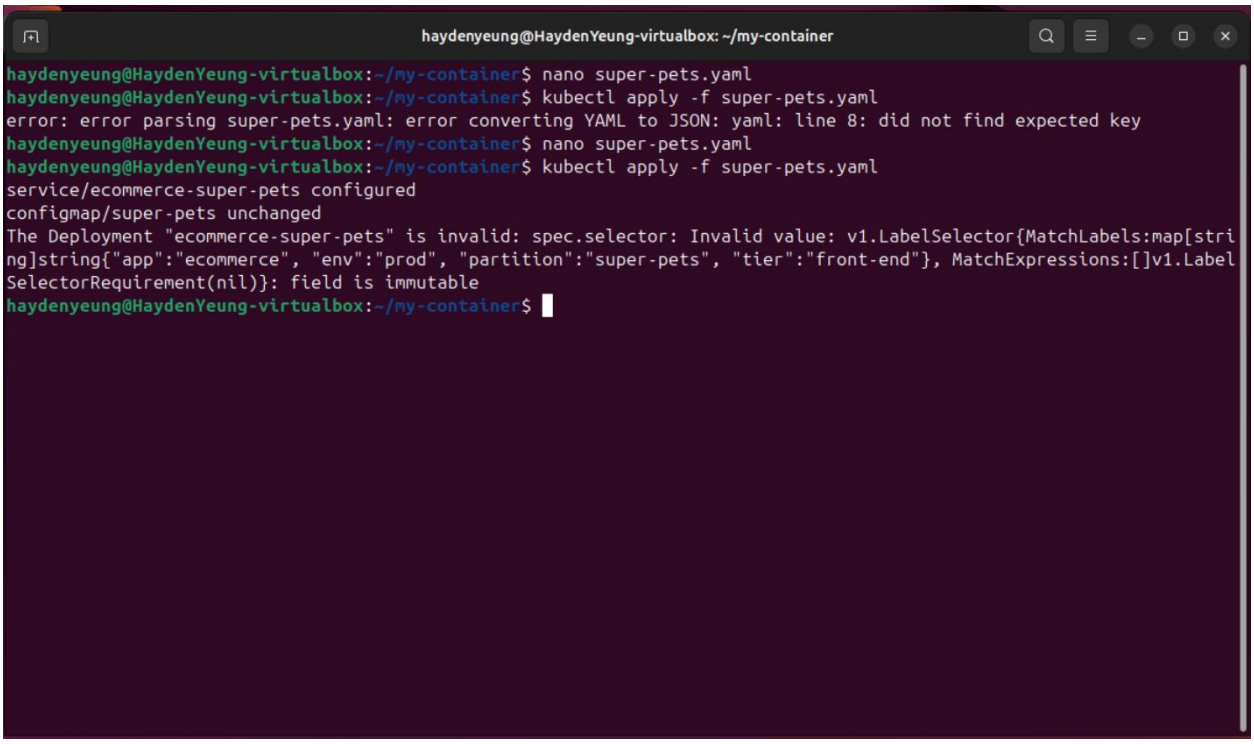
1. In this week, I learned about setting up labels for k8s objects through either writing configuration YAML file or directly through kubectl command. Although I still not yet comprehend the importance of labeling in k8s at the moment, but, I sure will dig deeper during the break to have a better understanding of it.

