

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

```
1 → ~ kubectl run nginx --image=nginx:latest --image-pull-policy=IfNotPresent
2 pod/nginx created
3 → ~ kubectl get pod
4 NAME      READY   STATUS    RESTARTS   AGE
5 nginx     1/1     Running   0           8s
6 → ~ kubectl delete pod nginx
7 pod "nginx" deleted
8
9 # 错误示范，创建一个Pod
```

创建一个Deployment

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

导出deployment的yaml配置文件

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

deployment 配置文件全量内容

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

```
7   app: nginx
8   name: nginx
9   namespace: yurisa
10  resourceVersion: "1631653"  uid: dd54ede7-87e6-4b5f-9872-77805c3eea14
11  spec:
12    progressDeadlineSeconds: 600
13    replicas: 1
14    revisionHistoryLimit: 10
15    selector:
16      matchLabels:
17        app: nginx
18    strategy:
19      rollingUpdate:
20        maxSurge: 25%
21        maxUnavailable: 25%
22      type: RollingUpdate
23  template:
24    metadata:
25      creationTimestamp: null
26      labels:
27        app: nginx
28    spec:
29      containers:
30        - image: nginx:latest
31          imagePullPolicy: Always
32          name: nginx
33          resources: {}
34          terminationMessagePath: /dev/termination-log
35          terminationMessagePolicy: File
36      dnsPolicy: ClusterFirst
37      restartPolicy: Always
38      schedulerName: default-scheduler
39      securityContext: {}
40      terminationGracePeriodSeconds: 30
41  status:
42    availableReplicas: 1
43    conditions:
44      - lastTransitionTime: "2023-06-27T14:47:28Z"
45        lastUpdateTime: "2023-06-27T14:47:28Z"
46        message: Deployment has minimum availability.
```

```
47     reason: MinimumReplicasAvailable
48     status: "True"         type: Available
49   - lastTransitionTime: "2023-06-27T14:47:12Z"
50     lastUpdateTime: "2023-06-27T14:47:28Z"
51     message: ReplicaSet "nginx-654975c8cd" has successfully progressed.
52     reason: NewReplicaSetAvailable
53     status: "True"         type: Progressing
54   observedGeneration: 1
55   readyReplicas: 1
56   replicas: 1
57   updatedReplicas: 1
```

去掉多余的配置项，更改deployment的副本数

```
1  apiVersion: apps/v1
2  kind: Deployment
3  metadata:
4    annotations:
5      deployment.kubernetes.io/revision: "1"  labels:
6      app: nginx
7    name: nginx
8    namespace: yurisa
9  spec:
10   replicas: 3 ##### > 设置副本数的数量
11   selector:
12     matchLabels:
13       app: nginx
14   template:
15     metadata:
16       labels:
17         app: nginx
18     spec:
19       containers:
20         - image: nginx:latest
21           imagePullPolicy: Always
22           name: nginx
23           resources: { }
24           terminationMessagePath: /dev/termination-log
```

```

25     terminationMessagePolicy: File
26     dnsPolicy: ClusterFirst
27     restartPolicy: Always
28     schedulerName: default-scheduler
29     securityContext: { }
30     terminationGracePeriodSeconds: 30

```

查看deployment 副本数

```

1 → ~ kubectl get pod -n yurisa -owide
2 NAME                                READY   STATUS    RESTARTS   AGE   IP            NODE
  NOMINATED NODE   READINESS GATES
3 nginx-654975c8cd-bj226             1/1     Running   0           3m9s   10.244.1.10   k8s-node1
  <none>             <none>
4 nginx-654975c8cd-lrpkl             1/1     Running   0           17s    10.244.1.11   k8s-node1
  <none>             <none>
5 nginx-654975c8cd-qf4cs             1/1     Running   0           17m    10.244.2.12   k8s-node2
  <none>             <none>
6 → ~ kubectl get deployment -n yurisa
7 NAME      READY   UP-TO-DATE   AVAILABLE   AGE
8 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

