



# DELIVERING OPENSIFT-AS-A-SERVICE ON OPENSTACK

## Infrastructure as Code in Practise

Mark Sutton  
Solution Architect  
Red Hat

Charles Llewellyn  
Infrastructure Architect  
UKCloud

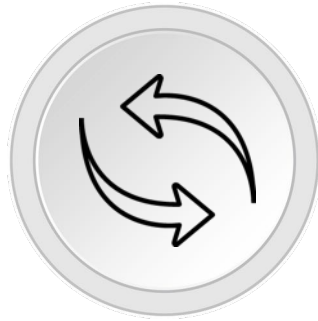
# RED HAT TECHNOLOGY PORTFOLIO



# CUSTOMER CHALLENGES



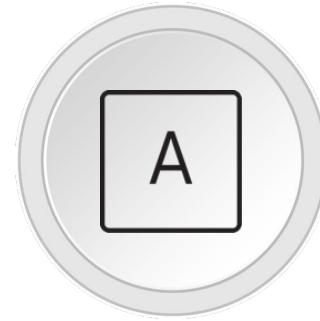
Optimize the IT  
you have



Integrate apps, data,  
and processes

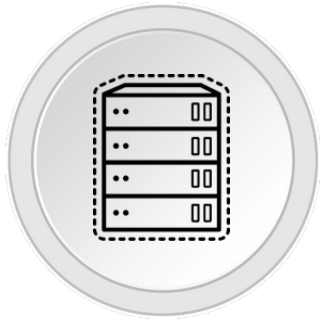


Add and manage  
cloud infrastructure



Build more modern  
applications

# CUSTOMER CHALLENGES



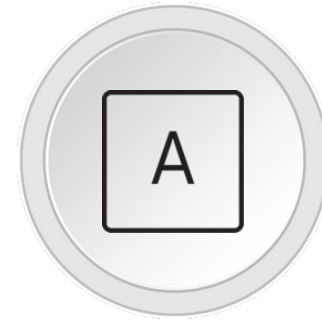
Optimize the IT  
you have



Integrate apps, data,  
and processes

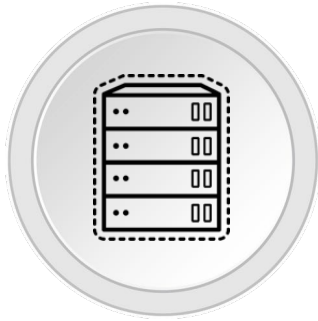


Add and manage  
cloud infrastructure

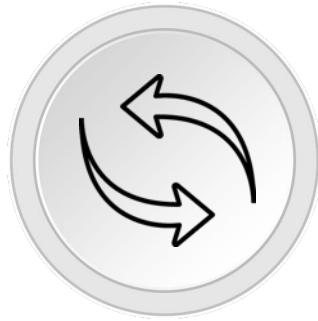


Build more modern  
applications

# CUSTOMER CHALLENGES



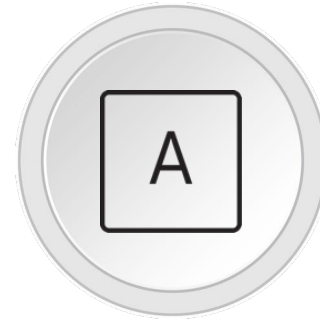
Optimize the IT  
you have



Integrate apps, data,  
and processes

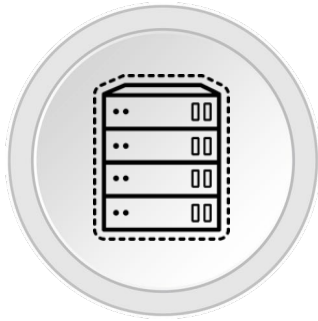


Add and manage  
cloud infrastructure

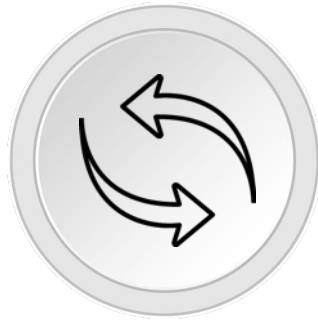


Build more modern  
applications

# CUSTOMER CHALLENGES



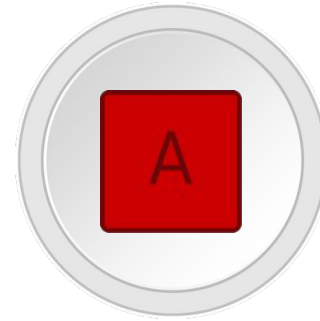
Optimize the IT  
you have



Integrate apps, data,  
and processes



Add and manage  
cloud infrastructure



Build more modern  
applications

# RED HAT TECHNOLOGY PORTFOLIO

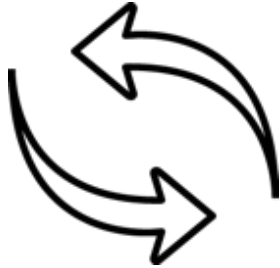


# WHEN YOU AUTOMATE, YOU ACCELERATE

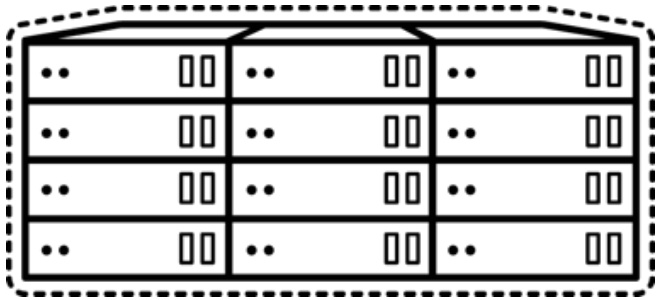




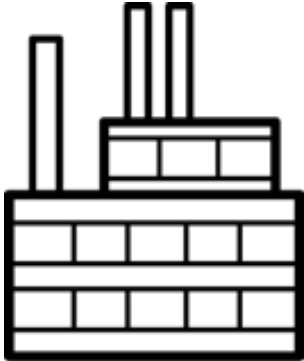
# WHAT IS INFRASTRUCTURE AS CODE?



