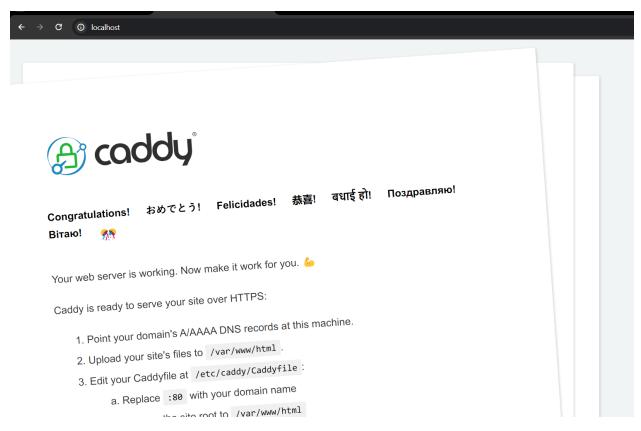
Part 1: Blue/Green Deployment

Webpage working before:



Deployment (Blue) and service:

```
~/3495/final on 	■ acit4640_admin (us-west-2)
> kubectl apply -f markus-deploy.yml
deployment.apps/markus-web-deploy created
```

```
~/3495/final on 	■ acit4640_admin (us-west-2)
> kubectl apply -f markus-svc.yml
service/markus-ps-lb created
```

Get all:

```
~/3495/final on ● acit4640_admin (us-west-2)
> kubectl get all
NAME
                                         READY
                                                  STATUS
                                                            RESTARTS
                                                                       AGE
pod/markus-web-deploy-7d6686db54-4fhtd
                                          1/1
                                                  Running
                                                                       93s
                                                            0
pod/markus-web-deploy-7d6686db54-jjwxf
                                         1/1
                                                  Running
                                                            0
                                                                       92s
pod/markus-web-deploy-7d6686db54-l86zn
                                         1/1
                                                  Running
                                                                       96s
                                                            0
pod/markus-web-deploy-7d6686db54-nx5x5
                                                  Running
                                                                       96s
                                         1/1
                                                            0
pod/markus-web-deploy-7d6686db54-t8rmg
                                                            0
                                                                       96s
                                         1/1
                                                  Running
NAME
                       TYPE
                                      CLUSTER-IP
                                                        EXTERNAL-IP
                                                                      PORT(S)
                                                                                     AGE
                                                                      443/TCP
service/kubernetes
                       ClusterIP
                                      10.96.0.1
                                                        <none>
                                                                                     17m
                       LoadBalancer
                                                        localhost
                                      10.107.108.149
                                                                      80:32425/TCP
                                                                                     33s
service/markus-ps-lb
                                    READY
                                            UP-TO-DATE
                                                          AVAILABLE
                                                                      AGE
deployment.apps/markus-web-deploy
                                     5/5
                                             5
                                                                      2m15s
NAME
                                                                    READY
                                                                            AGE
                                                DESIRED
                                                          CURRENT
replicaset.apps/markus-web-deploy-7d6686db54
                                                                            96s
```

New deployment (green) and service:

```
~/3495/final on 	■ acit4640_admin (us-west-2)
> kubectl apply -f markus-deploy2.yml
deployment.apps/markus-web-deploy configured

~/3495/final on 	■ acit4640_admin (us-west-2)
> kubectl apply -f markus-svc2.yml
service/markus-ps-lbv2 created
```

