Packaging and Deploying
on Kubernetes
redhat.

Helm
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Helm

- Helm the best way to find, share and use software built for Kubernetes
  (definition from https://helm.sh/)
- Helm is a **package manager** for Kubernetes
- It helps you to manage Kubernetes **applications**
- Helm is maintained by the **CNCF** - **The Cloud Native Computing Foundation** (together with Kubernetes, fluentd, linkerd, and others)
  - It is now maintained in collaboration with **Microsoft**, **Google**, **Bitnami** and the **helm contributor community**

Helm

- To start using helm, you first need to download the **helm client**
- You need to run “helm init” to **initialize helm** on the Kubernetes cluster
  - This will install **Tiller**
  - If you have **RBAC installed** (recent clusters have it enabled now by default), you’ll also need add a **ServiceAccount and RBAC rules**
- After this, helm is ready for use, and you can **start installing charts**

Helm

- Helm uses a packaging format called **charts**
  - A **chart** is a **collection** of **files** that **describe** a set of Kubernetes **resources**
  - A single chart can **deploy an app**, a piece of software, or a database
  - It can have dependencies, e.g. to install wordpress chart, you need a mysql chart
  - You can write **your own chart** to deploy your application on Kubernetes using helm

Helm

- Charts use **templates** that are typically developed by a package maintainer
- They will generate **yaml** files that Kubernetes understands
- You can think of templates as dynamic yaml files, which can contain logic and variables

Helm

- This is an example of a **template within a chart**:

```
apiVersion: v1
kind: ConfigMap
metadata:
  name: {{ .Release.Name }}-configmap
data:
  myvalue: "Hello World"
  drink: {{ .Values.favoriteDrink }}
```

- The favoriteDrink value can then be overridden by the user when running helm install

Helm – Common Commands

Command	Description
helm init helm reset	Install tiller on the cluster Remove tiller from the cluster
helm install	Install a helm chart
helm search	search for a chart
helm list	list releases (installed charts)
helm upgrade	upgrade a release
helm rollback	rollback a release to the previous version

Demo Placeholder

Let’s set helm.

Helm
Create your own charts
redhat.

Helm Charts

- You can **create helm charts** to **deploy your own apps**
- It's the **recommended** way to deploy your applications on Kubernetes
  - Packaging the app, allows you **deploy the app in 1 command** (instead of using kubectl create / apply)
  - Helm allows for **upgrades** and **rollbacks**
  - Your helm chart is **version controlled**

Helm Charts

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  helm create *mychart*

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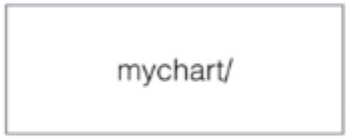

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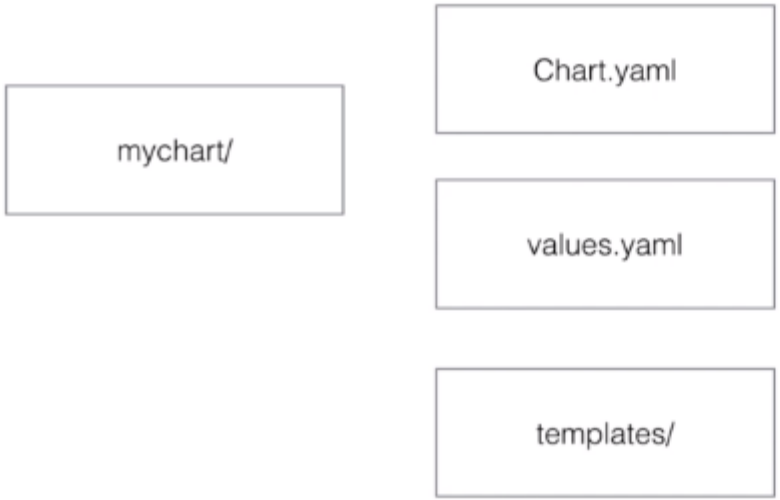