2. Lab Activities

I just followed the instructions from the lab

```
haydenyeung@HaydenYeung-virtualbox:~/my-container$ kubectl create deployment super-pets --image=localhost:5000/node-w
eb:1 --dry-run=client -o yaml > super-pets.yaml
haydenyeung@HaydenYeung-virtualbox:~/my-container$ echo '---' >> super-pets.yaml
haydenyeung@HaydenYeung-virtualbox:~/my-container$ kubectl create service nodeport super-pets --tcp=80:8080 --dry-run
=client -o yaml >> super-pets.yaml
haydenyeung@HaydenYeung-virtualbox:~/my-container$ echo '---' >> super-pets.yaml
haydenyeung@HaydenYeung-virtualbox:~/my-container$ kubectl create configmap super-pets --from-literal=server_name='Su
per Pets' --dry-run=client -o yaml >> super-pets.yaml
haydenyeung@HaydenYeung-virtualbox:~/my-container$ nano super-pets.yaml
haydenyeung@HaydenYeung-virtualbox:~/my-container$ kubectl apply -f super-pets.yaml
deployment.apps/ecommerce-super-pets created
service/ecommerce-super-pets created
configmap/super-pets created
haydenyeung@HaydenYeung-virtualbox:~/my-container$ kubectl get pods
NAME                                  READY   STATUS    RESTARTS   AGE
ecommerce-super-pets-7f64cdf55c-bq6bv   1/1     Running   0          113s
ecommerce-super-pets-7f64cdf55c-l5g8v   1/1     Running   0          113s
ecommerce-super-pets-7f64cdf55c-ml5hq   1/1     Running   0          113s
haydenyeung@HaydenYeung-virtualbox:~/my-container$ kubectl get services
NAME                 TYPE        CLUSTER-IP      EXTERNAL-IP   PORT(S)        AGE
ecommerce-super-pets   NodePort    10.152.183.30   <none>        80:32637/TCP   2m2s
kubernetes           ClusterIP   10.152.183.1    <none>        443/TCP        66d
```

```
haydenyeung@HaydenYeung-virtualbox:~/my-container$ curl 10.152.183.30
Hello ::ffff:10.0.2.15, this is v1 on ecommerce-super-pets-7f64cdf55c-l5g8v
haydenyeung@HaydenYeung-virtualbox:~/my-container$ curl 10.152.183.30
Hello ::ffff:10.0.2.15, this is v1 on ecommerce-super-pets-7f64cdf55c-bq6bv
haydenyeung@HaydenYeung-virtualbox:~/my-container$ curl 10.152.183.30
Hello ::ffff:10.0.2.15, this is v1 on ecommerce-super-pets-7f64cdf55c-bq6bv
haydenyeung@HaydenYeung-virtualbox:~/my-container$ curl 10.152.183.30
Hello ::ffff:10.0.2.15, this is v1 on ecommerce-super-pets-7f64cdf55c-bq6bv
haydenyeung@HaydenYeung-virtualbox:~/my-container$ curl 10.152.183.30
Hello ::ffff:10.0.2.15, this is v1 on ecommerce-super-pets-7f64cdf55c-l5g8v
haydenyeung@HaydenYeung-virtualbox:~/my-container$ curl 10.152.183.30
Hello ::ffff:10.0.2.15, this is v1 on ecommerce-super-pets-7f64cdf55c-ml5hq
```



