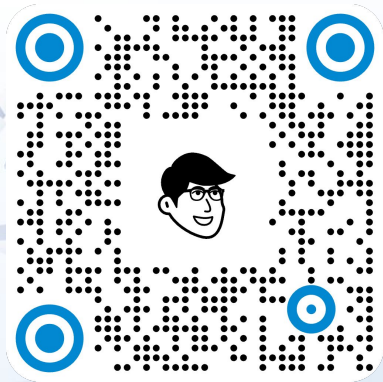




With Cloud Native Java

“java -jar myapp.jar = CI + GitOps”

Slides → <https://bit.ly/java-ci-gitops>





Who am I ?

Dir. Developer Advocate @  **harness**

Open Source Contributor for more than a decade

- [Drone CI](#)
- [Tektoncd](#)
- [k3d](#)
- [Eclipse Che](#)
- [Camel-K](#)
- [Knative](#)
- [\(Google/ko\)](#)



Once upon a time ...



Developer(s) wanted to deploy applications ..



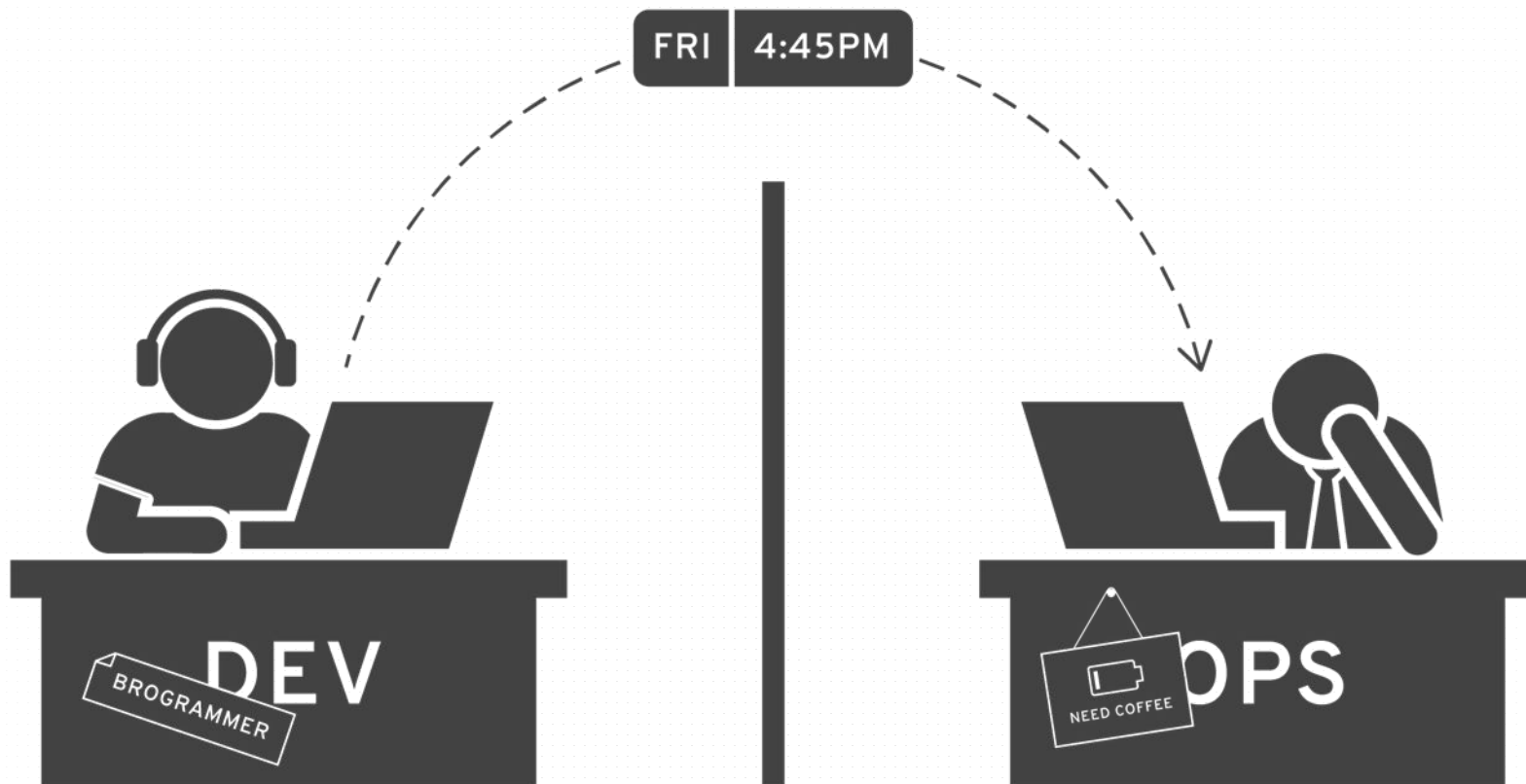
MyApp.war has been tested with the following

