A multi-nodes config using VirtualBox to showcase

end-to-end DevOps using OpenShift Container Platform

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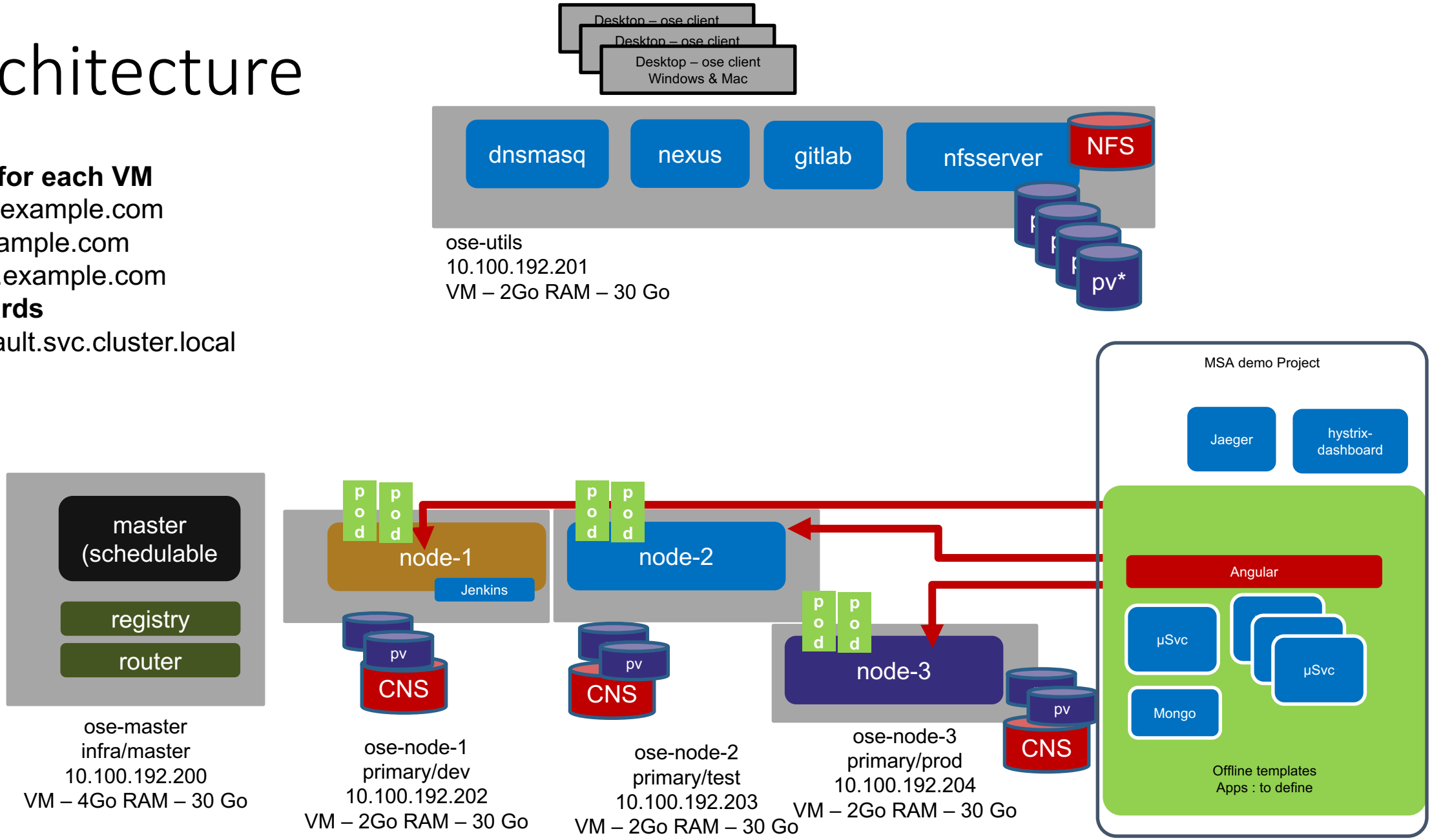
https://github.com/gbechara/osedevops

