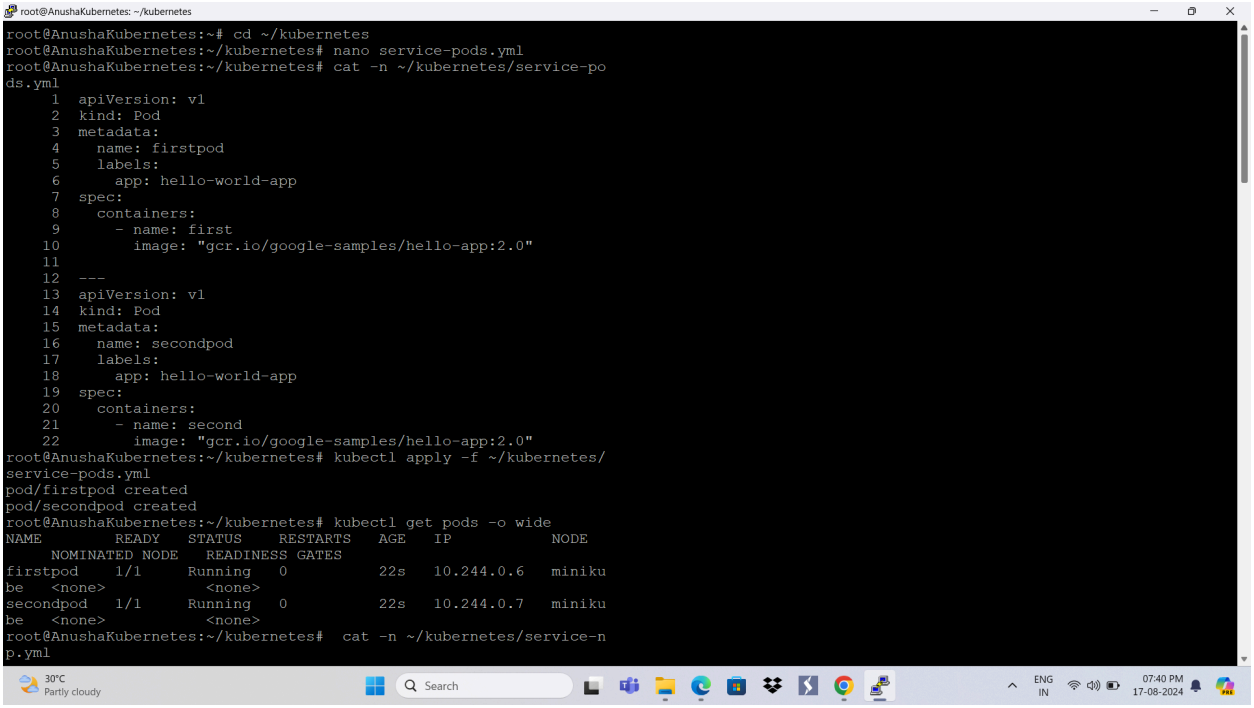
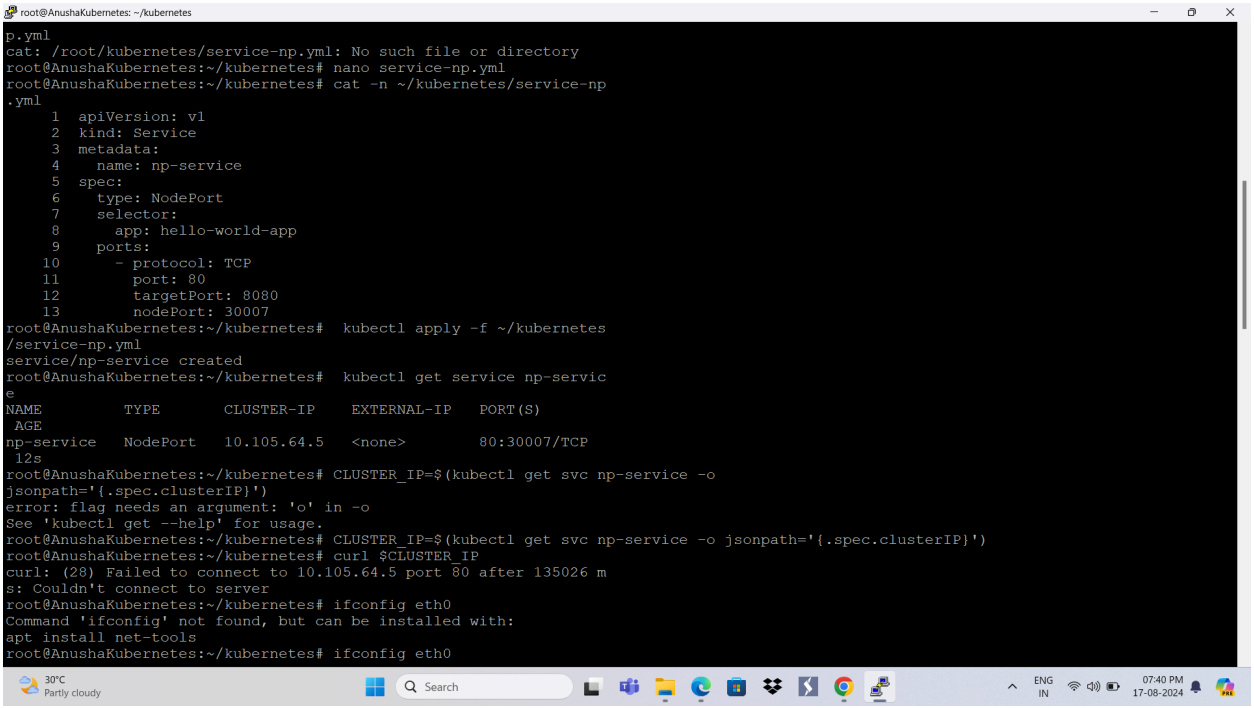
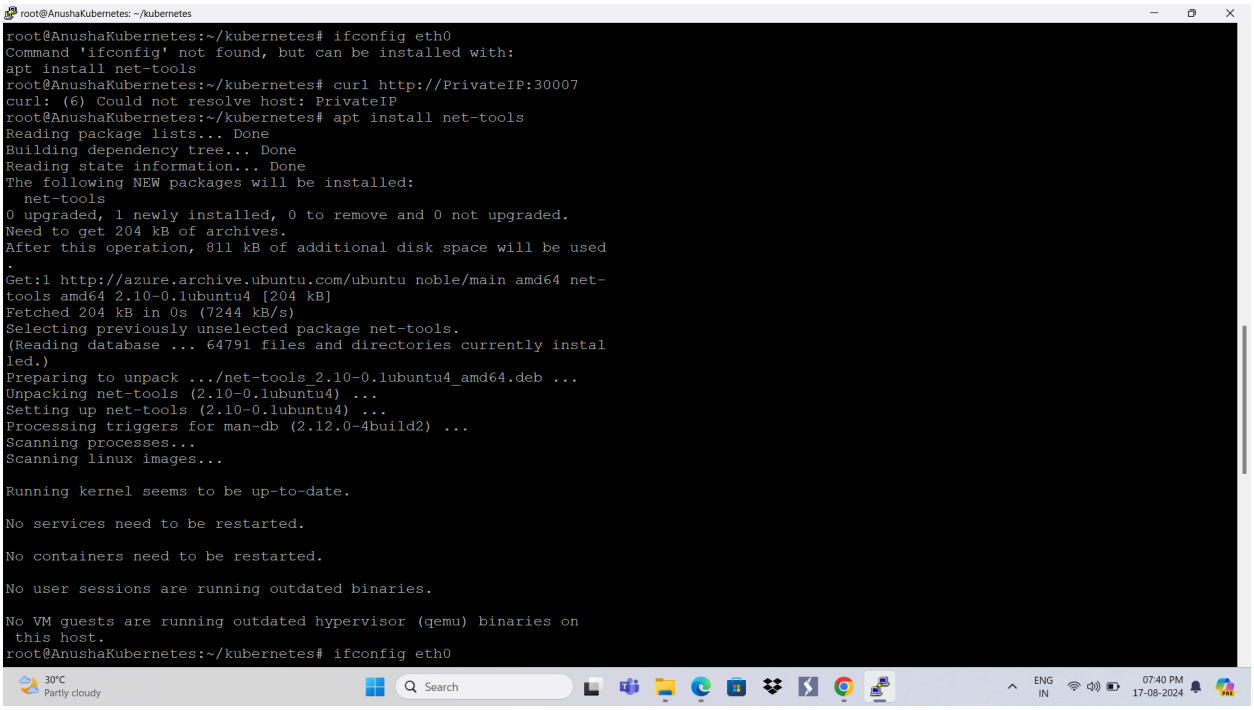
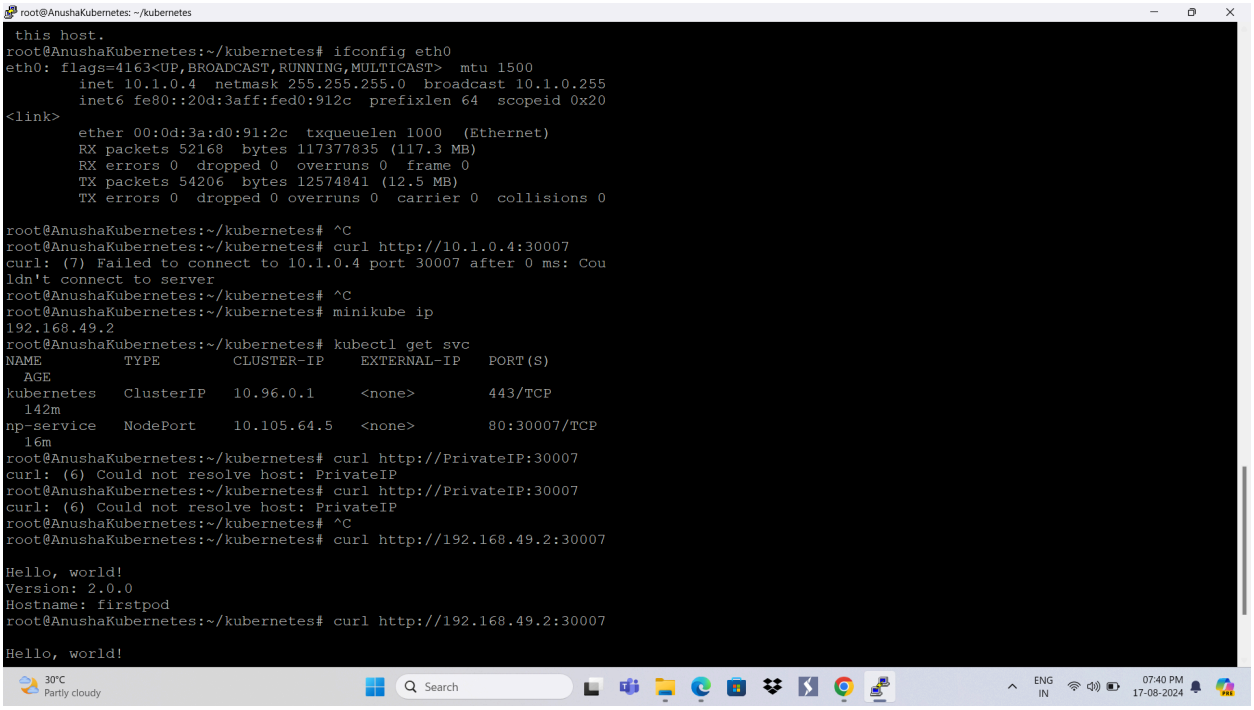
Lab: Working with ReplicaSets






root@AnushaKubernetes: ~/kubernetes
root@AnushaKubernetes:~/kubernetes# ifconfig eth0
Command 'ifconfig' not found, but can be installed with:
apt install net-tools
root@AnushaKubernetes:~/kubernetes# curl http://PrivateIP:30007
curl: (6) Could not resolve host: PrivateIP
root@AnushaKubernetes:~/kubernetes# apt install net-tools
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
net-tools
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 204 kB of archives.
