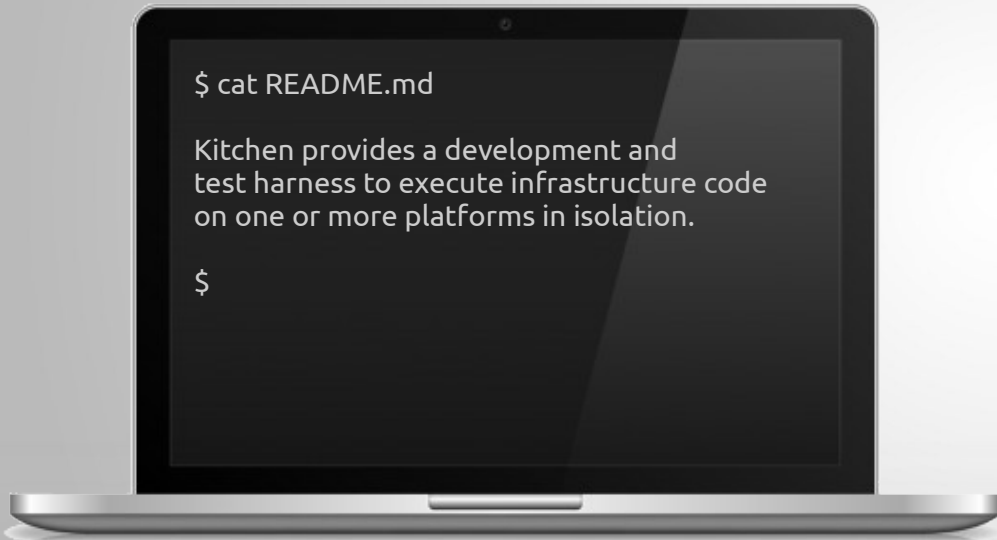




# What is it ?



```
---
driver:
  name: vagrant

provisioner:
  name: chef_zero

platforms:
  - name: ubuntu-14.04
  - name: windows-2012r2

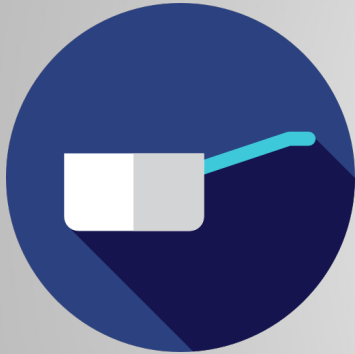
suites:
  - name: client
    run_list:
      - recipe[postgresql::client]
  - name: server
    run_list:
      - recipe[postgresql::server]
```



# The origins

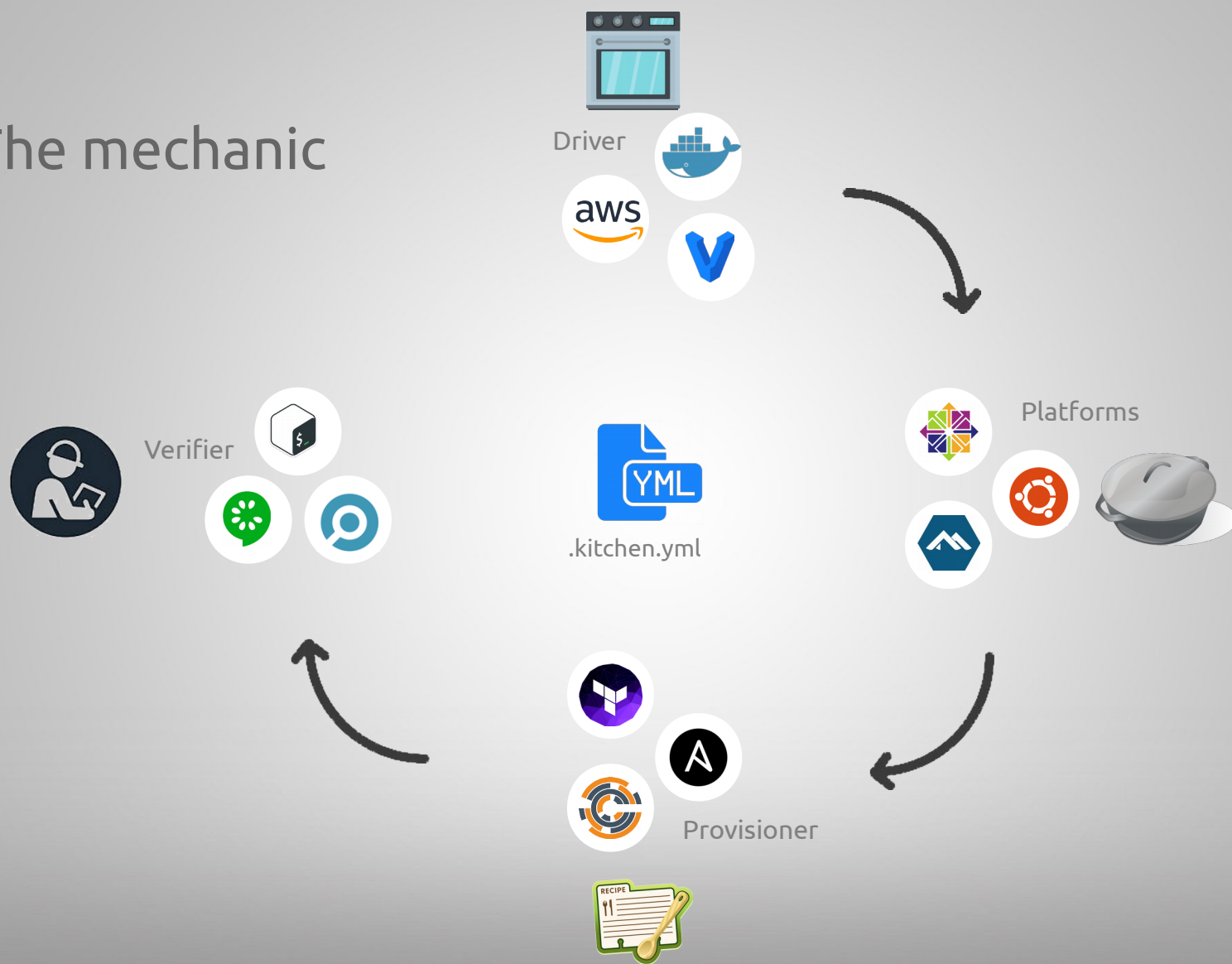


# The concepts



- A platform is the operating system or target environment on which a cookbook is to be tested
- A suite is the chef-client configuration, a run-list, and (optionally) node attributes
- An instance is the combination of a specific platform and a specific suite, with each instance being assigned an auto-generated name
- A driver is the lifecycle that implements the actions associated with a specific instance—create the instance, do what is needed to converge on that instance (such as installing the chef-client, uploading cookbooks, starting the chef-client run, and so on), setup anything else needed for testing, verify one (or more) suites post-converge, and then destroy that instance
- A provisioner is the component on which the chef-client code will be run, either using chef-zero or chef-solo via the chef\_zero and chef\_solo provisioners, respectively

