```
[rusty@machine manifests]$ kubectl apply -f .
configmap/kubeapp-config created
deployment.apps/kubeapp-dev-deployment created
horizontalpodautoscaler.autoscaling/kubeapp-hpa created
namespace/kubeapp-dev unchanged
secret/kubeapp-secrets created
service/kubeapp-service created
[rusty@machine manifests]$
```

✎pods(kubeapp-dev)[3]

NAME↑	PF	READY	STATUS
kubeapp-dev-deployment-698f6b455c-k7gd9	●	0/1	ContainerCreating
kubeapp-dev-deployment-698f6b455c-pjtmn	●	0/1	ContainerCreating
kubeapp-dev-deployment-698f6b455c-tc7jc	●	0/1	ContainerCreating

✎pods(kubeapp-dev)[2]

NAME↑	PF	READY	STATUS	RESTARTS	IP	NODE	AGE
kubeapp-dev-deployment-5d6869fff9-ct2x9	●	1/1	Running	0	10.244.0.11	minikube	22s
kubeapp-dev-deployment-5d6869fff9-q2mzf	●	1/1	Running	0	10.244.0.12	minikube	21s

```
[rusty@machine manifests]$ kubectl get namespaces
NAME              STATUS    AGE
default           Active    30m
kube-node-lease   Active    30m
kube-public       Active    30m
kube-system       Active    30m
kubeapp-dev       Active    10m
[rusty@machine manifests]$
```

```
[rusty@machine manifests]$ kubectl get all -n kubeapp-dev
NAME                                        READY   STATUS    RESTARTS   AGE
pod/kubeapp-dev-deployment-5d6869fff9-ct2x9   1/1     Running   0          3m10s
pod/kubeapp-dev-deployment-5d6869fff9-q2mzf   1/1     Running   0          3m9s

NAME                      TYPE       CLUSTER-IP      EXTERNAL-IP   PORT(S)        AGE
service/kubeapp-service   NodePort   10.110.7.21     <none>        80:30080/TCP   9m14s

NAME                                   READY   UP-TO-DATE   AVAILABLE   AGE
deployment.apps/kubeapp-dev-deployment   2/2     2            2           9m15s

NAME                                              DESIRED   CURRENT   READY   AGE
replicaset.apps/kubeapp-dev-deployment-5d6869fff9   2         2         2       3m12s
replicaset.apps/kubeapp-dev-deployment-698f6b455c   0         0         0       9m15s

NAME                                              REFERENCE                          TARGETS              MINPODS   MAXPODS   REPLICAS   AGE
horizontalpodautoscaler.autoscaling/kubeapp-hpa   Deployment/kubeapp-dev-deployment   cpu: <unknown>/50%   2         5         2          9m15s
[rusty@machine manifests]$
```

Test case 1:

```
[rusty@machine manifests]$ kubectl get services -n kubeapp-dev
NAME              TYPE       CLUSTER-IP      EXTERNAL-IP   PORT(S)        AGE
kubeapp-service   NodePort   10.110.7.21     <none>        80:30080/TCP   10m
[rusty@machine manifests]$ minikube ip
192.168.49.2
[rusty@machine manifests]$ curl http://192.168.49.2:30080/heavy | jq
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100    52  100    52    0     0     51      0  0:00:01  0:00:01 --:--:--    51
{
  "message": "response from heavy calculations 10075"
}
[rusty@machine manifests]$
```

Test Case 2:
Initial Pod Count

```
pods(kubeapp-dev)[2]
NAME↑                                      PF READY STATUS    RESTARTS I
kubeapp-dev-deployment-5d6869fff9-ct2x9   ● 1/1   Running          0 1
kubeapp-dev-deployment-5d6869fff9-q2mzf   ● 1/1   Running          0 1
```