After this operation, 811 kB of additional disk space will be used
.
Get:1 http://azure.archive.ubuntu.com/ubuntu noble/main amd64 net-
tools amd64 2.10-0.1ubuntu4 [204 kB]
Fetched 204 kB in 0s (7244 kB/s)
Selecting previously unselected package net-tools.
(Reading database ... 64791 files and directories currently instal
led.)
Preparing to unpack .../net-tools_2.10-0.1ubuntu4_amd64.deb ...
Unpacking net-tools (2.10-0.1ubuntu4) ...
Setting up net-tools (2.10-0.1ubuntu4) ...
Processing triggers for man-db (2.12.0-4build2) ...
Scanning processes...
Scanning linux images...
Running kernel seems to be up-to-date.
No services need to be restarted.
No containers need to be restarted.
No user sessions are running outdated binaries.
No VM guests are running outdated hypervisor (qemu) binaries on
this host.
root@AnushaKubernetes:~/kubernetes# ifconfig eth0
30°C
Partly cloudy
Search
ENG
IN
07:40 PM
17-08-2024


root@AnushaKubernetes: ~/kubernetes
this host.
root@AnushaKubernetes:~/kubernetes# ifconfig eth0
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
inet 10.1.0.4 netmask 255.255.255.0 broadcast 10.1.0.255
inet6 fe80::20d:3aff:fed0:912c prefixlen 64 scopeid 0x20
<link>
ether 00:0d:3a:d0:91:2c txqueuelen 1000 (Ethernet)
RX packets 52168 bytes 117377835 (117.3 MB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 54206 bytes 12574841 (12.5 MB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
root@AnushaKubernetes:~/kubernetes# ^C
root@AnushaKubernetes:~/kubernetes# curl http://10.1.0.4:30007
curl: (7) Failed to connect to 10.1.0.4 port 30007 after 0 ms: Cou
ldn't connect to server
root@AnushaKubernetes:~/kubernetes# ^C
root@AnushaKubernetes:~/kubernetes# minikube ip
192.168.49.2
root@AnushaKubernetes:~/kubernetes# kubectl get svc
NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S)
AGE
kubernetes ClusterIP 10.96.0.1 <none> 443/TCP
142m
np-service NodePort 10.105.64.5 <none> 80:30007/TCP
16m
root@AnushaKubernetes:~/kubernetes# curl http://PrivateIP:30007
curl: (6) Could not resolve host: PrivateIP
root@AnushaKubernetes:~/kubernetes# curl http://PrivateIP:30007
curl: (6) Could not resolve host: PrivateIP
root@AnushaKubernetes:~/kubernetes# ^C
root@AnushaKubernetes:~/kubernetes# curl http://192.168.49.2:30007
Hello, world!
Version: 2.0.0
Hostname: firstpod
root@AnushaKubernetes:~/kubernetes# curl http://192.168.49.2:30007
Hello, world!
30°C
Partly cloudy
Search
ENG
IN
07:40 PM
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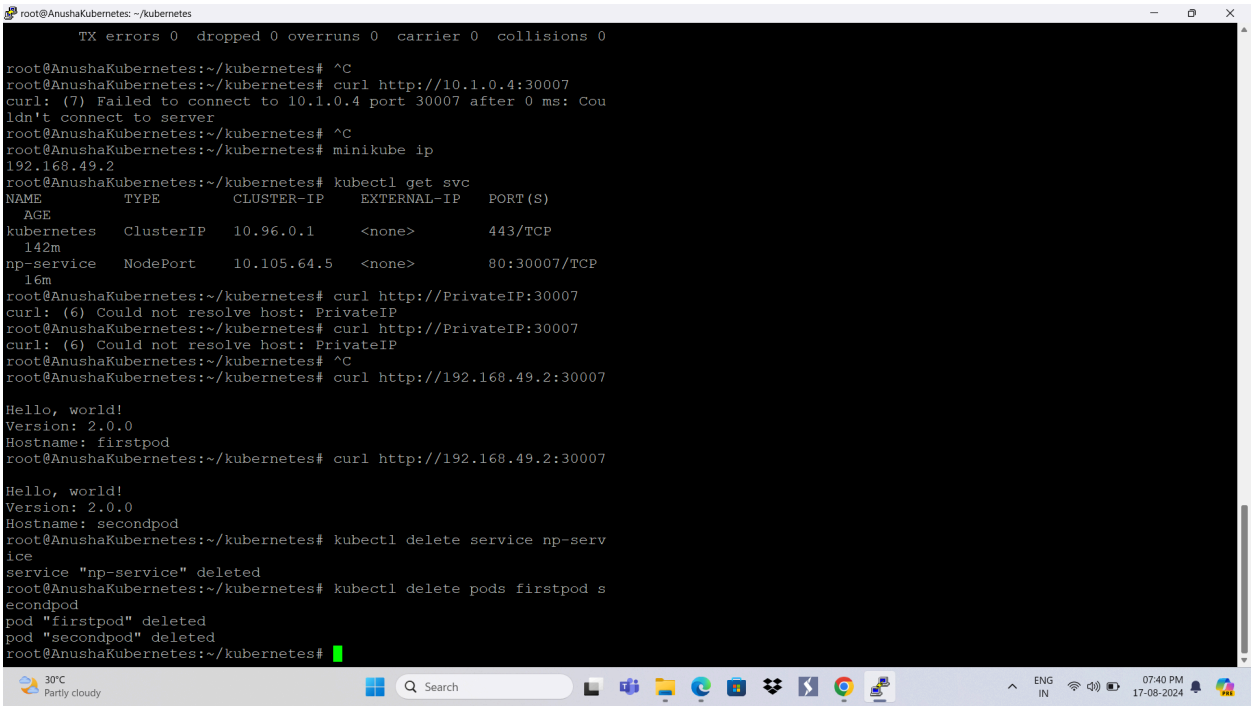
root@AnushaKubernetes: ~/kubernetes
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
root@AnushaKubernetes:~/kubernetes# ^C
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curl: (7) Failed to connect to 10.1.0.4 port 30007 after 0 ms: Cou
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root@AnushaKubernetes:~/kubernetes# kubectl get svc
NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S)
AGE
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root@AnushaKubernetes:~/kubernetes# curl http://PrivateIP:30007
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curl: (6) Could not resolve host: PrivateIP
root@AnushaKubernetes:~/kubernetes# ^C
root@AnushaKubernetes:~/kubernetes# curl http://192.168.49.2:30007
Hello, world!