Task 1. Complete the remaining 3 deployments

```
haydenyeung@HaydenYeung-virtualbox:~/my-container$ kubectl get all
NAME                                            READY   STATUS    RESTARTS   AGE
pod/ecommerce-dev-dcfbd45f6-642q5               1/1     Running   0          13s
pod/ecommerce-dev-dcfbd45f6-ts9lb               1/1     Running   0          13s
pod/ecommerce-dev-dcfbd45f6-xzd6s               1/1     Running   0          13s
pod/ecommerce-dial-a-pinic-6465b645d6-94c54     1/1     Running   0          9h
pod/ecommerce-dial-a-pinic-6465b645d6-dlw4t     1/1     Running   0          9h
pod/ecommerce-dial-a-pinic-6465b645d6-sbhr6     1/1     Running   0          9h
pod/ecommerce-super-pets-694897965b-5gvwk       1/1     Running   0          9h
pod/ecommerce-super-pets-694897965b-7swtv       1/1     Running   0          9h
pod/ecommerce-super-pets-694897965b-f4wbb       1/1     Running   0          9h
pod/ecommerce-super-pets-beta-7ff5575865-2xfr2  1/1     Running   0          9h
pod/ecommerce-super-pets-beta-7ff5575865-6kwkd  1/1     Running   0          9h
pod/ecommerce-super-pets-beta-7ff5575865-bzmql  1/1     Running   0          9h

NAME                                TYPE        CLUSTER-IP       EXTERNAL-IP   PORT(S)        AGE
service/ecommerce-dev               NodePort    10.152.183.221   <none>        80:32056/TCP   13s
service/ecommerce-dial-a-pinic      NodePort    10.152.183.189   <none>        80:31614/TCP   9h
service/ecommerce-super-pets        NodePort    10.152.183.30    <none>        80:32637/TCP   10h
service/ecommerce-super-pets-beta   NodePort    10.152.183.193   <none>        80:31822/TCP   9h
service/kubernetes                  ClusterIP   10.152.183.1     <none>        443/TCP        66d

NAME                                        READY   UP-TO-DATE   AVAILABLE   AGE
deployment.apps/ecommerce-dev               3/3     3            3           14s
deployment.apps/ecommerce-dial-a-pinic      3/3     3            3           9h
deployment.apps/ecommerce-super-pets        3/3     3            3           9h
deployment.apps/ecommerce-super-pets-beta   3/3     3            3           9h
```

```
NAME                                                  DESIRED   CURRENT   READY   AGE
replicaset.apps/ecommerce-dev-dcfbd45f6               3         3         3       13s
replicaset.apps/ecommerce-dial-a-pinic-6465b645d6     3         3         3       9h
replicaset.apps/ecommerce-super-pets-694897965b       3         3         3       9h
replicaset.apps/ecommerce-super-pets-beta-7ff5575865  3         3         3       9h
```

```
haydenyeung@HaydenYeung-virtualbox:~/my-container$ kubectl get pods -L env,partition,tier
NAME                                    READY   STATUS    RESTARTS   AGE     ENV    PARTITION      TIER
ecommerce-dev-dcfbd45f6-642q5           1/1     Running   0          2m46s   dev                   front-end
ecommerce-dev-dcfbd45f6-ts9lb           1/1     Running   0          2m46s   dev                   front-end
ecommerce-dev-dcfbd45f6-xzd6s           1/1     Running   0          2m46s   dev                   front-end
ecommerce-dial-a-pinic-6465b645d6-94c54 1/1     Running   0          9h      prod   dial-a-pinic   front-end
ecommerce-dial-a-pinic-6465b645d6-dlw4t 1/1     Running   0          9h      prod   dial-a-pinic   front-end
ecommerce-dial-a-pinic-6465b645d6-sbhr6 1/1     Running   0          9h      prod   dial-a-pinic   front-end
ecommerce-super-pets-694897965b-5gvwk   1/1     Running   0          9h      prod   super-pets     front-end
ecommerce-super-pets-694897965b-7swtv   1/1     Running   0          9h      prod   super-pets     front-end
ecommerce-super-pets-694897965b-f4wbb   1/1     Running   0          9h      prod   super-pets     front-end
ecommerce-super-pets-beta-7ff5575865-2xfr2 1/1  Running   0          9h      beta   super-pets     front-end
ecommerce-super-pets-beta-7ff5575865-6kwkd 1/1  Running   0          9h      beta   super-pets     front-end
ecommerce-super-pets-beta-7ff5575865-bzmql 1/1  Running   0          9h      beta   super-pets     front-end
```

```
haydenyeung@HaydenYeung-virtualbox:~/my-container$ kubectl get pods -L env,partition,tier -l env=dev
NAME                                    READY   STATUS    RESTARTS   AGE     ENV   PARTITION   TIER
ecommerce-dev-dcfbd45f6-642q5           1/1     Running   0          3m41s   dev               front-end
ecommerce-dev-dcfbd45f6-ts9lb           1/1     Running   0          3m41s   dev               front-end
ecommerce-dev-dcfbd45f6-xzd6s           1/1     Running   0          3m41s   dev               front-end
```

```
haydenyeung@HaydenYeung-virtualbox:~/my-container$ alias kprod='kubectl get pods -o custom-columns=NAME:metadata.name,IP:status.podIP,EN
V:metadata.labels.env,PARTITION:metadata.labels.partition,TIER:metadata.labels.tier,IMAGES:spec.containers[*].image -l env=prod'
haydenyeung@HaydenYeung-virtualbox:~/my-container$ kprod
NAME                                    IP           ENV    PARTITION      TIER        IMAGES
ecommerce-dial-a-pinic-6465b645d6-94c54 10.1.186.34  prod   dial-a-pinic   front-end   localhost:5000/node-web:1
ecommerce-dial-a-pinic-6465b645d6-dlw4t 10.1.186.52  prod   dial-a-pinic   front-end   localhost:5000/node-web:1
ecommerce-dial-a-pinic-6465b645d6-sbhr6 10.1.186.58  prod   dial-a-pinic   front-end   localhost:5000/node-web:1
ecommerce-super-pets-694897965b-5gvwk   10.1.186.15  prod   super-pets     front-end   localhost:5000/node-web:1
ecommerce-super-pets-694897965b-7swtv   10.1.186.9   prod   super-pets     front-end   localhost:5000/node-web:1
ecommerce-super-pets-694897965b-f4wbb   10.1.186.57  prod   super-pets     front-end   localhost:5000/node-web:1
```

Task 2. Working with filtering

All beta pods

```
haydenyeung@HaydenYeung-virtualbox:~/my-container$ alias kprod='kubectl get pods -o custom-columns=NAME:metadata.name,IP:status.podIP,EN
V:metadata.labels.env,PARTITION:metadata.labels.partition,TIER:metadata.labels.tier,IMAGES:spec.containers[*].image -l env=beta'
haydenyeung@HaydenYeung-virtualbox:~/my-container$ kprod
NAME                                    IP           ENV    PARTITION    TIER        IMAGES
ecommerce-super-pets-beta-7ff5575865-2xfr2 10.1.186.63  beta   super-pets   front-end   localhost:5000/node-web:1
ecommerce-super-pets-beta-7ff5575865-6kwkd 10.1.186.25  beta   super-pets   front-end   localhost:5000/node-web:1
ecommerce-super-pets-beta-7ff5575865-bzmql 10.1.186.42  beta   super-pets   front-end   localhost:5000/node-web:1
```

