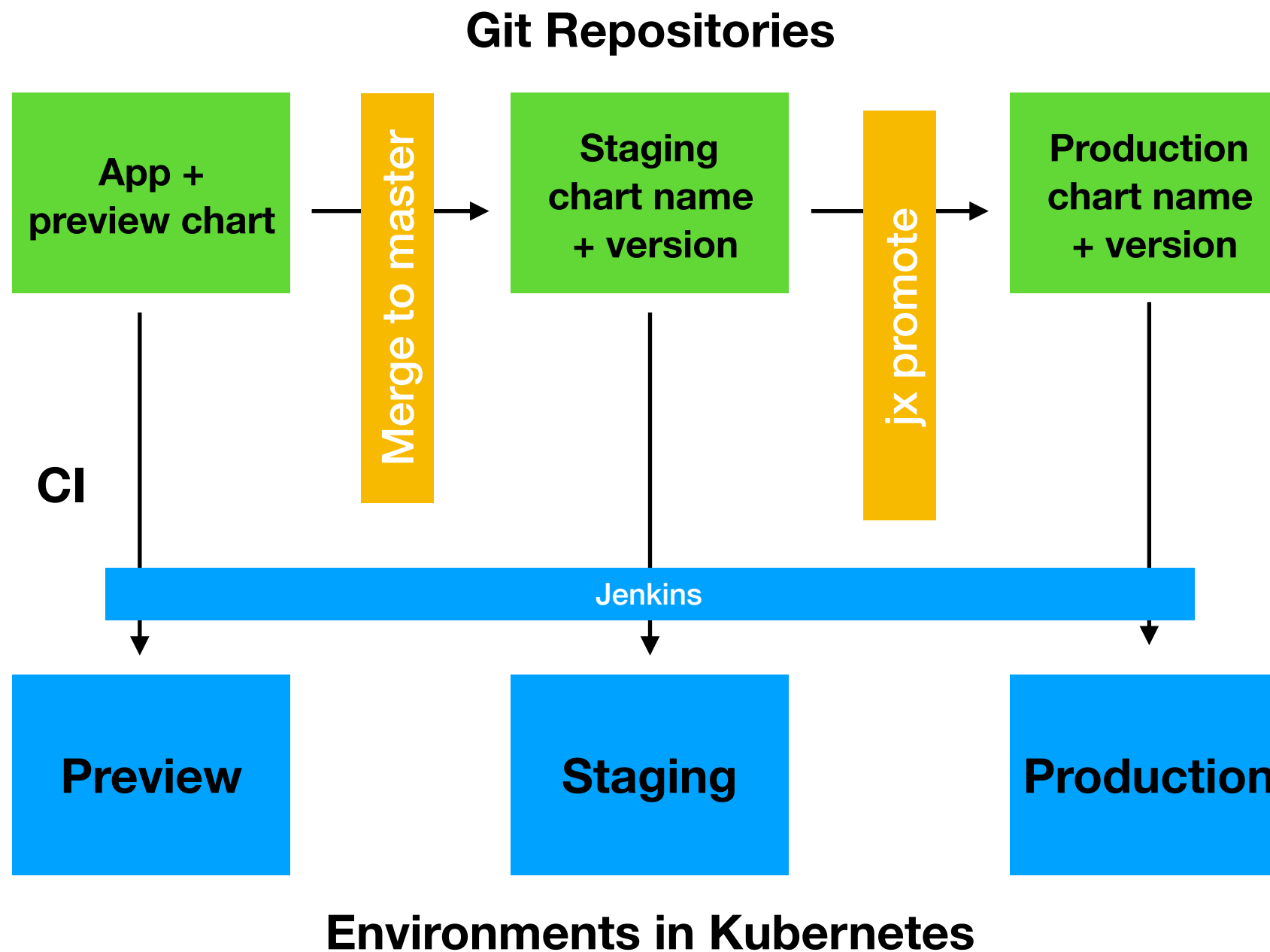
- Compile and run tests
- Creates a preview image and helm chart
- Creates a Preview Environment and comments on PR with link to access preview app

Jenkins X: on merge to master (CD)

- Compile and run tests
- Creates a semantic release version
- Publish versioned artifacts, docker image and helm chart
- Promotes to all 'automatic' environments, e.g. staging

Jenkins X: promotion via GitOps

- Each environment stores its configuration as helm charts in a git repository
 - Configuration as code
 - All changes audited and easy to revert
 - Reuse the Pull Request workflow for changes
- To promote a version to, say, Production Jenkins X submits a Pull Request
 - The Promote step waits for the Pull Request CI build to complete, merge and for the environments pipeline to complete applying the change



Roadmap

<https://jenkins-x.io/contribute/roadmap/>

Try me!

- <https://jenkins-x.io>
- <https://jenkins-x.io/community/>
- <https://pages.cloudbees.com/K8s>

