April 18th-20th, 2024

#GlobalAzure

HELM

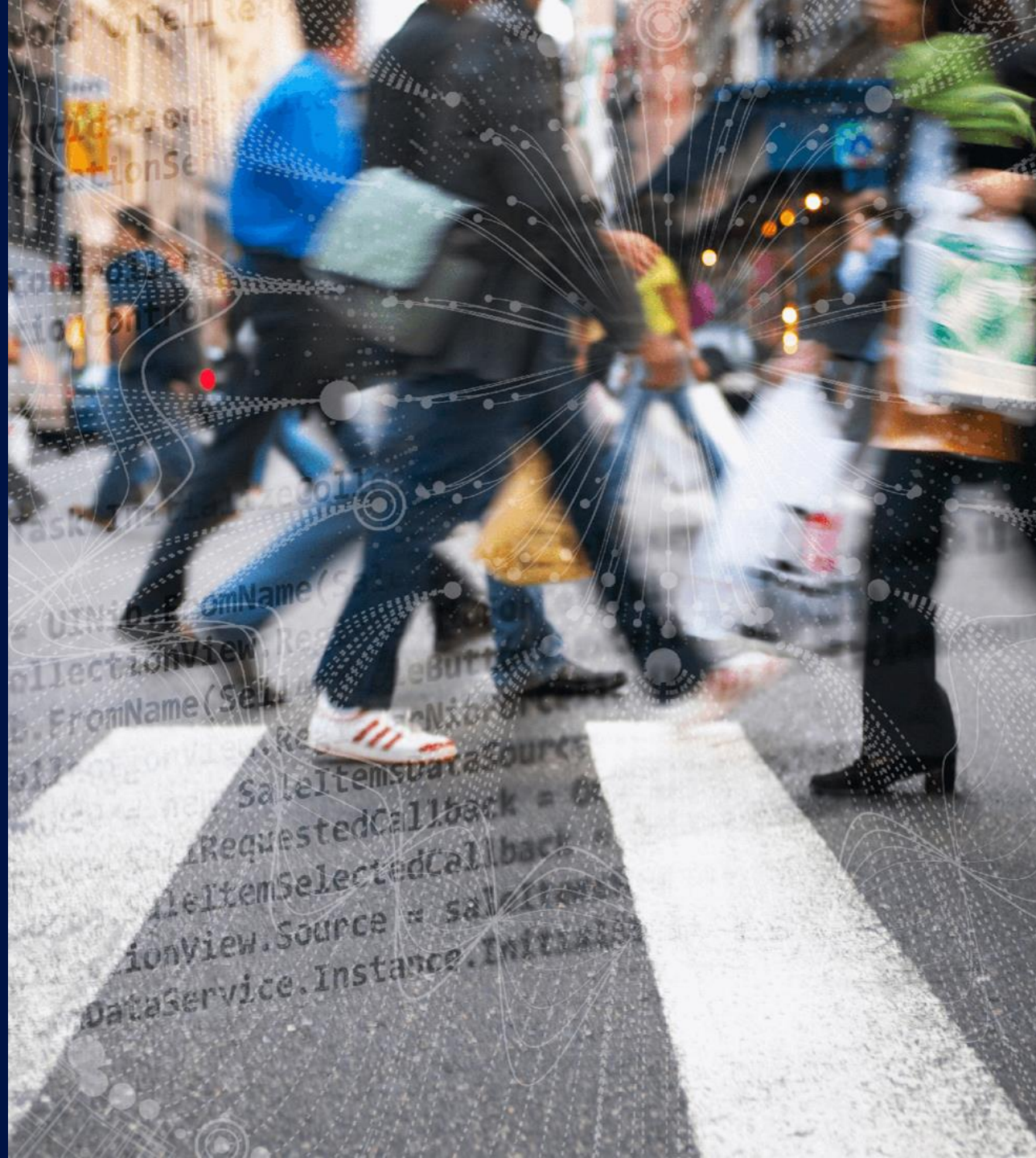
For developers

Leonardo Micheloni

¿Quién soy?

