Sandbox CI/CD Environments for Everyone

by Leonid Makarov
Chief Architect @ FFW /
Docksal Project Lead

Agenda

- ★ Intro
- ★ Typical development process
- ★ Local environments
- ★ Project automation
- ★ Sandbox CI/CD environments with Docksal
- ★ Bonus: Advanced and cool features

Intro

Hi there!

Intro

★ Chief Architect @ FFW US
★ DevOps, infrastructure, tooling
★ In Drupal since 2006
★ In Docksal since 2016

Leonid Makarov

Docksal Team

Maintainers

 Leonid Makarov

 Oleksii Chekulaiev

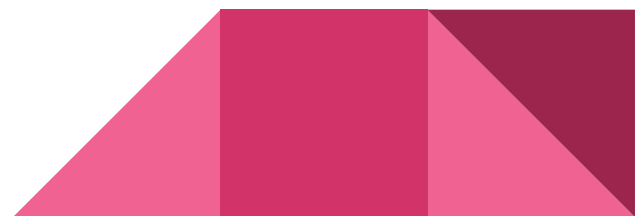 Sean Dietrich

 David Hernandez

Supporters

 FFW Agency

 EPAM Systems

 Kanopi Studios
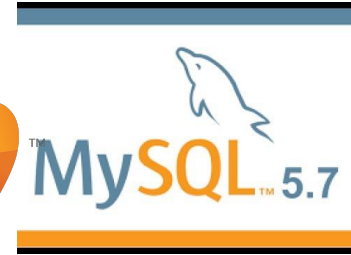
Typical development process

What it should look like

Typical development process

★ Local development

★ Feature branch => Pull/merge request

★ Code review

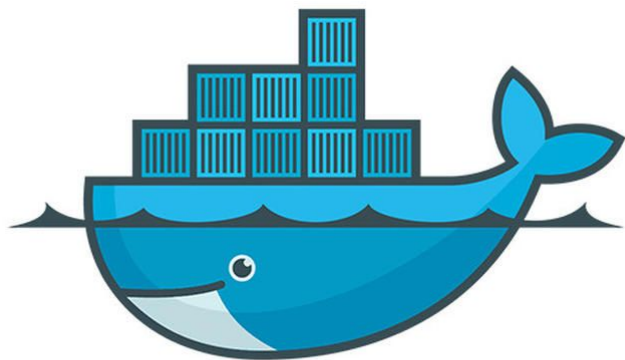★ CI/CD automation (automated tests & deployments)

★ Hosting: dev, stage, prod

Local environments
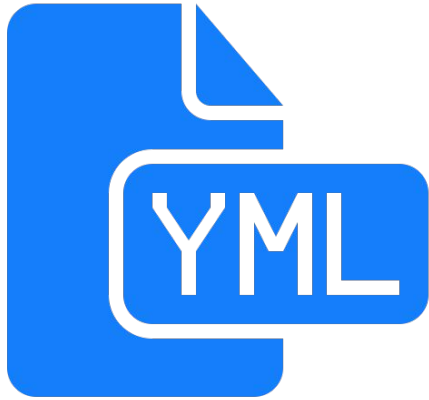
Go Docker

"Can not reproduce!"

What to do?

Why Docker

★ Containers are more efficient

★ Immutable images - no fragile provisioning at runtime

★ Work with different project stacks at the same time

★ Containers can be extended in a reproducible way

★ Containers are portable (CI reuse)

Compose + Containers + Conventions = **Docksal**

docksal.yml is Compose

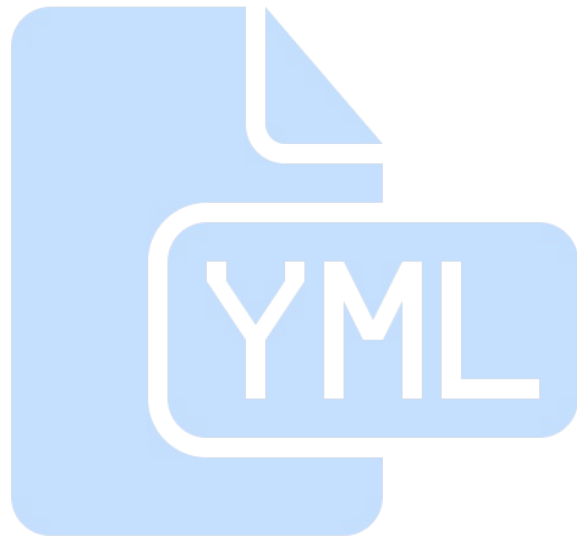★ **No new YML dialect** you need to learn
★ Fully Docker Compose compatible

