

We're all developers now

Adventures in Infrastructure as Code

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Poll

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- Are you using Puppet or Chef?

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- Do you hate Ruby on Rails

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- Are you using Puppet or Chef?
- Do you hate Ruby on Rails
- Do you hate Apache Ant/NAnt

```
knox:puppet jsimpson$ rake rebuild
```

What just happened?

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- We spawned a fresh Ubuntu machine
- and mounted Puppet code
- and executed it

What just happened?

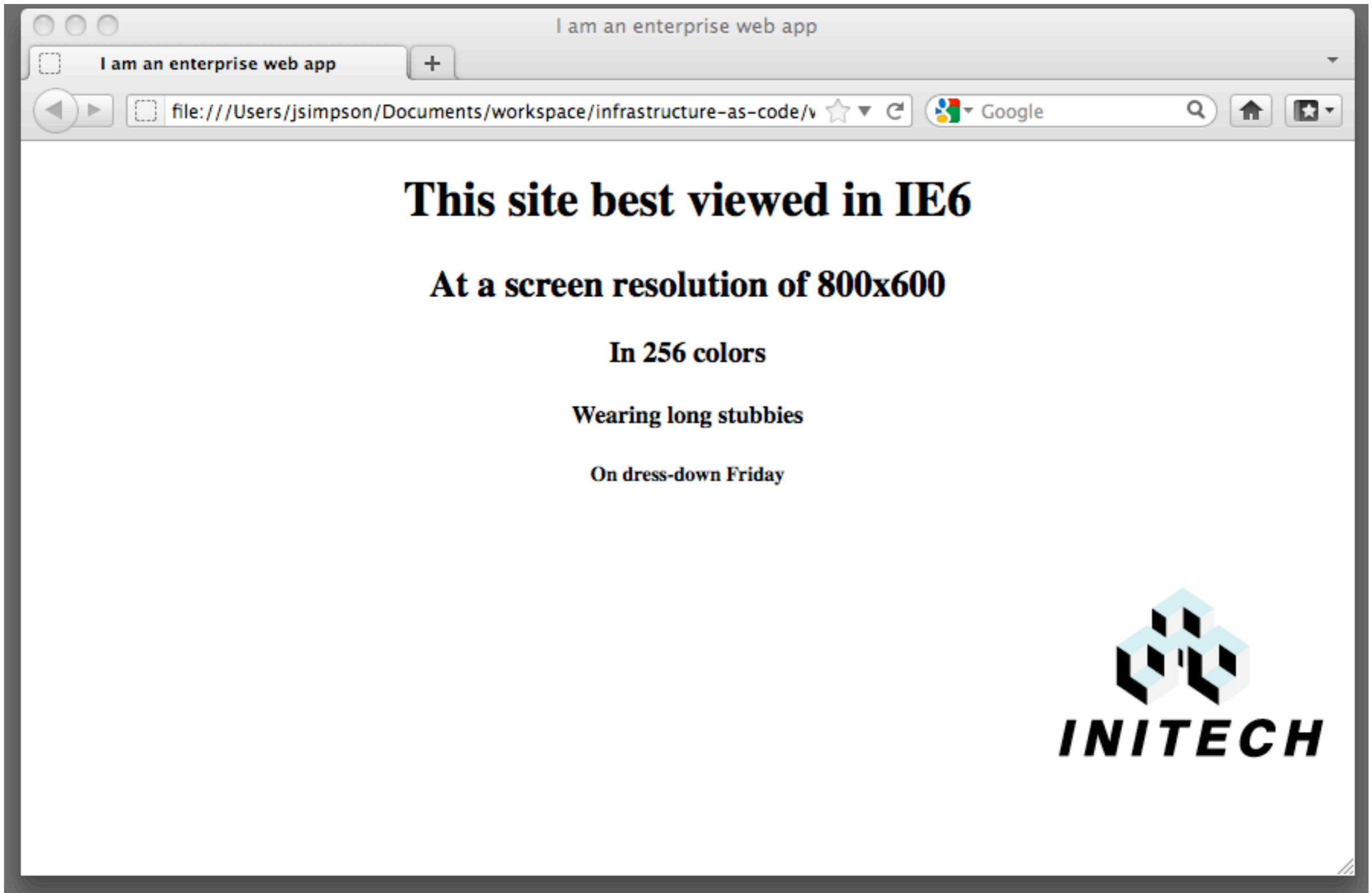
- We spawned a fresh Ubuntu machine
- and mounted Puppet code
- and executed it
- and tested the desired state of the machine

