Introduction to Chef Automation

CHEF

Introduce Yourselves

Name

Current job role

Previous job roles/background

Experience with Chef and/or config management

Favorite Text Editor

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Expectations

You will leave this class with a basic understanding of Chef's core components, architecture, commonly used tools, and basic troubleshooting methods

You bring with you your own domain expertise and problems. Chef is a framework for solving those problems. Our job is to teach you how to express solutions to your problems with Chef.

Course Objectives

After completing this course, you should be able to:

- Use Chef Resources to define the state of your system
- Use the Chef Development Kit to build and test cookbooks
- Understand the concepts of building reusable cookbooks across your organization

Agenda

Getting a Workstation
Resources and recipes
Writing a web server cookbook
Testing with Test Kitchen
Details About a System
Desired State and Data

Chef

Chef can automate how you build, deploy, and manage your infrastructure.

Chef can integrate with cloud-based platforms such as Azure and Amazon Elastic Compute Cloud to automatically provision and configure new machines.

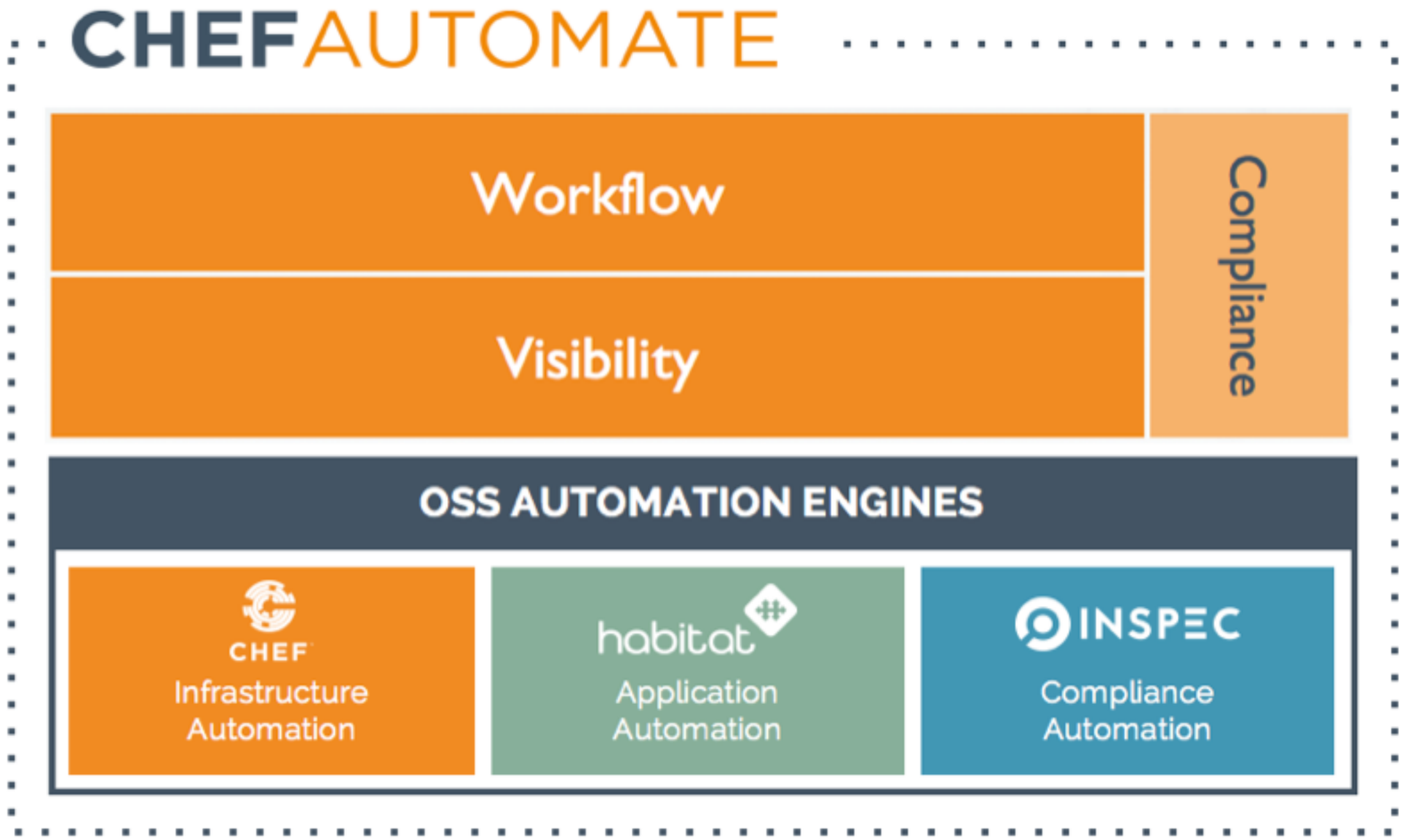
Chef

Chef is a large set of tools that are able to be used on multiple platforms and in numerous configurations.

