Advanced Dungeons and Testing Dragons

Temple of the Golden Cobra

SLIDES: https://goo.gl/56EJwk

n Webber

echnical Content Lead

o/COMSEC Repairer (35E)

nce

oper Eng. in Test

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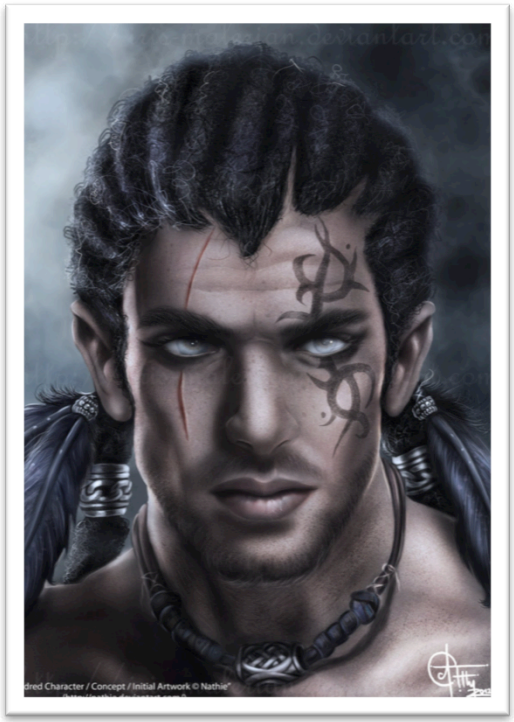
ner

s"



le"

Cookbook Author

ef Resources, Cookbooks, and Cookbook dependencies

testing basics (i.e. ChefSpec and the RSpec command)

ce Yoursel

u work

Part of Your Job

Difficult Part of Your Job

Hobby or Past time as a Child

Want to get out of ChefConf

ule

9:30 – Introductions

0:20 – Finding the Ark

0:30 – BREAK

1:20 – Unraveling the Power of the Ar

1:30 – BREAK

2:20 – The Ark's Power Realized

3:45 – LUNCH

ule

3:45 – LUNCH

4:35 – The Python's Scales

4:45 – BREAK

5:35 – Challenging the Golden Cobra

5:45 – BREAK

6:35 – Securing the Power of the Ark

6:45 – GOODBYES

lo Agenda

on (3 minutes)

ed introduction

unter (8 minutes)

problem that you are going to face

(10 minutes)

tools and techniques you are going to use to solve the problem

20 minutes)

me to solve the problem with the support of us and the party

0 minutes)

tion and Review the techniques and answer questions

Locally

nload the following

g/atdt-chefconf_2016

Remotel

Login to the a remote work

url: **https://goo.gl/jfU**

user: chef

password: chef

Advanced Dungeons and Testing Dragons

Temple of the Golden Cobra

SLIDES: https://goo.gl/56EJwk

g the Ark

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g the Ark

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ng into the Cookbook Direct

```
k
```

ing the Test Suite

```
ec rspec spec/unit/recipes/default_spec.rb
```

```
..........

in 3.58 seconds (files took 2.73 seconds to loa
es, 0 failures


Coverage report generated...

Resources:   41
l Resources: 41
overage:   100.0%
```

g the Recipe Specification

ec/unit/recipes/default_spec.rb

```
spec_helper'

'ark::default' do
 'when no attributes are specified, on an unspe
chef_run) do
ner = ChefSpec::SoloRunner.new
ner.converge(described_recipe)


nstalls necessary packages' do
```

lundancy in the Test Suite

t suite grows in size and complexity it becomes more difficult to r
ntain.

ultimately make it more difficult to make changes to the cookboo
often times fight with the specifications more often than writing th
t will deliver value to the goals of our organization.

urers, your goal is to reduce the size and complexity of this t

g the Ark

on

unter

ver Word: let

o define a memoized helper method. The value will be cached
nultiple calls in the same example but not across examples.

t let is lazy-evaluated: it is not evaluated until the first time
hod it defines is invoked. You can use let! to force the method's
on before each example.

https://goo.gl/BJp0IQ

nning the let Helper Method

```
::default' do
en no attributes are ...
_run) do
= ChefSpec::SoloRunner.new
converge(described_recipe)
```

3

```
s necessary packages' do
chef_run).to install_p...
chef_run).to install_p...

not install the gcc-c+...
chef_run).not_to insta...
```

4

1. let is a RSpec helper me
2. Ruby Symbol
3. Code Block
4. Invocation

...g the Helper Method

```
::default' do
en no attributes are ...
_run) do
= ChefSpec::SoloRunner.new
converge(described_recipe)



lls necessary packages' do
chef_run).to install_p...
chef_run).to install_p...

not install the gcc-c+...
chef_run).not_to insta...
```

1. chef_run sends a messa
2. RSpec invokes the conte block
3. RSpec stores the conten execution
4. chef_run sends a messa
5. RSpec retrieves the stor

d Within each Example

```
::default' do
en no attributes are ...
_run) do
= ChefSpec::SoloRunner.new
converge(described_recipe)


lls necessary packages' do
chef_run).to install_p...
chef_run).to install_p...

not install the gcc-c+...
chef_run).not_to insta...
```

1. chef_run is loaded and s
2. chef_run uses the stored
3. chef_run is loaded and s

