



beamery

Beamery DevOps Challenge Part 1

1. Given I have a deployment named jenkins, please write below the correct syntax to expose jenkins on a NodePort with the Kubernetes Service abstraction. The jenkins deployment has a containerPort of 8080 and we wish to expose it on port 80.

(Here is something to get you started)

```
Kind: Service
apiVersion: v1
metadata:
  name: jenkins-service
```

2. Consider the following deployment. Mount an ssl certificate from Kubernetes secrets into the volumeMount sslmount.

(Here is something to get you started)

```
apiVersion: extensions/v1beta1
kind: Deployment
metadata:
  name: nginx
  namespace: default
Spec:
  replicas: 1
  template:
    metadata:
      labels:
        app: master
    spec:
      containers:
        - name: master
          image: nginx:latest
      volumeMounts:
        - name: sslmount
          mountPath: /etc/ssl/my.pem
```

3.

- a. There is a pod named `api-a3o4im0932savn` running in the namespace of `fizzbuzz`. Please demonstrate how to use the `exec` command from `kubectl` to use the default shell (`/bin/sh`).
- b. There is a service in the same namespace as our API. How might you ping the below service from pod `api-a3o4im0932savn` to test it is responding?

NAME	CLUSTER-IP	EXTERNAL-IP	PORT(S)
rmq-cluster	None	<none>	5672/TCP

4. What does the following path provide within a pod? And why is it useful?

`/var/run/secrets/kubernetes.io/serviceaccount/token`

5. Write a health check for a deployment. The health-check should hit `/health` route every 5 seconds with a failure after 15 seconds.

(Here is something to get you started)

```
---
apiVersion: extensions/v1beta1
kind: Deployment
metadata:
  name: api-mail
  namespace: production
spec:
  replicas: 2
  minReadySeconds: 20
  strategy:
    type: RollingUpdate
    rollingUpdate:
      maxSurge: 1
      maxUnavailable: 1
  template:
    metadata:
      labels:
        app: api
    spec:
      containers:
        - name: api
          ports:
            - containerPort: 2501
---
```

6. Using our deployment from the previous example. Given I have nodes in three zones within Google cloud. How could I make sure this deployment only is rolled out in `us-central1-a` via the anti-affinity annotations available?

(Here is something to get you started)

```
---
apiVersion: extensions/v1beta1
kind: Deployment
metadata:
  name: api-mail
  namespace: production
spec:
  replicas: 2
  minReadySeconds: 20
  strategy:
    type: RollingUpdate
    rollingUpdate:
      maxSurge: 1
      maxUnavailable: 1
  template:
    metadata:
      labels:
        app: api
    spec:
      containers:
        - name: api
          ports:
            - containerPort: 2501
---
```

7. Consider the following manifest. What does this do?

(Here is something to get you started)

```
---
apiVersion: v1
kind: Pod
metadata:
  name: myapp-pod
  labels:
    app: myapp
  annotations:
    pod.beta.kubernetes.io/init-containers: '[
    {
      "name": "init-myservice",
      "image": "busybox",
      "command": ["sh", "-c", "until nslookup myservice; do echo waiting for myservice; sleep
2; done;"]
    },
    {
      "name": "init-mydb",
      "image": "busybox",
```

```

        "command": ["sh", "-c", "until nslookup mydb; do echo waiting for mydb; sleep 2; done;"]
    }
]
spec:
  containers:
  - name: myapp-container
    image: busybox
    command: ['sh', '-c', 'echo The app is running! && sleep 3600']
---

```

Bonus round: How has this syntax changed in Kubernetes 1.6? Example or explanation.

8.
 - a. Write an nginx ingress to terminate the hosted domain `foo.bar.com` with the secret `foo-bar-secrets`. Have the load balancer route the backend service to port 9032 with the service name `foo`
 - b. Add an annotation to only allow https elevated connections.

9.
 - a. What is a PodSecurityPolicy?
 - b. Populate a PodSecurityPolicy with permissive settings that are missing values for the rules.

(Here is something to get you started)

```

---
apiVersion: extensions/v1beta1
kind: PodSecurityPolicy
metadata:
  name: permissive
spec:
  seLinux:
    rule: %POPULATE%
  runAsUser:
    rule: %POPULATE%
---

```

10. Consider the following example, how would you maintain this process on a remote machine to keep it active?

```
tail -f /var/log/kern.log
```

12. Explain what an interrupt is in Linux

13. How do we edit a file without opening it in linux?