

Lab - 4

Name – Vikram singh (101501507)

kubernetes setup

```
lenovo@Vikram:~$ cd /mnt/e/docker-ethereum
lenovo@Vikram:/mnt/e/docker-ethereum$ kompose convert -f docker-compose.yaml
Command 'kompose' not found, but can be installed with:
sudo snap install kompose
lenovo@Vikram:/mnt/e/docker-ethereum$ curl -L https://github.com/kubernetes/kompose/releases/download/v1.32.0/kompose-linux-amd64 -o kompose
% Total % Received % Xferd Average Speed Time Time Time Current
Dload Upload Total Spent Left Speed
0 0 0 0 0 0 0 0 0:00:00 0:00:00 0:00:00 0
100 20.0M 100 20.0M 0 0 6510k 0 0:00:03 0:00:03 0:00:00 7938k
lenovo@Vikram:/mnt/e/docker-ethereum$ kompose convert -f docker-compose.yaml
Command 'kompose' not found, but can be installed with:
sudo snap install kompose
lenovo@Vikram:/mnt/e/docker-ethereum$ sudo snap install kompose
[sudo] password for lenovo:
kompose 1.21.0 from Ricardo Amendeira (ric2b) installed
lenovo@Vikram:/mnt/e/docker-ethereum$ kompose convert -f docker-compose.yaml
FATA Unable to load yaml/json file for version parsing: open docker-compose.yaml: no such file or directory
lenovo@Vikram:/mnt/e/docker-ethereum$ kompose convert -f docker-compose.yml
INFO Kubernetes file "dapp-service.yaml" created
INFO Kubernetes file "ganache-service.yaml" created
INFO Kubernetes file "react-service.yaml" created
INFO Kubernetes file "dapp-deployment.yaml" created
INFO Kubernetes file "ganache-deployment.yaml" created
INFO Kubernetes file "react-deployment.yaml" created

lenovo@Vikram:/mnt/e/docker-ethereum$ kubectl apply -f .
deployment.apps/dapp created
service/dapp created
deployment.apps/ganache created
service/ganache created
deployment.apps/react created
service/react created
```

```
lenovo@Vikram:/mnt/e/docker-ethereum$ kubectl get po
```

NAME	READY	STATUS	RESTARTS	AGE
dapp-9d994d54c-kvsw5	1/1	Running	1 (6m14s ago)	16m
dapp-bx844	1/1	Running	1	2d23h
dapp-mhxxm	1/1	Running	1 (6m11s ago)	2d23h
ethereum-client-fmg6k	0/1	ImagePullBackOff	0	5h51m
ethereum-client-gbmbm	0/1	ImagePullBackOff	0	5h51m
ethereum-client-sjm5g	0/1	ImagePullBackOff	0	5h51m
ethereum-node-0	0/1	ImagePullBackOff	0	5h51m
ganache-0	1/1	Running	1 (6m15s ago)	2d23h
ganache-7b4c86b4c5-5mpmb	1/1	Running	1 (6m22s ago)	16m
mongo-express-deployment-b88f6d45f-8t8mj	1/1	Running	51 (78s ago)	24h
mongodb-stateful-set-0	1/1	Running	1 (6m18s ago)	24h
mongodb-stateful-set-1	1/1	Running	1 (6m14s ago)	24h
my-typescript-app-bc58865cc-qv46j	1/1	Running	1	2d23h
note-deployment-74cc946cd8-mt8lf	1/1	Running	2 (4m22s ago)	24h
note-deployment-74cc946cd8-zpxmp	1/1	Running	2 (4m10s ago)	24h
note-server-deployment-6fb5fcb67f-s748d	1/1	Running	59 (52s ago)	24h
note-server-deployment-6fb5fcb67f-sgkkq	1/1	Running	59 (56s ago)	24h
react-6c46cbfc45-s58f5	1/1	Running	1 (6m ago)	16m
react-frontend-h7lt6	1/1	Running	1 (5m59s ago)	2d23h
react-frontend-sw4hr	1/1	Running	1	2d23h

```
lenovo@Vikram:/mnt/e/docker-ethereum$ kubectl get deployments
```

