Lab ： Minikube Kubernetes Basics

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1. Start Minikube

minikube start

kubectl get nodes

```
PS C:\WINDOWS\system32> kubectl get nodes
NAME       STATUS   ROLES           AGE   VERSION
minikube   Ready    control-plane   25d   v1.34.0
PS C:\WINDOWS\system32>
```

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2. Create Deployment

kubectl create deployment hello-minikube --image=k8s.gcr.io/echoserver:1.10

kubectl get pods

Notes:

- Deployment created.
- Pod status: Running.

```
PS C:\WINDOWS\system32> kubectl create deployment hello-minikube --image=k8s.gcr.io/echoserver:1.4
deployment.apps/hello-minikube created
PS C:\WINDOWS\system32> kubectl get deployments
NAME             READY   UP-TO-DATE   AVAILABLE   AGE
hello-minikube   0/1     1            0           11s
PS C:\WINDOWS\system32> kubectl get pods
NAME                              READY   STATUS         RESTARTS   AGE
hello-minikube-7fd55c845c-xfmsf   0/1     ErrImagePull   0          21s
PS C:\WINDOWS\system32>
```

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3. Expose Service

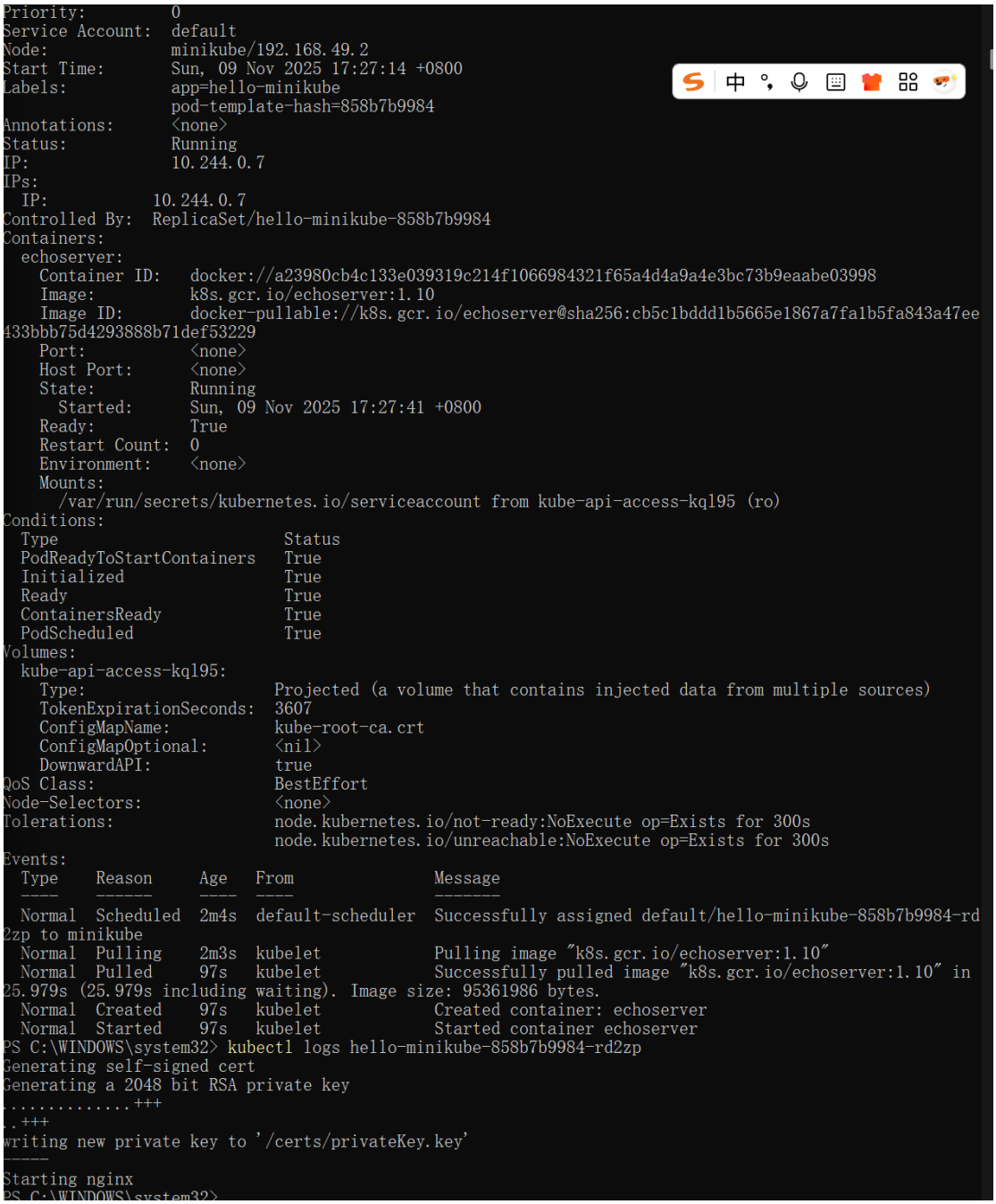
kubectl expose deployment hello-minikube --type=NodePort --port=8080

minikube service hello-minikube

kubectl get services

Notes:

