Deploying PHP applications
using Ansible, Ansible Vault and Ansistrano

- Full Stack Web Developer & System Administrator

- **Senior Software Engineer** at **Inviqa**

- Acquia certified **Drupal 8 Grand Master**

- Open sourcer

- Drupal 7 & 8 **core contributor**

- @opdavies

- www.oliverdavies.uk

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What we'll be looking at

- **Ansible** crash course

- Keeping secrets with **Ansible Vault**

- Deployments with **Ansistrano**

What is Ansible?

Ansible is **open source software** that automates **software provisioning**, **configuration management**, and **application deployment**.

What is Ansible?

- CLI tool

- Written in Python

- Configured with YAML

- Executes remote commands

- Installs software packages

- Performs deployment steps

- Batteries included

What is Ansible?

- Hosts/Inventories

- Commands

- Playbooks

- Tasks

- Roles

ANSIBLE

Why Ansible?

- Familiar syntax

- Easily readable

- No server dependencies

- Easy to add to an existing project

- Includes relevant modules (e.g. Composer)

ANSIBLE

Hosts / Inventories

```
# hosts.ini

[webservers]
192.168.33.10
```

```yaml
# hosts.yml

webservers:
  hosts:
    192.168.33.10:
```

Commands

```
ansible all -m ping
```

```
webservers | SUCCESS => {
    "ansible_facts": {
        "discovered_interpreter_python": "/usr/bin/python"
    },
    "changed": false,
    "ping": "pong"
}
```

```
ansible all
-m command
-a 'git pull
--chdir=/app'
```

```
ansible all
-m git -a 'repo=https://
github.com/opdavies/
dransible dest=/app'
```

Tasks and Playbooks

```yaml
# playbook.yml

---
- hosts: all

  vars:
    git_repo: https://github.com/opdavies/dransible

  tasks:
    - name: Update the code
      git:
        repo: '{{ git_repo }}'
        dest: /app
        version: master
        update: true
```

```
ansible-playbook
ansible/playbook.yml
-i hosts.yml
```

Roles

```yaml
# requirements.yml

---
- src: geerlingguy.apache
- src: geerlingguy.composer
- src: geerlingguy.mysql
- src: geerlingguy.php
- src: geerlingguy.php-mysql
```

```
ansible-galaxy -r
ansible/requirements.yml
install
```

```yaml
# playbook.yml

---
- hosts: all

  roles:
    - geerlingguy.apache
    - geerlingguy.mysql
    - geerlingguy.php
    - geerlingguy.php-mysql
    - geerlingguy.composer
```

```yaml
# ansible/provision.yml

tasks:
  - name: Create a database
    mysql_db:
      name: mydatabase
      state: present

  - name: Add the database user
    mysql_user:
      name: drupal
      password: secret
      priv: 'mydatabase.*:ALL'
      state: present
```

Basic deployment

```yaml
# ansible/deploy.yml

tasks:
  - name: Creating project directory
    file:
      path: /app
      state: directory

  - name: Uploading application
    synchronize:
      src: "{{ playbook_dir }}/../"
      dest: /app

  - name: Installing Composer dependencies
    composer:
      command: install
      working_dir: /app
```

Disadvantages

- Single point of failure

- No ability to roll back

- Sensitive data stored in plain text

Keeping secrets: Ansible Vault

```
ansible-vault create
ansible/vault.yml
```

```yaml
# ansible/vars/vault.yml

---
vault_database_name: mydatabase
vault_database_user: drupal
vault_database_password: secret
```

$ANSIBLE_VAULT;1.1;AES256
3665623332353961633639383839613734393962323333933386665303137
3037323336632636330653133633333531636430636633353961393637623
9383133330a35636566623262353733373066363837393264616134613
1636637626664643737336637373830393161333626332353839353332
32663432346626134383330a3864353934323237613861373337363634363
38646664303138662353933303936313864633132656538263386666
353062643962063393934653235666530656462643135393664313537623
83434663536663761323565616564336131666339653038326333306433
33262643162353964316662623466373665633763303632383733313733
43533386153665316462643662666266631663930626666539373236
3436623132653762613166366623963353933613366353737363435

```yaml
# ansible/vars/vars.yml

---
database_name: "{{ vault_database_name }}"
database_user: "{{ vault_database_user }}"
database_password: "{{ vault_database_password }}"
```

```yaml
# ansible/provision.yml

tasks:
  - name: Create a database
    mysql_db:
      name: '{{ database_name }}'
      state: present
```

```
ansible-vault edit
ansible/vault.yml
```

```
ansible-playbook
-i hosts.yml
ansible/deploy.yml
--ask-vault-pass
```