About this showcase

- The installer will
  - create multiple vagrant machines : ose-master, ose-node-x, ose-infra
  - configure those machines to add the pre-requesites using a Ansible script
  - install OpenShift Container Platform 3.x calling the provided OpenShift Ansible installer
  - configure and install
    - registry
    - router
    - metrics
    - gitlab
    - Nexus (for java and nodejs offline build)
    - Examples : offline templates and piplelines

Architecture

DNS entry for each VM
ose-master.example.com
ose-utils.example.com
ose-node-1.example.com
dns Wildcards
*.router.default.svc.cluster.local



Prerequisites

- Virtual Box (tested on Version 5.0.20 r106931)
- Vagrant 1.8.7
  - 1.8.7 correct a bogue related to auto_config of the private network and docker
  - https://github.com/mitchellh/vagrant/issues/7876
  - In previous versions the network might fail after a “vagrant reload” depending of the ordering of the network interfaces
- Valid RHEL7 & OpenShift Container Platform Subscription
  - Trials are available on https://www.openshift.com/container-platform/trial.html
- Create your own Vagrant Box
  - Create a VirtualBox with RHEL7 “Server”
  - Add to this VirtualBox your valid Subs OR use vagrant-registration plugin
  - Convert this Box into a Vagrant Base Box located on your local disk

    Instruction are here https://github.com/gbechara/osedevops/blob/master/create-vagrant-base-box.md

    Notes :

    name this base box rhel72-server-base.box (or change the name in the Vagrantfile)

    do not share this box : it may contain your subscriptions

    you may need to load update your box (to update the cache in ~/.vagrant.d/boxes)

    ```
    # vagrant box remove rhel72-server-base.box
    # vagrant box add rhel72-server-base.box --force --name rhel72-server-base.box
    ```

Usage (1/2)

- Get the souce code

  > git clone https://github.com/gbechara/osedevops.git

- If your Sub is not in the Vagrant box you can use the vagrant-registration plugin

  add in ~/.vagrant.d/Vagrantfile or in the current Vagrantfile (you got form github) the following

```
Vagrant.configure('2') do |config|
   config.registration.username = '<your Red Hat username>'
   config.registration.password = '<your Red Hat password>’
   config.registration.pools = [ ’thepoolthatcontailnstheadequatesubs' ]
End
```

- Launch

  > Change the passwords in the file Vagrantfile to match the root password of your box

  This password is needed to copy the generated ssh key to all OpenShift nodes

  > cd osedevops

  > # vagrant plugin install vagrant-cachier # not recommended some error related to yum update may occur using vagrant-cachier you may want not install this plug-in

  > vagrant plugin install vagrant-registration # (if your sub is not in the vbox)

