Scaling Jenkins on Azure

it's basically clouds all the way down

CloudBees®

The Enterprise Jenkins Company

hey

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Running Jenkins in the Cloud™

Jenkins ♥ Docker

Containerized master

```
docker pull jenkins
```

Containerized master

```
docker run \
   -p 8080:8080 \
   -v `pwd`/jenkins:/var/jenkins_home \
   jenkins
```

Containerized master: Pros

- Requires Linux master node
- Easy to manage/update
  - LTS release updates by the Jenkins project
- Portability
  - Pack up your `JENKINS_HOME` and move to a new box

Containerized master: Cons

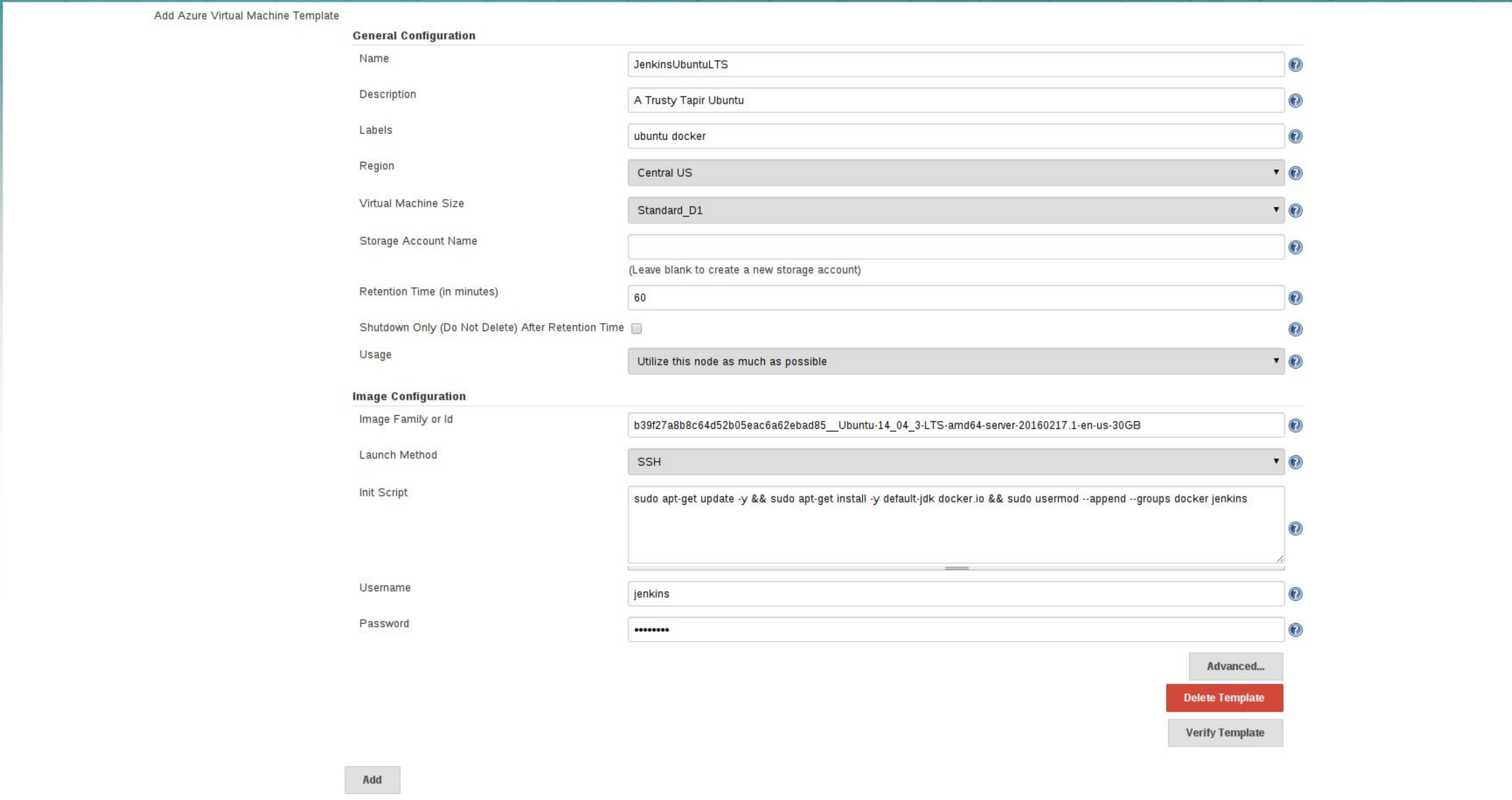
- Requires Linux master node
- I/O performance concerns
  - Mapping `JENKINS_HOME` through to container
- CPU scheduling
  - “Noisy neighbor” problem on Docker daemon

Containerized Build Nodes

➢ more to come later..

