k8s.Deployment

用于部署无状态的服务，这个是最常用的控制器。一般用于管理维护企业内部无状态的微服务。他可以管理多个副本的POD，实现无缝迁移，自动扩容缩容，自动灾难恢复，一键回滚等高级功能。

> Deployment 创建

```
→  ~ kubectl run nginx --image=nginx:latest --image-pull-policy=IfNotPresent
pod/nginx created
→  ~ kubectl get pod
NAME    READY   STATUS    RESTARTS   AGE
nginx   1/1     Running   0          8s
→  ~ kubectl delete pod nginx
pod "nginx" deleted

 # 错误示范，创建一个Pod
```

> 创建一个Deployment

```
→  ~ kubectl create deployment nginx --image=nginx:latest -n yurisa
deployment.apps/nginx created
```

> 导出demployment的yaml配置文件

```
→  ~ kubectl get deployment nginx  -n yurisa -o yaml > nginx-deployment.yaml
```

> deployment 配置文件全量内容

```
apiVersion: apps/v1
kind: Deployment
metadata:
  annotations:
    deployment.kubernetes.io/revision: "1"  creationTimestamp: "2023-06-27T14:47:12Z"
generation: 1
  labels:
```

```yaml
    app: nginx
  name: nginx
  namespace: yurisa
  resourceVersion: "1631653"  uid: dd54ede7-87e6-4b5f-9872-77805c3eea14
spec:
  progressDeadlineSeconds: 600
  replicas: 1
  revisionHistoryLimit: 10
  selector:
    matchLabels:
      app: nginx
  strategy:
    rollingUpdate:
      maxSurge: 25%
      maxUnavailable: 25%
    type: RollingUpdate
  template:
    metadata:
      creationTimestamp: null
      labels:
        app: nginx
    spec:
      containers:
        - image: nginx:latest
          imagePullPolicy: Always
          name: nginx
          resources: {}
          terminationMessagePath: /dev/termination-log
          terminationMessagePolicy: File
      dnsPolicy: ClusterFirst
      restartPolicy: Always
      schedulerName: default-scheduler
      securityContext: {}
      terminationGracePeriodSeconds: 30
status:
  availableReplicas: 1
  conditions:
    - lastTransitionTime: "2023-06-27T14:47:28Z"
      lastUpdateTime: "2023-06-27T14:47:28Z"
      message: Deployment has minimum availability.
```

```
      reason: MinimumReplicasAvailable
      status: "True"      type: Available
    - lastTransitionTime: "2023-06-27T14:47:12Z"
      lastUpdateTime: "2023-06-27T14:47:28Z"
      message: ReplicaSet "nginx-654975c8cd" has successfully progressed.
      reason: NewReplicaSetAvailable
      status: "True"      type: Progressing
  observedGeneration: 1
  readyReplicas: 1
  replicas: 1
  updatedReplicas: 1
```

> 去掉多余的配置项， 更改deployment的副本数

```
apiVersion: apps/v1
kind: Deployment
metadata:
  annotations:
    deployment.kubernetes.io/revision: "1"  labels:
    app: nginx
  name: nginx
  namespace: yurisa
spec:
  replicas: 3 #### > 设置副本数的数量
  selector:
    matchLabels:
      app: nginx
  template:
    metadata:
      labels:
        app: nginx
    spec:
      containers:
        - image: nginx:latest
          imagePullPolicy: Always
          name: nginx
          resources: { }
          terminationMessagePath: /dev/termination-log
```

```
          terminationMessagePolicy: File
      dnsPolicy: ClusterFirst
      restartPolicy: Always
      schedulerName: default-scheduler
      securityContext: { }
      terminationGracePeriodSeconds: 30
```

> 查看deployment 副本数

```
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS    RESTARTS   AGE    IP            NODE
NOMINATED NODE   READINESS GATES
nginx-654975c8cd-bj226   1/1     Running   0          3m9s   10.244.1.10   k8s.node1
<none>           <none>
nginx-654975c8cd-lrpkl   1/1     Running   0          17s    10.244.1.11   k8s.node1
<none>           <none>
nginx-654975c8cd-qf4cs   1/1     Running   0          17m    10.244.2.12   k8s.node2
<none>           <none>
➜  ~ kubectl get deployment -n yurisa
NAME    READY   UP-TO-DATE   AVAILABLE   AGE
nginx   3/3     3            3           17m
```

发现副本数已经由一个变成三个了。

> 使用edit编辑deployment 的副本数

```
➜  ~ kubectl edit deploy nginx -n yurisa
deployment.apps/nginx edited

# 将replics: 3 改成 replics: 1 然后保存退出
```

> 再次查看

```
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS    RESTARTS   AGE   IP            NODE
NOMINATED NODE   READINESS GATES
nginx-654975c8cd-qf4cs   1/1     Running   0          22m   10.244.2.12   k8s.node2
<none>           <none>
```

```
➜  ~ kubectl get deploy -n yurisa -owide
NAME    READY   UP-TO-DATE   AVAILABLE   AGE   CONTAINERS   IMAGES         SELECTOR
nginx   1/1     1            1           23m   nginx        nginx:latest   app=nginx