Vagrant



Examples





Hello Puppet

```
1 #!/usr/bin/env puppet apply
2
3 file {
4     '/tmp/PuppetHelloWorld':
5         content => 'Hello Yow!\n'
6 }
```

Hello Puppet

```
knox:puppet jsimpson$ ./manifests/classes/01_hello_world
warning: Could not retrieve fact fqdn
notice: /Stage[main]/File[/tmp/PuppetHelloWorld]/ensure
defined content as '{md5}54393566ca75844a50baf0c6bccd84
notice: Finished catalog run in 0.16 seconds
knox:puppet jsimpson$ cat /tmp/PuppetHelloWorld
Hello Yow!
knox:puppet jsimpson$
```

Hello Chef

```
cat -n chef-repo/cookbooks/hello/recipes/  
default.rb  
1 file "/tmp/Chef_Hello_World" do  
2   content "Hello, world!"  
3 end
```

Hello Chef

```
knox:chef-repo jsimpson$ ./go
[Thu, 01 Dec 2011 14:26:46 +1100] INFO: *** Chef 0.10.4 ***
[Thu, 01 Dec 2011 14:26:46 +1100] INFO: Setting the run_list
to ["recipe[hello]"] from JSON
[Thu, 01 Dec 2011 14:26:46 +1100] INFO: Run List is [recipe
[hello]]
[Thu, 01 Dec 2011 14:26:46 +1100] INFO: Run List expands to
[hello]
[Thu, 01 Dec 2011 14:26:46 +1100] INFO: Starting Chef Run
for knox
[Thu, 01 Dec 2011 14:26:46 +1100] INFO: Processing file[/
tmp/Chef_Hello_World] action create (hello::default line 1)
[Thu, 01 Dec 2011 14:26:47 +1100] INFO: file[/tmp/
Chef_Hello_World] created file /tmp/Chef_Hello_World
[Thu, 01 Dec 2011 14:26:47 +1100] INFO: Chef Run complete in
0.084655 seconds
[Thu, 01 Dec 2011 14:26:47 +1100] INFO: Running report
handlers
```

```
1  class nginx::install {
2
3      package {
4          'nginx':
5              ensure => present;
6      }
7
8      file {
9          'default web page':
10             path      => '/var/www/nginx-default/index.html',
11             content => 'This page, courtesy of puppet',
12             require => Package['nginx'];
13     }
14
15     service {
16         'nginx':
17             ensure      => running,
18             enable      => true,
19             hasstatus   => true,
20             require     => [Package['nginx'], File['default web page']];
21     }
22
23 }
24
25 node default {
26     include nginx::install
27 }
```

```
cat -n recipes/default.rb
1  require_recipe "apt"
2
3  package "nginx" do
4    action :install
5  end
6
7  service "nginx" do
8    action [:enable, :start]
9  end
```

```
cat -n config/node.json
1  {
2    "run_list": [
3      "recipe[nginx]"
4    ]
5  }
```

