DevOps

Python tools to get started

DevOps is …

"… **development** and **operations** teams work on software releases in tandem, rather than throwing code back and forth across a silo."

Make no mistake

DevOps is a culture

```
In  [1]: "tools make a culture"
Out [1]: False
```

Background

Perspective

Startup culture, but tools are useful everywhere

Pony Powered

Django + Django Rest Framework

Not too long ago

1 Technical Co-founder

Edits code on production server
Live reload

Moments ago

4 Engineers:
iOS, Android, CTO,
Backend + Infrastructure

Every engineer somewhat involved with
Backend code

TODO

Make it easy to: Make it difficult to:

- Deploy
- Monitor

- Break things

Deployment

Deployment options

- Fabric + git / svn /…

- Salt / Ansible / Chef

- Native packaging (.rpm, .deb)

Fabric (i)

fabfile.py

```python
from fabric.api import env, run

hosts = ['app.server.com']

def deploy():
    run("git pull && … ")
```

Fabric (ii)

```
$   fab deploy

[app.server.com] run: git pull && …
[app.server.com] out: [output]
```

Fabric: the good parts

Simple, easy to start with

`@parallel` to speed up
for multiple servers

Salt

Configuration management, commonly used for server provisioning

Chef, Puppet, etc

Salt + Git

19.25.18. salt.states.git

19.25.18.1. INTERACTION WITH GIT REPOSITORIES

Important: Before using git over ssh, make sure your remote host fingerprint exists in "~/.ssh/known_hosts" file.

To avoid requiring password authentication, it is also possible to pass private keys to use explicitly.

```
https://github.com/saltstack/salt.git:
  git.latest:
    - rev: develop
    - target: /tmp/salt
```

salt.states.git.latest(*name*, *rev=None*, *target=None*, *runas=None*, *user=None*, *force=None*, *force_checkout=False*, *submodules=False*, *mirror=False*, *bare=False*, *remote_name='origin'*, *always_fetch=False*, *identity=None*, *onlyif=False*, *unless=False*)

Make sure the repository is cloned to the given directory and is up to date

Fabric + Salt + Git

```
fab deploy
```

```
salt "app*.server.com" …
```

app1.server.com   app2.server.com

TODO

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- ~~Deploy~~
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Monitor and Control

Controlling processes

Tools: Supervisor, Circus

Allows you to control and monitor your app processes

Supervisor (i)

```
[program:my_app]
command=python my_app.py
```

Supervisor (ii)

```
$ supervisorctl status

my_app  RUNNING  pid 7910, uptime 01:36:44
```

Supervisor (iii)

Supervisor exposes a XMLRPC interface

Allows remote monitoring and control of processes

TODO

Make it easy to:

- ~~Deploy~~
- ~~Monitor~~

Make it difficult to:

- Break things

Continuous Integration

Continuous Integration

Popular CIs:
Jenkins, TravisCI, CircleCI

http://buildbot.net/

Buildbot
The Continuous Integration Framework

Star 881 Fork 495 Tweet 52 g+1 371

Buildbot Basics

Buildbot is an **open-source** framework for automating software build, test, and release processes.

Learn more

Automated Build, Test, and Release

Buildbot can automate all aspects of the software development cycle:

- Continuous Integration
- Continuous Deployment
- Release Management

..and any other process you can imagine.

Learn more

A Framework with Batteries Included

Buildbot is a framework in which **you** implement a system that matches **your workflow** and grows with your organization.

Learn more

Jenkins + Django

kmmbvnr / **django-jenkins**

Plug and play continuous integration with django and jenkins

◷ **382** commits	⑂ **3** branches	🏷 **9** releases	👥 **41** contributors

⇅ | ⑂ branch: **master** ▾ | **django-jenkins** / ⊞

Merge pull request **#210** from yrik/master ⋯

kmmbvnr authored 8 hours ago   latest commit 7cc9866500 📋

📁 django_jenkins	Support For those who still use django 1.5 tests on Django 1.6	9 hours ago
📁 tests	Fix reports under python 3.3	a month ago
📄 .gitignore	Added static dirname parameter for jsHint and cssLint	a year ago
📄 LICENSE	Initial commit	4 years ago
📄 MANIFEST.in	Cleanup and bump version	7 months ago
📄 README.rst	Update README.rst	a month ago
📄 requirements.txt	Remove behave support	a month ago

Automated Feedback

victorneo reopened this 4 hours ago

carouselljenkins commented 4 hours ago

Test failed.