```

发现副本数量已经由之前的三个变成了一个了。

> 查看deployment 的 labels

```
➜  ~ kubectl get deploy --show-labels -n yurisa
NAME    READY   UP-TO-DATE   AVAILABLE   AGE    LABELS
nginx   1/1     1            1           106m   app=nginx
```

deployment 参数含义:

apiVersion: apps/v1
kind: Deployment
metadata:
annotations:
deployment.kubernetes.io/revision: "1"
labels: # deployment 本身的labels ,可以通过 `kubectl get deploy --show-labels -n yurisa` 查看
app: nginx
name: nginx
namespace: yurisa
spec:
replicas: 3
selector: # 匹配RS的labels , 必须和deployment的labels 一致，否则 deployment无法管理,且在k8s中不允许更改此标签的值。
matchLabels:
app: nginx
template:
metadata:
labels: # Pod的labels ， 也必须和deployment的一致，否则没法管理Pod，且在k8s中不允许更改此标签的值。
app: nginx

spec:
containers:
– image: nginx:latest
imagePullPolicy: Always
name: nginx
resources: { }
terminationMessagePath: /dev/termination–log
terminationMessagePolicy: File
dnsPolicy: ClusterFirst
restartPolicy: Always
schedulerName: default–scheduler
securityContext: { }
terminationGracePeriodSeconds: 30

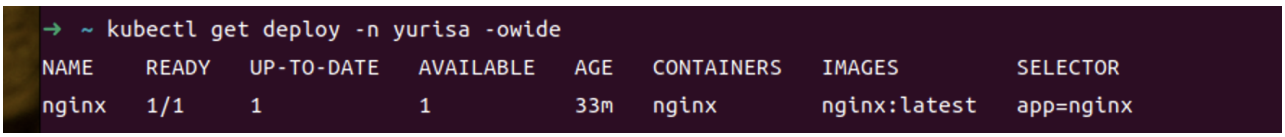
> 更改template的labels报错

deployments.apps "nginx" was not valid:

* spec.template.metadata.labels: Invalid value: map[string]string{"app":"nginx"}: selector does not match template labels

* spec.selector: Invalid value: v1.LabelSelector{MatchLabels:map[string]string{"app":"nginx", "title":"web–server"}, MatchExpressions:[]v1.LabelSelectorRequirement(nil)}: field is immutable

状态解析:




```
→  ~ kubectl get deploy -n yurisa -owide
NAME    READY   UP-TO-DATE   AVAILABLE   AGE   CONTAINERS   IMAGES         SELECTOR
nginx   1/1     1            1           33m   nginx        nginx:latest   app=nginx
```

NAME: Deployment的名称 ,有Namespace隔离，相同的namespace下面不能创建同名的deployment.
READY: Pod的状态，已经Ready的个数
UP-TO-DATE: 已经达到期望状态的被更新的副本数，如果有多个副本，则该值不为1.
AVAILABLE: 已经可以用的副本数
AGE: 显示应用程序运行的时间
CONTAINERS: 容器名称
IMAGES: 容器的镜像
SELECTOR: 管理的Pod的标签

Deployment 更新

> 更改k8s的 spec.template 会触发k8s的更新。

1.前提:

当前nginx镜像版本为 nginx:latest
需要更新的镜像版本为 nginx:1.24
当前Pod的副本数为2.

> 查看正在运行的deployment

```
➜  ~ kubectl get deploy -n yurisa
NAME    READY   UP-TO-DATE   AVAILABLE   AGE
nginx   2/2     2            2           6d23h

➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS    RESTARTS   AGE     IP            NODE
 NOMINATED NODE   READINESS GATES
nginx-654975c8cd-n5dqg   1/1     Running   0          6d22h   10.244.1.12   k8s.node1
 <none>           <none>
nginx-654975c8cd-qf4cs   1/1     Running   0          7d      10.244.2.12   k8s.node2
 <none>           <none>


➜  ~ kubectl get rs -n yurisa
NAME               DESIRED   CURRENT   READY   AGE
```

```
nginx-654975c8cd   2         2         2       7d
```

> 查看当前运行的nginx的版本

```
➜  ~ kubectl get pod -oyaml -n yurisa | grep image
    - image: nginx:latest
      imagePullPolicy: Always
      image: docker.io/library/nginx:latest
      imageID: docker.io/library/nginx@sha256:0d17b565c37bcbd895e9d92315a05c1c3c9a29f762b011a10c54a66cd53c9b31
    - image: nginx:latest
      imagePullPolicy: Always
      image: docker.io/library/nginx:latest
      imageID: docker.io/library/nginx@sha256:0d17b565c37bcbd895e9d92315a05c1c3c9a29f762b011a10c54a66cd53c9b31


➜  ~ kubectl get deploy -oyaml -n yurisa | grep image
        - image: nginx:latest
          imagePullPolicy: Always

```

> 更新镜像版本

```
➜  ~ kubectl set image deploy nginx nginx=nginx:1.24 --record -n yurisa
Flag --record has been deprecated, --record will be removed in the future
deployment.apps/nginx image updated