**AUTOMATION**



**INFRASTRUCTURE AS A  
SERVICE**

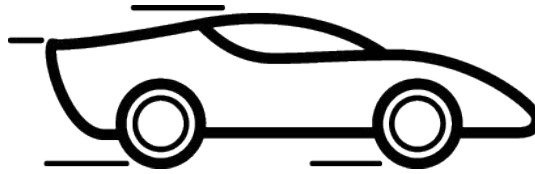


**INDUSTRIALISED**

# WHY INFRASTRUCTURE AS CODE?



REDUCE  
COSTS

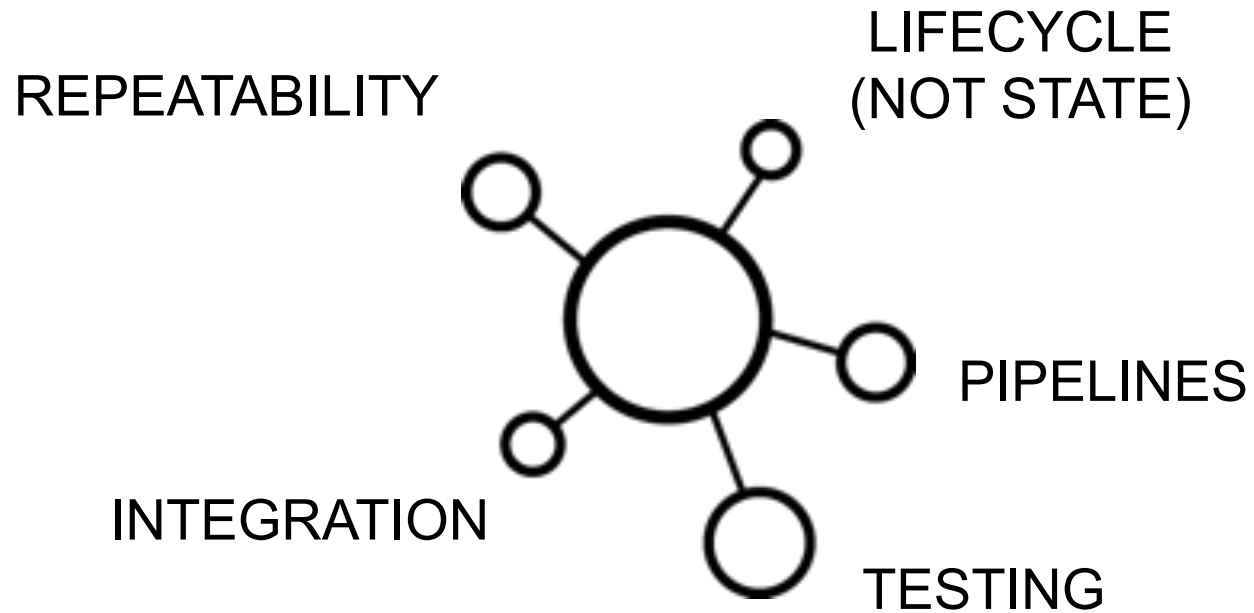


INCREASE  
SPEED



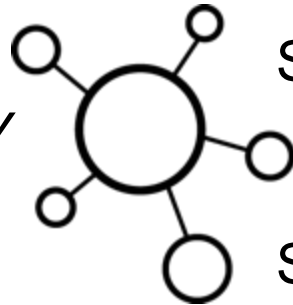
REDUCE  
RISK

# GETTING VALUE FROM INFRASTRUCTURE AS CODE



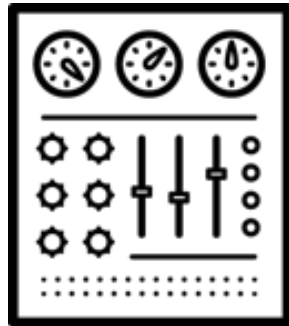