- On my Windows 7 desktop
- JDK 1.8.43
- Wildfly 9

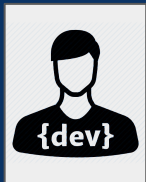
Configuration:



- Datasource: MySQLDS
- Tested with:
mysql-connector-java-5.1.31-bin.jar



Still trying to deploy...



MyApp.war has been tested with the following

- On my Windows 7 desktop
- JDK 1.8.43
- Wildfly 9

Configuration:



- Datasource: MySQLDS
- Tested with:
mysql-connector-java-5.1.31-bin.jar

Production Environment

Red Hat Enterprise Linux 7

JDK 1.8

WebSphere 9

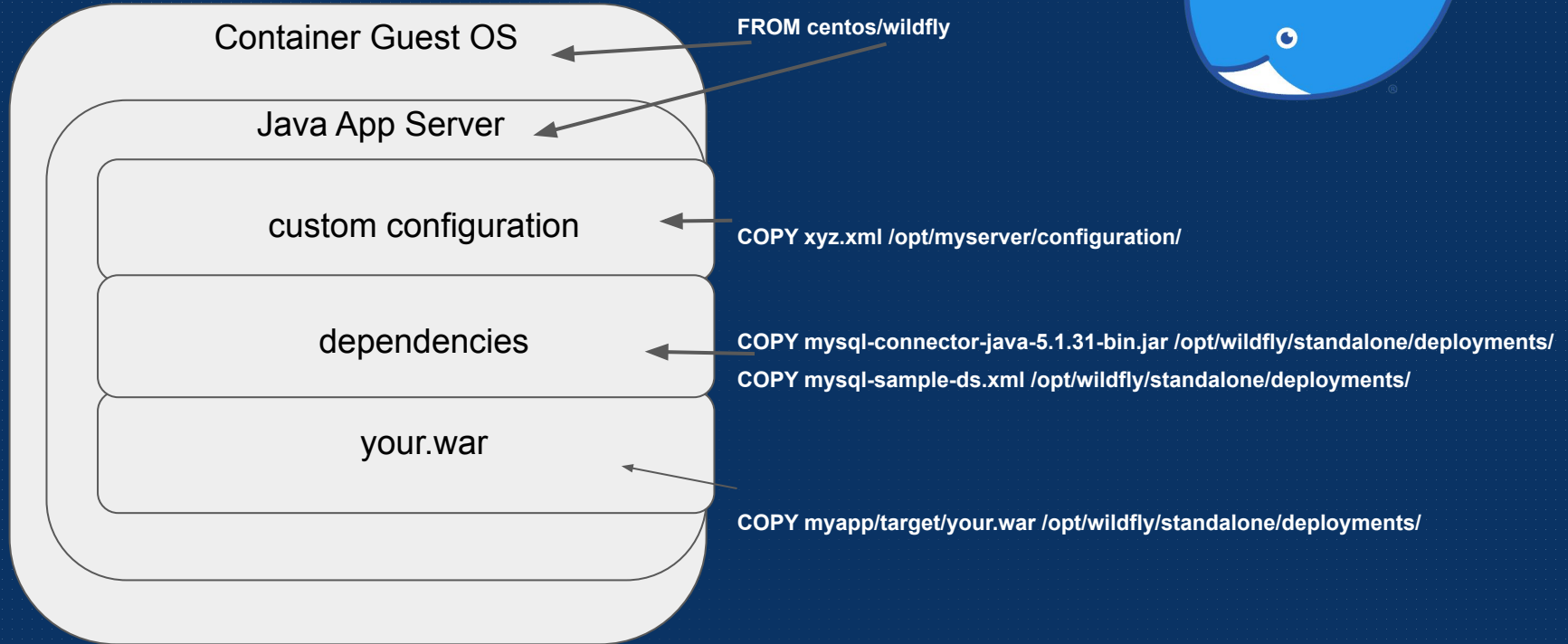
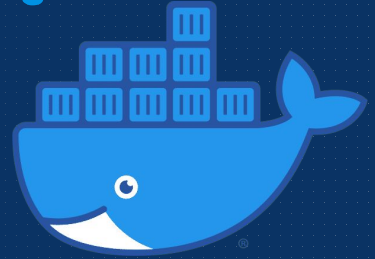
Oracle Database 12



