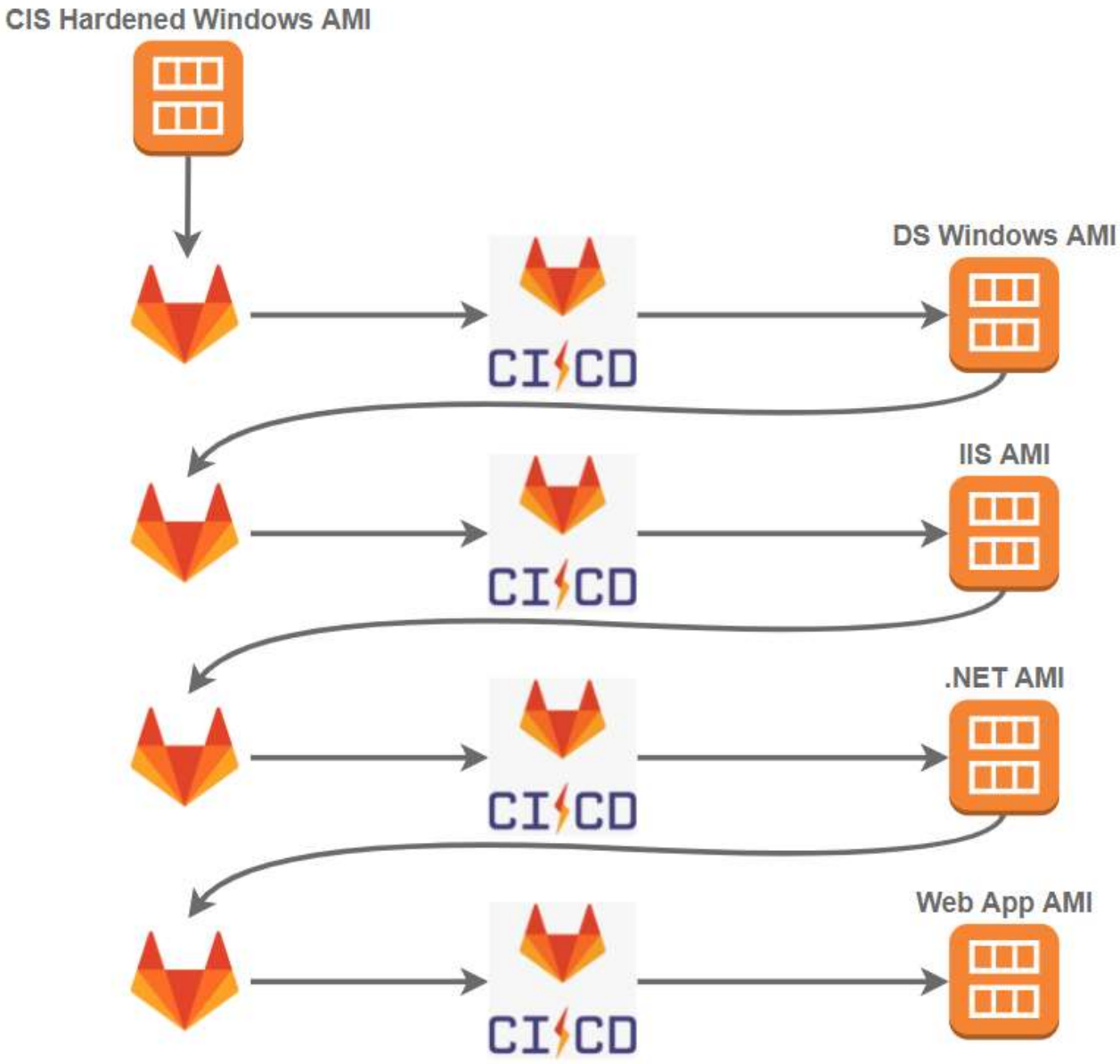
Overview

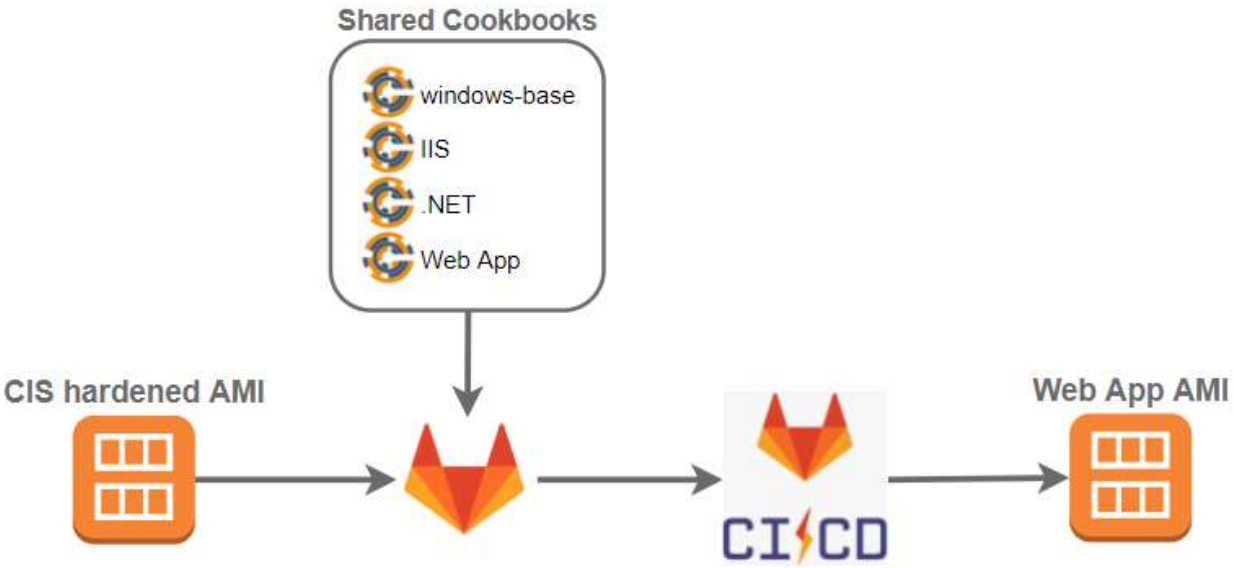
We've implemented a shared cookbook architecture by creating Chef cookbooks as gitlab repositories, and using Chef Berkshelf, a cookbook dependency manager.

The use of shared cookbooks allows us to create AMIs free of dependencies on existing upstream AMIs. For example, let's take a look at how the creation of a Windows web application AMI is improved by using shared cookbooks instead of AMI inheritance.