# THINK LIKE A SERVICE PROVIDER

MULTI  
TENANCY



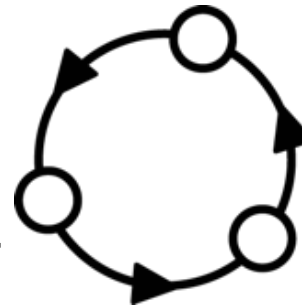
SECURITY

SLA



SELF  
SERVICE

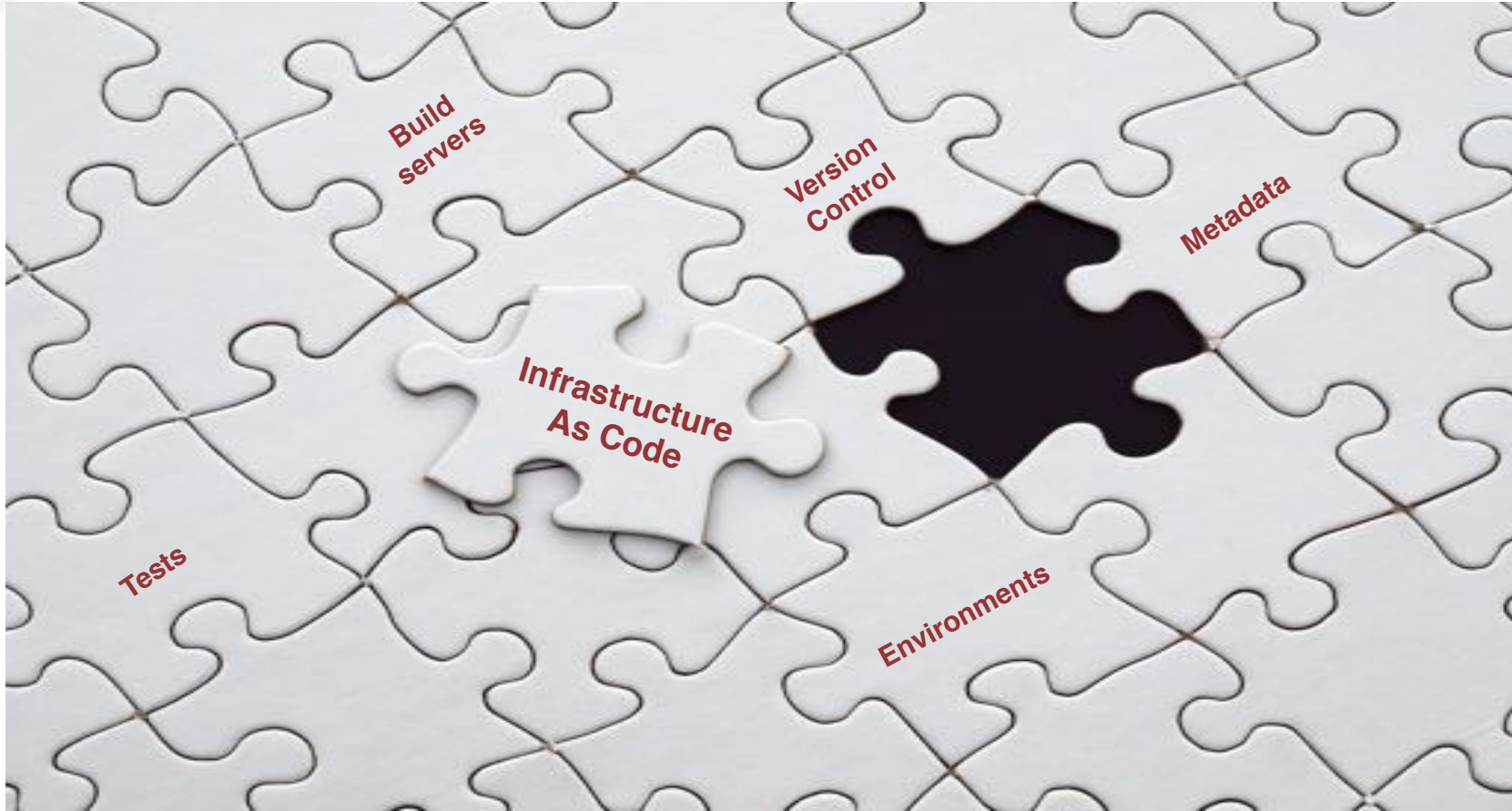
PRODUCT  
LIFECYCLE



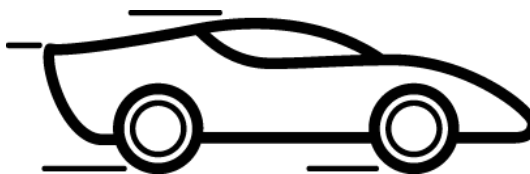
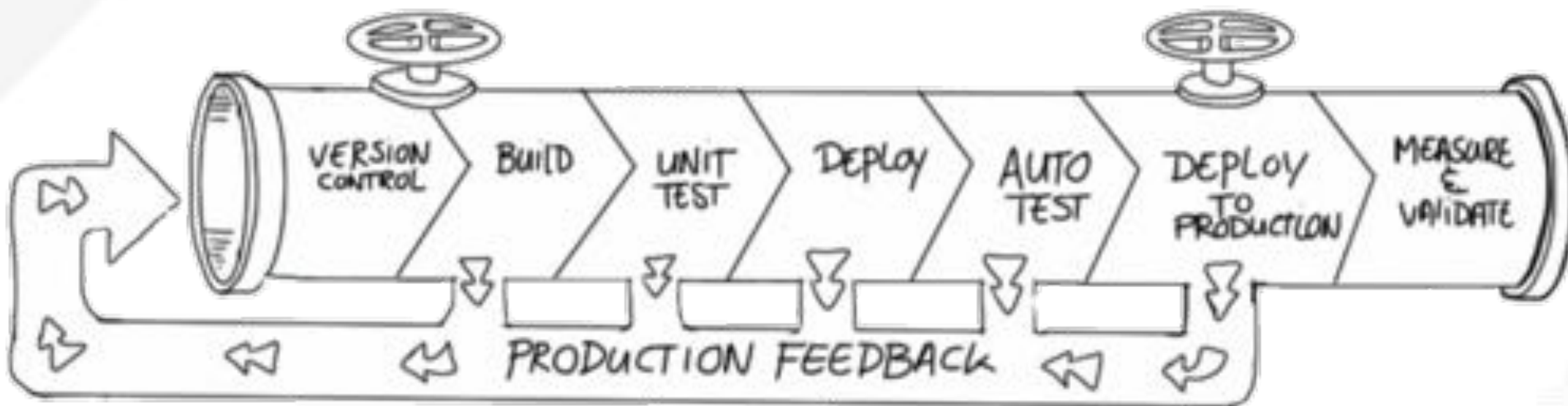
SERVICE  
LIFECYCLE