```

> 查看镜像更新的整个过程

```
➜  ~ kubectl rollout status deploy nginx -n yurisa
Waiting for deployment "nginx" rollout to finish: 1 out of 2 new replicas have been updated...
```

```
Waiting for deployment "nginx" rollout to finish: 1 out of 2 new replicas have been updated...
Waiting for deployment "nginx" rollout to finish: 1 out of 2 new replicas have been updated...
Waiting for deployment "nginx" rollout to finish: 1 old replicas are pending termination...
Waiting for deployment "nginx" rollout to finish: 1 old replicas are pending termination...
deployment "nginx" successfully rolled out

```

> 查看整个镜像更新过程中的事件

```
➜  K8sFiles kubectl describe deploy nginx -n yurisa | grep -A 10  Events
Events:
  Type    Reason             Age   From                   Message
  ----    ------             ----  ----                   -------
  Normal  ScalingReplicaSet  14m   deployment-controller  Scaled up replica set nginx-6bd7f599dd to 1
  Normal  ScalingReplicaSet  12m   deployment-controller  Scaled down replica set nginx-654975c8cd to 1 from 2
  Normal  ScalingReplicaSet  12m   deployment-controller  Scaled up replica set nginx-6bd7f599dd to 2 from 1
  Normal  ScalingReplicaSet  11m   deployment-controller  Scaled down replica set nginx-654975c8cd to 0 from 1

```

> 再此查看镜像的版本，发现镜像版本已经变更

```
➜  ~ kubectl get deploy -oyaml -n yurisa | grep image
      kubernetes.io/change-cause: kubectl set image deploy nginx nginx=nginx:1.24
        - image: nginx:1.24
          imagePullPolicy: Always

```

当前deployment更新的策略为(这个和具体的滚动更新策略有关):

Normal ScalingReplicaSet 14m deployment-controller Scaled up replica set nginx-6bd7f599dd to 1 # 第一步，创建一个新的Pod，并将他的副本数设置为1.
Normal ScalingReplicaSet 12m deployment-controller Scaled down replica set nginx-654975c8cd to 1 from 2 # 第二步，将旧的Pod的副本数设置为1，
Normal ScalingReplicaSet 12m deployment-controller Scaled up replica set nginx-6bd7f599dd to 2 from 1 # 第三步，将新的Pod的副本数设置为2，
Normal ScalingReplicaSet 11m deployment-controller Scaled down replica set nginx-654975c8cd to 0 from 1 # 第四步，将旧的Pod的副本数设置为，到此，整个更新过程完成。

2.前提:

当前nginx的镜像版本为1.24

当前Pod的副本数为3.

当前需要更新到的nginx版本为1.25

> 设置当前Pod的副本数为3.

```
➜  ~ kubectl edit deploy nginx -n yurisa
deployment.apps/nginx edited

# 设置replics 为 3
# shift+zz 保存
```

> 查看当前的Pod数

```
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS    RESTARTS   AGE   IP            NODE
NOMINATED NODE   READINESS GATES
nginx-6bd7f599dd-59dm9   1/1     Running   0          24m   10.244.1.13   k8s.node1
<none>           <none>
nginx-6bd7f599dd-jq789   1/1     Running   0          23m   10.244.2.13   k8s.node2
<none>           <none>
nginx-6bd7f599dd-wm75s   1/1     Running   0          84s   10.244.2.14   k8s.node2
<none>           <none>

```

> 查看deployment的Event日志

```
➜  K8sFiles kubectl describe deploy nginx -n yurisa | grep -A 10  Events
Events:
  Type    Reason             Age   From                   Message
  ----    ------             ----  ----                   -------
  Normal  ScalingReplicaSet  25m   deployment-controller  Scaled up replica set nginx-6bd7f599dd to 1
  Normal  ScalingReplicaSet  23m   deployment-controller  Scaled down replica set nginx-654975c8cd to 1 from 2
  Normal  ScalingReplicaSet  23m   deployment-controller  Scaled up replica set nginx-6bd7f599dd to 2 from 1
  Normal  ScalingReplicaSet  22m   deployment-controller  Scaled down replica set nginx-654975c8cd to 0 from 1
  Normal  ScalingReplicaSet  96s   deployment-controller  Scaled up replica set nginx-6bd7f599dd to 3 from 2

# 日志最后一行，记录Pod的副本数由2到3
```

> 更新nginx的镜像

```
➜  ~ kubectl set image deploy nginx nginx=nginx:1.25 --record -n yurisa
Flag --record has been deprecated, --record will be removed in the future
deployment.apps/nginx image updated
```

> 查看镜像的更新过程

```
➜  ~ kubectl rollout status deploy nginx -n yurisa
Waiting for deployment "nginx" rollout to finish: 1 out of 3 new replicas have been updated...
Waiting for deployment "nginx" rollout to finish: 1 out of 3 new replicas have been updated...
Waiting for deployment "nginx" rollout to finish: 1 out of 3 new replicas have been updated...
Waiting for deployment "nginx" rollout to finish: 2 out of 3 new replicas have been updated...
Waiting for deployment "nginx" rollout to finish: 2 out of 3 new replicas have been updated...
Waiting for deployment "nginx" rollout to finish: 2 out of 3 new replicas have been updated...
Waiting for deployment "nginx" rollout to finish: 1 old replicas are pending termination...
```

```
Waiting for deployment "nginx" rollout to finish: 1 old replicas are pending termination...
deployment "nginx" successfully rolled out