Refer to this link for build results:

Done!

Make it easy to: Make it difficult to:

- ~~Deploy~~
- ~~Monitor~~
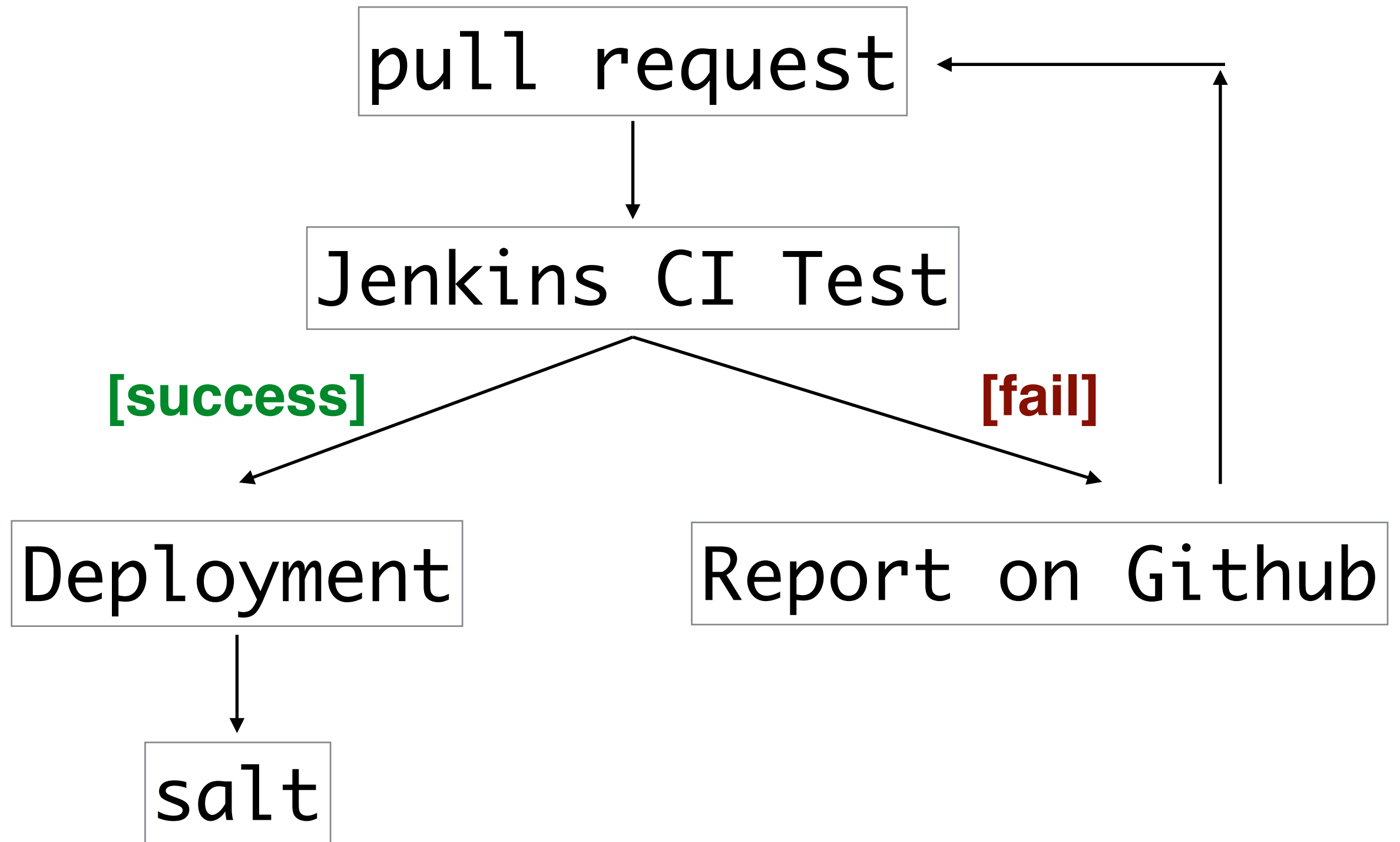
- ~~Break things~~

All together now

Github Workflow

Pull Request

↓

Continuous Integration

↓

Automatic Deployment

Beyond Python

Vagrant $\longrightarrow$ Virtual Machines!

Docker $\longrightarrow$ (LXC) Containers!

Thanks!

@victorneo

(psst. we are looking for web devs)