# INFRASTRUCTURE AS CODE IN PRACTISE

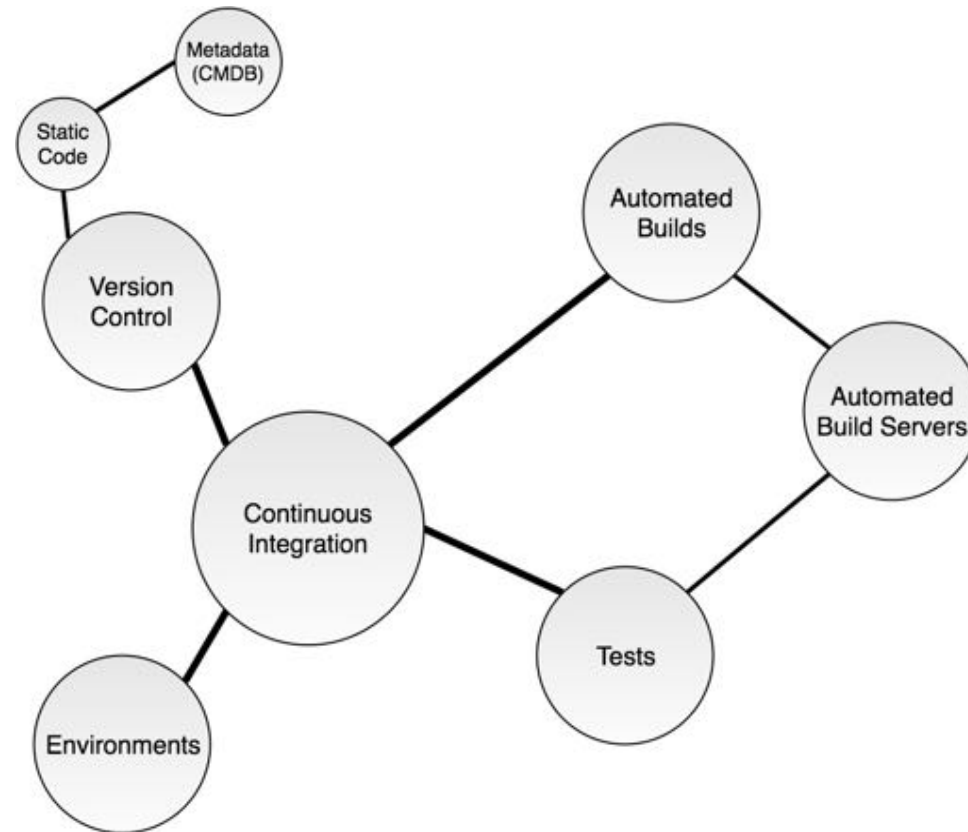




# THE GOAL: CONTINUOUS X

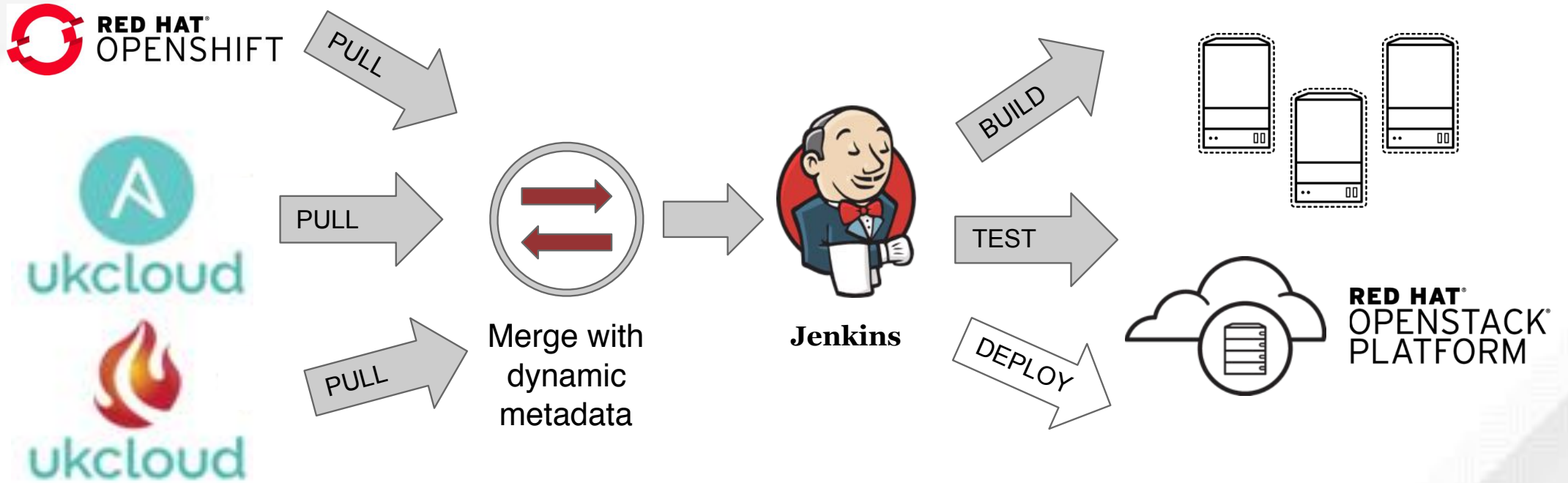


# FACTORS AFFECTING CONTINUOUS DELIVERY

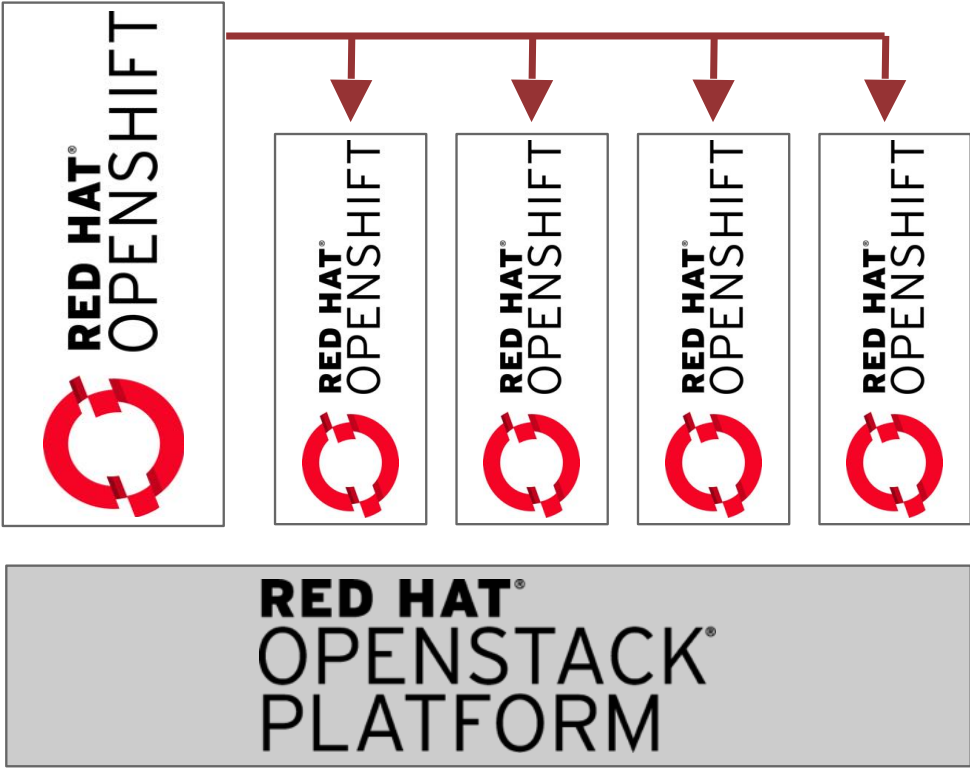




# THE PIPELINE



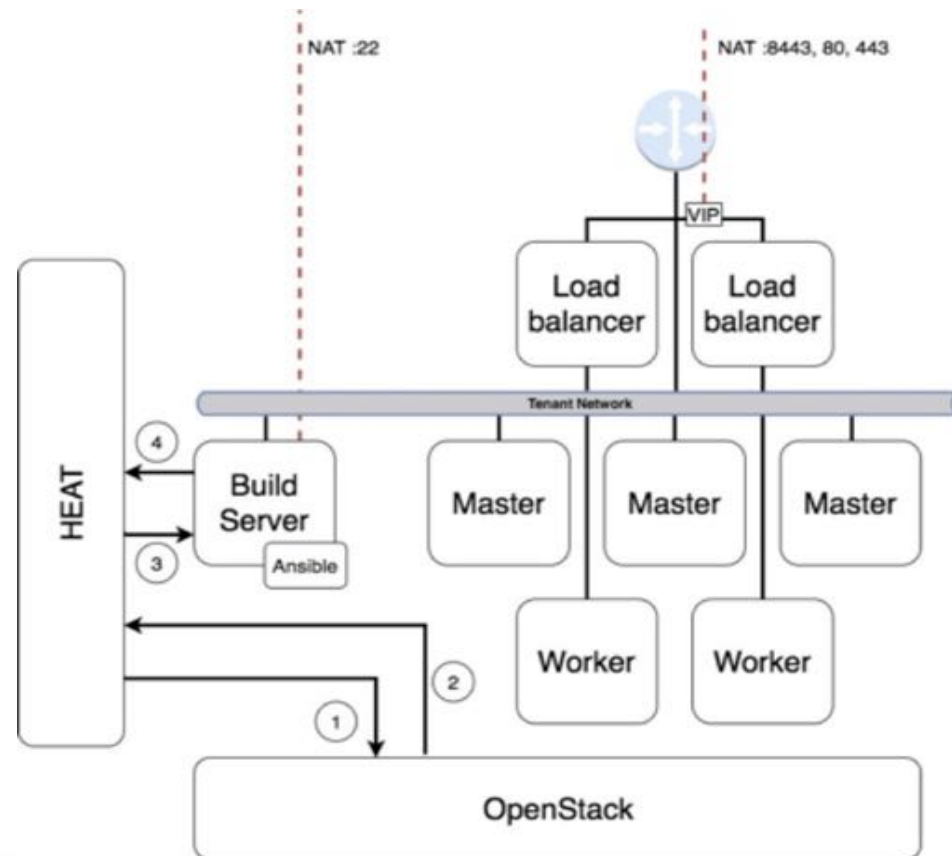
# MANAGING THE PIPELINE



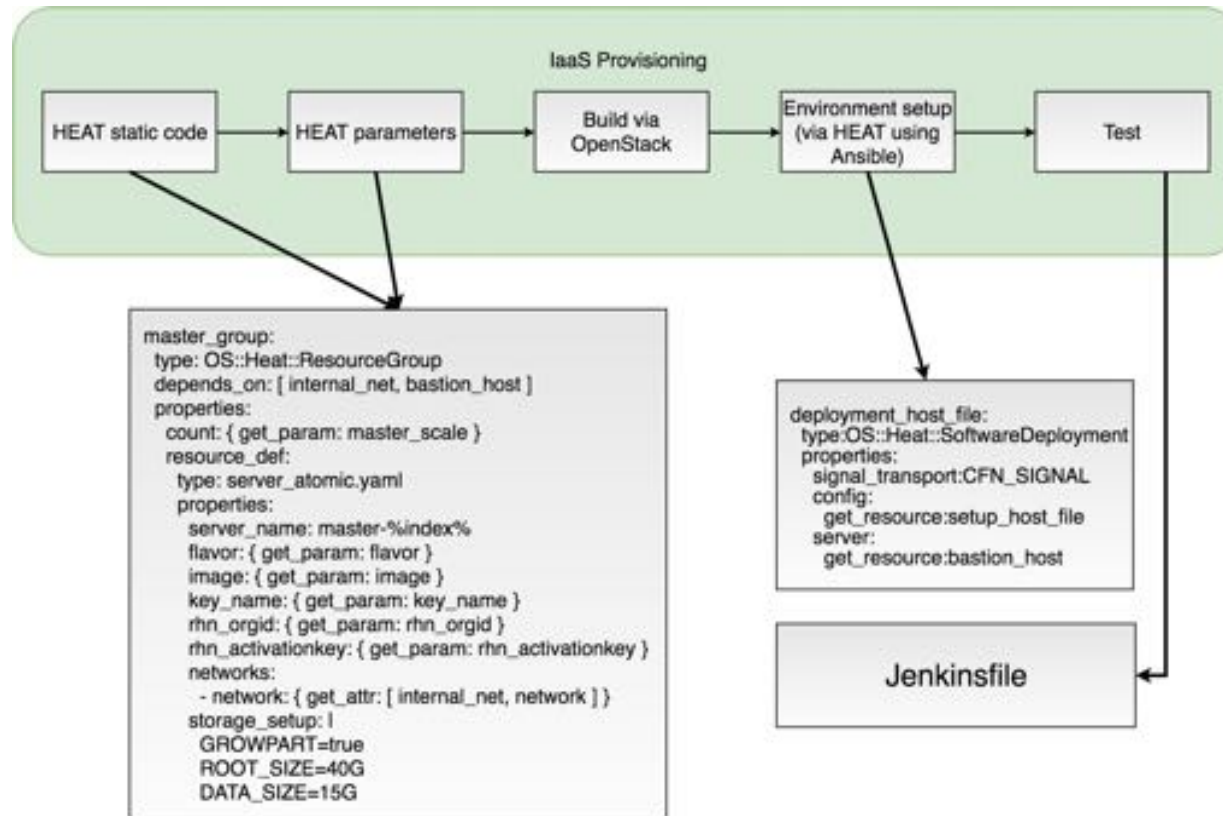
# STAGES

- IaaS deployment (Using OpenStack HEAT)