```

> 查看镜像的更新日志

```
  Normal  ScalingReplicaSet  3m27s  deployment-controller  Scaled up replica set nginx-5ff6c47455 to 1
  Normal  ScalingReplicaSet  2m24s  deployment-controller  Scaled down replica set nginx-6bd7f599dd to 2 from 3
  Normal  ScalingReplicaSet  2m24s  deployment-controller  Scaled up replica set nginx-5ff6c47455 to 2 from 1
  Normal  ScalingReplicaSet  48s    deployment-controller  Scaled down replica set nginx-6bd7f599dd to 1 from 2
  Normal  ScalingReplicaSet  48s    deployment-controller  Scaled up replica set nginx-5ff6c47455 to 3 from 2
  Normal  ScalingReplicaSet  30s    deployment-controller  Scaled down replica set nginx-6bd7f599dd to 0 from 1

```

> 查看新的镜像版本

```
➜  ~ kubectl get deploy -n yurisa
NAME    READY   UP-TO-DATE   AVAILABLE   AGE
nginx   3/3     3            3           7d1h
➜  ~ kubectl get deploy -oyaml  -n yurisa | grep image
      kubernetes.io/change-cause: kubectl set image deploy nginx nginx=nginx:1.25
        - image: nginx:1.25
          imagePullPolicy: Always

```

即使存在多个副本，更新过程也是先创建一个新的，旧的Pod逐次减1，新的Pod逐次加1，一直到新的Pod加的期望数，旧的Pod减为0，整个更新过程就算完成。

Deployment 回滚

回滚行为:

i. 更新到上一次版本

ii. 更新到制定版本。

> 查看更新记录

```
➜  ~ kubectl rollout history deploy nginx  -n yurisa
deployment.apps/nginx
REVISION  CHANGE-CAUSE
1         <none>
2         kubectl set image deploy nginx nginx=nginx:1.24 --record=true --namespace=yurisa
3         kubectl set image deploy nginx nginx=nginx:1.25 --record=true --namespace=yurisa

```

> 查看当前nginx的版本

```
➜  ~ kubectl get deploy nginx -oyaml -n yurisa | grep image
    kubernetes.io/change-cause: kubectl set image deploy nginx nginx=nginx:1.25 --record=true
      - image: nginx:1.25
        imagePullPolicy: Always

```

> 回滚到上一个版本

```
➜  ~ kubectl rollout undo deploy nginx -n yurisa
deployment.apps/nginx rolled back

```

> 查看Pod状态

```
➜  ~ kubectl get pod -n yurisa
NAME                     READY   STATUS              RESTARTS   AGE
```

```
nginx-5ff6c47455-dnw6n   1/1     Running             0          19m
nginx-5ff6c47455-xfq74   1/1     Running             0          21m
nginx-6bd7f599dd-jxqsl   0/1     ContainerCreating   0          2s
nginx-6bd7f599dd-qcbjw   1/1     Running             0          21s

```

> 再次查看nginx版本

```
➜  ~ kubectl get deploy nginx -oyaml -n yurisa | grep image
    kubernetes.io/change-cause: kubectl set image deploy nginx nginx=nginx:1.24 --record=true
      - image: nginx:1.24
        imagePullPolicy: Always

# 回滚成功
```

> 查看历史记录

```
➜  ~ kubectl rollout history deploy nginx -n yurisa
deployment.apps/nginx
REVISION  CHANGE-CAUSE
1         <none>
3         kubectl set image deploy nginx nginx=nginx:1.25 --record=true --namespace=yurisa
4         kubectl set image deploy nginx nginx=nginx:1.24 --record=true --namespace=yurisa

# 版本号发生变化
```

> 查看指定版本的详细信息

```
# 查看一个存在的版本

➜  ~ kubectl rollout history deploy nginx --revision=4 -n yurisa
deployment.apps/nginx with revision #4
Pod Template:
  Labels:       app=nginx
```

```
        pod-template-hash=6bd7f599dd
  Annotations:  kubernetes.io/change-cause: kubectl set image deploy nginx nginx=nginx:1.24 --record=true --namespace=yurisa
  Containers:
   nginx:
    Image:      nginx:1.24
    Port:       <none>
    Host Port:  <none>
    Environment:        <none>
    Mounts:     <none>
  Volumes:      <none>

# 查看一个不存在的版本

➜  ~ kubectl rollout history deploy nginx --revision=2 -n yurisa
error: unable to find the specified revision

```

添加一个错误的nginx版本，用于此次实验

```
➜  ~ kubectl set image deploy nginx nginx=nginx:89757ddd --record -n yurisa
Flag --record has been deprecated, --record will be removed in the future
deployment.apps/nginx image updated