Scaling

```
NAME                                      PF READY STATUS  RESTARTS CPU MEM %CPU/R %CPU/L %MEM/R %MEM/L IP           NODE       AGE
kubeapp-dev-deployment-5d6869fff9-7ws4f   ● 1/1   Running        1  82  65     82     16     51     25 10.244.0.16  minikube   112s
kubeapp-dev-deployment-5d6869fff9-dk4pn   ● 1/1   Running        0   0   0      0      0      0      0 10.244.0.18  minikube   10s
kubeapp-dev-deployment-5d6869fff9-vpghc   ● 1/1   Running        1  80  65     80     16     51     25 10.244.0.17  minikube   111s
kubeapp-dev-deployment-5d6869fff9-w2txd   ● 1/1   Running        0   0   0      0      0      0      0 10.244.0.19  minikube   10s
```

Follwing script run to stress test:

```
Concurrency Level:      100
Time taken for tests:   2.698 seconds
Complete requests:      0
Failed requests:        0
Total transferred:      0 bytes
HTML transferred:       0 bytes
[rusty@machine kubeapp]$ ab -n 100000 -c 1000 -t 120 http://192.168.49.2:
30080/health
This is ApacheBench, Version 2.3 <$Revision: 1923142 $>
Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Licensed to The Apache Software Foundation, http://www.apache.org/

Benchmarking 192.168.49.2 (be patient)
Completed 5000 requests
Completed 10000 requests
apr_socket_recv: Connection reset by peer (104)
Total of 10601 requests completed
[rusty@machine kubeapp]$

(failed reverse-i-search)`ab ': cle^C
[rusty@machine kubeapp]$ ab -n 100000 -c 1000 -t 120 http://192.168.49.2:
30080/health
This is ApacheBench, Version 2.3 <$Revision: 1923142 $>
Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Licensed to The Apache Software Foundation, http://www.apache.org/

Benchmarking 192.168.49.2 (be patient)
Completed 5000 requests
apr_socket_recv: Connection reset by peer (104)
Total of 6717 requests completed
[rusty@machine kubeapp]$
```

Test Case 3:

Rolling Update

```
[rusty@machine kubeapp]$ kubectl set image deployment/kubeapp-dev-deployment kubeapp-container=vedantmatanhelia/kubeapp:v2 -n kubeapp-dev
deployment.apps/kubeapp-dev-deployment image updated
[rusty@machine kubeapp]$
```

Container updating

NAME↑	PF	READY	STATUS	RESTARTS	CPU	MEM	%CPU/R	%CPU/L	%MEM/R	%MEM/L	IP	NODE	AGE
kubeapp-dev-deployment-5d6869fff9-fstf5	●	0/1	ContainerCreating	0	0	0	0	0	0	0	n/a	minikube	0s
kubeapp-dev-deployment-5d6869fff9-pfqtg	●	1/1	Running	0	0	0	0	0	0	0	10.244.0.27	minikube	1s
kubeapp-dev-deployment-7fc7c74f54-xsgm4	●	1/1	TerminatingΔ	0	0	0	0	0	0	0	10.244.0.26	minikube	42s
kubeapp-dev-deployment-7fc7c74f54-zlkxs	●	1/1	Running	0	0	0	0	0	0	0	10.244.0.25	minikube	49s

Verification of update

```
[rusty@machine kubeapp]$ curl http://192.168.49.2:30080/health | jq
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100    35  100    35    0     0   1075      0 --:--:-- --:--:-- --:--:--  1093
{
  "status": "success",
  "version": "v2"
}
[rusty@machine kubeapp]$
```

Rollback:

```
[rusty@machine kubeapp]$ kubectl rollout undo deployment/kubeapp-dev-deployment -n kubeapp-dev
deployment.apps/kubeapp-dev-deployment rolled back
[rusty@machine kubeapp]$
```