Better deployments

Ansistrano

ansistrano.deploy and **ansistrano.rollback** are Ansible Galaxy roles to easily manage the deployment process for scripting applications such as PHP, Python and Ruby. It's an Ansible port for Capistrano.

Wow! 943303 deployments so far!

Today, teams using Ansistrano have already deployed **812** times. When considering the whole month, the amount of deployments is **22145** and this year we've reached the **22145** deployments.

Ouch! 2601 rollbacks so far!

On the other hand, today teams rollbacked **0** times. That's **18** times considering the whole month and **18** if considering the whole year. Rollback vs. Deployment ratio is **0.28%**, nice! Keep the good work.

Deployments by weekday

Monday (18%)
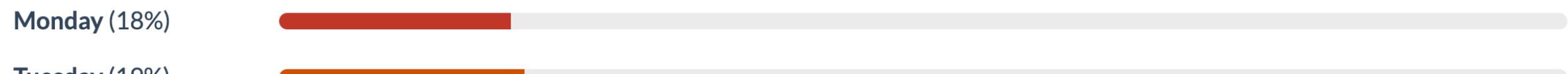
Features

- Multiple release directories

- Shared paths and files

- Customisable

- Multiple deployment strategies

- Multi-stage environments

- Prune old releases

- Rollbacks

```
# ansible/requirements.yml

---
...
- ansistrano.deploy
- ansistrano.rollback
```

```yaml
# ansible/deploy.yml

---
- hosts: all

  roles:
    - ansistrano.deploy
```

```yaml
# ansible/deploy.yml

---
  ...
  vars:
    project_deploy_dir: /app

    ansistrano_deploy_to: '{{ project_deploy_dir }}'
    ansistrano_deploy_via: git
    ansistrano_git_branch: master
    ansistrano_git_repo: 'git@github.com:opdavies/dransible'
```

```
ansible-playbook
-i hosts.yml
ansible/deploy.yml
```

```
vagrant@dransible:/app$ ls -l
total 8

lrwxrwxrwx 1   26 Jul 19 00:15 current -> ./releases/20190719001241Z
drwxr-xr-x 5 4096 Jul 22 20:30 releases
drwxr-xr-x 4 4096 Jul 19 00:00 shared
```

```
vagrant@dransible:/app/releases$ ls -l
total 20

drwxr-xr-x  5 4096 Jul 22 20:30 .