Leonardo Micheloni
Argentino
Developer +20
MVP 9 años

Tokiota



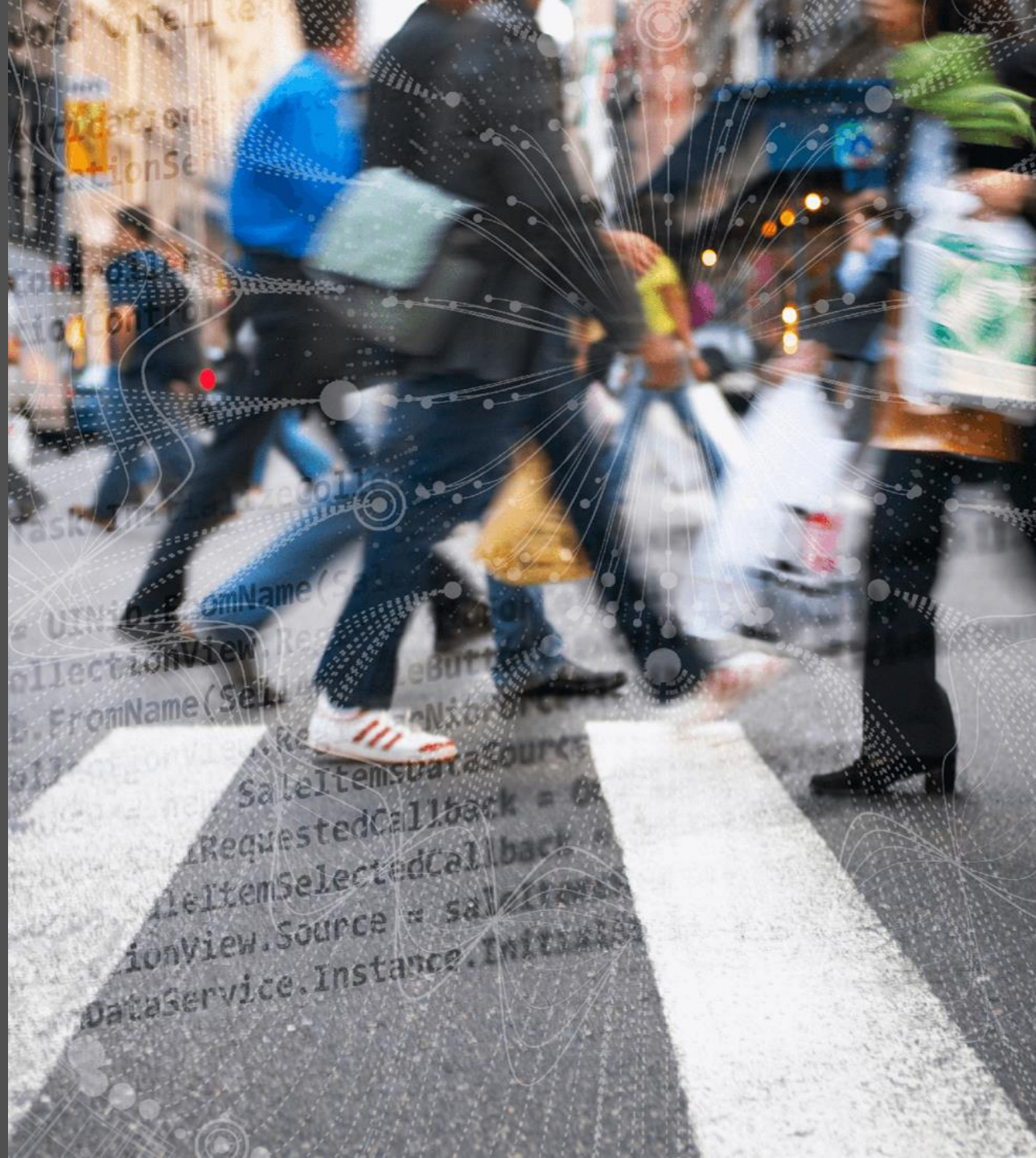
No soy experto

Know how previo

Docker
Kubernetes
YAML???

Temario

- ¿Qué es HELM?
- ¿Para qué se usa?
- Componentes
  - Chart
  - Release
  - Repositorio
  - Template
  - Variables
- Crear nuestro propio Chart



Helm es un gestor de paquetes para K8S

HELM permite a los usuarios instalar, configurar y actualizar aplicaciones.