NAME	READY	UP-TO-DATE	AVAILABLE	AGE
dapp	1/1	1	1	21m
ganache	1/1	1	1	21m
mongo-express-deployment	1/1	1	1	24h
my-typescript-app	1/1	1	1	2d23h
note-deployment	2/2	2	2	24h
note-server-deployment	0/2	2	0	24h
react	1/1	1	1	21m

```
lenovo@Vikram:~$ cd /mnt/e/docker-ethereum
lenovo@Vikram:/mnt/e/docker-ethereum$ minikube service react
```

NAMESPACE	NAME	TARGET PORT	URL
default	react		No node port

```

service default/react has no node port
Starting tunnel for service react.
```

NAMESPACE	NAME	TARGET PORT	URL
default	react		http://127.0.0.1:44901

```

Opening service default/react in default browser...
http://127.0.0.1:44901
! Because you are using a Docker driver on linux, the terminal needs to be open to run it.
```

```
lenovo@Vikram:/mnt/e/docker-ethereum$ kubectl port-forward service/dapp 4000:4000
```

```

Forwarding from 127.0.0.1:4000 -> 4000
Forwarding from [::1]:4000 -> 4000
Handling connection for 4000
Handling connection for 4000
Handling connection for 4000
Handling connection for 4000
```

set message

Set Message
Get Message
Compile Contract
Deploy Contract

Contract compiled successfully!

set message

Set Message
Get Message
Compile Contract
Deploy Contract

0x5a340f367B41dac53756EdF993aBc43f716adABF

set message

Set Message
Get Message
Compile Contract
Deploy Contract

Hello World!

This is new message

Set Message
Get Message
Compile Contract
Deploy Contract

This is new message

Set Message
Get Message
Compile Contract
Deploy Contract

This is new message

Replicaset - replicaset configured as 1

```
lenovo@Vikram: /mnt/e/docker-ethereum$ *C
lenovo@Vikram: /mnt/e/docker-ethereum$ kubectl get pods
NAME                                READY    STATUS              RESTARTS   AGE
dapp-9d994d54c-kvsw5                1/1     Running             2 (38m ago) 77m
dapp-bx844                           1/1     Running             2 (38m ago) 3d
dapp-mhxr                             1/1     Running             2 (38m ago) 3d
ethereum-client-fag6k                0/1     ImagePullBackOff    0           6h52m
ethereum-client-gbmbm                0/1     ImagePullBackOff    0           6h52m
ethereum-client-sjm5g                0/1     ErrImagePull        0           6h52m
ethereum-node-0                      0/1     ErrImagePull        0           6h52m
ganache-0                            1/1     Running             2 (38m ago) 3d
ganache-7b4c86b4c5-5pmpb             1/1     Running             2 (38m ago) 77m
mongo-express-deployment-b88f6d45f-8t8mj 0/1     CrashLoopBackOff    65 (73s ago) 25h
mongodb-stateful-set-0                1/1     Running             2 (38m ago) 25h
mongodb-stateful-set-1                1/1     Running             2 (38m ago) 25h
my-typescript-app-bc58865cc-qv46j     1/1     Running             2 (38m ago) 3d
note-deployment-74cc946cd8-mt8lf      1/1     Running             5 (36m ago) 25h
note-deployment-74cc946cd8-zpxmp      1/1     Running             5 (36m ago) 25h
note-server-deployment-6fb5fcb67f-s748d 0/1     CrashLoopBackOff    74 (3m57s ago) 25h
note-server-deployment-6fb5fcb67f-sgkqk 0/1     CrashLoopBackOff    74 (4m34s ago) 25h
react-6c46cbfc45-s58f5                1/1     Running             2 (38m ago) 77m
react-frontend-h7lt6                 1/1     Running             2 (38m ago) 3d
react-frontend-sw4hr                  1/1     Running             2 (38m ago) 3d
lenovo@Vikram: /mnt/e/docker-ethereum$ kubectl delete pod dapp-9d994d54c-kvsw5
pod "dapp-9d994d54c-kvsw5" deleted
lenovo@Vikram: /mnt/e/docker-ethereum$ kubectl get pods
NAME                                READY    STATUS              RESTARTS   AGE
dapp-9d994d54c-7jzdr                 1/1     Running             0           12s
dapp-bx844                           1/1     Running             2 (40m ago) 3d1h
dapp-mhxr                             1/1     Running             2 (40m ago) 3d1h
ethereum-client-fag6k                0/1     ImagePullBackOff    0           6h54m
ethereum-client-gbmbm                0/1     ImagePullBackOff    0           6h54m
ethereum-client-sjm5g                0/1     ImagePullBackOff    0           6h54m
ethereum-node-0                      0/1     ImagePullBackOff    0           6h54m
ganache-0                            1/1     Running             2 (40m ago) 3d1h
ganache-7b4c86b4c5-5pmpb             1/1     Running             2 (40m ago) 79m
mongo-express-deployment-b88f6d45f-8t8mj 0/1     CrashLoopBackOff    65 (2m55s ago) 25h
mongodb-stateful-set-0                1/1     Running             2 (40m ago) 25h
mongodb-stateful-set-1                1/1     Running             2 (40m ago) 25h
my-typescript-app-bc58865cc-qv46j     1/1     Running             2 (39m ago) 3d
```