  > vagrant up

- configure your host to add a dnsserver

  on linux add in /etc/resolv.conf

  search example.com

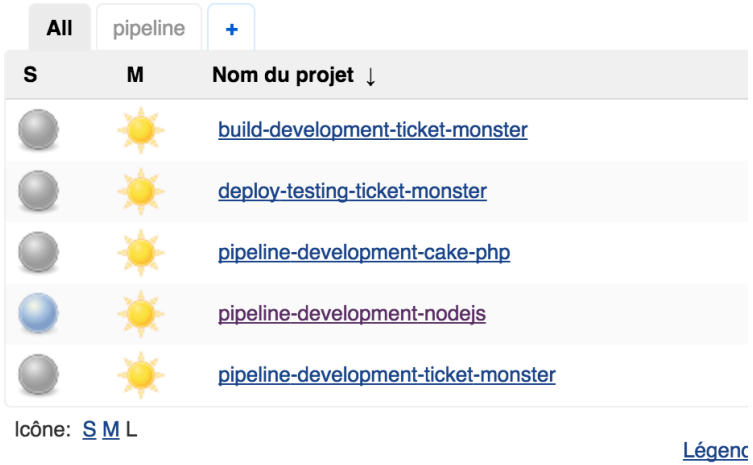
  10.100.192.201

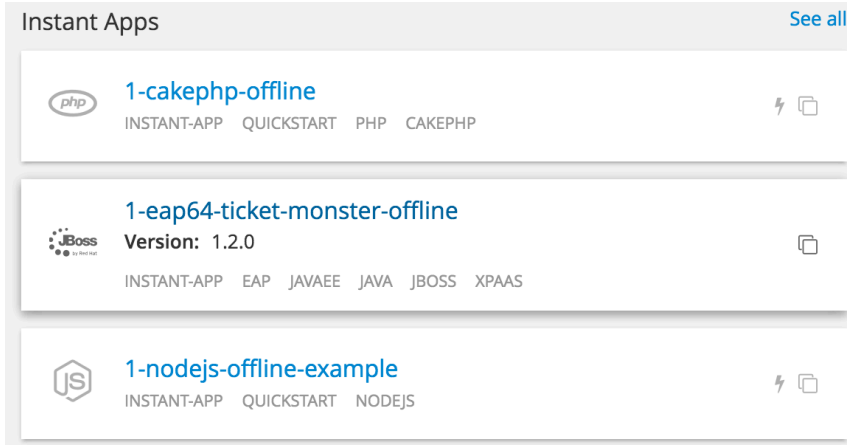
  on osx create 2 files named ‘example.com’ and ‘router.default.svc.cluster.local’ in /etc/resolver add to those files

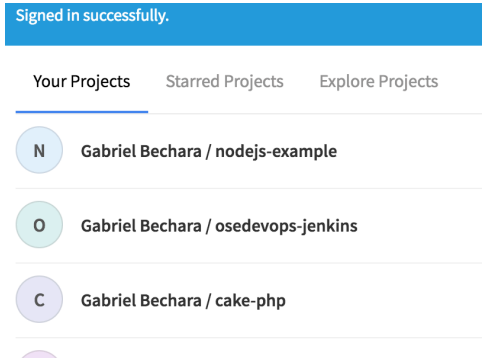
  nameserver 10.100.192.201

Usage (2/2)