¿Qué problema queremos solucionar?

```yaml
version: '3.1'

services:

  wordpress:
    image: wordpress
    restart: always
    ports:
      - 8080:80
    environment:
      WORDPRESS_DB_HOST: db
      WORDPRESS_DB_USER: exampleuser
      WORDPRESS_DB_PASSWORD: examplepass
      WORDPRESS_DB_NAME: exampledb
    volumes:
      - wordpress:/var/www/html

  db:
    image: mysql:5.7
    restart: always
    environment:
      MYSQL_DATABASE: exampledb
      MYSQL_USER: exampleuser
      MYSQL_PASSWORD: examplepass
      MYSQL_RANDOM_ROOT_PASSWORD: '1'
    volumes:
      - db:/var/lib/mysql

volumes:
  wordpress:
  db:
```

- app-deployment.yaml
- app-pv.yaml
- app-pvc.yaml
- app-service.yaml
- configmap.yaml
- db-deployment.yaml
- db-pv.yaml
- db-pvc.yaml
- db-service.yaml
- secret.yaml

¿En qué me ayuda HELM?

- Gestión de dependencias
- Gestión de templates
- Versiones
- Reutilización de configuraciones
- Entornos
- Secretos

Ejemplo

https://artifacthub.io/packages/search?ts_query_web=wordpress&sort=relevance&page=1

Artifact HUB | Search packages | DOCS | STATS | SIGN UP | SIGN IN

1 - 20 of 44 results for "wordpress"

Sort: Relevance | Show: 20

FILTERS

- [ ] Official
- [ ] Verified publishers
- [ ] CNCF

KIND

- [ ] Helm charts (43)
- [ ] KubeArmor policies (1)

CATEGORY

- [ ] Integration and delivery (4)
- [ ] Security (2)

LICENSE

- [ ] Apache-2.0 (5)

OPERATOR CAPABILITIES

- [ ] Basic Install (1)
- [ ] Full Lifecycle (1)

OTHERS

- [ ] Only operators
- [ ] Include deprecated

wordpress
Bitnami | Bitnami

★ 76 | Helm chart
Updated 3 days ago
Version 22.1.3

WordPress is the world's most popular blogging and content management platform. Powerful yet simple, everyone from students to global corporations ...

wordpress
groundhog2k | Helm charts based on original (unmodified) docker images

★ 5 | Helm chart
Updated 2 months ago
Version 0.10.6

A Helm chart for Wordpress on Kubernetes

wordpress
[riftbit] | [riftbit]

★ 0 | Helm chart
Updated 3 years ago
Version 12.1.16

Web publishing platform for building blogs and websites.

```
helm repo add https://codecentric.github.io/helm-charts
helm install keycloak codecentric/keycloak
helm list

helm upgrade keycloak set replicas=3
helm history keycloak
helm rollback
helm show chart mychart
helm show values mychart
```

En pocas palabras

Permite automatizar la implementación y el mantenimiento de K8S

- Charts: son los paquetes de HELM
- Repositorio: un lugar donde hay Charts
- Releases: es una instancia de un Chart en ejecución
- Template: son archivos que definen los objetos de K8S
- Variables: son valores que pueden asignarse dentro de los templates