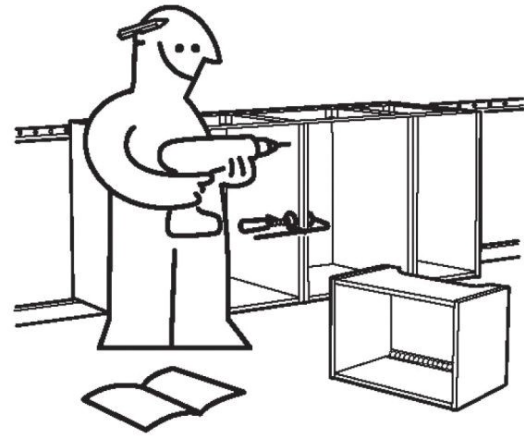
# The mechanic



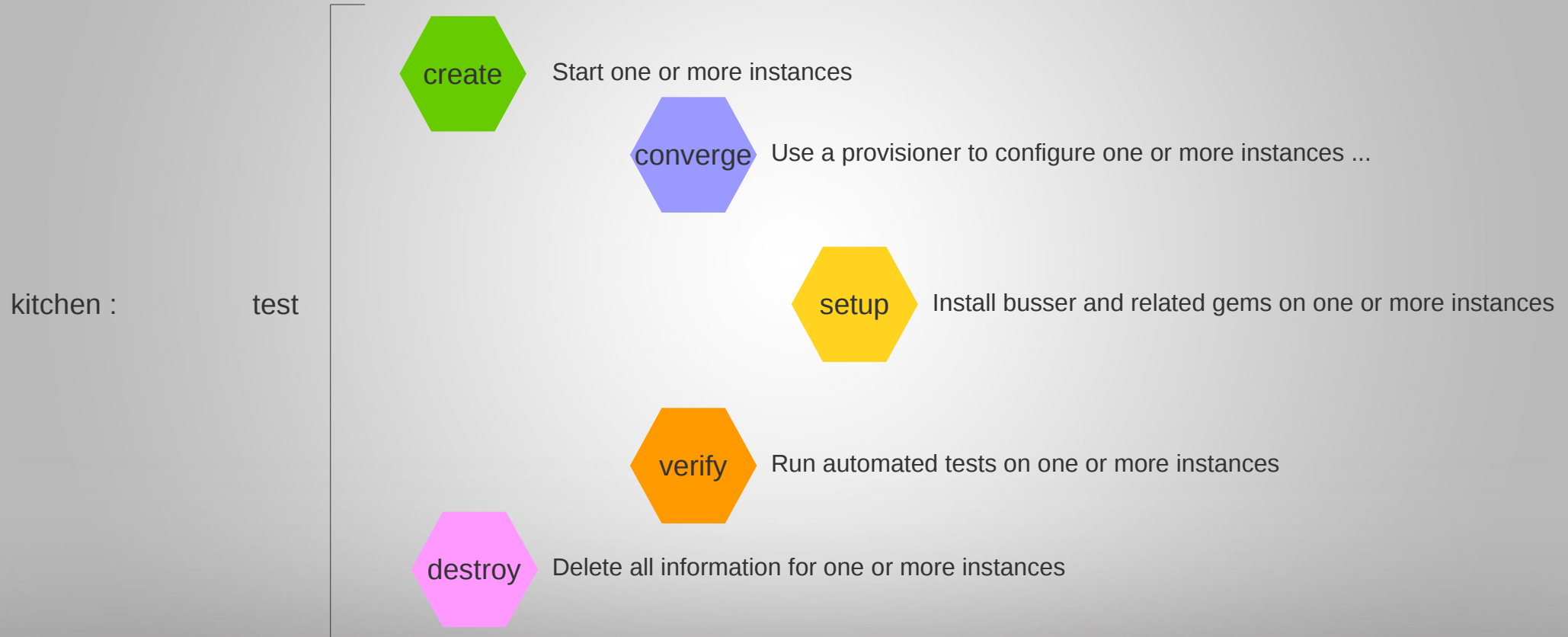
# Installing Kitchen

```
$ gem install kitchen \
  inspec \
  kitchen-vagrant \
  kitchen-docker \
  kitchen-inspec
```

## KITCHEN INSTALLATION GUIDE



# Commands overview



# Practice - Dev





## Note

The practice sessions presented here have been built for their simplicity and does not represent the all capabilities of Kitchen or the only way to use it !

# Purpose

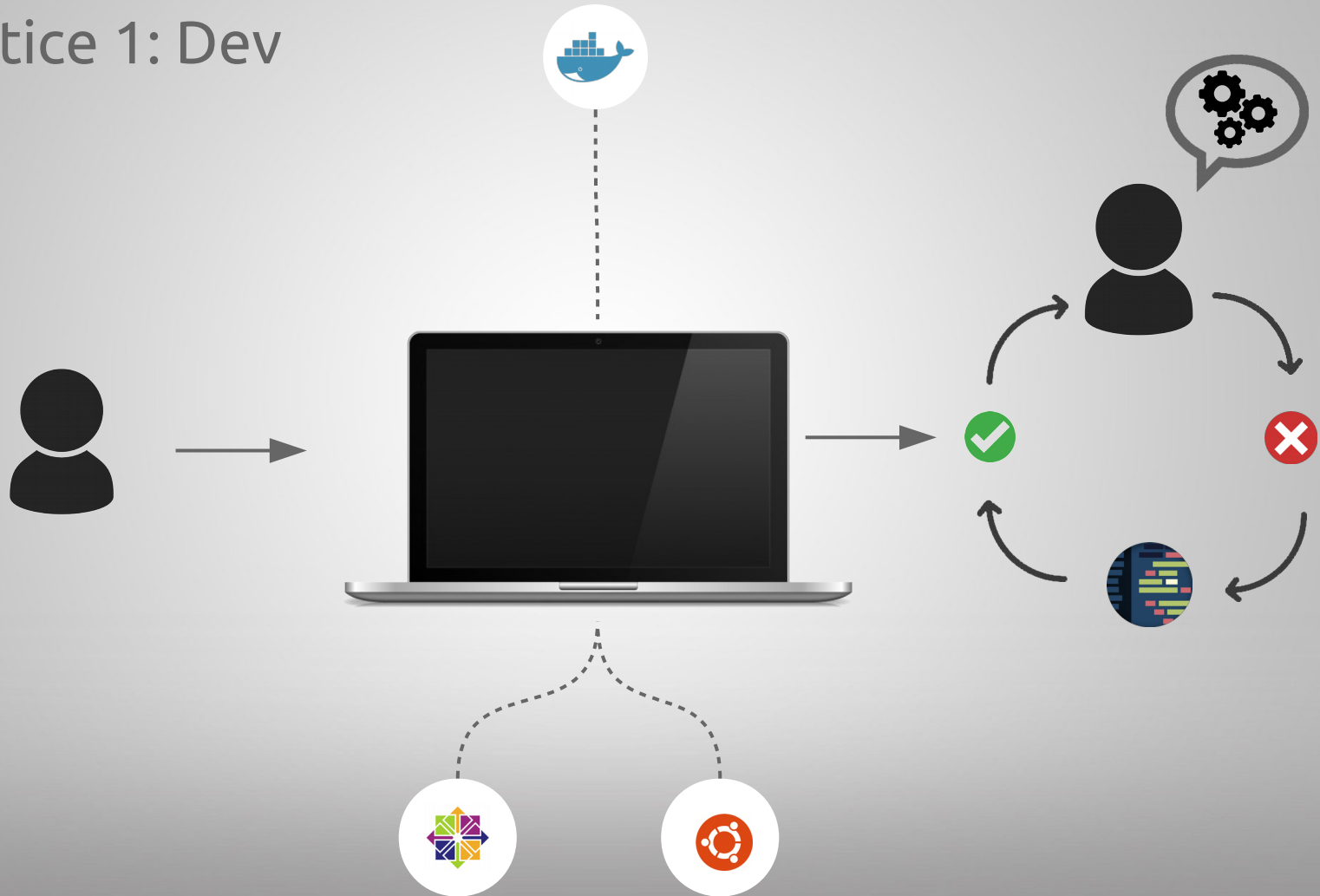
```
$ cat README.md
```

```
# Session 1
```

