1. **<u>Creación del pod:</u>**

- kubectl run hello-node --image=lepache/p1-node
- kubectl expose pod/hello-node --port 8080 --name hello-node-ni --type NodePort
    - *Para el expose del puerto 32170 no me funcionó, lo que comprendí es que la imagen sube un pod con la app ejecutando en el puerto 8080, el comando crea un servicio donde paso cuál es el pod y puerto que la aplicación lo utiliza y me devuelve un ip y puerto de mí rede para conectar al pod.*

```
MacBook-Pro:helloworld lpache$ kubectl run hello-node --image=lepache/p1-node
pod/hello-node created
MacBook-Pro:helloworld lpache$ kubectl get all
NAME             READY   STATUS    RESTARTS   AGE
pod/hello-node   1/1     Running   0          27s

NAME                 TYPE        CLUSTER-IP   EXTERNAL-IP   PORT(S)   AGE
service/kubernetes   ClusterIP   10.96.0.1    <none>        443/TCP   8h
MacBook-Pro:helloworld lpache$ kubectl expose pod/hello-node --port 8080 --name hello-node-ni --type NodePort
service/hello-node-ni exposed
MacBook-Pro:helloworld lpache$ kubectl get all
NAME             READY   STATUS    RESTARTS   AGE
pod/hello-node   1/1     Running   0          52s

NAME                     TYPE        CLUSTER-IP       EXTERNAL-IP   PORT(S)          AGE
service/hello-node-ni    NodePort    10.100.223.111   <none>        8080:31772/TCP   3s
service/kubernetes       ClusterIP   10.96.0.1        <none>        443/TCP          8h
MacBook-Pro:helloworld lpache$ minikube service --all
😿  service default/kubernetes has no node port
|-----------|---------------|--------------|-----------------------------|
| NAMESPACE |     NAME      | TARGET PORT  |             URL             |
|-----------|---------------|--------------|-----------------------------|
| default   | hello-node-ni |         8080 | http://192.168.59.100:31772 |
| default   | kubernetes    | No node port |
|-----------|---------------|--------------|-----------------------------|

MacBook-Pro:helloworld lpache$ curl http://192.168.59.100:31772
Hello World! MacBook-Pro:helloworld lpache$
```

2. Replicaset

- kubectl create deployment my-apache --replicas 5 --image=httpd

```
MacBook-Pro:helloworld lpache$ kubectl create deployment my-apache --replicas 5 --image=httpd
deployment.apps/my-apache created
MacBook-Pro:helloworld lpache$ kubectl get all
NAME                              READY   STATUS              RESTARTS   AGE
pod/my-apache-94f68777f-5jx5t     0/1     ContainerCreating   0          7s
pod/my-apache-94f68777f-6w6rp     0/1     ContainerCreating   0          7s
pod/my-apache-94f68777f-gp947     0/1     ContainerCreating   0          7s
pod/my-apache-94f68777f-r5hjg     0/1     ContainerCreating   0          6s
pod/my-apache-94f68777f-zqpq2     0/1     ContainerCreating   0          6s

NAME                 TYPE        CLUSTER-IP   EXTERNAL-IP   PORT(S)   AGE
service/kubernetes   ClusterIP   10.96.0.1    <none>        443/TCP   9h

NAME                         READY   UP-TO-DATE   AVAILABLE   AGE
deployment.apps/my-apache    0/5     5            0           7s

NAME                                    DESIRED   CURRENT   READY   AGE
replicaset.apps/my-apache-94f68777f     5         5         0       7s
```

- kubectl delete pod/my-apache-94f68777f-zqpq2 pod/my-apache-94f68777f-r5hjg

```
MacBook-Pro:helloworld lpache$ kubectl delete pod/my-apache-94f68777f-zqpq2 pod/my-apache-94f68777f-r5hjg
pod "my-apache-94f68777f-zqpq2" deleted
pod "my-apache-94f68777f-r5hjg" deleted
MacBook-Pro:helloworld lpache$ kubectl get all
NAME                              READY   STATUS    RESTARTS   AGE
pod/my-apache-94f68777f-45bl5     1/1     Running   0          46s
pod/my-apache-94f68777f-5jx5t     1/1     Running   0          3m37s
pod/my-apache-94f68777f-6w6rp     1/1     Running   0          3m37s
pod/my-apache-94f68777f-gp947     1/1     Running   0          3m37s
pod/my-apache-94f68777f-xsdp4     1/1     Running   0          45s

NAME                 TYPE        CLUSTER-IP   EXTERNAL-IP   PORT(S)   AGE
service/kubernetes   ClusterIP   10.96.0.1    <none>        443/TCP   9h

NAME                         READY   UP-TO-DATE   AVAILABLE   AGE
deployment.apps/my-apache    5/5     5            5           3m37s

NAME                                    DESIRED   CURRENT   READY   AGE
replicaset.apps/my-apache-94f68777f     5         5         5       3m37s
```