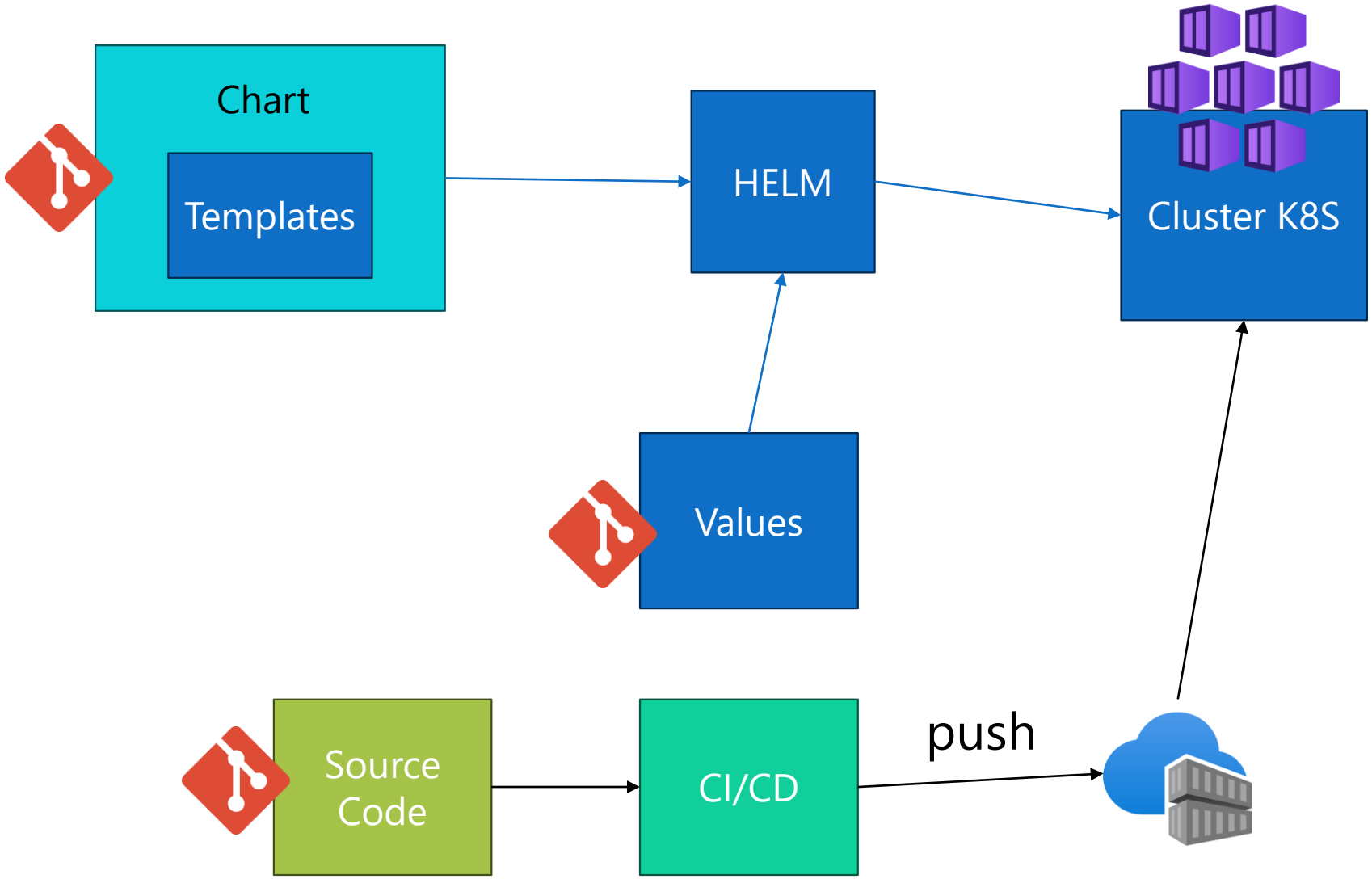
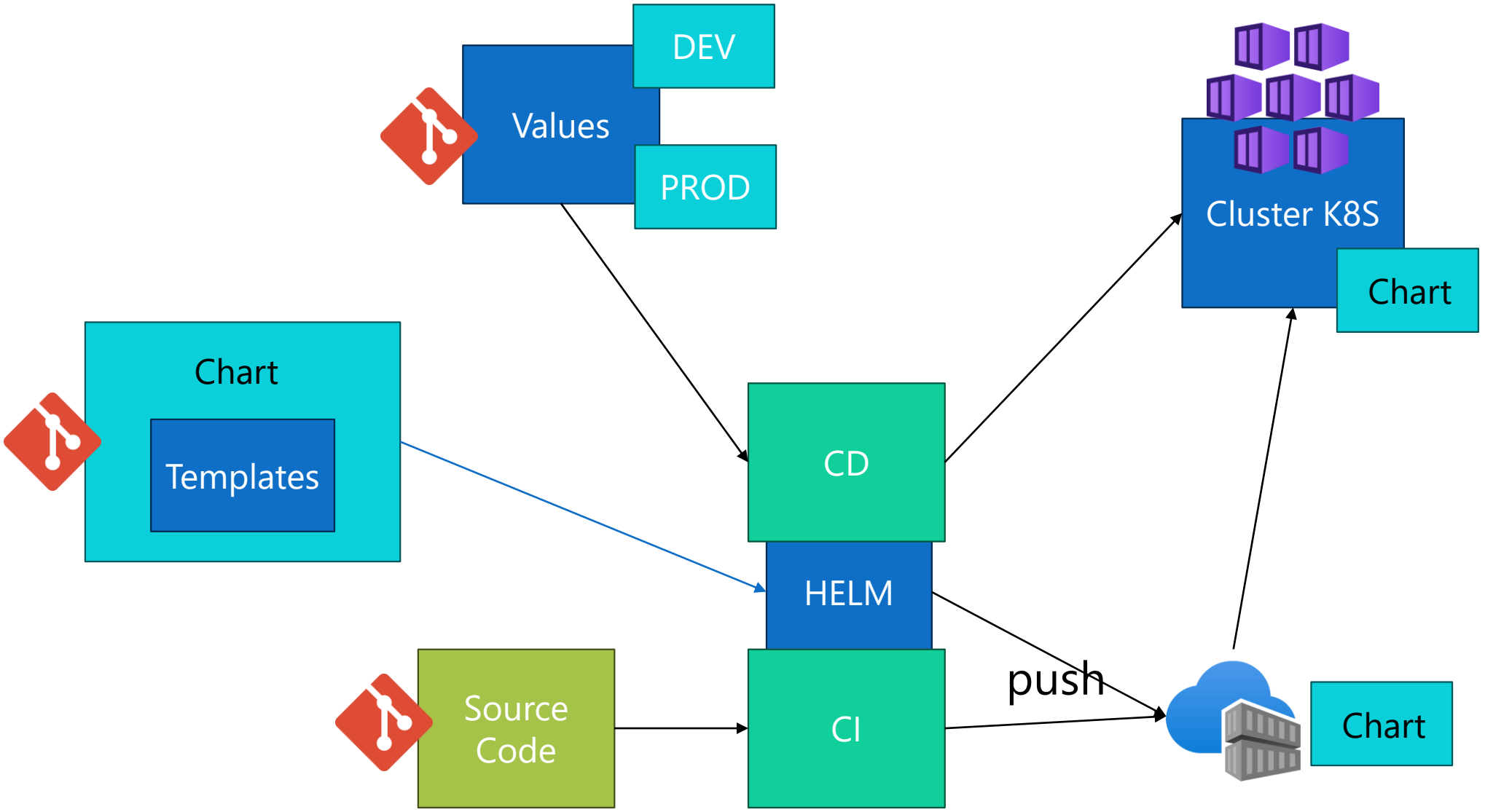
