JENKINS X

automated CI/CD for cloud native apps on Kubernetes
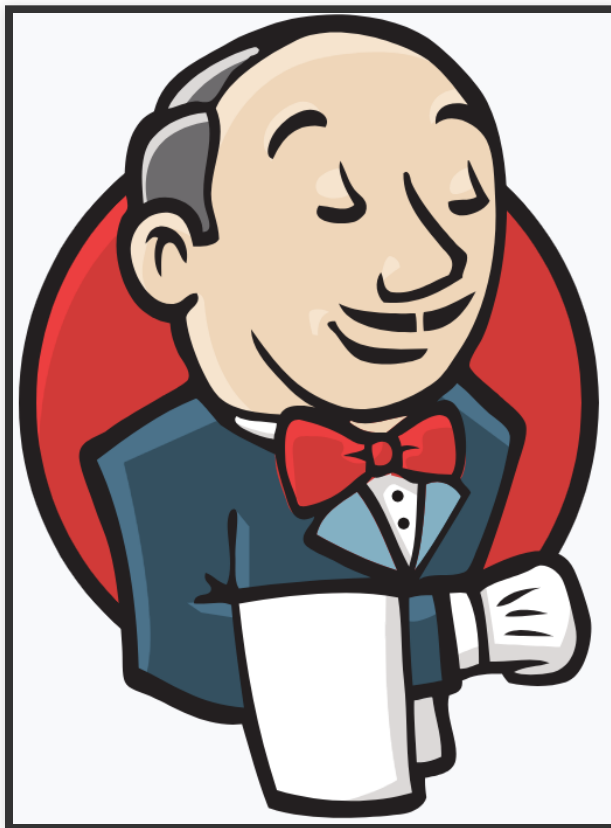
https://jenkins-x.io/

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JENKINS VS JENKIS X

JENKINS

- https://jenkins.io/

JENKINS X

- https://jenkins-x.io/

TRANSFORMATION OF DEVELOPMENT PLATFORM

- Move from on premise to cloud

- Move from VMs to containers

- Immutable infrastructure for DevOps

- Kubernetes has become the defacto standard

- Move from monoliths to microservices

- Become high performing teams via CI/CD

WHAT ARE THE CHALLENGES?

- How do I migrate my applications to the cloud?

- How do dev teams work with Kubernetes?

- What do I need to start developing, building and deploying?

- How do I wire everything together?

- How do I access my applications?

STARTED BY JAMES STRACHAN

- Released at March of this year, 2018
  - https://twitter.com/jstrachan/status/9757967221474
  - https://goo.gl/ceLcmq
  - https://github.com/jenkins-x/jx/graphs/contributors
- Founder of Groovy, Apache ActiveMQ/Camel
  - https://www.linkedin.com/in/jstrachan/
  - https://medium.com/@jstrachan

STARTED BY JAMES STRACHAN

- Developed similar project in Red Hat until last year, 2017
    - https://goo.gl/4re3G7
- gofabric8
    - http://fabric8.io/
        - https://github.com/fabric8io/gofabric8

FEATURES OF JENKINS X

- Automated CI and CD

- Environment Promotion via GitOps

- Pull Request Preview Environments

- Feedback on Issues and Pull Requests

SUPPORTED CLOUD PROVIDERS

```
$ jx help create cluster
```

- Google Container Engine

- OpenShift

- Amazon Elastic Container Service

- Azure Container Service

- IBM Cloud Kubernetes Service

- Oracle Cloud Container Engine

HOW DOES JENKINS X HELP?

- Jenkins

  - CI/CD pipeline solution

- Nexus

  - Artifact repository

- https://helm.sh

  - Package manager for Kubernetes

- Chartmuseum

  - Helm Chart repository

HOW DOES JENKINS X HELP?

- Monocular
  - Web UI for helm charts
- https://draft.sh
- Skaffold

HOW DOES JENKINS X HELP?

```
jx open

jenkins                     http://jenkins.jx.35.200.29.158.nip.io
jenkins-x-chartmuseum       http://chartmuseum.jx.35.200.29.158.nip
jenkins-x-docker-registry   http://docker-registry.jx.35.200.29.158
jenkins-x-monocular-ui      http://monocular.jx.35.200.29.158.nip.i
nexus                       http://nexus.jx.35.200.29.158.nip.io
```

