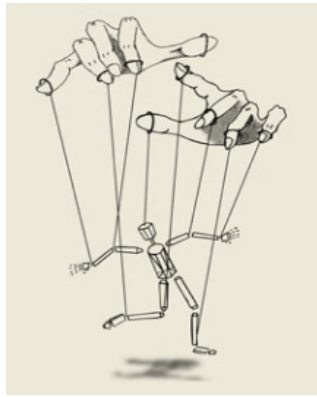

Continuously deliver your puppet code with jenkins, r10k and git

Toni Schmidbauer

October 6, 2014

whoami

- SysAdmin@s-itsolutions.at
- toni@stderr.at
- stderr@jabber.org
- `http://stderr.at`
- `http://github.com/tosmi`

Agenda

- A short story about configuration managment
- What is continuous delivery
- Tools used to achieve continuous delivery
- DEMO
- Things to improve

A short story about configuration management (CM)

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- So configuration management is the solution to all our problems

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- Broke our systems

WHY????

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- Systems installed without CM are hard to bring under CM control
- Every system was a special case

So whats our solution?

Continuous delivery

- is a pattern for getting software from development to release

1

[1] Continuous Delivery: Jez Humble, David Farley

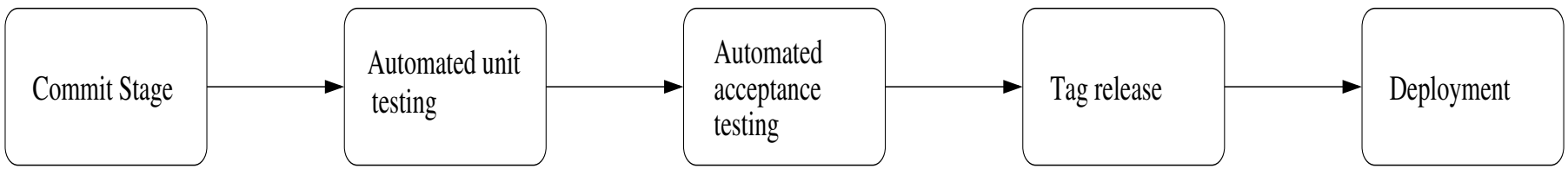
Continuous delivery

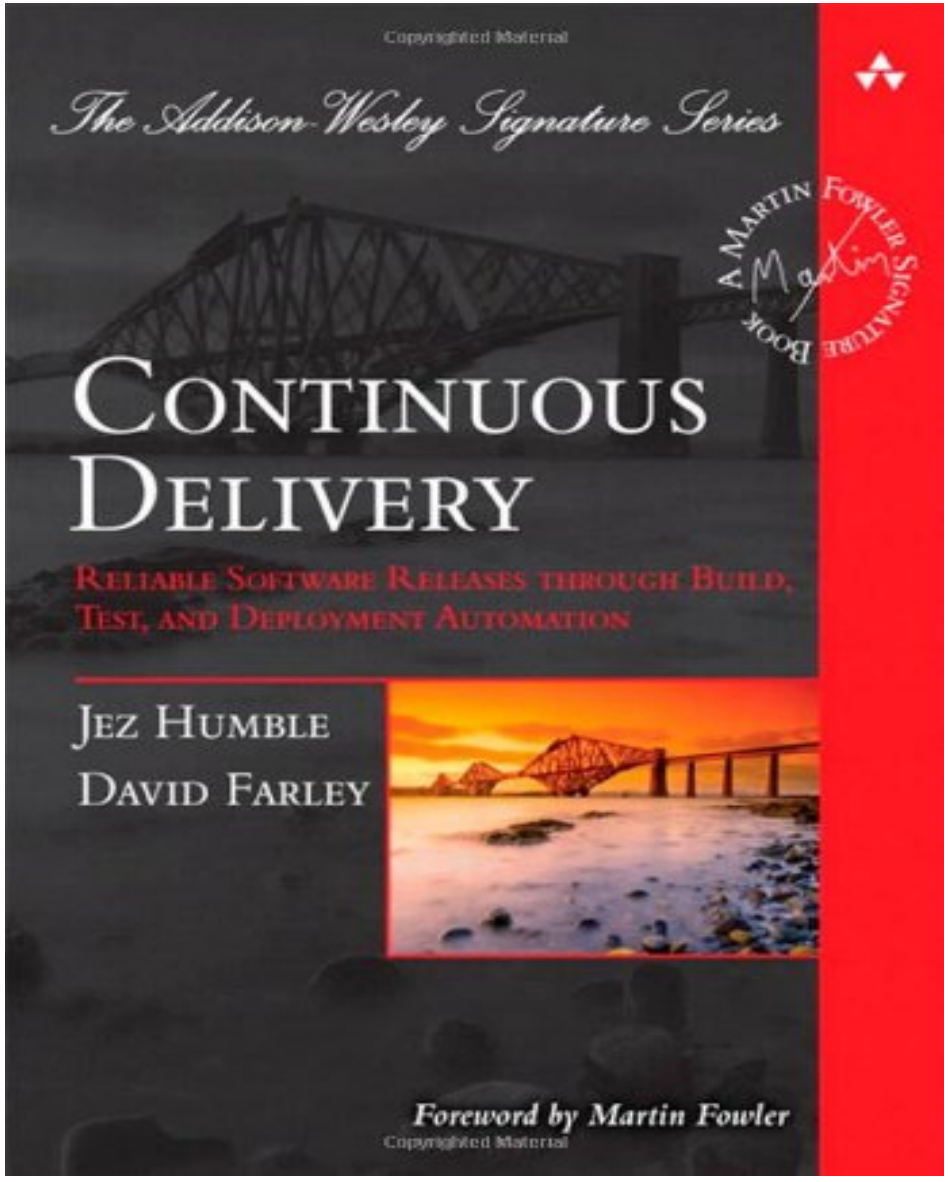
- is a pattern for getting software from development to release
- this pattern is called **the deployment pipeline**