```

查看Pod状态

```
➜  ~ kubectl get pod  -n yurisa -owide
NAME                     READY   STATUS             RESTARTS   AGE     IP             NODE        NOMINATED NODE   READINESS GATES
nginx-5f75b4c869-lvbmh   0/1     ImagePullBackOff   0          4m32s   10.244.1.17    k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running            0          18m     10.244.1.16    k8s.node1   <none>           <none>
nginx-6bd7f599dd-k5md5   1/1     Running            0          18m     10.244.2.17    k8s.node2   <none>           <none>
nginx-6bd7f599dd-qcbjw   1/1     Running            0          18m     10.244.2.16    k8s.node2   <none>           <none>

```

```
# 发现更新的nginx镜像拉去失败
```

> 查看更新记录

```
➜  ~ kubectl rollout history deploy nginx -n yurisa
deployment.apps/nginx
REVISION  CHANGE-CAUSE
1         <none>
3         kubectl set image deploy nginx nginx=nginx:1.25 --record=true --namespace=yurisa
4         kubectl set image deploy nginx nginx=nginx:1.24 --record=true --namespace=yurisa
5         kubectl set image deploy nginx nginx=nginx:89757ddd --record=true --namespace=yurisa


```

> 回复到指定的版本3.

```
➜  ~ kubectl rollout undo deploy nginx --to-revision=3 -n yurisa
deployment.apps/nginx rolled back

```

> 查看nginx的版本号是否与记录一致

```
➜  ~ kubectl get deploy nginx -oyaml -n yurisa | grep image
    kubernetes.io/change-cause: kubectl set image deploy nginx nginx=nginx:1.25 --record=true
      - image: nginx:1.25
        imagePullPolicy: Always

# 回滚到制定的版本成功。
```

Deployment 扩容和缩容

> 扩容方式

1.使用`kubectl apply –f xxx.yaml` 文件的方式扩容。

2.使用`kubectl edit `命令编辑的方式进行扩容。

3.使用`kubectl scale` 命令进行扩容。

```
➜  ~ kubectl scale --replicas=5 deploy nginx -n yurisa
deployment.apps/nginx scaled

```

查看扩容结果:

```
➜  ~ kubectl get pod -n yurisa
NAME                     READY   STATUS              RESTARTS      AGE
nginx-5ff6c47455-7hthn   1/1     Running             1 (27h ago)   5d21h
nginx-5ff6c47455-hkv76   1/1     Running             1 (27h ago)   5d21h
nginx-5ff6c47455-l6b8t   0/1     ContainerCreating   0             7s
nginx-5ff6c47455-r6jzw   1/1     Running             1 (27h ago)   5d21h
nginx-5ff6c47455-ztcqf   0/1     ContainerCreating   0             7s

➜  ~ kubectl get pod -n yurisa
NAME                     READY   STATUS    RESTARTS      AGE
nginx-5ff6c47455-7hthn   1/1     Running   1 (27h ago)   5d21h
nginx-5ff6c47455-hkv76   1/1     Running   1 (27h ago)   5d21h
nginx-5ff6c47455-l6b8t   1/1     Running   0             27s
nginx-5ff6c47455-r6jzw   1/1     Running   1 (27h ago)   5d21h
nginx-5ff6c47455-ztcqf   1/1     Running   0             27s

```

Deployment 更新暂停和恢复

> kubectl rollout 功能列表

history　　显示上线历史

pause 将所指定的资源标记为已暂停

restart Restart a resource

resume 恢复暂停的资源

status 显示上线的状态

undo 撤销上一次的上线

> 针对多次资源修改，可以使用rollout 提供的 `pause` 以及 `resume` 功能。

1.暂停跟新

➜ ~ kubectl rollout pause deploy nginx -n yurisa

deployment.apps/nginx paused

2.设置镜像的版本

➜ ~ kubectl set image deploy nginx nginx=nginx:1.24 --record

Flag --record has been deprecated, --record will be removed in the future

Error from server (NotFound): deployments.apps "nginx" not found

3.检查deployment是否有更新

➜ ~ kubectl get pod -n yurisa

NAME READY STATUS RESTARTS AGE

nginx-5ff6c47455-r6jzw 1/1 Running 1 (28h ago) 5d22h

nginx-5ff6c47455-ztcqf 1/1 Running 0 39m

4.设置资源限制

➜ ~ kubectl set resources deploy nginx -c nginx --limits=cpu=200m,memory=128Mi --requests=cpu=10m,memory=16Mi -n yurisa

deployment.apps/nginx resource requirements updated

5.回复更新

➜ ~ kubectl rollout resume deploy nginx -n yurisa

deployment.apps/nginx resumed

6.检查是否更新成功

➜ ~ kubectl get pod –n yurisa
NAME READY STATUS RESTARTS AGE
nginx–5ff6c47455–r6jzw 1/1 Running 1 (28h ago) 5d22h
nginx–5ff6c47455–ztcqf 1/1 Running 0 46m
nginx–69c798ff6f–vqcns 0/1 ContainerCreating 0 8s

> 发现容器正在创建

➜ ~ kubectl get deploy nginx –o yaml –n yurisa | grep image
kubernetes.io/change–cause: kubectl set image deploy nginx nginx=nginx:1.25 ––record=true
– image: nginx:1.25
imagePullPolicy: Always