Running Jenkins in the Cloud™

Azure plugin



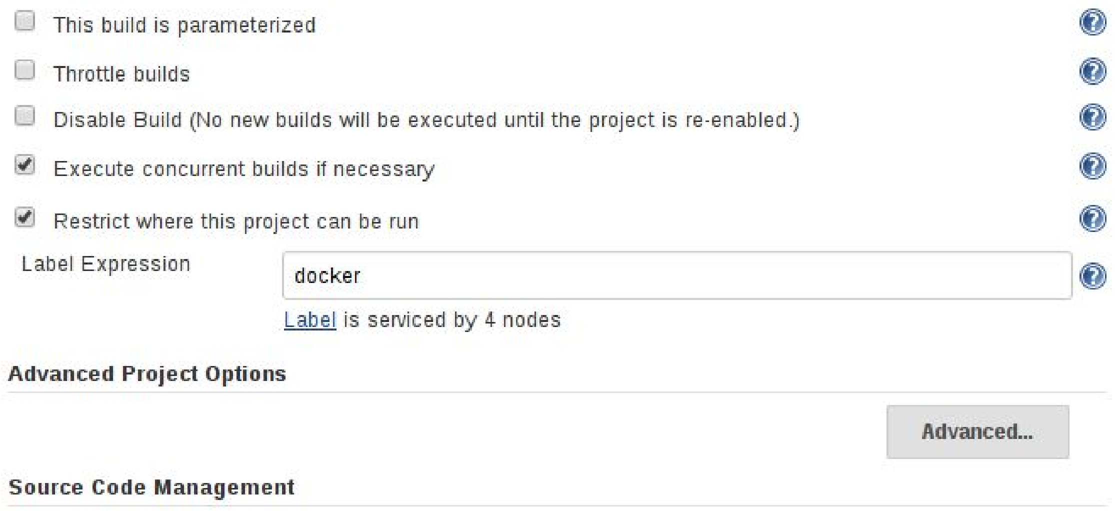
Add Azure Virtual Machine Template

General Configuration

Name	JenkinsUbuntuLTS
Description	A Trusty Tapir Ubuntu
Labels	ubuntu docker
Region	Central US
Virtual Machine Size	Standard_D1
Storage Account Name	(Leave blank to create a new storage account)
Retention Time (in minutes)	60
Shutdown Only (Do Not Delete) After Retention Time	☐
Usage	Utilize this node as much as possible

Image Configuration

Image Family or Id	b39f27a8b8c64d52b05eac6a62ebad85__Ubuntu-14_04_3-LTS-amd64-server-20160217.1-en-us-30GB
Launch Method	SSH
Init Script	sudo apt-get update -y && sudo apt-get install -y default-jdk docker.io && sudo usermod --append --groups docker jenkins
Username	jenkins
Password	••••••••



- [ ] This build is parameterized
- [ ] Throttle builds
- [ ] Disable Build (No new builds will be executed until the project is re-enabled.)
- [✓] Execute concurrent builds if necessary
- [✓] Restrict where this project can be run

Label Expression: docker

Label is serviced by 4 nodes

Advanced Project Options

Source Code Management

Docker plugin

Containerized Build Nodes

- Neat!
- Point it at:
  - local Docker daemon on the Jenkins master
  - a remote Docker daemon
  - a Docker Swarm endpoint
- Docker! DOCKER! OMG DOCKER!

