JENKINS X

automated CI/CD solution for cloud native applications on Kubernetes

https://jenkins-x.io/

tedwon <jwon@redhat.com>

I AM A RED HAT JBOSS SENIOR SME AT SEOUL

SOFTWARE MAINTENANCE ENGINEER

JENKINS VS JENKIS X

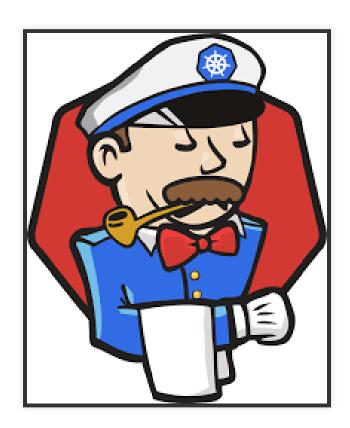
JENKINS

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



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
 - https://github.com/fabric8io/gofabric8
 - http://fabric8.io/

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

HOW DOES JENKINS X HELP?

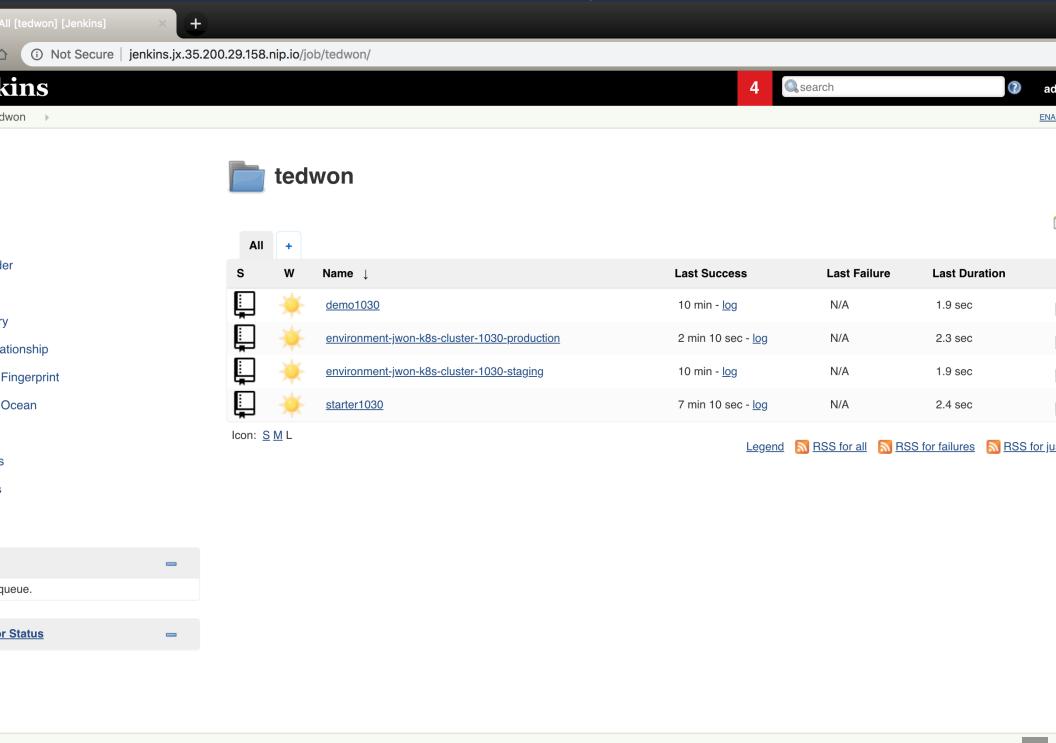
- Jenkins
 - CI/CD pipeline solution
- Nexus
 - Artifact repository
- https://helm.sh
 - Package manager for Kubernetes
- Chartmuseum
 - Helm Chart repository

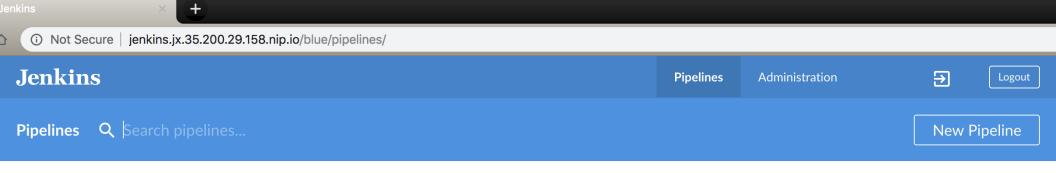
HOW DOES JENKINS X HELP?

