K8s: Advanced Resources

Develop Intelligence

Module Outline

- **Resource Limits**
- Ingress
- DaemonSet
- StatefulSet
- Jobs
- CronJobs
- Lab

Resource Limits

```
apiVersion: v1
kind: Pod
metadata:
  name: myapp
spec:
  containers:
  - name:  myapp
    image: appv1
    resources:
      limits:
        memory: "128M"
        cpu: "500m"  # 50ms cpu time/100ms
...
```

Resource Requests (Minimums)

Develop Intelligence

```
apiVersion: v1
kind: Pod
metadata:
  name: myapp
spec:
  containers:
  - name:  myapp
    image: appv1
    resources:
      requests:
        memory: "64M"
        cpu: "100m"
...
```

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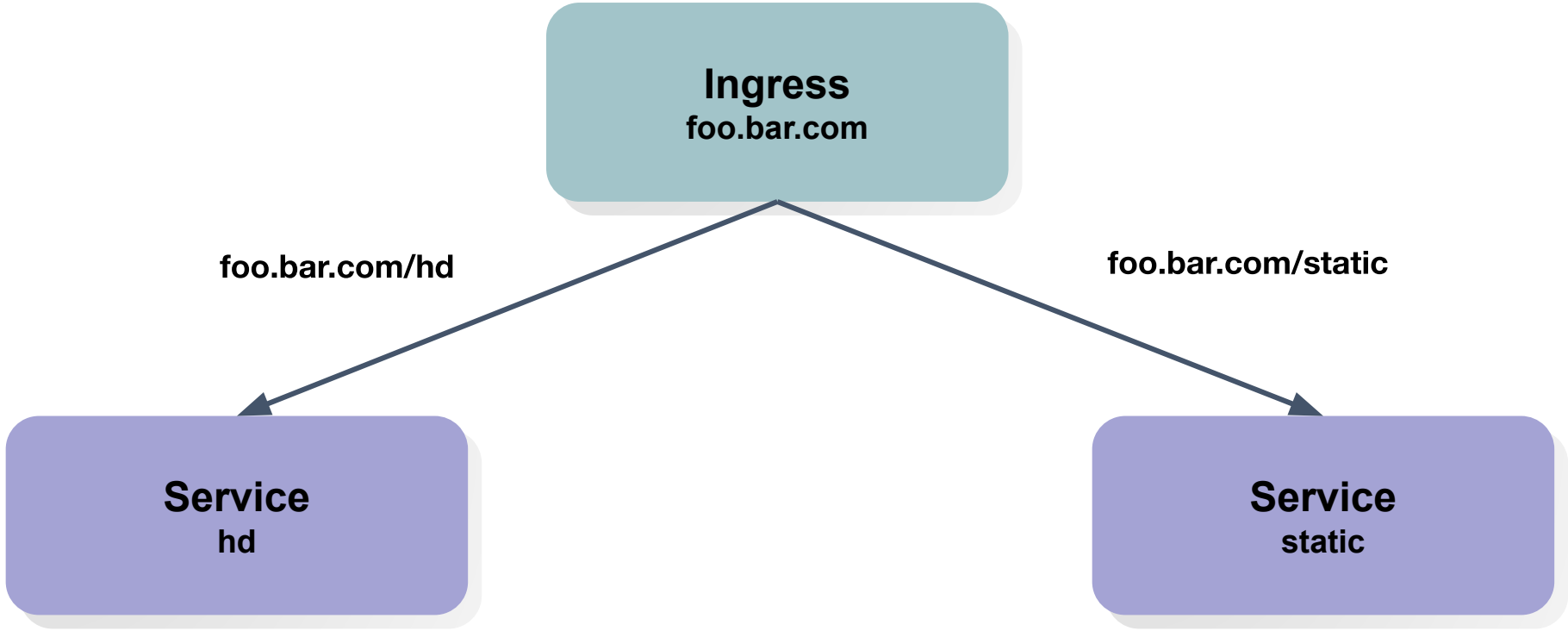
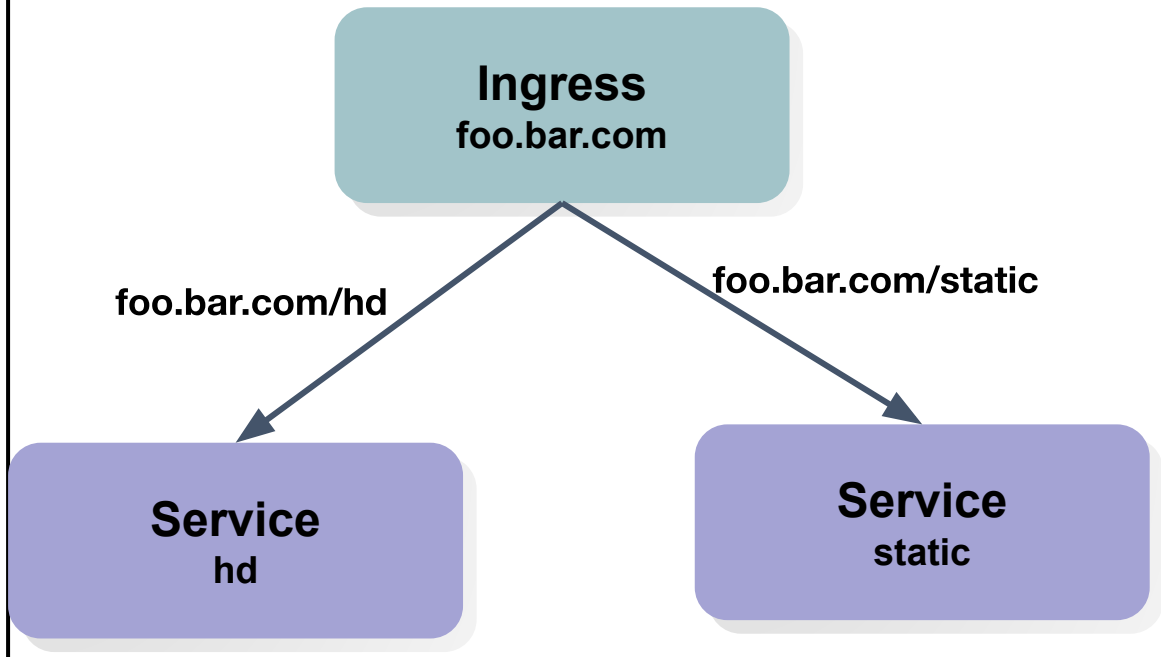
Ingress


