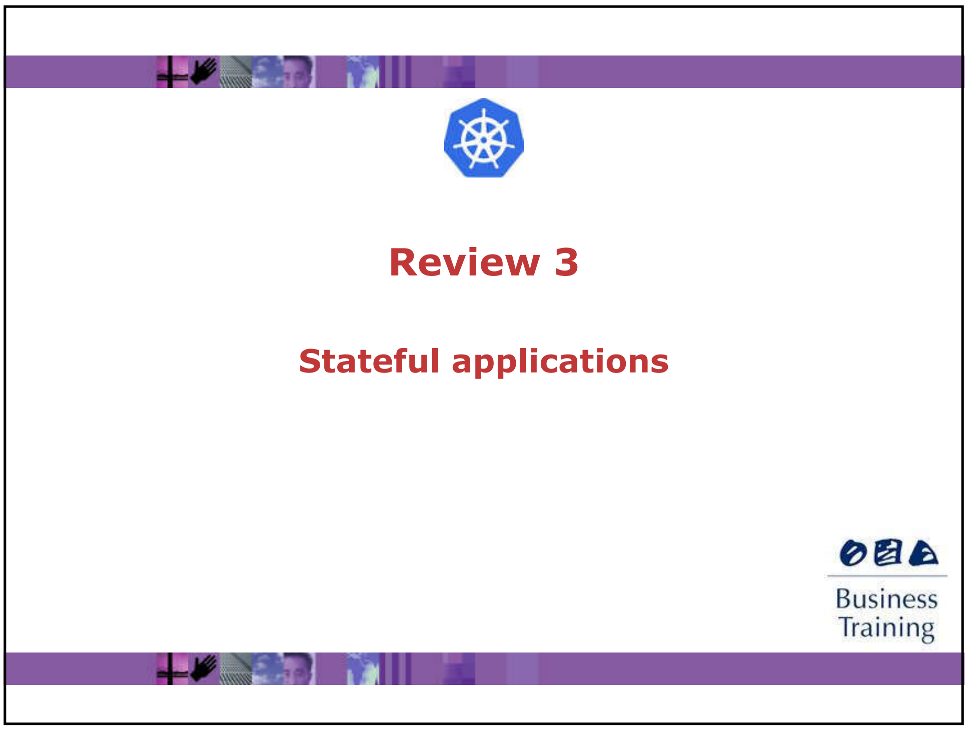
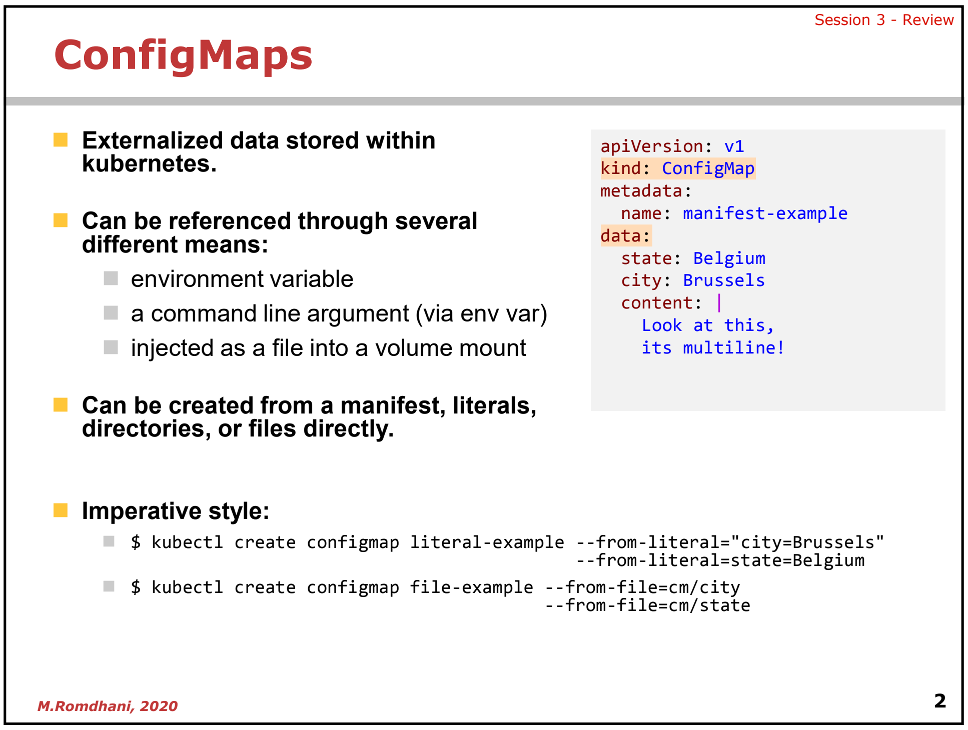