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

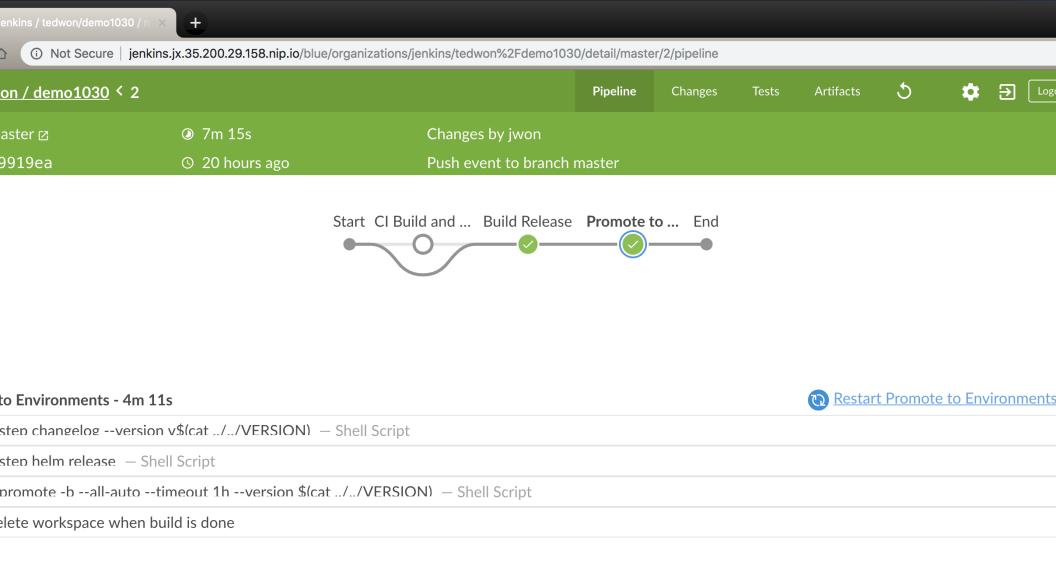
HELM CHART

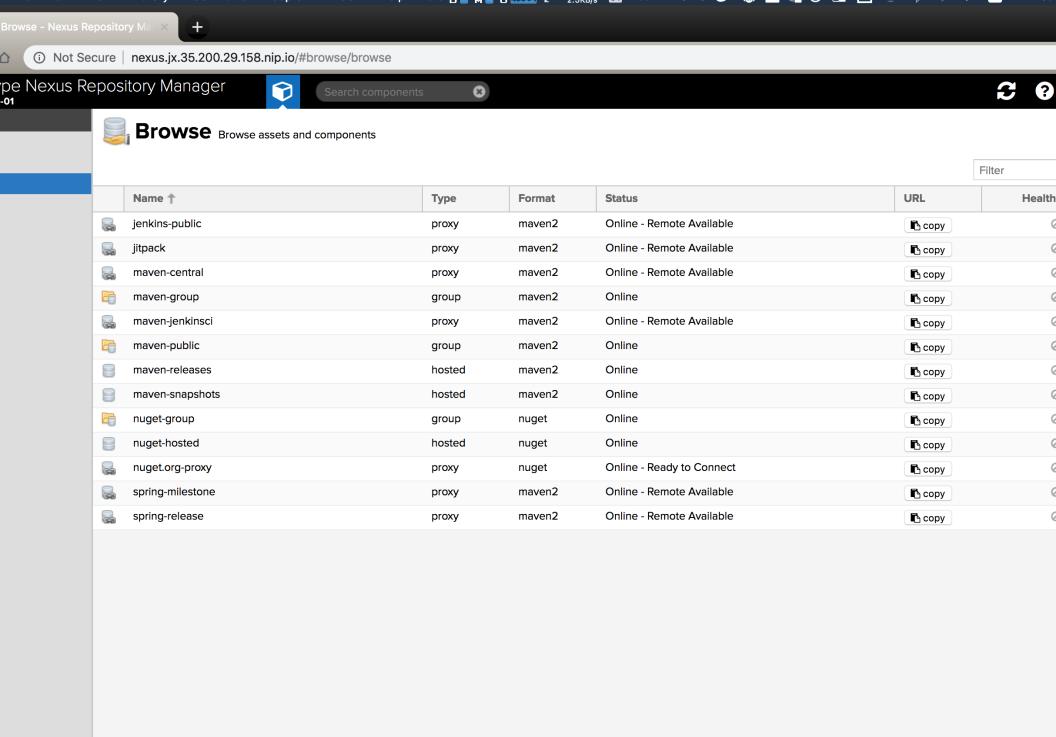
- Helm Chart is a packaging format.
- A chart is a collection of files that describe a related set of Kubernetes resources.