Containerized Build Nodes: Pros

- ➢ Jenkins administrator governs images used
- ➢ Easy creation/management/deployment of new build environments
- ➢ Portability across computing environments
  - Run it anywhere you want! As long as
    - it’s Linux
    - with a recent kernel

Containerized Build Nodes: Cons

- ➢ Jenkins administrator governs images used
- ➢ Docker-in-Docker is a failwhale

Running Jenkins in the Azure™

Azure plugin

- ➢ Dynamically provision Linux machines (or Windows)
- ➢ Minimum of 30 minutes “Retention Time”
- ➢ Use specific Labels
  - ○ “Standard_D1”, “linux” : Bad
  - ○ “ubuntu”, “docker”, “rhel”, “highram”, “highcpu” : Good
- ➢ Keep “Init Script” definitions small

Docker

- ➢ Define `Dockerfiles` for build/testing environments
- ➢ Enable different teams to use different images
- ➢ Define pipelines for those Docker images

Pipeline plugin

- ➢ Define your delivery pipeline in one place
- ➢ Check a `Jenkinsfile` directly into SCM

Pipeline plugin

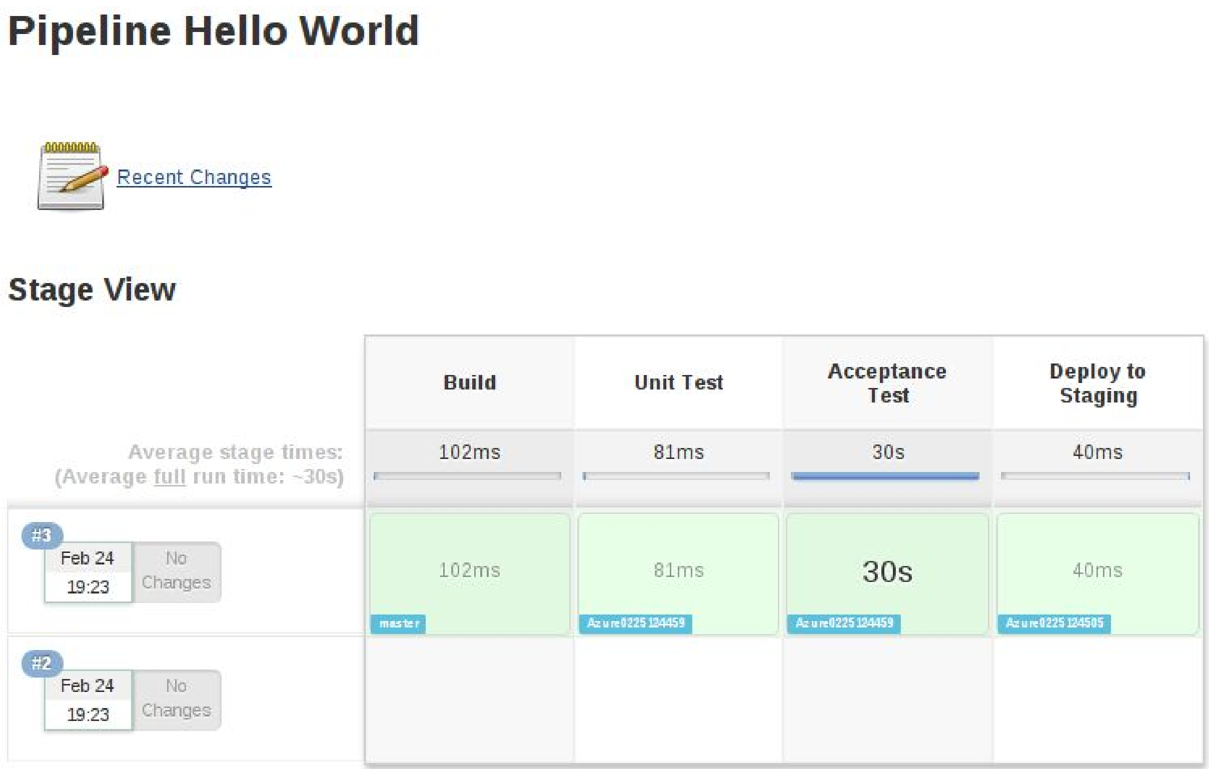
```
node('docker') {
    checkout scm

    /* Using this hack to grab the appropriate abbreviated SHA1 of
     * our build's commit. Currently I cannot refer to `env.GIT_COMMIT`
     */
    sh 'git rev-parse HEAD > GIT_COMMIT'
    def shortCommit = readFile('GIT_COMMIT').take(6)

    stage 'Build'
    def image = docker.build("jenkinsciinfra/bind:build-${shortCommit}")

    stage 'Deploy'
    image.push()
}
```