- OpenShift Deployment (Using Ansible)
- OpenShift configuration for management (Using custom code)
- Jenkins deployment (Using OpenShift)
  - Master
  - Slave
- Testing (Using Jenkins)

# UKCLOUD OPENS SHIFT ARCHITECTURE



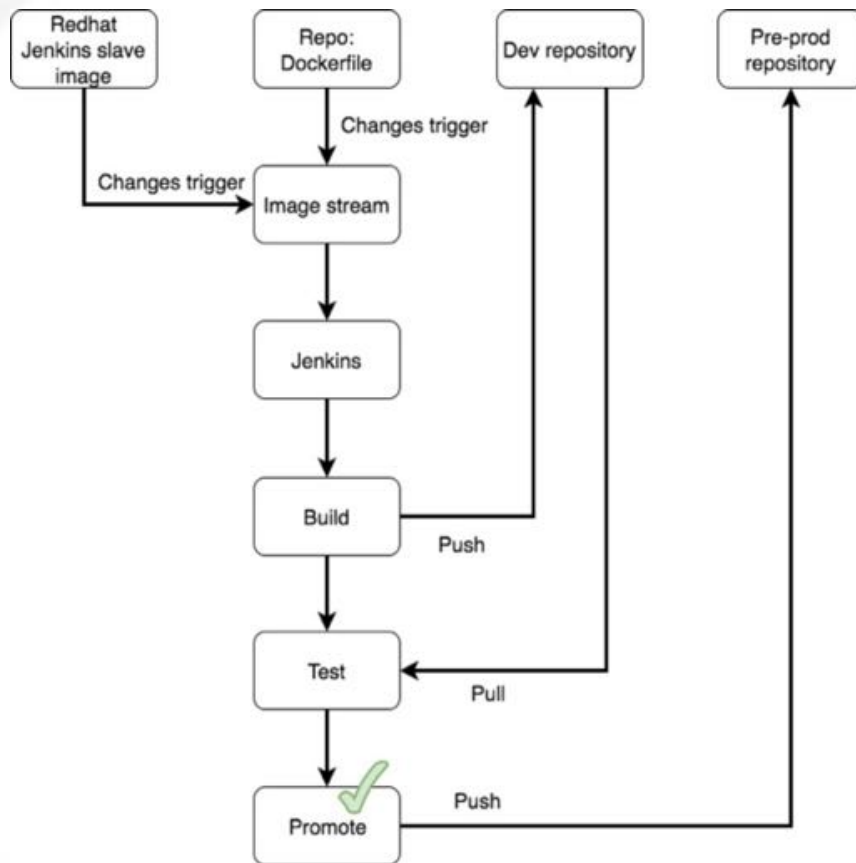
# IAAS DEPLOYMENT - OPENSTACK



# OPENSIFT DEPLOYMENT

- Ansible roles for each role
  - Bastion
  - DNS
  - Load balancers
  - Monitoring
- Calls out to official OpenShift Ansible project to deploy
- For the management OpenShift we run a custom script to setup basic resources
  - Tenancy Setup
  - Vanilla Jenkins

# CI FOR OUR - ERM... CI



```
FROM jenkins-slave-base-rhel7:latest
USER root
RUN yum install python-devel gcc -y \
    ansible openshift-ansible vim && \
    curl "https://pypa.io/get-pip.py" -o \
    "get-pip.py" && \
    python get-pip.py && \
    pip install python-openstackclient && \
    pip install python-heatclient && \
    yum clean all USER 1001
```

# FINALISING THE PIPELINE TO DEPLOY OPENSIFT

```
node ('openstack-jenkins-slave') {  
}
```

```
stage('setup OpenStack credentials') {  
    sh "echo export OS_PASSWORD=`oc get secrets  
openstack --template='{{ .data.password }}' | base64  
--decode` | tee -a openstack_rc.sh"  
}
```

