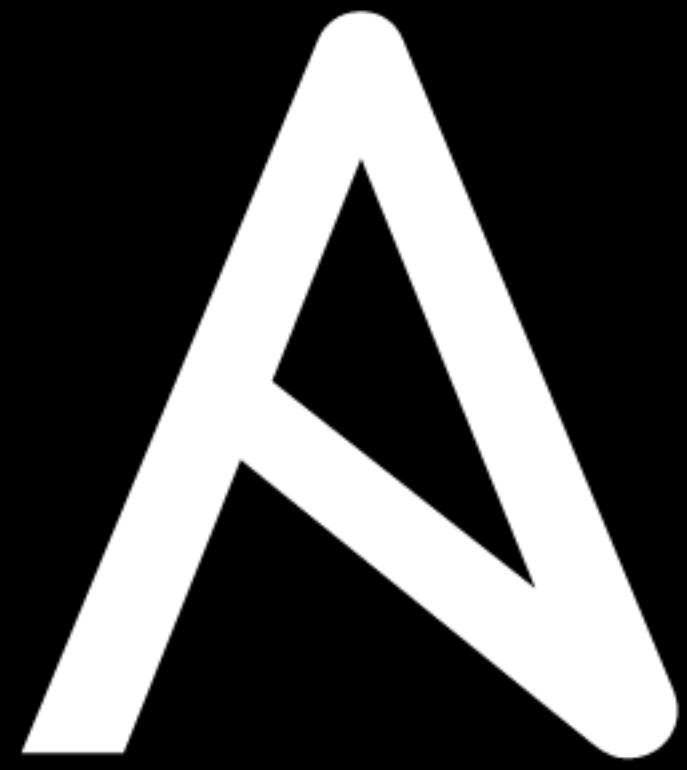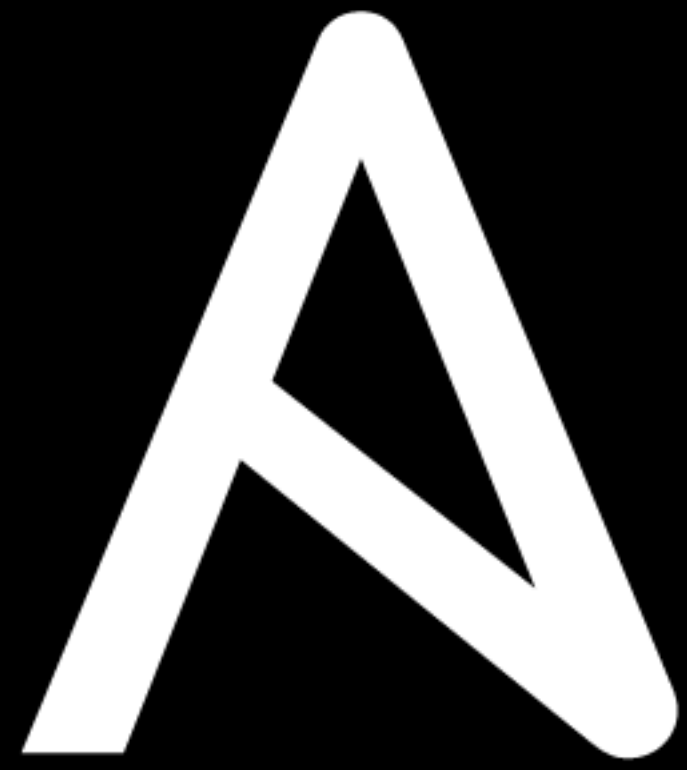docker build
with Ansible