> 发现版本号已经更新

➜ ~ kubectl get deploy nginx –o yaml –n yurisa | grep –C 5 cpu
– image: nginx:1.25
imagePullPolicy: Always
name: nginx
resources:
limits:
cpu: 200m
memory: 128Mi
requests:
cpu: 10m
memory: 16Mi
terminationMessagePath: /dev/termination–log
terminationMessagePolicy: File
dnsPolicy: ClusterFirst
restartPolicy: Always

> 发现资源设置已经更新。

Deployment 注意事项:

```
apiVersion: apps/v1
kind: Deployment
metadata:
  annotations:
```

```
    deployment.kubernetes.io/revision: "7"
    kubernetes.io/change-cause: kubectl set image deploy nginx nginx=nginx:1.25 --record=true
      --namespace=yurisa
  creationTimestamp: "2023-06-27T14:47:12Z"
  generation: 16
  labels:
    app: nginx
    title: web-server
  name: nginx
  namespace: yurisa
  resourceVersion: "2441071"
  uid: dd54ede7-87e6-4b5f-9872-77805c3eea14
spec:
  progressDeadlineSeconds: 600
  replicas: 2
  revisionHistoryLimit: 10
  selector:
    matchLabels:
      app: nginx
  strategy:
    rollingUpdate:
      maxSurge: 25%
      maxUnavailable: 25%
    type: RollingUpdate
  template:
    metadata:
      creationTimestamp: null
      labels:
        app: nginx
    spec:
      containers:
      - image: nginx:1.25
        imagePullPolicy: Always
        name: nginx
        resources:
          limits:
            cpu: 200m
            memory: 128Mi
          requests:
```

```
            cpu: 10m
            memory: 16Mi
        terminationMessagePath: /dev/termination-log
        terminationMessagePolicy: File
      dnsPolicy: ClusterFirst
      restartPolicy: Always
      schedulerName: default-scheduler
      securityContext: {}
      terminationGracePeriodSeconds: 30
status:
  availableReplicas: 2
  conditions:
  - lastTransitionTime: "2023-07-10T14:22:53Z"
    lastUpdateTime: "2023-07-10T14:22:53Z"
    message: Deployment has minimum availability.
    reason: MinimumReplicasAvailable
    status: "True"
    type: Available
  - lastTransitionTime: "2023-07-10T15:09:04Z"
    lastUpdateTime: "2023-07-10T15:09:26Z"
    message: ReplicaSet "nginx-69c798ff6f" has successfully progressed.
    reason: NewReplicaSetAvailable
    status: "True"
    type: Progressing
  observedGeneration: 16
  readyReplicas: 2
  replicas: 2
  updatedReplicas: 2
```

.spec.revisionHistoryLimit 设置保留rs旧的revision的个数，设置为0的话，不保留历史数据。

.spec.minReadySeconds 可选参数，指定新创建的Pod在没有任何容器崩溃的情况下是为Ready最小的秒数，默认为0，即一旦被创建完成则视为可用。

> 滚动更新的策略

.spec.strategy.type: 更新deployment的方式，默认是RollingUpdate.

RollingUpdate: 滚动更新，（删除一个旧的创建一个新的），可以指定 maxSurge 和 maxUnavailable

maxSurge：可以超过期望值的最大Pod数，可选字段，默认为25%，可以设置成百分比或数字，如果改值为0，则maxUnavailable不能为0

maxUnavailable：指定在回滚或者更新的时候最大不可用的Pod数量，可选字段，默认为25%，同样也可以设置成数字或百分比，如果该值为0，则maxSurge不能为0.