Changes made:

```
markus-deploy2.yml > {} metadata > {} labels
  1
      apiVersion: apps/v1
      kind: Deployment
  2
  3
      metadata:
        name: markus-web-deployv2
  5
         labels:
  6
           app: webv2
      spec:
  8
        replicas: 5
  9
         selector:
           matchLabels:
 10
 11
             app: web
 12
        template:
 13
           metadata:
 14
             labels:
 15
               app: web
 16
           spec:
             terminationGracePeriodSeconds: 60
 17
             containers:
 18
             - name: markus-hello-pod
 19
               image: aldiab/webapp:v2 # changed version to 2
 20
 21
               imagePullPolicy: Always
 22
               ports:
 23
               - containerPort: 8080
 24
```

```
markus-svc2.yml > {} spec > {} selector

1  # LoadBalancer Service. Will only work on supported cloud platforms (AKS, EKS, GKE, DOK, IBM, LKE etc...)

2  # Listens externally on 80 and forwards to Pod/container on 8080

3  apiVersion: v1

4  kind: Service

5  metadata:
6  name: markus-ps-lbv2 # difference name

7  spec:
8  type: LoadBalancer
9  ports:
10  - port: 80
11  targetPort: 8080
12  selector:
13  app: webv2

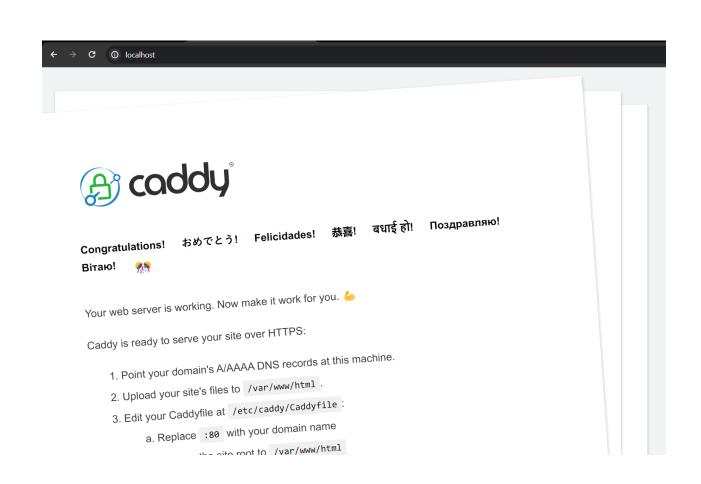
14
```

Get all after adding the Green deployment. We now have the new deployment (green) in place of the old (blue), with the new service pointing at the new deployment:

```
~/3495/final on 🔵
                     acit4640_admin (us-west-2)
> kubectl get all
NAME
                                             READY
                                                      STATUS
                                                                RESTARTS
                                                                            AGE
pod/markus-web-deploy-844bb9f56f-6v29g
                                             1/1
                                                     Running
                                                                            66s
                                                                0
pod/markus-web-deploy-844bb9f56f-766rz
                                             1/1
                                                     Running
                                                                0
                                                                            66s
pod/markus-web-deploy-844bb9f56f-7jf8h
                                             1/1
                                                     Running
                                                                0
                                                                            66s
pod/markus-web-deploy-844bb9f56f-7srxx
                                             1/1
                                                     Running
                                                                0
                                                                            66s
pod/markus-web-deploy-844bb9f56f-ng7t2
                                             1/1
                                                     Running
                                                                0
                                                                            66s
pod/markus-web-deployv2-7d6686db54-4xwg7
                                             1/1
                                                     Running
                                                                0
                                                                            8s
pod/markus-web-deployv2-7d6686db54-97jj4
                                             1/1
                                                     Running
                                                                0
                                                                            8s
pod/markus-web-deployv2-7d6686db54-gsn2v
                                             1/1
                                                     Running
                                                                0
                                                                            8s
pod/markus-web-deployv2-7d6686db54-tb6fj
                                             1/1
                                                     Running
                                                                            8s
                                                                0
pod/markus-web-deployv2-7d6686db54-wrqt6
                                             1/1
                                                     Running
                                                                0
                                                                            8s
NAME
                          TYPE
                                          CLUSTER-IP
                                                           EXTERNAL-IP
                                                                         PORT(S)
                                                                                         AGE
                                          10.96.0.1
service/kubernetes
                                                                         443/TCP
                                                                                         35m
                          ClusterIP
                                                           <none>
service/markus-ps-lb
                          LoadBalancer
                                          10.100.93.77
                                                           localhost
                                                                         80:32089/TCP
                                                                                         10m
service/markus-ps-lbv2
                          LoadBalancer
                                          10.109.213.11
                                                           <pending>
                                                                         80:31741/TCP
                                                                                         2s
                                        READY
                                                UP-TO-DATE
                                                              AVAILABLE
                                                                          AGE
deployment.apps/markus-web-deploy
                                        5/5
                                                5
                                                              5
                                                                           66s
deployment.apps/markus-web-deployv2
                                        5/5
                                                5
                                                              5
                                                                          8s
                                                   DESIRED
                                                              CURRENT
                                                                        READY
                                                                                 AGE
replicaset.apps/markus-web-deploy-844bb9f56f
                                                   5
                                                              5
                                                                        5
                                                                                 66s
replicaset.apps/markus-web-deployv2-7d6686db54
```