ENVIRONMENT PROMOTION VIA GITOPS

- Development Environment

- Staging Environment

- Production Environment

ENVIRONMENTS IN KUBERNETES
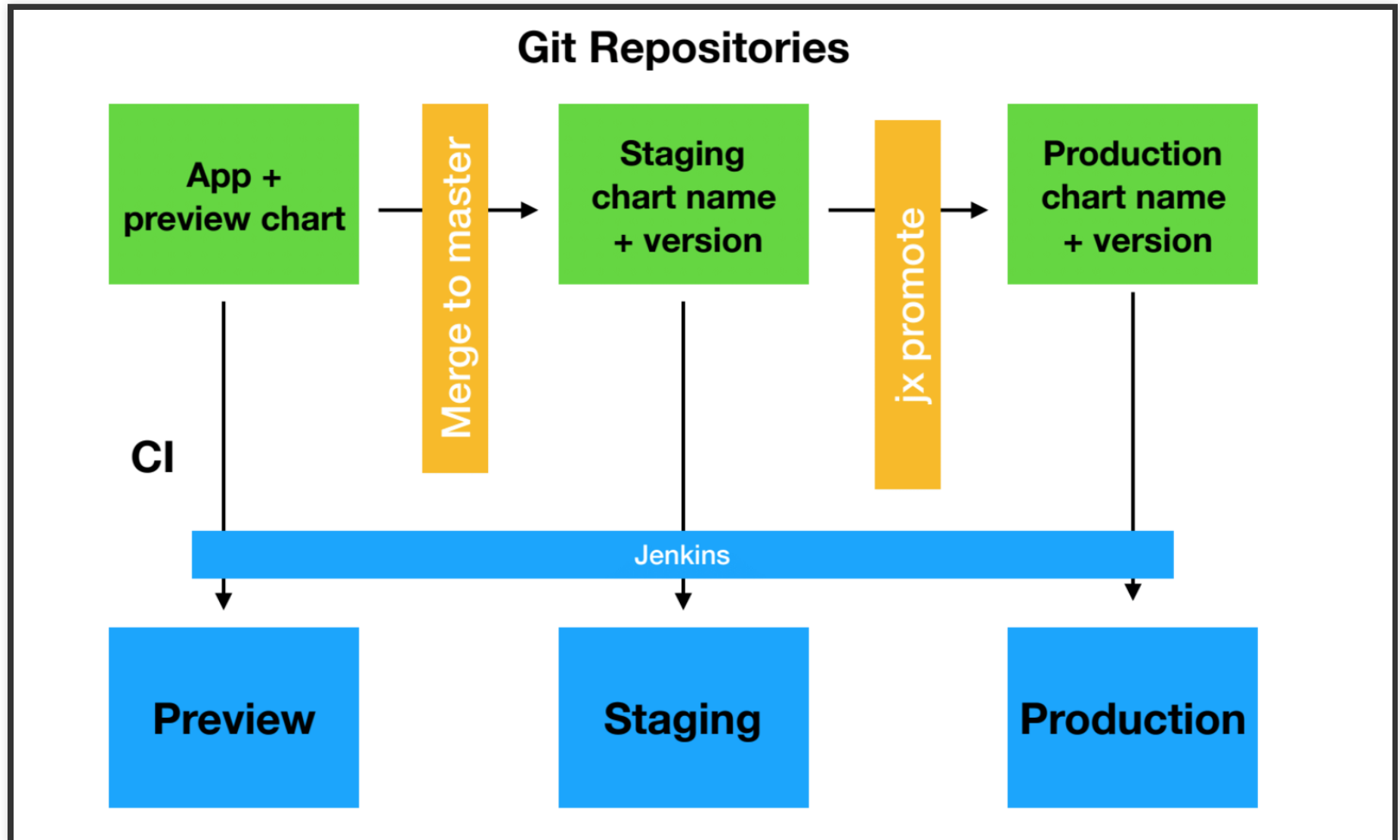
HOW DO WE SETUP KUBERNETES + JENKINS X?

- Install the jx command line tool

    - http://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/v1.3.46
sudo mv jx /usr/local/bin
```

HOW DO WE SETUP KUBERNETES + JENKINS X?

- If using the public cloud use:

```
jx create cluster aws
jx create cluster gke
jx create cluster aks
```

HOW DO WE SETUP KUBERNETES + JENKINS X?

- If you have a cluster already - ensure RBAC enabled then:

```
jx install --provider=openshift
```

JX COMMANDS

- jx command line tool

- https://jenkins-x.io/commands/jx/

DEMO

DEMO OVERVIEW

- Step 1. Install jx

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

- Step 2. Create Cluster GKE

  - https://jenkins-x.io/demos/create_cluster_gke/

- Step 3. Create Cloud App: Spring Boot

  - http://jenkins-x.io/demos/create_spring/

- Step 4. Import Cloud App: Vert.x

DEMO - STEP 2. CREATE CLUSTER GKE

```
jx create cluster minikube
jx create cluster minishift
jx create cluster gke
```

DEMO - STEP 2. CREATE CLUSTER GKE

- https://asciinema.org/a/5WCQvwLgYwz6YnefVKZ2Nru

```
jx create cluster gke --cluster-name jwon-k8s-cluster-1030 --user
```

DEMO - STEP 3. CREATE CLOUD APP: SPRING BOOT

```
jx create spring -d web -d actuator
```

- Automatically set up CI/CD pipelines for new + imported projects

- Setups up git repository

- Adds webhooks on git to trigger Jenkins pipelines on PR / master

- Triggers the first pipeline

JENKINS X ON PULL REQUEST

- Builds and tests

- Creates preview docker image + helm chart

- Creates a Preview Environment and comments on the PR with the link

JENKINS X ON RELEASE (PUSH TO MASTER)

- Builds and tests

- Creates semantic release version

- Publishes versioned artifacts, docker image & helm chart

JENKINS X PROMOTION VIA GITOPS

- Each environment stores its configuration as helm charts in a git repository

    - 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

DEMO - STEP 4. IMPORT CLOUD APP: VERT.X

- https://asciinema.org/a/5WCQvwLgYwz6YnefVKZ2Nru
- http://start.vertx.io/

```
jx import
```

JENKINS X ROADMAP

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

TRY IT OUT!

- https://jenkins-x.io/getting-started/

THANK YOU

REFERENCES

- https://docs.google.com/presentation/d/1hwt2lFh3cCel
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- https://www.youtube.com/watch?v=uHe7R_iZSLU
- https://jenkins.io/blog/2018/07/19/jenkins-x-accelerate
- https://dzone.com/articles/jenkins-x-the-good-bad-and-
- https://blog.octo.com/en/jenkinsx-new-kubernetes-drea
- https://www.dropbox.com/s/2l3yudybl8dx4j7/2.pdf?dl=

- http://www.itworld.co.kr/news/107527
- https://www.redhat.com/en/blog/integrating-ansible-je
- http://woowabros.github.io/experience/2018/06/26/br
- https://dzone.com/articles/what-is-gitops-really
- https://jenkins-x.io/developing/git/#using-a-different-gi