_run with Node Attributes

```
rk::default' do
when no attributes are specified, on CentOS' do
ef_run) do
r = ChefSpec::SoloRunner.new({ platform: 'centos
                               version: '6.7' }
r.converge(described_recipe)


XAMPLES WITHIN CONTEXT
```

et to Create Clearer Example

```
rk::default' do
when no attributes are specified, on CentOS' do
ef_run) do
r = ChefSpec::SoloRunner.new(node_attributes)
r.converge(described_recipe)


de_attributes) do
tform: 'centos', version: '6.7' }


XAMPLES WITHIN CONTEXT
```

r each Context

```
k::default' do
hen no attributes are specified, on an unspecifed .
f_run) do
 = ChefSpec::SoloRunner.new
.converge(described_recipe)

AMPLES WITHIN CONTEXT



hen no attributes are specified, on CentOS' do
f_run) do
 = ChefSpec::SoloRunner.new(platform: 'centos', ver
.converge(described_recipe)

AMPLES WITHIN CONTEXT
```

ding a let in a Child Context

```
default' do
  do
efSpec::SoloRunner.new(node_attributes)
erge(described_recipe)


ributes) do


 no attributes are specified, on an unspecif...orm' do
LES WITHIN CONTEXT


 no attributes are specified, on CentOS' do
tributes) do
n: 'centos', version: '6.7' }

LES WITHIN CONTEXT
```

ONCEPT

njure shared_examples

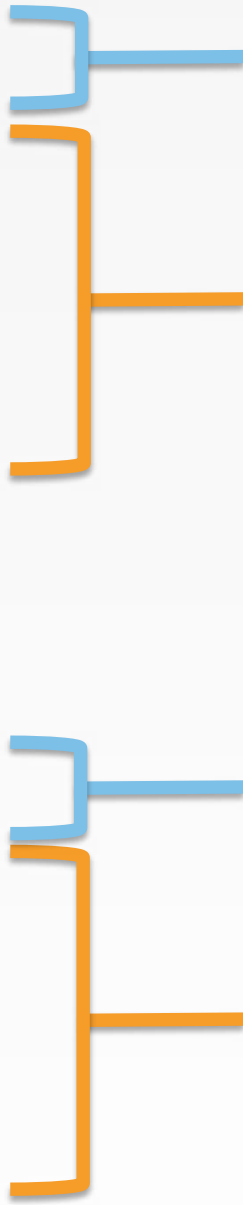
examples let you describe behavior of classes or modules. Wher
l, a shared group's content is stored. It is only realized in the con
er example group, which provides any context the shared group
o run.

https://goo.gl/yi12tM

g Similar Expressed Expectat

```
en no attributes are specified, on an unspecif...orm' d
stalled_packages) ...
lls the necessary packages' do
ed_packages.each do |name|
t(chef_run).to install_package(name)


en no attributes are specified, on CentOS' do
stalled_packages) ...
lls the necessary packages' do
ed_packages.each do |name|
t(chef_run).to install_package(name)
```



e to Share Examples

```
amples 'installs packages' do
talls the necessary packages' do
lled_packages.each do |name|
ect(chef_run).to install_package(name)



when no attributes are specified, on an unspeci
installed_packages) ...
ves_like 'installs packages'

when no attributes are specified, on CentOS' do
installed_packages) ...
ves_like 'installs packages'
```

g the Ark

on

unter

COUNTER

rcise

ctor the the Ark's default recipe specification using:

ver Word: let
njure: shared_examples

`chef exec rspec spec/unit/recipes/default_spec.
sure the examples pass

cess

pass and the size of the recipe specification has been decreased

g the Ark

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e in to the Cookbook Directo

```
k
```

e the Test Suite

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ec rspec spec/unit/recipes/default_spec.rb
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e Recipe Specification File

ec/unit/recipes/default_spec.rb

```
spec_helper'


'ark::default' do
 'when no attributes are specified, on an ...pl
chef_run) do
ner = ChefSpec::SoloRunner.new
ner.converge(described_recipe)



nstalls necessary packages' do
```