Application construction with Ansible

- **vagrant, local mode**

- **packer, image creation**

- **cloud & bare metal provisioning**
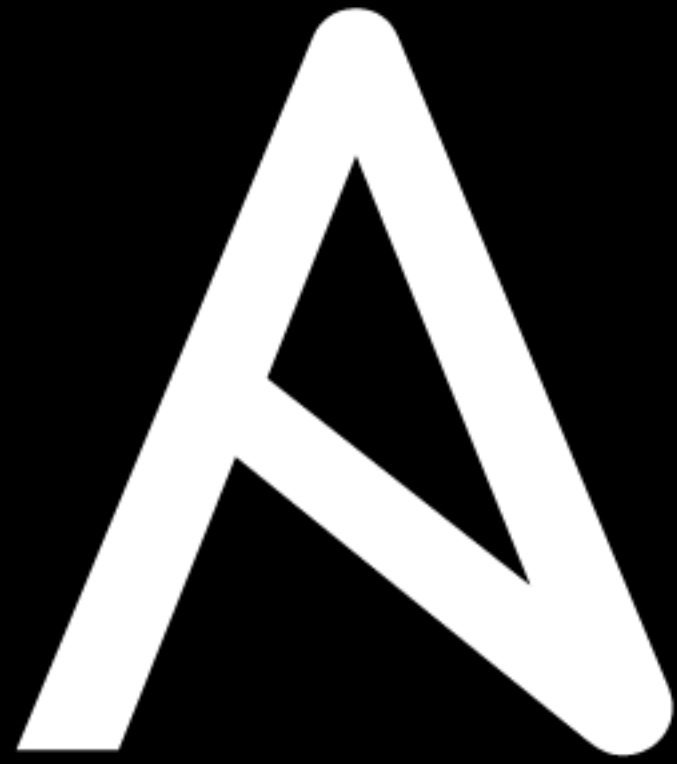
- **deployment & remote execution**

Application construction with Dockerfile

- **Dockerfile is the Docker way**

- **Each instruction creates a layer**

- **Lots of bash commands**

- **Maintainability? Testability?**