Ingress
foo.bar.com
foo.bar.com/hd
foo.bar.com/static
Service
hd
Service
static

Ingress Spec

```
...
spec:
  rules:
  - host: foo.bar.com
    http:
      paths:
      - path: /hd
        backend:
          serviceName: hd
          servicePort: 4200
      - path: /static
        backend:
          serviceName: static
          servicePort: 8080
```



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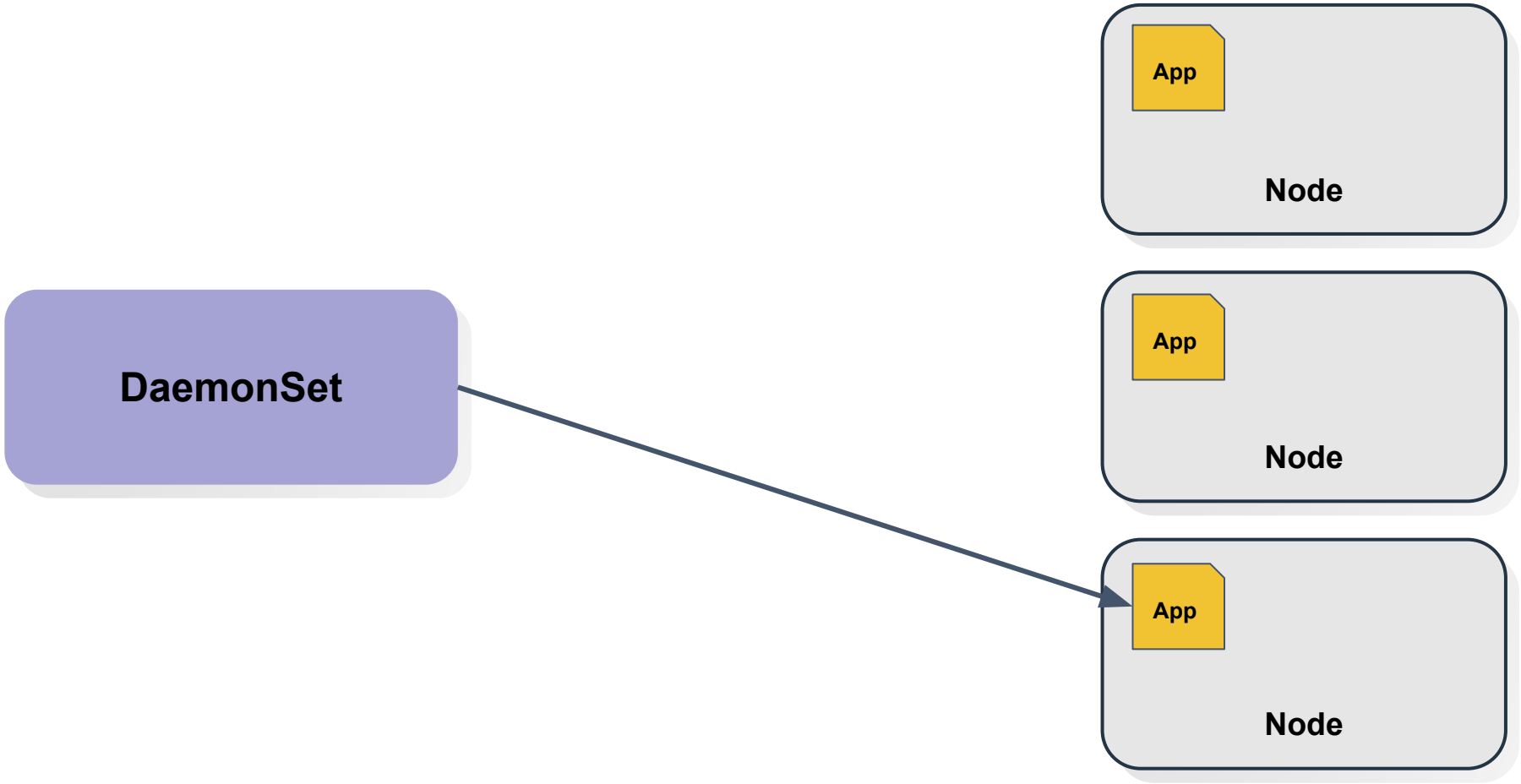
DaemonSet (Controller)



