

# The Chef Server

A Hub for Configuration Data

# Objectives

After completing this module, you should be able to

- Connect your local workstation (laptop) to a Chef Server
- Upload cookbooks to a Chef Server
- Bootstrap a node
- Manage a node via a Chef Server



## More Web Servers?

*More easily manage multiple nodes*

### Objective:

- ☐ Create a Hosted Chef Account
- ☐ Upload your cookbooks to the Hosted Chef Server
- ☐ Add your old workstation as a managed node

# Managing an Additional System

To manage another system, you would need to:

1. Provision a new node within your company or appropriate cloud provider with the appropriate access to login to administrate the system.
2. Install the Chef tools.
3. Transfer the apache cookbook.
4. Run chef-client on the new node to apply the apache cookbook's default recipe.

# Managing Additional Systems

Installing the Chef tools, transferring the apache cookbook, and applying the run list is not terribly expensive.

- Chef provides a one-line curl install.
- You could use **git** to clone the repository from a common **git** repository.
- Applying the run list.

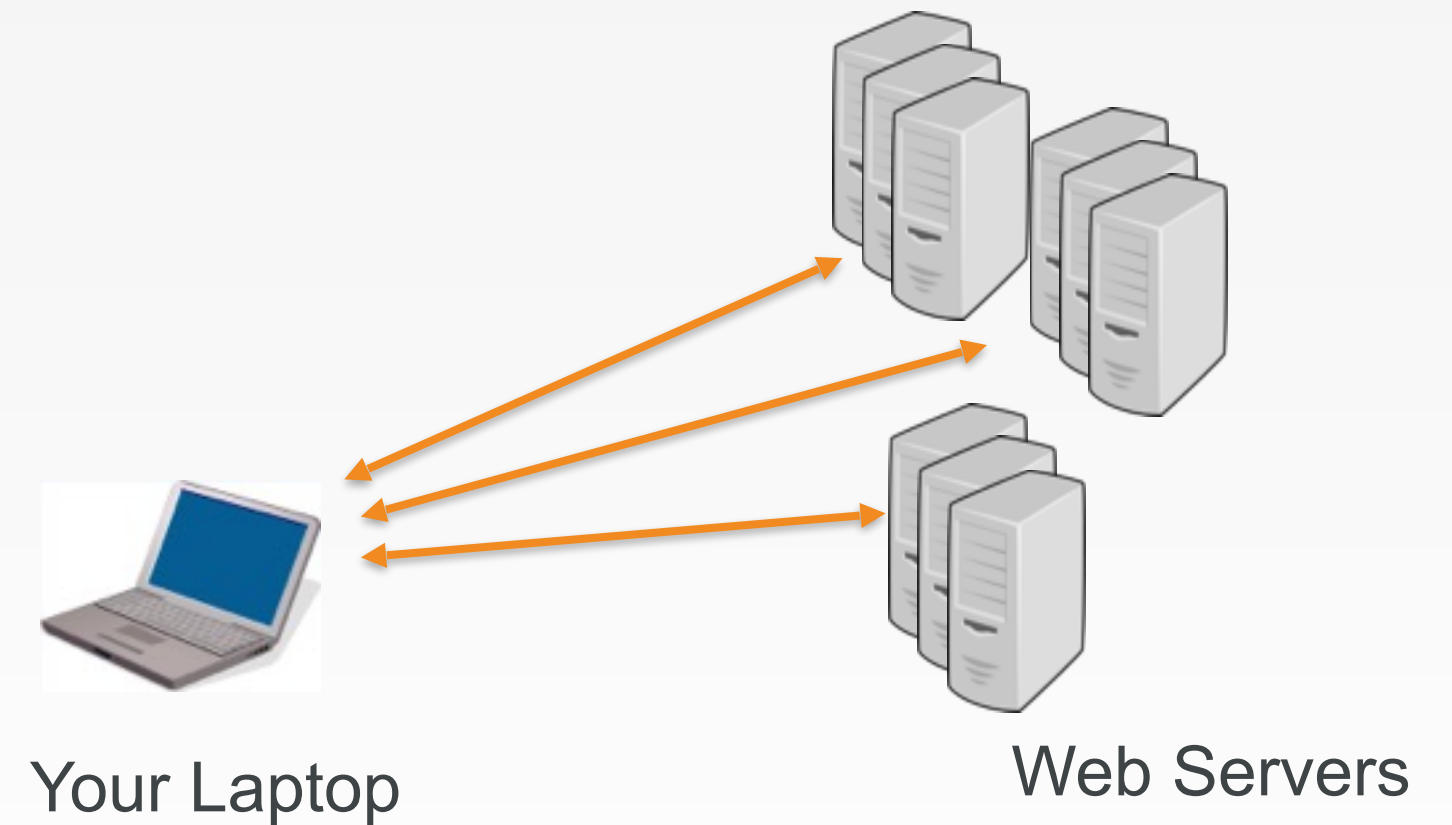
# Managing Additional Systems

Now



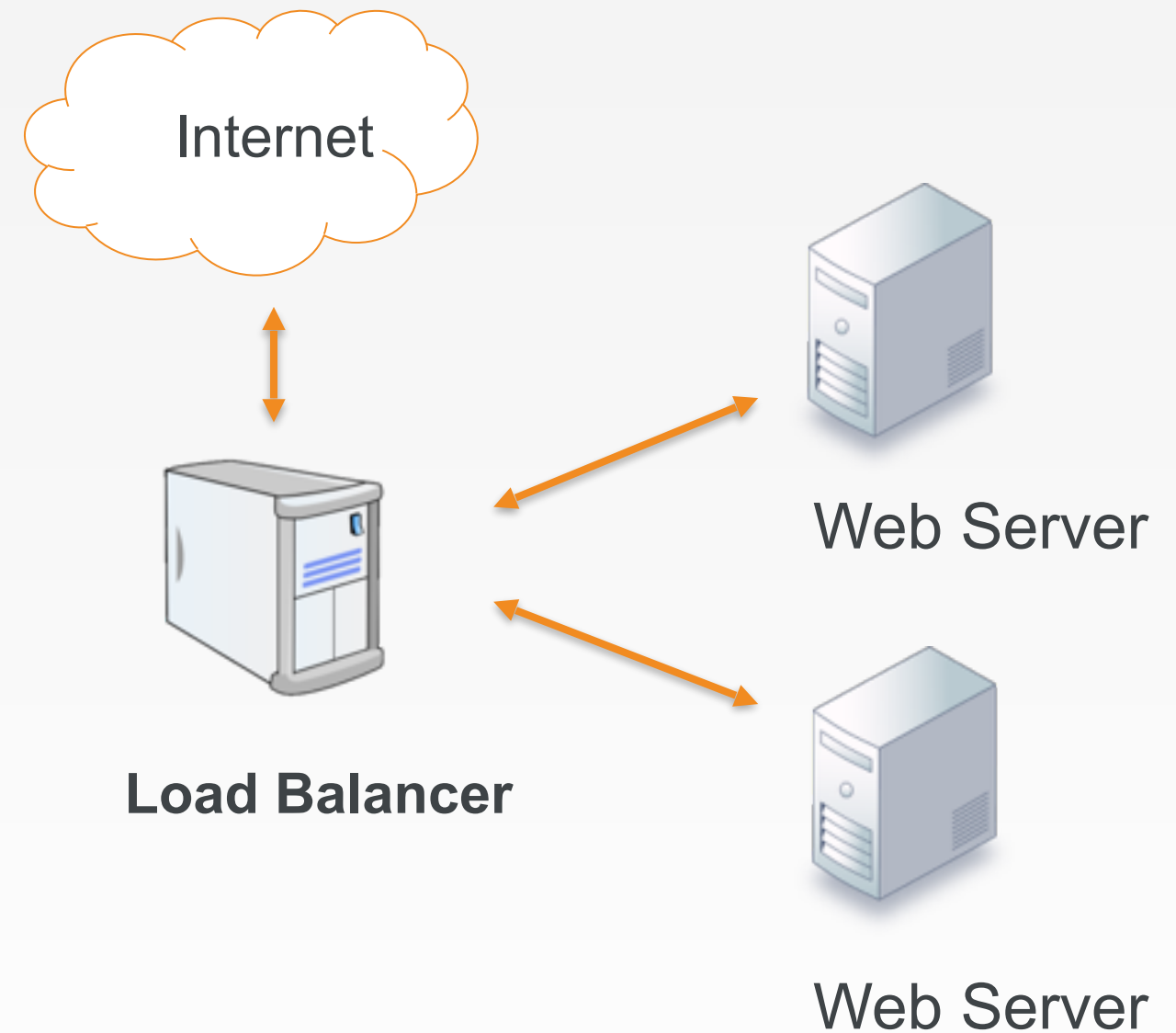
Future

More complex  
to manage



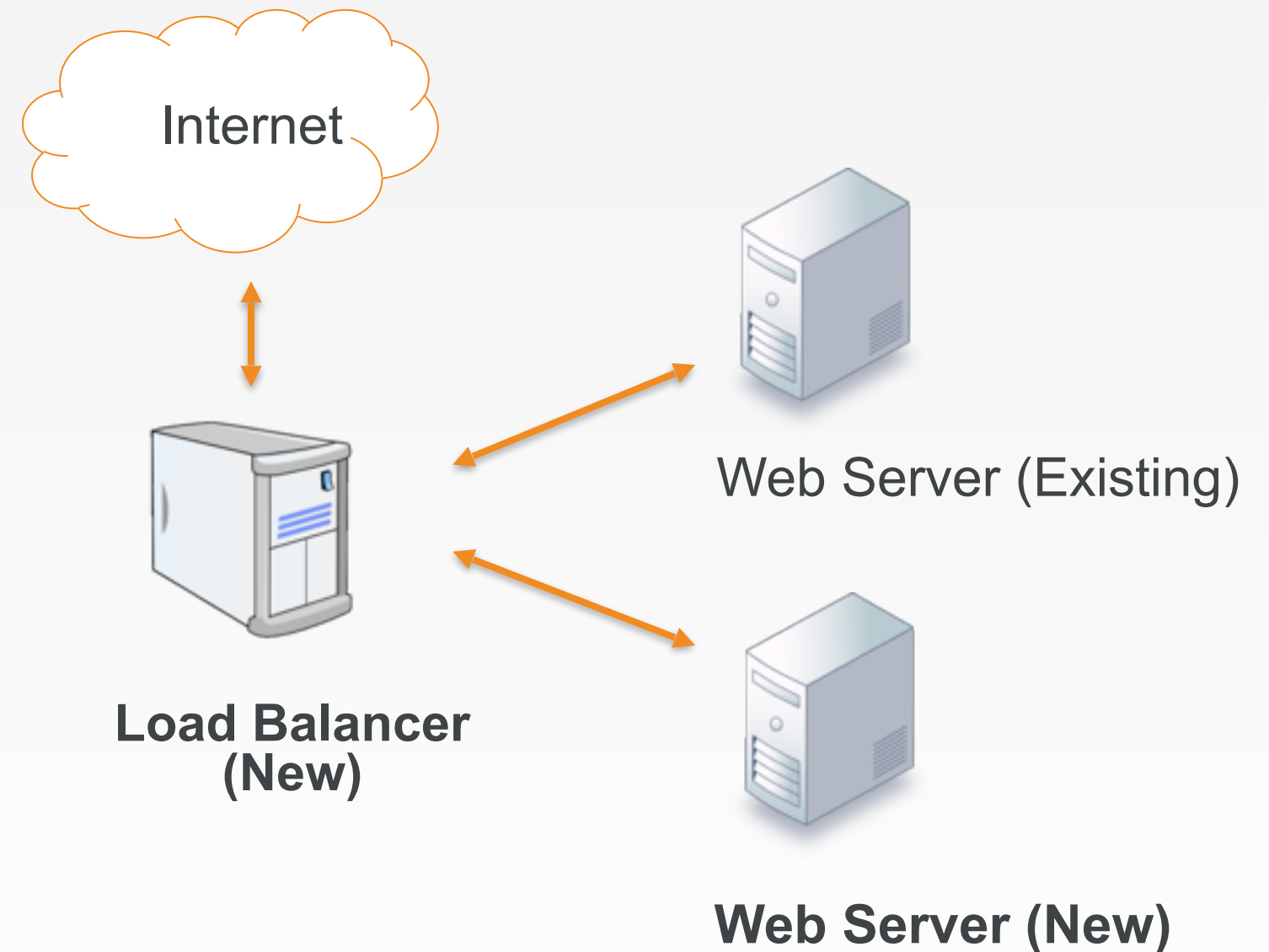
# Managing User Traffic

A load balancer can forward incoming user web requests to other nodes.



# Managing User Traffic

Today you will set up a new load balancer that will direct web requests to similarly-configured nodes.





# Steps to Set up Load Balancer and Web Servers

## Web Server

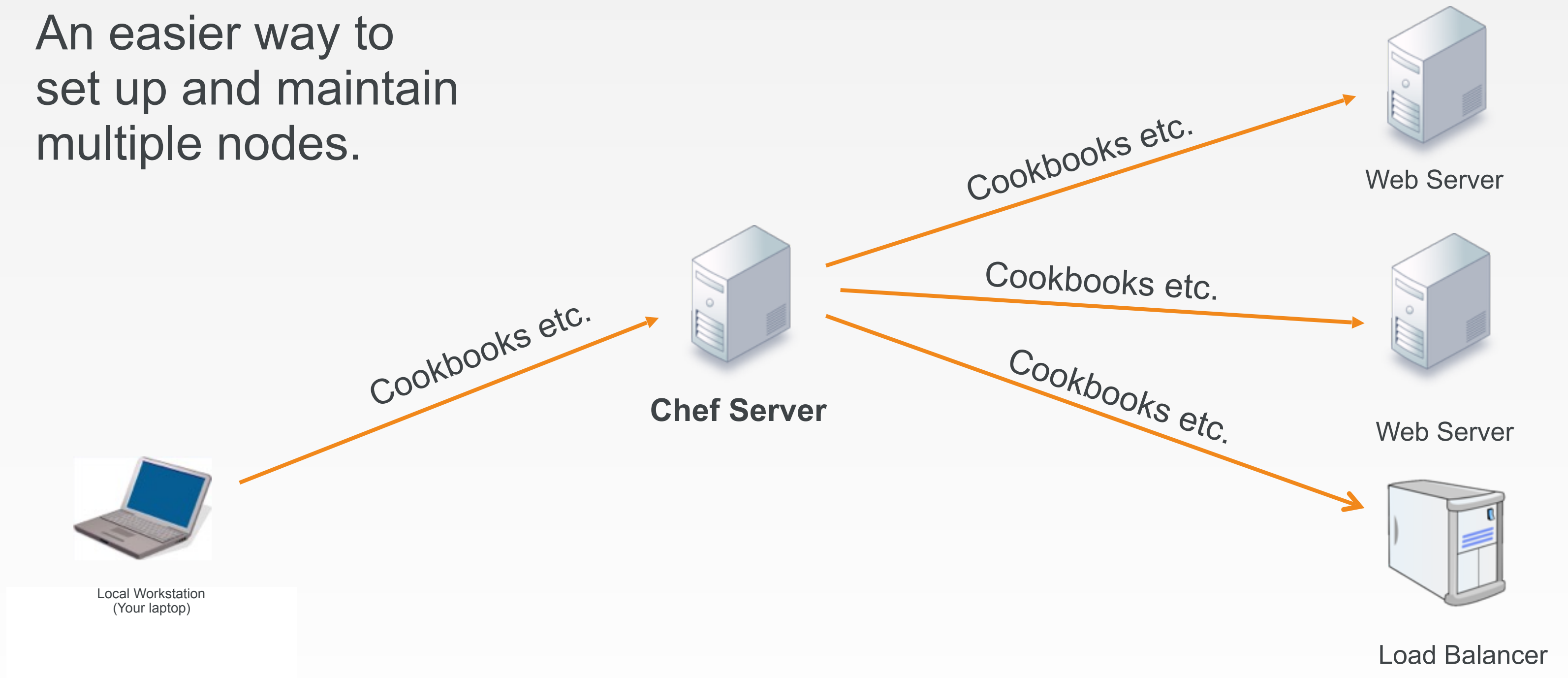
1. Provision the instance
2. Install Chef
3. Copy the Web Server cookbook
4. Apply the cookbook

## Load Balancer

1. Create the haproxy (load balancer) cookbook
2. Provision the instance
3. Install Chef
4. Copy the haproxy cookbook
5. Apply the cookbook

# The Chef Server

An easier way to set up and maintain multiple nodes.