Version: 2.0.0
Hostname: firstpod
root@AnushaKubernetes:~/kubernetes# curl http://192.168.49.2:30007
Hello, world!
Version: 2.0.0
Hostname: secondpod
root@AnushaKubernetes:~/kubernetes# kubectl delete service np-serv
ice
service "np-service" deleted
root@AnushaKubernetes:~/kubernetes# kubectl delete pods firstpod s
econdpod
pod "firstpod" deleted
pod "secondpod" deleted
root@AnushaKubernetes:~/kubernetes#
30°C
Partly cloudy
Search
ENG
IN
07:40 PM
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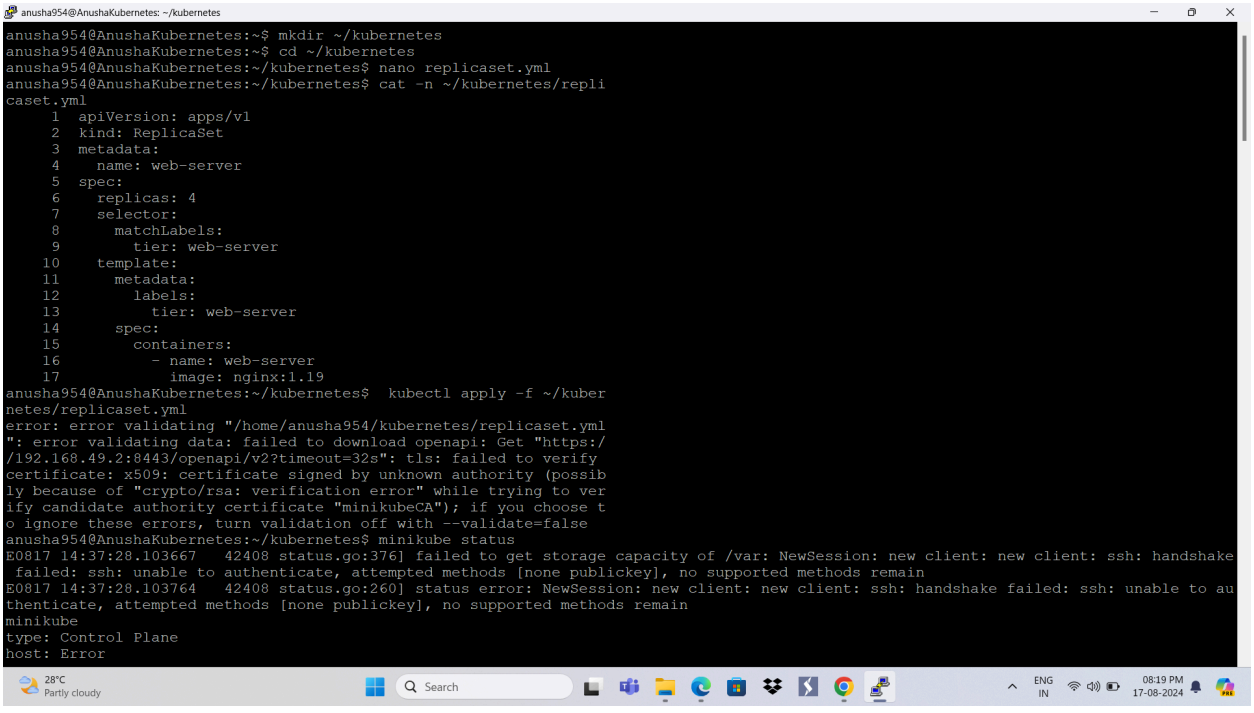
anusha954@AnushaKubernetes: ~/kubernetes
anusha954@AnushaKubernetes:~$ mkdir ~/kubernetes
anusha954@AnushaKubernetes:~$ cd ~/kubernetes
anusha954@AnushaKubernetes:~/kubernetes$ nano replicaset.yml
anusha954@AnushaKubernetes:~/kubernetes$ cat -n ~/kubernetes/repli
caset.yml
1 apiVersion: apps/v1
2 kind: ReplicaSet
3 metadata:
4 name: web-server
5 spec:
6 replicas: 4
7 selector:
8 matchLabels:
9 tier: web-server
10 template:
11 metadata:
12 labels:
13 tier: web-server
14 spec:
15 containers:
16 - name: web-server
17 image: nginx:1.19
anusha954@AnushaKubernetes:~/kubernetes$ kubectl apply -f ~/kuber
netes/replicaset.yml
error: error validating "/home/anusha954/kubernetes/replicaset.yml
": error validating data: failed to download openapi: Get "https:/
/192.168.49.2:8443/openapi/v2?timeout=32s": tls: failed to verify
certificate: x509: certificate signed by unknown authority (possib
ly because of "crypto/rsa: verification error" while trying to ver
ify candidate authority certificate "minikubeCA"); if you choose t
o ignore these errors, turn validation off with --validate=false
anusha954@AnushaKubernetes:~/kubernetes$ minikube status
E0817 14:37:28.103667 42408 status.go:376] failed to get storage capacity of /var: NewSession: new client: new client: ssh: handshake
failed: ssh: unable to authenticate, attempted methods [none publickey], no supported methods remain