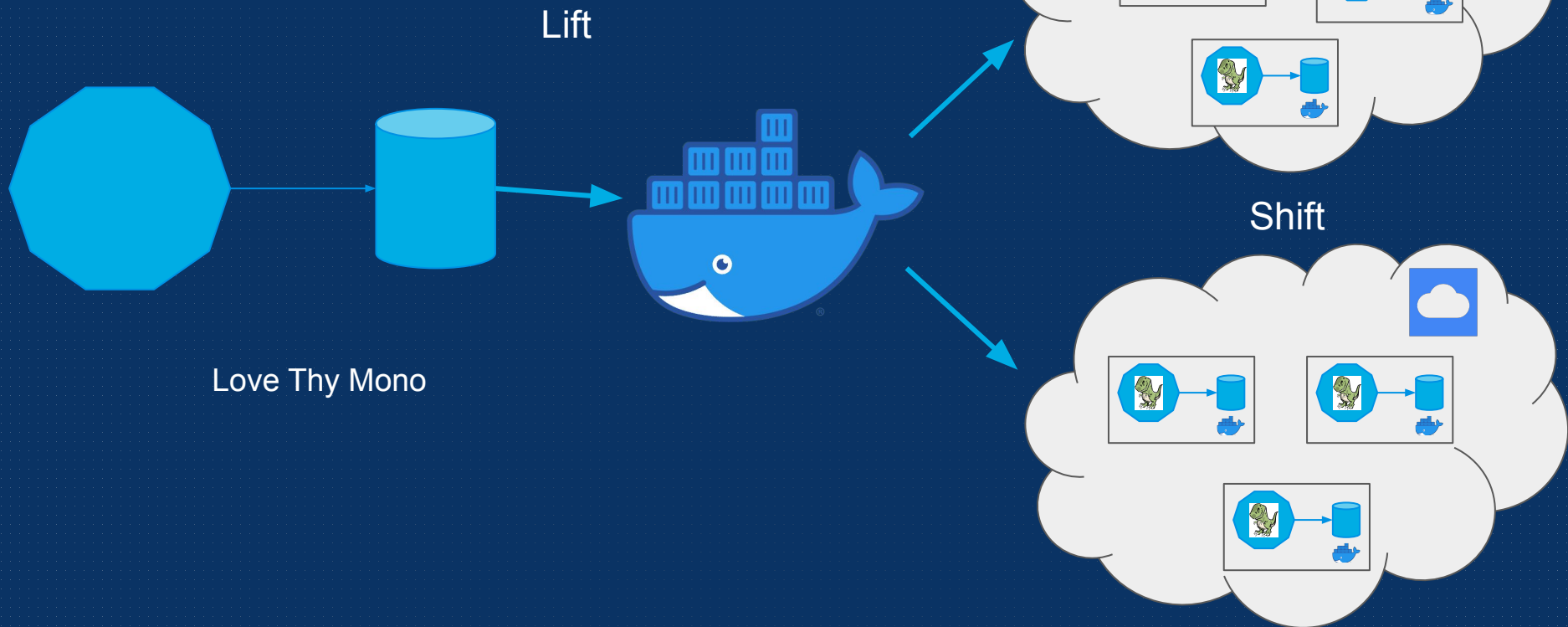
WALL OF CONFUSION



And then the process improved with Containers