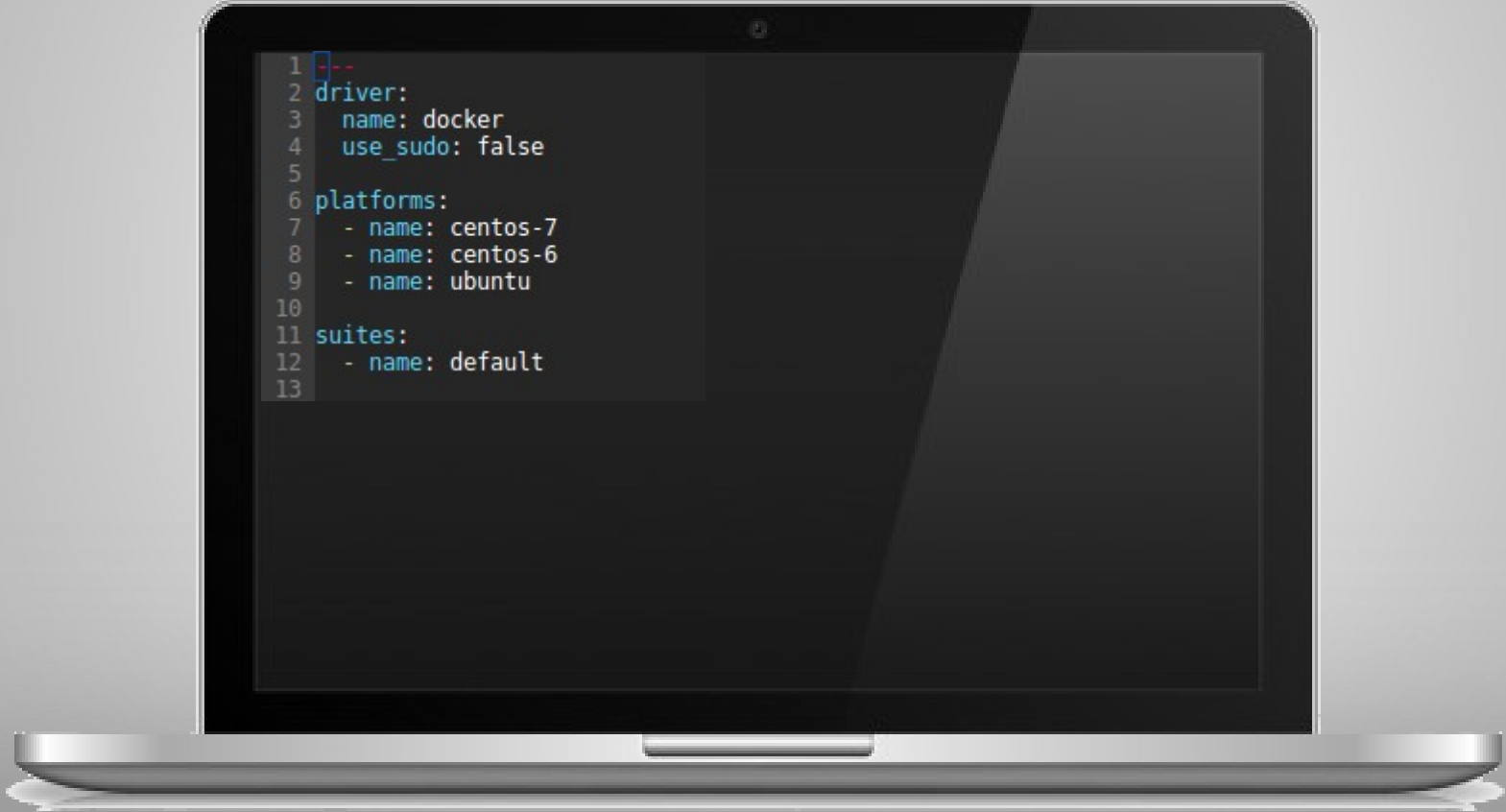
The purpose of this session is to discover how easy it is to create a development playground to test the code behavior on different distributions.



## Practice 1: Dev



## Practice 1: Dev - .kitchen.yml



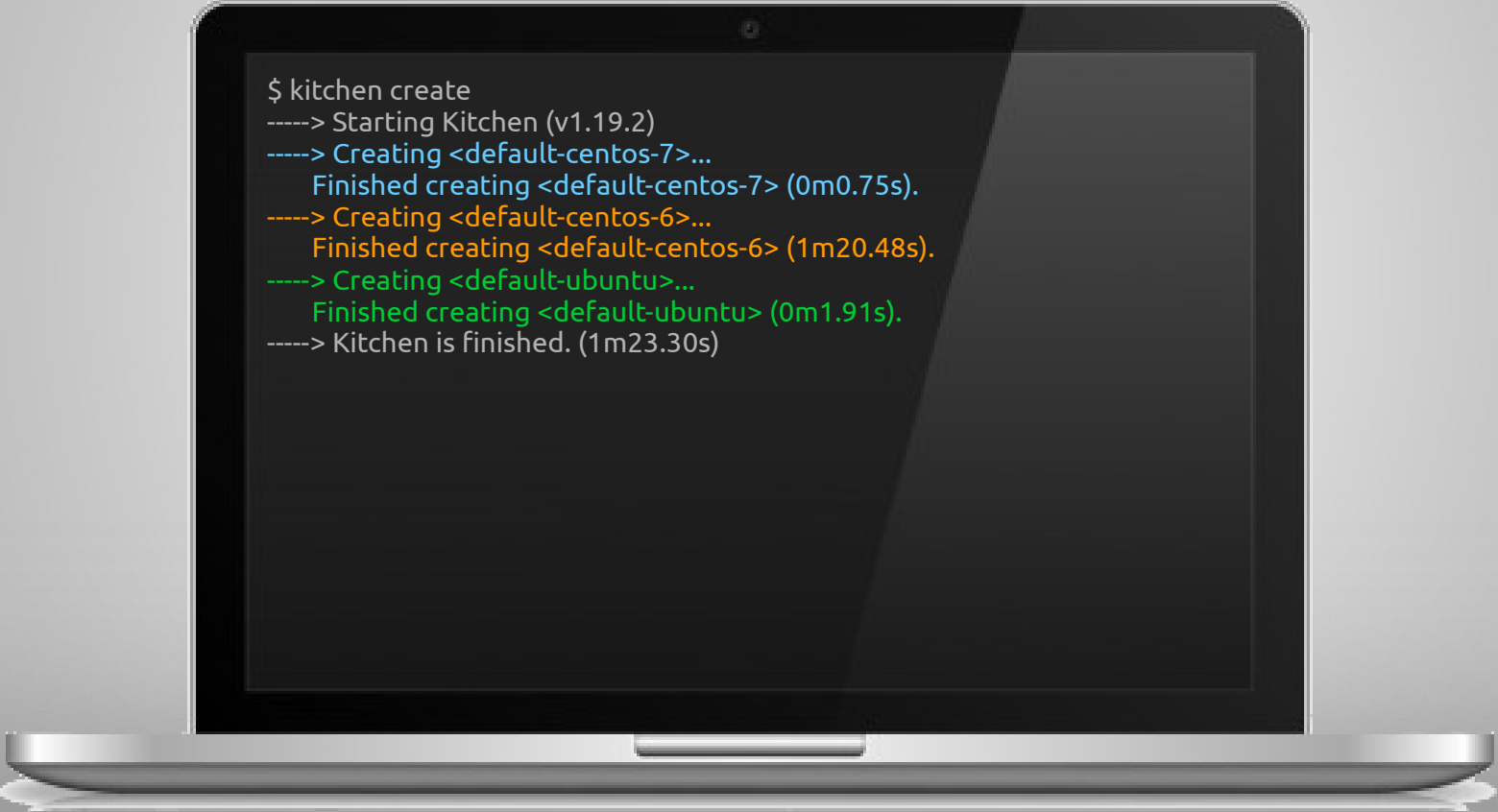
```
1 ---
2 driver:
3   name: docker
4   use_sudo: false
5
6 platforms:
7   - name: centos-7
8   - name: centos-6
9   - name: ubuntu
10
11 suites:
12   - name: default
13
```