E0817 14:37:28.103764 42408 status.go:260] status error: NewSession: new client: new client: ssh: handshake failed: ssh: unable to au
thenticate, attempted methods [none publickey], no supported methods remain
minikube
type: Control Plane
host: Error
28°C
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ENG
IN
08:19 PM
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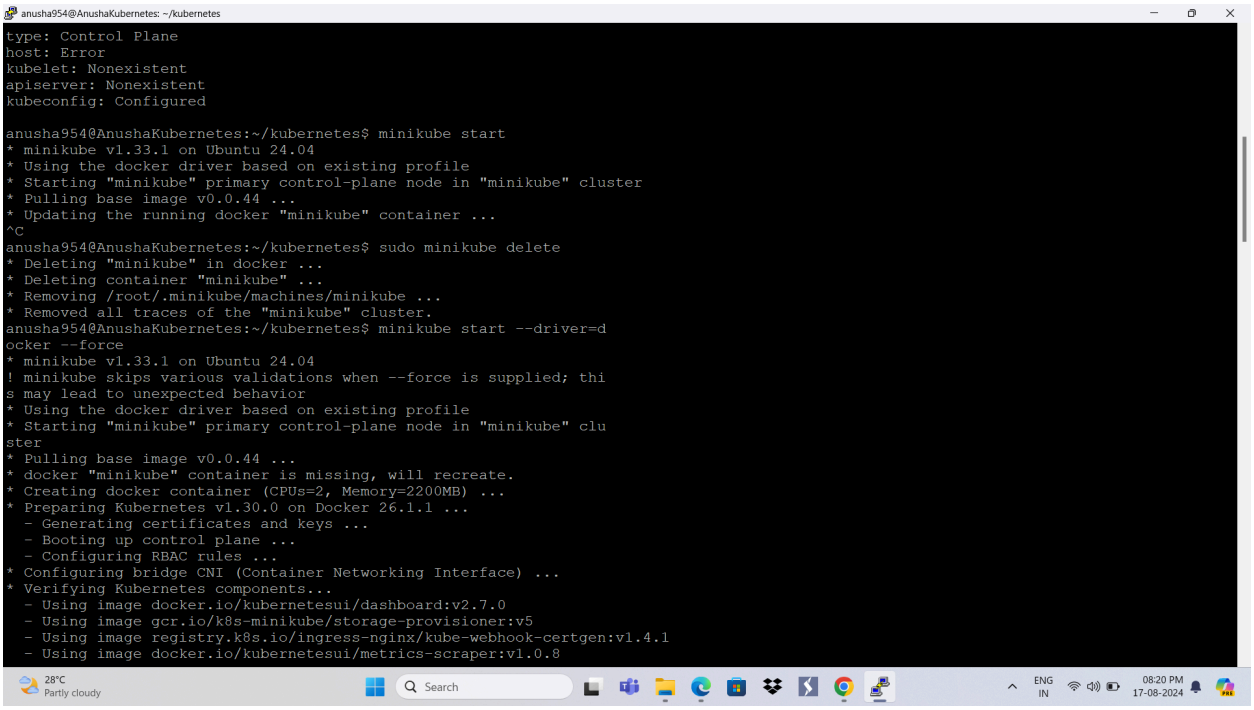
anusha954@AnushaKubernetes: ~/kubernetes
type: Control Plane
host: Error
kubelet: Nonexistent
apiserver: Nonexistent
kubeconfig: Configured
anusha954@AnushaKubernetes:~/kubernetes$ minikube start
* minikube v1.33.1 on Ubuntu 24.04
* Using the docker driver based on existing profile
* Starting "minikube" primary control-plane node in "minikube" cluster
* Pulling base image v0.0.44 ...
* Updating the running docker "minikube" container ...
^C
anusha954@AnushaKubernetes:~/kubernetes$ sudo minikube delete
* Deleting "minikube" in docker ...
* Deleting container "minikube" ...
* Removing /root/.minikube/machines/minikube ...
* Removed all traces of the "minikube" cluster.
anusha954@AnushaKubernetes:~/kubernetes$ minikube start --driver=d
ocker --force
* minikube v1.33.1 on Ubuntu 24.04
! minikube skips various validations when --force is supplied; thi
s may lead to unexpected behavior
* Using the docker driver based on existing profile
* Starting "minikube" primary control-plane node in "minikube" clu
ster
* Pulling base image v0.0.44 ...
* docker "minikube" container is missing, will recreate.
* Creating docker container (CPUs=2, Memory=2200MB) ...
* Preparing Kubernetes v1.30.0 on Docker 26.1.1 ...
- Generating certificates and keys ...
- Booting up control plane ...
- Configuring RBAC rules ...
* Configuring bridge CNI (Container Networking Interface) ...
* Verifying Kubernetes components...