# Flavors of Chef Server

Open Source  
**Chef Server**

**Chef Server**  
(Support +  
Premium  
Features)

Multi-tenant  
**Hosted Chef Server**



## GL: Hosted Chef

*More easily manage multiple nodes*

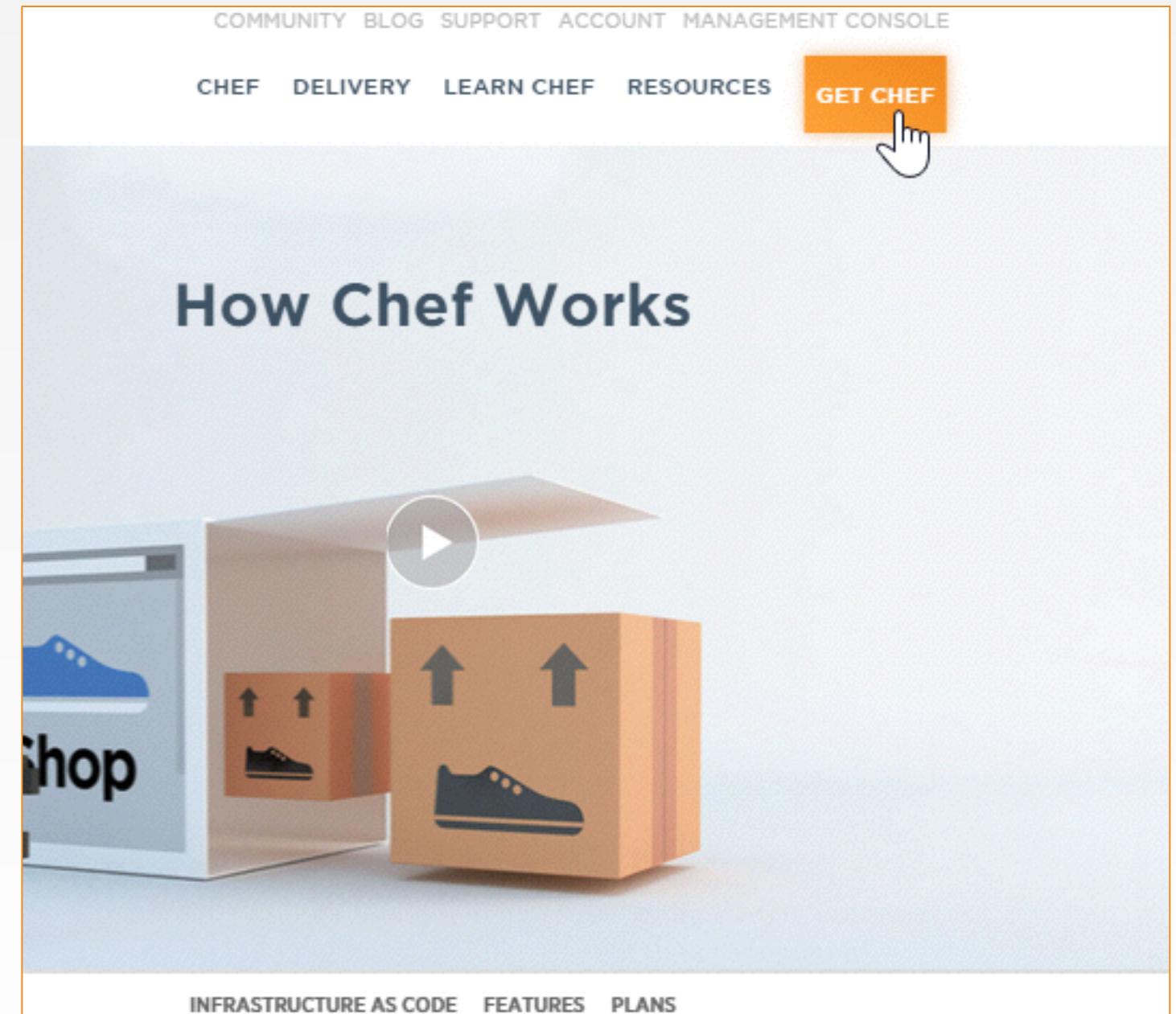
### Objective:

- ☐ Create a Hosted Chef Account
- ☐ Upload your cookbooks to the Hosted Chef Server
- ☐ Add your old workstation as a managed node

# GL: Signing Up for a Hosted Chef Account

## Steps

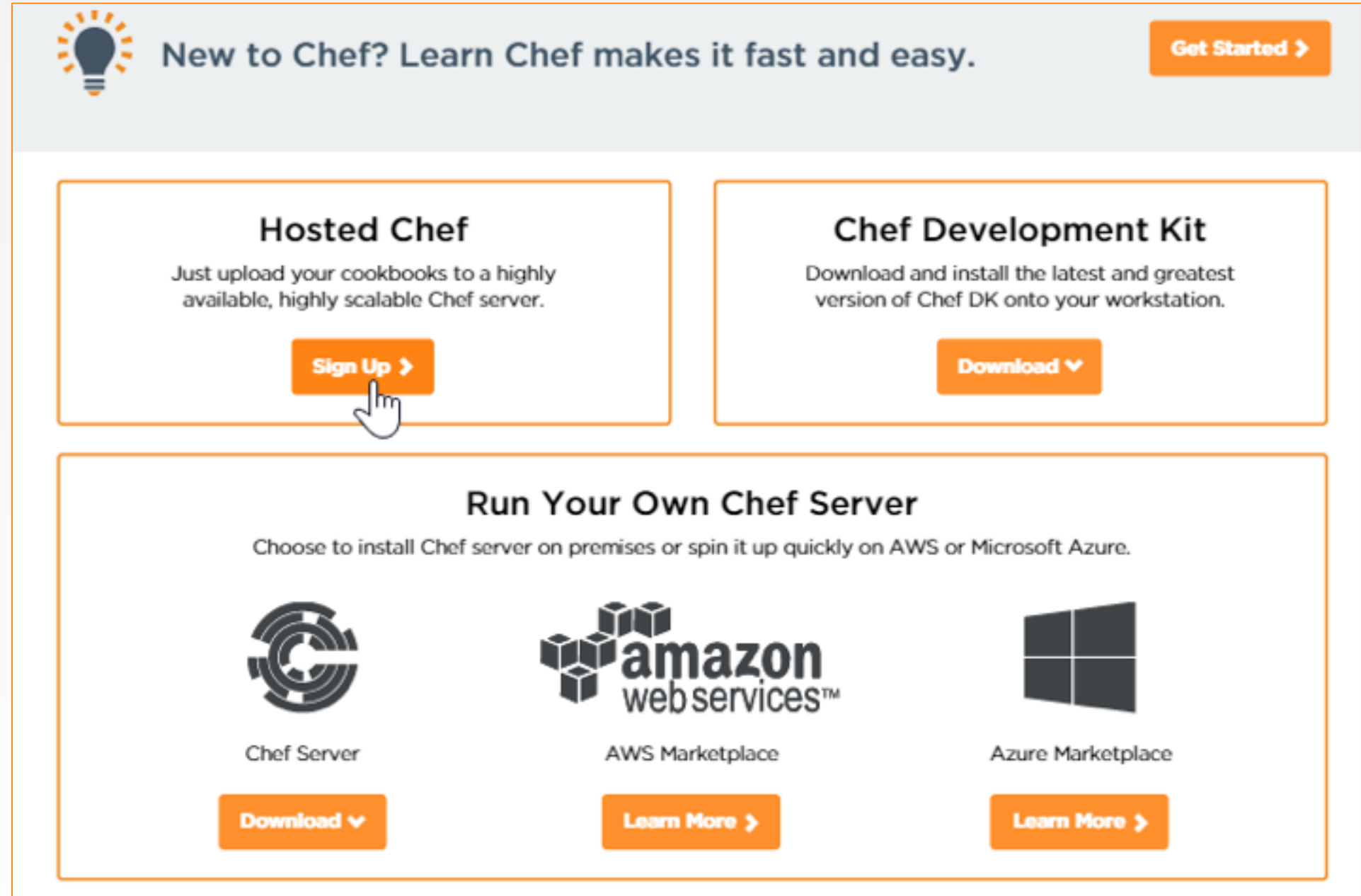
1. Navigate to <https://www.chef.io>
2. From the resulting window, click **Get Chef**.