All development pods

```
haydenyeung@HaydenYeung-virtualbox:~/my-container$ alias kprod='kubectl get pods -o custom-columns=NAME:metadata.name,IP:status.podIP,EN
V:metadata.labels.env,PARTITION:metadata.labels.partition,TIER:metadata.labels.tier,IMAGES:spec.containers[*].image -l env=dev'
haydenyeung@HaydenYeung-virtualbox:~/my-container$ kprod


NAME                                    IP           ENV   PARTITION   TIER        IMAGES
ecommerce-dev-dcfbd45f6-642q5           10.1.186.5   dev   <none>      front-end   localhost:5000/node-web:1
ecommerce-dev-dcfbd45f6-ts9lb           10.1.186.47  dev   <none>      front-end   localhost:5000/node-web:1
ecommerce-dev-dcfbd45f6-xzd6s           10.1.186.49  dev   <none>      front-end   localhost:5000/node-web:1
```

All front-end pods

```
haydenyeung@HaydenYeung-virtualbox:~/my-container$ alias kprod='kubectl get pods -o custom-columns=NAME:metadata.name,IP:status.podIP,EN
V:metadata.labels.env,PARTITION:metadata.labels.partition,TIER:metadata.labels.tier,IMAGES:spec.containers[*].image -l tier=front-end'
haydenyeung@HaydenYeung-virtualbox:~/my-container$ kprod
NAME                                    IP           ENV    PARTITION      TIER        IMAGES
ecommerce-dev-dcfbd45f6-642q5           10.1.186.5   dev    <none>         front-end   localhost:5000/node-web:1
ecommerce-dev-dcfbd45f6-ts9lb           10.1.186.47  dev    <none>         front-end   localhost:5000/node-web:1
ecommerce-dev-dcfbd45f6-xzd6s           10.1.186.49  dev    <none>         front-end   localhost:5000/node-web:1
ecommerce-dial-a-pinic-6465b645d6-94c54 10.1.186.34  prod   dial-a-pinic   front-end   localhost:5000/node-web:1
ecommerce-dial-a-pinic-6465b645d6-dlw4t 10.1.186.52  prod   dial-a-pinic   front-end   localhost:5000/node-web:1
ecommerce-dial-a-pinic-6465b645d6-sbhr6 10.1.186.58  prod   dial-a-pinic   front-end   localhost:5000/node-web:1
ecommerce-super-pets-694897965b-5gvwk   10.1.186.15  prod   super-pets     front-end   localhost:5000/node-web:1
ecommerce-super-pets-694897965b-7swtv   10.1.186.9   prod   super-pets     front-end   localhost:5000/node-web:1
ecommerce-super-pets-694897965b-f4wbb   10.1.186.57  prod   super-pets     front-end   localhost:5000/node-web:1
ecommerce-super-pets-beta-7ff5575865-2xfr2 10.1.186.63 beta  super-pets     front-end   localhost:5000/node-web:1
ecommerce-super-pets-beta-7ff5575865-6kwkd 10.1.186.25 beta  super-pets     front-end   localhost:5000/node-web:1
ecommerce-super-pets-beta-7ff5575865-bzmql 10.1.186.42 beta  super-pets     front-end   localhost:5000/node-web:1
```

All production pods that are used by a Dial-a-Picnic

```
haydenyeung@HaydenYeung-virtualbox:~/my-container$ alias kprod='kubectl get pods -o custom-columns=NAME:metadata.name,IP:status.podIP,EN
V:metadata.labels.env,PARTITION:metadata.labels.partition,TIER:metadata.labels.tier,IMAGES:spec.containers[*].image -l env=prod,partitio
n=dial-a-pinic'
haydenyeung@HaydenYeung-virtualbox:~/my-container$ kprod
NAME                                    IP           ENV    PARTITION      TIER        IMAGES
ecommerce-dial-a-pinic-6465b645d6-94c54 10.1.186.34  prod   dial-a-pinic   front-end   localhost:5000/node-web:1
ecommerce-dial-a-pinic-6465b645d6-dlw4t 10.1.186.52  prod   dial-a-pinic   front-end   localhost:5000/node-web:1
ecommerce-dial-a-pinic-6465b645d6-sbhr6 10.1.186.58  prod   dial-a-pinic   front-end   localhost:5000/node-web:1
```

All front-end pods that are used by :

