

Project-02: Canary Deployments

Checking all resources under udacity

```
root@galal-sre-02:~/nd087-c3-deployment-roulette-project# k get
NAME                                READY   STATUS    RESTARTS
pod/blue-9b56b55cc-bcq4c           1/1    Running   0
pod/blue-9b56b55cc-nxksn           1/1    Running   0
pod/blue-9b56b55cc-xctpt           1/1    Running   0
pod/canary-v1-546bfbf766-5mkwf      1/1    Running   0
pod/canary-v1-546bfbf766-79tgg      1/1    Running   0
pod/canary-v1-546bfbf766-k9nhj      1/1    Running   0
pod/hello-world-7b67f6885d-pmztq    1/1    Running   0
```

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP
service/blue-svc	LoadBalancer	172.20.119.148	a551d01ab0
service/hello-world	LoadBalancer	172.20.84.109	a1d199afda

NAME	READY	UP-TO-DATE	AVAILABLE	AGE
deployment.apps/blue	3/3	3	3	8m
deployment.apps/canary-v1	3/3	3	3	8m
deployment.apps/hello-world	1/1	1	1	3m

NAME	DESIRED	CURRENT	REPLICAS
replicaset.apps/blue-9b56b55cc	3	3	3
replicaset.apps/canary-v1-546bfbf766	3	3	3
replicaset.apps/hello-world-7b67f6885d	1	1	1

Notice: There is no service running for canary, so I created one

```

root@galal-sre-02:~/nd087-c3-deployment-roulette-project# k apply -f service/canary-svc created
root@galal-sre-02:~/nd087-c3-deployment-roulette-project# k get

```

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP
blue-svc	LoadBalancer	172.20.119.148	a551d01ab67f84b3a
canary-svc	ClusterIP	172.20.88.145	<none>
hello-world	LoadBalancer	172.20.84.109	a1d199afdae164333

Test it

```

root@galal-sre-02:~/nd087-c3-deployment-roulette-project# k run debug --image=busybox --command="sleep 30"
If you don't see a command prompt, try pressing enter.
debug:~# curl http://172.20.88.145
<html>
<h1>This is version 1</h1>
</html>
debug:~# curl http://172.20.88.145
<html>
<h1>This is version 1</h1>
</html>
debug:~#
exit
Session ended, resume using 'kubectl attach debug -c debug -i -t'
pod "debug" deleted

```

I found that config map used by `canary-v2.yml` called `canary-config-v2`, so I checked it

```

root@galal-sre-02:~/nd087-c3-deployment-roulette-project# k get

```

NAME	DATA	AGE
blue-config	1	98m
canary-config-v1	1	98m
green-config	1	98m
kube-root-ca.crt	1	103m

Creating canary-config-v2 configmap

```
root@galal-sre-02:~/nd087-c3-deployment-roulette-project# vim sti
apiVersion: v1
kind: ConfigMap
metadata:
  name: canary-config-v2
  namespace: udacity
data:
  index.html: |
    <html>
    <h1>This is version 1</h1>
    </html>

root@galal-sre-02:~/nd087-c3-deployment-roulette-project/started
configmap/canary-config-v2 created
```

Creating canary.sh

```
#!/bin/bash

DEPLOY_INCREMENTS=1

function manual_verification {
  read -p "Replacing 50% of current canary-v1 with canary-v2 ? " answer

  if [[ $answer =~ ^[Yy]$ ]] ;
  then
    echo "Deploying ..."
  else
    exit
  fi
}

function canary_deploy {
  NUM_OF_V1_PODS=$(kubectl get pods -n udacity | grep -c canary-)
```

```

echo "V1 PODS: $NUM_OF_V1_PODS"
NUM_OF_V2_PODS=$(kubectl get pods -n udacity | grep -c canary-v2)
echo "V2 PODS: $NUM_OF_V2_PODS"

# This will rolling out 50% of old remaining canary v1 with canary v2
[[ ${NUM_OF_V1_PODS} -eq 1 ]] && DEPLOY_INCREMENTS=1 || DEPLOY_INCREMENTS=2

#echo "${DEPLOY_INCREMENTS}"

kubectl scale deployment canary-v2 --replicas=$(( NUM_OF_V2_PODS - DEPLOY_INCREMENTS ))
kubectl scale deployment canary-v1 --replicas=$(( NUM_OF_V1_PODS - DEPLOY_INCREMENTS ))

ATTEMPTS=0
ROLLOUT_STATUS_CMD="kubectl rollout status deployment/canary-v2"
until $ROLLOUT_STATUS_CMD || [ $ATTEMPTS -eq 60 ]; do
    $ROLLOUT_STATUS_CMD
    ATTEMPTS=$((attempts + 1))
    sleep 1
done
echo "Canary deployment of $DEPLOY_INCREMENTS replicas successful"
}

while [ $(kubectl get pods -n udacity | grep -c canary-v1) -gt 0 ]
do
    manual_verification
    canary_deploy
done

echo "Canary deployment of v2 successful"