And everybody started to move to cloud





Source: bit.ly/teachingelephants



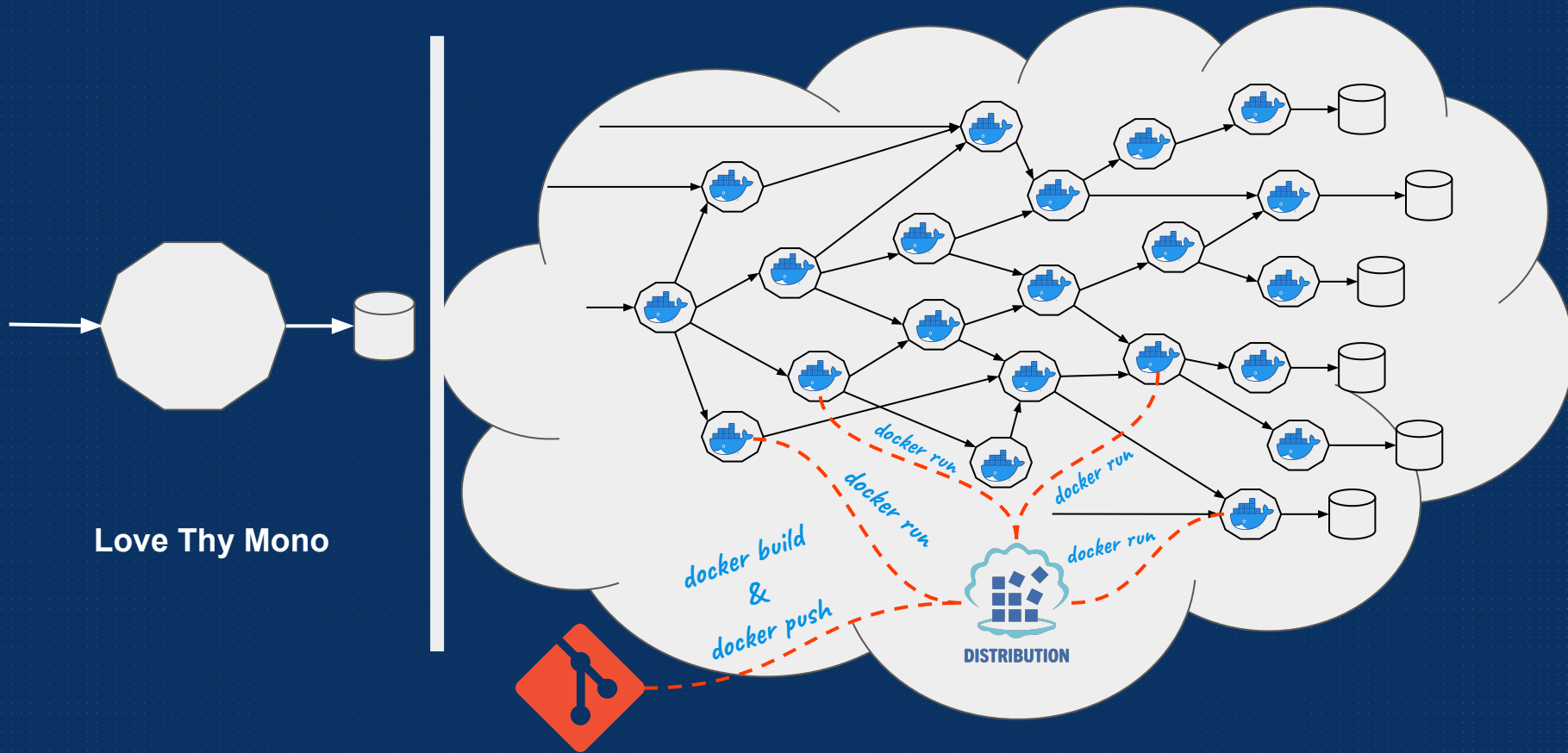
