Canva Baptiste Compte rendu TP3 Virtualisation

CronJob

1.

```
baptiste@LENOVO-BAPTISTE:/mnt/c/users/canva/OneDrive/Bureau/BUT/BUT-3/S5/R5_09_Virtualisation/TP/TP1/tp$ kubectl apply -f database/cr
onjob.yml -n database
cronjob.batch/date created
```

HPA

1.

```
baptiste@LENOVO-BAPTISTE:/mnt/c/users/canva/OneDrive/Bureau/BUT/BUT-3/S5/R5_09_Virtualisation/TP/TP1/tp$ kubectl apply -f database/ap
plication.yml -n database
deployment.apps/mon-application created
```

2.

```
baptiste@LENOVO-BAPTISTE:/mnt/c/users/canva/OneDrive/Bureau/BUT/BUT-3/S5/R5_09_Virtualisation/TP/TP1/tp$ kubectl apply -f database/ap
plication.yml -n database
deployment.apps/mon-application configured
```

3.

```
baptiste@LENOVO-BAPTISTE:/mnt/c/users/canva/OneDrive/Bureau/BUT/BUT-3/S5/R5_09_Virtualisation/TP/TP1/tp$ kubectl apply -f database/hp
a-application.yml -n database
horizontalpodautoscaler.autoscaling/mon-application created
```

4. Le but ici de ce processus est de mettre en place un Horizontal Pod Autoscaler (HPA) dans Kubernetes pour gérer automatiquement l'échelle de réplicas du déploiement. Ceci en fonction de l'utilisation des ressources (ici, CPU).

5. kubectl expose deployment mon-application --port=80 –type=LoadBalancer / (en cours)

6. kubectl get hpa -n database

```
baptiste@LENOVO-BAPTISTE:/mnt/c/users/canva/OneDrive/Bureau/BUT/BUT-3/S5/R5_09_Virtualisation/TP/TP1/tp$ kubectl get hpa -n database
NAME              REFERENCE                    TARGETS              MINPODS   MAXPODS   REPLICAS   AGE
mon-application   Deployment/mon-application   cpu: <unknown>/50%   1         5         1          37m
```

kubectl describe hpa mon-application -n database

```
baptiste@LENOVO-BAPTISTE:/mnt/c/users/canva/OneDrive/Bureau/BUT/BUT-3/S5/R5_09_Virtualisation/TP/TP1/tp$ kubectl describe hpa mon-app
lication -n database
Name:                                                  mon-application
Namespace:                                             database
Labels:                                                <none>
Annotations:                                           <none>
CreationTimestamp:                                     Fri, 11 Oct 2024 15:57:06 +0200
Reference:                                             Deployment/mon-application
Metrics:                                               ( current / target )
  resource cpu on pods  (as a percentage of request):  <unknown> / 50%
Min replicas:                                          1
Max replicas:                                          5
Deployment pods:                                       1 current / 0 desired
Conditions:
  Type           Status  Reason                   Message
  ----           ------  ------                   -------
  AbleToScale    True    SucceededGetScale        the HPA controller was able to get the target's current scale
  ScalingActive  False   FailedGetResourceMetric  the HPA was unable to compute the replica count: failed to get cpu utilization: una
ble to get metrics for resource cpu: unable to fetch metrics from resource metrics API: the server could not find the requested resou
rce (get pods.metrics.k8s.io)
Events:
  Type     Reason                        Age                From                       Message
  ----     ------                        ----               ----                       -------
  Warning  FailedComputeMetricsReplicas  35m (x12 over 38m)   horizontal-pod-autoscaler  invalid metrics (1 invalid out of 1), first
error is: failed to get cpu resource metric value: failed to get cpu utilization: unable to get metrics for resource cpu: unable to f
etch metrics from resource metrics API: the server could not find the requested resource (get pods.metrics.k8s.io)
  Warning  FailedGetResourceMetric       45s (x121 over 38m)  horizontal-pod-autoscaler  failed to get cpu utilization: unable to get
 metrics for resource cpu: unable to fetch metrics from resource metrics API: the server could not find the requested resource (get p
ods.metrics.k8s.io)
```

7. NAME : Le nom de l'Horizontal Pod Autoscaler / HPA
REFERENCE : L'objet Kubernetes auquel le HPA est appliqué (Deployment, StatefulSet)
TARGETS : Les cibles de ressources (ici la CPU) que l'HPA surveille pour déterminer s'il doit redimensionner le nombre de réplicas ou non.
MINPODS : Le nombre minimum de réplicas que l'HPA peut ajuster pour ce déploiement.
MAXPODS : Le nombre maximum de réplicas que l'HPA peut créer pour ce déploiement en fonction des ressources
REPLICAS : Le nombre actuel de réplicas gérés par l'HPA.
AGE : Le temps écoulé depuis la création de l'HPA.