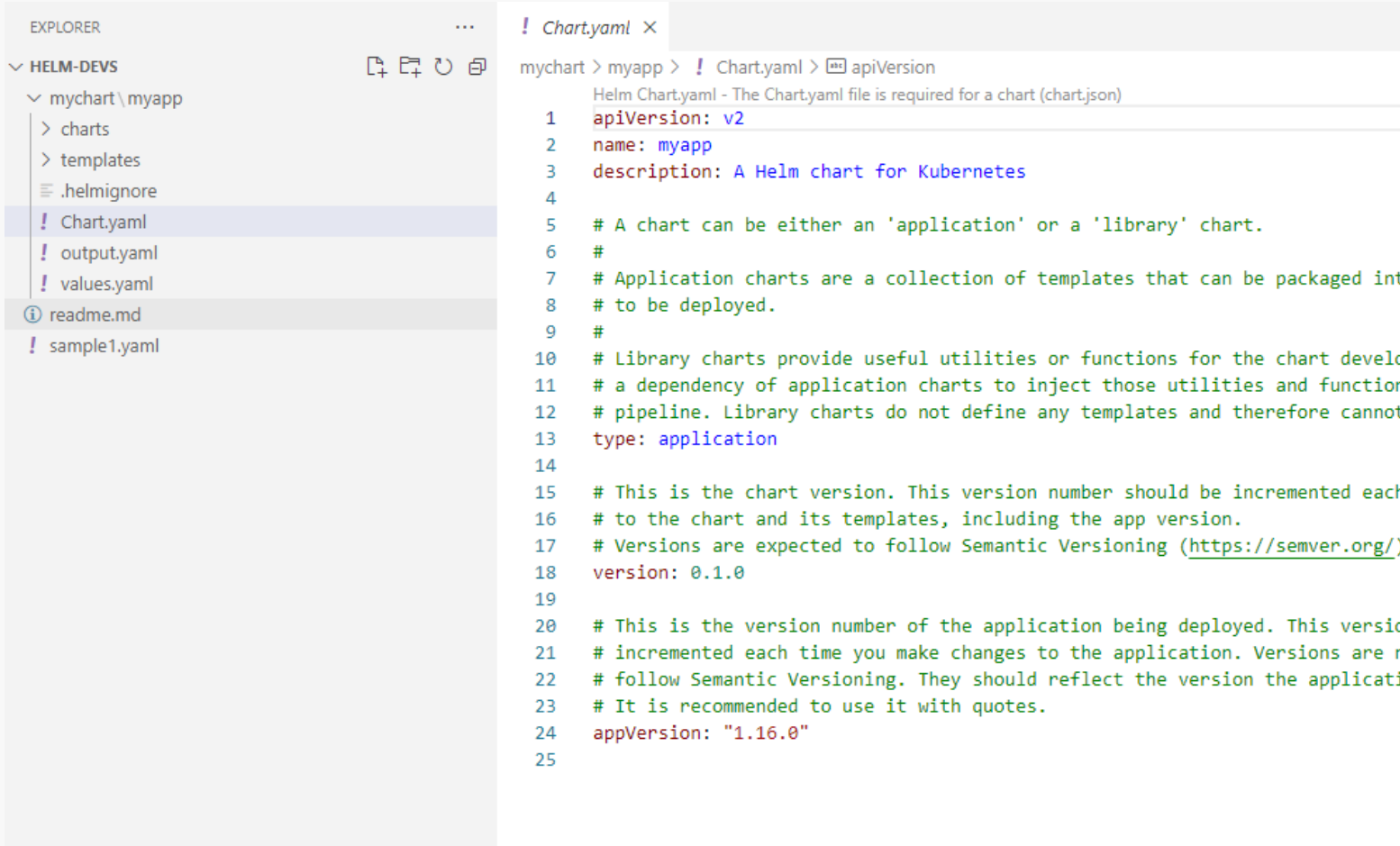