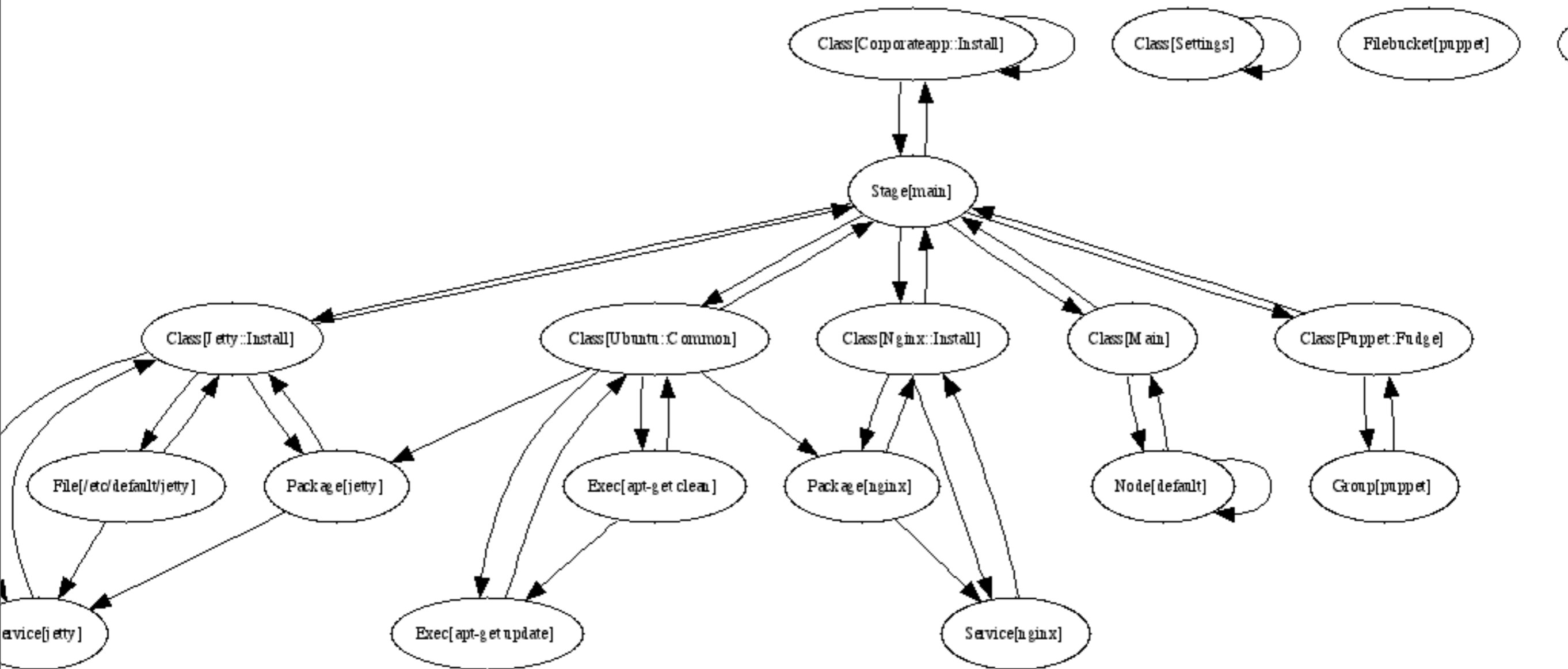
```
30 class jetty::install {
31   include ubuntu::common
32
33   package {
34     'jetty':
35       ensure => present,
36       require => Class[ 'ubuntu::common' ];
37   }
38
39   service {
40     'jetty':
41       ensure      => running,
42       enable      => true,
43       hasstatus   => true,
44       require     => [Package[ 'jetty' ], File[ '/etc/default/jetty' ]];
45   }
46
47   file {
48     '/etc/default/jetty':
49       ensure => present,
50       content => "
51 NO_START=0
52 VERBOSE=yes
53 "
54   }
55 }
```

```
1  require_recipe "apt"
2
3  package "jetty" do
4      action :install
5  end
6
7  service "jetty" do
8      action [:enable]
9  end
10
11 file "/etc/default/jetty" do
12     mode "0644"
13     content "NO_START=0\nVERBOSE=yes\n"
14     notifies :restart, resources(:service => "jetty")
15 end
```

```
1 class corporateapp::install {
2   include jetty::install
3   include nginx::install
4   file {
5     'corporate app':
6       ensure => file,
7       path   => '/usr/share/jetty/webapps/app.war',
8       source => 'puppet:///modules/corporateapp/
app.war',
9       require => [Class['jetty::install'], Class
['nginx::install']];
10  }
11 }
```

```
1 include_recipe "jetty"
2
3 # We do it like this for the example...
4 cookbook_file "/usr/share/jetty/webapps/app.war" do
5   source "app.war"
6   mode   "0644"
7 end
8
9 # In real life I'd do something like...
10 #remote_file "/usr/share/jetty/webapps/app.war" do
11 #   source node[:jetty][:deploy][:source]
12 #   checksum node[:jetty][:deploy][:checksum] if node
13 #     [:jetty][:deploy][:checksum]
14 #   notifies :restart, "service[jetty]"
15 #end
```

```
| Gemfile
| Gemfile.lock
| Rakefile
| TODO
| Vagrantfile
| manifests
| | classes
| | | 01_hello_world.pp
| | | 02_installed_app_on_nginx.pp
| | | 03_installed_app_on_nginx_and_jetty.pp
| | site.pp
| modules
| | corporateapp
| | | files
| | | | app.war
| | | manifests
| | | | install.pp
| | jetty
| | | manifests
| | | | install.pp
| | nginx
| | | files
| | | | nginx_www.corporateapp.com
| | | manifests
```