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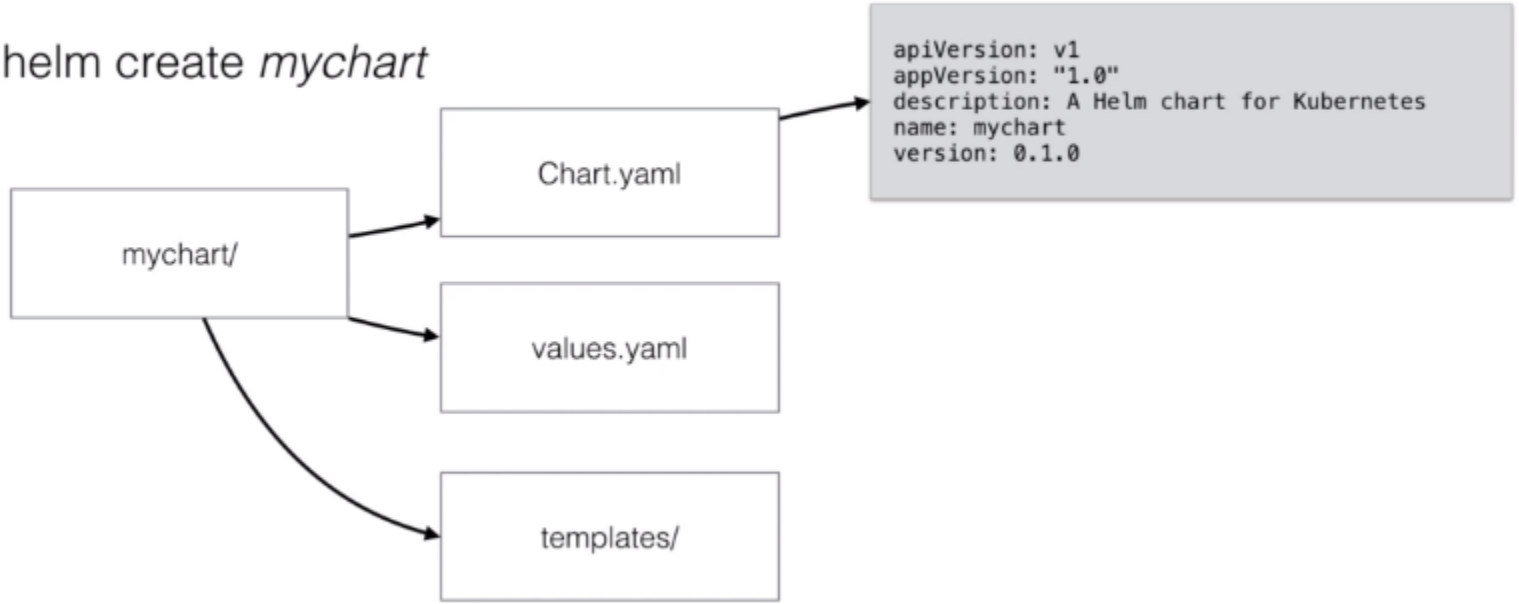

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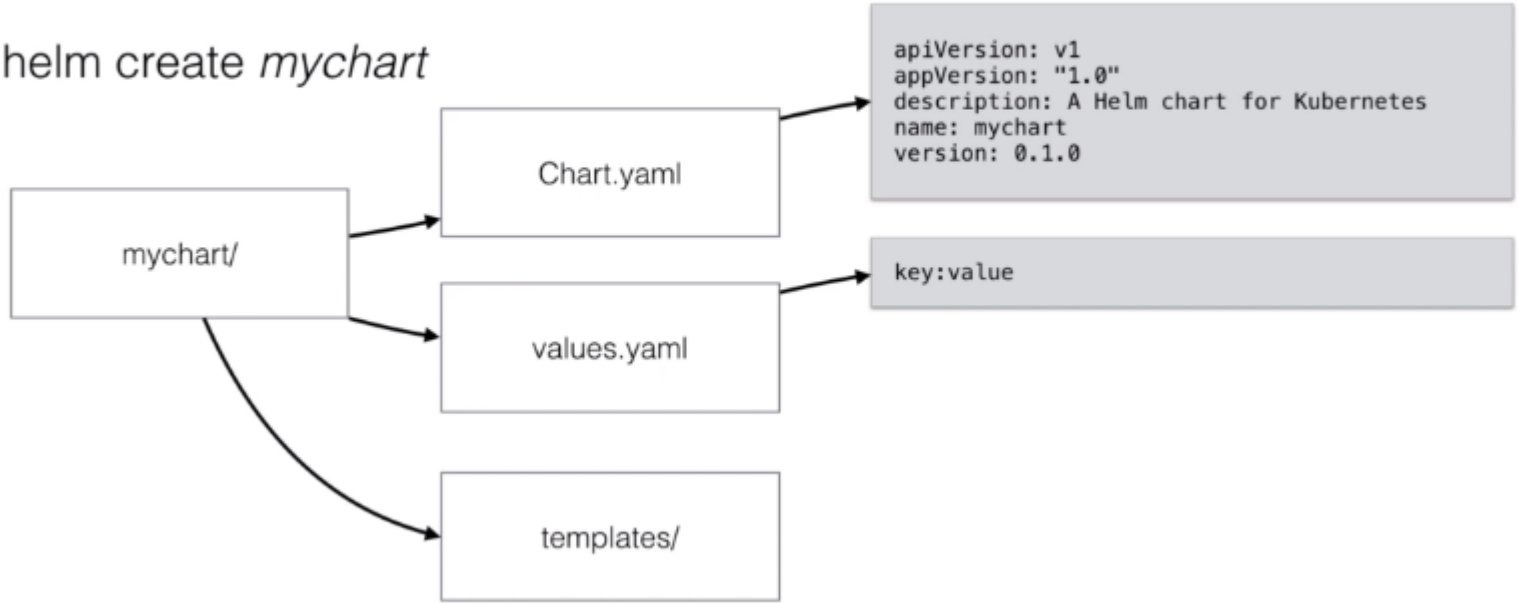