- Service created with NodePort.
- Application accessible via browser.



```
Hostname: hello-minikube-858b7b9984-rd2zp

Pod Information:
        -no pod information available-

Server values:
        server_version=nginx: 1.13.3 - lua: 10008

Request Information:
        client_address=10.244.0.1
        method=GET
        real path=/
        query=
        request_version=1.1
        request_scheme=http
        request_uri=http://127.0.0.1:8080/

Request Headers:

accept=text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q=0.8,application/signed-
exchange;v=b3;q=0.7
        accept-encoding=gzip, deflate, br, zstd
        accept-language=zh-CN,zh;q=0.9,en;q=0.8,en-GB;q=0.7,en-US;q=0.6
        connection=keep-alive
        cookie=rl_page_init_referrer=RudderEncrypt%3AU2FsdGVkX1%2FUcv5aP3uhcIrZL5SyIpuKXOMekCknyU4%3D;
rl_page_init_referring_domain=RudderEncrypt%3AU2FsdGVkX1%2BnDJhfvMbhxhYx%2F6%2B%2BiLdJgsM78amiTzo%3D;
ph_phc_4URIAmluYfJO7j8kWSeOJ81c8IqnstRLS7Jx8NcakHo_posthog=%7B%22distinct_id%22%3A%2249327bc3b6fcce8329016ddfe46110ee217237de10
d03ad1d661619763d723e6%237b22cf08-39e1-4a6c-85d0-c604183a624d%22%2C%22%24sesid%22%3A%5B1758609149802%2C%2201997537-ae93-7247-
b43f-
4558b3e89f8f%22%2C1758608207507%5D%2C%22%24epp%22%3Atrue%2C%22%24initial_person_info%22%3A%7B%22r%22%3A%22%24direct%22%2C%22u%2
2%3A%22http%3A%2F%2F127.0.0.1%3A5678%2Fsetup%22%7D%7D;
rl_anonymous_id=RudderEncrypt%3AU2FsdGVkX1%2BcSvB6zSNJEDZqGv47L1TPIG8xNreq%2FsQQo6brROmx8RYdFlvZVT7MHVoNb%2FtDxViBYFfmkffVtQ%3D
%3D;
rl_session=RudderEncrypt%3AU2FsdGVkX1%2BUap71MviYeyFWiRd4H9mDxYP6s6yIj%2FcnZ8XLZI2AZxeMxEIb%2F6ifgfynyDJg4hUyLdNaIvVS8t%2FHGgtO
tAdjHJx3CHGKQY6VzbvTNpOYhKYMcQHxasKOhUa04Zo6%2BwtugOqD610dqg%3D%3D
        host=127.0.0.1:7576
        sec-ch-ua=&quot;Chromium&quot;;v=&quot;142&quot;, &quot;Microsoft Edge&quot;;v=&quot;142&quot;, &quot;Not_A
Brand&quot;;v=&quot;99&quot;
        sec-ch-ua-mobile=?0
        sec-ch-ua-platform=&quot;Windows&quot;
        sec-fetch-dest=document
        sec-fetch-mode=navigate
        sec-fetch-site=none
        sec-fetch-user=?1
        upgrade-insecure-requests=1
        user-agent=Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/142.0.0.0
Safari/537.36 Edg/142.0.0.0

Request Body:
        -no body in request-
```

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4. Scale Deployment

kubectl scale deployment hello-minikube --replicas=4

kubectl get pods

Notes:

- Deployment scaled to 4 replicas.
- All pods running.

```
PS C:\WINDOWS\system32> kubectl scale deployment hello-minikube --replicas=4
deployment.apps/hello-minikube scaled
PS C:\WINDOWS\system32> kubectl get pods
NAME                              READY   STATUS    RESTARTS   AGE
hello-minikube-858b7b9984-5j4lg   1/1     Running   0          12s
hello-minikube-858b7b9984-cwsph   1/1     Running   0          12s
hello-minikube-858b7b9984-rd2zp   1/1     Running   0          7m52s
hello-minikube-858b7b9984-z7z6z   1/1     Running   0          12s
PS C:\WINDOWS\system32>
```

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5. Update Deployment

kubectl set image deployment/hello-minikube echoserver=k8s.gcr.io/echoserver:1.11

kubectl rollout status deployment/hello-minikube

kubectl get pods

Notes:

- Deployment image updated.
- Pods gradually replaced with new version.

```
>> kubectl rollout status deployment/hello-minikube
>> kubectl get pods
deployment.apps/hello-minikube image updated
Waiting for deployment spec update to be observed...
Waiting for deployment "hello-minikube" rollout to finish: 1 out of 4 new replicas have been updated...
Waiting for deployment "hello-minikube" rollout to finish: 1 out of 4 new replicas have been updated...
Waiting for deployment "hello-minikube" rollout to finish: 2 out of 4 new replicas have been updated...
```