Container Native



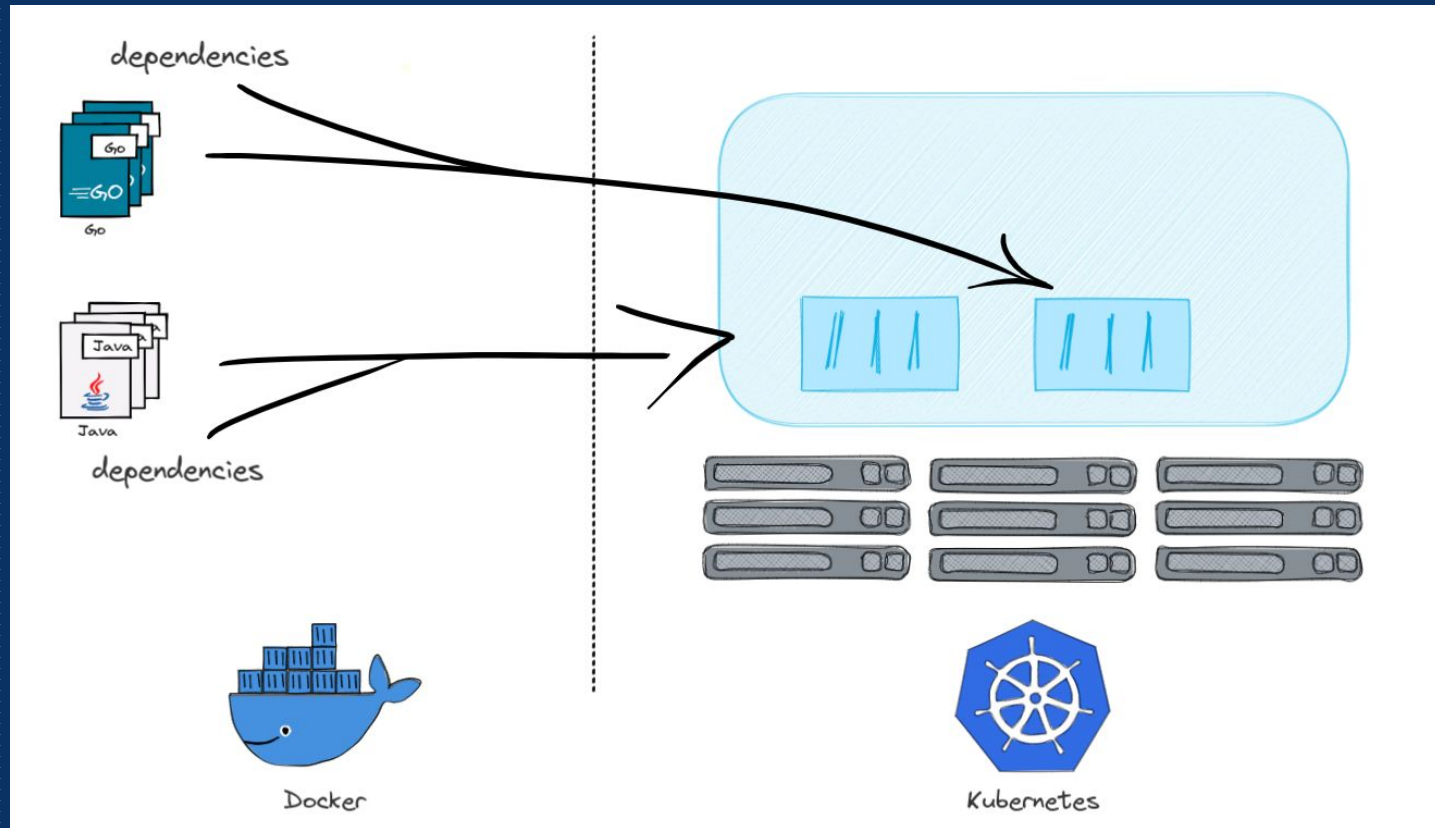
But the happiness did not last long ...