- Applying the following command: alias kprod='kubectl get pods -o custom columns=NAME:metadata.name,IP:status.podIP,ENV:metadata.labels.env,PARTITION:metadata.labels.partition,TIER:metadata.labels.tier,IMAGES:spec.containers[*].image -l tier=front-end,(paramater), (parameter), ...'

```
haydenyeung@HaydenYeung-virtualbox:~/my-container$ kubectl set image deployments -l app=ecommerce,env=dev
 ecommerce=localhost:5000/node-web:2
deployment.apps/ecommerce-dev image updated
haydenyeung@HaydenYeung-virtualbox:~/my-container$ kprod -l app=ecommerce,env=dev
Command 'kprod' not found, did you mean:
  command 'kpropd' from deb krb5-kpropd (1.20.1-6ubuntu2.5)
  command 'kprop' from deb krb5-admin-server (1.20.1-6ubuntu2.5)
Try: sudo apt install <deb name>
haydenyeung@HaydenYeung-virtualbox:~/my-container$ alias kprod='kubectl get pods -o custom-columns=NAME:m
etadata.name,IP:status.podIP,ENV:metadata.labels.env,PARTITION:metadata.labels.partition,TIER:metadata.la
bels.tier,IMAGES:spec.container[*].image -l env=prod'
haydenyeung@HaydenYeung-virtualbox:~/my-container$ kprod -l app=ecommerce,env=dev
NAME                                IP           ENV   PARTITION   TIER        IMAGES
ecommerce-dev-895475987-cw9rl       10.1.186.53  dev   <none>      front-end   <none>
ecommerce-dev-895475987-dgdfc       10.1.186.45  dev   <none>      front-end   <none>
ecommerce-dev-895475987-rg7jw       10.1.186.8   dev   <none>      front-end   <none>
```

```
haydenyeung@HaydenYeung-virtualbox:~/my-container$ kubectl set image deployments -l app=ecommerce,env=bet
a ecommerce=localhost:5000/node-web:2beta
deployment.apps/ecommerce-super-pets-beta image updated
haydenyeung@HaydenYeung-virtualbox:~/my-container$ kprod -l app=ecommerce,env=beta
NAME                                    IP           ENV    PARTITION    TIER        IMAGES
ecommerce-super-pets-beta-7d5684bc76-hmkd9 10.1.186.19 beta   super-pets   front-end   <none>
ecommerce-super-pets-beta-7d5684bc76-mgdvp 10.1.186.14 beta   super-pets   front-end   <none>
ecommerce-super-pets-beta-7d5684bc76-r5pgv 10.1.186.51 beta   super-pets   front-end   <none>
ecommerce-super-pets-beta-7ff5575865-2xfr2 10.1.186.63 beta   super-pets   front-end   <none>
ecommerce-super-pets-beta-7ff5575865-6kwkd 10.1.186.25 beta   super-pets   front-end   <none>
ecommerce-super-pets-beta-7ff5575865-bzmql 10.1.186.42 beta   super-pets   front-end   <none>
```

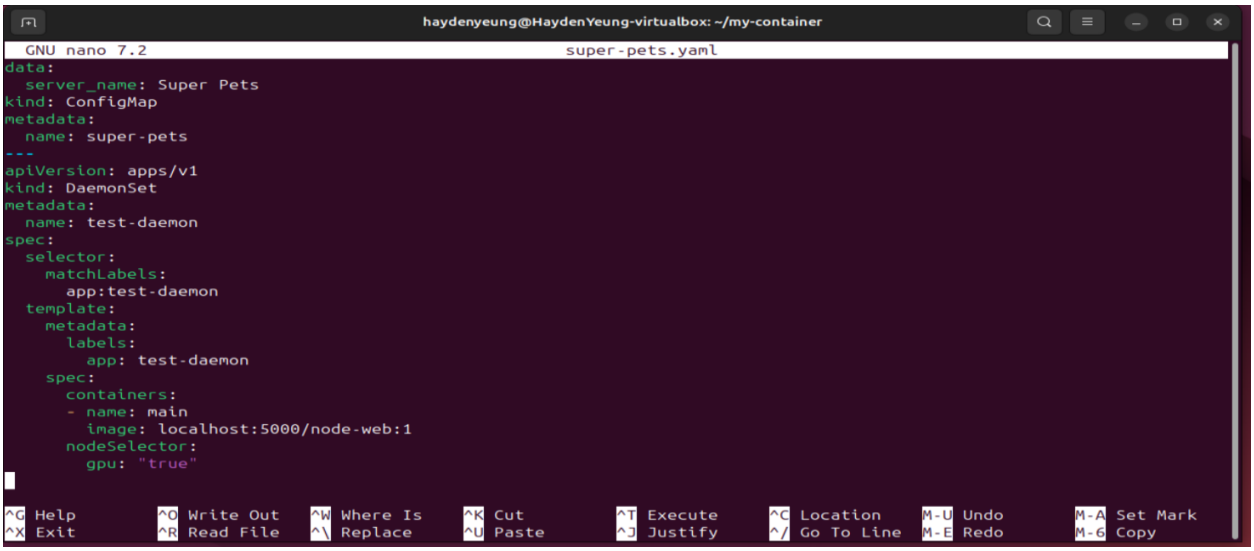
```
haydenyeung@HaydenYeung-virtualbox:~/my-container$ kubectl scale deployment -l app=ecommerce,env=prod --r
eplicas=5
deployment.apps/ecommerce-dial-a-pinic scaled
deployment.apps/ecommerce-super-pets scaled
haydenyeung@HaydenYeung-virtualbox:~/my-container$ kprod
NAME                                      IP            ENV    PARTITION      TIER        IMAGES
ecommerce-dial-a-pinic-6465b645d6-8x8lq   10.1.186.61   prod   dial-a-pinic   front-end   <none>
ecommerce-dial-a-pinic-6465b645d6-94c54   10.1.186.34   prod   dial-a-pinic   front-end   <none>
ecommerce-dial-a-pinic-6465b645d6-dlw4t   10.1.186.52   prod   dial-a-pinic   front-end   <none>
ecommerce-dial-a-pinic-6465b645d6-f454c   10.1.186.33   prod   dial-a-pinic   front-end   <none>
ecommerce-dial-a-pinic-6465b645d6-sbhr6   10.1.186.58   prod   dial-a-pinic   front-end   <none>
ecommerce-super-pets-694897965b-5gvwk     10.1.186.15   prod   super-pets     front-end   <none>
ecommerce-super-pets-694897965b-7swtv     10.1.186.9    prod   super-pets     front-end   <none>
ecommerce-super-pets-694897965b-f4wbb     10.1.186.57   prod   super-pets     front-end   <none>
ecommerce-super-pets-694897965b-gv66f     10.1.186.30   prod   super-pets     front-end   <none>
ecommerce-super-pets-694897965b-pjxzs     10.1.186.7    prod   super-pets     front-end   <none>
```