Secret - configmap

```
lenovo@Vikram:/mnt/e/docker-ethereum$ kubectl apply -f configMap.yaml
configmap/node-app-config created
lenovo@Vikram:/mnt/e/docker-ethereum$ kubectl apply -f dapp.deployment.yaml
error: the path "dapp.deployment.yaml" does not exist
lenovo@Vikram:/mnt/e/docker-ethereum$ kubectl apply -f dapp-deployment.yaml
deployment.apps/dapp configured
lenovo@Vikram:/mnt/e/docker-ethereum$ kubectl get pods
```

NAME	READY	STATUS	RESTARTS	AGE
dapp-5f85856bf7-bd2jq	1/1	Running	0	16s
dapp-bx844	1/1	Running	2 (55m ago)	3d1h
dapp-mhxxm	1/1	Running	2 (56m ago)	3d1h
ethereum-client-fmg6k	0/1	ImagePullBackOff	0	7h10m
ethereum-client-gbmbm	0/1	ImagePullBackOff	0	7h10m
ethereum-client-sjm5g	0/1	ImagePullBackOff	0	7h10m
ethereum-node-0	0/1	ImagePullBackOff	0	7h10m
ganache-0	1/1	Running	2 (56m ago)	3d1h
ganache-7b4c86b4c5-5pmpb	1/1	Running	2 (56m ago)	95m
mongo-express-deployment-b88f6d45f-8t8mj	1/1	Running	68 (5m29s ago)	26h
mongodb-stateful-set-0	1/1	Running	2 (56m ago)	26h
mongodb-stateful-set-1	1/1	Running	2 (56m ago)	26h
my-typescript-app-bc58865cc-qv46j	1/1	Running	2 (55m ago)	3d1h
note-deployment-74cc946cd8-mt8lf	1/1	Running	5 (54m ago)	26h
note-deployment-74cc946cd8-zpxmp	1/1	Running	5 (54m ago)	26h
note-server-deployment-6fb5fcb67f-s748d	0/1	CrashLoopBackOff	77 (4m32s ago)	26h
note-server-deployment-6fb5fcb67f-sgkqk	0/1	CrashLoopBackOff	77 (5m1s ago)	26h
react-6c46cbfc45-s58f5	1/1	Running	2 (55m ago)	95m
react-frontend-h7lt6	1/1	Running	2 (56m ago)	3d1h
react-frontend-sw4hr	1/1	Running	2 (56m ago)	3d1h

```
lenovo@Vikram:/mnt/e/docker-ethereum$ kubectl exec dapp-5f85856bf7-bd2jq -- env
PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin
HOSTNAME=dapp-5f85856bf7-bd2jq
NODE_PORT=8080
MY_TYPESCRIPT_APP_SERVICE_SERVICE_HOST=10.105.99.249
ETHEREUM_LOADBALANCER_SERVICE_PORT=8545
ETHEREUM_LOADBALANCER_PORT_8545_TCP_PROTO=tcp
```