With the AMI inheritance model, each of these AMIs requires its own deployment pipeline. An update to the base AMI, or any other intermediate AMIs requires propagation to all other dependant AMIs.



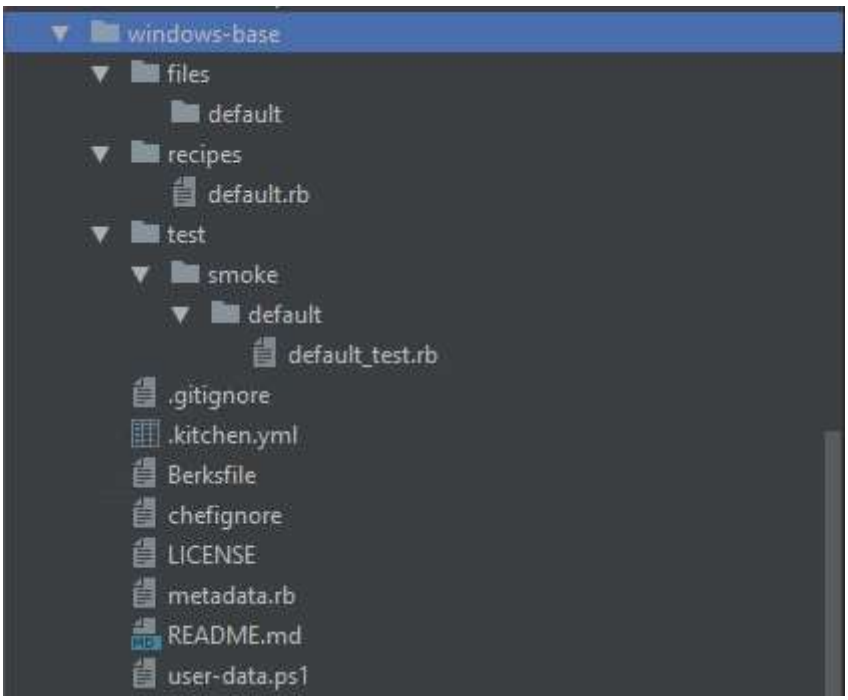
With the shared cookbook model, one deployment pipeline is needed and the AMI is not dependent on any other Direct Supply Images.