- **Portability?**

Demo

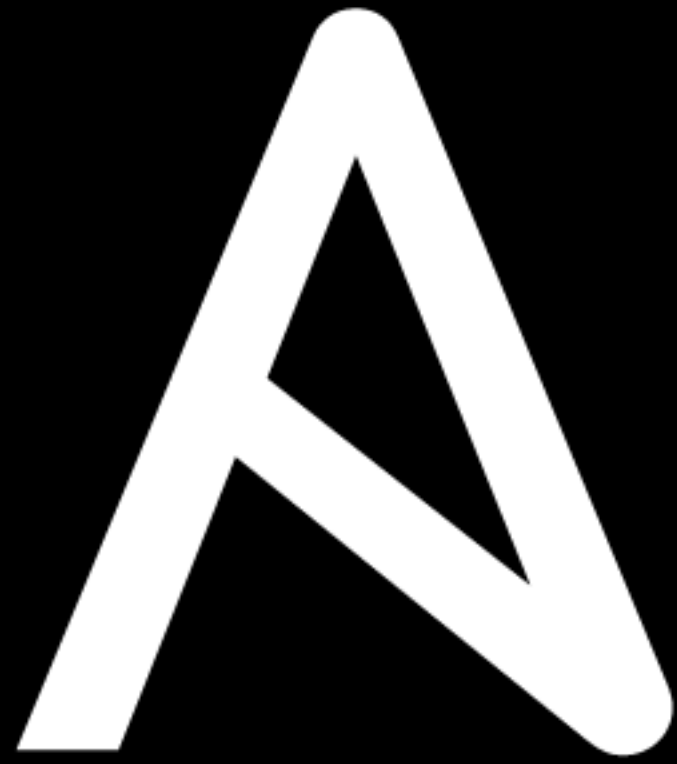- **https://github.com/ bbaasssiiee/truedemo.git**
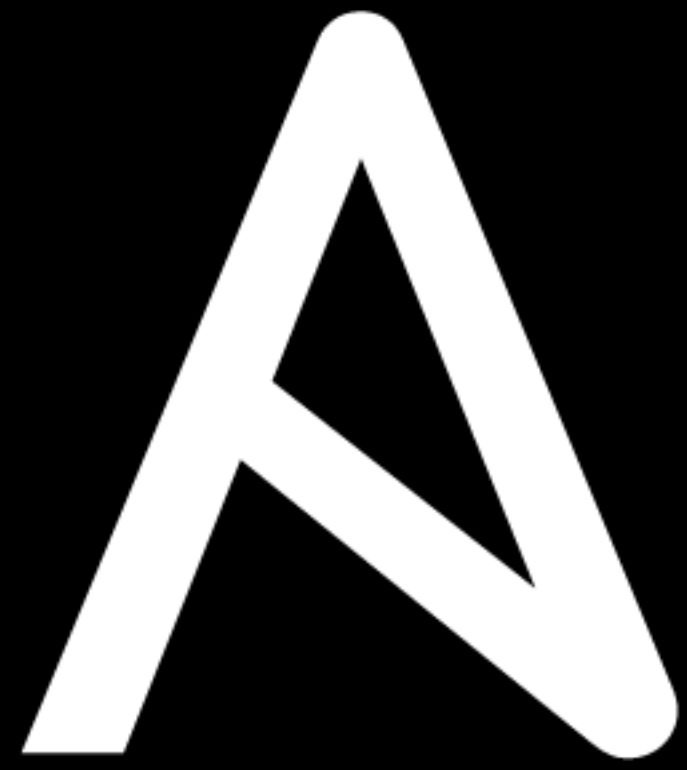
tree

```
.
|-- Dockerfile
|-- Makefile
|-- ansible
|    |-- ansible.cfg
|    |-- hosts
|    |-- playbook.yml
|    |-- requirements.yml
|    `-- vars.yml
`-- webapps
     `-- gameoflife.war

2 directories, 8 files
```