Recreate: 重建，先删除旧的Pod，再创建新的Pod. （使用场景，多半用于网络服务的容器，如果可能出现端口占用则应该使用该方式进行更新）

Deployment 版本回滚过程中的记录，可以看到当前的更新策略。

> 查看Pod的状态

```
➜  ~ kubectl rollout undo deploy nginx --to-revision=3 -n yurisa
deployment.apps/nginx rolled back
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   0/1     ContainerCreating   0          10s   <none>
k8s.node2   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
nginx-6bd7f599dd-k5md5   1/1     Running             0          22m   10.244.2.17
k8s.node2   <none>           <none>
nginx-6bd7f599dd-qcbjw   1/1     Running             0          22m   10.244.2.16
k8s.node2   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   0/1     ContainerCreating   0          18s   <none>
k8s.node2   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
nginx-6bd7f599dd-k5md5   1/1     Running             0          22m   10.244.2.17
k8s.node2   <none>           <none>
nginx-6bd7f599dd-qcbjw   1/1     Running             0          22m   10.244.2.16
k8s.node2   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          19s   10.244.2.18
k8s.node2   <none>           <none>
```

```
nginx-5ff6c47455-r6jzw   0/1     ContainerCreating   0          0s    <none>
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
nginx-6bd7f599dd-k5md5   1/1     Running             0          22m   10.244.2.17
k8s.node2   <none>           <none>
nginx-6bd7f599dd-qcbjw   1/1     Terminating         0          22m   10.244.2.16
k8s.node2   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          20s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   0/1     ContainerCreating   0          1s    <none>
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
nginx-6bd7f599dd-k5md5   1/1     Running             0          22m   10.244.2.17
k8s.node2   <none>           <none>
nginx-6bd7f599dd-qcbjw   1/1     Terminating         0          22m   10.244.2.16
k8s.node2   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          21s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   0/1     ContainerCreating   0          2s    <none>
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
nginx-6bd7f599dd-k5md5   1/1     Running             0          22m   10.244.2.17
k8s.node2   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          22s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   0/1     ContainerCreating   0          3s    <none>
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
nginx-6bd7f599dd-k5md5   1/1     Running             0          22m   10.244.2.17
k8s.node2   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
```

```
nginx-5ff6c47455-7hthn   1/1     Running             0          22s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   0/1     ContainerCreating   0          3s    <none>
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
nginx-6bd7f599dd-k5md5   1/1     Running             0          22m   10.244.2.17
k8s.node2   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          23s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   0/1     ContainerCreating   0          4s    <none>
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
nginx-6bd7f599dd-k5md5   1/1     Running             0          22m   10.244.2.17
k8s.node2   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          24s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   0/1     ContainerCreating   0          5s    <none>
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
nginx-6bd7f599dd-k5md5   1/1     Running             0          22m   10.244.2.17
k8s.node2   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          25s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   0/1     ContainerCreating   0          6s    <none>
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
nginx-6bd7f599dd-k5md5   1/1     Running             0          22m   10.244.2.17
k8s.node2   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          26s   10.244.2.18
k8s.node2   <none>           <none>
```

```
nginx-5ff6c47455-r6jzw   0/1     ContainerCreating   0          7s    <none>
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
nginx-6bd7f599dd-k5md5   1/1     Running             0          22m   10.244.2.17
k8s.node2   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          27s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   0/1     ContainerCreating   0          8s    <none>
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
nginx-6bd7f599dd-k5md5   1/1     Running             0          22m   10.244.2.17
k8s.node2   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          27s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   0/1     ContainerCreating   0          8s    <none>
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
nginx-6bd7f599dd-k5md5   1/1     Running             0          22m   10.244.2.17
k8s.node2   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          28s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   0/1     ContainerCreating   0          9s    <none>
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
nginx-6bd7f599dd-k5md5   1/1     Running             0          22m   10.244.2.17
k8s.node2   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          29s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   0/1     ContainerCreating   0          10s   <none>
k8s.node1   <none>           <none>
```

```
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
nginx-6bd7f599dd-k5md5   1/1     Running             0          22m   10.244.2.17
k8s.node2   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          30s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   0/1     ContainerCreating   0          11s   <none>
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
nginx-6bd7f599dd-k5md5   1/1     Running             0          22m   10.244.2.17
k8s.node2   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          30s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   0/1     ContainerCreating   0          11s   <none>
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
nginx-6bd7f599dd-k5md5   1/1     Running             0          22m   10.244.2.17
k8s.node2   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          31s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   0/1     ContainerCreating   0          12s   <none>
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
nginx-6bd7f599dd-k5md5   1/1     Running             0          22m   10.244.2.17
k8s.node2   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          34s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   0/1     ContainerCreating   0          15s   <none>
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
```

```
nginx-6bd7f599dd-k5md5   1/1     Running             0          22m   10.244.2.17
k8s.node2   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          34s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   0/1     ContainerCreating   0          15s   <none>
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
nginx-6bd7f599dd-k5md5   1/1     Running             0          22m   10.244.2.17
k8s.node2   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          35s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   0/1     ContainerCreating   0          16s   <none>
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
nginx-6bd7f599dd-k5md5   1/1     Running             0          22m   10.244.2.17
k8s.node2   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          36s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   0/1     ContainerCreating   0          17s   <none>
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
nginx-6bd7f599dd-k5md5   1/1     Running             0          22m   10.244.2.17
k8s.node2   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          37s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   0/1     ContainerCreating   0          18s   <none>
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
nginx-6bd7f599dd-k5md5   1/1     Running             0          22m   10.244.2.17
k8s.node2   <none>           <none>
```

```
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          37s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-hkv76   0/1     ContainerCreating   0          0s    <none>
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   1/1     Running             0          18s   10.244.1.18
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
nginx-6bd7f599dd-k5md5   1/1     Terminating         0          22m   10.244.2.17
k8s.node2   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          38s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-hkv76   0/1     ContainerCreating   0          1s    <none>
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   1/1     Running             0          19s   10.244.1.18
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
nginx-6bd7f599dd-k5md5   1/1     Terminating         0          22m   10.244.2.17
k8s.node2   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          39s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-hkv76   0/1     ContainerCreating   0          2s    <none>
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   1/1     Running             0          20s   10.244.1.18
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          39s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-hkv76   0/1     ContainerCreating   0          2s    <none>
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   1/1     Running             0          20s   10.244.1.18
k8s.node1   <none>           <none>
```