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- **StatefulSet**
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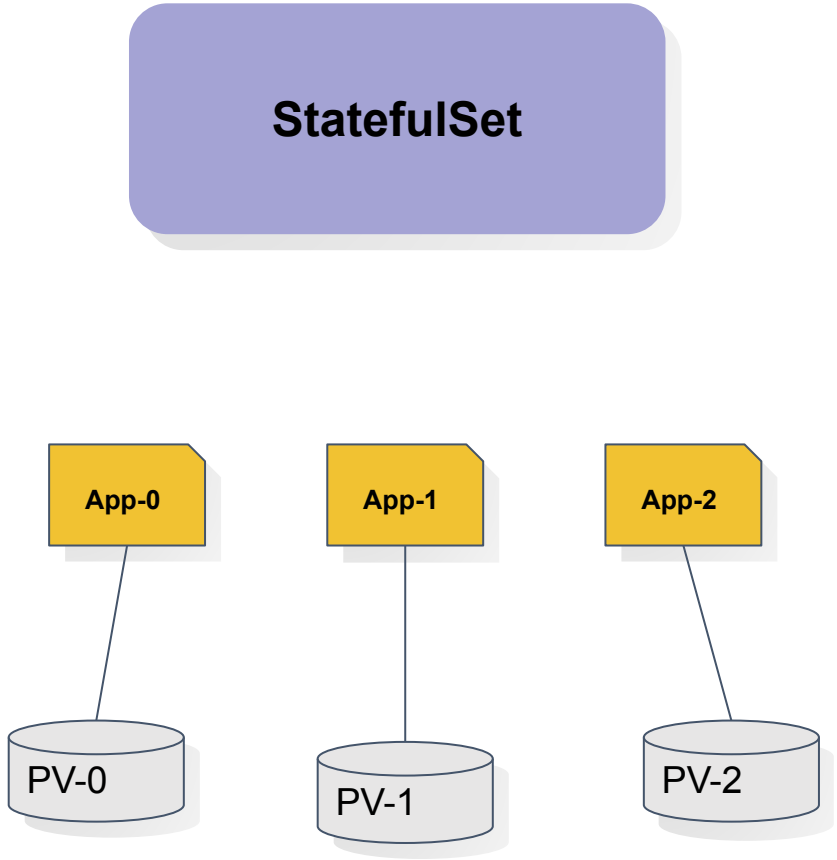
StatefulSet (Controller)

StatefulSets are like Deployments except they provide:

- Stable network id
- Stable storage
- Ordered, sequential deployment



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- **Jobs**
- CronJobs
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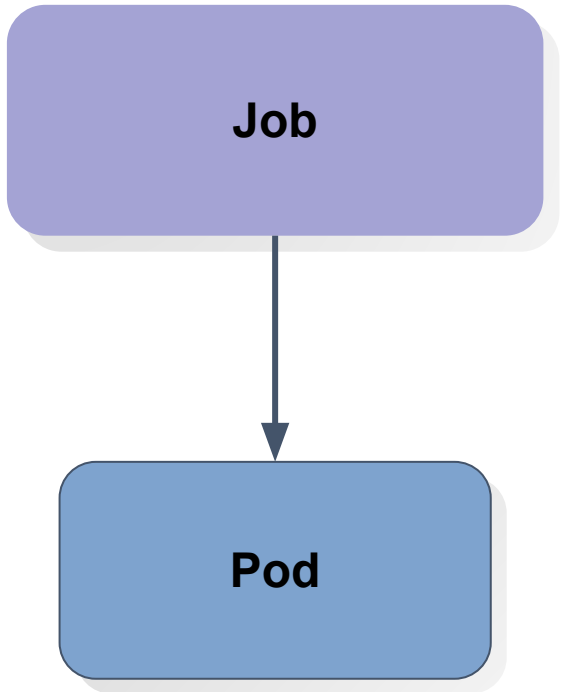
Jobs (Controller)

```
apiVersion: batch/v1
kind: Job
metadata:
  name: db-backup
spec:
  template:
    spec:
      containers:
      - name: db-backup
        image: db-backup
        command: ["make-backup]
      restartPolicy: Never
  backoffLimit: 4
```