Review 3

Stateful applications

Business Training

1



ConfigMaps

- **Externalized data stored within kubernetes.**
- **Can be referenced through several different means:**
  - environment variable
  - a command line argument (via env var)
  - injected as a file into a volume mount
- **Can be created from a manifest, literals, directories, or files directly.**

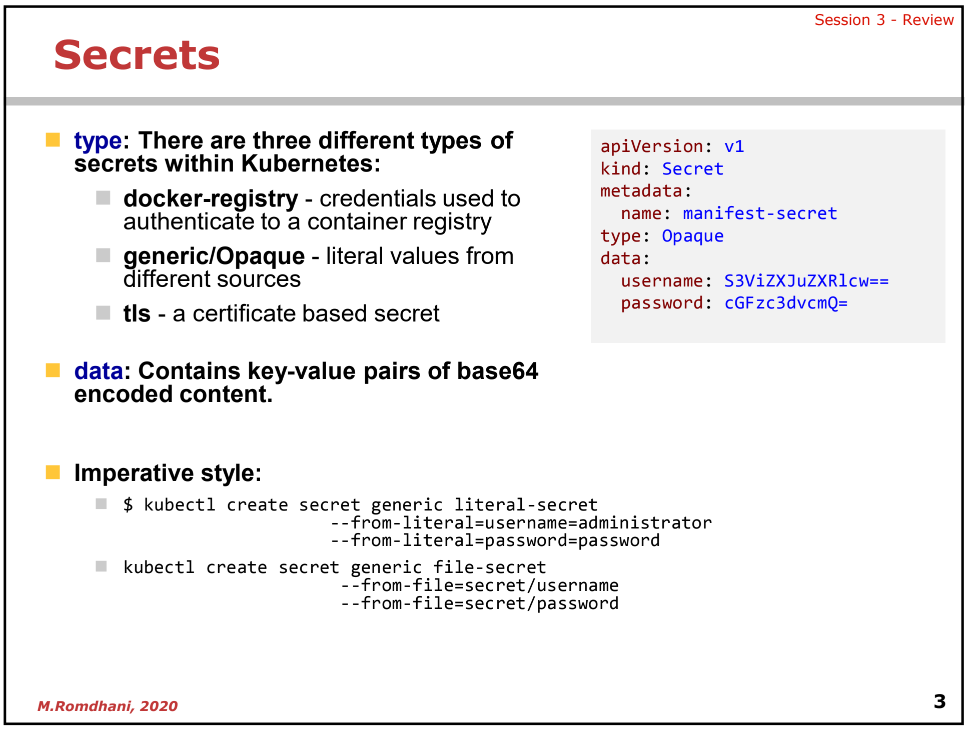
```
apiVersion: v1
kind: ConfigMap
metadata:
  name: manifest-example
data:
  state: Belgium
  city: Brussels
  content: |
    Look at this,
    its multiline!
```

- **Imperative style:**

  -
    ```
    $ kubectl create configmap literal-example --from-literal="city=Brussels"
                                               --from-literal=state=Belgium
    ```

  -
    ```
    $ kubectl create configmap file-example --from-file=cm/city
                                            --from-file=cm/state
    ```

2



Session 3 - Review

Secrets

- **type: There are three different types of secrets within Kubernetes:**
  - **docker-registry** - credentials used to authenticate to a container registry
  - **generic/Opaque** - literal values from different sources
  - **tls** - a certificate based secret
- **data: Contains key-value pairs of base64 encoded content.**

```
apiVersion: v1
kind: Secret
metadata:
  name: manifest-secret
type: Opaque
data:
  username: S3ViZXJuZXRlcw==
  password: cGFzc3dvcmQ=
```

- **Imperative style:**

```
$ kubectl create secret generic literal-secret
                    --from-literal=username=administrator
                    --from-literal=password=password
```

```
kubectl create secret generic file-secret
                     --from-file=secret/username
                     --from-file=secret/password
```