Monolith to Microservices

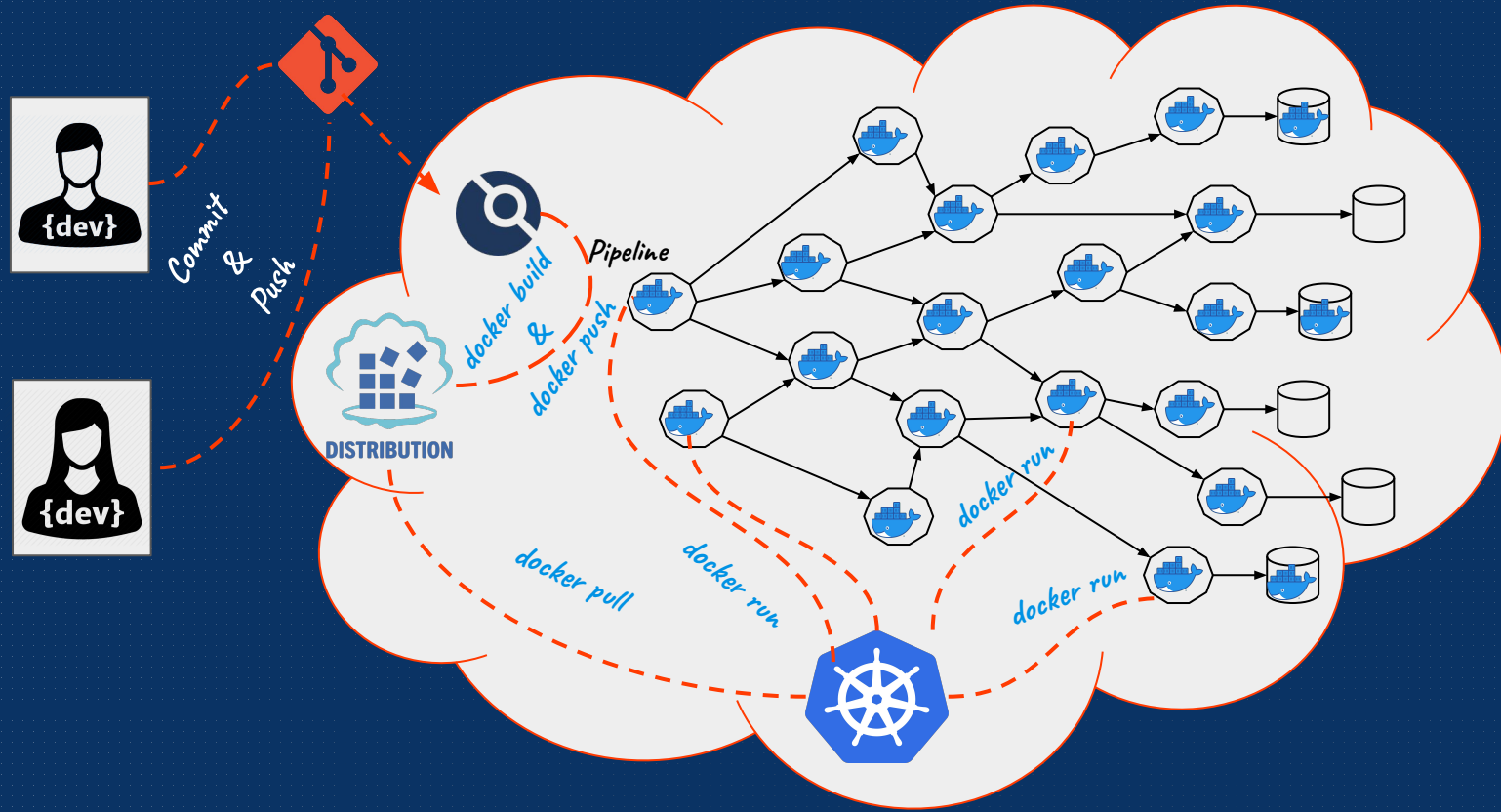


Operational Complexity (Partially) Solved!



Continuous Integration

Increase Deployment Velocity



drone.io

Drone.io Joins the Harness Family. [Read the Announcement](#)



DRONE
by harness

CLOUD

ENTERPRISE

MARKETPLACE

DOCUMENTATION

BLOG

LOGIN

Automate Software Build and Testing

Drone is a self-service Continuous Integration platform for busy development teams.

