Helm Intro

Intro to Helm

- “Package manager” for Kubernetes
- https://helm.sh
- Common public repos: S3, GitHub, Docker Hub
- Installation prereqs: Docker, Kubernetes, kubectl

Demo: Install, Inspect, and Deploy with Helm

Lab 01: Deploy Prefab Chart

Chart Building

Building Helm Charts

- Relies fundamentally on Kubernetes manifests under the hood
- The “magic” comes with Go templating (more on this later)
- Added benefit of semantic versioning, upgrades, and rollbacks like a “proper” package manager

Demo: Deploy Custom Chart

Lab 02: Build App and Deploy via Helm

Chart Dependencies

Managing Dependencies

- Related to but distinct from “subcharts” (covered later)
- Conceptually the same as regular program dependencies
- Defined in chart.yaml or separate requirements.yaml
- Third parties and avoiding “dependency hell”

Demo: Manage Dependencies

Lab 03: Manage Dependencies

Helm Templating

Helm templates

- Relies on Go template syntax (e.g. {{ .Values.var }})
- Good to learn from the default templates created by **helm create**
- Different scopes of applied values (hardcoded, values.yaml, CLI)
- Highly flexible logic familiar to programmers, e.g. iterating through lists

Demo: Helm Templates

Lab 04: Helm Templates

Demo: Spring App with Built-In Helm Functions

Lab 05: Templates and Built-In Functions

Demo: Custom Functions

Lab 06: Write Custom Functions

Helm Plugins

Helm plugins

- External modules/programs used by helm (generally called by **helm** wrapper)
- Can be written in any programming language
- Some **curated lists** out there
- Be sure to perform due diligence as with any third party software

Demo: Write and Manage Plugins

Lab 07: Write and Manage Plugins

Subcharts

Subcharts

- At its simplest, a chart directory within an existing chart directory
- Not required, but best to declare as explicit dependency
- Deploy multiple charts in a single release
- Can propagate values down to subcharts

Demo: Write and Deploy Subcharts

Lab 08: Write and Deploy Subcharts

Final Q&A

Thank you!

If you have any additional questions, please ask!If

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