

KUBERNETES (ENGLISH)

7. forduló



A kategória támogatója: Nokia

Ismertető a feladatlaphoz

Az utolsó fordulókhoz érkezünk, így megosztunk 1-2 fontos információt a továbbiakról:

a versennyel kapcsolatos észrevételeket december 5-ig tudjátok velünk megosztani [a szokásos helyen](#)

az utolsó fordulóhoz kapcsolódó megoldások november 30-án érhetők el

a végeredményről tájékoztatás decemberben, részletek hamarosan

Sok sikert az utolsó fordulóhoz!

Kubernetes – Troubleshooting:

Kubernetes environments can be complex, involving multiple components and wide range of configurations, dependencies between the micro-services. When something goes wrong, troubleshooting skills are essential to be able to quickly identify the root cause of the problem, whether it's a misconfiguration, resource constraint, or application-related issue.

Before you start, please read the following hint:

KDiff3 is a free and open-source diff and merge tool that can be helpful during the solution of coding-related exercises.

Download link: <https://sourceforge.net/projects/kdiff3/files/>

1. feladat 1 pont

We have a kubernetes cluster where the pods shows the following status:

```
[root@ithon ~ (Active)]# kubectl get po -n nokia
```

NAME	READY	STATUS	RESTARTS	AGE
ingress-citm-ingress-drgsw	1/1	Running	0	3d
ingress-default404-c4689c488-rsjfh	1/1	Running	0	3d
sftp-sftp-server-7bb4977997-lk5xb	0/1	ImagePullBackOff	0	3d

Select the right answer(s) how you can troubleshoot the problem?

Válaszok

- ☐ kubectl describe po -nnokia sftp-sftp-server-7bb4977997-lk5xb
- ☐ kubectl describe po -n ithon sftp-sftp-server-7bb4977997-lk5xb
- ☐ kubectl logs -n nokia sftp-sftp-server-7bb4977997-lk5xb
- ☐ kubectl get events -n nokia
- ☐ kubectl logs -p -f -n nokia sftp-sftp-server-7bb4977997-lk5xb

2. feladat 2 pont

We have the following deployment implementation (deployment.yaml):

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: nokia-deployment
  namespace: nokia
spec:
  replicas: 1
  selector:
    matchLabels:
      app: nokia-app
  template:
    metadata:
      labels:
        app: nokia-app
    spec:
      containers:
        - name: nokia-app
          image: nokia-registry:5000/nokia-app:1.0.0
```

```

    ports:
      - containerPort: 80
    volumeMounts:
      - name: secret-volume
        mountPath: /secrets
      - name: configmap-volume
        mountPath: /config
  volumes:
    - name: secret-volume
      secret:
        secretName: nokia-login-secret
    - name: configmap-volume
      configMap:
        name: nokia-app-configmap

```

After applying to cluster it is unable to start and stuck in ContainerCreating status.

```
kubectl get po -n nokia
```

NAME	READY	STATUS	RESTARTS	AGE
nokia-deployment-77dfdf667c-dm559	0/1	ContainerCreating	0	50s

See the describe pod output for details

Events:

Type	Reason	Age	From	Message
Normal	Scheduled	86s	default-scheduler	Successfully assigned
Warning	FailedMount	21s (x8 over 85s)	kubelet	MountVolume.SetUp fa
Warning	FailedMount	21s (x8 over 85s)	kubelet	MountVolume.SetUp fa

What is the reason? Select the corrective answer(s) to start our pod properly which is relying on the secret and config data to be able to start.

Válaszok

☐ Apply the configmap.yaml named yaml file to the cluster.

```

apiVersion: v1
kind: ConfigMap
metadata:
  name: nokia-app-configmap
  namespace: nokia

```

```
data:
  config.ini: |
    database.url=jdbc:mysql://db.nokia.com:3306/mydb
    logging.level=INFO
```

With the following command

```
kubectl apply -f configmap.yaml
```

- ☐ Apply the secret.yaml named yaml file to the cluster.