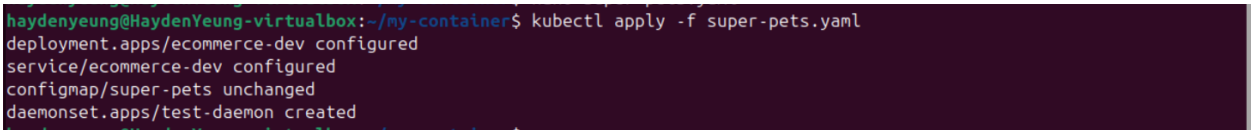
Challenge Task. Try nodeSelectors for deployment and DaemonSets

Add “nodeSelector: gpu: “true”” to Deployment of super-pets.yaml

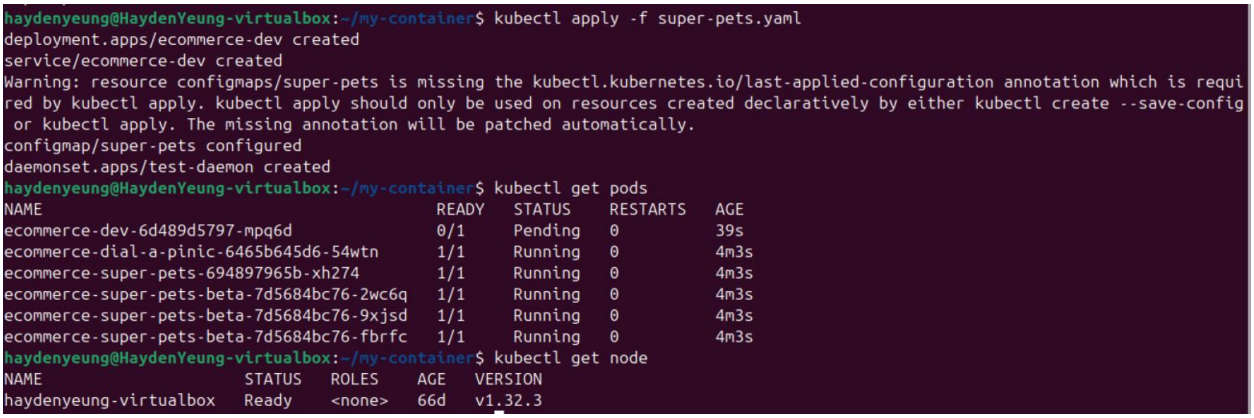
```
GNU nano 7.2                                  super-pets.yaml
  metadata:
    labels:
      app: ecommerce
      env: dev
      partition:
      tier: front-end
  spec:
    containers:
    - image: localhost:5000/node-web:1
      name: ecommerce
      env:
      - name: SERVER_NAME
        valueFrom:
          configMapKeyRef:
            name: super-pets
            key: server_name
    nodeSelector:
      gpu: "true"
```

Include DaemonSet into super-pets.yaml





A/ Investigate/observe what happened - are the Pods created as you expected (or not created if that's what you expected)?



- Pods like: "dial-a-pinic", "super-pets", and "super-pets-beta" are running is expected because they were not included with "nodeSelector" like "dev"
- My current node, "haydenyeung-virtualbox", does not tagged with "gpu: true" so pod "dev" is still pening and pod from "test-daemon" is not yet appear because of my current node.