Dockerfile

```dockerfile
FROM centos:centos7
MAINTAINER Bas Meijer <bas.meijer@me.com>
LABEL running="docker run -d -p 8080:8080 dockpack/tomcat:7"

ADD ansible /tmp/ansible

RUN yum update -y && \
    yum install -y epel-release && \
    yum install -y ansible tar && \
    yum clean all && \
    cd /tmp/ansible && \
    ansible-galaxy install --force -r requirements.yml && \
    ansible-playbook playbook.yml

ADD webapps /opt/apache-tomcat/webapps
ENV CATALINA_HOME /opt/apache-tomcat
ENV PATH $CATALINA_HOME/bin:$PATH
WORKDIR $CATALINA_HOME

EXPOSE 8080

ENTRYPOINT ["/opt/apache-tomcat/bin/catalina.sh","run"]
```
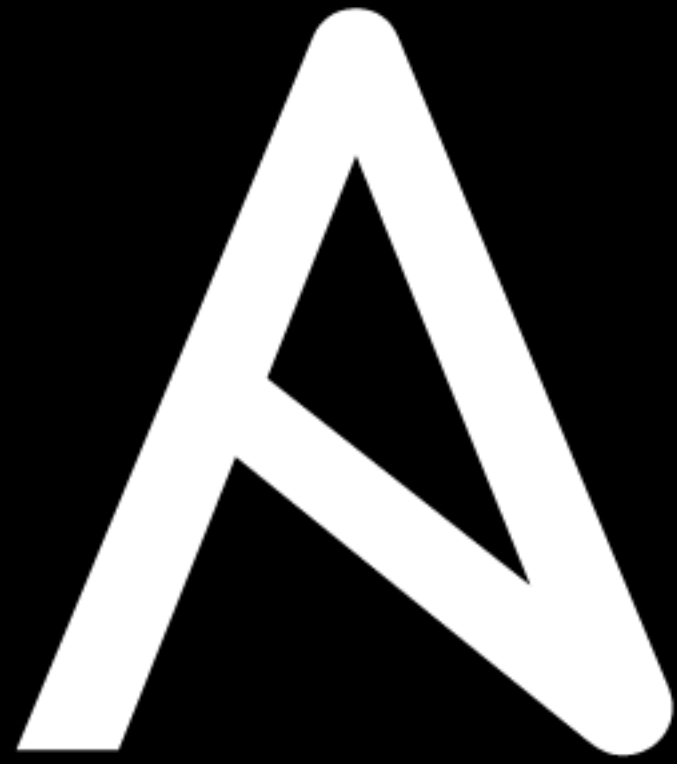
Makefile

```makefile
AUTHOR=dockpack
NAME=tomcat
VERSION=7

.PHONY: all build bash run help
all: build

build:
	docker build -t $(AUTHOR)/$(NAME):$(VERSION) .

bash:
	docker exec -ti dockpacktomcat /bin/bash

run:
	docker run --name dockpacktomcat -h dockpacktomcat -d -p 8080:8080 $(AUTHOR)/$(NAME):$(VERSION)

help:
	@docker inspect $(AUTHOR)/$(NAME):$(VERSION) | grep -i running | head -1

test:
	open http://$(DOCKERHOST):8080/gameoflife/
```
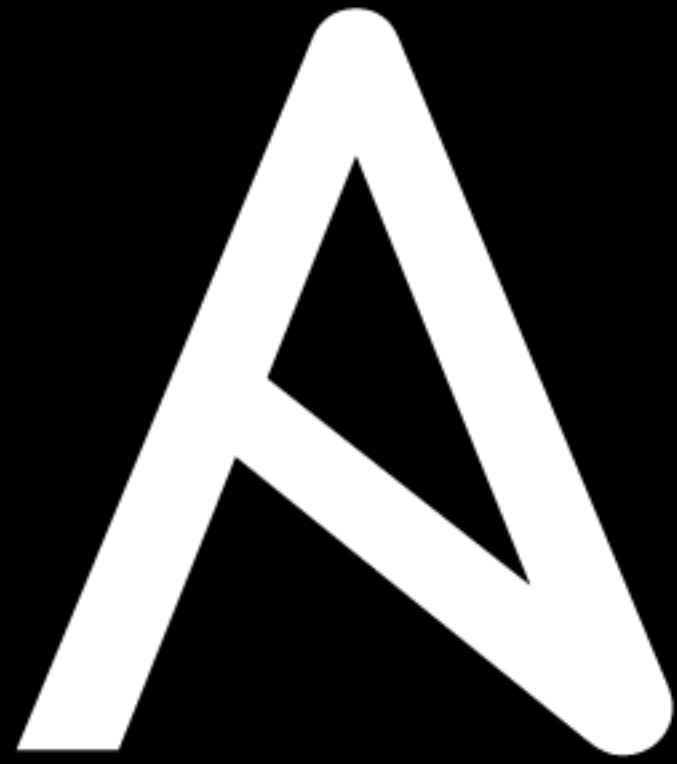
playbook.yml

```yaml
---
- hosts: docker
  connection: local
  user: root
  gather_facts: False

  vars_files:
    - vars.yml

  roles:
    - geerlingguy.java
    - hudecof.tomcat
```