```

Will set replica in canary-v2 to 0 and deploy it

```

apiVersion: apps/v1
kind: Deployment
metadata:
  labels:
    app: canary
  name: canary-v2
  namespace: udacity
spec:
  replicas: 0
  minReadySeconds: 5 # how long it should wait until it creates the next pod.
  selector:
    matchLabels:

```

```

root@galal-sre-02:~/nd087-c3-deployment-roulette-project# vim st
root@galal-sre-02:~/nd087-c3-deployment-roulette-project# head :
apiVersion: apps/v1
kind: Deployment
metadata:
  labels:
    app: canary
  name: canary-v2
  namespace: udacity
spec:
  replicas: 0
  minReadySeconds: 5 # how long it should wait until it creates

```

```

root@galal-sre-02:~/nd087-c3-deployment-roulette-project# k appi
deployment.apps/canary-v2 created

```

```

root@galal-sre-02:~/nd087-c3-deployment-roulette-project# k get

```

NAME	READY	UP-TO-DATE	AVAILABLE	AGE
blue	3/3	3	3	127m
canary-v1	3/3	3	3	127m
canary-v2	0/0	0	0	7s
hello-world	1/1	1	1	83m

Edit Canary-svc to match app canary

```

root@galal-sre-02:~/nd087-c3-deployment-roulette-project# cat si
apiVersion: v1
kind: Service
metadata:
  name: canary-svc
spec:
  type: ClusterIP
  selector:
    app: canary
  ports:
    - protocol: TCP
      port: 80
      targetPort: 80

```

Deploy canary-svc

```

root@galal-sre-02:~/nd087-c3-deployment-roulette-project# k app:
service/canary-svc configured
root@galal-sre-02:~/nd087-c3-deployment-roulette-project# k get
NAME                TYPE                CLUSTER-IP          EXTERNAL-IP
blue-svc            LoadBalancer        172.20.119.148      a551d01ab67f84b3a
canary-svc          ClusterIP            172.20.88.145       <none>
hello-world        LoadBalancer        172.20.84.109       a1d199afdae164333
root@galal-sre-02:~/nd087-c3-deployment-roulette-project# k des
Name:                canary-svc
Namespace:           udacity
Labels:              <none>
Annotations:         <none>
Selector:            app=canary
Type:                ClusterIP
IP Family Policy:    SingleStack
IP Families:         IPv4
IP:                  172.20.88.145
IPs:                 172.20.88.145
Port:                <unset> 80/TCP

```

```
TargetPort:      80/TCP
Endpoints:       10.100.3.152:80,10.100.3.227:80,10.100.3.4:80
Session Affinity: None
Events:          <none>
```

Now running my `canary.sh` script

```
root@galal-sre-02:~/nd087-c3-deployment-roulette-project# ./canary.sh
Replacing 50% of current canary-v1 with canary-v2 ? (y/n) y
Deploying ...
V1 PODS: 3
V2 PODS: 0
deployment.apps/canary-v2 scaled
deployment.apps/canary-v1 scaled
Waiting for deployment "canary-v2" rollout to finish: 0 of 1 updated pods are available
deployment "canary-v2" successfully rolled out
Canary deployment of 1 replicas successful!
Replacing 50% of current canary-v1 with canary-v2 ? (y/n)
```

Getting pods

```
root@galal-sre-02:~/nd087-c3-deployment-roulette-project# k get pods
NAME                                READY   STATUS    RESTARTS   AGE
blue-9b56b55cc-55x4c                1/1     Running   0           90m
blue-9b56b55cc-86z8c                1/1     Running   0           90m
blue-9b56b55cc-ttlhv                1/1     Running   0           88m
canary-v1-546bfbf766-jkpw9          1/1     Running   0           88m
canary-v1-546bfbf766-wr665          1/1     Running   0           10m
canary-v2-8dc775cd6-d25vr           1/1     Running   0           3m3s
hello-world-7b67f6885d-wttg5        1/1     Running   0           88m
```

