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Kubernetes ReplicationController + Service

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1. Create a ReplicationController (3 nginx replicas)

```
kubectl create replicationcontroller nginx-rc \
  --image=nginx:alpine \
  --replicas=3
```

```
# Quick check
kubectl get rc
kubectl get pods -l app=nginx   # label is automatically set to app=nginx
```

#2. Expose the ReplicationController as a Service

Option A: Internal access only (ClusterIP - default)

```
kubectl expose rc nginx-rc --port=80 --name=nginx-rc-service
```

Option B: External access (NodePort)

```
kubectl expose rc nginx-rc --port=80 --type=NodePort --name=nginx-rc-service-external
```

Option C: External access with LoadBalancer (cloud providers only)

kubectl expose rc nginx-rc --port=80 --type=LoadBalancer --name=nginx-rc-lb

Verify

kubectl get svc

kubectl describe svc nginx-rc-service-external

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Better: Do it properly with YAML (recommended)

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File: rc.yaml

apiVersion: v1

kind: ReplicationController

metadata:

  name: nginx-rc

spec:

  replicas: 3

  selector:

    app: nginx

  template:

    metadata:

```
      labels:
        app: nginx
    spec:
      containers:
      - name: nginx
        image: nginx:alpine
        ports:
        - containerPort: 80

# File: service.yaml
apiVersion: v1
kind: Service
metadata:
  name: nginx-rc-service
spec:
  selector:
    app: nginx              # matches RC pod labels
  ports:
    - protocol: TCP
      port: 80
      targetPort: 80
  type: NodePort            # Change to ClusterIP or
LoadBalancer as needed
```

```
# Apply both
kubectl apply -f rc.yaml
kubectl apply -f service.yaml

# Test access (NodePort example)
# Find the assigned node port:
kubectl get svc nginx-rc-service
# Then open: http://<any-node-ip>:<node-port>

# Scale up/down anytime
kubectl scale rc nginx-rc --replicas=5
kubectl scale rc nginx-rc --replicas=2

# Cleanup (when done)
kubectl delete rc nginx-rc
kubectl delete svc nginx-rc-service
```

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One-liner quick version (for labs/testing)

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kubectl create rc nginx-rc --image=nginx:alpine --replicas=3

kubectl expose rc nginx-rc --type=NodePort --name=nginx-rc-svc

kubectl get svc nginx-rc-svc # note the NODEPORT

Access via http://<node-ip>:<nodeport>

Note: ReplicationController is legacy.

In real life today (2025), use Deployment instead of RC:

kubectl create deployment nginx --image=nginx:alpine --replicas=3

kubectl expose deployment nginx --type=NodePort --port=80