```

1 → ~ kubectl edit deploy nginx -n yurisa
2 deployment.apps/nginx edited
3
4 # 将replicas: 3 改成 replicas: 1 然后保存退出

```

再次查看

```

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

```

```

4 → ~ kubectl get deploy -n yurisa -owide
5 NAME      READY    UP-TO-DATE    AVAILABLE    AGE    CONTAINERS    IMAGES    SELECTOR
6 nginx     1/1      1             1            23m    nginx        nginx:latest    app=nginx
7

```

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

```

1 → ~ kubectl get deploy --show-labels -n yurisa
2 NAME      READY    UP-TO-DATE    AVAILABLE    AGE    LABELS
3 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
```

```
1 → ~ kubectl get deploy -n yurisa -owide
2 NAME      READY   UP-TO-DATE   AVAILABLE   AGE    CONTAINERS   IMAGES      SELECTOR
3 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

[illegible]

```
13 nginx-654975c8cd    2          2          2          7d
14
```

查看当前运行的nginx的版本

```
1 → ~ kubectl get pod -oyaml -n yurisa | grep image
2     - image: nginx:latest
3       imagePullPolicy: Always
4       image: docker.io/library/nginx:latest
5       imageID:
6 docker.io/library/nginx@sha256:0d17b565c37bcbd895e9d92315a05c1c3c9a29f762b011a10c54a66c
7 d53c9b31
8     - image: nginx:latest
9       imagePullPolicy: Always
10      image: docker.io/library/nginx:latest
11      imageID:
12 docker.io/library/nginx@sha256:0d17b565c37bcbd895e9d92315a05c1c3c9a29f762b011a10c54a66c
13 d53c9b31
14
15 → ~ kubectl get deploy -oyaml -n yurisa | grep image
16     - image: nginx:latest
17       imagePullPolicy: Always
18
19
```

更新镜像版本

```
1 → ~ kubectl set image deploy nginx nginx=nginx:1.24 --record -n yurisa
2 Flag --record has been deprecated, --record will be removed in the future
3 deployment.apps/nginx image updated
4
```

查看镜像更新的整个过程

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



```

3  Waiting for deployment "nginx" rollout to finish: 1 out of 2 new replicas have been
   updated...
4  Waiting for deployment "nginx" rollout to finish: 1 out of 2 new replicas have been
   updated...
5  Waiting for deployment "nginx" rollout to finish: 1 old replicas are pending
   termination...
6  Waiting for deployment "nginx" rollout to finish: 1 old replicas are pending
   termination...
7  deployment "nginx" successfully rolled out
8

```

查看整个镜像更新过程中的事件

```

1  → K8sFiles kubectl describe deploy nginx -n yurisa | grep -A 10 Events
2  Events:
3      Type          Reason                Age    From                Message
4      ----          -
5      Normal    ScalingReplicaSet    14m    deployment-controller    Scaled up replica set nginx-
6      6bd7f599dd to 1
7      Normal    ScalingReplicaSet    12m    deployment-controller    Scaled down replica set
8      nginx-654975c8cd to 1 from 2
9      Normal    ScalingReplicaSet    12m    deployment-controller    Scaled up replica set nginx-
10     6bd7f599dd to 2 from 1
11     Normal    ScalingReplicaSet    11m    deployment-controller    Scaled down replica set
12     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

```

1  → ~ kubectl get deploy -oyaml -n yurisa | grep image
2      kubernetes.io/change-cause: kubectl set image deploy nginx nginx=nginx:1.24
3      - image: nginx:1.24
4      imagePullPolicy: Always
5

```

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.