#Load Balanceing - React app is running on two port
<http://127.0.0.1:37347>(default) , <http://127.0.0.1:3001>(nordport)

```
lenovo@Vikram:/mnt/e/docker-ethereum$ kubectl apply -f react-service.yaml
service/react configured
lenovo@Vikram:/mnt/e/docker-ethereum$
```



```
lenovo@Vikram:/mnt/e/docker-ethereum$ minikube service react
-----
| NAMESPACE | NAME | TARGET PORT | URL |
|-----|-----|-----|-----|
| default | react | http/3001 | http://192.168.58.2:31362 |
|-----|-----|-----|-----|
🔗 Starting tunnel for service react.
-----
| NAMESPACE | NAME | TARGET PORT | URL |
|-----|-----|-----|-----|
| default | react | | http://127.0.0.1:37347 |
|-----|-----|-----|-----|
🐞 Opening service default/react in default browser...
👉 http://127.0.0.1:37347
! Because you are using a Docker driver on linux, the terminal needs to be open to run it.
```

set message

Set Message
Get Message
Compile Contract
Deploy Contract

Contract compiled successfully!

Scaling – HPA scaling

```
lenovo@Vikram:/mnt/e/docker-ethereum$ kubectl autoscale deployment react --cpu-percent=50 --min=1 --max=10
horizontalpodautoscaler.autoscaling/react autoscaled
```

```
lenovo@Vikram:/mnt/e/docker-ethereum$ kubectl apply -f react-hpa.yaml
Warning: resource horizontalpodautoscalers/react is missing the kubectrl.kubernetes.io/last-applied-configuration annotation which is required by kubectl apply. kubectl ap
ply should only be used on resources created declaratively by either kubectl create --save-config or kubectl apply. The missing annotation will be patched automatically.
horizontalpodautoscaler.autoscaling/react configured
lenovo@Vikram:/mnt/e/docker-ethereum$ kubectl get hpa
NAME                REFERENCE                TARGETS      MINPODS   MAXPODS   REPLICAS   AGE
ethereum-node-hpa   Deployment/ethereum-node  <unknown>/50%  2         5         2          4h36m
react               Deployment/react          <unknown>/50%  1         10        1          2m2s
lenovo@Vikram:/mnt/e/docker-ethereum$ kubectl run -i --tty load-generator --rm --image=busybox -- /bin/sh
^Clenovo@Vikram:/mnt/e/docker-ethereum$ kubectl get hpa react --watch
NAME                REFERENCE                TARGETS      MINPODS   MAXPODS   REPLICAS   AGE
react               Deployment/react          <unknown>/50%  1         10        1          14m
react               Deployment/react          <unknown>/50%  1         10        1          17m
^Clenovo@Vikram:/mnt/e/docker-ethereum$ ^C
lenovo@Vikram:/mnt/e/docker-ethereum$ kubectl apply -f react-hpa.yaml
horizontalpodautoscaler.autoscaling/react configured
lenovo@Vikram:/mnt/e/docker-ethereum$ kubectl get hpa react --watch
NAME                REFERENCE                TARGETS      MINPODS   MAXPODS   REPLICAS   AGE
react               Deployment/react          <unknown>/50%  1         10        1          17m
```



```

lenovo@Vikram:/mnt/e/docker-ethereum$ kubectl apply -f react-hpa.yaml
horizontalpodautoscaler.autoscaling/react configured
lenovo@Vikram:/mnt/e/docker-ethereum$ kubectl describe hpa react
Name:
Namespace:
Labels:
Annotations:
CreationTimestamp:
Reference:
Metrics:
  resource cpu on pods (as a percentage of request):
    Min replicas:
    Max replicas:
    Deployment pods:
Conditions:
Type          Status Reason
-----
AbleToScale   True    ReadyForNewScale recommended size matches current size
ScalingActive True    ValidMetricFound the HPA was able to successfully calculate a replica count from cpu resource utilization (percentage of request)
ed True      TooFewReplicas the desired replica count is less than the minimum replica count
Events:
Type          Reason
-----
Warning FailedComputeMetricsReplicas 17m (x12 over 20m) 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: missing request for cpu in container react of Pod react-6c46cbfc45-s58f5
Warning FailedGetResourceMetric 4m59s (x61 over 20m) horizontal-pod-autoscaler failed to get cpu utilization: missing request for cpu in container react of Pod
react-6c46cbfc45-s58f5

