Secrets

- Secrets provides a way in kubernetes to distribute **credentials**, **Keys**, **passwords** or **"secret" data** to the pods

- Kubernetes itself uses this Secrets mechanism to provide the credentials to access the internal API

- You can also use the **same mechanism** to provide secret to your application

- Secrets is one way to provide secret, native to Kubernetes
  - There are still **other ways** your container can get the its secrets if you don't want to use Secrets (e.g using an **external vault services** in your app)

Secrets

- Secrets can be used in the following ways:
    - Use Secrets as **environment varia**bles
    - Use secrets **as a file** in a pod
        - This setup uses **volumes** to be mounted in a container
        - In this volume you have **files**
        - Can be used for instance for **dotenv** files or you app can just read this file

Secrets

- To generate secrets using files:

```
# echo -n "root" > ./username.txt
# echo -n "password" > ./password.txt

# kubctl create secret generic db-user-pass --from-file=./username.txt --from-file=./password.txt
```

- A Secret can also be an SSH Key or an SSL certificate

```
# kubctl create secret generic ssl-certificate --from-file=ssh-privatekey=~/.ssh/id_rsa  --ssl-cert=ssl-cert=mysslcert.crt
```

Secrets

- To generate secret using yaml definitions:

- secrets-db-secret.yml

```
------------------------------------
apiVersion: v1
kind: Secret
metadata:
  name: db-secrets
type: Opaque
data:
  username: cm9vdA==
  password: cGFzc3dvcmQ=
------------------------------------
```

```
# echo -n 'root' | base64
cm9vdA==
# echo -n 'password' | base64
cGFzc3dvcmQ=
```

```
# kubectl create -f secrets-db-secret.yml
```

- After creating the yml file, you can use kubectl create:

Using Secrets

You can create a pod that expose the secret as environment variables:

```
env:
        - name: MYSQL_HOST
          value: database-service
        - name: MYSQL_USER
          value: root
        - name: MYSQL_PASSWORD
          valueFrom:
            secretKeyRef:
              name: helloworld-secrets
              key: rootPassword
        - name: MYSQL_DATABASE
          valueFrom:
            secretKeyRef:
              name: helloworld-secrets
              key: database
```

Demo Placeholder

Performing Secrets