# GL: Signing Up for a Hosted Chef Account

## Steps

3. From the resulting window, click the Hosted Chef **Sign Up** button.



The screenshot shows the 'New to Chef' section of the Chef website. At the top, there is a light blue banner with a lightbulb icon, the text 'New to Chef? Learn Chef makes it fast and easy.', and a 'Get Started >' button. Below the banner, there are three main sections. The first section, 'Hosted Chef', describes uploading cookbooks to a scalable server and features a 'Sign Up >' button with a hand cursor pointing at it. The second section, 'Chef Development Kit', describes downloading the latest version of Chef DK and features a 'Download v' button. The third section, 'Run Your Own Chef Server', describes installing the server on premises or on AWS or Azure. It contains three sub-sections: 'Chef Server' with a 'Download v' button, 'AWS Marketplace' with a 'Learn More >' button, and 'Azure Marketplace' with a 'Learn More >' button.

 New to Chef? Learn Chef makes it fast and easy. [Get Started >](#)

### Hosted Chef

Just upload your cookbooks to a highly available, highly scalable Chef server.

[Sign Up >](#)


### Chef Development Kit

Download and install the latest and greatest version of Chef DK onto your workstation.

[Download v](#)


### Run Your Own Chef Server

Choose to install Chef server on premises or spin it up quickly on AWS or Microsoft Azure.




Chef Server

[Download v](#)



AWS Marketplace

[Learn More >](#)



Azure Marketplace

[Learn More >](#)

# GL: Signing Up for a Hosted Chef Account

## Steps

4. Fill out the form as indicated in this image using your name and a valid email address and then click **Get Started**.

**Note:** You should write down your new user name and remember your password.

### Start your free trial of hosted Chef

You're one step away from access to all the power and flexibility of Chef. Get ready to automate your infrastructure, accelerate your time to market, manage scale and complexity, and safeguard your systems. Just complete the form to get started.

Full Name	<input type="text" value="Jane Doe"/>
Email	<input type="text" value="Jane@chef.io"/>
Username	<input type="text" value="janedoe"/>
Password	<input type="password" value="....."/>
Company	<input type="text" value="Chef"/>

☒ I agree to the [Terms of Service](#) and the [Master License and Services Agreement](#).

[Get Started](#)

Already have an account? [Click here](#) to log in.

Looking for a managed service? [Start with Chef Managed](#) and check out our [pricing](#).

[Join the Chef community](#)

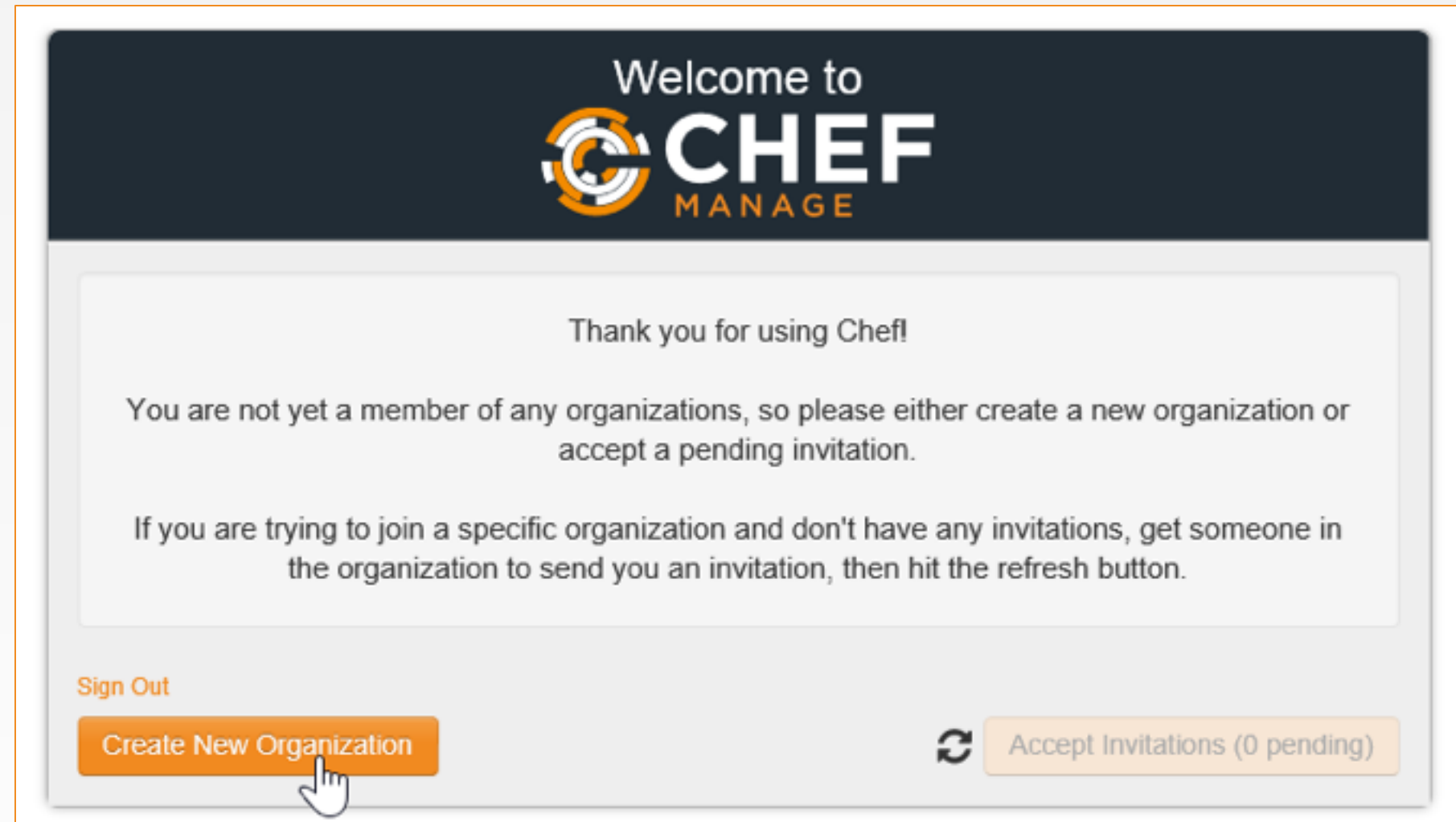
[Join our newsletter](#)