```
1 → ~ kubectl edit deploy nginx -n yurisa
2 deployment.apps/nginx edited
3
4 # 设置replicas 为 3
5 # shift+zz 保存
```

查看当前的Pod数

```
1 → ~ kubectl get pod -n yurisa -owide
2 NAME                                READY   STATUS    RESTARTS   AGE   IP              NODE
3 nginx-6bd7f599dd-59dm9             1/1     Running   0           24m   10.244.1.13     k8s-node1
4 nginx-6bd7f599dd-jq789             1/1     Running   0           23m   10.244.2.13     k8s-node2
5 nginx-6bd7f599dd-wm75s             1/1     Running   0           84s   10.244.2.14     k8s-node2
6
```

查看deployment的Event日志

```

1 → K8sFiles kubectl describe deploy nginx -n yurisa | grep -A 10 Events
2 Events:
3   Type          Reason              Age   From              Message
4   ----          -
5   Normal        ScalingReplicaSet   25m   deployment-controller Scaled up replica set nginx-6bd7f599dd to 1
6   Normal        ScalingReplicaSet   23m   deployment-controller Scaled down replica set nginx-654975c8cd to 1 from 2
7   Normal        ScalingReplicaSet   23m   deployment-controller Scaled up replica set nginx-6bd7f599dd to 2 from 1
8   Normal        ScalingReplicaSet   22m   deployment-controller Scaled down replica set nginx-654975c8cd to 0 from 1
9   Normal        ScalingReplicaSet   96s   deployment-controller Scaled up replica set nginx-6bd7f599dd to 3 from 2
10
11 # 日志最后一行，记录Pod的副本数由2到3

```

更新nginx的镜像

```

1 → ~ kubectl set image deploy nginx nginx=nginx:1.25 --record -n yurisa
2 Flag --record has been deprecated, --record will be removed in the future
3 deployment.apps/nginx image updated
4

```

查看镜像的更新过程

```

1 → ~ kubectl rollout status deploy nginx -n yurisa
2 Waiting for deployment "nginx" rollout to finish: 1 out of 3 new replicas have been updated...
3 Waiting for deployment "nginx" rollout to finish: 1 out of 3 new replicas have been updated...
4 Waiting for deployment "nginx" rollout to finish: 1 out of 3 new replicas have been updated...
5 Waiting for deployment "nginx" rollout to finish: 2 out of 3 new replicas have been updated...
6 Waiting for deployment "nginx" rollout to finish: 2 out of 3 new replicas have been updated...
7 Waiting for deployment "nginx" rollout to finish: 2 out of 3 new replicas have been updated...
8 Waiting for deployment "nginx" rollout to finish: 1 old replicas are pending termination...

```

```
9  Waiting for deployment "nginx" rollout to finish: 1 old replicas are pending
    termination...
10  deployment "nginx" successfully rolled out
11
```

查看镜像的更新日志

```
1  Normal  ScalingReplicaSet  3m27s  deployment-controller  Scaled up replica set nginx-
    5ff6c47455 to 1
2  Normal  ScalingReplicaSet  2m24s  deployment-controller  Scaled down replica set
    nginx-6bd7f599dd to 2 from 3
3  Normal  ScalingReplicaSet  2m24s  deployment-controller  Scaled up replica set nginx-
    5ff6c47455 to 2 from 1
4  Normal  ScalingReplicaSet  48s      deployment-controller  Scaled down replica set
    nginx-6bd7f599dd to 1 from 2
5  Normal  ScalingReplicaSet  48s      deployment-controller  Scaled up replica set nginx-
    5ff6c47455 to 3 from 2
6  Normal  ScalingReplicaSet  30s      deployment-controller  Scaled down replica set
    nginx-6bd7f599dd to 0 from 1
7
```

查看新的镜像版本

```
1  → ~ kubectl get deploy -n yurisa
2  NAME      READY    UP-TO-DATE    AVAILABLE    AGE
3  nginx     3/3      3             3            7d1h
4  → ~ kubectl get deploy -oyaml -n yurisa | grep image
5      kubernetes.io/change-cause: kubectl set image deploy nginx nginx=nginx:1.25
6      - image: nginx:1.25
7      imagePullPolicy: Always
8
```

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

```
1 → ~ kubectl rollout history deploy nginx -n yurisa
2 deployment.apps/nginx
3 REVISION  CHANGE-CAUSE
4 1          <none>
5 2          kubectl set image deploy nginx nginx=nginx:1.24 --record=true --
    namespace=yurisa
6 3          kubectl set image deploy nginx nginx=nginx:1.25 --record=true --
    namespace=yurisa
7
```

查看当前nginx的版本