Getting service (will find IP their)

```
root@galal-sre-02:~/nd087-c3-deployment-roulette-project# k describe service/canary-svc
Name:          canary-svc
Namespace:     udacity
```

```
Labels:          <none>
Annotations:     <none>
Selector:        app=canary
Type:            ClusterIP
IP Family Policy: SingleStack
IP Families:     IPv4
IP:              172.20.88.145
IPs:             172.20.88.145
Port:           <unset> 80/TCP
TargetPort:      80/TCP
Endpoints:       10.100.1.113:80,10.100.1.252:80,10.100.3.227
Session Affinity: None
Events:          <none>
```

First run

```
root@galal-sre-02:~/nd087-c3-deployment-roulette-project# k run
If you don't see a command prompt, try pressing enter.
debug:~# curl 10.100.1.113
<html>
<h1>This is version 2</h1>
</html>
debug:~# for i in {1..10}; do curl http://172.20.88.145; done
<html>
<h1>This is version 1</h1>
</html>
<html>
<h1>This is version 2</h1>
</html>
<html>
<h1>This is version 1</h1>
</html>
<html>
<h1>This is version 2</h1>
```



```

</html>
<html>
<h1>This is version 1</h1>
</html>
<html>
<h1>This is version 1</h1>
</html>
<html>
<h1>This is version 2</h1>
</html>
<html>
<h1>This is version 1</h1>
</html>
<html>
<h1>This is version 1</h1>
</html>
<html>
<h1>This is version 2</h1>
</html>
debug:~#

```

2nd round of deploy

```

Replacing 50% of current canary-v1 with canary-v2 ? (y/n) y
Deploying ...
V1 PODS: 2
V2 PODS: 1
deployment.apps/canary-v2 scaled
deployment.apps/canary-v1 scaled
Waiting for deployment "canary-v2" rollout to finish: 1 of 2 up
deployment "canary-v2" successfully rolled out
Canary deployment of 1 replicas successful!

```

```

root@galal-sre-02:~/nd087-c3-deployment-roulette-project# k get
NAME                                READY    STATUS    RESTARTS    AGE

```

blue-9b56b55cc-55x4c	1/1	Running	0	96m
blue-9b56b55cc-86z8c	1/1	Running	0	96m
blue-9b56b55cc-ttlhv	1/1	Running	0	94m
canary-v1-546bfbf766-jkpw9	1/1	Running	0	94m
canary-v2-8dc775cd6-sc46l	1/1	Running	0	2m5s
canary-v2-8dc775cd6-z4rrw	1/1	Running	0	71s
hello-world-7b67f6885d-wttg5	1/1	Running	0	94m

```
debug:~# for i in {1..10}; do curl http://172.20.88.145; done
<html>
<h1>This is version 2</h1>
</html>
<html>
<h1>This is version 1</h1>
</html>
<html>
<h1>This is version 1</h1>
</html>
<html>
<h1>This is version 1</h1>
</html>
<html>
<h1>This is version 2</h1>
</html>
<html>
<h1>This is version 2</h1>
</html>
<html>
<h1>This is version 2</h1>
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<h1>This is version 2</h1>
</html>
<html>
<h1>This is version 2</h1>
</html>
<html>
<h1>This is version 2</h1>
</html>
```

```
</html>
<html>
<h1>This is version 1</h1>
</html>
debug:~#
```

3rd round

```
Replacing 50% of current canary-v1 with canary-v2 ? (y/n) y
Deploying ...
V1 PODS: 1
V2 PODS: 2
deployment.apps/canary-v2 scaled
deployment.apps/canary-v1 scaled
Waiting for deployment "canary-v2" rollout to finish: 2 of 3 up
deployment "canary-v2" successfully rolled out
Canary deployment of 1 replicas successful!
Canary deployment of v2 successful
root@galal-sre-02:~/nd087-c3-deployment-roulette-project#
root@galal-sre-02:~/nd087-c3-deployment-roulette-project# k get
NAME                                READY   STATUS    RESTARTS   AGE
blue-9b56b55cc-55x4c                1/1     Running   0           97m
blue-9b56b55cc-86z8c                1/1     Running   0           97m
blue-9b56b55cc-ttlhv                1/1     Running   0           95m
canary-v2-8dc775cd6-sc46l           1/1     Running   0           3m5s
canary-v2-8dc775cd6-wfmw7           1/1     Running   0           29s
canary-v2-8dc775cd6-z4rrw           1/1     Running   0           2m6s
hello-world-7b67f6885d-wttg5        1/1     Running   0           95m
```