drwxr-xr-x  4 4096 Jul 19 00:15 ..
drwxr-xr-x 10 4096 Jul 19 00:02 20190719000013Z
drwxr-xr-x 10 4096 Jul 19 00:14 20190719001241Z
drwxr-xr-x  9 4096 Jul 22 20:30 20190722203038Z
```

```yaml
# ansible/rollback.yml

---
- hosts: all

  roles:
    - ansistrano.rollback

  vars:
    ansistrano_deploy_to: '{{ project_deploy_dir }}'
```
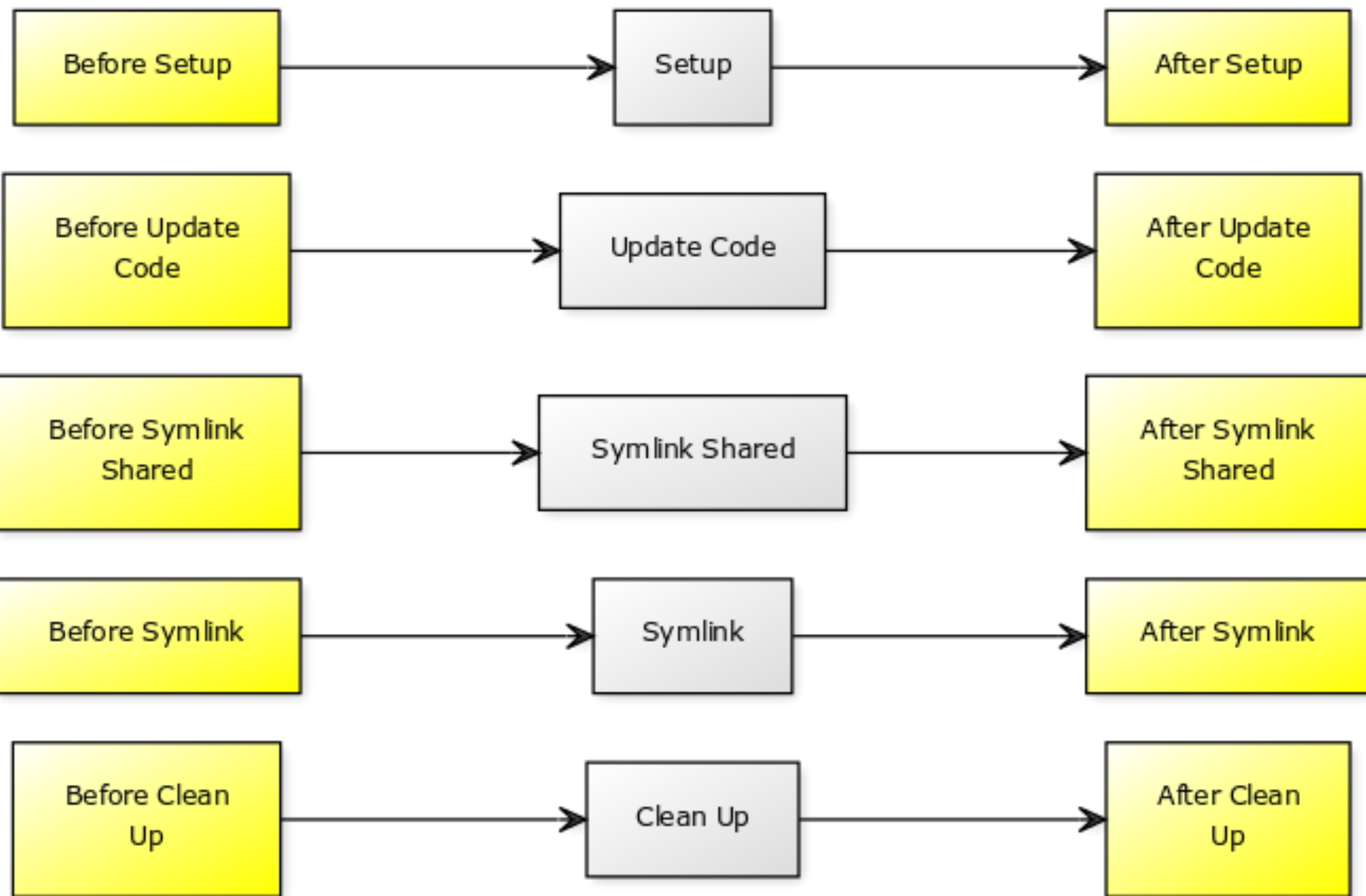
```
ansible-playbook
-i hosts.yml
ansible/rollback.yml
```

Customising Ansistrano:
Build Hooks

Before Setup	→	Setup	→	After Setup
Before Update Code	→	Update Code	→	After Update Code
Before Symlink Shared	→	Symlink Shared	→	After Symlink Shared
Before Symlink	→	Symlink	→	After Symlink
Before Clean Up	→	Clean Up	→	After Clean Up

```yaml
# ansible/deploy.yml

vars:
  ...
  ansistrano_after_symlink_shared_tasks_file: "{{ playbook_dir }}/deploy/after-symlink-shared.yml"
  ansistrano_after_symlink_tasks_file: "{{ playbook_dir }}/deploy/after-symlink.yml"
  ansistrano_after_update_code_tasks_file: "{{ playbook_dir }}/deploy/after-update-code.yml"

  release_web_path: "{{ ansistrano_release_path.stdout }}/web"
  release_drush_path: "{{ ansistrano_release_path.stdout }}/vendor/bin/drush"
```

```yaml
# ansible/deploy/after-update-code.yml

---
- name: Install Composer dependencies
  composer:
    command: install
    working_dir: '{{ ansistrano_release_path.stdout }}'
```

```yaml
# ansible/deploy/after-symlink-shared.yml

---
- name: Run database updates
  command: '{{ release_drush_path }} --root {{ release_web_path }} updatedb'
```

```yaml
# ansible/deploy/after-symlink.yml

---
- name: Clear Drupal cache
  command: '{{ release_drush_path }} --root {{ release_web_path }} cache-rebuild'
```

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Thank you!