```
1 → ~ kubectl get deploy nginx -oyaml -n yurisa | grep image
2     kubernetes.io/change-cause: kubectl set image deploy nginx nginx=nginx:1.25 --
    record=true
3     - image: nginx:1.25
4     imagePullPolicy: Always
5
```

回滚到上一个版本

```
1 → ~ kubectl rollout undo deploy nginx -n yurisa
2 deployment.apps/nginx rolled back
3
```

查看Pod状态

```
1 → ~ kubectl get pod -n yurisa
2 NAME                                READY  STATUS             RESTARTS  AGE
```

3	nginx-5ff6c47455-dnw6n	1/1	Running	0	19m
4	nginx-5ff6c47455-xfq74	1/1	Running	0	21m
5	nginx-6bd7f599dd-jxqsl	0/1	ContainerCreating	0	2s
6	nginx-6bd7f599dd-qcbjw	1/1	Running	0	21s
7					

再次查看nginx版本

```

1 → ~ kubectl get deploy nginx -oyaml -n yurisa | grep image
2     kubernetes.io/change-cause: kubectl set image deploy nginx nginx=nginx:1.24 --
3     record=true
4     - image: nginx:1.24
5     imagePullPolicy: Always
6 # 回滚成功

```

查看历史记录

```

1 → ~ kubectl rollout history deploy nginx -n yurisa
2 deployment.apps/nginx
3 REVISION  CHANGE-CAUSE
4 1          <none>
5 3          kubectl set image deploy nginx nginx=nginx:1.25 --record=true --
6           namespace=yurisa
7 4          kubectl set image deploy nginx nginx=nginx:1.24 --record=true --
8           namespace=yurisa
9 # 版本号发生变化

```

查看指定版本的详细信息

```

1 # 查看一个存在的版本
2
3 → ~ kubectl rollout history deploy nginx --revision=4 -n yurisa
4 deployment.apps/nginx with revision #4
5 Pod Template:
6   Labels:      app=nginx

```

```

7         pod-template-hash=6bd7f599dd
8     Annotations:  kubernetes.io/change-cause: kubectl set image deploy nginx
nginx=nginx:1.24 --record=true --namespace=yurisa
9     Containers:
10      nginx:
11       Image:      nginx:1.24
12       Port:      <none>
13       Host Port:  <none>
14       Environment:    <none>
15       Mounts:         <none>
16       Volumes:        <none>
17
18 # 查看一个不存在的版本
19
20 → ~ kubectl rollout history deploy nginx --revision=2 -n yurisa
21 error: unable to find the specified revision
22

```

添加一个错误的nginx版本，用于此次实验

```

1 → ~ kubectl set image deploy nginx nginx=nginx:89757ddd --record -n yurisa
2 Flag --record has been deprecated, --record will be removed in the future
3 deployment.apps/nginx image updated
4

```

查看Pod状态

```

1 → ~ kubectl get pod -n yurisa -owide

```

NAME	NOMINATED NODE	READY	STATUS	RESTARTS	AGE	IP
		NODE	READINESS GATES			
nginx-5f75b4c869-lvbmh	k8s.node1	0/1	ImagePullBackOff	0	4m32s	10.244.1.17
nginx-6bd7f599dd-jxqsl	k8s.node1	1/1	Running	0	18m	10.244.1.16
nginx-6bd7f599dd-k5md5	k8s.node2	1/1	Running	0	18m	10.244.2.17
nginx-6bd7f599dd-qcbjw	k8s.node2	1/1	Running	0	18m	10.244.2.16

```

7

```

8 # 发现更新的nginx镜像拉去失败

查看更新记录

```
1 → ~ kubectl rollout history deploy nginx -n yurisa
2 deployment.apps/nginx
3 REVISION  CHANGE-CAUSE
4 1          <none>
5 3          kubectl set image deploy nginx nginx=nginx:1.25 --record=true --
namespace=yurisa
6 4          kubectl set image deploy nginx nginx=nginx:1.24 --record=true --
namespace=yurisa
7 5          kubectl set image deploy nginx nginx=nginx:89757ddd --record=true --
namespace=yurisa
8
9
```

回复到指定的版本3.

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

查看nginx的版本号是否与记录一致