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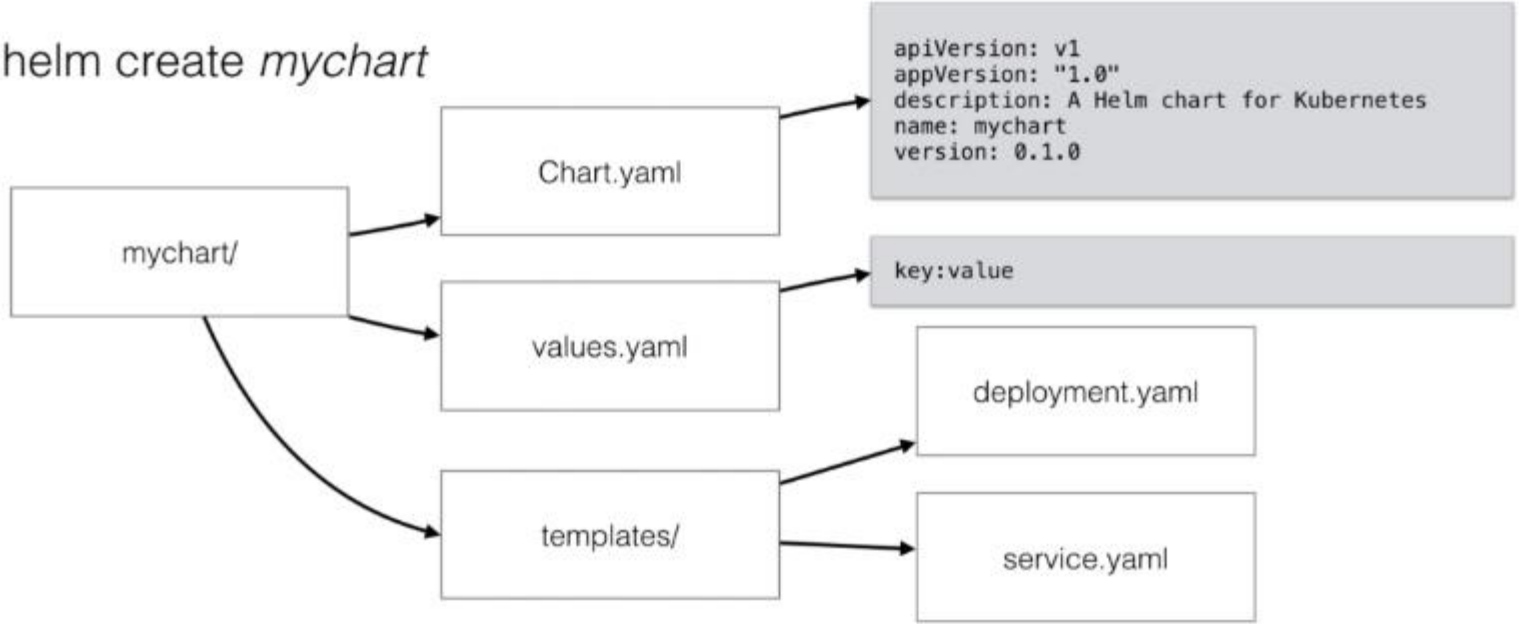