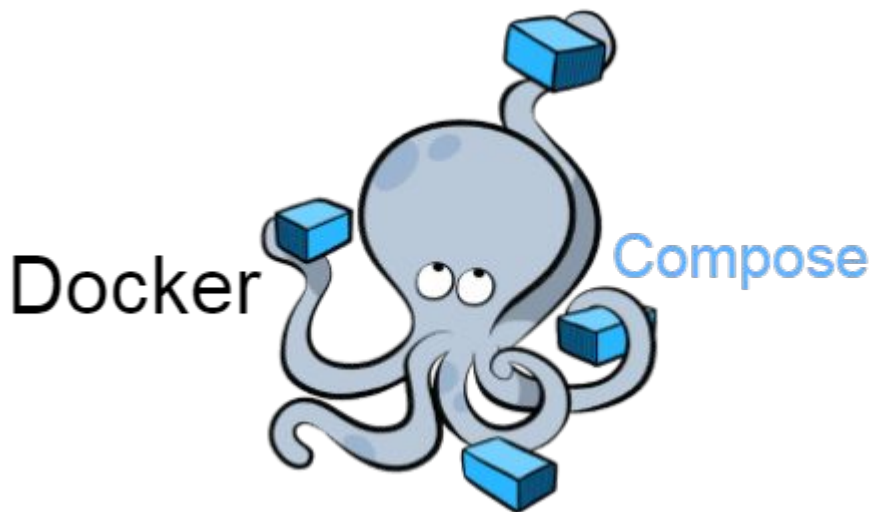# Image library and boilerplates

➔ Default stack
 ◆ **CLI** – PHP 5.6, 7.0, 7.1, 7.2
 ◆ **WEB** – Apache 2.2, Apache 2.4
 ◆ **DB** – MySQL 5.5, 5.6, 5.7, 8.0

➔ Additional services
 ◆ Solr, Varnish
 ◆ Memcached, Redis, Selenium, MailHog, …

➔ Boilerplate projects for
 ◆ **Drupal** 8, Drupal 7
 ◆ **Wordpress**
 ◆ **Magento**
 ◆ **Laravel**
 ◆ NodeJS
 ◆ Hugo
 ◆ Gatsby JS
 ◆ Grav CMS

Change what you like

★ Create **custom automation** in BASH, Node or PHP

★ Full power and flexibility of **Docker Compose**

★ Seamlessly **extend** our stock Docker images
   at the project level with your **Dockerfile**

★ Create and publish addons github.com/docksal/addons

Project automation

Automate routine/complex tasks

Single command

```
fin init
```

All-in-one:

➔ Create containers
➔ Run project automation: initialize settings, import/update database, compile css, run drush...

Custom commands

Create as many commands as you need

```
fin db-import && fin db-update
```

```
fin build-theme
```

```
fin behat
```

Sandbox CI/CD environments

Reuse automation to create sandboxes

What sandboxes are for

★ Enhanced code review

★ Automated testing

★ Manual testing

★ Client demos

What you need for sandboxes
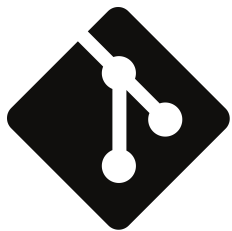
Your project (using Docksal) in a Git repo

Docker based CI solution (e.g. CircleCI)

image:docksal/ci-agent:php
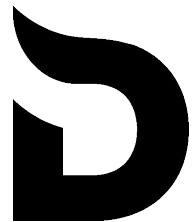
Sandbox Server