docker build

```
docker build -t dockpack/tomcat:7 .
Sending build context to Docker daemon 6.578 MB
Step 0 : FROM centos:centos7
 ---> ce20c473cd8a
Step 1 : MAINTAINER Bas Meijer <bas.meijer@me.com>
 ---> Running in 5e577b479ab4
 ---> 836c1c700c00
Removing intermediate container 5e577b479ab4
Step 2 : LABEL running "docker run -d -p 8080:8080 dockpack/tomcat:7"
 ---> Running in 56b9e596adc7
 ---> 2b0f03a6e415
Removing intermediate container 56b9e596adc7
Step 3 : ADD ansible /tmp/ansible
 ---> b282cb737950
Removing intermediate container b20ea1f41fef
Step 4 : RUN yum update -y &&     yum install -y epel-release &&
yum install -y ansible tar &&     yum clean all &&     cd /tmp/ansible
&&     ansible-galaxy install --force -r requirements.yml &&
ansible-playbook playbook.yml
 ---> Running in 8ed5acb65b06
```
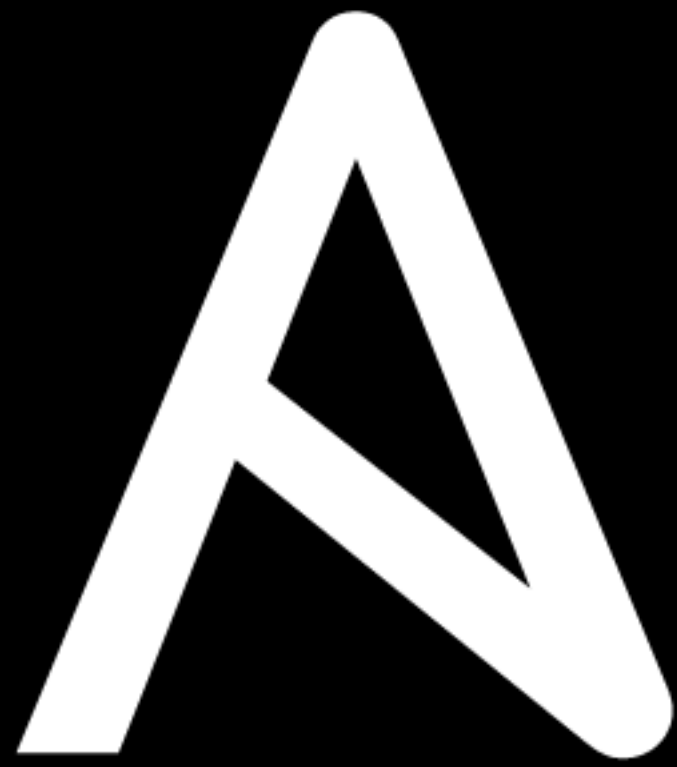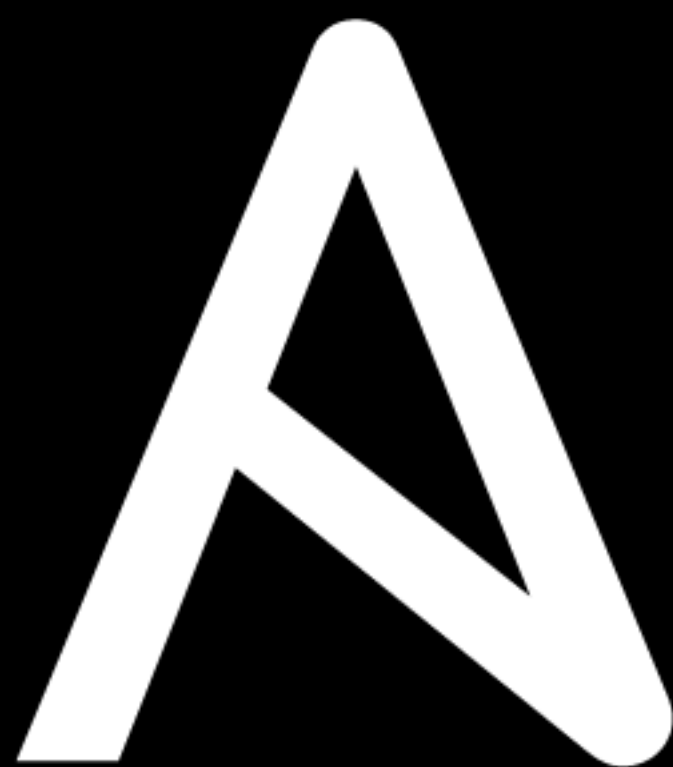
docker build

```
 ---> 600eb11ee771
Removing intermediate container 8ed5acb65b06
Step 5 : ADD webapps /opt/apache-tomcat/webapps
 ---> 4db505c0ad3a
Removing intermediate container 9ef85479e13b
Step 6 : ENV CATALINA_HOME /opt/apache-tomcat
 ---> Running in e0898552f75b
 ---> acd4777b6cff
Removing intermediate container e0898552f75b
Step 7 : ENV PATH $CATALINA_HOME/bin:$PATH