e Demonstration

https://goo.gl/ChkP47

Slides & Content: https://goo.gl/jfUUtL

g the Ark

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unter

CHEF™

ing the Power of the Ark

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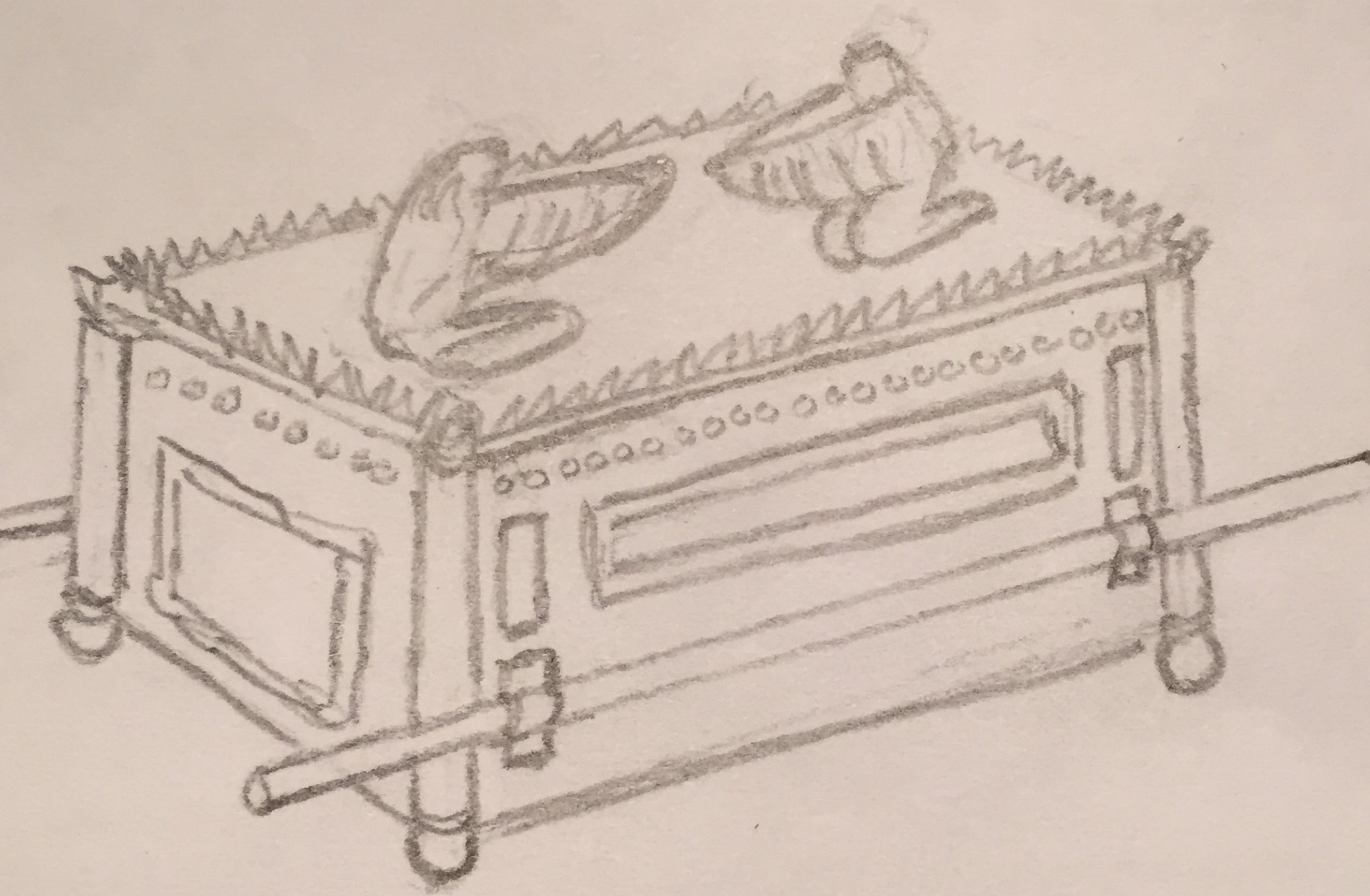
unter



ing the Power of the Ark

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ng into the Cookbook Direct

```
k
```

ing the Test Suite

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ec/unit/recipes/default_spec.rb

```
spec_helper'


'ark::default' do
ef_run) do
er = ChefSpec::SoloRunner.new(node_attributes)
er.converge(described_recipe)



de_attributes) do
```

sing More of the Test Suite*

tions you found (or started to find) would likely be useable by oth
h the same cookbook and possibly another cookbook.

e a few more spells and abilities one could apply to help combat
ncy in this test file.

urers, your goal is to further reduce the size and complexity
file.

ing the Power of the Ark

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smatic require

e given name, returning true if successful and false if the feature
oaded.

name does not resolve to an absolute path, it will be searched fo
ctories listed in $LOAD_PATH ($:).

http://goo.gl/cLKY37

ng the spec_helper file

ec/unit/recipes/default_spec.rb

```
spec_helper'

'ark::default' do
 'when no attributes are specified, on an ...pl
chef_run) do
ner = ChefSpec::SoloRunner.new
ner.converge(described_recipe)
```

g the spec_helper file

ec/spec_helper.rb

```
chefspec'
chefspec/berkshelf'


 ChefSpec::Coverage.report! }


figure do |config|
color = true



LOAD_PATH
fine test helpers and content in this file
```

g the $LOAD_PATH

```
ec rspec
```

```
k/embedded/lib/ruby/gems/2.1.0/gems/uuidtools-2.1.5/lib
nklinwebber/ark/spec
nklinwebber/.chefdk/gem/ruby/2.1.0/gems/rspec-support-3
nklinwebber/.chefdk/gem/ruby/2.1.0/gems/rspec-core-3.4.
k/embedded/lib/ruby/gems/2.1.0/gems/net-ssh-3.1.1/lib
k/embedded/lib/ruby/gems/2.1.0/gems/fauxhai-3.5.0/lib
k/embedded/lib/ruby/gems/2.1.0/gems/diff-lcs-1.2.5/lib
nklinwebber/.chefdk/gem/ruby/2.1.0/gems/rspec-expectati

nklinwebber/.chefdk/gem/ruby/2.1.0/gems/rspec-mocks-3.4
nklinwebber/.chefdk/gem/ruby/2.1.0/gems/rspec-3.4.0/lib
```

ater require_relative

es to load the library named string relative to the requiring file's p
's path cannot be determined a LoadError is raised. If a file is loa
eturned and false otherwise.

http://goo.gl/Gv8QdI

ate helper method

define a Ruby method that takes care of some of the tedious wo
g node attributes.

the Repetition of Retrieving At

```
che mirror" do
bute = chef_run.node['ark']['apache_mirror']
t(attribute).to eq "http://apache.mirrors.tds.ne


fix root" do
bute = chef_run.node['ark']['prefix_root']
t(attribute).to eq "/usr/local"
```

bring with let to help ease the

```
e) do
un.node


he mirror" do
ute = node['ark']['apache_mirror']
(attribute).to eq "http://apache.mirrors.tds.net"


ix root" do
ute = node['ark']['prefix_root']
(attribute).to eq "/usr/local"
```

lenting a Helper Method

```
) do
n.node


bute(name)
scribed_cookbook][name]


e mirror" do
attribute('apache_mirror')).to eq "http://apache.mirr..


x root" do
attribute('prefix_root')).to eq "/usr/local"
```

ONCEPT

# of shared_context

red_context to define a block that will be evaluated in the contex
groups either explicitly, using include_context, or implicitly by
g metdata.