# Practice 1: Dev – kitchen list

```
$ kitchen list
```

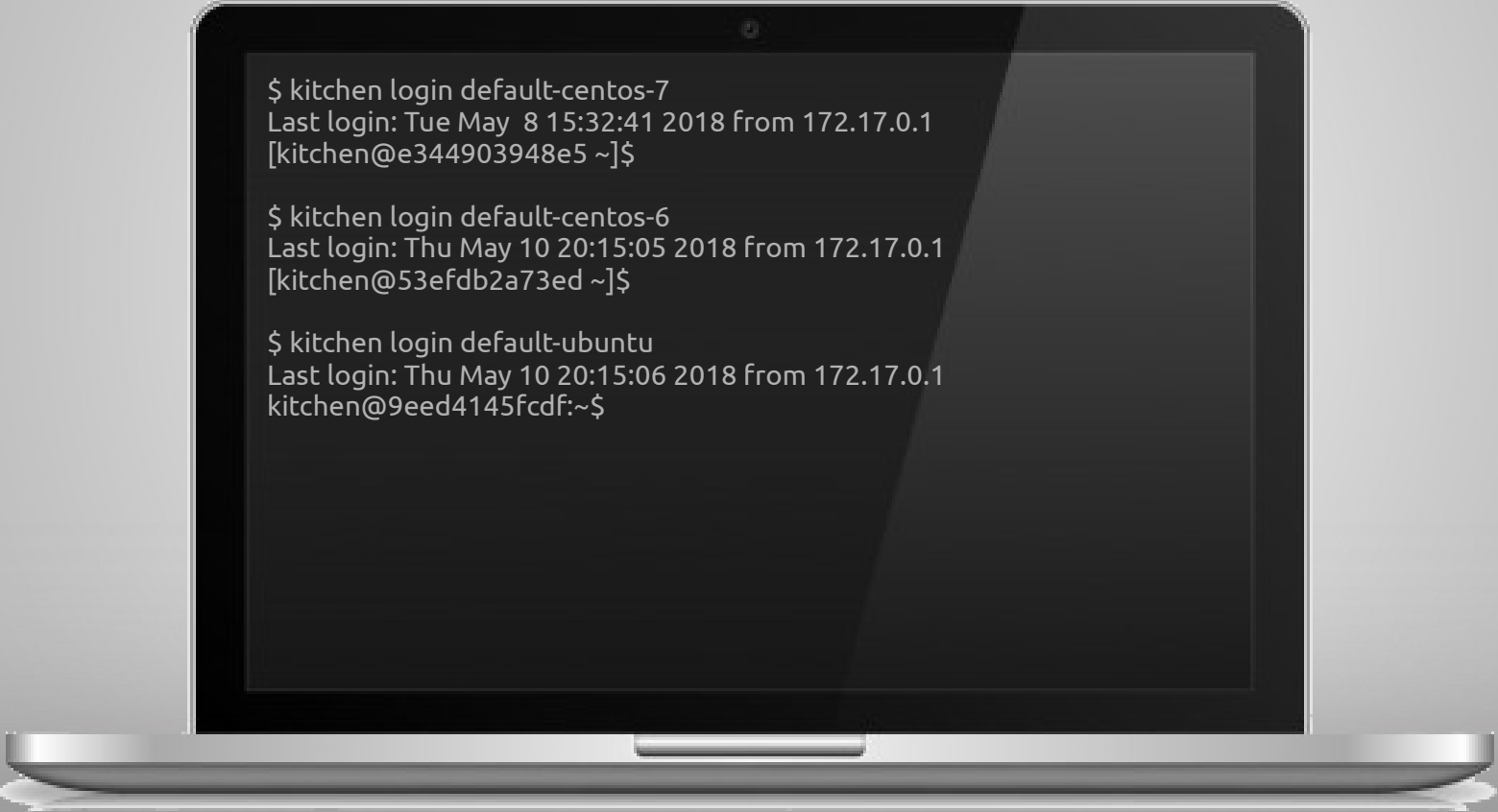
Instance	Driver	Provisioner	Verifier	Transport	Last Action	Last Error
default-centos-7	Docker	ChefSolo	Busser	Ssh	<Not Created>	<None>
default-centos-6	Docker	ChefSolo	Busser	Ssh	<Not Created>	<None>
default-ubuntu	Docker	ChefSolo	Busser	Ssh	<Not Created>	<None>

# Practice 1: Dev – kitchen create



```
$ kitchen create
----> Starting Kitchen (v1.19.2)
----> Creating <default-centos-7>...
      Finished creating <default-centos-7> (0m0.75s).
----> Creating <default-centos-6>...
      Finished creating <default-centos-6> (1m20.48s).
----> Creating <default-ubuntu>...
      Finished creating <default-ubuntu> (0m1.91s).
----> Kitchen is finished. (1m23.30s)
```

# Practice 1: Dev – kitchen login

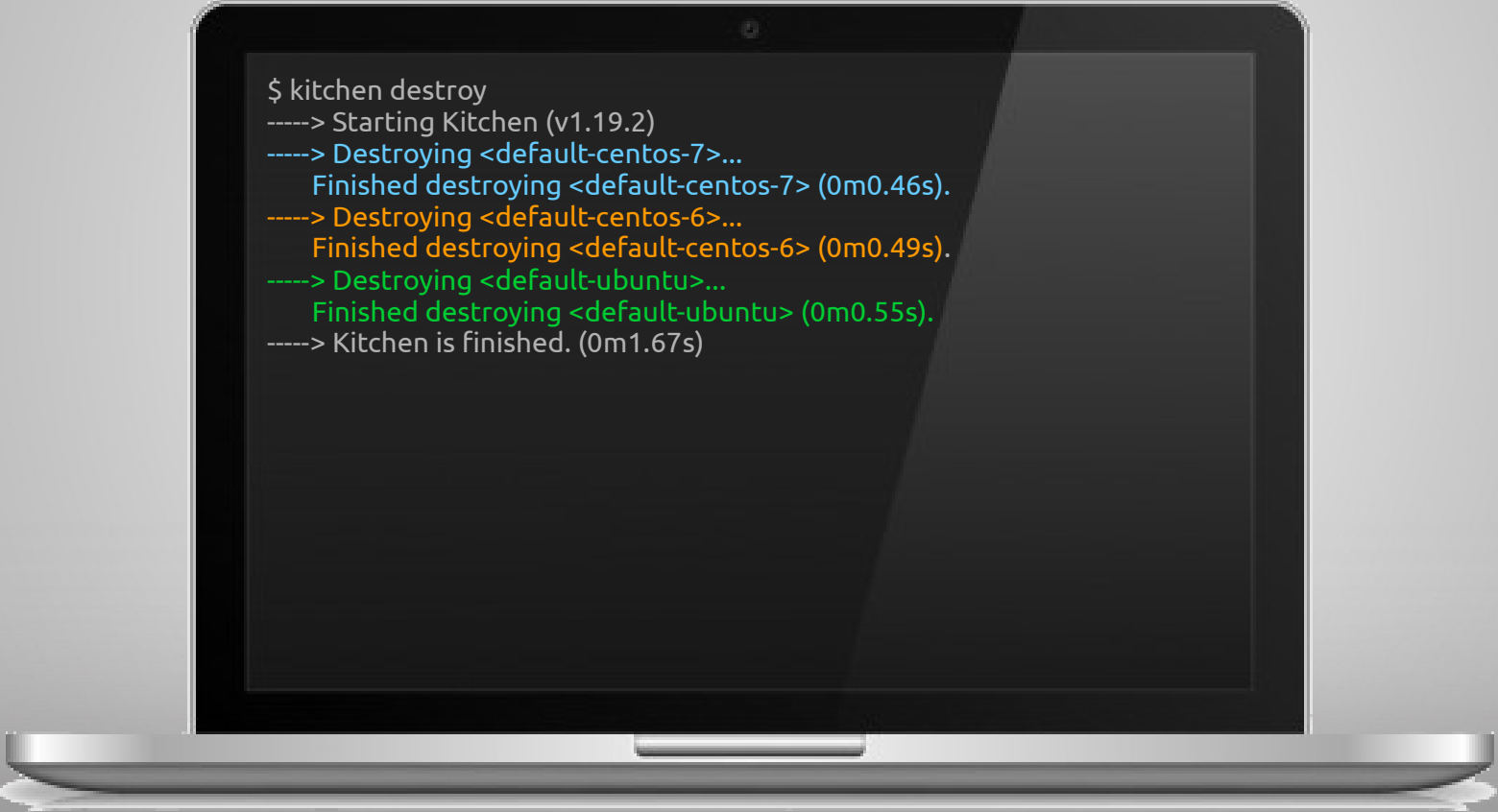


```
$ kitchen login default-centos-7
Last login: Tue May  8 15:32:41 2018 from 172.17.0.1
[kitchen@e344903948e5 ~]$

$ kitchen login default-centos-6
Last login: Thu May 10 20:15:05 2018 from 172.17.0.1
[kitchen@53efdb2a73ed ~]$

$ kitchen login default-ubuntu
Last login: Thu May 10 20:15:06 2018 from 172.17.0.1
kitchen@9eed4145fcdf:~$
```