 ---> Running in cd95c5057ae6
 ---> 3757a691866e
Removing intermediate container cd95c5057ae6
Step 8 : WORKDIR $CATALINA_HOME
 ---> Running in 10ffaf35619e
 ---> ffae6214c059
Removing intermediate container 10ffaf35619e
Step 9 : EXPOSE 8080
 ---> Running in d728ed59907a
 ---> 729cb0905aa4
Removing intermediate container d728ed59907a
Step 10 : ENTRYPOINT /opt/apache-tomcat/bin/catalina.sh run
 ---> Running in d3014eaa2706
 ---> d73eddf84268
Removing intermediate container d3014eaa2706
Successfully built d73eddf84268
```
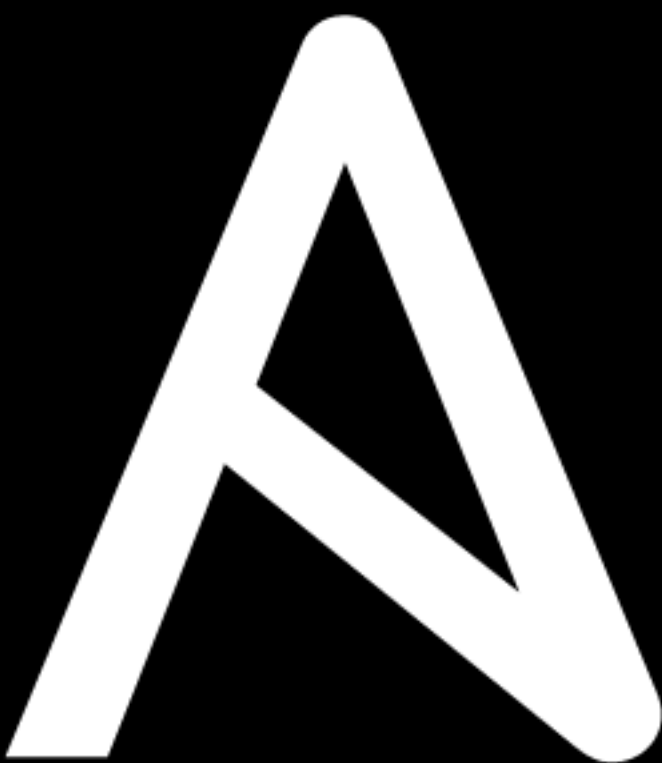
ansible is 27 Mb

```
Installing:
 ansible                                  noarch  1.9.4-1.el7       epel       1.7 M
Installing for dependencies:
 PyYAML                                   x86_64  3.10-11.el7       base       153 k
 libyaml                                  x86_64  0.1.4-11.el7_0    base        55 k
 python-babel                             noarch  0.9.6-8.el7       base       1.4 M
 python-backports                         x86_64  1.0-8.el7         base       5.8 k
 python-backports-ssl_match_hostname      noarch  3.4.0.2-4.el7     base        12 k
 python-crypto                            x86_64  2.6.1-1.el7.centos extras    470 k
 python-ecdsa                             noarch  0.11-3.el7.centos extras      69 k