B/ Set the gpu label on the node to true

Apply "kubectl label node haydenyeung-virtualbox gpu=true –overwrite"

```
haydenyeung@HaydenYeung-virtualbox:~/my-container$ kubectl label node haydenyeung-virtualbox gpu=true --overwrite
node/haydenyeung-virtualbox labeled
haydenyeung@HaydenYeung-virtualbox:~/my-container$ kubectl get nodes --show-labels
NAME                   STATUS   ROLES    AGE   VERSION   LABELS
haydenyeung-virtualbox   Ready    <none>   66d   v1.32.3   beta.kubernetes.io/arch=amd64,beta.kubernetes.io/os=linux,gpu=true,kub
ernetes.io/arch=amd64,kubernetes.io/hostname=haydenyeung-virtualbox,kubernetes.io/os=linux,microk8s.io/cluster=true,node.kubernet
es.io/microk8s-controlplane=microk8s-controlplane
```

“kubectl get pods”

```
haydenyeung@HaydenYeung-virtualbox:~/my-container$ kubectl get pods
NAME                                    READY   STATUS    RESTARTS   AGE
ecommerce-dev-6d489d5797-mpq6d          1/1     Running   0          12m
ecommerce-dial-a-pinic-6465b645d6-54wtn 1/1     Running   0          16m
ecommerce-super-pets-694897965b-xh274   1/1     Running   0          16m
ecommerce-super-pets-beta-7d5684bc76-2wc6q  1/1     Running   0          16m
ecommerce-super-pets-beta-7d5684bc76-9xjsd  1/1     Running   0          16m
ecommerce-super-pets-beta-7d5684bc76-fbrfc  1/1     Running   0          16m
test-daemon-jthlb                       1/1     Running   0          37s
```

- Because my current node is tagged with “gpu = true” so pod “dev” changed from pending to running and “test-daemon” is appeared

C/ Delete any pods that exist

Applied “kubectl delete pod –all”

```
haydenyeung@HaydenYeung-virtualbox:~/my-container$ kubectl delete pod --all
pod "ecommerce-dev-6d489d5797-mpq6d" deleted
pod "ecommerce-dial-a-pinic-6465b645d6-54wtn" deleted
pod "ecommerce-super-pets-694897965b-xh274" deleted
pod "ecommerce-super-pets-beta-7d5684bc76-2wc6q" deleted
pod "ecommerce-super-pets-beta-7d5684bc76-9xjsd" deleted
pod "ecommerce-super-pets-beta-7d5684bc76-fbrfc" deleted
pod "test-daemon-jthlb" deleted
haydenyeung@HaydenYeung-virtualbox:~/my-container$ kubectl get pods
NAME                                    READY   STATUS    RESTARTS   AGE
ecommerce-dev-6d489d5797-bt99s          1/1     Running   0          41s
ecommerce-dial-a-pinic-6465b645d6-6jz7z 1/1     Running   0          41s
ecommerce-super-pets-694897965b-q8jcb   1/1     Running   0          41s
ecommerce-super-pets-beta-7d5684bc76-5qjd7  1/1     Running   0          40s
ecommerce-super-pets-beta-7d5684bc76-7xzf7  1/1     Running   0          40s
ecommerce-super-pets-beta-7d5684bc76-rf28w  1/1     Running   0          41s
test-daemon-b9xx5                       1/1     Running   0          6s
haydenyeung@HaydenYeung-virtualbox:~/my-container$ kubectl get deployments
NAME                  READY   UP-TO-DATE   AVAILABLE   AGE
ecommerce-dev         1/1     1            1           19m
ecommerce-dial-a-pinic  1/1     1            1           11h
ecommerce-super-pets    1/1     1            1           11h
ecommerce-super-pets-beta  3/3     3            3           11h
```

- After deletion, Deployment and DaemonSet will re-generate their corresponding Pods

D/ Set the label “gpu” of the current node to false

```
haydenyeung@HaydenYeung-virtualbox:~/my-container$ kubectl label node haydenyeung-virtualbox gpu=false --overwrite
node/haydenyeung-virtualbox labeled
haydenyeung@HaydenYeung-virtualbox:~/my-container$ kubectl delete pod --all
pod "ecommerce-dev-6d489d5797-bt99s" deleted
pod "ecommerce-dial-a-pinic-6465b645d6-6jz7z" deleted
pod "ecommerce-super-pets-694897965b-q8jcb" deleted
pod "ecommerce-super-pets-beta-7d5684bc76-5qjd7" deleted
pod "ecommerce-super-pets-beta-7d5684bc76-7xzf7" deleted
pod "ecommerce-super-pets-beta-7d5684bc76-rf28w" deleted
pod "test-daemon-b9xx5" deleted
haydenyeung@HaydenYeung-virtualbox:~/my-container$ kubectl get pods
NAME                                      READY   STATUS    RESTARTS   AGE
ecommerce-dev-6d489d5797-hbp9c            0/1     Pending   0          41s
ecommerce-dial-a-pinic-6465b645d6-bv2td   1/1     Running   0          41s
ecommerce-super-pets-694897965b-lswrr     1/1     Running   0          41s
ecommerce-super-pets-beta-7d5684bc76-2txzz   1/1     Running   0          41s
ecommerce-super-pets-beta-7d5684bc76-lj6ln   1/1     Running   0          41s
ecommerce-super-pets-beta-7d5684bc76-m6hwv   1/1     Running   0          41s
```

```
haydenyeung@HaydenYeung-virtualbox:~/my-container$ kubectl get deployment
NAME                     READY   UP-TO-DATE   AVAILABLE   AGE
ecommerce-dev            0/1     1            0           25m
ecommerce-dial-a-pinic   1/1     1            1           11h
ecommerce-super-pets     1/1     1            1           11h
ecommerce-super-pets-beta   3/3     3            3           11h
```