Chart
Templates
HELM
Cluster K8S
Values
Source Code
CI/CD
push


DEV
Values
PROD
Cluster K8S
Chart
Chart
Templates
CD
HELM
Source
Code
CI
push
Chart

Chart

- Es la definición del paquete que contiene nuestro Sistema



Templates

- Son objetos de Kubertnetes que formarán parte del sistema final

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: {{ include "wordpress.fullname" . }}
  labels:
    {{- include "wordpress.labels" . | nindent 4 }}
spec:
{{- if not .Values.autoscaling.enabled }}
  replicas: {{ .Values.replicaCount }}
{{- end }}
  selector:
    matchLabels:
      {{- include "wordpress.selectorLabels" . | nindent 6 }}
  template:
    metadata:
    {{- with .Values.podAnnotations }}
      annotations:
        {{- toYaml . | nindent 8 }}
    {{- end }}
      labels:
        {{- include "wordpress.selectorLabels" . | nindent 8 }}
    spec:
      {{- with .Values.imagePullSecrets }}
      imagePullSecrets:
        {{- toYaml . | nindent 8 }}
      {{- end }}
      serviceAccountName: {{ include "wordpress.serviceAccountName" . }}
      securityContext:
        {{- toYaml .Values.podSecurityContext | nindent 8 }}
      initContainers:
        - name: copy-wordpress-app
          image: "{{ .Values.image.repository }}:{{ .Values.image.tag }}"
          imagePullPolicy: {{ .Values.image.pullPolicy }}
          securityContext:
            {{- toYaml .Values.securityContext | nindent 12 }}
```

Search packages or symbols /

Discover Packages > Standard library > text > template

template

package | standard library

Version: go1.22.2 Latest | Published: Apr 3, 2024 | License: BSD-3-Clause | Imports: 16 | Imported by: 83,282

Jump to ... f

Documentation

Overview

Package template implements data-driven templates for generating textual output.

To generate HTML output, see html/template, which has the same interface as this package but automatically secures H against certain attacks.

Templates are executed by applying them to a data structure. Annotations in the template refer to elements of the data (typically a field of a struct or a key in a map) to control execution and derive values to be displayed. Execution of the te the structure and sets the cursor, represented by a period '.' and called "dot", to the value at the current location in the s execution proceeds.

The input text for a template is UTF-8-encoded text in any format. "Actions"--data evaluations or control structures--are {{" and "}}"; all text outside actions is copied to the output unchanged.

Once parsed, a template may be executed safely in parallel, although if parallel executions share a Writer the output ma

Here is a trivial example that prints "17 items are made of wool".

