Use the Helm Package Manager to Deploy Existing Packages

Dan Wahlin
Wahlin Consulting

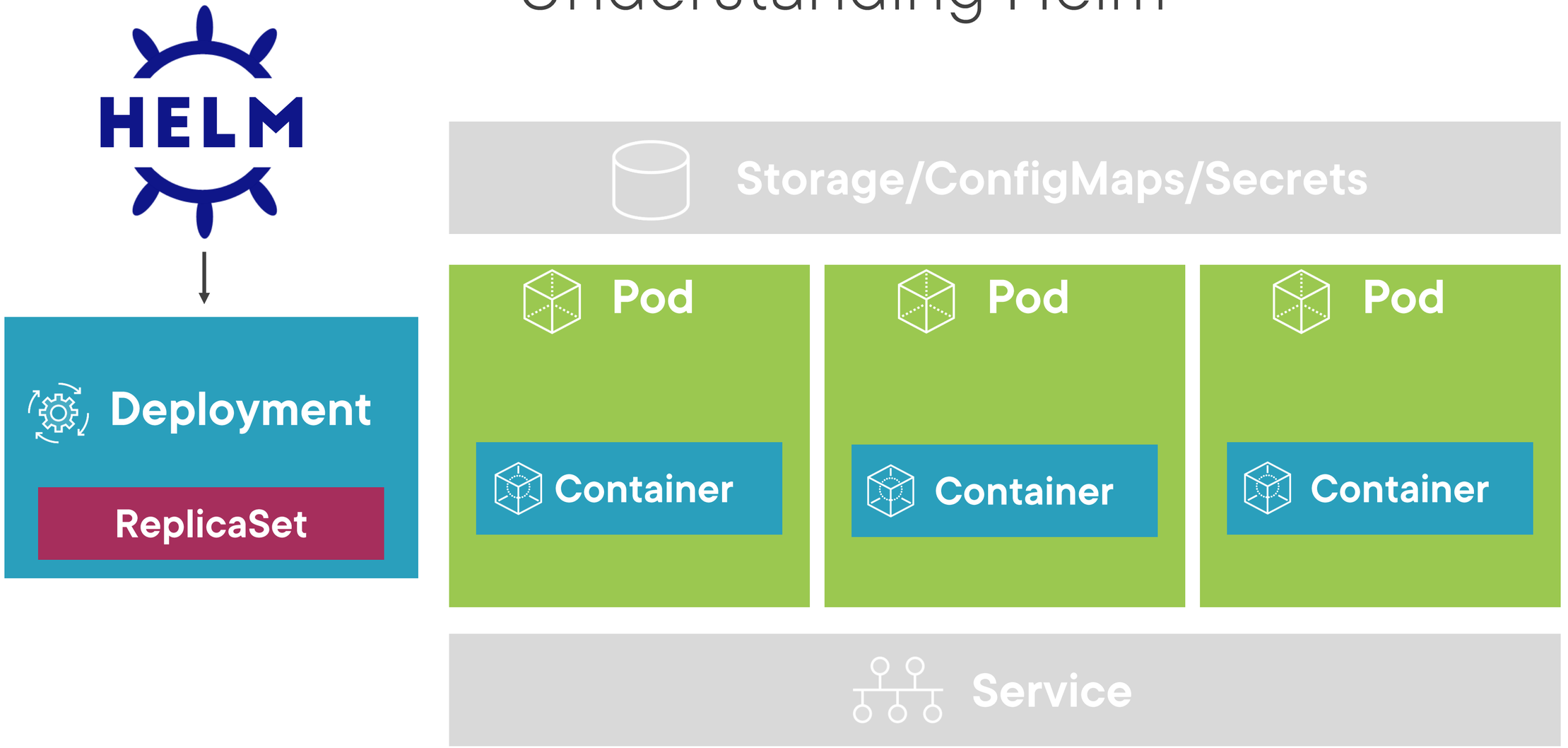
@danwahlin codewithdan.com

Agenda

- Understanding Helm
- Working with Helm Commands
- Helm in Action
- Exam Scenarios
- Recap and Test Yourself

Understanding Helm

Understanding Helm



Helm is the best way to find, share, and use software built for Kubernetes.

https://helm.sh

Helm Use Case Examples

Install a Database into Kubernetes

Install Wordpress into Kubernetes

Install Grafana into Kubernetes

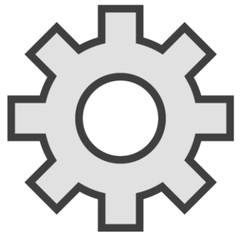
Helm Overview

Helm is a package manager for Kubernetes

- Tool for managing Kubernetes packages called "charts"
- Use charts to install, upgrade, and uninstall Kubernetes apps
- Helm Client - command-line client for end users
- Helm Library - Logic for executing operations

Helm Concepts

Chart – Bundle of information used to create an instance of a Kubernetes application.



Config – Configuration information that can be merged into a packaged chart to create a releasable object.

Release – Running instance of a chart (combined with a specific configuration) in Kubernetes.