NAME	HEALTH	BRANCHES	PR
tedwon / demo1030	(1 passing	- ☆
tedwon / environment-jwon-k8s-cluster-1030-production	(1 passing	- ☆
tedwon / environment-jwon-k8s-cluster-1030-staging	(1 passing	- ☆
tedwon / starter1030	•	1 passing	- ☆







i Not Secure monocular.jx.35.200.29.158.nip.io

nkins X Apps

Charts **About**

iscover & launch great ubernetes-ready apps

Search charts...

2 charts ready to deploy



demo1030

chartmuseum



Contribute

Github

How to use

What is Helm?

Monocular is an **Open Source project** | v0.7.3

21

HOW DOES JENKINS X HELP?

```
jx open

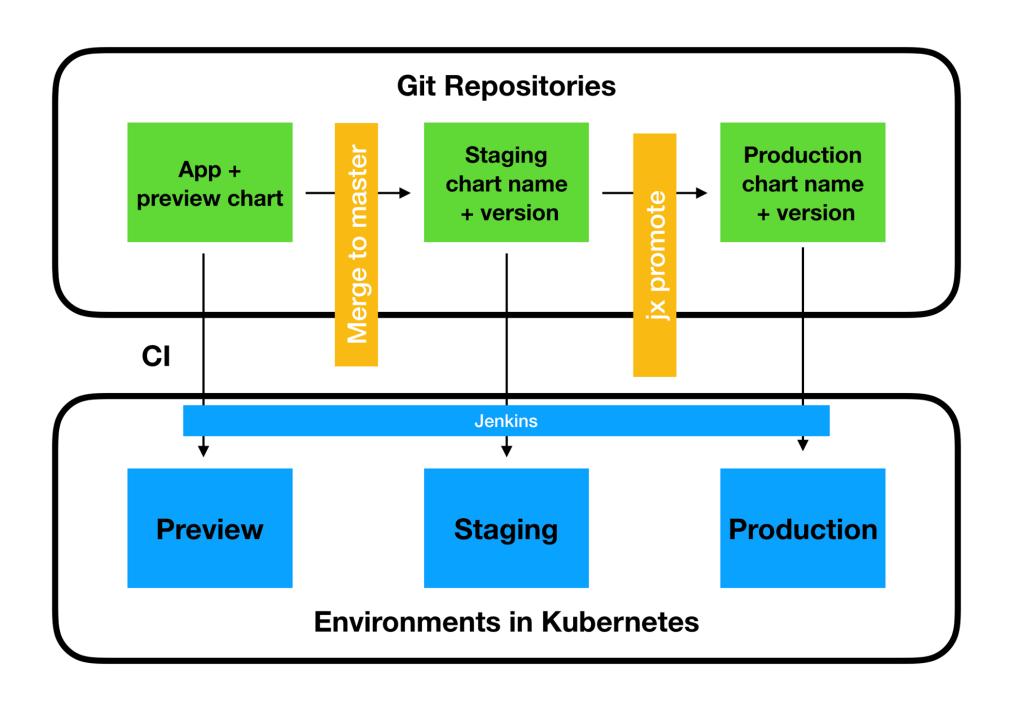
jenkins
jenkins-x-chartmuseum
jenkins-x-docker-registry http://docker-registry.jx.35.200.29.158.nip
jenkins-x-monocular-ui http://monocular.jx.35.200.29.158.nip.i
nexus
http://monocular.jx.35.200.29.158.nip.io
```