- Pod “dev” turned to “Pending” and pod from “test-daemon” was not appeared because the current node’s gpu label changed from “true” to “false” because “ecommerce-dev” Deployment is not “Ready”

3. Explanation of HostAliases in Kubernetes

HostAliases in Kubernetes provide a mechanism to define custom hostname-to-IP mappings for a Pod, effectively modifying the Pod’s /etc/hosts file (Kubernetes, 2023).

- This file, present on all operating systems, maps hostnames to IP addresses, allowing applications to resolve domain names to specific IPs without relying on external DNS servers.
- By configuring HostAliases, Kubernetes appends these mappings to the /etc/hosts file of the Pod’s containers, enabling applications running inside the Pod to resolve the specified hostnames to the defined IPs.

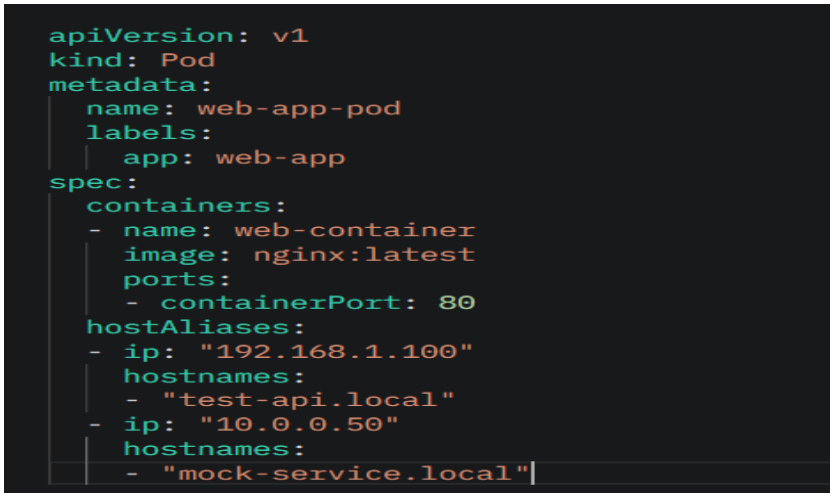
Applications use HostAliases when they need to access services using a custom hostname that isn’t available through DNS or when DNS resolution needs to be bypassed for testing or legacy reasons.

- For example, a legacy application might rely on a hardcoded hostname like legacy-db.local to connect to a database, but the actual database server is at a specific IP address not registered in DNS.
- HostAliases allow developers to map legacy-db.local to the correct IP directly within the Pod, ensuring compatibility without modifying the application code (Red Hat, 2022).

- Additionally, HostAliases are useful in development environments for simulating production DNS setups or redirecting traffic to a local testing server, improving flexibility and reducing dependency on external network configurations.

4. Example Pod Configuration with Two HostAliases

Below is an example of a Pod configuration that includes two HostAliases, mapping test-api.local to 192.168.1.100 and mock-service.local to 10.0.0.50. This Pod runs a simple web application container and uses HostAliases to redirect requests to these custom hostnames.



```yaml
apiVersion: v1
kind: Pod
metadata:
  name: web-app-pod
  labels:
    app: web-app
spec:
  containers:
  - name: web-container
    image: nginx:latest
    ports:
    - containerPort: 80
  hostAliases:
  - ip: "192.168.1.100"
    hostnames:
    - "test-api.local"
  - ip: "10.0.0.50"
    hostnames:
    - "mock-service.local"
```

In this example, the Pod web-app-pod runs an Nginx web server. The HostAliases configuration ensures that within the Pod, the hostname test-api.local resolves to 192.168.1.100, and mock-service.local resolves to 10.0.0.50. This setup could be used, for instance, to test the web application's interaction with a mock API server and a simulated service during development.

References

Kubernetes. (2023). *Add entries to Pod /etc/hosts with HostAliases*. Kubernetes Documentation. https://kubernetes.io/docs/tasks/network/customize-hosts-file-for-pods/

Red Hat. (2022). *Understanding Kubernetes networking: HostAliases*. Red Hat Developer. https://developers.redhat.com/articles/2022/05/17/understanding-kubernetes-networking-hostaliases