- kubectl scale deployment.apps/my-apache --replicas 2
    - *Para bajar el número de pod's hay que hacer el scale del deployment por la jerarquía que hay entre el deployment y replicaset. En caso de que haga un scale del replicaset el deployment lo identifica que la cuantidad no es la correcta y lo crea nuevamente.*

```
MacBook-Pro:helloworld lpache$ kubectl scale deployment.apps/my-apache --replicas 2
deployment.apps/my-apache scaled
MacBook-Pro:helloworld lpache$ kubectl get all
NAME                              READY   STATUS    RESTARTS   AGE
pod/my-apache-94f68777f-45bl5     1/1     Running   0          6m18s
pod/my-apache-94f68777f-6w6rp     1/1     Running   0          9m9s

NAME                 TYPE        CLUSTER-IP   EXTERNAL-IP   PORT(S)   AGE
service/kubernetes   ClusterIP   10.96.0.1    <none>        443/TCP   9h

NAME                         READY   UP-TO-DATE   AVAILABLE   AGE
deployment.apps/my-apache    2/2     2            2           9m9s

NAME                                    DESIRED   CURRENT   READY   AGE
replicaset.apps/my-apache-94f68777f     2         2         2       9m9s
```

3. **Httpd aplicación con el puerto accesible por el host.**

- kubectl create deployment my-apache --replicas 2 --image=httpd

```
MacBook-Pro:helloworld lpache$ kubectl create deployment my-apache --replicas 2 --image=httpd
deployment.apps/my-apache created
MacBook-Pro:helloworld lpache$ kubectl get all
NAME                              READY   STATUS    RESTARTS   AGE
pod/my-apache-94f68777f-gpnhc     1/1     Running   0          108s
pod/my-apache-94f68777f-mssd9     1/1     Running   0          108s

NAME                 TYPE        CLUSTER-IP    EXTERNAL-IP   PORT(S)   AGE
service/kubernetes   ClusterIP   10.96.0.1     <none>        443/TCP   9h

NAME                         READY   UP-TO-DATE   AVAILABLE   AGE
deployment.apps/my-apache    2/2     2            2           110s

NAME                                    DESIRED   CURRENT   READY   AGE
replicaset.apps/my-apache-94f68777f     2         2         2       110s
```

- kubectl expose pod/my-apache-94f68777f-26jz7 --port 80 --name my-apc-x1

```
MacBook-Pro:helloworld lpache$ kubectl get svc
NAME         TYPE        CLUSTER-IP      EXTERNAL-IP   PORT(S)   AGE
kubernetes   ClusterIP   10.96.0.1       <none>        443/TCP   10h
my-apc-x1    ClusterIP   10.102.99.142   <none>        80/TCP    49s
my-apc-x2    ClusterIP   10.101.193.85   <none>        80/TCP    19s
```

- kubectl describe service/my-apc-x2

```
MacBook-Pro:helloworld lpache$ kubectl describe service/my-apc-x2
Name:              my-apc-x2
Namespace:         default
Labels:            app=my-apache
                   pod-template-hash=94f68777f
Annotations:       <none>
Selector:          app=my-apache,pod-template-hash=94f68777f
Type:              ClusterIP
IP Family Policy:  SingleStack
IP Families:       IPv4
IP:                10.101.193.85
IPs:               10.101.193.85
Port:              <unset>  80/TCP
TargetPort:        80/TCP
Endpoints:         172.17.0.3:80,172.17.0.4:80
Session Affinity:  None
Events:            <none>
```

- kubectl expose pod/my-apache-94f68777f-gmplb --port 80 --name my-apc-ni --type NodePort

```
MacBook-Pro:helloworld lpache$ kubectl get svc
NAME         TYPE        CLUSTER-IP       EXTERNAL-IP   PORT(S)        AGE
kubernetes   ClusterIP   10.96.0.1        <none>        443/TCP        10h
my-apc-ni    NodePort    10.103.160.184   <none>        80:31230/TCP   7s
my-apc-x1    ClusterIP   10.102.99.142    <none>        80/TCP         8m38s
my-apc-x2    ClusterIP   10.101.193.85    <none>        80/TCP         8m8s
MacBook-Pro:helloworld lpache$ minikube service --all
```

```
MacBook-Pro:helloworld lpache$ minikube service --all
😿  service default/kubernetes has no node port
😿  service default/my-apc-x1 has no node port
😿  service default/my-apc-x2 has no node port
|-----------|------------|--------------|-----------------------------|
| NAMESPACE |    NAME    | TARGET PORT  |             URL             |
|-----------|------------|--------------|-----------------------------|
| default   | kubernetes | No node port |
| default   | my-apc-ni  |           80 | http://192.168.59.100:31230 |
| default   | my-apc-x1  | No node port |
| default   | my-apc-x2  | No node port |
|-----------|------------|--------------|-----------------------------|
MacBook-Pro:helloworld lpache$ curl http://192.168.59.100:31230
<html><body><h1>It works!</h1></body></html>
```