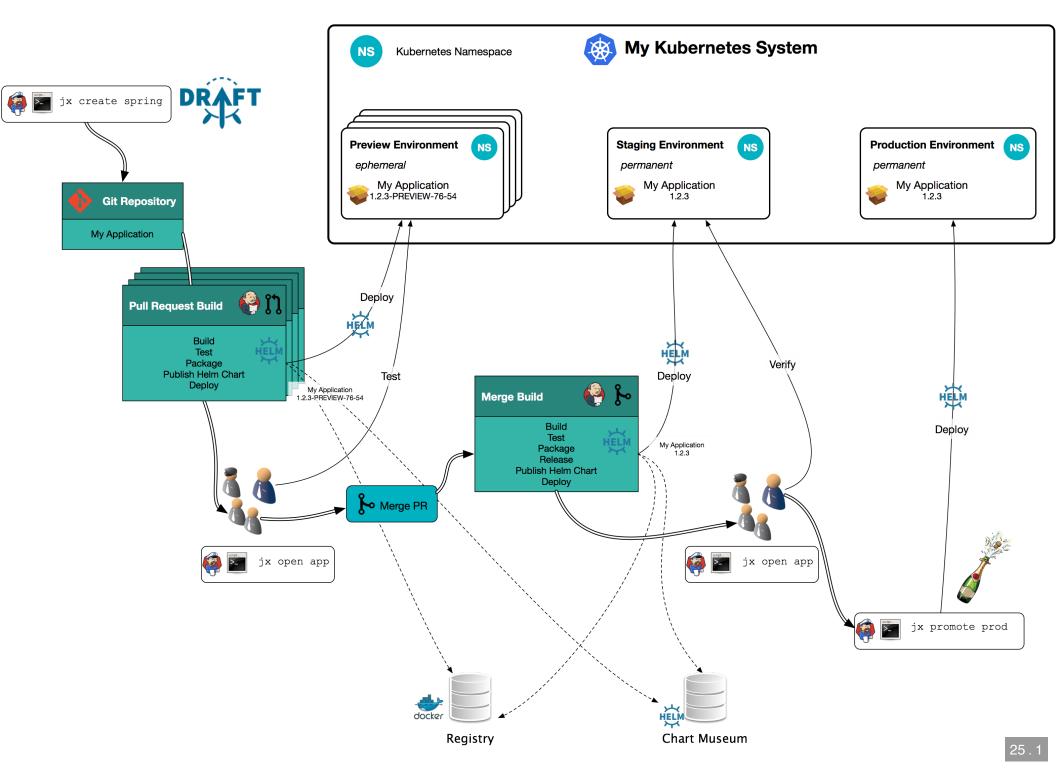
- Jenkins http://jenkins.jx.35.200.29.158.nip.io
- Nexus http://nexus.jx.35.200.29.158.nip.io
- Monocular http://monocular.jx.35.200.29.158.nip.io

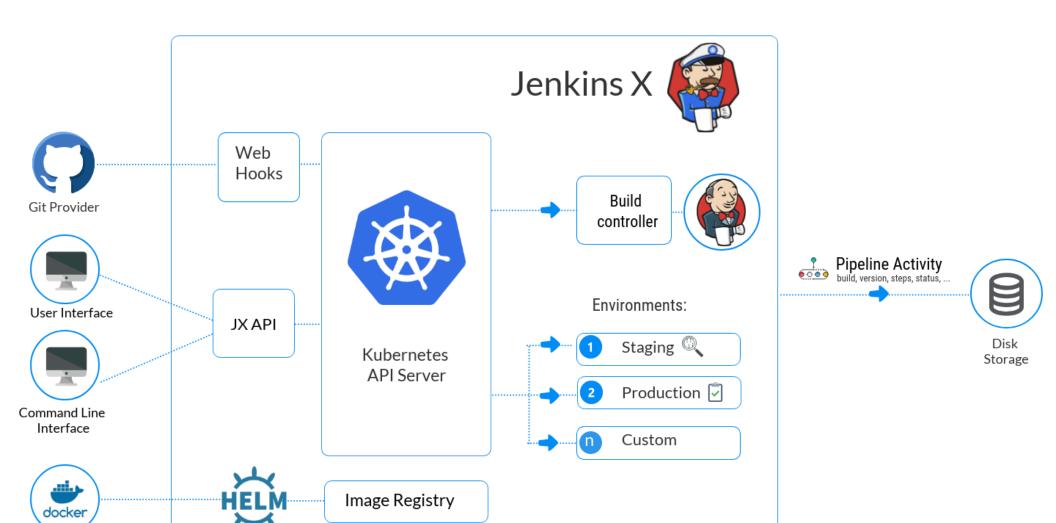
ENVIRONMENT PROMOTION VIA GITOPS

```
jx env
? Pick environment: [Use arrows to move, type to filter]
> dev
  production
  staging
```

