

# OpenShift Applications

# OpenShift Applications

Container Orchestration and Platform as a Service Solution Automates the deployment and management of containers

## **oc new-app**

Creates a new application

- API calls in the background:
- BuildConfig
- DeploymentConfig
- ImageStream
- service

## **oc new-app**

Supports different sources

- source
- image
- template

**Compare builds**

# Source to Image (S2I)

Image is built from sources

- automatic recognition of build strategy
- automatic recognition of the programming language
- automatic selection of the build image

```
oc new-app https://github.com/openshift/nodejs-ex
```

# Source to Image (S2I)

Track Build Output

```
oc logs -f bc/nodejs-ex
```

# Image

Existing image serves as source

OpenShift searches images in:

- local ImageStreams
- Docker Hub

```
oc new-app redis
```



# Template

Application is built from OpenShift template

```
oc new-app cakephp-mysql-example  
oc new-app -f example/ose-template.json
```

# Template

Integrated OpenShift templates

```
oc get templates -n openshift
```

# **Application Management**

# Scaling

Increase in the number of replicas of a Pod

```
oc scale --replicas=3 rc nodejs-ex  
oc scale --replicas=3 dc nodejs-ex
```

# Autoscaling

Automatic scaling of pods

- based on CPU utilization
- Resource requests must be set.
- Metrics/Heapster must be installed

```
oc autoscale dc nodejs-ex --min=2 --max=5
```

# Autoscaling

Status of the HorizontalPodAutoscaler

```
oc get hpa all
```

# Rollout and rollback

manual rollout

```
oc rollout latest dc/ruby-ex
```

Rollback to previous deployment

```
oc rollout history dc/ruby-ex  
oc rollback ruby-ex
```

# Deployment strategies

How are application updates deployed?

- Rolling (Default)
- recruit
- manually



# Rolling Update

- Stopping a Pod of the Old Version
- Starting a Pod of the new version
- Repeat until no pods of the old version are available

**N-1 compatibility!**

# Recreate Update

When N-1 compatibility is unclear

- Stopping all pods of the old version
- Starting the pods of the new version

Only one version of the application in operation!

# Lifecycle Hooks

Rolling and Recreate offer Hooks

Rolling

- pre
- post

Recreate

- pre
- mid
- post

# Best practices

Configure readinessProbe and livenessProbe

**readinessProbe**

Pod is ready to accept traffic

**livenessProbe**

Pod is functional