# GL: Signing Up for a Hosted Chef Account

## Steps

5. From the resulting page, click the **Create New Organization** button.

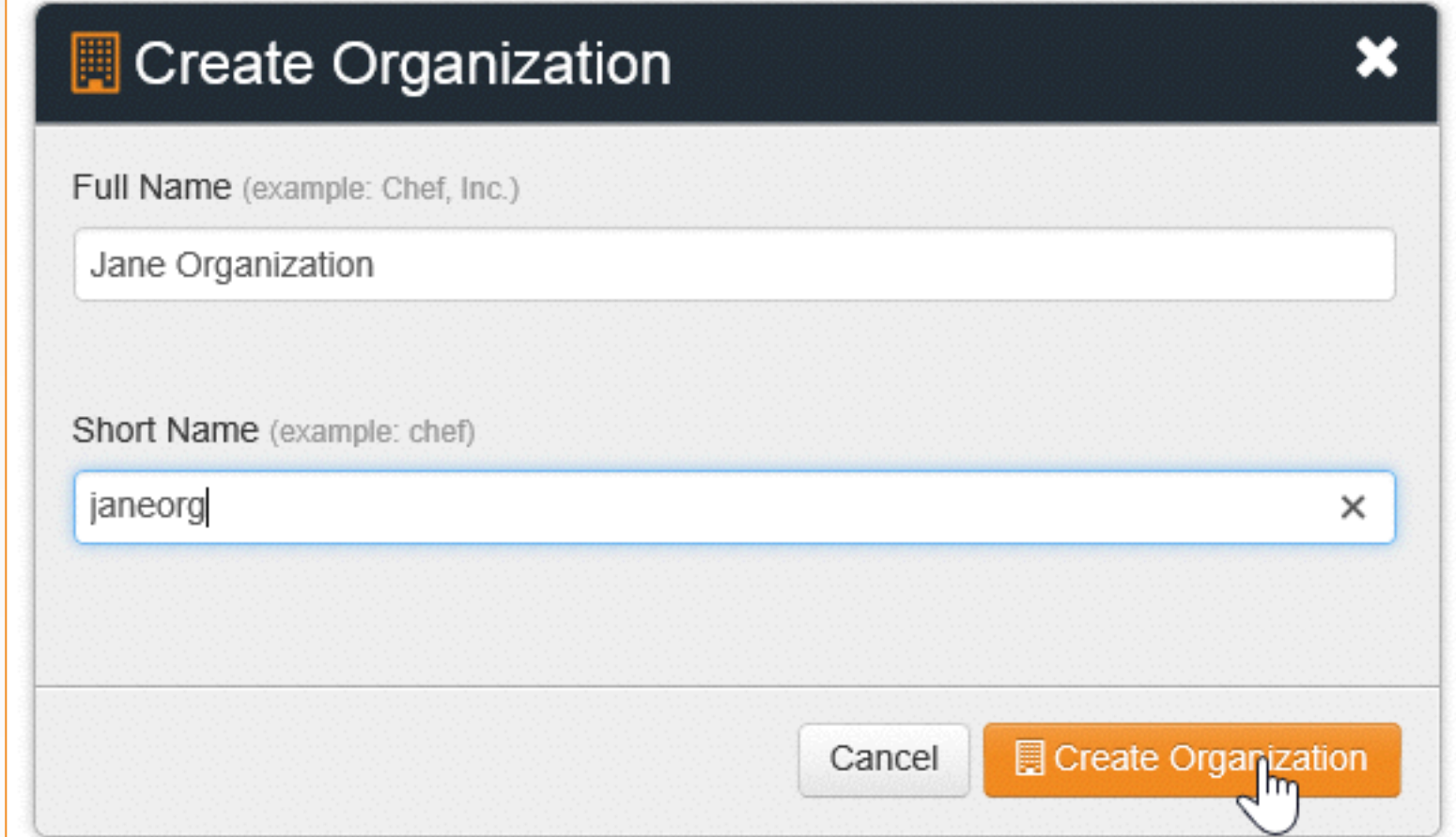




# GL: Signing Up for a Hosted Chef Account

## Steps

6. Fill out the resulting Create Organization form and then click **Create Organization**.



The screenshot shows a 'Create Organization' dialog box. It has a dark header bar with the title 'Create Organization' and a close button (X). The form contains two text input fields. The first field is labeled 'Full Name (example: Chef, Inc.)' and contains the text 'Jane Organization'. The second field is labeled 'Short Name (example: chef)' and contains the text 'janeorg'. At the bottom of the form, there are two buttons: a 'Cancel' button and a 'Create Organization' button. A mouse cursor is pointing at the 'Create Organization' button.

**Create Organization** [X]

Full Name (example: Chef, Inc.)  
Jane Organization

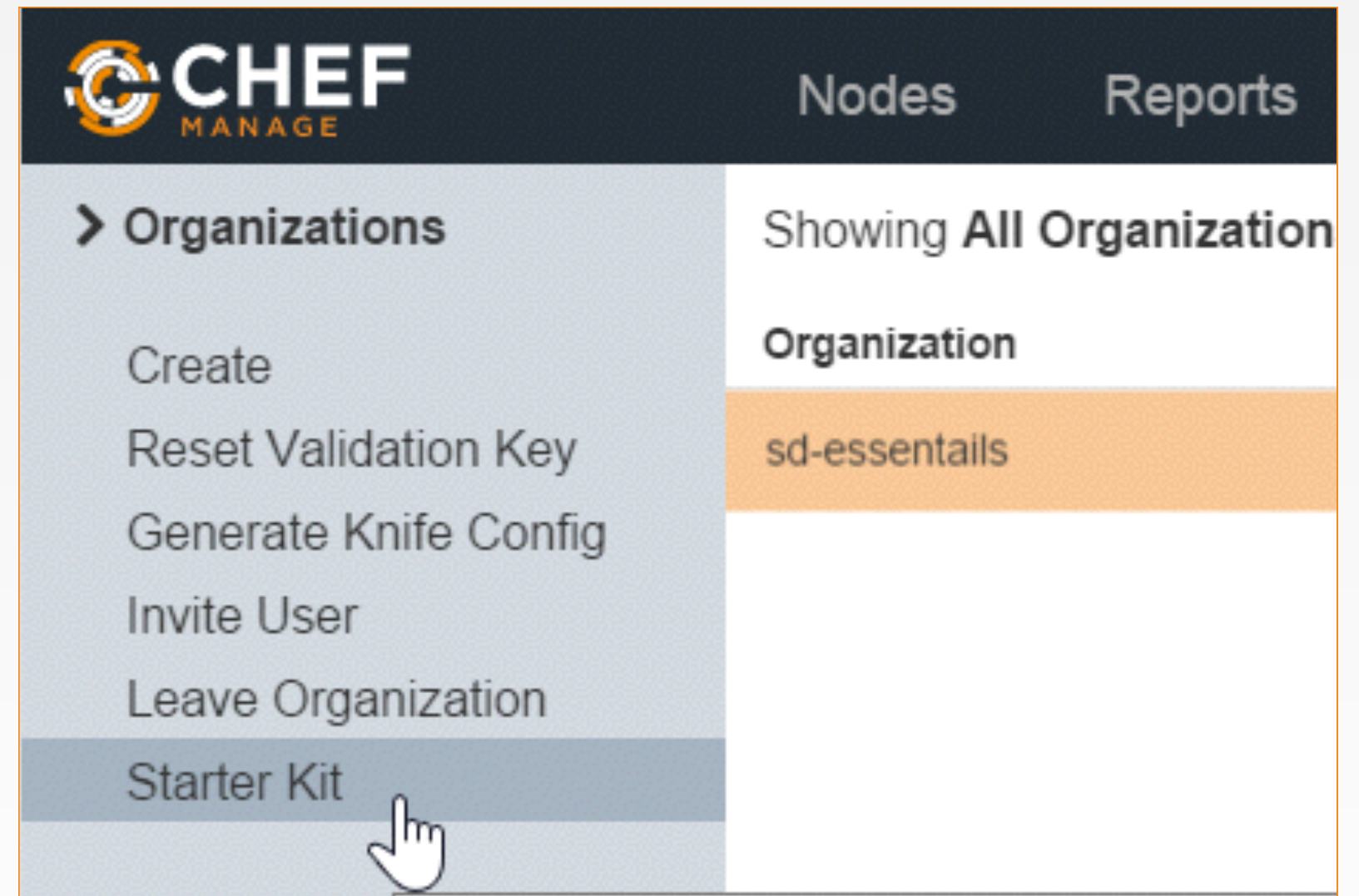
Short Name (example: chef)  
janeorg [X]