# Practice 1: Dev – kitchen destroy



```
$ kitchen destroy
----> Starting Kitchen (v1.19.2)
----> Destroying <default-centos-7>...
      Finished destroying <default-centos-7> (0m0.46s).
----> Destroying <default-centos-6>...
      Finished destroying <default-centos-6> (0m0.49s).
----> Destroying <default-ubuntu>...
      Finished destroying <default-ubuntu> (0m0.55s).
----> Kitchen is finished. (0m1.67s)
```



# Practice - Testing

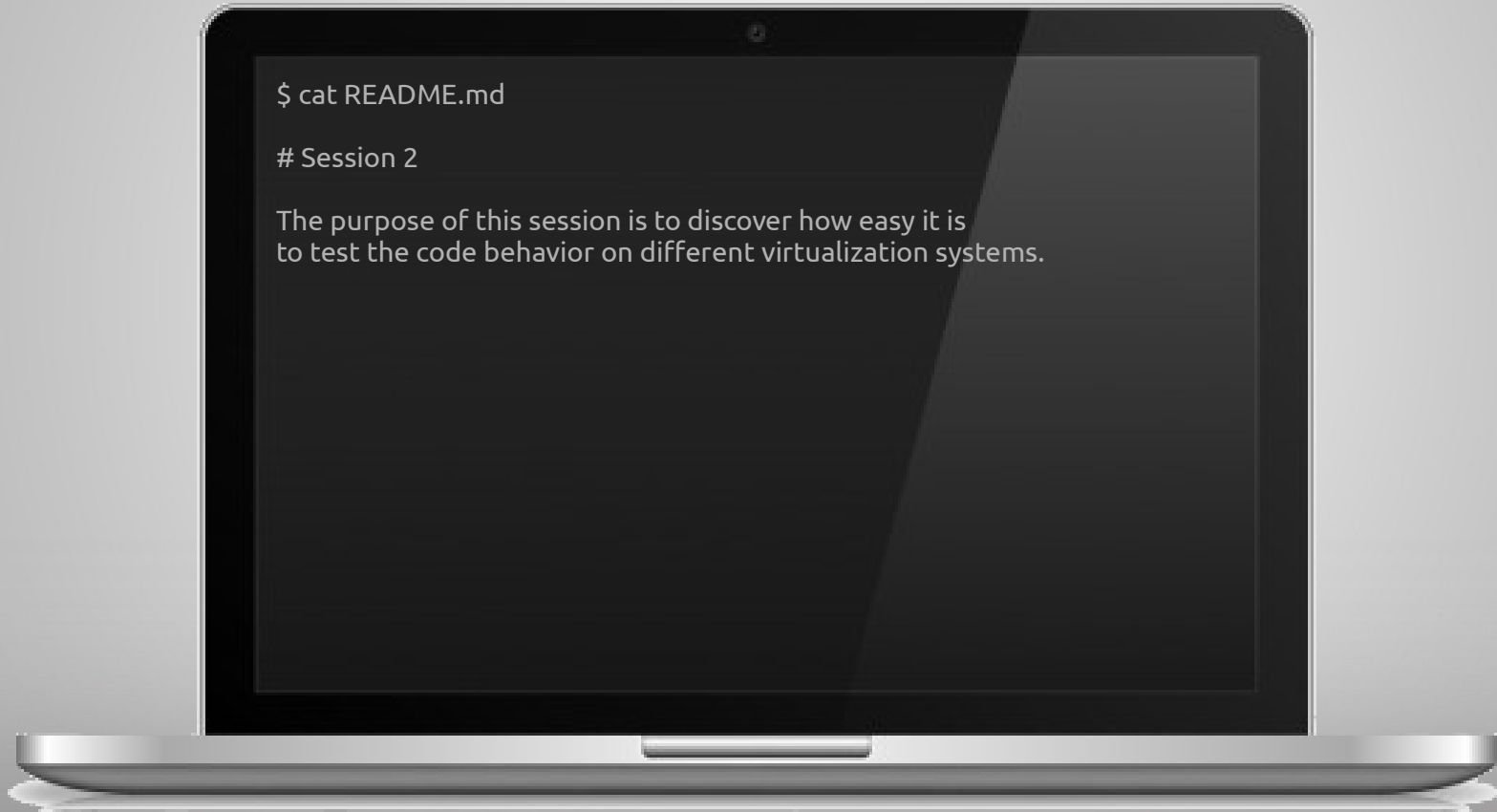


# Purpose

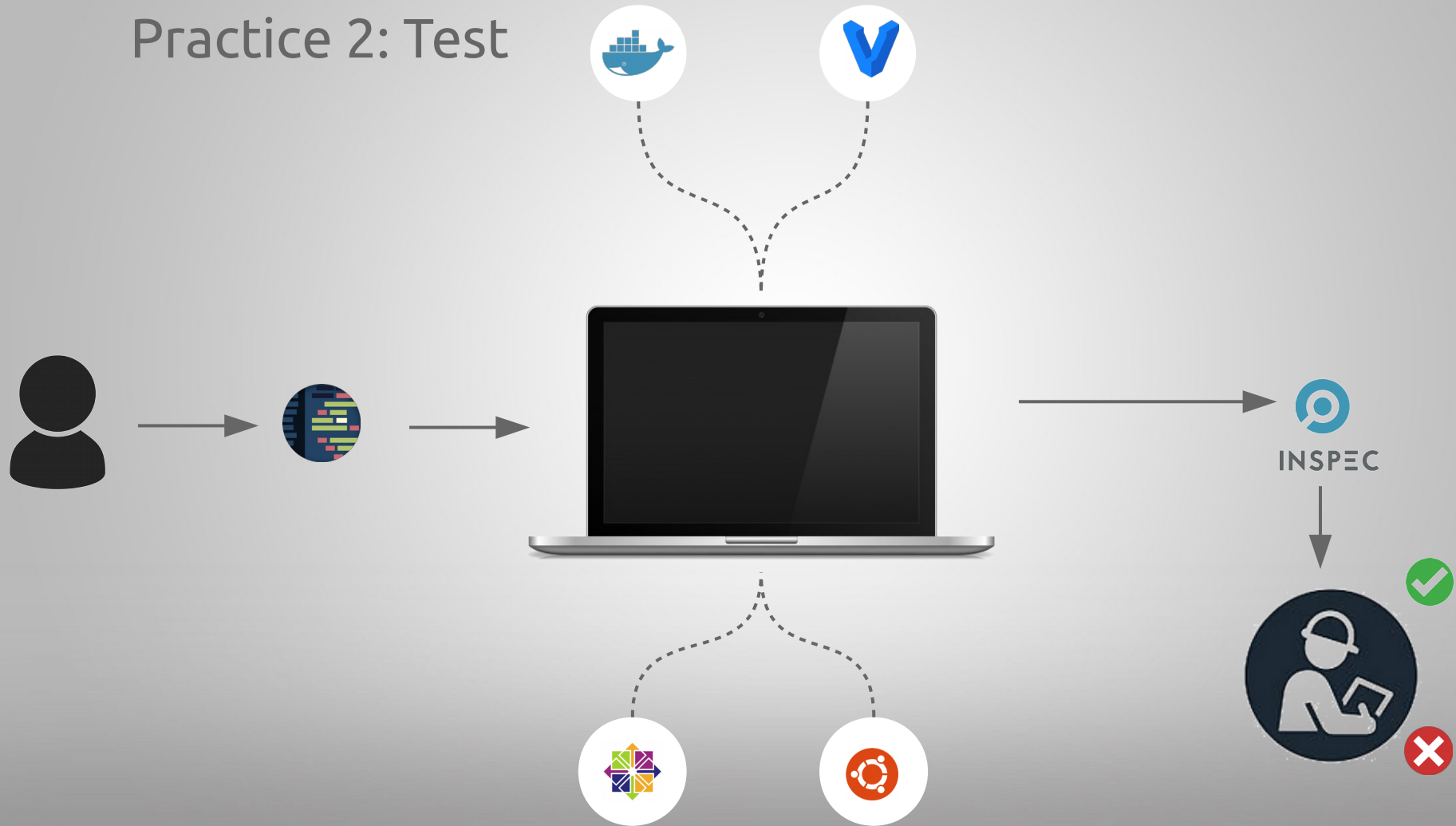
```
$ cat README.md
```

```
# Session 2
```

The purpose of this session is to discover how easy it is to test the code behavior on different virtualization systems.