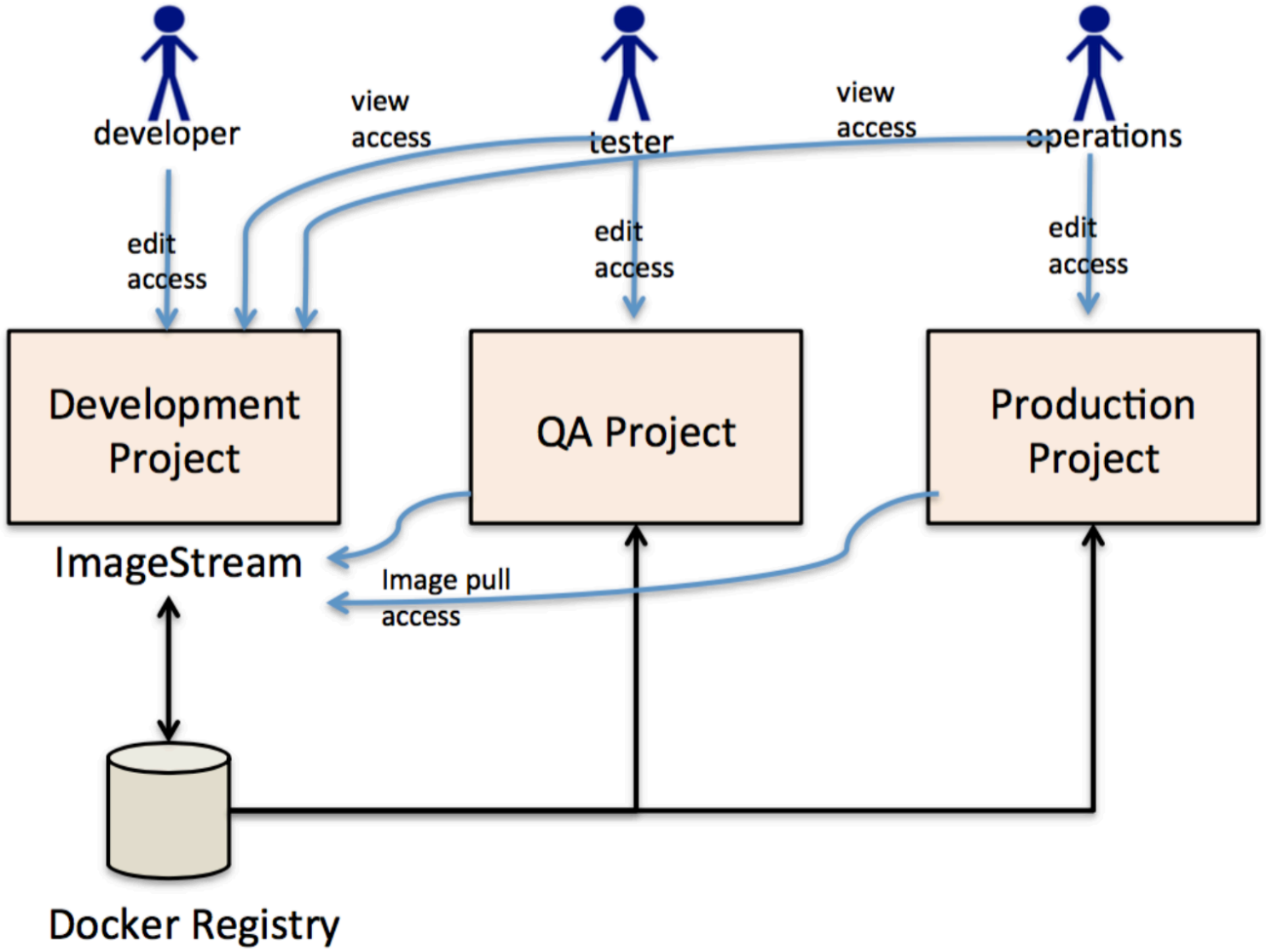
- Openshift Web Console
  - https://ose-master.example.com:8443/console/
  - User dev1/dev1 have access to the development project
  - User test1/test1 have access to development, testing, ci and production (when created) project
- Jenkins
  - https://jenkins-cicd.router.default.svc.cluster.local
  - Jenkins user is admin/password
  - 3 preconfigured pipelines are provided
    - **pipeline-development-nodejs**
    - **pipeline-development-ticket-monster**
    - **pipeline-development-ticket-cake-php**
- GitLab
  - http://gitlab.example.com/
  - User gabriel/weareawesome
  - 3 projects used by offline templates and one for jenkins are pre-popultated on the local gitlab