Pipeline plugin



Pipeline Hello World

Recent Changes

Stage View

	Build	Unit Test	Acceptance Test	Deploy to Staging
Average stage times: (Average full run time: ~30s)	102ms	81ms	30s	40ms
#3 Feb 24 19:23 No Changes	102ms master	81ms Azure0225 124459	30s Azure0225 124459	40ms Azure0225 124505
#2 Feb 24 19:23 No Changes				

Scary Demo Time

this better work

neat plugins shown

- Pipeline
- Azure
- CloudBees Folders
- GitHub
- Timestamper
- NodeJS
- Pipeline Stage View

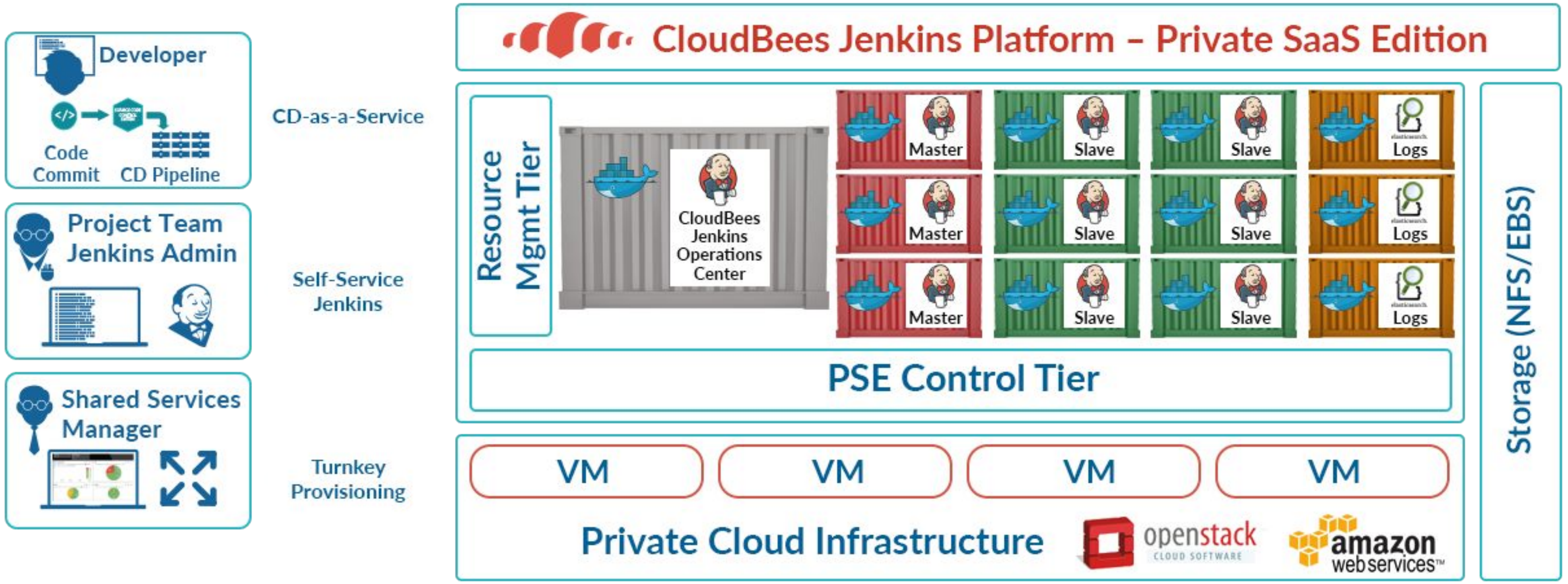
Other Scaley Things

that aren’t lizards

Scaling Masters is Hard™

- Jenkins will be better at this in the future
- Partition masters along pipeline boundaries
  - “Dev Jenkins” “Ops Jenkins” : Bad
  - “Middleware Jenkins” “Mobile Apps Jenkins” : Good
- Buy the most memory and fastest disks possible
- Offload as much as possible to build nodes

Pay the bills



questions

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