## Practice 2: Test



## Practice 2: Test - .kitchen.yml

Untitled

```
1 ---
2 driver:
3   name: docker
4   use_sudo: false
5
6 platforms:
7   - name: centos
8   - name: ubuntu
9   - name: centos-7.4
10  driver:
11    name: vagrant
12
13 verifier:
14   name: inspec
15
16 suites:
17   - name: default
18     verifier:
19       inspec_tests:
20         - test/smoke/default
21
```

## Practice 2: Test – Inspec folder



## Practice 2: Test – Inspec test

```
$ vim test/smoke/default/default.rb
```

```
describe os.family do  
  it { should eq 'redhat' }  
end
```



## Practice 2: Test – kitchen list

```
$ kitchen list
```

Instance	Driver	Provisioner	Verifier	Transport	Last Action	Last Error
default-centos	Docker	ChefSolo	Inspec	Ssh	<Not Created>	<None>
default-ubuntu	Docker	ChefSolo	Inspec	Ssh	<Not Created>	<None>
default-centos-74	Vagrant	ChefSolo	Inspec	Ssh	<Not Created>	<None>

## Practice 2: Test – kitchen verify

```
$ kitchen verify default-centos
----> Starting Kitchen (v1.19.2)
----> Creating <default-centos>...
      Sending build context to Docker daemon 15.36 kB
      Step 1/16 : FROM centos:centos7
----> Verifying <default-centos>...
```

```
Target: ssh://kitchen@localhost:32769
```

```
redhat should
✓ eq "redhat"
```

```
Test Summary: 1 successful, 0 failures, 0 skipped
Finished verifying <default-centos> (0m0.25s).
----> Kitchen is finished. (0m19.76s)
```



## Practice 2: Test – Verify all instances

```
$ kitchen verify
-----> Starting Kitchen (v1.19.2)
-----> Verifying <default-centos>...
redhat should
  ✓ eq "redhat"
Test Summary: 1 successful, 0 failures, 0 skipped
  Finished verifying <default-centos> (0m0.25s).
-----> Creating <default-ubuntu>...
-----> Verifying <default-ubuntu>...
debian should
  ✗ eq "redhat"

  expected: "redhat"
  got: "debian"
Test Summary: 0 successful, 1 failure, 0 skipped
-----> Creating <default-centos-74>...
-----> Verifying <default-centos-74>...
redhat should
  ✓ eq "redhat"
Test Summary: 1 successful, 0 failures, 0 skipped
  Finished verifying <default-centos-74> (0m0.77s).
>>>>> -----Exception-----
```

## Practice 2: Test – Update the Inspec test

```
$ vim test/smoke/default/default.rb
```

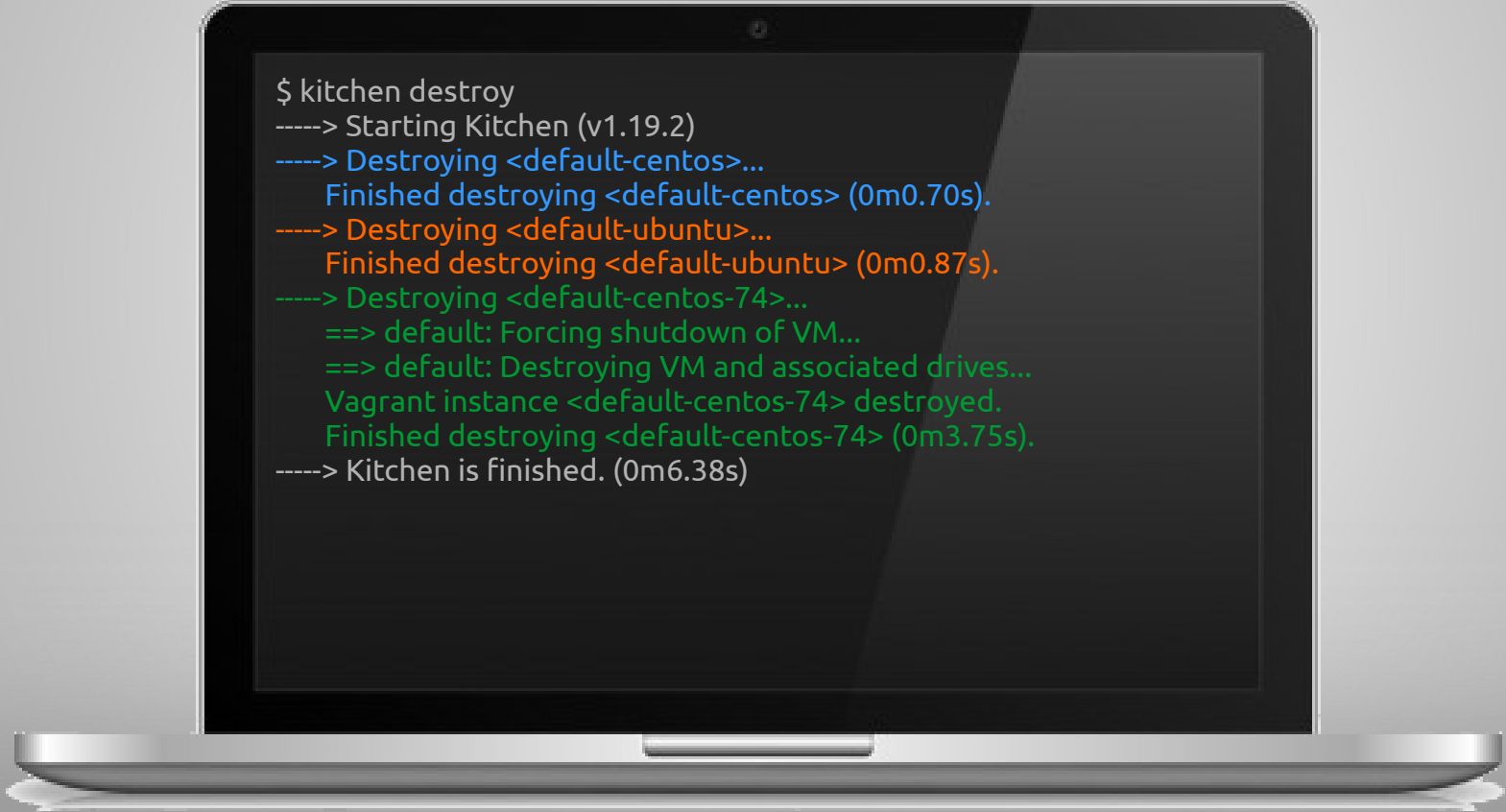
```
describe file('/etc/hosts') do  
  its('type') { should eq :file }  
end
```

## Practice 2: Test – Verify all instances again

```
$ kitchen verify
----> Starting Kitchen (v1.19.2)
----> Verifying <default-centos>...
File /etc/hosts
✓ type should eq :file
Test Summary: 1 successful, 0 failures, 0 skipped
Finished verifying <default-centos> (0m0.32s).
----> Verifying <default-ubuntu>...
File /etc/hosts
✓ type should eq :file
Test Summary: 1 successful, 0 failures, 0 skipped
Finished verifying <default-ubuntu> (0m0.19s).
----> Verifying <default-centos-74>...
File /etc/hosts
✓ type should eq :file

Test Summary: 1 successful, 0 failures, 0 skipped
Finished verifying <default-centos-74> (0m0.83s).
----> Kitchen is finished. (0m2.40s)
```