NAME↑	PF	READY	STATUS	RESTARTS	CPU	MEM	%CPU/R	%CPU/L	%MEM/R	%MEM/L	IP	NODE	AGE
kubeapp-dev-deployment-5d6869fff9-tbnm8	●	1/1Δ	RunningΔ	0	0	0	0	0	0	0	10.244.0.31	minikube	2s
kubeapp-dev-deployment-5d6869fff9-x8ntw	●	0/1	ContainerCreating	0	0	0	0	0	0	0	n/a	minikube	0s
kubeapp-dev-deployment-7fc7c74f54-8l4rw	●	1/1	TerminatingΔ	0	137	61	137	27	48	24	10.244.0.29	minikube	66s
kubeapp-dev-deployment-7fc7c74f54-h7rv2	●	1/1	Running	0	140	61	140	28	48	24	10.244.0.30	minikube	65s

Verification:

```
deployment.apps/kubeapp-dev-deployment rolled back
[rusty@machine kubeapp]$ curl http://192.168.49.2:30080/health | jq
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100    20  100    20    0     0   6653      0 --:--:-- --:--:-- --:--:-- 10000
{
  "status": "success"
}
[rusty@machine kubeapp]$
```

Test Case 4:
Self Healing

```
[rusty@machine kubeapp]$ kubectl delete pod kubeapp-dev-deployment-5d6869ff
f9-tbnm8 -n kubeapp-dev
pod "kubeapp-dev-deployment-5d6869fff9-tbnm8" deleted
[rusty@machine kubeapp]$
```

```
NAME                                         READY    STATUS            RESTARTS
AGE
kubeapp-dev-deployment-5d6869fff9-tbnm8      1/1      Running    0
110s
kubeapp-dev-deployment-5d6869fff9-x8ntw      1/1      Running    0
108s
kubeapp-dev-deployment-5d6869fff9-tbnm8      1/1      Terminating    0
    2m7s
kubeapp-dev-deployment-5d6869fff9-4xws5      0/1      Pending        0
    0s
kubeapp-dev-deployment-5d6869fff9-4xws5      0/1      Pending        0
    0s
kubeapp-dev-deployment-5d6869fff9-4xws5      0/1      ContainerCreating    0
        0s
kubeapp-dev-deployment-5d6869fff9-tbnm8      0/1      Completed            0
        2m7s
kubeapp-dev-deployment-5d6869fff9-4xws5      1/1      Running            0
        1s
kubeapp-dev-deployment-5d6869fff9-tbnm8      0/1      Completed            0
        2m8s
kubeapp-dev-deployment-5d6869fff9-tbnm8      0/1      Completed            0
        2m8s
```

Test Case 5:
Persistant Storage not implemented

Test Case 6:
logging

```
^C[rusty@machine kubeapp]$ kubectl logs kubeapp-dev-deployment-5d6869fff9-4xws5 -n kubeapp-dev -f --tail 15
INFO:       10.244.0.1:38894 - "GET /health HTTP/1.1" 200 OK
2025-04-16 15:21:08,529 - myapp - INFO - 200 | GET /health | 0.0004s
INFO:       10.244.0.1:48058 - "GET /health HTTP/1.1" 200 OK
2025-04-16 15:21:23,638 - myapp - INFO - 200 | GET /secret/access | 0.0008s
INFO:       10.244.0.1:27799 - "GET /secret/access HTTP/1.1" 200 OK
2025-04-16 15:21:24,336 - myapp - INFO - 200 | GET /secret/access | 0.0012s
INFO:       10.244.0.1:63642 - "GET /secret/access HTTP/1.1" 200 OK
2025-04-16 15:21:25,346 - myapp - INFO - 200 | GET /secret/access | 0.0008s
INFO:       10.244.0.1:25810 - "GET /secret/access HTTP/1.1" 200 OK
2025-04-16 15:21:25,925 - myapp - INFO - 200 | GET /secret/access | 0.0007s
INFO:       10.244.0.1:16107 - "GET /secret/access HTTP/1.1" 200 OK
2025-04-16 15:21:29,728 - myapp - INFO - 200 | GET /secret/access | 0.0009s
INFO:       10.244.0.1:31394 - "GET /secret/access HTTP/1.1" 200 OK
2025-04-16 15:21:38,528 - myapp - INFO - 200 | GET /health | 0.0003s
INFO:       10.244.0.1:56762 - "GET /health HTTP/1.1" 200 OK
```