How sandboxes work
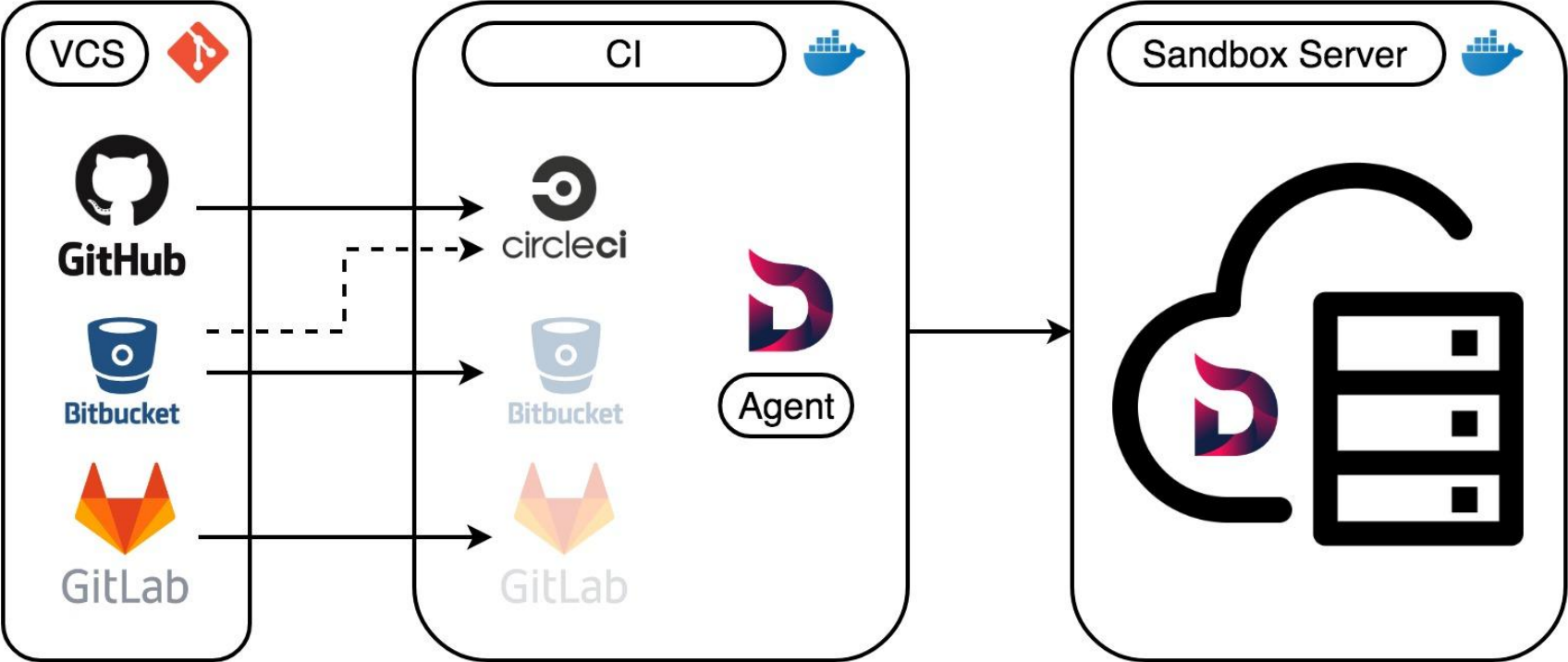
Project and Git repo setup

1. From repo to a fully working site:

```
$_   git clone <repo-url> .
     fin init
```
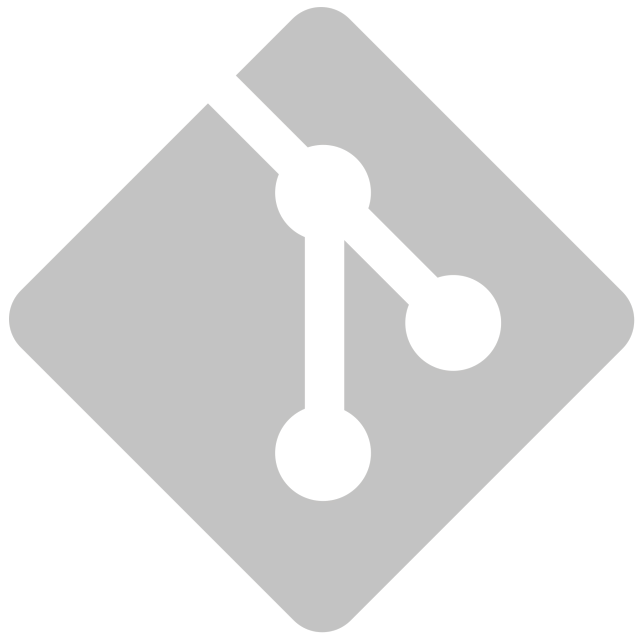
2. Repo access: public or using an SSH key pair

Sandbox server setup

https://github.com/docksal/sandbox-server

★ **AWS CloudFormation template**

Launch Stack ▶ or **aws** cli

★ **GCP Deployment Manager template**

OPEN IN GOOGLE CLOUD SHELL and/or **gcloud** cli

Sandbox server setup

Quick setup (using CloudFormation web UI)

If you have an existing AWS account (with billing and an SSH key pair), just click on the button below!

Launch Stack ▶

You will be prompted for:

- Instance type
- SSH key name

Once provisioned, the IP address of the server will be printed in the **Outputs** section in CloudFormation.