```
type Inventory struct {
    Material string
    Count    uint
```

https://pkg.go.dev/text/template

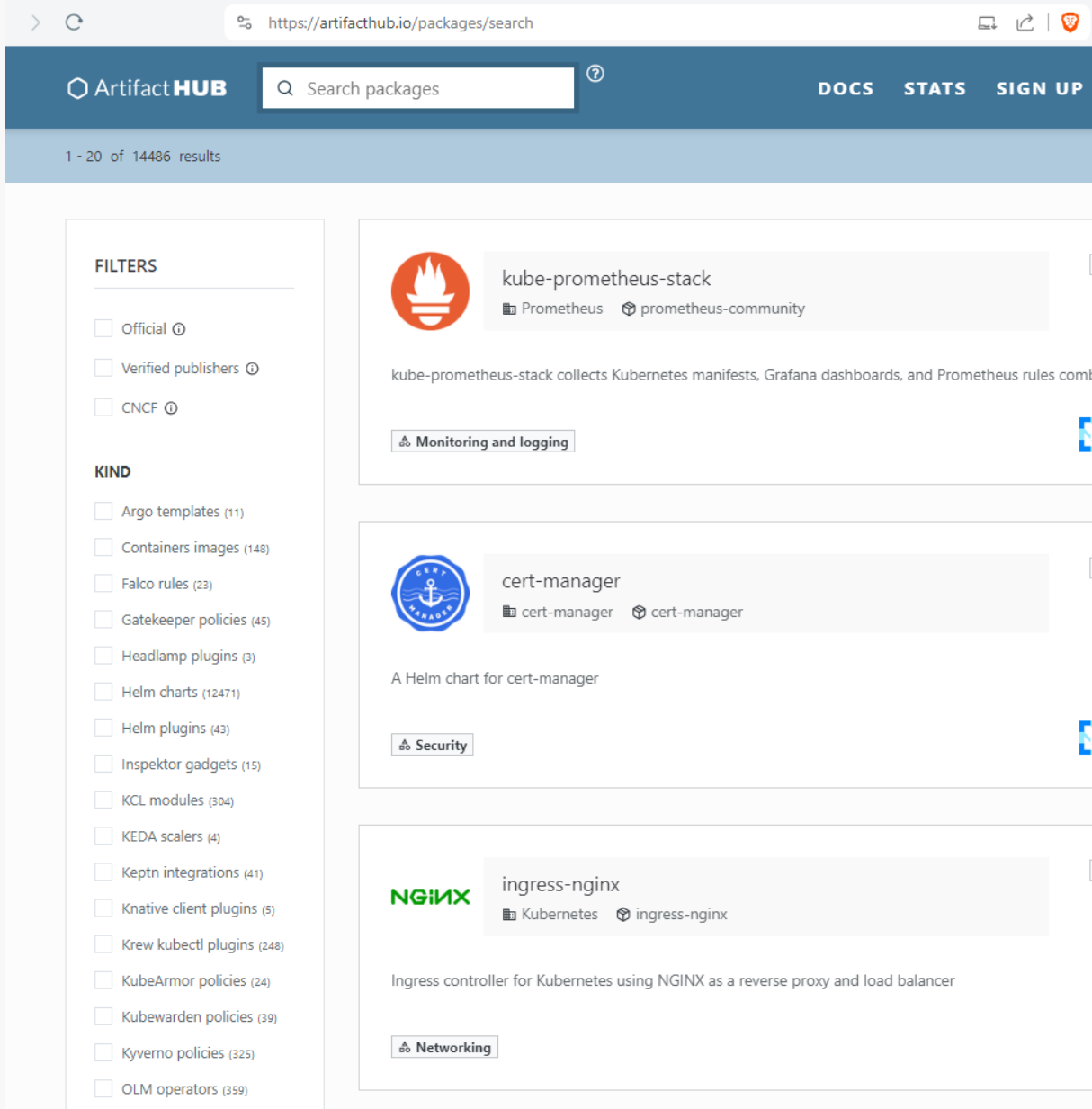
Variables

- Valores que se reemplazarán en los tempaltes
- Pueden ser establecidos por línea de comandos
- Lo más común es utilizar un archivo “values.yaml” por entorno

```yaml
# Default values for wordpress.
# This is a YAML-formatted file.
# Declare variables to be passed into your templates.