Managing data
across deployments

```
# ansible/deploy.yml

vars:
  # ...
  ansistrano_shared_paths:
    - "{{ drupal_root }}/sites/default/files"
```

```
vagrant@dransible:/app/shared/web/sites/default/files$ ls -la
total 28

drwxrwxrwx 6 4096 Jul 19 00:18 .
drwxr-xr-x 3 4096 Jul 19 00:00 ..
drwxrwxr-x 2 4096 Jul 22 21:24 css
-rwxrwxrwx 1  487 Jul 19 00:02 .htaccess
drwxrwxr-x 2 4096 Jul 19 00:19 js
drwxrwxrwx 3 4096 Jul 19 00:18 php
drwxrwxrwx 2 4096 Jul 19 00:03 styles
```

```
vagrant@dransible:/app/current/web/sites/default$ ls -la
total 48
dr-xr-xr-x 2  4096 Jul 19 00:14 .
drwxr-xr-x 3  4096 Jan 22 17:30 ..
-rw-r--r-- 1  6762 Jul 19 00:14 default.services.yml
-rw-r--r-- 1 31342 Jul 19 00:14 default.settings.php
lrwxrwxrwx 1    45 Jul 19 00:14 files -> ../../../../../shared/web/sites/default/files
lrwxrwxrwx 1    35 Jul 19 00:12 settings.php -> /tmp/app/sites/default/settings.php
```

Generating Drupal settings files per deployment

```
# ansible/vars/vault.yml

---
vault_database_name: drupal
vault_database_user: drupal
vault_database_password: drupal
vault_hash_salt: dfgiy$fd2!34gsf2*34g74
```

```yaml
# ansible/vars/vars.yml

---
database_name: "{{ vault_database_name }}"
database_password: "{{ vault_database_password }}"
database_user: "{{ vault_database_user }}"
hash_salt: "{{ vault_hash_salt }}"
```

```yaml
# ansible/vars/vars.yml

---
drupal_settings:
  - drupal_root: /tmp/app
    sites:
      - name: default
        settings:
          databases:
            default:
              default:
                driver: mysql
                host: localhost
                database: '{{ database_name }}'
                username: '{{ database_user }}'
                password: '{{ database_password }}'
          hash_salt: '{{ hash_salt }}'
          config_directories:
            sync: ../config/sync
```

```
// templates/settings.php.j2
// {{ ansible_managed }}

{% for key, values in item.1.settings.databases.items() %}
{% for target, values in values.items() %}
$databases['{{ key }}']['{{ target }}'] = array(
  'driver' => '{{ values.driver|default('mysql') }}',
  'host' => '{{ values.host|default('localhost') }}',
  'database' => '{{ values.database }}',
  'username' => '{{ values.username }}',
  'password' => '{{ values.password }}',
);

{% endfor %}
{% endfor %}

{% if item.1.settings.base_url is defined %}
$base_url = '{{ item.1.settings.base_url }}';
{% endif %}
```

```yaml
- name: Remove settings.php
  file:
    path: '{{ ansistrano_release_path.stdout }}/web/sites/{{ item.1.name|default("default")}}/settings.php'
    state: absent
  with_subelements:
    - '{{ drupal_settings }}'
    - sites

- name: Link settings.php
  file:
    src: '/tmp/app/sites/{{ item.1.name|default("default")}}/settings.php'
    dest: '{{ ansistrano_release_path.stdout }}/web/sites/{{ item.1.name|default("default")}}/settings.php'
    state: link
  with_subelements:
    - '{{ drupal_settings }}'
    - sites
```