Cancel Create Organization

# GL: Signing Up for a Hosted Chef Account

## Steps

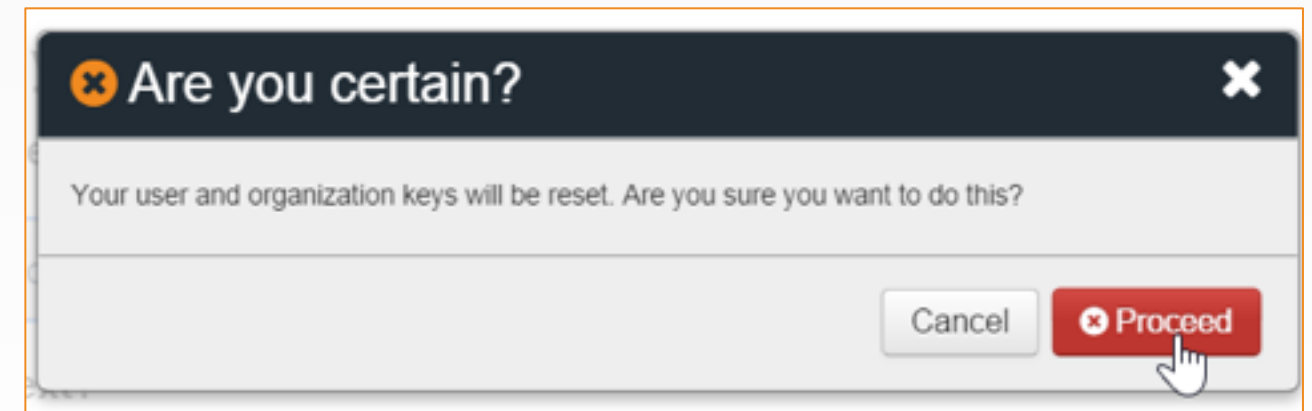
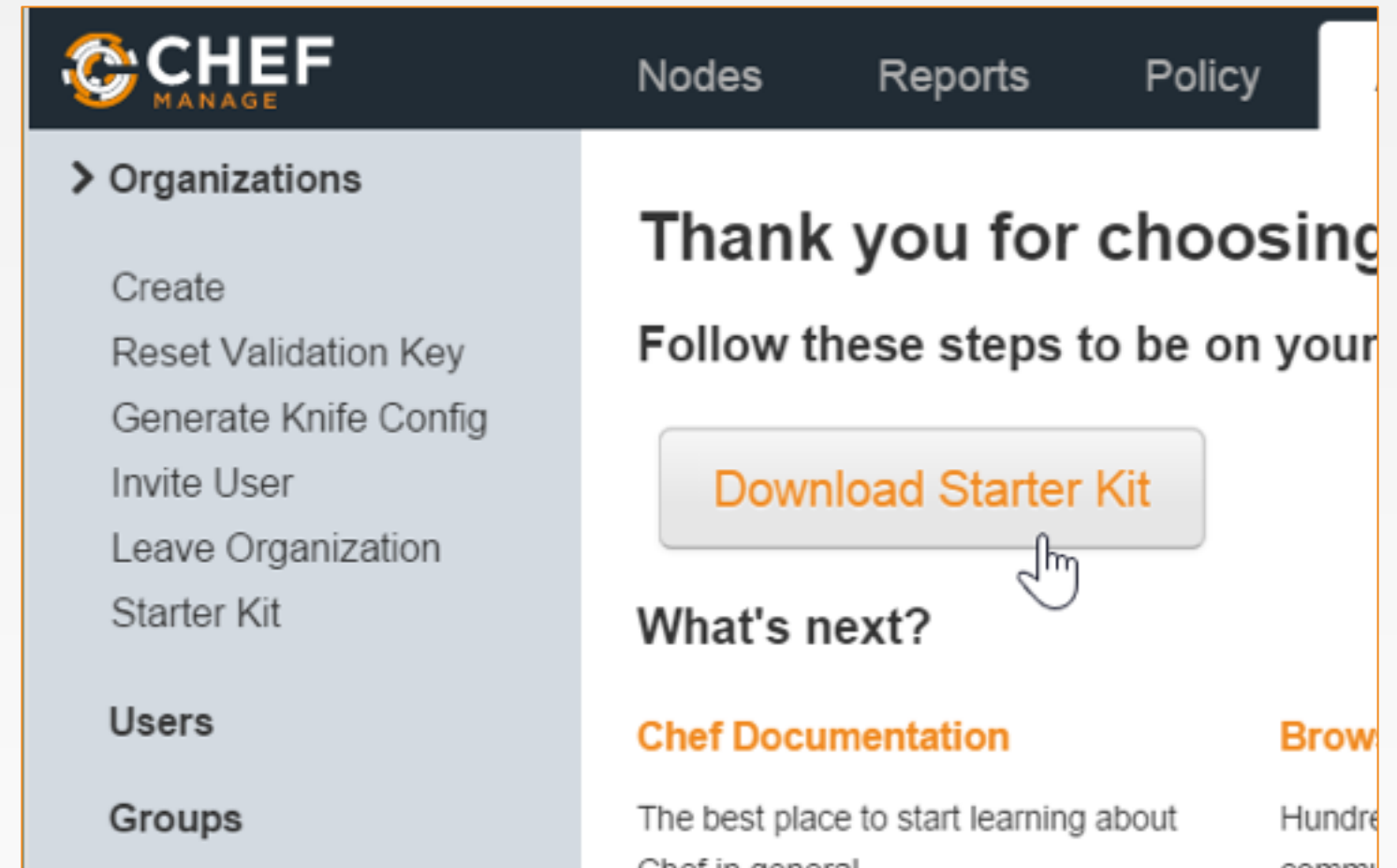
7. From the resulting page, click your new organization to highlight it and then click **Starter Kit**.



# GL: Signing Up for a Hosted Chef Account

## Steps

8. From the resulting window, click the **Download Starter Kit** button.
9. Click the **Proceed** button when prompted.



# GL: Signing Up for a Hosted Chef Account

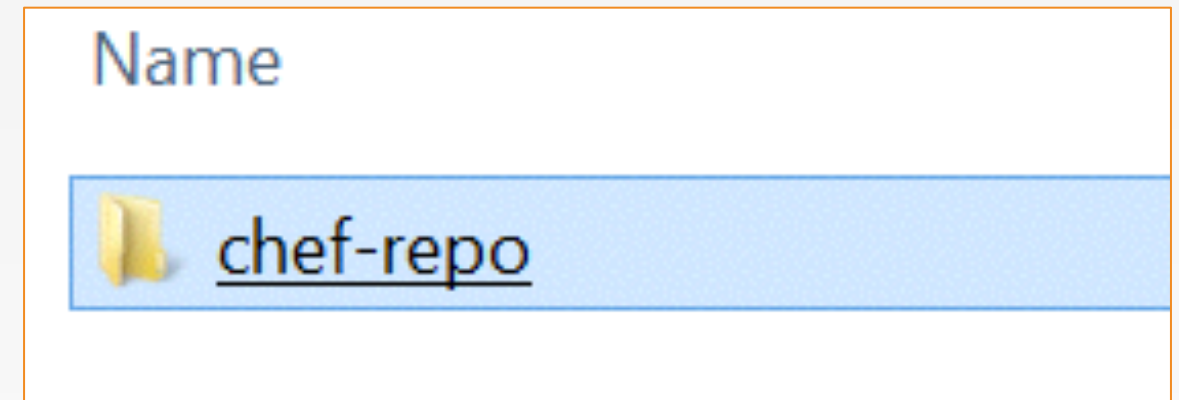
## Steps

10. Open the downloaded zip file and copy chef-repo folder that's contained in the zip file.
11. Paste the chef-repo folder to a location on your laptop, such as your home directory.