http://goo.gl/R0ujTA

ing More than Examples

```
rk::default' do
when no attributes are specified, on an uns...pl
ef_run) do
r = ChefSpec::SoloRunner.new(node_attributes)
r.converge(described_recipe)


de_attributes) do


ribute(name) ...
```

ing More than Examples

```
xt 'converged recipe' do
un) do
ChefSpec::SoloRunner.new(node_attributes)
nverge(described_recipe)


attributes) do



ute(name) ...
```

```
k::default' do
hen no attributes are specified, on an uns...platfo
context 'converged recipe'
```

ONCEPT

s_example_group_to

e and **context** are the default aliases for **example_group**. You c
our own aliases for **example_group** and give those custom alias
netadata.

http://goo.gl/DfUChL

g a Spec with include_contex

ec/unit/recipes/default_spec.rb

```
'ark::default' do
 'when no attributes are specified, on an ...pl
ude_context 'converged recipe'

  examples ...



other contexts ...
```

ng the Spec to auto include the co

```
cipe 'ark::default' do
when no attributes are specified, on an uns...pl
_context 'converged recipe'

xamples ...

er contexts
```

...nic alias and tying it to the shared_co...

`...ec/spec_helper.rb`

```
...chefspec'
...chefspec/berkshelf'

  ChefSpec::Coverage.report! }

...figure do |config|
...color = true
...alias_example_group_to :describe_recipe, :type

...ontext 'converged recipe', :type => :recipe do
```

ing the Power of the Ark

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COUNTER

rcise

inue to refactor the the Ark's default recipe specification using:

ver Word: let
njure shared_examples
ater helper method
y of shared_context
s_example_group_to

cess

pass and the size of the recipe specification has been decreased

ing the Power of the Ark

on

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e in to the Cookbook Directo

```
k
```

e the Test Suite

```
ec rspec spec/unit/recipes/default_spec.rb
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```
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e Recipe Specification File

ec/unit/recipes/default_spec.rb

```
spec_helper'


'ark::default' do
 'when no attributes are specified, on a...d pl
chef_run) do
ner = ChefSpec::SoloRunner.new
ner.converge(described_recipe)



nstalls necessary packages' do
```

e Demonstration

https://goo.gl/ESxebk

https://goo.gl/9mRNlD
(lowercase L)

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k's Power Realized
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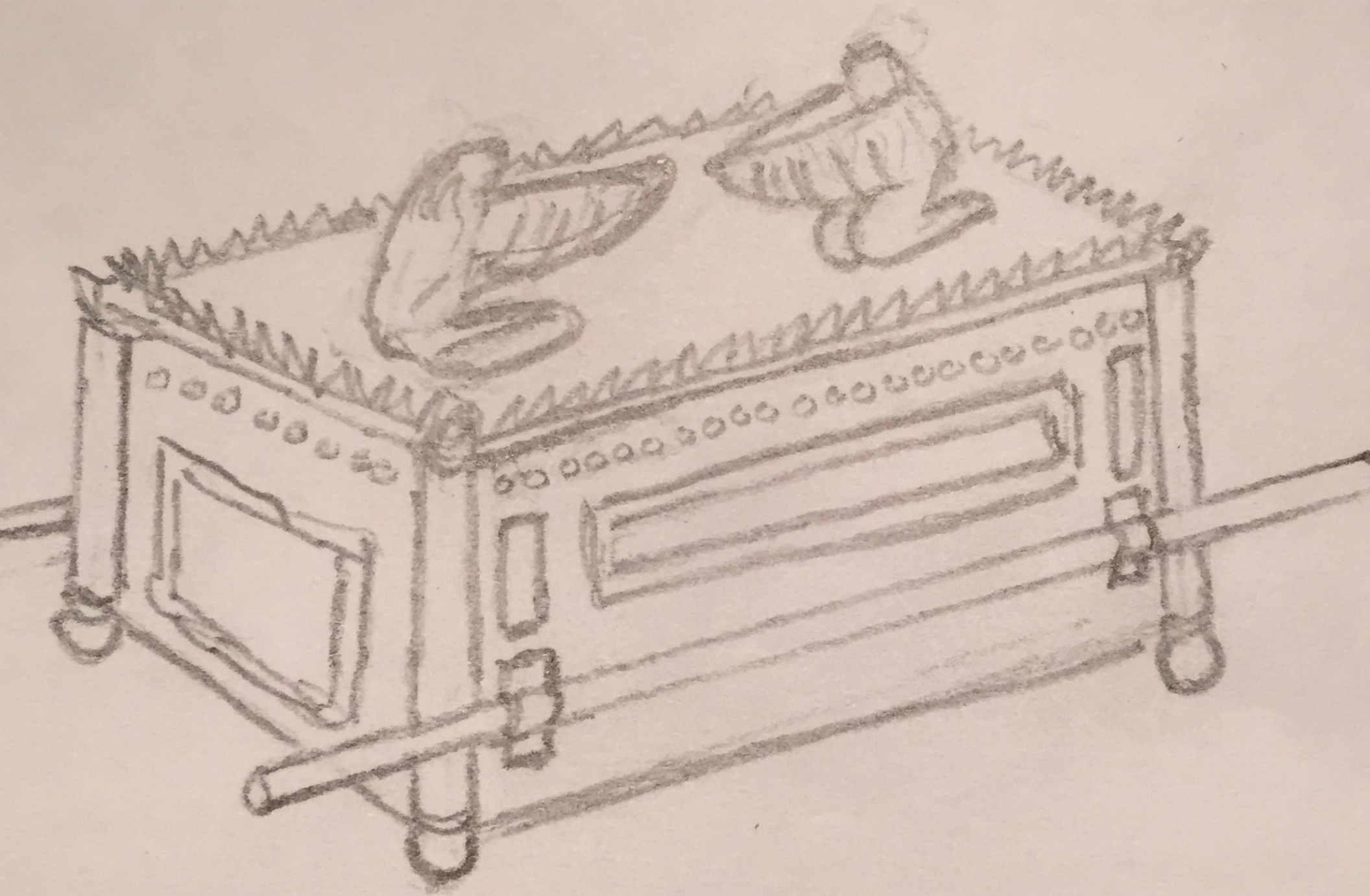


k's Power Realized
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v is the Ark Used?

ault recipe describes the components necessary for Ark to work b
it is used.

how to use the Ark one must employ it. But instead of simply
ng it we should write a test to ensure it can do what we want it to
ich is build an application from source.

**urers your goal is to write a test that demonstrates the
with_make action of Ark.**

g the Features of the Ark

sources/default.rb