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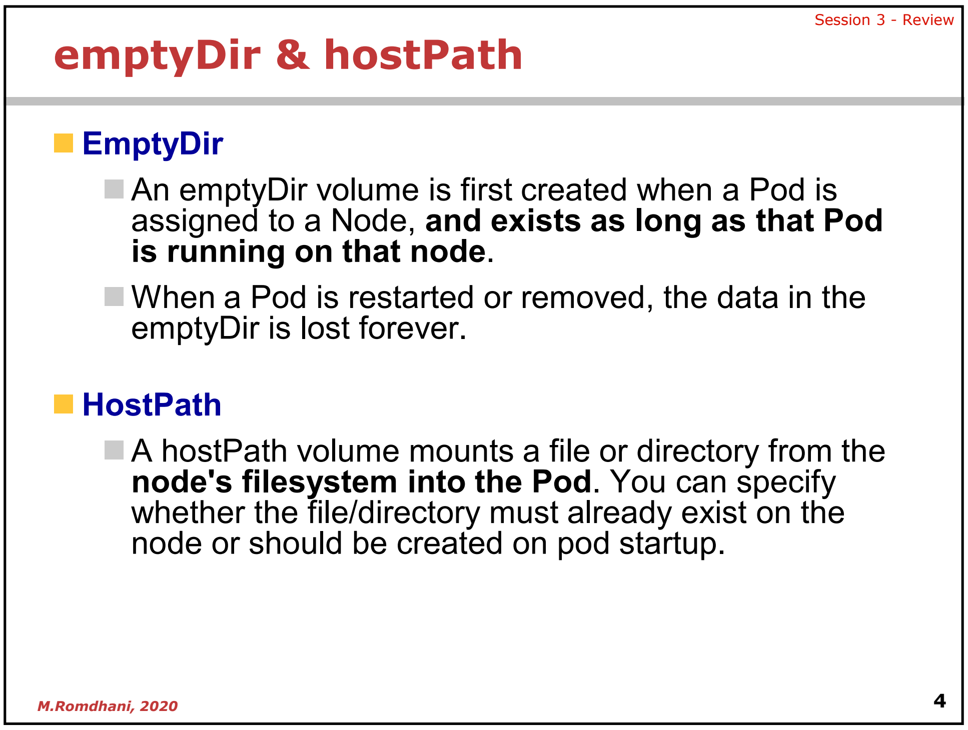

Session 3 - Review

emptyDir & hostPath

- **EmptyDir**
  - An emptyDir volume is first created when a Pod is assigned to a Node, **and exists as long as that Pod is running on that node**.
  - When a Pod is restarted or removed, the data in the emptyDir is lost forever.
- **HostPath**
  - A hostPath volume mounts a file or directory from the **node's filesystem into the Pod**. You can specify whether the file/directory must already exist on the node or should be created on pod startup.

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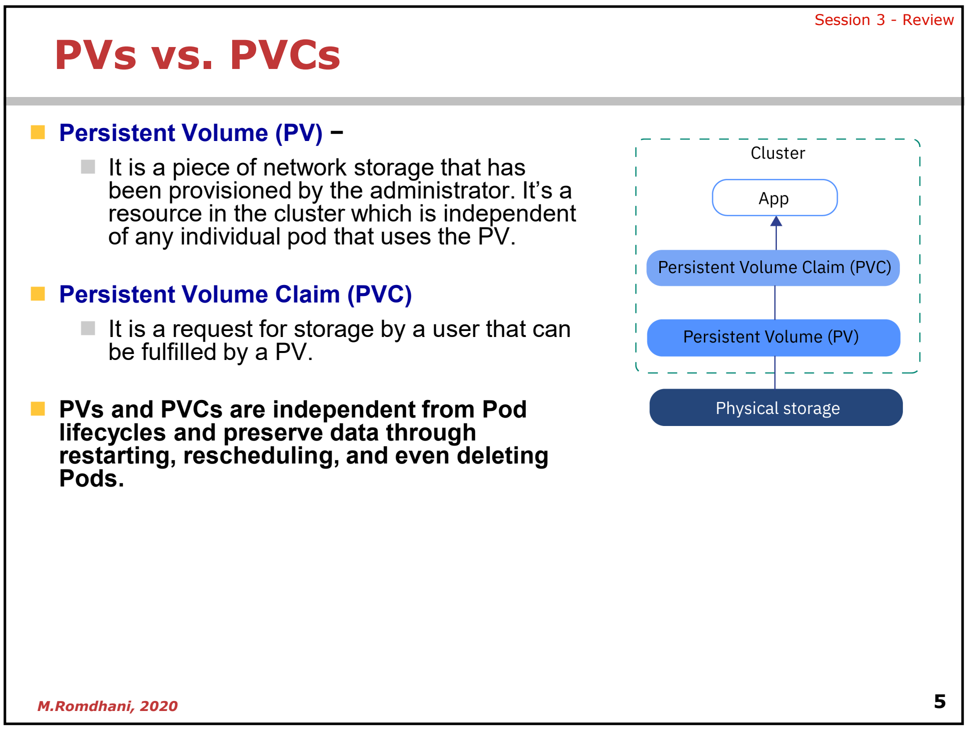
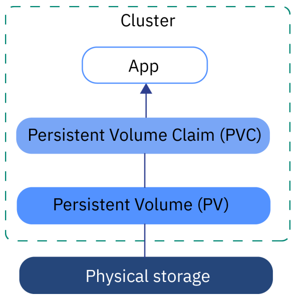