The cookbooks

Each shared cookbook is created as a gitlab repository under the cloud-images/shared-cookbooks project group. Creating a repository for each cookbook allows us to reference the shared cookbook individually via its gitlab ssh endpoint. (e.g., git@gitlab.directsupply.cloud:cloud-images/shared-cookbooks/windows-base.git)

The cookbooks consist primarily of 3 folders that contain chef recipes, inspec test files, and a collection of cookbook specific files needed during configuration. The cookbooks also contain a kitchen.yml which enables the use of test kitchen as a means of testing the cookbook on a running host, in our case, a live ec2 instance.



See the windows-base shared cookbook project for an example.

> **Note**
>
> An application specific cookbook that would only ever be used in one AMI project can be stored with the AMI project directly, not in its own shared cookbook project.

Chef Berkshelf

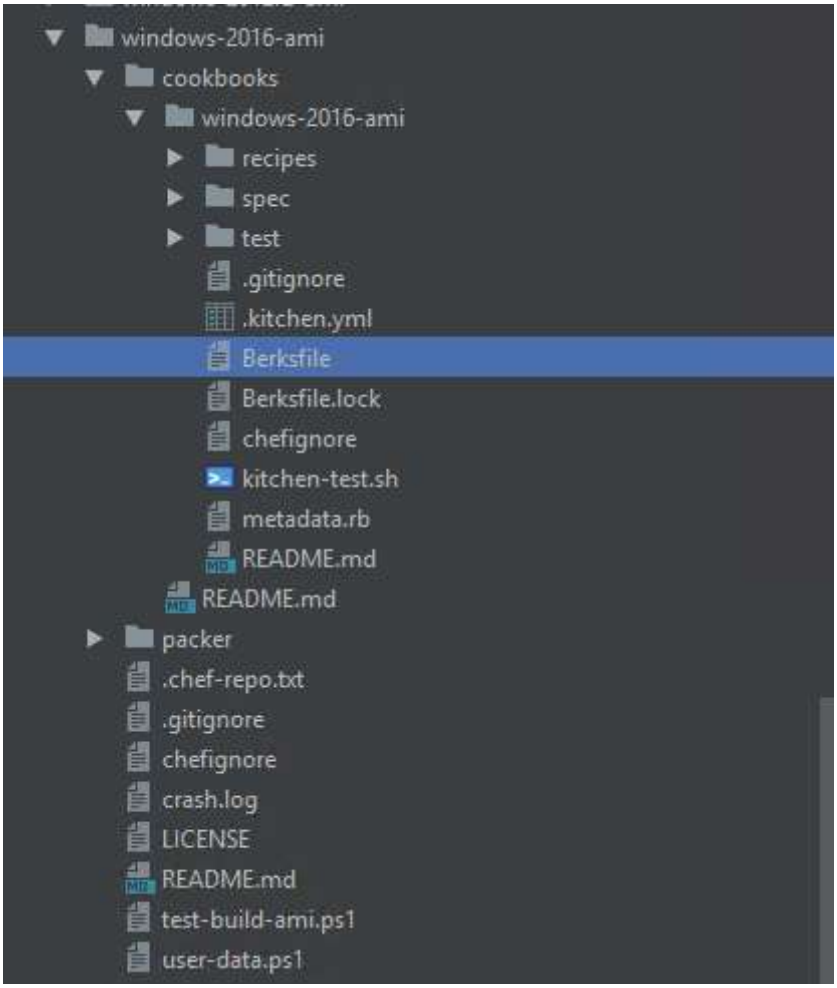
Berkshelf is a cookbook dependency manager provided by Chef. It enables us to call and run multiple shared cookbooks on a host by using a Berksfile. The Berksfile maps the names of locally referenced cookbooks to the shared cookbook gitlab repositories. Below is an example of a Berksfile used to build a Windows Server 2016 AMI.

```
 # frozen_string_literal: true
source 'https://supermarket.chef.io'

cookbook 'windows-base', git: "git@gitlab.directsupply.cloud/cloud-images/shared-cookbooks/windows-ba
cookbook 'windows-2016', git: "git@gitlab.directsupply.cloud/cloud-images/shared-cookbooks/windows-20

metadata
```

There are Berksfiles in all shared cookbook repositories as well as all AMI project repositories. The Berksfile in the shared cookbooks are used by kitchen test to pull down any any other cookbooks the project depends on. The Berksfiles in the AMI projects are used by the Gitlab CI/CD pipeline to locate all cookbooks the AMI requires.



See the windows-2016-ami project for an example.

Guides

- Using Shared Cookbooks with Test Kitchen
- Using Shared Cookbooks with Packer