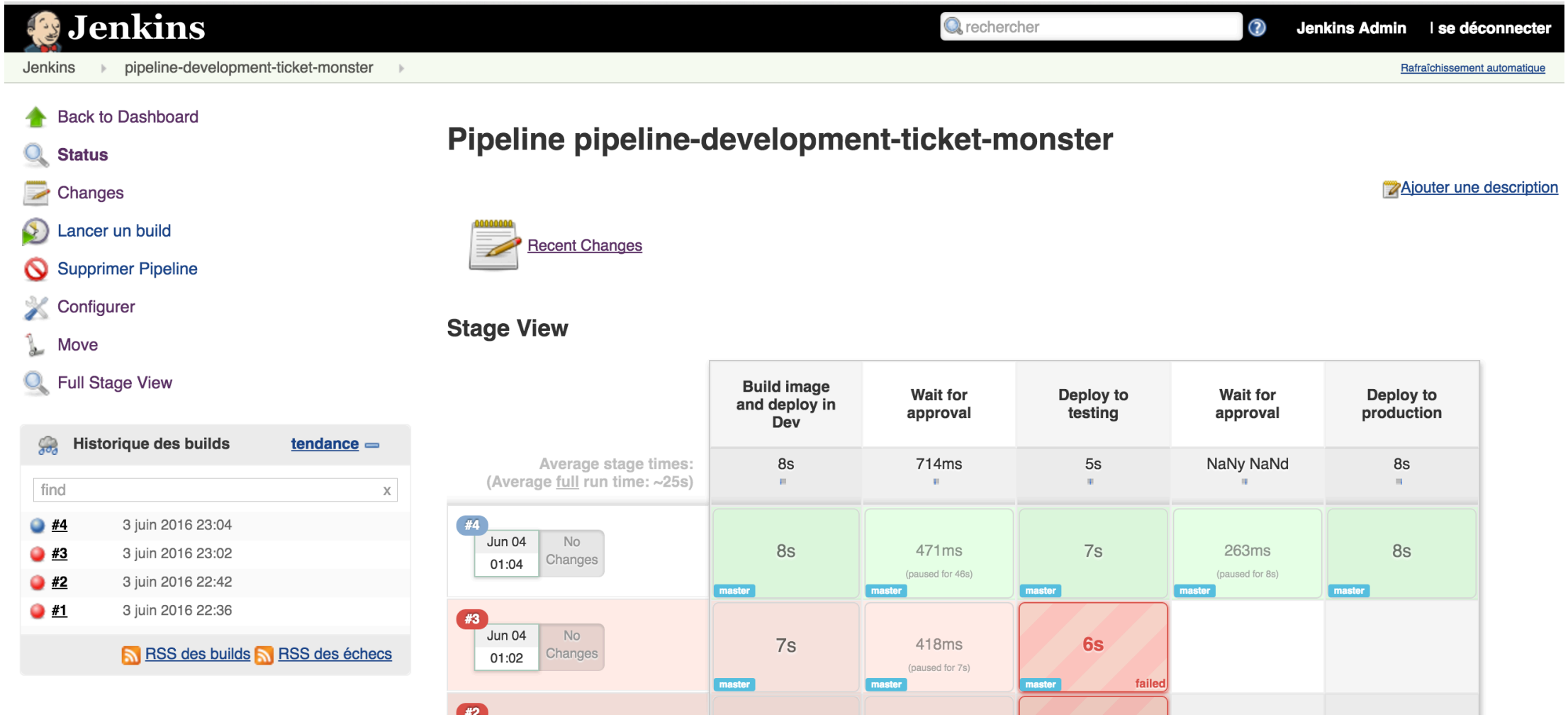
Example



Based on https://blog.openshift.com/promoting-applications-across-environments/

Jenkins Pipeline : from dev to production

→ Approvals between environments and creation of the next env if it does not exist



Notes

- Installation works only when connected to internet
  - It may take time, around 40 minutes, depending on the roles you add
  - The installation may not work when having network issue or if your laptop suspends during the install
- 3 templates can then be used to do offline demos
- During the install the sample gitlab, nexus, the docker images, the jenkins plugins are all populated to work offline for the all templates
- 3 users (gabriel, dev1, test1), 2 projects (development, testing) are created to deploy the sample, the jenkins job “pipeline-development-ticket-monster” will create a third project

Coverage and RoadMap

- ✓ NFS for persistent Volumes
- ✓ git server with 3 pre-populated samples
- ✓ Nexus with proxies configured for Java PHP & NodeJS samples
- ✓ Templates for offline demos using the git server and the nexus
- ✓ Deploy examples to populate the docker registry, gitlab and nexus (for offline demos)
- ✓ Showcase an application promotion across environments :
  - ✓ preconfigured pipelines for the 3 samples offline JBoss, NodeJS and PHP Projects
- ✓ Integrated Dev Pipeline in the Dev project (OCP3.3)
- ✓ CNS (Gluster) (OCP3.6)
- ✓ SpringBoot, Jaeger, Hystrix and Mongo on Gluster Sample
- Add other samples
  - Deploying WildFly SWARM microservices on OpenShift
  - Covering the entire DevOps lifecycle (adding Jira and SonarQube ?)
  - Other ideas ?
  - ….