8. kubectl run -i --tty simulation-utilisateur --image=busybox /bin/sh

while true; do wget -q -O- http://mon-application.database.svc.cluster.local; done

```
baptiste@LENOVO-BAPTISTE:/mnt/c/users/canva/OneDrive/Bureau/BUT/BUT-3/S5/R5_09_Virtualisation/TP/TP1/tp$ kubectl get pods -n
 database
NAME                                READY   STATUS             RESTARTS        AGE
date-28810910-tkx2s                 0/1     InvalidImageName   0               84m
date-28810915-x2cms                 0/1     InvalidImageName   0               79m
date-28810920-tsmv8                 0/1     InvalidImageName   0               74m
date-28810925-v95cg                 0/1     InvalidImageName   0               69m
date-28810930-78l6t                 0/1     InvalidImageName   0               64m
date-28810940-9778m                 0/1     InvalidImageName   0               51m
date-28810945-c2c9v                 0/1     InvalidImageName   0               49m
date-28810950-7vzxm                 0/1     InvalidImageName   0               44m
date-28810955-fvbfg                 0/1     InvalidImageName   0               39m
date-28810960-cvhf6                 0/1     InvalidImageName   0               34m
date-28810965-f696p                 0/1     InvalidImageName   0               29m
date-28810970-54xc7                 0/1     InvalidImageName   0               24m
date-28810975-ls92t                 0/1     InvalidImageName   0               19m
date-28810980-mnqsl                 0/1     InvalidImageName   0               14m
date-28810985-xrcdh                 0/1     InvalidImageName   0               9m34s
date-28810990-8nfrt                 0/1     InvalidImageName   0               4m34s
mon-application-f97b5cf97-6ljkz     1/1     Running            0               48s
mon-application-f97b5cf97-bmmr4     1/1     Running            0               63s
mon-application-f97b5cf97-dns4b     1/1     Running            0               63s
mon-application-f97b5cf97-r7hvv     1/1     Running            0               63s
mon-application-f97b5cf97-zbwvk     1/1     Running            0               16m
```

```
baptiste@LENOVO-BAPTISTE:/mnt/c/users/canva/OneDrive/Bureau/BUT/BUT-3/S5/R5_09_Virtualisation/TP/TP1/tp$ kubectl get pods -n
 database
NAME                                READY   STATUS             RESTARTS        AGE
date-28810910-tkx2s                 0/1     InvalidImageName   0               93m
date-28810915-x2cms                 0/1     InvalidImageName   0               88m
date-28810920-tsmv8                 0/1     InvalidImageName   0               83m
date-28810925-v95cg                 0/1     InvalidImageName   0               78m
date-28810930-78l6t                 0/1     InvalidImageName   0               73m
date-28810940-9778m                 0/1     InvalidImageName   0               60m
date-28810945-c2c9v                 0/1     InvalidImageName   0               58m
date-28810950-7vzxm                 0/1     InvalidImageName   0               53m
date-28810955-fvbfg                 0/1     InvalidImageName   0               48m
date-28810960-cvhf6                 0/1     InvalidImageName   0               43m
date-28810965-f696p                 0/1     InvalidImageName   0               38m
date-28810970-54xc7                 0/1     InvalidImageName   0               33m
date-28810975-ls92t                 0/1     InvalidImageName   0               28m
date-28810980-mnqsl                 0/1     InvalidImageName   0               23m
date-28810985-xrcdh                 0/1     InvalidImageName   0               18m
date-28810990-8nfrt                 0/1     InvalidImageName   0               13m
date-28810995-xqwjr                 0/1     InvalidImageName   0               8m22s
date-28811000-h5f2z                 0/1     InvalidImageName   0               3m22s
mon-application-f97b5cf97-zbwvk     1/1     Running            0               25m
mysql-0                             1/1     Running            2 (7h45m ago)   14d
mysql-statefulset-0                 1/1     Running            2 (7h45m ago)   14d
```

9. Oui car quand on met fin au cycle while les pods disparaissent bien au bout de quelques minutes (voir image)