```

```

lenovo@Vikram:/mnt/e/docker-ethereum$ kubectl get hpa
NAME                REFERENCE                TARGETS      MINPODS  MAXPODS  REPLICAS  AGE
ethereum-node-hpa   Deployment/ethereum-node  <unknown>/50%  2         5         2          6h41m
react                Deployment/react           0%/50%        1         10        1          126m
lenovo@Vikram:/mnt/e/docker-ethereum$ kubectl get hpa react
NAME    REFERENCE    TARGETS  MINPODS  MAXPODS  REPLICAS  AGE
react   Deployment/react  0%/50%   1         10        1          149m

```

- Generate Load on react app for testing react app hpa
first install - `sudo apt-get install apache2-utils`

```
lenovo@Vikram:~$ ab -n 1000 -c 10 http://127.0.0.1:41117/
This is ApacheBench, Version 2.3 <$Revision: 1879490 $>
Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Licensed to The Apache Software Foundation, http://www.apache.org/
```

```
Benchmarking 127.0.0.1 (be patient)
```

```
Completed 100 requests
Completed 200 requests
Completed 300 requests
Completed 400 requests
Completed 500 requests
Completed 600 requests
Completed 700 requests
Completed 800 requests
Completed 900 requests
Completed 1000 requests
Finished 1000 requests
```

```
Server Software:      nginx/1.21.6
Server Hostname:      127.0.0.1
Server Port:          41117

Document Path:        /
Document Length:      2148 bytes

Concurrency Level:    10
Time taken for tests:  1.412 seconds
Complete requests:    1000
Failed requests:       0
Total transferred:    2382000 bytes
HTML transferred:     2148000 bytes
Requests per second:  708.39 [#/sec] (mean)
Time per request:     14.116 [ms] (mean)
```

```
lenovo@Vikram:/mnt/e/docker-ethereum$ kubectl get hpa react
```

NAME	REFERENCE	TARGETS	MINPODS	MAXPODS	REPLICAS	AGE
react	Deployment/react	61%/50%	1	10	2	20h

```
lenovo@Vikram:/mnt/e/docker-ethereum$
```

```
lenovo@Vikram:/mnt/e/docker-ethereum$ kubectl get hpa react
```

NAME	REFERENCE	TARGETS	MINPODS	MAXPODS	REPLICAS	AGE
react	Deployment/react	87%/50%	1	10	2	20h

```
lenovo@Vikram:/mnt/e/docker-ethereum$ kubectl get hpa react
```

NAME	REFERENCE	TARGETS	MINPODS	MAXPODS	REPLICAS	AGE
react	Deployment/react	1%/50%	1	10	2	20h