Jobs

Develop Intelligence

Jobs

Jobs

Jobs

Develop Intelligence

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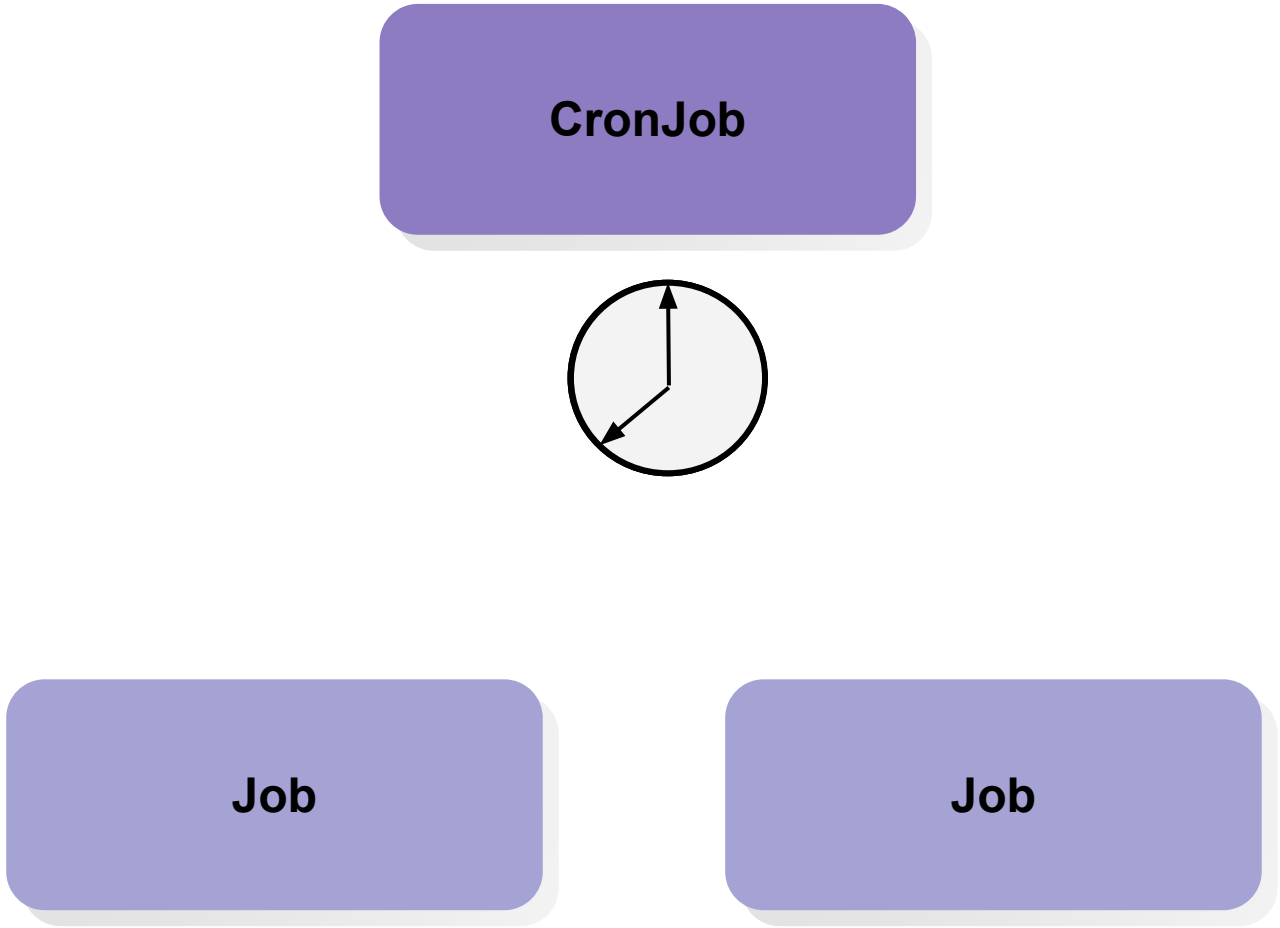
- Jobs
- **CronJobs**
- Lab

CronJob

```
apiVersion: batch/v1beta1
kind: CronJob
metadata:
  name: hourly-job
spec:
  schedule: "0 * * * *"
  jobTemplate:
...
```



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Which type of controller should be used for the following scenario?

Develop Intelligence

A horizontally scalable webapp that stores its state information in an external database.

1. Job

2. DaemonSet

3. Deployment

4. StatefulSet

Which type of controller should be used for the following scenario?

Develop Intelligence

A nightly batch process that calculates the total number of daily active users of an app.