- Using image docker.io/kubernetesui/dashboard:v2.7.0
- Using image gcr.io/k8s-minikube/storage-provisioner:v5
- Using image registry.k8s.io/ingress-nginx/kube-webhook-certgen:v1.4.1
- Using image docker.io/kubernetesui/metrics-scraper:v1.0.8
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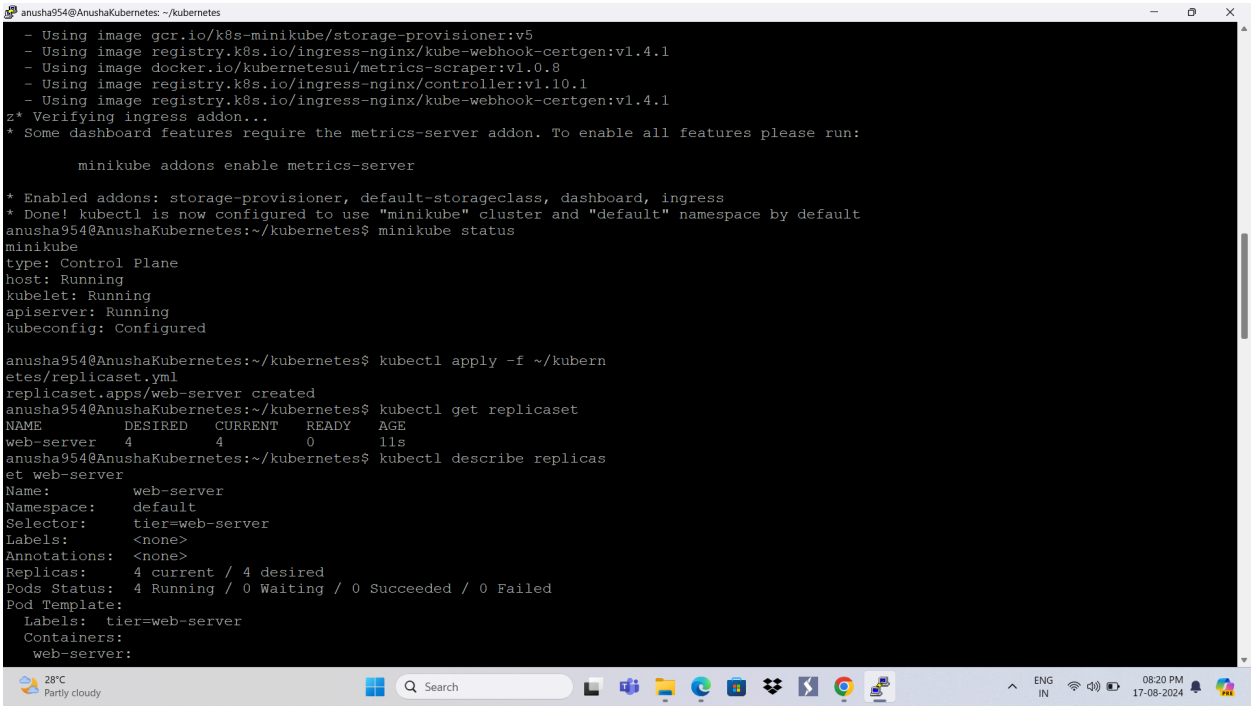
anusha954@AnushaKubernetes: ~/kubernetes
- Using image gcr.io/k8s-minikube/storage-provisioner:v5
- Using image registry.k8s.io/ingress-nginx/kube-webhook-certgen:v1.4.1
- Using image docker.io/kubernetesui/metrics-scraper:v1.0.8
- Using image registry.k8s.io/ingress-nginx/controller:v1.10.1
- Using image registry.k8s.io/ingress-nginx/kube-webhook-certgen:v1.4.1
z* Verifying ingress addon...
* Some dashboard features require the metrics-server addon. To enable all features please run:
minikube addons enable metrics-server
* Enabled addons: storage-provisioner, default-storageclass, dashboard, ingress
* Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
anusha954@AnushaKubernetes:~/kubernetes$ minikube status
minikube
type: Control Plane
host: Running
kubelet: Running
apiserver: Running
kubeconfig: Configured
anusha954@AnushaKubernetes:~/kubernetes$ kubectl apply -f ~/kubern
etes/replicaset.yml
replicaset.apps/web-server created
anusha954@AnushaKubernetes:~/kubernetes$ kubectl get replicaset
NAME DESIRED CURRENT READY AGE
web-server 4 4 0 11s
anusha954@AnushaKubernetes:~/kubernetes$ kubectl describe replicas
et web-server
Name: web-server
Namespace: default
Selector: tier=web-server
Labels: <none>
Annotations: <none>
Replicas: 4 current / 4 desired
Pods Status: 4 Running / 0 Waiting / 0 Succeeded / 0 Failed
Pod Template:
Labels: tier=web-server
Containers:
web-server:
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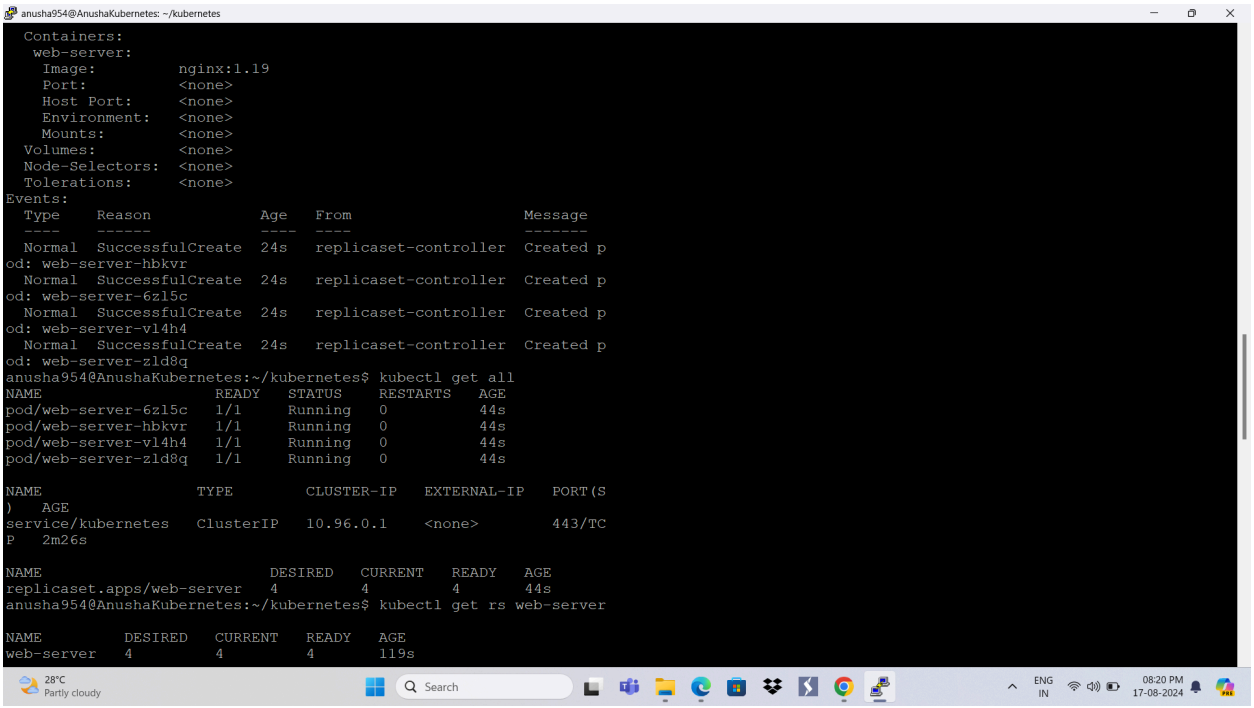
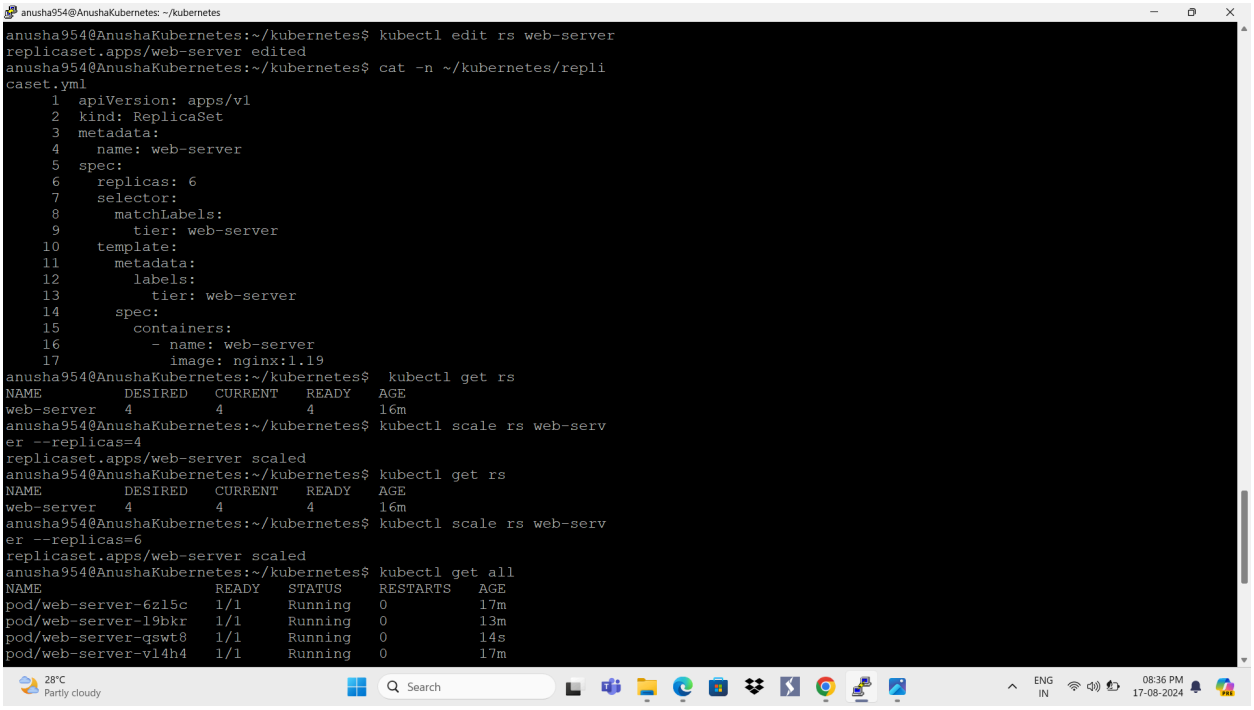
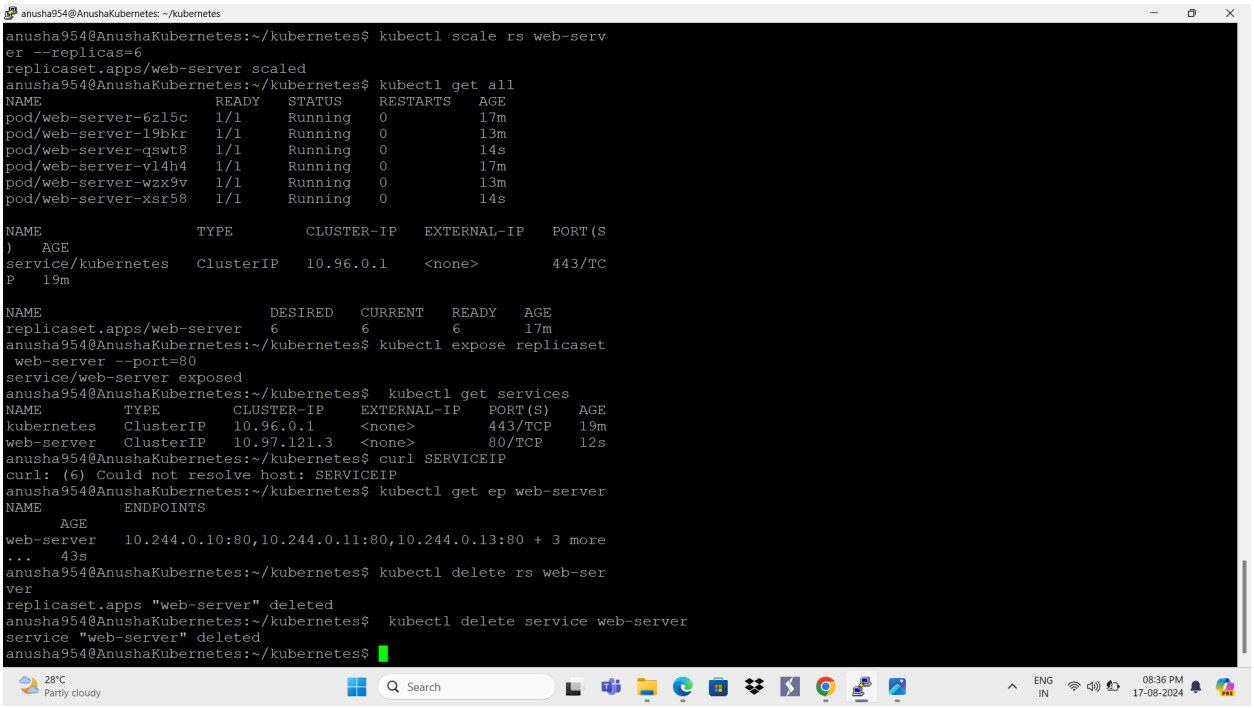

anusha954@AnushaKubernetes: ~/kubernetes
Containers:
web-server:
Image: nginx:1.19
Port: <none>
Host Port: <none>
Environment: <none>
Mounts: <none>
Volumes: <none>
Node-Selectors: <none>
Tolerations: <none>
Events:
Type Reason Age From Message
Normal SuccessfulCreate 24s replicaset-controller Created p
od: web-server-hbkvr
Normal SuccessfulCreate 24s replicaset-controller Created p
od: web-server-6zl5c
Normal SuccessfulCreate 24s replicaset-controller Created p
od: web-server-vl4h4
Normal SuccessfulCreate 24s replicaset-controller Created p
od: web-server-zld8q
anusha954@AnushaKubernetes:~/kubernetes$ kubectl get all
NAME READY STATUS RESTARTS AGE
pod/web-server-6zl5c 1/1 Running 0 44s
pod/web-server-hbkvr 1/1 Running 0 44s
pod/web-server-vl4h4 1/1 Running 0 44s
pod/web-server-zld8q 1/1 Running 0 44s
NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S
) AGE
service/kubernetes ClusterIP 10.96.0.1 <none> 443/TC
P 2m26s
NAME DESIRED CURRENT READY AGE
replicaset.apps/web-server 4 4 4 44s
anusha954@AnushaKubernetes:~/kubernetes$ kubectl get rs web-server
NAME DESIRED CURRENT READY AGE
web-server 4 4 4 119s
28°C
Partly cloudy
Search
ENG
IN
08:20 PM
17-08-2024


anusha954@AnushaKubernetes: ~/kubernetes
anusha954@AnushaKubernetes:~/kubernetes$ kubectl edit rs web-server
replicaset.apps/web-server edited
anusha954@AnushaKubernetes:~/kubernetes$ cat -n ~/kubernetes/repli
caset.yml
1 apiVersion: apps/v1
2 kind: ReplicaSet
3 metadata:
4 name: web-server
5 spec:
6 replicas: 6
7 selector:
8 matchLabels:
9 tier: web-server
10 template:
11 metadata:
12 labels:
13 tier: web-server
14 spec:
15 containers:
16 - name: web-server
17 image: nginx:1.19
anusha954@AnushaKubernetes:~/kubernetes$ kubectl get rs
NAME DESIRED CURRENT READY AGE
web-server 4 4 4 16m
anusha954@AnushaKubernetes:~/kubernetes$ kubectl scale rs web-serv
er --replicas=4
replicaset.apps/web-server scaled
anusha954@AnushaKubernetes:~/kubernetes$ kubectl get rs
NAME DESIRED CURRENT READY AGE
web-server 4 4 4 16m