Helm installs charts into Kubernetes, creating a new release for each installation. And to find new charts, you can search Helm chart repositories.

https://helm.sh/docs/intro/using_helm

Working with Helm Commands

Key Helm Commands

helm -h

helm search hub (defaults to Artifact Hub)

help repo add

helm search repo

helm values

helm install

helm status

helm list

helm uninstall

Helm Command Flow

```
helm search hub
helm repo add
helm search repo
```

Find charts and repositories

```
helm show values
helm pull --untar
```

Learn about chart values

```
helm install
helm upgrade
helm uninstall
```

Install, upgrade, uninstall a chart

Helm in Action

Exam Scenarios – Task 1

```
Cluster: ckad0020
Namespace: dev
Doc links: Helm
```

Task

1. Create a namespace named **dev** in Kubernetes.
2. Use Helm to add a repo named **bitnami** located at http://chart.bitnami.com/bitnami.
3. List all Helm repos and ensure **bitnami** appears.
4. Search the **bitnami** repo for **nginx** and show all available versions.
5. Install the **bitnami/nginx** chart into the **dev** namespace of Kubernetes. Name the release **nginx-app**.
6. List all Pods running in the **dev** namespace.
7. List all Helm charts in the **dev** namespace.
8. Remove the **nginx-app** release.

Exam Scenarios – Task 2

```
Cluster: ckad0020
Namespace: dev
Doc links: Deployments, Helm
```

Task

1. Use Helm to pull the **bitnami/wordpress** version **15.0.9** chart and untar it in the current folder.
2. Open the **chart.yaml** file in the new **wordpress** folder and note the dependencies.
3. View the **wordpress 15.0.9** chart values using Helm.
4. Create a **wordpress-values.yml** file in the current folder and add the following content:

```
wordpressUsername: admin
wordpressPassword: admin
wordpressEmail: admin@admin.com
wordpressFirstName: Jane
wordpressLastName: Doe
wordpressBlogName: admin.com
service:
  type: LoadBalancer
```

5. Install version **15.0.9** of the **wordpress** chart into the **dev** namespace and pass the values from the **wordpress-values.yml** file.
6. List the running Pods.

Exam Scenarios – Task 3

```
Cluster: ckad0020
Namespace: dev
Doc links: Deployments, Helm
```

Task

1. List all current Helm installations in the **dev** namespace.
2. Update the Helm **bitnami** repo.
3. Show all **nginx** chart values for version **13.1.5**.
4. Install the **nginx** version **13.1.5** chart with **5 replicas**. Name the release **nginx-app** and install it into the **dev** namespace.
5. List the running Pods.
6. Upgrade the **nginx-app** release to version **13.1.8**.
7. List the running Pods.
8. Remove the **nginx-app** release.

Recap and Test Yourself

Top Three Take-home Points

Helm is a package manager for Kubernetes.

Find charts by:

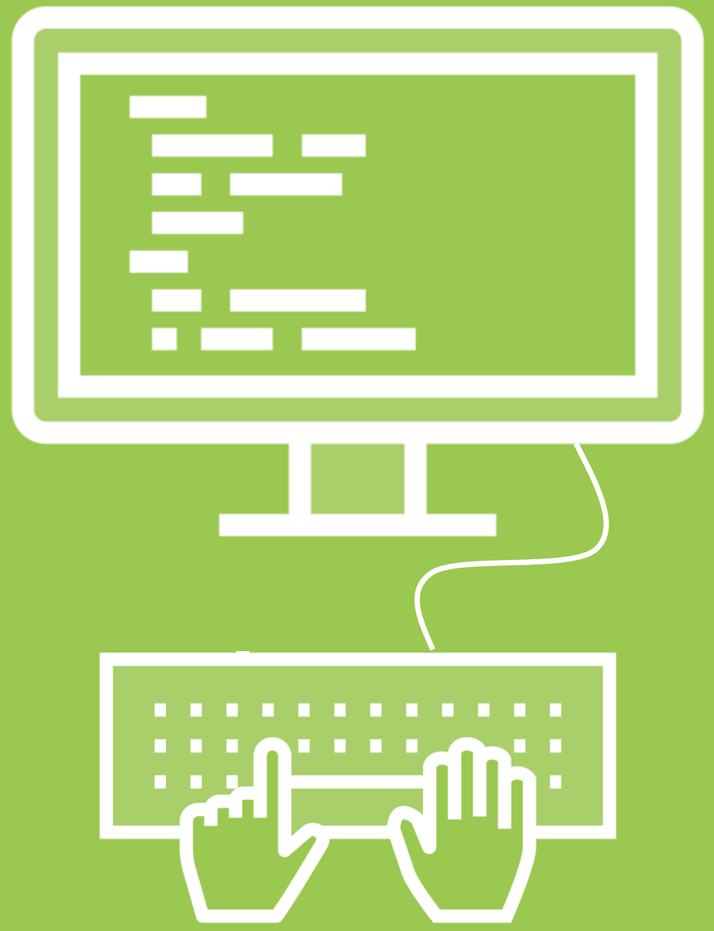
- Searching a hub
- Adding a repo
- Searching a repo

Use Helm to customize installs, upgrade, and uninstall charts.

Key Helm Commands

Key Helm commands to know for the exam.

```
helm search hub
helm repo add
helm show values
helm install
helm upgrade
helm uninstall
```



GitHub Repo

https://github.com/nigelpoulton/ckad