**Note:** Ensure that the path to the chef-repo does not have a space in it. Examples:

Mac: `/home/username/chef-repo`

Windows: `C:\Users\username\chef-repo`



# GL: Navigate to the chef-repo



```
$ cd ~/chef-repo
```

# CONCEPTS

## knife



knife is a command-line tool that provides an interface between a local chef-repo and the Chef Server.

# GL: knife --help



```
$ knife --help
```

```
Available subcommands: (for details, knife SUB-COMMAND --help)
```

```
** BOOTSTRAP COMMANDS **
```

```
knife bootstrap FQDN (options)
```

```
knife bootstrap windows ssh FQDN (options)
```

```
knife bootstrap windows winrm FQDN (options)
```

```
** CLIENT COMMANDS **
```

```
knife client bulk delete REGEX (options)
```

```
knife client create CLIENT (options)
```

```
knife client delete CLIENT (options)
```

```
knife client edit CLIENT (options)
```

# GL: knife client --help



```
$ knife client --help
```

```
Available client subcommands: (for details, knife SUB-COMMAND --help)
```

```
** CLIENT COMMANDS **
```

```
knife client bulk delete REGEX (options)
```

```
knife client create CLIENT (options)
```

```
knife client delete CLIENT (options)
```

```
knife client edit CLIENT (options)
```

```
knife client list (options)
```

```
knife client reregister CLIENT (options)
```

```
knife client show CLIENT (options)
```



# GL: knife client list



```
$ knife client list
```

```
ORGNAME-validator
```



# Hosted Chef

*More easily manage multiple nodes*

## Objective:

- ✓ Create a Hosted Chef Account
- ❑ Upload your cookbooks to the Hosted Chef Server
- ❑ Add your old workstation as a managed node

# GL: knife cookbook --help



```
$ knife cookbook --help
```

```
** COOKBOOK COMMANDS **
```

```
knife cookbook bulk delete REGEX (options)
```

```
knife cookbook create COOKBOOK (options)
```

```
knife cookbook delete COOKBOOK VERSION (options)
```

```
knife cookbook download COOKBOOK [VERSION] (options)
```

```
knife cookbook list (options)
```

```
knife cookbook metadata COOKBOOK (options)
```

```
knife cookbook metadata from FILE (options)
```

```
knife cookbook show COOKBOOK [VERSION] [PART] [FILENAME] (options)
```

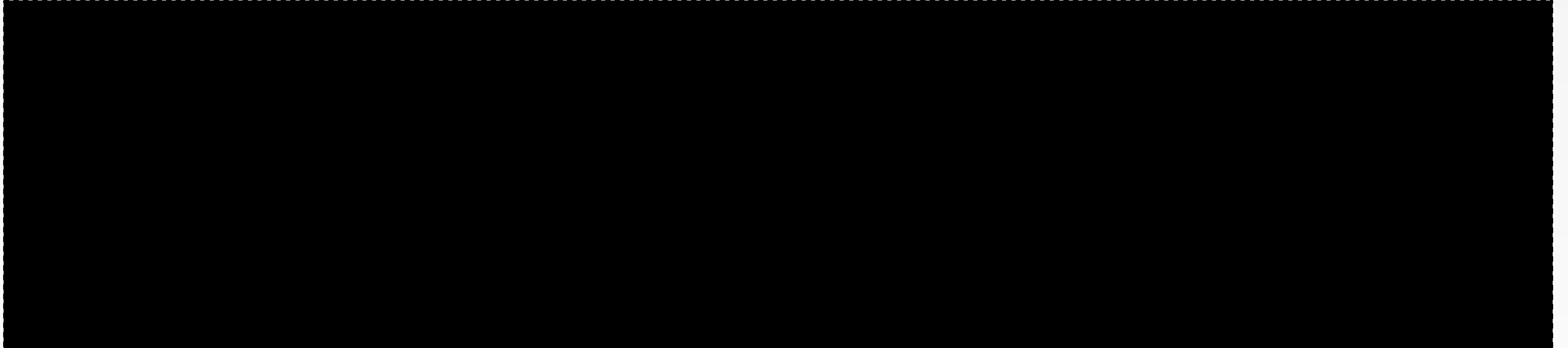
```
knife cookbook test [COOKBOOKS...] (options)
```

```
knife cookbook upload [COOKBOOKS...] (options)
```

# GL: knife cookbook list



```
$ knife cookbook list
```



## GL: Change to the cookbooks/apache Directory



```
$ cd cookbooks/apache
```

## Berkshelf

Berkshelf is a cookbook management tool that allows us to upload your cookbooks and all of its dependencies to the Chef Server.

<http://berkshelf.com>



# GL: Run berks --help



```
$ berks --help
```

## Commands :

<code>berks apply ENVIRONMENT</code>	<code># Apply version locks from Berksfile.lock to a Chef environment</code>
<code>berks contingent COOKBOOK</code>	<code># List all cookbooks that depend on the given cookbook in your</code>
<code>berks cookbook NAME [PATH]</code>	<code># Create a skeleton for a new cookbook</code>
<code>berks help [COMMAND]</code>	<code># Describe available commands or one specific command</code>
<code>berks info [COOKBOOK]</code>	<code># Display name, author, copyright, and dependency information</code>
<code>berks init [PATH]</code>	<code># Initialize Berkshelf in the given directory</code>
<code>berks install</code>	<code># Install the cookbooks specified in the Berksfile</code>
<code>berks list</code>	<code># List cookbooks and their dependencies specified by your</code>
<code>berks outdated [COOKBOOKS]</code>	<code># List dependencies that have new versions available that</code>
<code>berks package [PATH]</code>	<code># Vendor and archive the dependencies of a Berksfile</code>
<code>berks search NAME</code>	<code># Search the remote source for cookbooks matching the partial</code>

# GL: Run berks install



```
$ berks install
```

```
Resolving cookbook dependencies...
```

```
Fetching 'apache' from source at .
```

```
Fetching cookbook index from https://supermarket.chef.io...
```

```
Using apache (0.2.1) from source at .
```



# GL: See the Berksfile.lock



```
$ ls -al (or ls -Force if using Powershell)
```

```
drwxr-xr-x 7 chef chef 4096 Aug 27 18:44 .
drwxr-xr-x 4 chef chef 4096 Aug 27 16:17 ..
drwxr-xr-x 8 chef chef 4096 Aug 27 16:07 .git
-rw-r--r-- 1 chef chef 126 Aug 27 15:46 .gitignore
drwxr-xr-x 3 chef chef 4096 Aug 27 18:45 .kitchen
-rw-r--r-- 1 chef chef 183 Aug 27 18:44 .kitchen.yml
-rw-r--r-- 1 chef chef 47 Aug 27 15:46 Berksfile
-rw----- 1 chef chef 77 Aug 27 18:45 Berksfile.lock
-rw-r--r-- 1 chef chef 54 Aug 27 15:46 README.md
-rw-r--r-- 1 chef chef 974 Aug 27 15:46 chefignore
-rw-r--r-- 1 chef chef 198 Aug 27 15:46 metadata.rb
drwxr-xr-x 2 chef chef 4096 Aug 27 16:34 recipes
```

# GL: See the Contents of the Berksfile.lock



```
$ cat Berksfile.lock
```

## DEPENDENCIES

apache

path: .

metadata: true

## GRAPH

apache (0.2.1)

# GL: Upload the Cookbook to the Chef Server



```
$ berks upload
```

```
Uploaded apache (0.2.1) to: 'https://api.opscode.com:443/organizations/  
steveessentials2'
```

# GL: Display Cookbooks within Your Org



```
$ knife cookbook list
```

```
apache          0.2.1
```



## Lab: Upload Cookbooks

- ☐ Upload your remaining cookbooks
- ☐ Verify that all cookbooks are uploaded

## Lab: cd and Run knife cookbook list



```
$ cd ~/chef-repo/cookbooks/workstation  
$ knife cookbook list
```

```
apache          0.2.1
```