1. Job

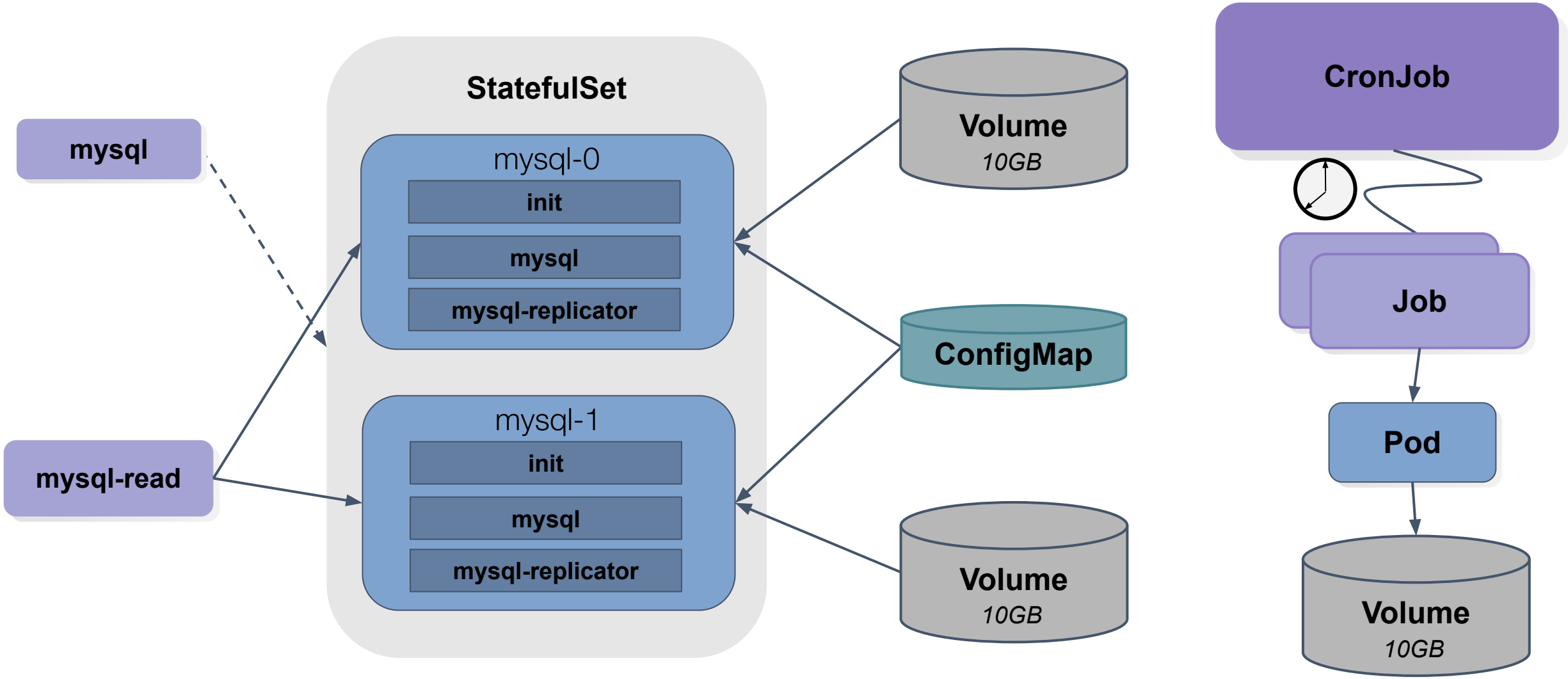
2. DaemonSet

3. Deployment

4. StatefulSet

Babysitting a Stateful App

Lab diagram


StatefulSet
mysql
mysql-read
mysql-0
init
mysql
mysql-replicator
mysql-1
init
mysql
mysql-replicator
Volume
10GB
ConfigMap
Volume
10GB
CronJob
Job
Pod
Volume
10GB