```
install, :dump, :cherry_pick, :put, :install_with_ma
tup_py_build, :setup_py_install, :setup_py, :unzip


ction :install


ssor :path, :release_file, :prefix_bin, :prefix_roo
sion, :version


 :owner, :kind_of => String, :default => 'root'
 :group, :kind_of => [String, Fixnum], :default => 0
 :url, :kind_of => String, :required => true
 :path, :kind_of => String, :default => nil
 :full_path, :kind_of => String, :default => nil
```

standing the Path of an Actio

```
ll_with_make do


ew_resource.path


 new_resource.release_file do
:run, "execute[unpack #{new_resource.release_file}]"
```

directory to do work (directory)

n application source (remote_file)

standing the Path of an Actio

```
pack #{new_resource.release_file}" do
:run, "execute[set owner on #{new_resource.path}]"
:run, "execute[autogen #{new_resource.path}]"
:run, "execute[configure #{new_resource.path}]"
:run, "execute[make #{new_resource.path}]"
:run, "execute[make install #{new_resource.path}]"
othing
```

e source (execute)

standing the Path of an Actio

```
t owner on #{new_resource.path}"
togen #{new_resource.path}"
nfigure #{new_resource.path}"
ke #{new_resource.path}"
ke install #{new_resource.path}"
```

vner of the source (execute)

e source - if needed (execute)

the source (execute)

source (execute)

source (execute)

v is the Ark Used?

ault recipe describes the components necessary for Ark to work b
it is used.

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ng it we should write a test to ensure it can do what we want it to
ich is build an application from source.

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k's Power Realized
on
unter

ONCEPT

ure Cookbook

a cookbook, within a cookbook's test directory, that employs the
k in the various ways in which it may be used by downstream
ks.

ften to ensure test coverage for features not in the defined recipe
r associated tests. Common if you are building a cookbook that
a custom resource.

ng the Fixture Cookbook

```
rk
spec/fixtures
enerate cookbook spec/fixtures/ark_spec
```

g the Dependencies to Fixture Cook

```
rksfile
```

```
ttp://api.berkshelf.com"
```

```
'ark_spec', path: 'spec/fixtures/ark_spec'
```

ONCEPT

ining Test Recipes

he fixture cookbook you now would define recipes that employ th
resource is the most essential ways.

g All the Defined Recipes

```
:/fixtures/ark_spec/recipes
```

```
tures/ark_spec/recipes
ry_pick.rb
ry_pick_with_zip.rb
gure.rb
rb
ll.rb
ll_no_stripping.rb
ll_stripping.rb
ll_windows.rb
ll_with_append_env_path.rb
```

g the Install Recipe

```
ec/fixtures/ark_spec/recipes/install.rb
----------------------------------------------------------------------------------------------------
t_install' do
ttps://github.com/burtlo/ark/raw/master/fil.../f
um '5996e676f17457c823d86...81e70d6a0e5f8e45b51e
 '2'
_root '/usr/local'
foobarbaz'
foobarbaz'
:install
----------------------------------------------------------------------------------------------------
```

ining the Test for Each Recipe

y recipe you write you now need to define a test for them.

g the Tests for each Fixture R

ec/unit/resources/default_spec.rb

```
spec_helper'

'ark' do

elpers and setup ...

e 'install' do
described_recipe) { 'ark_spec::install' }

enerates the expected ... actions and notificat
ect(chef_run).to install_ark('test_install')
```

ining ChefSpec Matchers

ec exposes the ability for cookbook authors to package custom
s inside a cookbook so that other developers may take advantag
testing.

https://goo.gl/ISQDXD

g a ChefSpec Resource Mat

```
braries/matchers.rb
```

```
?(ChefSpec)
all_ark(resource_name)
ec::Matchers::ResourceMatcher.new(:ark, :install, resou


Define additional matchers for each supported action ..


s :install, :install_with_make, :dump, :cherry_pick, :pu
  :configure, :setup_py_build, :setup_py_install, :setup
```

efSpec's step_into

ec overrides all providers to take no action (otherwise it would converge your system). This means that the steps inside your resource are not actually executed. If a custom resource perform those actions are never executed or added to the resource n.

to run the actions exposed by your custom resource, you have t tell the Runner to step into it.

https://goo.gl/SKM4L3

ng to the Custom Resource

```
ec/unit/resources/default_spec.rb
```

```
ec_helper'


rk' do
_run) do
=
oloRunner.new(node_attributes.merge(settings).merge(step_into
converge(described_recipe)



 required to test the internal components of a LWRP / Custom
tps://github.com/sethvargo/chefspec#testing-lwrps
_into) do
into: ['ark'] }
```

into Gives You Visibility into the Reso

```
c::SoloRunner.new(step_into: 'ark')
```

g into Allows Testing of Resour

```
ec/unit/resources/default_spec.rb
--------------------------------------------------------------------------------