Expanded_relationships

```
|— config
|   |— node.json
|   └─ solo.rb
|— cookbooks
|   |— apt
|   |   └─ recipes
|   |       └─ default.rb
|   |— hello
|   |   └─ recipes
|   |       └─ default.rb
|   |— jetty
|   |   |— files
|   |   |   └─ default
|   |   |       └─ app.war
|   |   └─ recipes
|   |       |— default.rb
|   |       └─ deploy.rb
|   └─ nginx
|       |— attributes
|       |   └─ default.rb
|       |— recipes
|       |   |— default.rb
|       |   └─ loadbalancer.rb
```

```
1 name "corporateapp"
2 description "Corporate App Server"
3 run_list(
4   "recipe[jetty]",
5   "recipe[jetty::deploy]",
6   "recipe[nginx::loadbalancer]"
7 )
8
9 override_attributes(
10   "nginx" => {
11     "loadbalancer" => {
12       "name" => "corporateapp",
13       "source" => "http://localhost:8080"
14     }
15   },
16   "jetty" => {
17     "deploy" => {
18       "source" => "http://build-repository/
build-number/app.war"
```

History

This isn't new



The following paper was originally published in the
Proceedings of the Twelfth Systems Administration Conference (LISA '98)
Boston, Massachusetts, December 6-11, 1998

```
domain = ( sequenceapp.com )
```

```
actionsequence = (  
    tidy  
    disable  
    resolve  
    files  
    directories  
    copy  
    shellcommands  
    links  
    editfiles  
    processes  
)
```