1

[1] Continuous Delivery: Jez Humble, David Farley

The deployment pipeline

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CONTINUOUS DELIVERY
RELIABLE SOFTWARE RELEASES THROUGH BUILD, TEST, AND DEPLOYMENT AUTOMATION
JEZ HUMBLE
DAVID FARLEY
Foreword by Martin Fowler
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Tools to build a deployment pipeline

Jenkins

- Jenkins is an Open Source continuous integration server
- It's purpose is to execute and monitor jobs
- Jobs are shell scripts or any other thing that's executable and returns 0 on success
- You can link jobs together, thats our pipeline
- Many plugins available to extend Jenkins (e.g. git, build-pipeline, monitor)

Jenkins II


Build Pipeline
Run
History
Configure
Add Step
Delete
Manage
Pipeline
#38
#38 production_puppet_unittest
Oct 3, 2014 9:45:27 AM
4 min 29 sec
#3 production_puppet_acceptance
Oct 3, 2014 9:50:03 AM
2 min 26 sec
#38 production_puppet_deployment
Oct 3, 2014 9:52:38 AM
1 min 58 sec
Pipeline
#37
#37 production_puppet_unittest
Oct 2, 2014 8:40:05 PM
4 min 23 sec
#2 production_puppet_acceptance
Oct 2, 2014 8:44:35 PM
2 min 33 sec
#37 production_puppet_deployment
Oct 2, 2014 8:47:15 PM
3 min 54 sec
Pipeline
#36
#36 production_puppet_unittest
Oct 2, 2014 7:12:44 PM
4 min 24 sec
admin
#1 production_puppet_acceptance
Oct 2, 2014 7:17:15 PM
1 min 35 sec
production_puppet_deployment