'install' do
scribed_recipe) { 'ark_spec::install' }

erates the expected resources with the expected acti... noti
t(chef_run).to install_ark('test_install')

t(chef_run).to create_directory('/usr/local/test_install-2')
rce = chef_run.directory('/usr/local/test_install-2')
t(resource).to notify('execute[unpack /var/chef/cache/test_i

t(chef_run).to create_remote_file('/var/chef/cache/test_insta
rce = chef_run.remote_file('/var/chef/cache/test_install-2.ta
t(resource).to notify('execute[unpack /var/chef/cache/test_i

 testing other resources within the custom resource action .
--------------------------------------------------------------------------------
```


k's Power Realized
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unter

COUNTER

rcise

ne an `install_with_make_ark` ChefSpec Resource Matc

`~/ark/spec/unit/resources/default_spec.rb` and define t
all_with_make' example

`chef exec rspec spec/unit/resources/default_spec.rb`

cess

all_with_make' example passes with 100% coverage


k's Power Realized
on
unter

e in to the Cookbook Directo

```
k
```

e the Test Suite

```
ec rspec spec/unit/resources/default_spec.rb:57
```

e Resource Specification File

ec/unit/resources/default_spec.rb

```
spec_helper'


'ark' do
ef_run) do
r = ChefSpec::SoloRunner.new(node_attributes.me
r.converge(described_recipe)
r


de_attributes) do
```

e Demonstration

https://goo.gl/DljNcZ


k's Power Realized
on
unter

CHEF™


thon's Scales
on
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thon's Scales
on
unter

g the Python's Default Recipe

/recipes/default.rb

```
e '/tmp/Python-3.4.4.tgz' do
https://www.python.org/ftp/python/3.4.4/Python-3.4.4.tgz
 :run, 'execute[extract python]', :immediately



xtract python' do
'tar xzf /tmp/Python-3.4.4.tgz'
p'
nothing
 :run, 'execute[python build and install]', :immediately

INUES ON THE NEXT SLIDE ...
```

g the Python's Default Recipe

/recipes/default.rb

```
INUED FROM THE PREVIOUS SLIDE ...
xtract python' do
'tar xzf /tmp/Python-3.4.4.tgz'
p'
nothing
 :run, 'execute[python build and install]', :immediately


ython build and install' do
'./configure && make install'
p/Python-3.4.4'
nothing
```

s default Recipe

- **Python source (remote_file)**
- **source (execute)**
- **e source (execute)**
- **ource (execute)**

Ark's install_with

- Creates a directory to do work (c
- **Retrieves an application sourc**
- **Extracts the source (execute)**
- Sets the owner of the source (ex
- Autogen the source - if needed (
- **Configures the source (execut**
- Makes the source (execute)
- **Installs the source (execute)**

ng the Ark to Slay the Python

ng these three resources with a single resource will make the rec
ore readable and possibly more maintainable.

**urers your FIRST goal is to replace the existing installation
with the Ark resource.**

ng the Python's Pip as a Weapo

ython is installed it also installs a tool called **pip** that allows you t
ackages. Cookbooks that rely on the python cookbook will likely r
nstalled and need access to this tool.

urers your Second goal is to create a custom resource that
you to leverage the pip tool in other cookbooks.


thon's Scales
on
unter

ONCEPT

stom Resource

n resource is a simple extension of Chef that is implemented as p
kbook. It follows easy, repeatable syntax patterns and effectively
es resources that are built into Chef.

ult is reusable in the same way as resources that are built into Ch

https://docs.chef.io/custom_resources.html

```
/spec/fixtures/python_spec/recipes/pip_install.r
```

```
ngo'
```

```
/spec/fixtures/python_spec/recipes/pip_install.r
---------------------------------------------------------------------------

ago' do
 :install
```

```
/spec/fixtures/python_spec/recipes/pip_install.r
---------------------------------------------------------------------------

ngo' do
e_name 'django'
:install
```

ng into the Directory of the Coo

```
thon
```

ting an LWRP in the Cookbo

```
enerate lwrp pip
```

g the Unnecessary Providers Direc

```
providers
```

g the name of the resource

```
resources/pip.rb
```

```
name :pip
```

ONCEPT

stom Resource: action

stom resource must have at least one action that is defined withi
ock.

action defined in the resource definition is considered the defaul

ps://docs.chef.io/custom_resources.html#define-actions

g an Action

resources/pip.rb

```
name :pip

install do
contains the resources needed to converge
```

g an Action

```
resources/pip.rb
```

```
name :pip

nstall do
 '/usr/local/bin/pip3 install PACKAGENAME'
```

ONCEPT

stom Resource: property

properties are defined in the resource. A property describes a fie
ser of the custom resource can set when they define the custom
e within their recipes.

roperties have a type, can have default values, or be set to retrie
e from the name of the resource.

s://docs.chef.io/custom_resources.html#define-properties

g an Action

resources/pip.rb

```
_name :pip

 :package_name, String


nstall do
 "/usr/local/bin/pip3 install #{package_name}"
```

stom Resource: name_proper

properties are defined in the resource. A property describes a fie
ser of the custom resource can set when they define the custom
e within their recipes.

roperties have a type, can have default values, **or be set to retri**
e from the name of the resource.

s://docs.chef.io/custom_resources.html#define-properties

g an Action

resources/pip.rb

