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LimitRanges and Horizontal Pod Autoscaler Lab

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This lab does not work on OpenShift 4.0 Release 0.13.0. You can set up everything but the HPA can not get metrics. Therefore the auto scaling will not work.

LimitRanges and Horizontal Pod Autoscaler Lab

Goals

- Create a LimitRange object
- Create a Horizontal Pod Autoscaler (HPA)
- Test the HPA



You must have have metrics working in your cluster to create an HPA.

1. Create Limit Range

1. Create a new project:

oc new-project test-hpa

2. Deploy **hello-openshift** in the new project:

oc new-app openshift/hello-openshift:v3.10 -n test-hpa oc expose svc hello-openshift

3. Create a LimitRange object with the following properties:

Pod Limits

Min CPU 10m

Max CPU	100m
Min Memory	5Mi
Max Memory	750Mi

Container Limits

Min CPU	10m
Max CPU	100m
Min Memory	5Mi
Max Memory	750Mi
Default CPU	50m
Default Memory	100Mi

4. Confirm that your code looks similar to this:

```
echo '---
kind: LimitRange
apiVersion: v1
metadata:
 name: limits
 creationTimestamp:
spec:
 limits:
  - type: Pod
    max:
      cpu: 100m
      memory: 750Mi
    min:
      cpu: 10m
      memory: 5Mi
  - type: Container
    max:
      cpu: 100m
      memory: 750Mi
    min:
      cpu: 10m
      memory: 5Mi
    default:
      cpu: 50m
      memory: 100Mi
' | oc create -f - -n test-hpa
```

5. Create an HPA for the hello-openshift deployment to scale between one and five replicas and set it to scale up when the CPU utilization reaches 80%.

```
oc autoscale dc/hello-openshift --min 1 --max 5 --cpu-percent=80
```

6. List the status of the autoscaler:

```
oc get hpa hello-openshift -n test-hpa
```

NAME REFERENCE TARGETS
MINPODS MAXPODS REPLICAS AGE
hello-openshift DeploymentConfig/hello-openshift <unknown> / 80% 1
5 1 2h



It takes several minutes for the HPA to collect enough metrics to present a current status. If you see <unknown> in the TARGETS column, wait 30 seconds and repeat this step.

1. Review the autoscaler information:

oc describe hpa hello-openshift -n test-hpa

Sample Output

				hello-openshift
Namespace:				test-hpa
Labels:				<none></none>
Annotation	s:			<none></none>
CreationTi	mestamp:			Thu, 19 Apr 2018
18:12:19 +	0000			
Reference:				
Deployment	Config/hell	o-openshift		
Metrics:				(current / target
)				
resource	cpu on pod	s (as a percent	age of request)	: <unknown> / 80%</unknown>
Min replica	as:			1
Max replica	as:			5
Conditions	:			
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- 2. Fix the error displayed in the output above by rolling out the latest deployment configuration of hello-openshift.
 - a. Redeploy the application to pick up the default request from the LimitRange object:

oc rollout latest hello-openshift -n test-hpa

3. In a separate window, create work for the pod and monitor the environment:

```
ROUTE=$(oc get route hello-openshift --template "{{ .spec.host }}")
for time in {1..15000}
 do
   echo time $time
  curl ${ROUTE}
 done
```

- 4. Run this command in a few windows concurrently to produce more work for the pods.
 - You need at least three parallel windows to generate enough load.
- 5. Examine the HPA information to see the effect of the workload.
- 6. Use the OpenShift Container Platform web console to see whether new pods are being created.



The HPA does not scale up or down instantly.

2. Clean Up Environment

1. Remove the HPA project:

oc delete project test-hpa

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