GET STARTED

DOCUMENTATION



Container Native Pipeline

CISCO

GANNETT

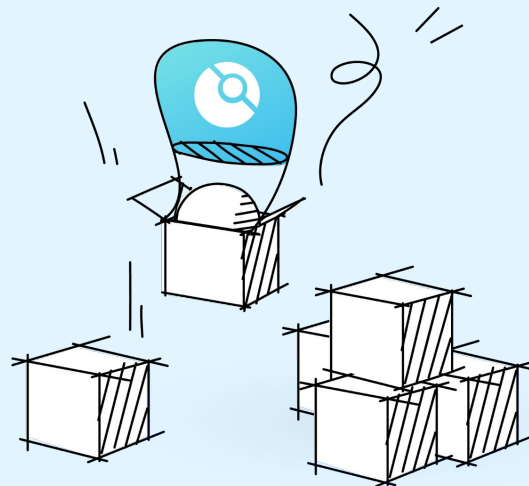
ebay

vmware



Drone was Launched in 2012

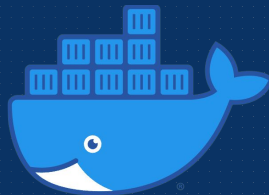
- Written in Go
- Built on Docker
- Multi-OS (Linux, Mac, Windows)
- Multi-Arch (amd64, arm64, ...)
- Multi-SCM (GitHub, GitLab, BitBucket, Gitea, ...)
- Self-hosted
- Small footprint
- Acquired by Harness in August 2020



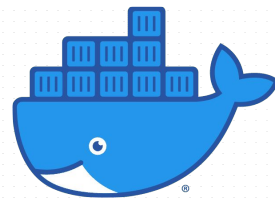
Drone brings CI to Laptops

Drone CI Extension

A Docker Desktop Extension for Drone CI



Demo



Drone CI Docker Extension



Drone CI

Container Native Pipeline

(a.k.a. your `.drone.yml` file)



.drone.yml

```
kind: pipeline
type: docker
name: default
```

Kind and type attributes define that this is a docker pipeline.

steps:

```
- name: jar
  image: maven
```

```
  commands:
```

```
  - mvn clean install
```

Steps defines a series of shell commands executed inside the container as the entrypoint.

If any command returns a non-zero exit code, the pipeline fails.



.drone.yml

```
kind: pipeline
type: docker
name: default
```

docker volume create "workspace"

steps:

- name: jar
image: maven

commands:

- mvn clean install

```
docker run \  
  --rm \  
  -e DRONE_COMMIT_SHA=<shasum> \  
  -e DRONE_COMMIT_BRANCH=main \  
  -e DRONE_REMOTE_URL=<repo> drone/git
```

```
docker run \  
  --rm \  
  --volume workspace:/drone/src \  
  --workdir /drone/src \  
  maven sh -c "mvn clean install"
```





[Photo by Mimi Thian](#) on Unsplash




```
kind: pipeline
type: docker
name: default
```

```
services:
```

- name: postgres
image: postgres:13.7



```
steps:
```

- name: gcs copy
image: google/cloud-sdk
commands:
- gsutil cp ...



- name: build
image: maven:3.8.5
commands:
- mvn clean install



- name: selenium
image: selenium/standalone-firefox:4.3.0
commands:
- ...



```
kind: pipeline
type: docker
name: default
```

services:

- name: postgres
image: postgres:13.7

steps:

- name: gcs copy
image: google/cloud-sdk
commands:
 - gsutil cp ...
- name: build
image: maven:3.8.5
commands:
 - mvn clean install

- name: selenium
image: selenium/standalone-firefox:4.3.0
commands:
 - ...

```
kind: pipeline
type: docker
name: default
```

services:

- name: postgres
image: postgres:13.7

steps:

- name: gcs copy and build
image: registry.company.io/ourteam/my-step:0.1
commands:
 - gsutil cp ...
 - mvn clean install

- name: selenium
image: selenium/standalone-firefox:4.3.0
commands:
 - ...



Drone CI Plugins

Drone CI Plugins are **Docker containers** that perform predefined tasks and are configured as steps in your pipeline

Plugins can be used to deploy code, publish artifacts, send notifications, and more



```
kind: pipeline
type: docker
name: default
```

```
- name: publish
```

```
  image: plugins/docker
```

official Drone Docker plugin

```
  settings:
```

```
    username: kevinbacon
```

```
    password:
```

```
      from_secret: docker_password
```

```
    repo: foo/bar
```

```
    tags:
```

```
      - 1.0.0
```

```
      - 1.0
```

```
- name: notify
```

```
  image: plugins/slack
```

official Drone Slack plugin

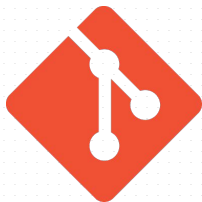
```
  settings:
```

```
    channel: developers
```

```
    username: drone
```