Role Binding

User – vikram_singh

```
lenovo@Vikram: /mnt/e/docker-ethereum$ ^C
lenovo@Vikram: /mnt/e/docker-ethereum$ kubectl delete pod load-generator
pod "load-generator" deleted
lenovo@Vikram: /mnt/e/docker-ethereum$ kubectl delete pod load-generator
pod "load-generator" deleted
lenovo@Vikram: /mnt/e/docker-ethereum$ kubectl delete pod load-generator
pod "load-generator" deleted
lenovo@Vikram: /mnt/e/docker-ethereum$ kubectl delete pod load-generator
pod "load-generator" deleted
lenovo@Vikram: /mnt/e/docker-ethereum$ nano ~/.kube/config
lenovo@Vikram: /mnt/e/docker-ethereum$ openssl genrsa -out vikram_singh.key 2048
lenovo@Vikram: /mnt/e/docker-ethereum$ openssl req -new -key vikram_singh.key -out vikram_singh.csr -subj "/CN=vikram_singh/O=dev/O=example.org"
lenovo@Vikram: /mnt/e/docker-ethereum$ ls
Dockerfile      cluster-role.yaml      vikram_singh.csr      package-lock.json      role-binding.yaml      vikram_singh.key
Dockerfile.ganache  cluster-rolebinding.yaml  ganache-deployment.yaml  package.json            role.yaml              secret.yaml
LICENSE.md         configMap.yaml          ganache-service.yaml    react-deployment.yaml  react-hpa.yaml         vikram_singh.csr
LICENSE.md         dapp-deployment.yaml    kompose                 react-service.yaml     traffic-generator.yaml
README.md          dapp-service.yaml       kubectl-pod-1.yaml      role-binding-1.yaml    vikram_singh.csr
client            docker-compose.yaml      kubectl-pod.yaml
lenovo@Vikram: /mnt/e/docker-ethereum$ openssl x509 -req -CA ~/.minikube/ca.crt -CAkey ~/.minikube/ca.key -CAcreateserial -days 730 -in vikram_singh.csr -out vikram_singh.crt
Certificate request self-signature ok
subject=CN = vikram_singh, O = dev, O = example.org
lenovo@Vikram: /mnt/e/docker-ethereum$ kubectl config set-credentials vikram_singh --client-certificate=vikram_singh.crt --client-key=vikram_singh.key
User "vikram_singh" set.
lenovo@Vikram: /mnt/e/docker-ethereum$ kubectl config set-context vikram_singh-minikube --cluster=minikube --user=vikram_singh --namespace=default
Context "vikram_singh-minikube" created.
lenovo@Vikram: /mnt/e/docker-ethereum$ kubectl config get-contexts
CURRENT  NAME           CLUSTER  AUTHINFO  NAMESPACE
*        vikram-minikube  minikube  vikram    default
vikram_singh-minikube  minikube  vikram_singh  default
lenovo@Vikram: /mnt/e/docker-ethereum$
```

```
lenovo@Vikram: /mnt/e/docker-ethereum$ kubectl config get-contexts
CURRENT  NAME           CLUSTER  AUTHINFO  NAMESPACE
*        vikram-minikube  minikube  vikram    default
vikram_singh-minikube  minikube  vikram_singh  default
lenovo@Vikram: /mnt/e/docker-ethereum$ kubectl config use-context vikram_singh-minikube
Switched to context "vikram_singh-minikube".
lenovo@Vikram: /mnt/e/docker-ethereum$ kubectl config get-contexts
CURRENT  NAME           CLUSTER  AUTHINFO  NAMESPACE
*        vikram-minikube  minikube  minikube  default
vikram-minikube  minikube  vikram    default
vikram_singh-minikube  minikube  vikram_singh  default
lenovo@Vikram: /mnt/e/docker-ethereum$ kubectl get pods
Error from server (Forbidden): pods is forbidden: User "vikram_singh" cannot list resource "pods" in API group "" in the namespace "default"
lenovo@Vikram: /mnt/e/docker-ethereum$ kubectl config use-context minikube
Switched to context "minikube".
lenovo@Vikram: /mnt/e/docker-ethereum$ kubectl apply -f role.yaml
role.rbac.authorization.k8s.io/pod-reader unchanged
lenovo@Vikram: /mnt/e/docker-ethereum$ kubectl apply -f role-binding.yaml
rolebinding.rbac.authorization.k8s.io/read-pods configured
lenovo@Vikram: /mnt/e/docker-ethereum$ kubectl config use-context vikram_singh-minikube
Switched to context "vikram_singh-minikube".
lenovo@Vikram: /mnt/e/docker-ethereum$ kubectl get pods
NAME                                READY  STATUS             RESTARTS  AGE
dapp-5f85856bf7-bd2jq               1/1    Running            2 (19h ago)  2d19h
dapp-5f85856bf7-d9955               1/1    Running            1 (19h ago)  19h
dapp-bx844                           1/1    Running            5           5d21h
dapp-mhxxm                           1/1    Running            5           5d21h
debug                                1/1    Running            0           16h
ethereum-client-fmg6k                0/1    ImagePullBackOff   0           3d3h
ethereum-client-gbmbm                0/1    ImagePullBackOff   0           3d3h
ethereum-client-sjm5g                0/1    ImagePullBackOff   0           3d3h
ethereum-node-0                      0/1    ImagePullBackOff   0           3d3h
```

```

default 0 143m
lenovo@Vikram:/mnt/s/docker-ethereum$ kubectl create sa test-sa
error: failed to create serviceaccount: serviceaccounts "test-sa" already exists
lenovo@Vikram:/mnt/s/docker-ethereum$ kubectl config use-context vikram_singh-minikube
Switched to context "vikram_singh-minikube".
lenovo@Vikram:/mnt/s/docker-ethereum$ kubectl apply -f kubectl-pod.yaml
Error from server (Forbidden): error when applying patch:
{"metadata":{"annotations":{"kubectl.kubernetes.io/last-applied-configuration":{"apiVersion":"v1","kind":"Pod","metadata":{"annotations":{"name":"kubectl-pod1","namespace":"default"},"spec":{"containers":[{"command":["sleep","20000"],"image":"bitnami/kubectl","name":"kubectl"}]}}},"spec":{"serviceAccount":null}}}
to:
Resource: "/v1, Resource=pods", GroupVersionKind: "/v1, Kind=Pod"
Name: "kubectl-pod1", Namespace: "default"
for: "kubectl-pod.yaml": error when patching "kubectl-pod.yaml": pods "kubectl-pod1" is forbidden: User "vikram_singh" cannot patch resource "pods" in API group "" in the namespace "default"
lenovo@Vikram:/mnt/s/docker-ethereum$ kubectl exec -it kubectl-pod -- bash
Error from server (NotFound): pods "kubectl-pod" not found
lenovo@Vikram:/mnt/s/docker-ethereum$ kubectl get pods

