



## Exercise 3.5: Access from Outside the Cluster

You can access a Service from outside the cluster using a DNS add-on or environment variables. We will use environment variables to gain access to a Pod.

1. Begin by getting a list of the pods.

```
student@master:~$ kubectl get po
```

	NAME	READY	STATUS	RESTARTS	AGE
1	nginx-1423793266-13p69	1/1	Running	0	4m10s
2	nginx-1423793266-8w2nk	1/1	Running	0	8m2s
4	nginx-1423793266-fbt4b	1/1	Running	0	8m2s

2. Choose one of the pods and use the exec command to run **printenv** inside the pod. The following example uses the first pod listed above.

```
student@master:~$ kubectl exec nginx-1423793266-13p69 \
-- printenv |grep KUBERNETES
```

```
1 KUBERNETES_SERVICE_PORT=443
2 KUBERNETES_SERVICE_HOST=10.96.0.1
3 KUBERNETES_SERVICE_PORT_HTTPS=443
4 KUBERNETES_PORT=tcp://10.96.0.1:443
5 <output_omitted>
```

3. Find and then delete the existing service for **nginx**.

```
student@master:~$ kubectl get svc
```

	NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
1	kubernetes	ClusterIP	10.96.0.1	<none>	443/TCP	4h
3	nginx	ClusterIP	10.100.61.122	<none>	80/TCP	17m

4. Delete the service.

```
student@master:~$ kubectl delete svc nginx
```

```
1 service "nginx" deleted
```

5. Create the service again, but this time pass the LoadBalancer type. Check to see the status and note the external ports mentioned. The output will show the External-IP as pending. Unless a provider responds with a load balancer it will continue to show as pending.

```
student@master:~$ kubectl expose deployment nginx --type=LoadBalancer
```

```
1 service/nginx exposed
```

```
student@master:~$ kubectl get svc
```

	NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
1	kubernetes	ClusterIP	10.96.0.1	<none>	443/TCP	4h
3	nginx	LoadBalancer	10.104.249.102	<pending>	80:32753/TCP	6s

6. Open a browser on your local system, not the lab exercise node, and use the public IP of your node and port 32753, shown in the output above. If running the labs on remote nodes like **AWS** or **GCE** use the public IP you used with PuTTY or SSH to gain access. You may be able to find the IP address using **curl**.

```
student@master:~$ curl ifconfig.io
```

```
1 54.214.214.156
```

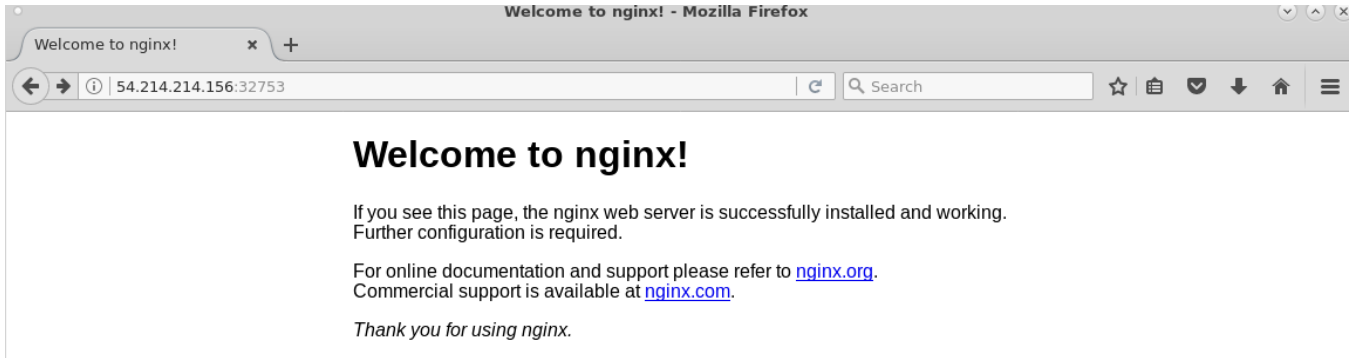


Figure 3.1: External Access via Browser

7. Scale the deployment to zero replicas. Then test the web page again. Once all pods have finished terminating accessing the web page should fail.

```
student@master:~$ kubectl scale deployment nginx --replicas=0
```

```
1 deployment.apps/nginx scaled
```

```
student@master:~$ kubectl get po
```

```
1 No resources found in default namespace.
```

8. Scale the deployment up to two replicas. The web page should work again.

```
student@master:~$ kubectl scale deployment nginx --replicas=2
```

```
1 deployment.apps/nginx scaled
```

```
student@master:~$ kubectl get po
```

	NAME	READY	STATUS	RESTARTS	AGE
2	nginx-1423793266-7x181	1/1	Running	0	6s
3	nginx-1423793266-s6vcz	1/1	Running	0	6s

9. Delete the deployment to recover system resources. Note that deleting a deployment does not delete the endpoints or services.

```
student@master:~$ kubectl delete deployments nginx
```

```
1 deployment.apps "nginx" deleted
```

```
student@master:~$ kubectl delete ep nginx
```

```
1 endpoints "nginx" deleted
```

```
student@master:~$ kubectl delete svc nginx
```

```
1 service "nginx" deleted
```