```
apiVersion: v1
kind: Secret
metadata:
  name: nokia-login-secret
  namespace: nokia
type: Opaque
data:
  username: aGVsbG8=
  password: d29ybGQ=
```

With the following command

```
kubectl apply -f secret.yaml
```

- ☐ Delete the mounts from the deployment and re-apply to the cluster

```
volumeMounts:
  - name: secret-volume
    mountPath: /secrets
  - name: configmap-volume
    mountPath: /config
volumes:
  - name: secret-volume
    secret:
      secretName: nokia-login-secret
  - name: configmap-volume
    configMap:
      name: nokia-app-configmap
```

With the following command

```
kubectl apply -f deployment.yaml
```

- ☐ Simple pod restart can solve such problems without any modification on the cluster

```
kubectl delete po -n nokia nokia-deployment-77dfdf667c-dm559
```

- ☐ Apply the configmap.yaml named yaml file to the cluster.

```
apiVersion: v1
kind: Secret
metadata:
  name: nokia-configmap-secret
data:
  config.ini: |
    logging.level=INFO
    database.url=jdbc:mysql://db.nokia.com:3306/mydb
```

With the following command

```
kubectl apply -f configmap.yaml
```

- ☐ Apply the secret.yaml named yaml file to the cluster.

```
apiVersion: v1
kind: Secret
metadata:
  name: nokia-secret-login
  namespace: ithon
type: Opaque
data:
  username: d29ybGQff9r3
  password: 7gT9mP#sK$2r
```

With the following command

```
kubectl apply -f secret.yaml
```

3. feladat 3 pont

We have Single node kubernetes cluster where a cronjob configured with the following parameters:

```
kubectl get cronjob -n nokia
```

NAME	SCHEDULE	SUSPEND	ACTIVE	LAST SCHEDULE	AGE
housekeeping-job	0,30 * * * *	False	0	10d	10d

There is no node level redundancy, high availability configured and there was an electricity outage for 100 hours in the building where the cluster was operating.

After the electricity is restored the pods are able start properly but we've recognized the cronjobs not started again and it was run 10 day ago.

```
[root@ithon ~]# kubectl get job -n nokia
```

NAME	COMPLETIONS	DURATION	AGE
housekeeping-job-1680510600	1/1	26s	10d
housekeeping-job-1680512400	1/1	21s	10d
housekeeping-job-1680514201	1/1	24s	10d

Describing the cronjob showing the following error:

```
Warning FailedNeedsStart 78s (x6933 over 19h) cronjob-controller Cannot determine
```

Please select the right corrective actions to restart the scheduling.

Válaszok

☐ Execute following steps to restart the cronjob

Save the content of cronjob into a file

```
kubectl get cronjob housekeeping-cronjob -n nokia -o yaml > cron.yaml
```

Delete the original cronjob from Nokia namespace:

```
kubectl delete cronjob -n nokia housekeeping-cronjob
```

Apply the cronjob to the cluster from cron.yaml file:

```
kubectl apply -f cron.yaml -n nokia
```

- ☐ Delete the Last job schedules and cron will re-execute its cronjob automatically.

```
kubectl delete job -n nokia housekeeping-job-1680510600
```

```
kubectl delete job -n nokia housekeeping-job-1680512400
```

```
kubectl delete job -n nokia housekeeping-job-1680514201
```

- ☐ The prevention of the problem to extend cronjob with the following parameter

```
startingDeadlineSeconds: 5400
```

- ☐ The error is not permanent it was happened because of the system restart and it is very rare timing issue.
- ☐ Cronjob scheduling is wrong and the resolution is to update it to the following value

```
0 0 * * *
```

- ☐ Cronjob wasn't started because it cannot find its container image and it has to be corrected
- ☐ Cronjob has permission error because it cannot read the .spec.startingDeadlineSeconds and start time.
- ☐ cronjob-controller require to reset its start time.

```
kubectl delete cronjob-controller housekeeping-job -n nokia
```

Megoldások beküldése