Sandbox server setup

CircleCI setup: **config.yml**

```yaml
version: 2

jobs:
  build:
    working_directory: /home/agent/build
    docker:
      - image: docksal/ci-agent:php
    steps:
      - run:
          name: Configure agent environment
          command: echo 'source build-env' >> $BASH_ENV
      - checkout
      - run:
          name: Build sandbox
          command: sandbox-init
```
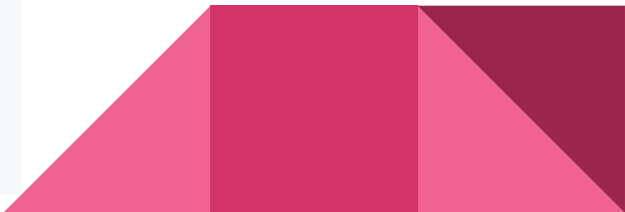
CircleCI setup: **Environment Variables**

Environment Variables for docksal/drupal8   **Import Variables**   **Add Variable**

Add environment variables to the job. You can add sensitive data (e.g. API keys) here, rather than placing them in the repository.

Name	Value	Remove
DOCKSAL_HOST	xxxxp.io	✕
DOCKSAL_HOST_SSH_KEY	xxxxLQ==	✕
GITHUB_TOKEN	xxxxd619	✕

Live demo

Do attempt yourself!

Build status notifications
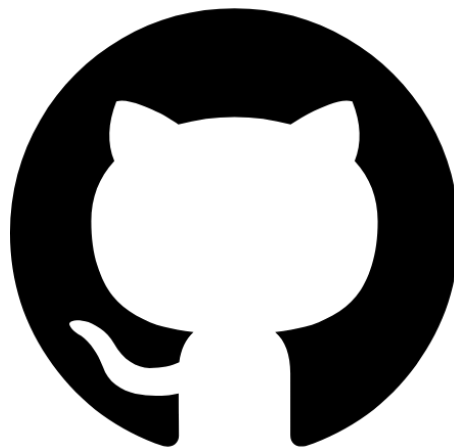
Build status notifications

docksal / **drupal8**

👁 Unwatch ▾ 5   ★ Star 41   ⑂ Fork 34

<> Code   ⓘ Issues 1   ⑂ Pull requests 1   ▦ Projects 0   📖 Wiki   📊 Insights   ⚙ Settings

Branch: **feature/circle... ▾**

https://feature-circleci-drupal8.18.224.41.78.nip.io/

Commits on Oct 22, 2018

Sandboxing with CircleCI
lmakarov committed on Mar 31 ✓   4285fa6   <>

Commits on Oct 17, 2018

All checks have passed
4 successful checks

Merge pull request #30 from doc
shelane committed 6 days ago ✓

✓   ⓘ **ci/circleci** — Your tests passed on CircleCI!   Details

✓   **ci/docksal** — Sandbox environment build completed   Details   7b8a94d   <>

Drupal 8.6.2
shelane committed 6 days ago ✓

✓   **continuous-integration/travis-ci/pr** — The Travis ...   Details   122161b   <>

✓   **continuous-integration/travis-ci/push** — The Travi...   Details

Commits on Sep 20, 2018

Your sandbox, delivered

Bonus:
Advanced and cool features

There is more...

Smart resource management

★ Automatic hibernation and cleanup of sandboxes

★ On-demand waking-up

★ Permanent environments (e.g. dev, stage)

Active environments = RAM

Hibernating environments space = Disk
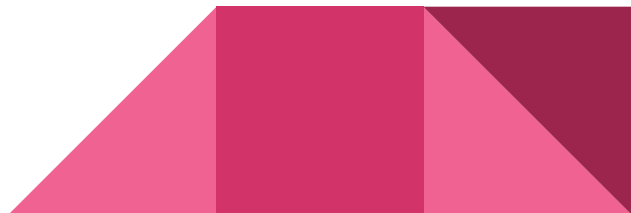
Security

★ Custom SSL certificates

★ On-the-fly certificates with LetsEncrypt (coming soon...)

★ Basic HTTP authentication

★ oAuth2 / OIDC authentication (coming soon...)

Visual tools: Web UI (using Portainer)

Visual tools: Web IDE (using Cloud9)

Full-featured IDE
- Code editing
- Syntax highlighting
- Console
- Debugger

More use cases for sandboxes

★ Development environments in the Cloud

★ Super enhanced code reviews

★ Trainings / Sprints / Contributions

★ Simplytest.me on steroids
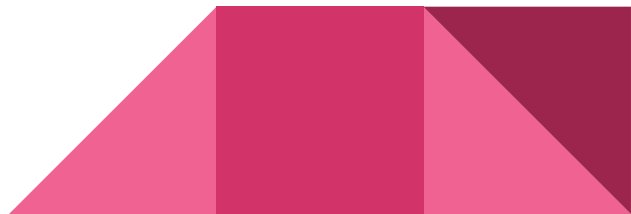
Live demo

Do attempt yourself!

Q&A

Leonid Makarov
Chief Architect @ FFW
BADCamp 2018

Thank you!

Chat	gitter.im/docksal
Blog	blog.docksal.io
Twitter	@docksalio