Session 3 - Review

PVs vs. PVCs

- **Persistent Volume (PV) –**
  - It is a piece of network storage that has been provisioned by the administrator. It's a resource in the cluster which is independent of any individual pod that uses the PV.
- **Persistent Volume Claim (PVC)**
  - It is a request for storage by a user that can be fulfilled by a PV.
- **PVs and PVCs are independent from Pod lifecycles and preserve data through restarting, rescheduling, and even deleting Pods.**



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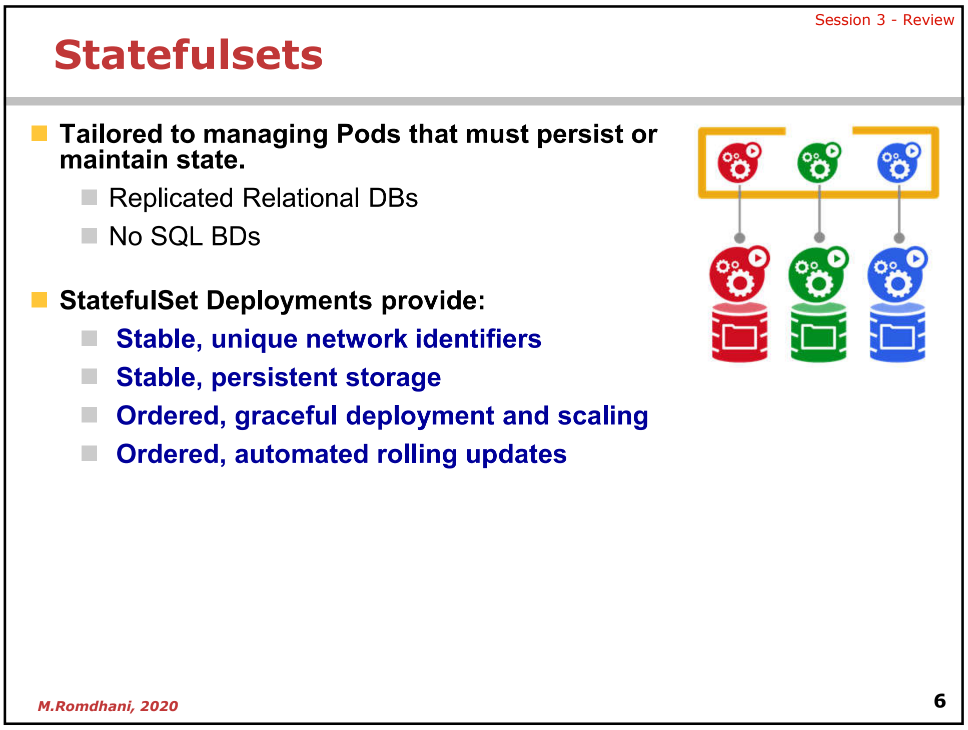
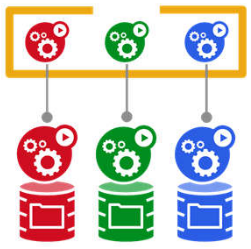


Session 3 - Review

Statefulsets

- **Tailored to managing Pods that must persist or maintain state.**
  - Replicated Relational DBs
  - No SQL BDs
- **StatefulSet Deployments provide:**
  - **Stable, unique network identifiers**
  - **Stable, persistent storage**
  - **Ordered, graceful deployment and scaling**
  - **Ordered, automated rolling updates**



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