Learning Chef is like learning a language. You will learn the basic concepts very fast but it will take practice until you become comfortable.

A great way to learn Chef is to use Chef

High Level Chef Architecture



Chef is...

- An automation framework that enables Infrastructure as Code
- A robust set of tooling for testing Chef code
- A large library of reusable patterns (supermarket.chef.io)
- Available for Linux variants, Unix variants, and Windows, all as first class citizens.

CHEF IS INFRASTRUCTURE AS CODE

Programmatically provision and configure components

Treat like any other code base

Reconstruct business from code repository, data backup, and compute resources

The Chef DSL (domain specific language)

- Programmatically provision and configure components
- Declarative DSL with the flexibility
- Built on Ruby
- Extensible through Ruby

Treated Like Any Other Codebase…

- Stored in source control
- Testing Coverage
- Part of your CI or CD pipelines

Core Chef Concepts

Building Blocks: What is a Resource?

- A Resource is a system state you define
  - Example: Package installed, state of a service, configuration file existing
- You declare what the state of the resource is
  - Chef automatically determine HOW that state is achieved

```
windows_feature 'IIS-WebServerRole' do
        action :install
end
```

```
package 'httpd' do
        action :install
end
```

Building Blocks: What is a Recipe?

- A recipe is a collection of Resources
- Resources are executed in the order they are listed

```
windows_feature 'IIS-WebServerRole' do
  action :install
end

template 'c:\inetpub\wwwroot\Default.htm' do
  source 'Default.htm.erb'
  rights :read, 'Everyone'
end

service 'w3svc' do
  action [ :enable, :start ]
end
```

```
package 'httpd' do
  action :install
end

template '/var/www/index.html' do
  source 'index.html.erb'
  mode '0644'
end

service 'httpd' do
  action [ :enable, :start ]
end
```

Building Blocks: What is a Cookbook?

- A cookbook is a set of recipes
- A cookbook is a defined set of items and different outcomes that you expect to address
    - A cookbook could have a recipe to install apache2/httpd but also another set of recipes to activate modules required.

```
./attributes
./attributes/default.rb
./CHANGELOG.md
./metadata.rb
./README.md
./recipes
./recipes/application.rb
./recipes/balancer.rb
./recipes/database.rb
./recipes/default.rb
./recipes/webserver.rb
./templates
./templates/default
./templates/default/mysite.conf.erb
```

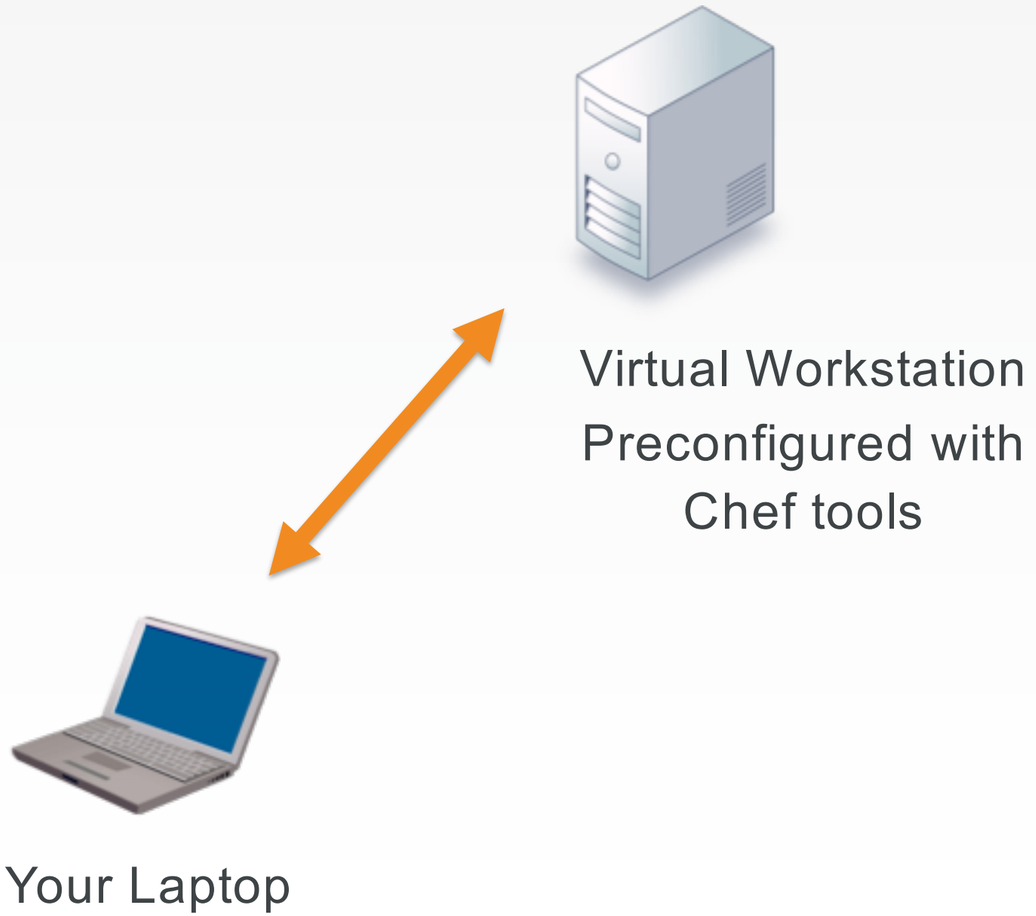
Chef Fundamentals

Ask Me Anything: It is important that we answer your questions and set you on the path to find more.