Monitoring with Jenkins

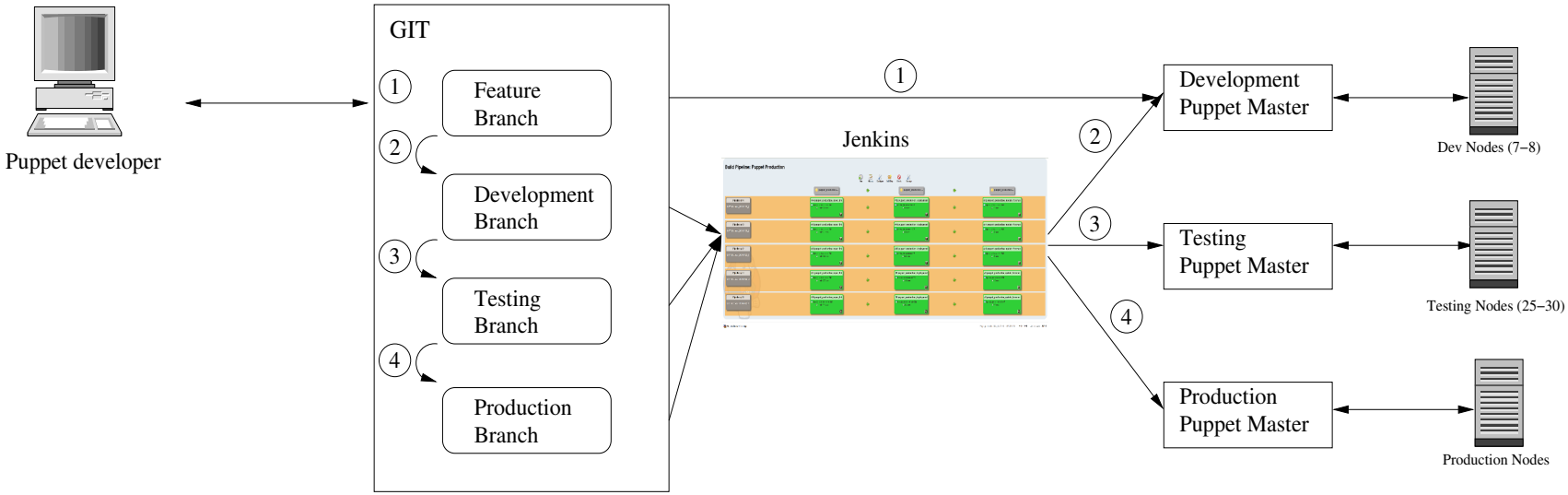
GIT

- One central repository managed with gitolite (access control for git) for internal modules
- 3 main branches
  - development
  - testing
  - production
- feature branches for new site local modules
- hiera data is in the same repository

GIT repository layout

- modules/: where r10k stores external (forge, github) modules
- site/: site local modules, that we do not want to share
- hiera/: our hiera yaml files
- Puppetfile: config file for r10k that specifies which external modules we need

GIT workflow



1. Features Branches get automatically created on Puppet Master (Dynamic Environments)
2. Development Branch gets deployed on commit via Jenkins
3. Testing Branch gets deployed via GIT tag pushing to testing triggers a deployment
4. Production Branch gets deployed via GIT tag pushing to production triggers a deployment

It's all the same for Hiera yaml files!

r10k

- a tool to deploy puppet environments and modules
- every git branch gets deploy to a puppet environment
- in the current version (1.3.2) dependencies have to be managed manually

Example Puppetfile

```
forge 'forge.puppetlabs.com'

mod 'puppetlabs/ntp', '3.1.2'
mod 'puppetlabs/postgresql', '3.4.2'
mod 'puppetlabs/stdlib', '4.3.2'
mod 'puppetlabs/firewall', '1.1.3'
mod 'puppetlabs/apache', '1.1.1'
mod 'puppetlabs/lvm', '0.3.2'
mod 'nosolutions/tsm', '0.2.2'
mod 'saz/sudo', '3.0.6'
mod 'spiette/selinux', '0.5.4'

mod 'concat',
    :git => 'https://github.com/puppetlabs/puppetlabs-concat',
    :commit => 'feba3096c99502219043b8161bde299ba65e7b8a'
```

You are able to pin to a git tag / branch / commit hash

a word on testing

- you must have unit tests for your puppet code: **rspec-puppet**
- for acceptance tests there's puppetlabs/beaker
- you need to test everything to get most out of the build pipeline
- we test
  - interal puppet modules
  - hiera data
  - puppet configuration
  - all internal modules are required to have rspec tests

rspec-puppet

samplemodule/manifests/init.pp

```
class samplemodule ( $message = 'defaultmessage' ) {
  notify { 'samplemessage':
    message => "This is the sample module, my message is: $message",
  }
}
```

samplemodule/spec/classes/samplemodules_spec.rb

```
require 'spec_helper'

describe 'samplemodule', :type => :class do
  context 'with default parameters' do
    it { should contain_notify('samplemessage') }
  end
end
```

DEMO

Things to improve

- We need more test Systems (Centos/RHEL/Solaris)
- We need more acceptance tests
- Puppetlabs should package beaker as a rpm/deb whatever, gems suck in production

Thanks for you attention!