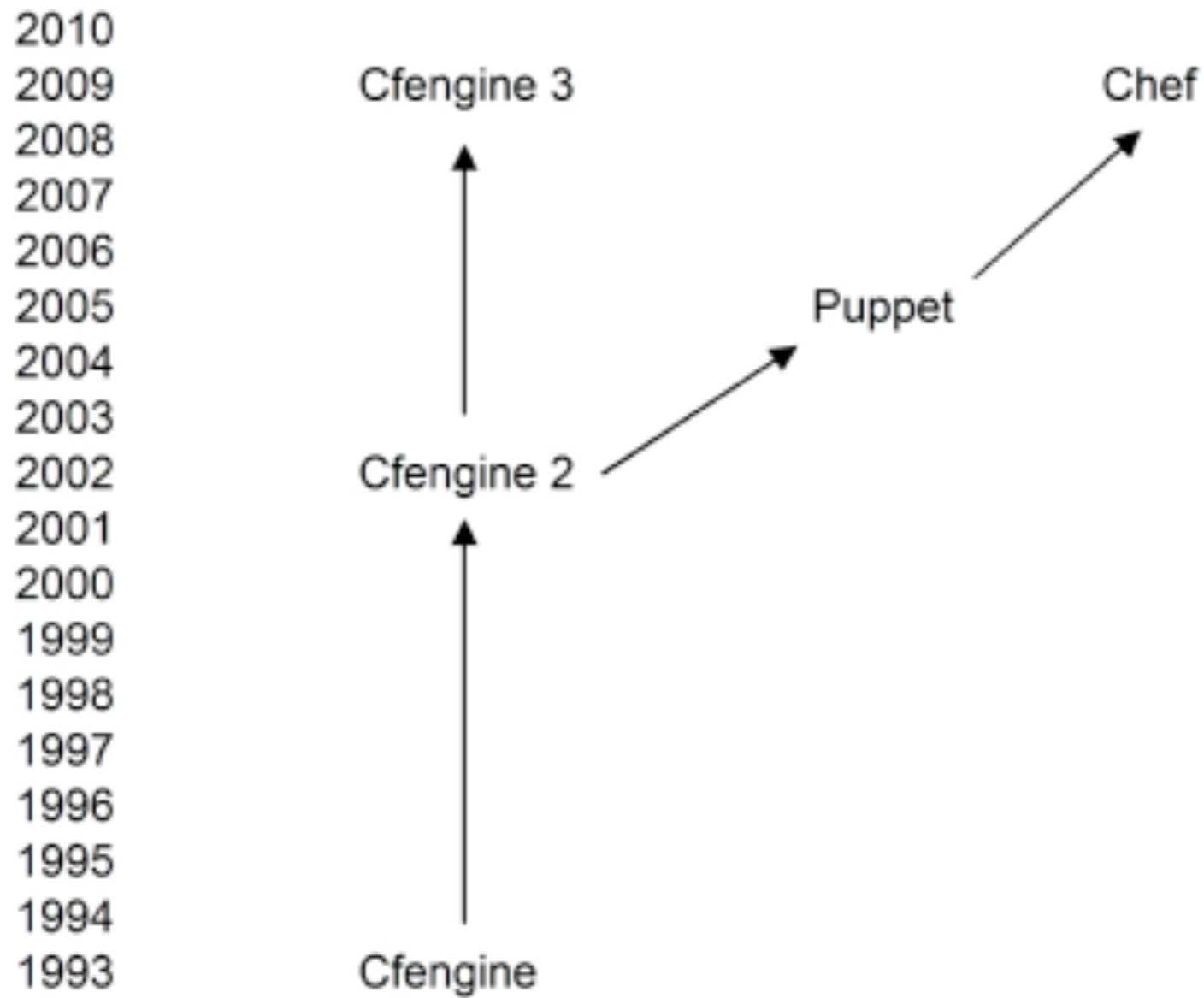
```
#####
```

```
tidy:  
#####
```

```
$(sequenceetc) pattern=*.cfsaved age=0  
!cfmaster::  
# stops cfservd running on everything except master server  
/etc/rc2.d/    pattern=S97cfservd age=0  
  
# get rid of any hosts.equiv  
/etc          pattern=hosts.equiv    age=0    recurse=0
```

```
homedirs::  
# no .rhosts files!  
Hr00::
```

Relative Origin of Cfengine, Puppet and Chef



<http://verticalsysadmin.com/blog/uncategorized/relative-origins-of-cfengine-chef-and-puppet>

Differences

Puppet	Chef
Ruby DSL	Ruby DSL
Parsed	Internal
Declarative*	Imperative*
Configuration	Convention
Convergent	Congruent
Sysadmins*	Developers*

*IMHO

Convergent vs Congruent

Declarative vs Imperative

Poll Results

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- You might prefer Chef if you get annoyed by Ant's 'depends' model

Poll Results

- You might prefer Chef if you get annoyed by Ant's 'depends' model
- You might prefer Puppet if you despise the magic of Ruby on Rails

Disclaimer

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- I don't endorse either tool - you'll need to make your own decision

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- You can really, really screw things up with these tools. Test twice, run once.

Thank you - questions?

- <http://github.com/builddoctor/infrastructure-as-code>
- @builddoctor
- Much thanks to @cread and @tastapod

Extra time

- Heira
- Mcollective
- Knife
- Puppet-lint
- Puppet Parameterised Classes