Break It: If everything works the first time go back and make some changes. Break it!

Chef Lab System Architecture

Lab Architecture



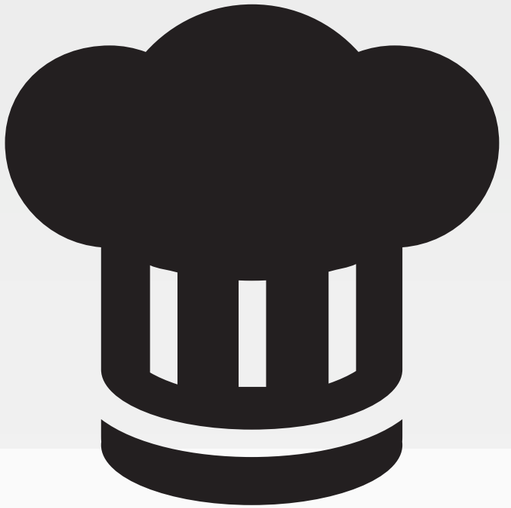
Hands-on Legend

- GL or Group Lab: All participants and the instructor do this task together with the instructor often leading the way and explaining things as we proceed.

- Lab: You perform this task on your own.

LAB

Group Lab:
Pre-built Workstation



We will provide for you a workstation with all the tools installed.

OBJECTIVE:

- ❑ Login to the Remote Workstation

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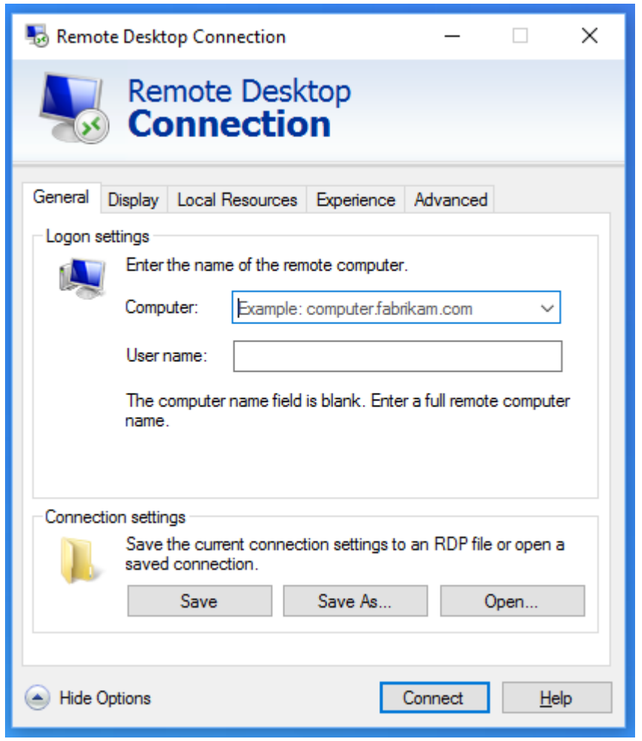
GL: Login to the Remote Workstation

Use the **address**, **user name**, and **password** to connect to the remote workstation.



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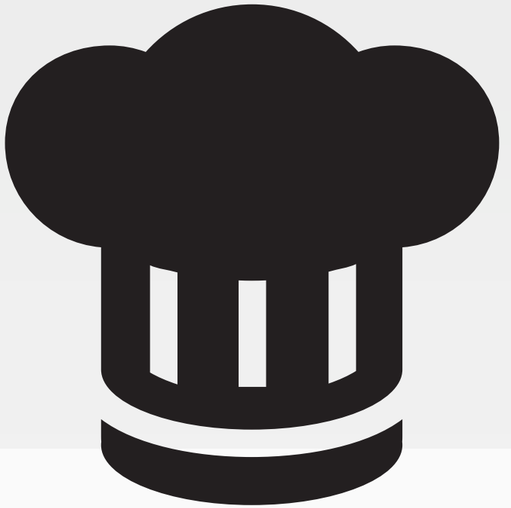
LAB

Group Lab:
Pre-built Workstation



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Getting a Workstation

The chef user has been granted password-less sudoers access

The following software is installed on the remote workstation:

- Chef DK
- Atom, Visual Studio Code
- kitchen-ec2 gem
- Inspec gem

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