## Practice 2: Test – Clean UP !



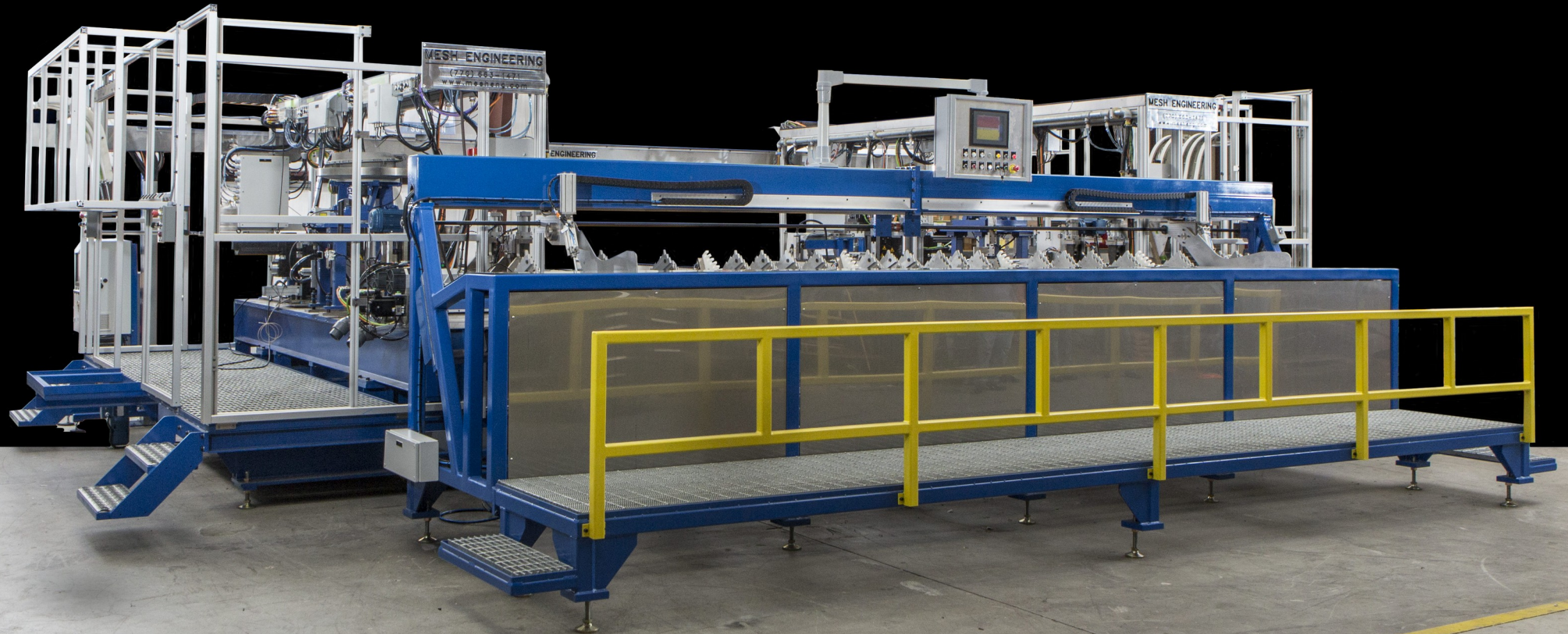
```
$ kitchen destroy
----> Starting Kitchen (v1.19.2)
----> Destroying <default-centos>...
      Finished destroying <default-centos> (0m0.70s).
----> Destroying <default-ubuntu>...
      Finished destroying <default-ubuntu> (0m0.87s).
----> Destroying <default-centos-74>...
      ==> default: Forcing shutdown of VM...
      ==> default: Destroying VM and associated drives...
      Vagrant instance <default-centos-74> destroyed.
      Finished destroying <default-centos-74> (0m3.75s).
----> Kitchen is finished. (0m6.38s)
```

## Practice 2: Test – Using test argument

```
$ kitchen test
----> Starting Kitchen (v1.19.2)
----> Cleaning up any prior instances of <default-centos>
----> Destroying <default-centos>...
    Finished destroying <default-centos> (0m0.00s).
----> Testing <default-centos>
----> Creating <default-centos>...
----> Verifying <default-centos>...
File /etc/hosts
✓ type should eq :file
Test Summary: 1 successful, 0 failures, 0 skipped
    Finished verifying <default-centos> (0m0.31s).
----> Destroying <default-centos>...
----> Cleaning up any prior instances of <default-ubuntu>
----> Destroying <default-ubuntu>...
    Finished destroying <default-ubuntu> (0m0.00s).
----> Testing <default-ubuntu>
----> Creating <default-ubuntu>...
```

etc

# Practice : Provision & Test



# Purpose

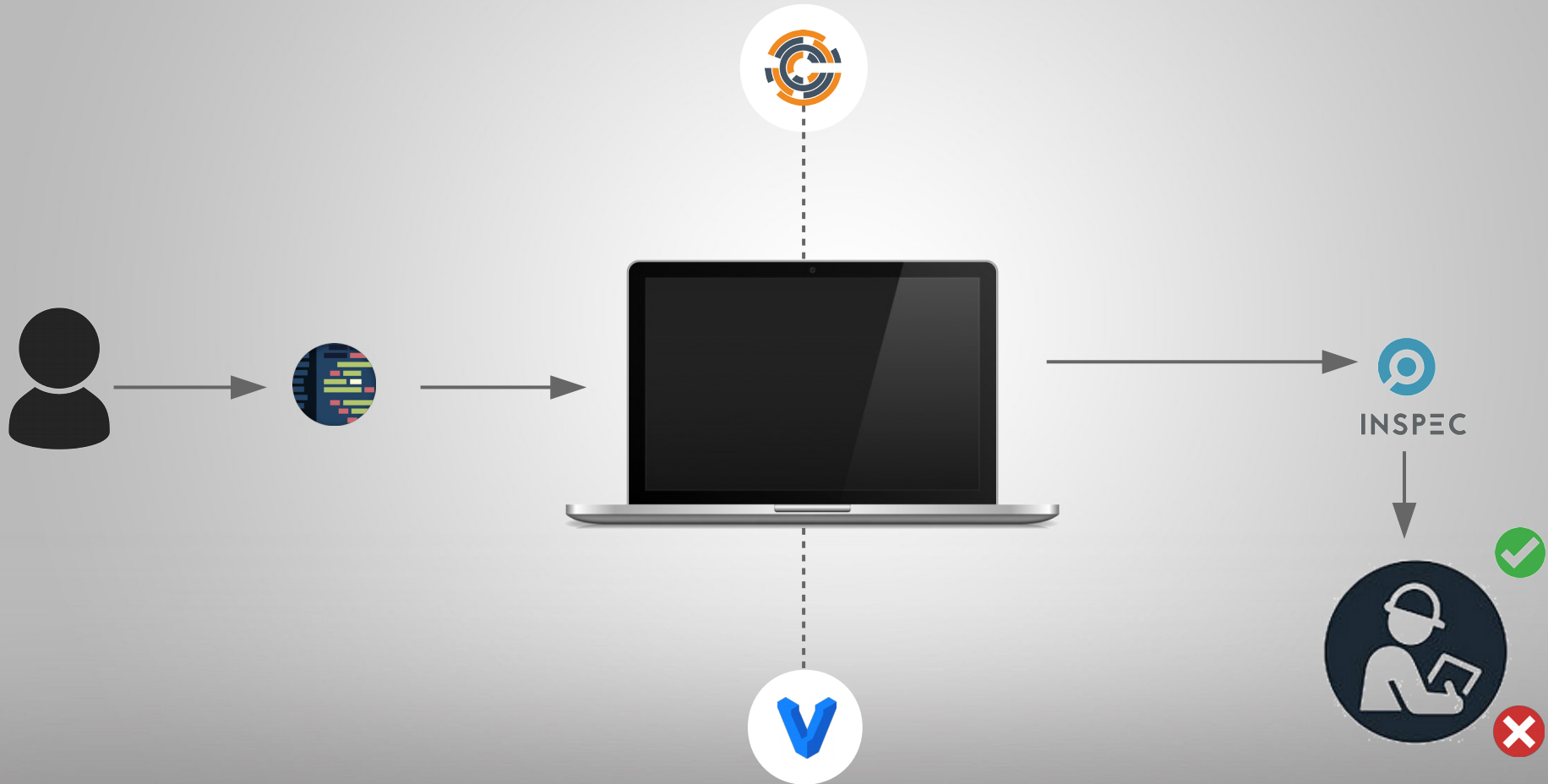
```
$ cat README.md
```

```
# Session 3
```

The purpose of this session is to discover how easy it is to provision an instance and run test on it.