After deleting the old service, the new service is now using localhost, and we have now replaced it with the new deployment:

```
~/3495/final on 🗢
                    acit4640_admin (us-west-2)
> kubectl get all
NAME
                                             READY
                                                     STATUS
                                                                    RESTARTS
                                                                                AGF
pod/markus-web-deploy-844bb9f56f-6v29g
                                             1/1
                                                     Terminating
                                                                                2m21s
                                                                    0
pod/markus-web-deploy-844bb9f56f-766rz
                                             1/1
                                                                                2m21s
                                                     Terminating
                                                                    0
pod/markus-web-deploy-844bb9f56f-7jf8h
                                             1/1
                                                     Terminating
                                                                                2m21s
                                                                    0
pod/markus-web-deploy-844bb9f56f-7srxx
                                             1/1
                                                     Terminating
                                                                    0
                                                                                2m21s
pod/markus-web-deploy-844bb9f56f-ng7t2
                                             1/1
                                                     Terminating
                                                                    0
                                                                                2m21s
pod/markus-web-deployv2-7d6686db54-4xwg7
                                             1/1
                                                     Running
                                                                    0
                                                                                83s
pod/markus-web-deployv2-7d6686db54-97jj4
                                             1/1
                                                     Running
                                                                    0
                                                                                83s
pod/markus-web-deployv2-7d6686db54-gsn2v
                                             1/1
                                                                    0
                                                                                83s
                                                     Running
pod/markus-web-deployv2-7d6686db54-tb6fj
                                             1/1
                                                                    0
                                                                                83s
                                                     Running
pod/markus-web-deployv2-7d6686db54-wrqt6
                                             1/1
                                                     Running
                                                                    0
                                                                                83s
NAME
                                          CLUSTER-IP
                                                           EXTERNAL-IP
                                                                         PORT(S)
                                                                                         AGE
service/kubernetes
                                                                         443/TCP
                          ClusterIP
                                          10.96.0.1
                                                           <none>
                                                                                         37m
service/markus-ps-lbv2
                          LoadBalancer
                                          10.109.213.11
                                                           localhost
                                                                         80:31741/TCP
                                                                                         77s
NAME
                                        READY
                                                UP-TO-DATE
                                                              AVAILABLE
                                                                          AGE
deployment.apps/markus-web-deployv2
                                        5/5
                                                5
                                                                          83s
                                                   DESIRED
                                                              CURRENT
                                                                        READY
                                                                                 AGE
replicaset.apps/markus-web-deplovv2-7d6686db54
                                                                                83s
```



Part 2: Canary Deployment

Create deployment, service and working webpage:

```
~/3495/final on 	■ acit4640_admin (us-west-2)

> kubectl apply -f markus-deploy.yml
deployment.apps/markus-web-deploy created

~/3495/final on 	■ acit4640_admin (us-west-2)

> kubectl apply -f markus-svc.yml
service/markus-ps-lb created
```





Congratulations! おめでとう! Felicidades! 恭喜! बधाई हो! Поздравляю! Вітаю! 🤼

Your web server is working. Now make it work for you. 🦫

Caddy is ready to serve your site over HTTPS:

- 1. Point your domain's A/AAAA DNS records at this machine.
- 2. Upload your site's files to /var/www/html .
- 3. Edit your Caddyfile at /etc/caddy/Caddyfile:
 - a. Replace :80 with your domain name

the site root to /var/www/html

Get all:

Get all:											
~/3495/final on ● acit4640_admin (us-west-2) > kubectl get all											
NAME		READY	STATUS	RESTARTS	S AGE						
pod/markus-web-deploy-844b	1/1	Running	Θ	11s							
pod/markus-web-deploy-844b	b9f56f-7vlw8	1/1	Running	0	11s						
pod/markus-web-deploy-844b		1/1	Running	0	11s						
pod/markus-web-deploy-844b	b9f56f-qdldv	1/1	Running	0	11s						
pod/markus-web-deploy-844b	b9f56f-qvv6w	1/1	Running	0	11s						
NAME TYP	E C	LUSTER-IP	EXTE	RNAL-IP	PORT(S)		AGE				
service/kubernetes Clu	sterIP 1	.0.96.0.1	<non< td=""><td>e></td><td>443/TCP</td><td></td><td>25m</td></non<>	e>	443/TCP		25m				
service/markus-ps-lb Loa	dBalancer 1	.0.100.93.	77 loca	lhost	80:32089	9/TCP	3s				
NAME deployment.apps/markus-web	REA -deploy 5/5			AVAILABLE 5	AGE 11s						
NAME replicaset.apps/markus-web	-deploy-844bb			CURRENT 5	READY 5	AGE 11s					