Demo (CI)



Shortcomings using CI for CD

- Hard to maintain
 - More scripting
- Mixing Code and Infrastructure
- Reduces reusability
- No consistency
 - Synchronising across multiple clusters
- No Deployment History
- No Credential Management

GitOps: Versioned Continuous Deployment





GitOps: versioned CI/CD on top of
declarative infrastructure. **Stop scripting** and
start shipping

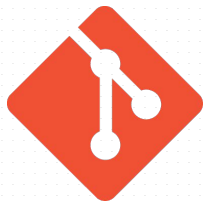
Kesley Hightower



Advantages of GitOps

- Deploy Faster and More Often
- Easy and Fast Error Recovery
- Easier Credential Management
- Self-documenting Deployments
- Shared Knowledge in Teams

Demo (GitOps)





Long ago, there lived a clever jackal in a dense forest. One day, he came across a dead elephant. He wanted to eat its flesh and keep the whole of it for himself, but couldn't cut through its tough hide. While he was waiting for help, a lion arrived. The jackal told him, "Your Majesty, I have been guarding it for you, please have a taste." "I eat only fresh animals," replied the lion and went on his way. The jackal was happy. Next came a tiger. He said to the tiger, "A hunter has killed the elephant with a poisoned arrow. Whoever eats its flesh would die. I'm guarding it to save others lives." The tiger got scared and soon disappeared into the forest. Then came two vultures. The jackal told them, "I've sold its skin to hunters. If they ever see you eating it, they'll kill both of you." The vultures quickly flew away. But the jackal still looked for someone who would make it easy for him to eat the carcass. At last, there came a leopard, which had sharp teeth. He said to him, "Why don't you take a bite? It has been killed by a lion, who has gone home to bring his family. When I see him coming, I'll alert you and you can run away. The leopard started cutting open the elephant's hide. As soon as it was about to eat its flesh, he shouted, "There comes the lion." The leopard vanished into the forest. The jackal happily enjoyed the flesh of the elephant.

MORAL: The merits of being clever are undeniable. A smart worker is more likely to become successful at work. They come with quick and easy problem-solving skills that help them rise fast through the ranks.

Source:

Indian Express dated
14/03/2021

DRAG



DISTRIBUTION



Sources and Documentation

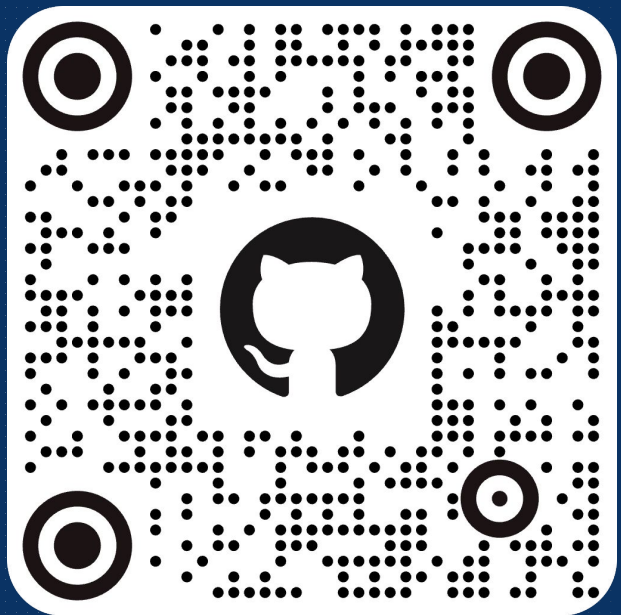
- <https://docs.drone.io/>
- <https://plugins.drone.io>
- <https://github.com/harness/drone-ci-docker-extension>
- <https://github.com/kameshsampath/lingua-greeter>
- <https://github.com/kameshsampath/lingua-greeter-gitops>
- <https://github.com/kameshsampath/drag-installer>
- <https://github.com/harness-apps/drag-stack>

Community

- <https://harnesscommunity.slack.com>
 - #drone
 - #drag-stack
- <https://community.harness.io>
<https://www.meetup.com/harness/>
- <https://app.harness.io/auth/#/signup>



thank you!



@kamesh_sampath

@harnessio

@droneio

@argoproj

#ci

#cd

#gitops

Appendix