```
_name :pip

:package_name, String, name_property: true


nstall do
 "/usr/local/bin/pip3 install #{package_name}"
```


thon's Scales
on
unter

COUNTER

rcise

ctor the Python cookbook's default recipe to use the ark resourc
ll_with_make Python 3.4.4

ne a custom resource, named `pip`

cess

pass for the Python cookbook with 100% coverage


thon's Scales
on
unter

e Demonstration

https://goo.gl/Etc9Gv


thon's Scales
on
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CHEF™


nging the Golden Cobra
on
unter


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Golden Cobra Has Requirements

len_cobra cookbook is an application cookbook that deploys a application. It needs Python installed, a number of Python packag es on a data bag.

urers your goal is to finish the golden_cobra!

g the Existing Default Recipe

cobra/recipes/default.rb

```
yum update -y'


sqlite-devel'


nstall python 3.4.4
nstall python packages: django, uwsgi, and guni


 '/sites'


git'
NTINUES ON THE NEXT SLIDE ...
```

g the Existing Default Recipe

_cobra/recipes/default.rb

```
NTINUED FROM THE PREVIOUS SLIDE ...


site','*:*').each do |site_data|


sites/#{site_name}" # ... collapsed definition
e '/usr/local/bin/python3 manage.py migrate' #
e "gunicorn #{site_name}.wsgi -D -b #{site_bin
```

Golden Cobra Has Requirements

len_cobra cookbook is an application cookbook that deploys a application. It needs Python installed, a number of Python packag es on a data bag.

urers your goal is to finish the golden_cobra!


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ONCEPT

bbing Search

e ChefSpec is a unit-testing framework, it is recommended that a
ty API calls be mocked or stubbed. ChefSpec exposes a helpful
nacro for stubbing search results in your tests.

nverge a Chef recipe that implements a search call ChefSpec wi
error. You may stub the search call to prevent the error and test
f search results that could be returned.

https://github.com/sethvargo/chefspec#search

verRunner vs SoloRunner

re two runners available when defining your specifications. Choos
one is often dependent on the context of how this cookbook/reci
sed within your organization.

g Search and other values is different based on the runner that yo

a Standard ServerRunner Defi

```
un) do
ChefSpec::ServerRunner.new
nverge(described_recipe)
```

ding the ServerRunner Defini

```
un) do
ChefSpec::ServerRunner.new do |node,server|
 additional details about the state of the node
 additional details about the state of the serve


nverge(described_recipe)
```

g a Data Bag on the Server

```
un) do
ChefSpec::ServerRunner.new do |node,server|
create_data_bag('users', {
ber' => {
me' => 'fwebber',
me' => '/home/fwebber'


nverge(described_recipe)
```


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unter

COUNTER

rcise

cute the golden_cobra cookbook's tests and identify the failures

ate the test suite to stub the search results

ate the recipe to include needed recipes and resources

cess

pass with 100% coverage


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e Demonstration

https://goo.gl/2vMP9k


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ng the Power of the Ark

on

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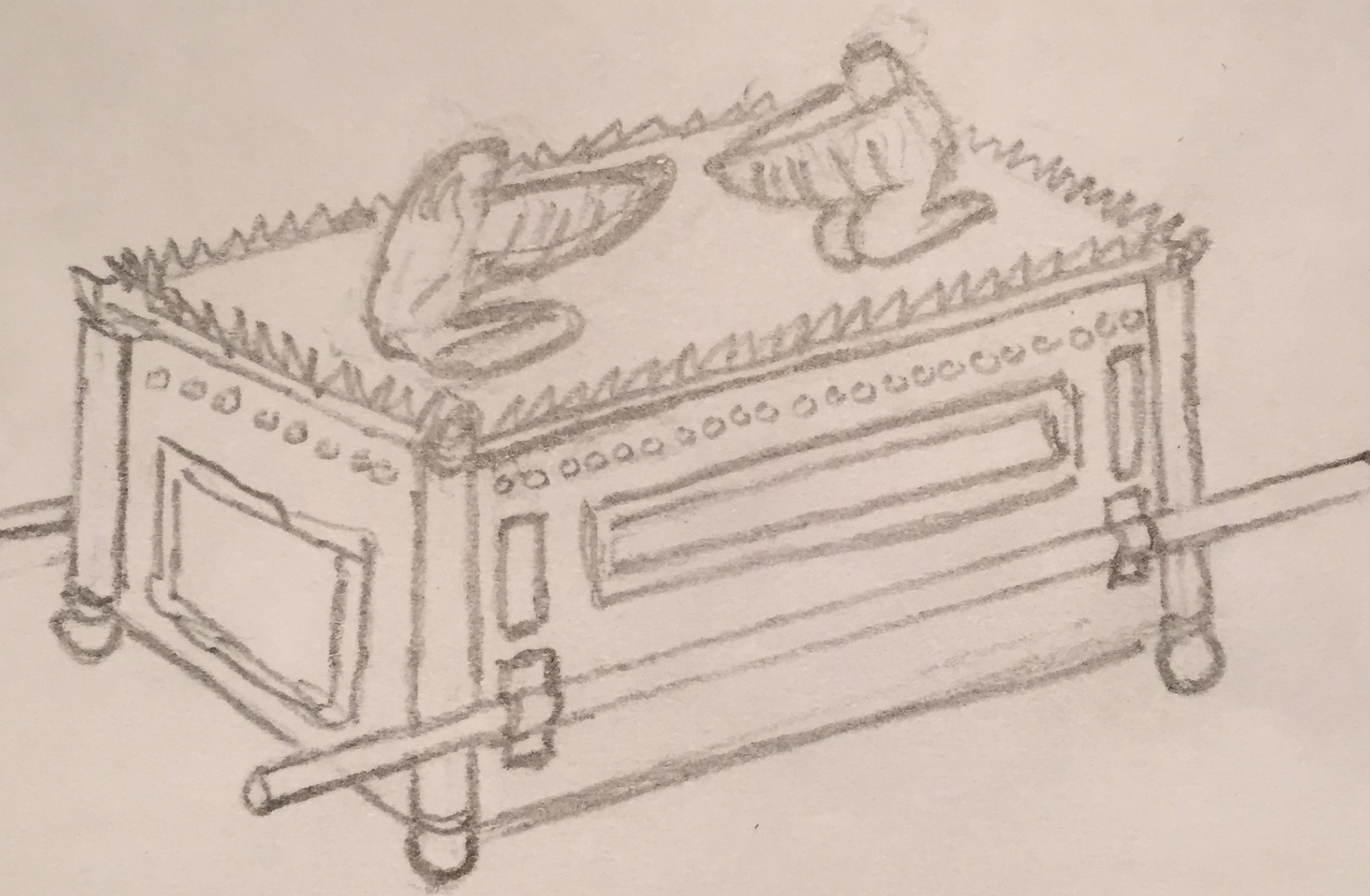

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on

unter

ting Everything Through Recipe

pes in the fixture cookbook do a good job testing the custom
e from end-to-end but to to test all of the code paths one would n
ate a lot more recipes. This is because the Ark cookbook relies c
mplex helper methods

of testing each path through the code at the recipe level we can
he helper and test it with a large set of inputs. Testing them in
will allow better coverage at the boundaries and delivers results

urers your goal is to test a single helper method!

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ONCEPT

per Methods

e more concise recipes code is often defined in methods that are
modules. These modules are then included within the recipe or
es when the cookbook is loaded.

elper methods provide an easy way to simplify, on the surface,
ated logic that may need to be calculated or retrieved from the

ONCEPT

ude in a Class

s defined within a module is portable code that can be inserted in
ext that includes them. This is often done at the start of the recip
cludes the methods into the Chef::Recipe class.

he tactic can be used within any class that you may choose to de

dule Defines Methods