replicaCount: 1

image:
  repository: wordpress
  pullPolicy: Always
  tag: "5.7-php7.4-fpm-alpine"

imageWeb:
  repository: nginx
  pullPolicy: Always
  # Overrides the image tag whose default is the chart appVersion.
  tag: mainline-alpine

imagePullSecrets: []
nameOverride: ""
fullnameOverride: ""

serviceAccount:
  # Specifies whether a service account should be created
  create: false
  # Annotations to add to the service account
  annotations: {}
  # The name of the service account to use.
  # If not set and create is true, a name is generated using the fullname template
  name: ""
```

Repositorio

- Es un lugar para guardar Charts
- Podemos usar nuestro propio file system
- Podemos usar un repo OCI

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Qué hay dentro de un chart?

- Templates
- Helpers
- Values
- Chart definition
- Sub charts

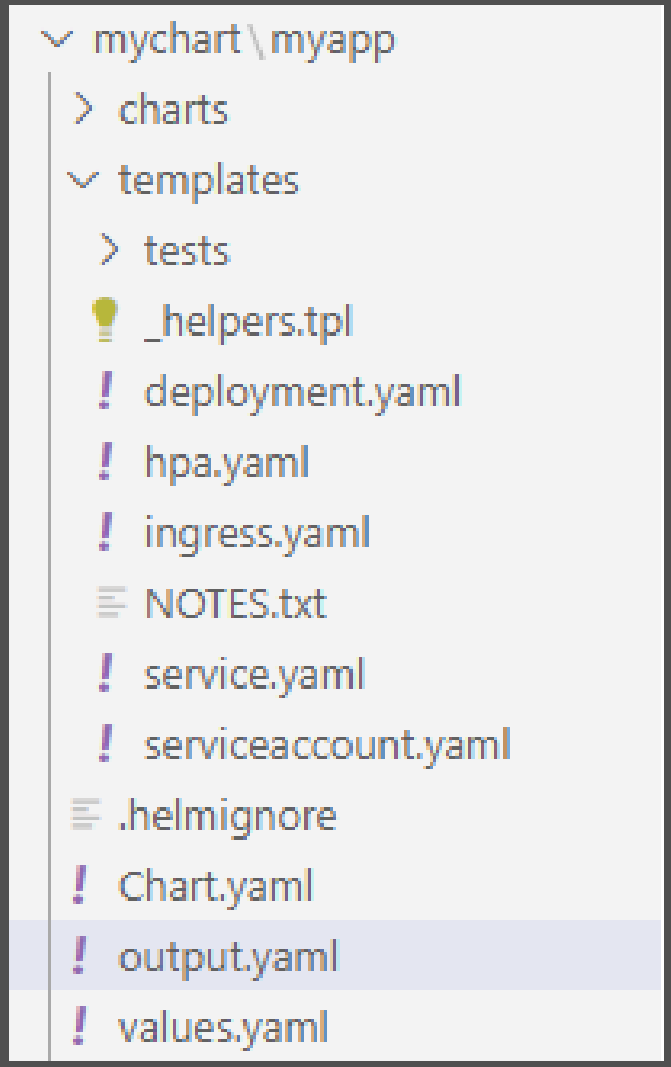
https://github.com/codecentric/helm-charts/blob/master/charts/keycloak

#GlobalAzure

#GlobalAzure

Crear nuestro propio chart

- Helm create myapp

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Más cosas

- Sub charts
- Funciones
- Valores globales
- Tests
- Requirements
- Etc.

```
{{/* vim: set filetype=mustache: */}}
{{/*
Expand the name of the chart.
*/}}
{{- define "wordpress.name" -}}
{{- default .Chart.Name .Values.nameOverride | trunc 63 | trimSuffix "-" }}
{{- end }}

{{/*
Create a default fully qualified app name.
We truncate at 63 chars because some Kubernetes name fields are limited to this (by the DNS naming spec).
If release name contains chart name it will be used as a full name.
*/}}
{{- define "wordpress.fullname" -}}
{{- if .Values.fullnameOverride }}
{{- .Values.fullnameOverride | trunc 63 | trimSuffix "-" }}
{{- else }}
{{- $name := default .Chart.Name .Values.nameOverride }}
{{- if contains $name .Release.Name }}
{{- .Release.Name | trunc 63 | trimSuffix "-" }}
{{- else }}
{{- printf "%s-%s" .Release.Name $name | trunc 63 | trimSuffix "-" }}
{{- end }}
{{- end }}
{{- end }}

{{/*
Create chart name and version as used by the chart label.
*/}}
{{- define "wordpress.chart" -}}
{{- printf "%s-%s" .Chart.Name .Chart.Version | replace "+" "_" | trunc 63 | trimSuffix "-" }}
{{- end }}

{{/*
```

Preguntas?

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Gracias!