# Lab: Install the Cookbook Dependencies



```
$ berks install
```

```
Resolving cookbook dependencies...
```

```
Fetching 'workstation' from source at .
```

```
Fetching cookbook index from https://supermarket.chef.io...
```

```
Using workstation (0.2.1) from source at .
```

# Lab: Upload the Cookbook to the Chef Server



```
$ berks upload
```

```
Uploaded workstation (0.2.1) to: 'https://api.opscode.com:443/organizations/  
steveessentials2'
```



# Lab: Is the workstation Cookbook Uploaded?



```
$ knife cookbook list
```

```
apache      0.2.1  
workstation 0.2.1
```



## Lab: Upload Cookbooks

- ✓ Upload your remaining cookbooks
- ✓ Verify that all cookbooks are uploaded



## Hosted Chef

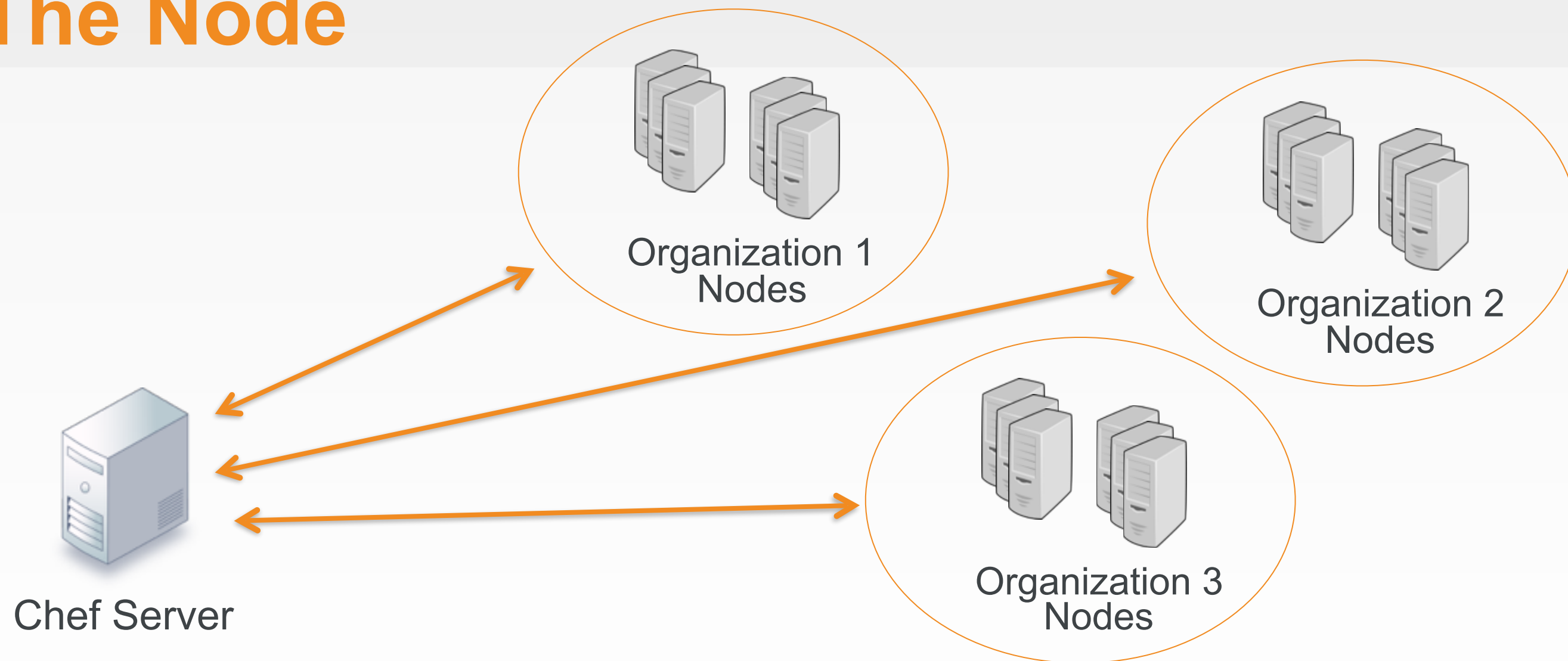
*More easily manage multiple nodes*

### Objective:

- ✓ Create a Hosted Chef Account
- ✓ Upload your cookbooks to the Hosted Chef Server
- ❑ Add your old workstation as a managed node

# CONFIDENTIAL

## The Node



# GL: Change to the chef-repo



```
$ cd ~/chef-repo
```

# GL: Run 'knife node --help'



```
$ knife node --help
```

```
** NODE COMMANDS **  
knife node bulk delete REGEX (options)  
knife node create NODE (options)  
knife node delete NODE (options)  
knife node edit NODE (options)  
knife node environment set NODE ENVIRONMENT  
knife node from file FILE (options)  
knife node list (options)  
knife node run_list add [NODE] [ENTRY[,ENTRY]] (options)  
knife node run_list remove [NODE] [ENTRY[,ENTRY]] (options)  
knife node run_list set NODE ENTRIES (options)  
knife node show NODE (options)
```

# GL: Run 'knife node list'



```
$ knife node list
```



# GL: Run 'knife bootstrap --help'



```
$ knife bootstrap --help
```

```
knife bootstrap FQDN (options)
  --bootstrap-curl-options OPTIONS
                                Add options to curl when install chef-client
  --bootstrap-install-command COMMANDS
                                Custom command to install chef-client
  --bootstrap-no-proxy [NO_PROXY_URL|NO_PROXY_IP]
                                Do not proxy locations for the node being
bootstrapped; this option is used internally by Opscode
  --bootstrap-proxy PROXY_URL  The proxy server for the node being bootstrapped
  -t TEMPLATE,                 Bootstrap Chef using a built-in or custom
template. Set to the full path of an erb
template or use one of the built-in templates.
```



# GL: Bootstrap Your Node



```
$ knife bootstrap FQDN -x USER -P PWD --sudo -N node1
```

```
Creating new client for node1
```

```
Creating new node for node1
```

```
Connecting to ec2-54-175-46-24.compute-1.amazonaws.com
```

```
ec2-54-175-46-24.compute-1.amazonaws.com Starting first Chef Client run...
```

```
ec2-54-175-46-24.compute-1.amazonaws.com Starting Chef Client, version 12.3.0
```

```
ec2-54-175-46-24.compute-1.amazonaws.com resolving cookbooks for run list: []
```

```
ec2-54-175-46-24.compute-1.amazonaws.com Synchronizing Cookbooks:
```

```
ec2-54-175-46-24.compute-1.amazonaws.com Compiling Cookbooks...
```

```
ec2-54-175-46-24.compute-1.amazonaws.com [2016-09-16T16:51:21+00:00] WARN: Node node1  
has an empty run list.
```

```
ec2-54-175-46-24.compute-1.amazonaws.com Converging 0 resources
```

```
ec2-54-175-46-24.compute-1.amazonaws.com
```

```
ec2-54-175-46-24.compute-1.amazonaws.com Running handlers:
```

# GL: Run 'knife node list' Again



```
$ knife node list
```

```
node1
```

# GL: View More Information About Your Node



```
$ knife node show node1
```

```
Node Name:    node1
Environment:  _default
FQDN:         ip-172-31-8-68.ec2.internal
IP:           54.175.46.24
Run List:
Roles:
Recipes:
Platform:    centos 6.7
Tags:
```

# GL: Add a Recipe to a Run List



```
$ knife node run_list add node1 "recipe[apache]"
```

```
node1:  
  run_list: recipe[apache]
```



# Hosted Chef

*More easily manage multiple nodes*

## Objective:

- ✓ Create a Hosted Chef Account
- ✓ Upload your cookbooks to the Hosted Chef Server
- ✓ Add your old workstation as a managed node

# DISCUSSION



## Discussion

What is the benefit of storing cookbooks in a central repository?

What is the primary tool for communicating with the Chef Server?

How did you add a node to your organization?



**CHEF**™

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