```
enges
rs ; end
; end
y ; end
re ; end
```

a Module Grants the Object those Me

```
enges
rs ; end
; end
y ; end
re ; end


n
allenges


ngeon.new
ters
```

a Module Grants the Object those Me

```
enges
rs ; end
; end
y ; end
re ; end



allenges



tle.new
ers
```

g One Helper Method

```
e

oviderHelpers
erry_pick_tar_command(tar_args)
 node['ark']['tar']
= " #{tar_args}"
= " #{new_resource.release_file}"
= " -C"
= " #{new_resource.path}"
= " #{new_resource.creates}"
= tar_strip_args
```

ng the Module in a Class

```
ode
k
ProviderHelpers
herry_pick_tar_command(tar_args)
..  implementation
```

```
ct
pscode::Ark::ProviderHelpers
```

ject Class Does Not Have Every

```
ct
pscode::Ark::ProviderHelpers



rry_pick_tar_command(tar_args)


ject does not have the method node
ject does not have the method tar_strip_args
ject does not have the method new_resource
```

Method has Methods it Calls

```
e

oviderHelpers
erry_pick_tar_command(tar_args)
 node['ark']['tar']
= " #{tar_args}"
= " #{new_resource.release_file}"
= " -C"
= " #{new_resource.path}"
= " #{new_resource.creates}"
= tar_strip_args
```

More Methods to the Subject

```
code::Ark::ProviderHelpers

> { 'tar' => '/bin/tar' } }


ip_args
_not_strip_the_args'


ource
 where it gets more complicated ...


y_pick_tar_command(tar_args)
```

w_resource has it's Own Met

```
e


oviderHelpers
erry_pick_tar_command(tar_args)
 node['ark']['tar']
= " #{tar_args}"
= " #{new_resource.release_file}"
= " -C"
= " #{new_resource.path}"
= " #{new_resource.creates}"
= tar_strip_args
```

g a Fake new_resource

```
ode::Ark::ProviderHelpers

 { 'tar' => '/bin/tar' } }

p_args
not_strip_the_args'

urce
struct'
.new(release_file: 'file',
     path: 'path',
     creates: 'sure_why_not')



_pick_tar_command(tar_args)
```

ONCEPT

bs and Doubles

ing a class for every scenario can make the code less clear to
and as it requires more boiler plate code to accomplish the goal f
pecification.

rovides a way to stub method calls which will allow you to more
setup the scenario that isolates the test and helps you express yo
tion quicker.

No Reference

g Stub methods on an Objec

```
ode::Ark::ProviderHelpers do
ct
pscode::Ark::ProviderHelpers



cherry_pick_tar_command' do
ect) do
ubject.new
bj).to receive(:node).and_return({ 'ark' =>
                                   {'tar' => '/bin/tar'
bj).to receive(:new_resource).and_return(new_resource)
bj).to receive(:tar_strip_args).and_return('')
```

ing a new_resource Object

```
ode::Ark::ProviderHelpers do
ct
pscode::Ark::ProviderHelpers



cherry_pick_tar_command' do
ect) do
ubject.new
bj).to receive(:node).and_return({ 'ark' =>
                                   {'tar' => '/bin/tar'
bj).to receive(:new_resource).and_return(new_resource)
bj).to receive(:tar_strip_args).and_return('')
```

g a Test Double for new_reso

```
cherry_pick_tar_command' do
ect) do



resource) do
ouble(:new_resource)
bj).to receive(:release_file).and_return('release-file'
bj).to receive(:path).and_return('path')
bj).to receive(:creates).and_return('creates')
```

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COUNTER

rcise

ne a test for `tar_strip_args` with strip_components set to 0

ne a test for `tar_strip_args` with strip_components set to non-ze

cess

ests that have been defined pass.

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e Demonstration

https://goo.gl/ayi0Sk

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