 python-httplib2                          noarch  0.7.7-3.el7       epel        70 k
 python-jinja2                            noarch  2.7.2-2.el7       base       515 k
 python-keyczar                           noarch  0.71c-2.el7       epel       218 k
 python-markupsafe                        x86_64  0.11-10.el7       base        25 k
 python-paramiko                          noarch  1.15.1-1.el7      epel       999 k
 python-pyasn1                            noarch  0.1.6-2.el7       base        91 k
 python-setuptools                        noarch  0.9.8-3.el7       base       396 k
 python-six                               noarch  1.3.0-4.el7       base        18 k
 sshpass                                  x86_64  1.05-5.el7        epel        21 k

Transaction Summary
================================================================================
Install  1 Package (+16 Dependent packages)

Total download size: 6.1 M
Installed size: 27 M
```
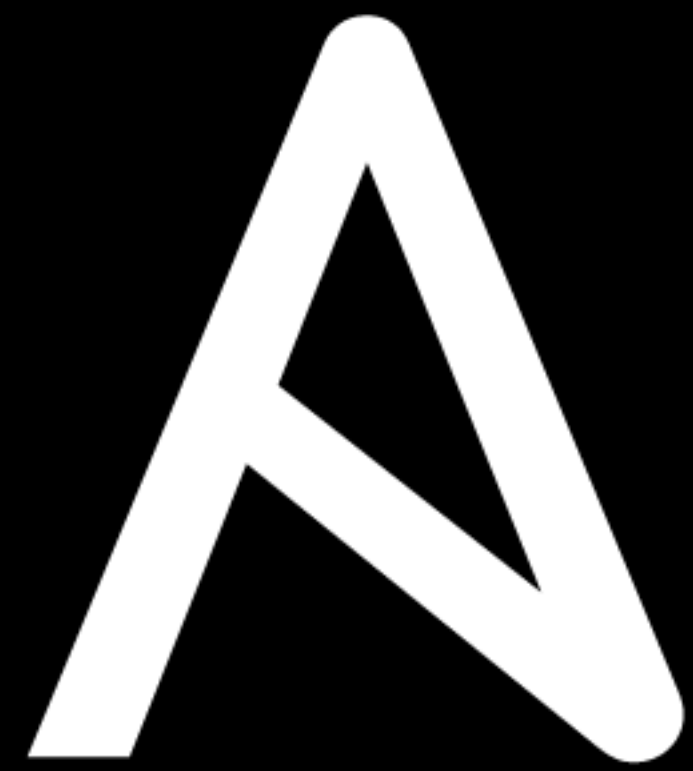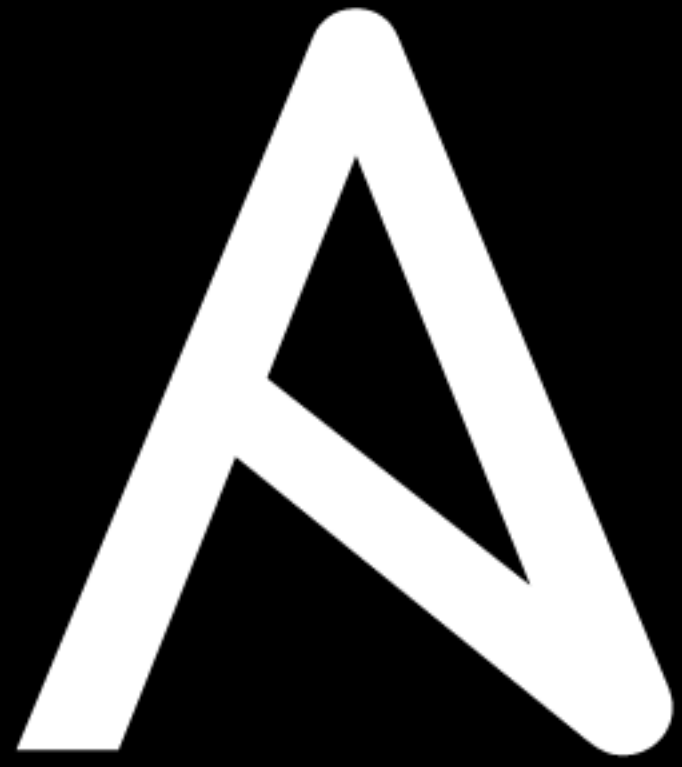
docker build with Ansible

- **postpone decision how to run**
- **re-use app construction plays**
- **well-structured Ansible**
- **reduce number of layers**
- **little extra space**

That`s all folks!