```

NAME	READY	STATUS	RESTARTS	AGE
dapp-5f85856bf7-bd2jq	1/1	Running	2 (19h ago)	2d20h
dapp-5f85856bf7-d9955	1/1	Running	1 (19h ago)	19h
dapp-bx844	1/1	Running	5	5d21h
dapp-mhxxm	1/1	Running	5	5d21h
debug	1/1	Running	0	16h
ethereum-client-fmg6k	0/1	ImagePullBackOff	0	3d3h
ethereum-client-gbmbm	0/1	ImagePullBackOff	0	3d3h
ethereum-client-sjm5g	0/1	ImagePullBackOff	0	3d3h
ethereum-node-0	0/1	ImagePullBackOff	0	3d3h
ethereum-node-76b756cb9-8wz28	1/1	Running	2 (19h ago)	23h
ethereum-node-76b756cb9-pjn4n	1/1	Running	2	23h
ganache-0	1/1	Running	5 (19h ago)	5d21h
ganache-7b4c86b4c5-5mpmb	1/1	Running	5 (19h ago)	2d21h
kubectl-pod1	1/1	Running	0	124m
load-generator	0/1	Error	0	16h
mongo-express-deployment-b88f6d45f-8t8mj	0/1	CrashLoopBackOff	269 (89s ago)	3d22h

```

ganache-0 1/1 Running 5 (19h ago) 5d21h
ganache-7b4c86b4c5-5mpmb 1/1 Running 5 (19h ago) 2d21h
kubectl-pod1 1/1 Running 0 124m
load-generator 0/1 Error 0 16h
mongo-express-deployment-b88f6d45f-8t8mj 0/1 CrashLoopBackOff 269 (89s ago) 3d22h
mongodb-stateful-set-0 1/1 Running 4 (19h ago) 3d22h
mongodb-stateful-set-1 1/1 Running 4 (19h ago) 3d22h
my-typescript-app-bc58865cc-qv46j 1/1 Running 5 5d21h
note-deployment-74cc946cd8-mt8lf 1/1 Running 11 (19h ago) 3d22h
note-deployment-74cc946cd8-zpxmp 1/1 Running 11 (19h ago) 3d22h
note-server-deployment-6fb5fcb67f-s748d 0/1 CrashLoopBackOff 302 (5m16s ago) 3d22h
note-server-deployment-6fb5fcb67f-sgkqk 1/1 Running 301 (5m14s ago) 3d22h
react-95c5d68df-95n4w 1/1 Running 0 18h
react-frontend-h7lt6 1/1 Running 5 5d21h
react-frontend-sw4hr 1/1 Running 5 5d21h
lenovo@Vikram:/mnt/s/docker-ethereum$ kubectl config use-context minikube
Switched to context "minikube".
lenovo@Vikram:/mnt/s/docker-ethereum$ kubectl apply -f role-binding-1.yaml
rolebinding.rbac.authorization.k8s.io/read-pods configured
lenovo@Vikram:/mnt/s/docker-ethereum$ kubectl apply -f kubectl-pod-1.yaml
pod/kubectl-pod1 unchanged
lenovo@Vikram:/mnt/s/docker-ethereum$ kubectl exec -it kubectl-pod -- bash
Error from server (NotFound): pods "kubectl-pod" not found
lenovo@Vikram:/mnt/s/docker-ethereum$ kubectl get pods