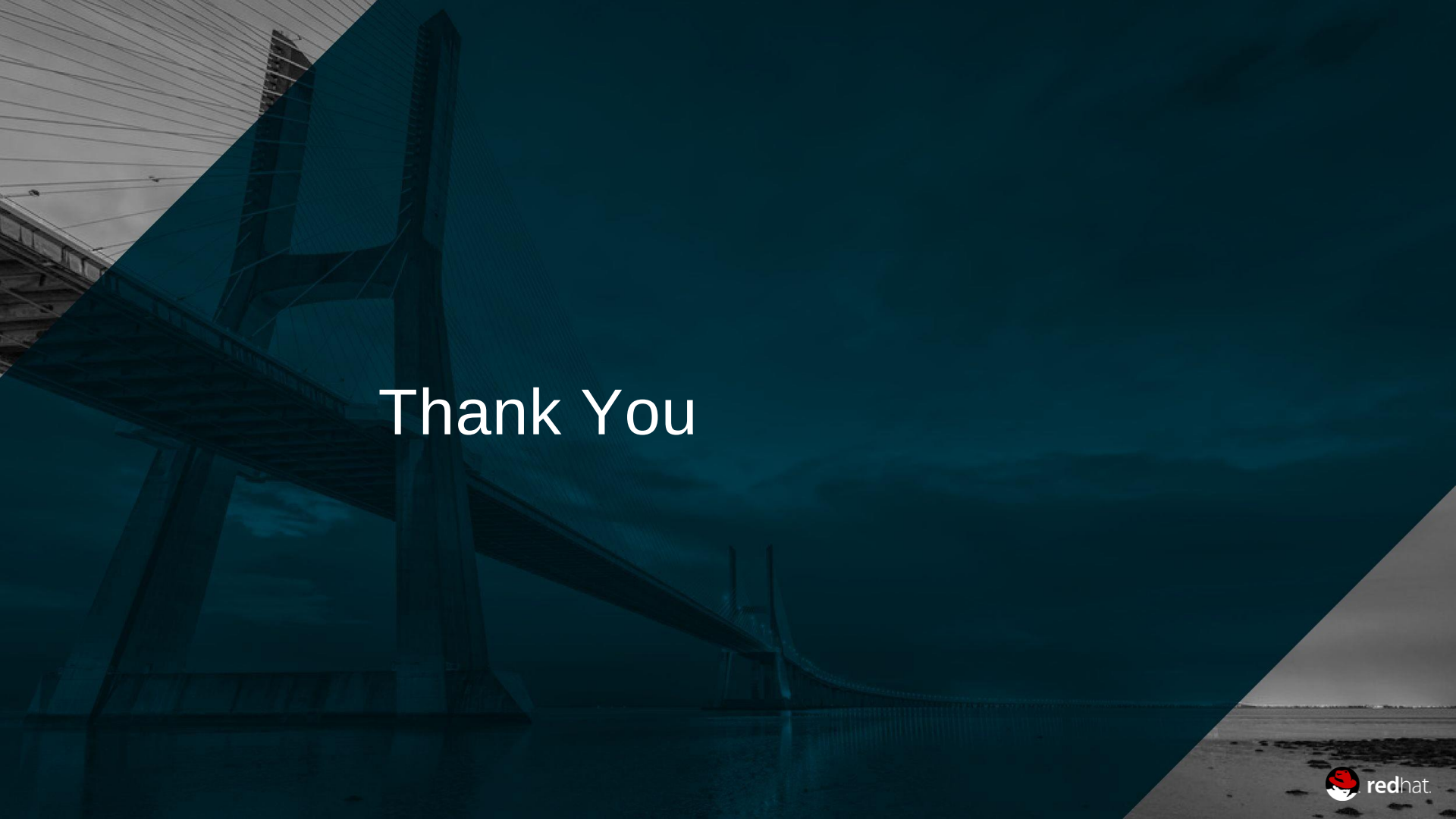


Demo Placeholder

Let’s create our own Charts


Thank You
redhat.