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nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          40s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-hkv76   0/1     ContainerCreating   0          3s    <none>
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   1/1     Running             0          21s   10.244.1.18
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          41s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-hkv76   0/1     ContainerCreating   0          4s    <none>
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   1/1     Running             0          22s   10.244.1.18
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          42s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-hkv76   0/1     ContainerCreating   0          5s    <none>
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   1/1     Running             0          23s   10.244.1.18
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          43s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-hkv76   0/1     ContainerCreating   0          6s    <none>
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   1/1     Running             0          24s   10.244.1.18
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
```

```
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          43s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-hkv76   0/1     ContainerCreating   0          6s    <none>
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   1/1     Running             0          24s   10.244.1.18
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          44s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-hkv76   0/1     ContainerCreating   0          7s    <none>
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   1/1     Running             0          25s   10.244.1.18
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          45s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-hkv76   0/1     ContainerCreating   0          8s    <none>
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   1/1     Running             0          26s   10.244.1.18
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          45s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-hkv76   0/1     ContainerCreating   0          8s    <none>
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   1/1     Running             0          26s   10.244.1.18
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
```

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NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          46s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-hkv76   0/1     ContainerCreating   0          9s    <none>
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   1/1     Running             0          27s   10.244.1.18
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          47s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-hkv76   0/1     ContainerCreating   0          10s   <none>
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   1/1     Running             0          28s   10.244.1.18
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          48s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-hkv76   0/1     ContainerCreating   0          11s   <none>
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   1/1     Running             0          29s   10.244.1.18
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          48s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-hkv76   0/1     ContainerCreating   0          11s   <none>
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   1/1     Running             0          29s   10.244.1.18
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
```

```
nginx-5ff6c47455-7hthn   1/1     Running             0          49s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-hkv76   0/1     ContainerCreating   0          12s   <none>
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   1/1     Running             0          30s   10.244.1.18
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          50s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-hkv76   0/1     ContainerCreating   0          13s   <none>
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   1/1     Running             0          31s   10.244.1.18
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          50s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-hkv76   0/1     ContainerCreating   0          13s   <none>
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   1/1     Running             0          31s   10.244.1.18
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          51s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-hkv76   0/1     ContainerCreating   0          14s   <none>
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   1/1     Running             0          32s   10.244.1.18
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          52s   10.244.2.18
k8s.node2   <none>           <none>
```

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nginx-5ff6c47455-hkv76   0/1     ContainerCreating   0          15s   <none>
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   1/1     Running             0          33s   10.244.1.18
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          52s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-hkv76   0/1     ContainerCreating   0          15s   <none>
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   1/1     Running             0          33s   10.244.1.18
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          53s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-hkv76   0/1     ContainerCreating   0          16s   <none>
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   1/1     Running             0          34s   10.244.1.18
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          54s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-hkv76   0/1     ContainerCreating   0          17s   <none>
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   1/1     Running             0          35s   10.244.1.18
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS              RESTARTS   AGE   IP
NODE        NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running             0          55s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-hkv76   0/1     ContainerCreating   0          18s   <none>
k8s.node2   <none>           <none>
```

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nginx-5ff6c47455-r6jzw   1/1     Running             0          36s   10.244.1.18
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Running             0          22m   10.244.1.16
k8s.node1   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS        RESTARTS   AGE   IP            NODE
   NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running       0          55s   10.244.2.18
k8s.node2   <none>           <none>
nginx-5ff6c47455-hkv76   1/1     Running       0          18s   10.244.2.19
k8s.node2   <none>           <none>
nginx-5ff6c47455-r6jzw   1/1     Running       0          36s   10.244.1.18
k8s.node1   <none>           <none>
nginx-6bd7f599dd-jxqsl   1/1     Terminating   0          22m   10.244.1.16
k8s.node1   <none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS    RESTARTS   AGE   IP            NODE
NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running   0          56s   10.244.2.18   k8s.node2
<none>           <none>
nginx-5ff6c47455-hkv76   1/1     Running   0          19s   10.244.2.19   k8s.node2
<none>           <none>
nginx-5ff6c47455-r6jzw   1/1     Running   0          37s   10.244.1.18   k8s.node1
<none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS    RESTARTS   AGE   IP            NODE
NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running   0          57s   10.244.2.18   k8s.node2
<none>           <none>
nginx-5ff6c47455-hkv76   1/1     Running   0          20s   10.244.2.19   k8s.node2
<none>           <none>
nginx-5ff6c47455-r6jzw   1/1     Running   0          38s   10.244.1.18   k8s.node1
<none>           <none>
➜  ~ kubectl get pod -n yurisa -owide
NAME                     READY   STATUS    RESTARTS   AGE   IP            NODE
NOMINATED NODE   READINESS GATES
nginx-5ff6c47455-7hthn   1/1     Running   0          58s   10.244.2.18   k8s.node2
<none>           <none>
nginx-5ff6c47455-hkv76   1/1     Running   0          21s   10.244.2.19   k8s.node2
<none>           <none>
nginx-5ff6c47455-r6jzw   1/1     Running   0          39s   10.244.1.18   k8s.node1
<none>           <none>


# 版本由1.24变更到1.25的整个过程。
```