anusha954@AnushaKubernetes:~/kubernetes$ kubectl scale rs web-serv
er --replicas=6
replicaset.apps/web-server scaled
anusha954@AnushaKubernetes:~/kubernetes$ kubectl get all
NAME READY STATUS RESTARTS AGE
pod/web-server-6zl5c 1/1 Running 0 17m
pod/web-server-l9bkr 1/1 Running 0 13m
pod/web-server-qswt8 1/1 Running 0 14s
pod/web-server-vl4h4 1/1 Running 0 17m
28°C
Partly cloudy
Search
ENG
IN
08:36 PM
17-08-2024


anusha954@AnushaKubernetes: ~/kubernetes
anusha954@AnushaKubernetes:~/kubernetes$ kubectl scale rs web-serv
er --replicas=6
replicaset.apps/web-server scaled
anusha954@AnushaKubernetes:~/kubernetes$ kubectl get all
NAME READY STATUS RESTARTS AGE
pod/web-server-6zl5c 1/1 Running 0 17m
pod/web-server-l9bkr 1/1 Running 0 13m
pod/web-server-qswt8 1/1 Running 0 14s
pod/web-server-vl4h4 1/1 Running 0 17m
pod/web-server-wzx9v 1/1 Running 0 13m
pod/web-server-xsr58 1/1 Running 0 14s
NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S
) AGE
service/kubernetes ClusterIP 10.96.0.1 <none> 443/TC
P 19m
NAME DESIRED CURRENT READY AGE
replicaset.apps/web-server 6 6 6 17m
anusha954@AnushaKubernetes:~/kubernetes$ kubectl expose replicaset
web-server --port=80
service/web-server exposed
anusha954@AnushaKubernetes:~/kubernetes$ kubectl get services
NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S) AGE
kubernetes ClusterIP 10.96.0.1 <none> 443/TCP 19m
web-server ClusterIP 10.97.121.3 <none> 80/TCP 12s
anusha954@AnushaKubernetes:~/kubernetes$ curl SERVICEIP
curl: (6) Could not resolve host: SERVICEIP
anusha954@AnushaKubernetes:~/kubernetes$ kubectl get ep web-server
NAME ENDPOINTS
AGE
web-server 10.244.0.10:80,10.244.0.11:80,10.244.0.13:80 + 3 more
... 43s
anusha954@AnushaKubernetes:~/kubernetes$ kubectl delete rs web-ser
ver
replicaset.apps "web-server" deleted
anusha954@AnushaKubernetes:~/kubernetes$ kubectl delete service web-server
service "web-server" deleted
anusha954@AnushaKubernetes:~/kubernetes$
28°C
Partly cloudy
Search
ENG
IN
08:36 PM
17-08-2024