## Practice 3: Provision & Test

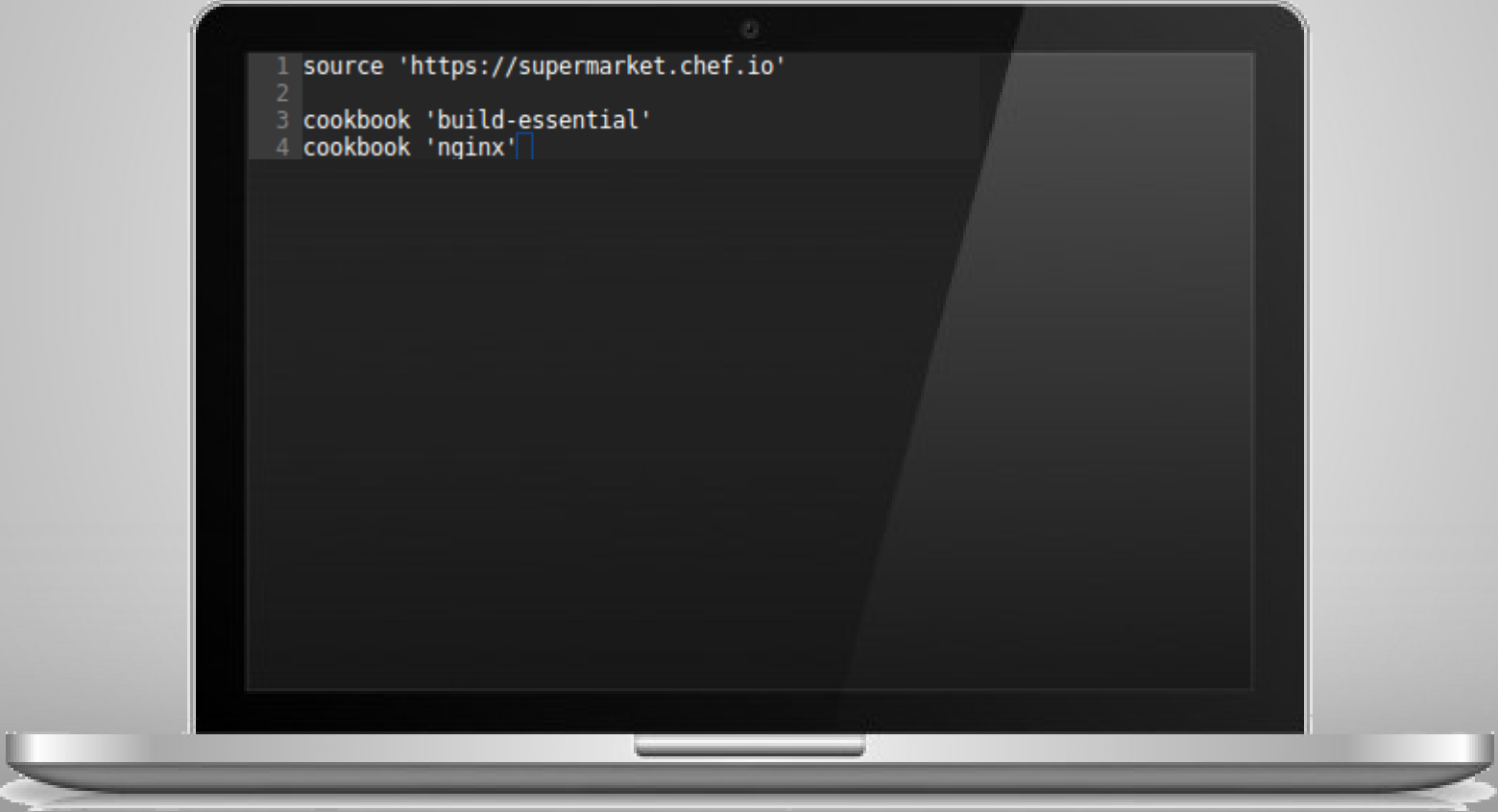




## Practice 3: Get the practice code



## Practice 3: Get the practice code



```
1 source 'https://supermarket.chef.io'
2
3 cookbook 'build-essential'
4 cookbook 'nginx'|
```

## Practice 3: .kitchen.yml

```
1 ---
2 driver:
3   name: vagrant
4
5 provisioner:
6   name: chef_zero
7   always_update_cookbooks: true
8
9 platforms:
10  - name: ubuntu-16.04
11  - name: centos-7
12    run_list:
13      - recipe[build-essential]
14
15 verifier:
16   name: inspec
17
18 suites:
19  - name: default
20    run_list:
21      - recipe[nginx::default]
22      - recipe[nginx::http_geoip_module]
23    verifier:
24      inspec_tests:
25        - test/integration/packages
26        - test/integration/modules
27
```

## Practice 3: .kitchen.yml

```
$ cat test/integration/packages/check_service.rb
1 repo_path = if os.debian?
2               '/etc/apt/sources.list.d/nginx.list'
3             elsif os.redhat?
4               '/etc/yum.repos.d/nginx.repo'
5             elsif os.suse?
6               '/etc/zypp/repos.d/Nginx.org Repository.repo'
7             end
8
9 describe service('nginx') do
10   it { should be_installed }
11   it { should be_enabled }
12   it { should be_running }
13 end
14
15 describe file(repo_path) do
16   it { should exist }
17 end
18
19 describe package('nginx') do
20   it { should be_installed }
21 end
22
23 describe command('curl http://localhost/') do
24   its('exit_status') { should eq 0 }
25 end
```

## Practice 3: .kitchen.yml

```
$ cat test/integration/modules/http_geoip_module_spec.rb
1 describe file('/etc/nginx/conf.d/http_geoip.conf') do
2   it { should be_a_file }
3   its(:content) { should match(%r{/srv/geoip/GeoIP.dat}) }
4 end
5
6 describe file('/usr/local/lib/libGeoIP.so') do
7   it { should be_a_file }
8 end
```

## Practice 3: kitchen test

```
$ kitchen test
-----> Starting Kitchen (v1.19.2)
-----> Cleaning up any prior instances of <default-ubuntu-1604>
-----> Destroying <default-ubuntu-1604>...
    ==> default: Forcing shutdown of VM...
    ==> default: Destroying VM and associated drives...
    Vagrant instance <default-ubuntu-1604> destroyed.
    Finished destroying <default-ubuntu-1604> (0m3.68s).
-----> Testing <default-ubuntu-1604>
-----> Creating <default-ubuntu-1604>...
    Bringing machine 'default' up with 'virtualbox' provider...
    ==> default: Importing base box 'bento/ubuntu-16.04'...
    ==> default: Matching MAC address for NAT networking...
    ==> default: Setting the name of the VM: default-ubuntu-1604
    ==> default: Clearing any previously set network interfaces...
    ==> default: Preparing network interfaces based on configuration...
        default: Adapter 1: nat
    ==> default: Forwarding ports...
```

etc

## External Practice: Kitchen Terraform



# External Practice: Kitchen Terraform



<https://newcontext-oss.github.io/kitchen-terraform/>