```

NAME	READY	STATUS	RESTARTS	AGE
dapp-5f85856bf7-bd2jq	1/1	Running	2 (19h ago)	2d20h
dapp-5f85856bf7-d9955	1/1	Running	1 (19h ago)	19h
dapp-bx844	1/1	Running	5	5d21h
dapp-mhxxm	1/1	Running	5	5d21h
debug	1/1	Running	0	16h
ethereum-client-fmg6k	0/1	ImagePullBackOff	0	3d3h
ethereum-client-gbmbm	0/1	ImagePullBackOff	0	3d3h
ethereum-client-sjm5g	0/1	ImagePullBackOff	0	3d3h
ethereum-node-0	0/1	ImagePullBackOff	0	3d3h
ethereum-node-76b756cb9-8wz28	1/1	Running	2 (19h ago)	23h

```

ethereum-node-76b756bcb9-0wz20      1/1      Running      2 (19h ago)      23h
ethereum-node-76b756bcb9-pjn4n      1/1      Running      2 (19h ago)      23h
ganache-0                             1/1      Running      5 (19h ago)      5d21h
ganache-7b4c86b4c5-5pmpb            1/1      Running      5 (19h ago)      2d21h
kubectl-pod1                         1/1      Running      0                  125m
load-generator                       0/1      Error        0                  16h
mongo-express-deployment-b88f6d45f-8t8mj 0/1      CrashLoopBackOff 269 (2m25s ago)  3d22h
mongodb-stateful-set-0               1/1      Running      4 (19h ago)      3d22h
mongodb-stateful-set-1               1/1      Running      4 (19h ago)      3d22h
my-typescript-app-bc58865cc-qv46j    1/1      Running      5                  5d21h
note-deployment-74cc946cd8-mt8lf     1/1      Running      11 (19h ago)     3d22h
note-deployment-74cc946cd8-zpxmp     1/1      Running      11 (19h ago)     3d22h
note-server-deployment-6fb5fcb67f-s748d 0/1      CrashLoopBackOff 303 (19s ago)    3d22h
note-server-deployment-6fb5fcb67f-sgkkq 0/1      CrashLoopBackOff 301 (24s ago)    3d22h
react-95c5d68df-95n4w                1/1      Running      0                  18h
react-frontend-h7lt6                 1/1      Running      5                  5d21h
react-frontend-sw4hr                 1/1      Running      5                  5d21h
lenovo@Vikram:/mnt/e/docker-ethereum$ kubectl config use-context minikube
Switched to context "minikube".
lenovo@Vikram:/mnt/e/docker-ethereum$ kubectl auth can-i create pods
yes
lenovo@Vikram:/mnt/e/docker-ethereum$ kubectl config use-context vikram_singh-minikube
Switched to context "vikram_singh-minikube".
lenovo@Vikram:/mnt/e/docker-ethereum$ kubectl auth can-i create pods
no
lenovo@Vikram:/mnt/e/docker-ethereum$ kubectl auth can-i get pods
yes
lenovo@Vikram:/mnt/e/docker-ethereum$
```