- Development Environment
- Staging Environment
- Production Environment







Container Registry

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/

jx help

DEMO

jx create spring



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

- Record: https://asciinema.org/a/210859
 - https://asciinema.org/a/209189
 - demo.adoc
 - https://cloud.google.com/kubernetes-engine

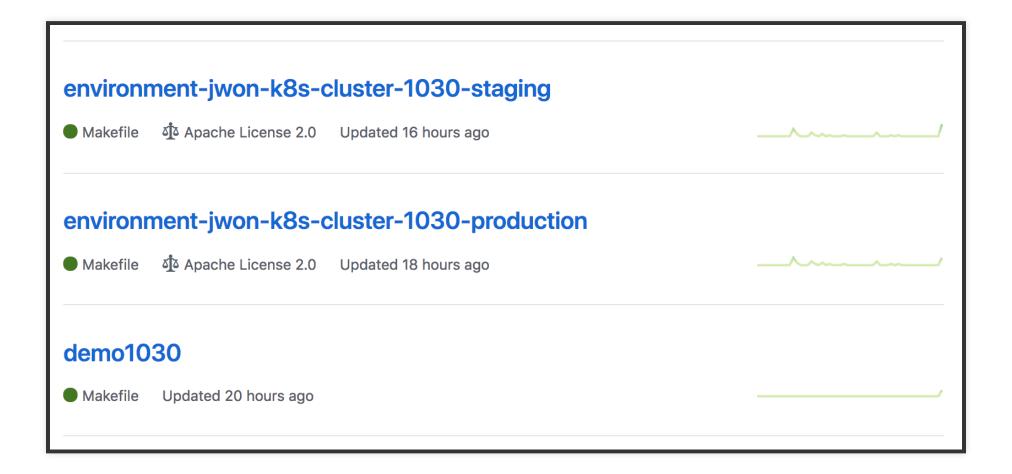
jx create cluster gke --cluster-name jwon-k8s-cluster-1030 --user

DEMO - STEP 3. CREATE CLOUD APP: SPRING BOOT

jx create spring -d web -d actuator

- Record: https://asciinema.org/a/210872
- 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

DEMO & ENVIRONMENT GIT REPOSITORY



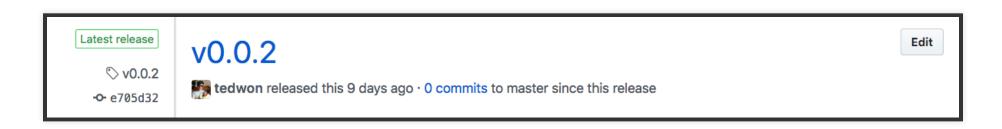
JENKINS X ON PULL REQUEST

- Builds and tests
- Creates preview docker image + helm chart
- Creates a Preview Environment and comments on the PR with the link
 - Ex: https://github.com/tedwon/demo1030/pull/2



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

- Record: https://asciinema.org/a/210880
 - https://asciinema.org/a/209189
- http://start.vertx.io/

jx import

JENKINS X ROADMAP

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

TRY IT OUT!

- https://jenkins-x.io/getting-started/
- JBUG Jenkins X Hands-on https://goo.gl/oBbHxA

THANK YOU

JBUGKorea

facebook.com/groups/jbossusergroup/

REFERENCES

- https://docs.google.com/presentation/d/1hwt2lFh3cCel
- https://developer.okta.com/blog/2018/07/11/ci-cd-spri
- https://jenkins.io/blog/2018/03/19/introducing-jenkins
- https://www.youtube.com/watch?v=uHe7R_iZSLU
- https://jenkins.io/blog/2018/07/19/jenkins-x-accelerate

REFERENCES

- https://dzone.com/articles/jenkins-x-the-good-badand-ugly
- https://blog.octo.com/en/jenkinsx-new-kubernetesdream-part-1/
- https://www.dropbox.com/s/2l3yudybl8dx4j7/2.pdf? dl=0
- http://www.itworld.co.kr/news/107527
- https://www.redhat.com/en/blog/integratingansible-jenkins-cicd-process

REFERENCES

- http://woowabros.github.io/experience/2018/06/26/br cicd.html
- https://dzone.com/articles/what-is-gitops-really
- https://jenkins-x.io/developing/git/#using-a-different-gi provider-for-environments
- JBUG Jenkins X Hands-on https://goo.gl/oBbHxA