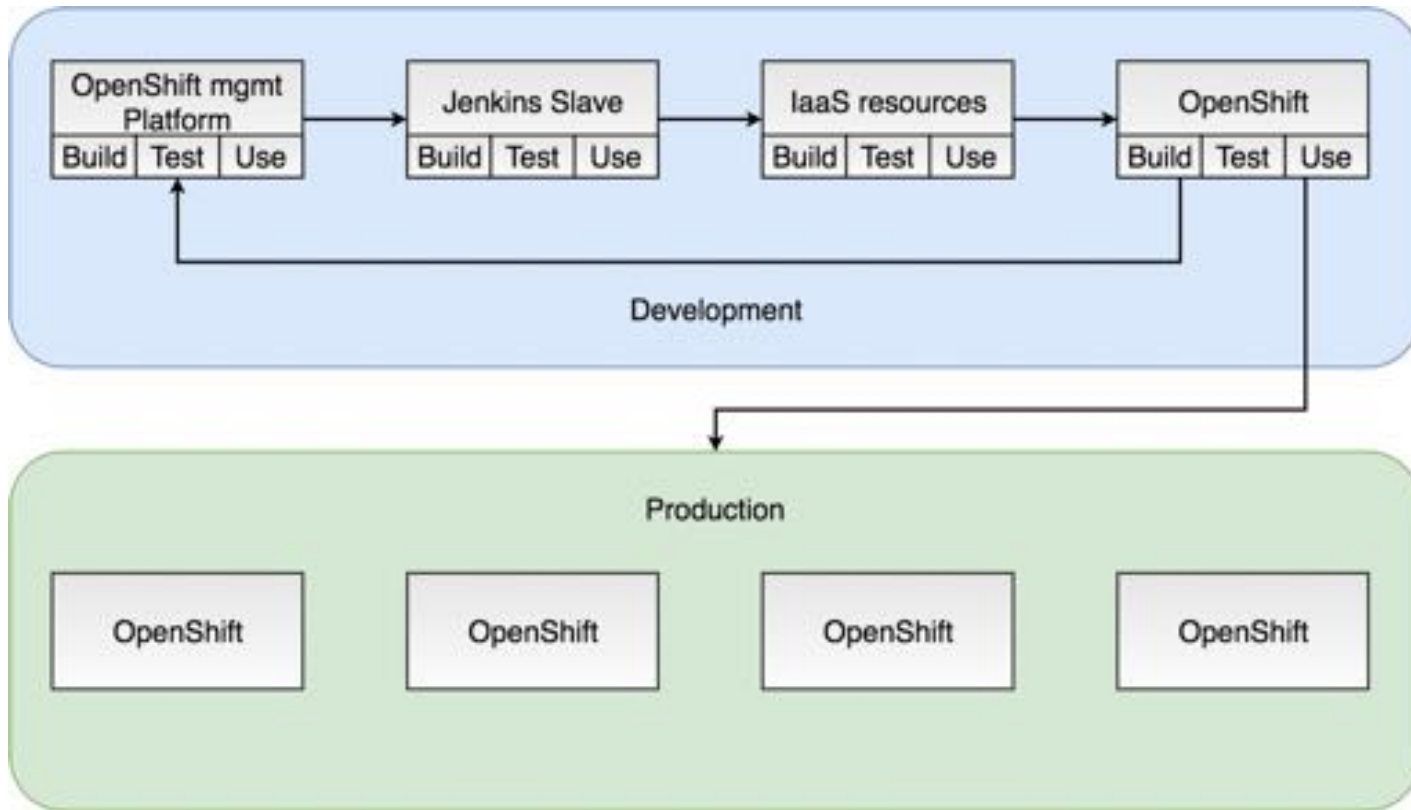
```
stage('code-checkout') {  
    git branch:"develop", url:"https://github.com/  
UKCloud/openshift-heat.git"  
}
```

```
stage('validate openshift deployment') {  
    # Run tests to validate OpenShift deployment  
}
```

- A Jenkins pipeline file pulls together the threads
- The Jenkinsfile lives in our deployment repo
- The file is divided into various stages that undertake the deployment and testing



# OPENSIFT DELIVERY



# PIPELINES IN THE OPENSSHIFT UI

The screenshot displays the OpenShift UI interface for a pipeline. The left sidebar contains navigation options: Projects, Overview, Applications, Builds, Resources, Storage, and Monitoring. The main content area shows the pipeline 'openshift-build-pipeline-28' with a progress bar indicating its status. The pipeline consists of several steps: 'code checkout', 'setup OpenShift v...', 'testing HELM smth...', 'setup helm logs', 'setup HELM smth...', 'Set variables HELM...', and 'Test HELM deployment...'. Below the progress bar, the status is shown as 'Running' with a 'View Log' link. The status details include: Started: 1 minute ago (Jul 1, 2017 8:41:36 AM), Duration: running for 5 minutes, 27 seconds, and Triggered By: Manual build. The configuration is linked to 'openshift-build-pipeline'.

# MORE RESOURCES

## Contacts:

✉ msutton@redhat.com

🐦 @complexmind

✉ clllewellyn@ukcloud.com

🐦 @cjllewellyn

## Further reading:

<https://www.redhat.com/en/challenges/cloud-infrastructure>

<https://ukcloud.com/news-resources/news/category/blog/developer>

<https://ukcloud.com/news-resources/news/blog/part-openshift-deploying-openshift-openshift-pipelines>

<https://prezi.com/nxm35ugq1mlf/openstack-cicd/>

# WHAT NEXT?



**RED HAT**  
**FORUM**  
Europe, Middle East & Africa