New deployment only has 1 replica with a new a new version:

```
markus-deploy-canary.yml > {} spec
      apiVersion: apps/v1
      kind: Deployment
  2
      metadata:
        name: markus-web-deploy
  5
        labels:
  6
          app: web
      spec:
        replicas: 1 # only 1 replica
  8
  9
        selector:
 10
          matchLabels:
 11
            app: web
 12
        template:
 13
          metadata:
            labels:
 14
 15
              app: web
 16
          spec:
 17
            terminationGracePeriodSeconds: 60
 18
            containers:
            - name: markus-hello-pod
 19
              image: aldiab/webapp:v2 # changed to use version 2
 20
              imagePullPolicy: Always
 21
 22
              ports:
 23
              - containerPort: 8080
 24
```

Deploying new replica:

```
~/3495/final on 		 acit4640_admin (us-west-2)
> kubectl apply -f markus-deploy-canary.yml
deployment.apps/markus-web-deploy configured
```

Get all:

```
~/3495/final on ● acit4640_admin (us-west-2)
> kubectl get all
NAME
                                         READY
                                                               RESTARTS
                                                 STATUS
                                                                          AGE
pod/markus-web-deploy-7d6686db54-ncczp
                                         1/1
                                                 Running
                                                                          19s
                                                 Terminating
pod/markus-web-deploy-844bb9f56f-bf6x6
                                         1/1
                                                                          94s
pod/markus-web-deploy-844bb9f56f-d7bvc
                                         1/1
                                                                          89s
                                                 Terminating 0
pod/markus-web-deploy-844bb9f56f-h8gw4
                                         1/1
                                                 Terminating 0
                                                                          90s
pod/markus-web-deploy-844bb9f56f-p25ff
                                         1/1
                                                 Terminating 0
                                                                          94s
pod/markus-web-deploy-844bb9f56f-wxrcn
                                         1/1
                                                 Terminating 0
                                                                          94s
                                      CLUSTER-IP
                                                     EXTERNAL-IP
                                                                  PORT(S)
                                                                                  AGE
service/kubernetes
                       ClusterIP
                                      10.96.0.1
                                                                   443/TCP
                                                                                  30m
                                                     <none>
service/markus-ps-lb
                       LoadBalancer
                                      10.100.93.77
                                                     localhost
                                                                   80:32089/TCP
                                                                                  5m17s
                                            UP-TO-DATE
                                                         AVAILABLE
                                                                     AGE
                                    READY
deployment.apps/markus-web-deploy
                                                                     5m25s
                                    1/1
                                                         1
NAME
                                                                   READY
                                                                           AGE
                                               DESIRED
                                                         CURRENT
replicaset.apps/markus-web-deploy-7d6686db54
                                                                           4m11s
replicaset.apps/markus-web-deploy-844bb9f56f
                                               0
                                                         0
                                                                   0
                                                                           5m25s
```

Increasing the replicas to 5

```
~/3495/final on  acit4640_admin (us-west-2)
> kubectl scale deployment markus-web-deploy --replicas=2
deployment.apps/markus-web-deploy scaled

~/3495/final on  acit4640_admin (us-west-2)
> kubectl scale deployment markus-web-deploy --replicas=3
deployment.apps/markus-web-deploy scaled

~/3495/final on  acit4640_admin (us-west-2)
> kubectl scale deployment markus-web-deploy --replicas=4
deployment.apps/markus-web-deploy scaled

~/3495/final on  acit4640_admin (us-west-2)
> kubectl scale deployment markus-web-deploy --replicas=5
deployment.apps/markus-web-deploy scaled
```

Get all we can see all 5 pods with the new version:

~/3495/final on ● acit4640_admin (us-west-2) > kubectl get all												
NAME	READY	STATUS	RESTARTS	S AGE								
pod/markus-web-deploy-7d668	1/1	Running	0	19s								
pod/markus-web-deploy-7d668	1/1	Running	Θ	33s								
pod/markus-web-deploy-7d668	1/1	Running 0		16s								
pod/markus-web-deploy-7d668	1/1	Running	0	2m10	2m10s							
pod/markus-web-deploy-7d6686db54-phm64 1/1 Running 0 18s												
NAME TYPE	CL	USTER-IP	EXTE	RNAL-IP	PORT(S)		AGE					
service/kubernetes Clus	terIP 10	.96.0.1	<non< td=""><td>e></td><td>443/TCP</td><td></td><td>32m</td></non<>	e>	443/TCP		32m					
service/markus-ps-lb Load	Balancer 10	.100.93.	77 loca	lhost	80:3208	9/TCP	7m8s					
NAME	READ			AVAILABLE	AGE							
deployment.apps/markus-web-	deploy 5/5	5		5	7m16s							
NAME			ESIRED	CURRENT	READY	AGE						
replicaset.apps/markus-web-			5	5	6m2s							
replicaset.apps/markus-web-deploy-844bb9f56f 0 0 0 7m16s												