```
1 → ~ kubectl get deploy nginx -oyaml -n yurisa | grep image
2     kubernetes.io/change-cause: kubectl set image deploy nginx nginx=nginx:1.25 --
record=true
3     - image: nginx:1.25
4     imagePullPolicy: Always
5
6 # 回滚到制定的版本成功。
```

Deployment 扩容和缩容

- 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。

```
1 → ~ kubectl scale --replicas=5 deploy nginx -n yurisa
2 deployment.apps/nginx scaled
3
```

查看扩容结果:

```
1 → ~ kubectl get pod -n yurisa
2 NAME                                READY   STATUS              RESTARTS   AGE
3 nginx-5ff6c47455-7hthn             1/1    Running            1 (27h ago) 5d21h
4 nginx-5ff6c47455-hkv76             1/1    Running            1 (27h ago) 5d21h
5 nginx-5ff6c47455-l6b8t             0/1    ContainerCreating  0           7s
6 nginx-5ff6c47455-r6jzw             1/1    Running            1 (27h ago) 5d21h
7 nginx-5ff6c47455-ztcqf             0/1    ContainerCreating  0           7s
8
9 → ~ kubectl get pod -n yurisa
10 NAME                                READY   STATUS              RESTARTS   AGE
11 nginx-5ff6c47455-7hthn             1/1    Running            1 (27h ago) 5d21h
12 nginx-5ff6c47455-hkv76             1/1    Running            1 (27h ago) 5d21h
13 nginx-5ff6c47455-l6b8t             1/1    Running            0           27s
14 nginx-5ff6c47455-r6jzw             1/1    Running            1 (27h ago) 5d21h
15 nginx-5ff6c47455-ztcqf             1/1    Running            0           27s
16
```

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:

```
1 apiVersion: apps/v1
2 kind: Deployment
3 metadata:
4   annotations:
```

```
5     deployment.kubernetes.io/revision: "7"
6     kubernetes.io/change-cause: kubectl set image deploy nginx nginx=nginx:1.25 --
record=true
7     --namespace=yurisa
8     creationTimestamp: "2023-06-27T14:47:12Z"
9     generation: 16
10    labels:
11      app: nginx
12      title: web-server
13    name: nginx
14    namespace: yurisa
15    resourceVersion: "2441071"
16    uid: dd54ede7-87e6-4b5f-9872-77805c3eea14
17  spec:
18    progressDeadlineSeconds: 600
19    replicas: 2
20    revisionHistoryLimit: 10
21    selector:
22      matchLabels:
23        app: nginx
24    strategy:
25      rollingUpdate:
26        maxSurge: 25%
27        maxUnavailable: 25%
28      type: RollingUpdate
29  template:
30    metadata:
31      creationTimestamp: null
32      labels:
33        app: nginx
34    spec:
35      containers:
36      - image: nginx:1.25
37        imagePullPolicy: Always
38        name: nginx
39        resources:
40          limits:
41            cpu: 200m
42            memory: 128Mi
43          requests:
```

```

44         cpu: 10m
45         memory: 16Mi
46         terminationMessagePath: /dev/termination-log
47         terminationMessagePolicy: File
48     dnsPolicy: ClusterFirst
49     restartPolicy: Always
50     schedulerName: default-scheduler
51     securityContext: {}
52     terminationGracePeriodSeconds: 30
53 status:
54     availableReplicas: 2
55     conditions:
56     - lastTransitionTime: "2023-07-10T14:22:53Z"
57       lastUpdateTime: "2023-07-10T14:22:53Z"
58       message: Deployment has minimum availability.
59       reason: MinimumReplicasAvailable
60       status: "True"
61       type: Available
62     - lastTransitionTime: "2023-07-10T15:09:04Z"
63       lastUpdateTime: "2023-07-10T15:09:26Z"
64       message: ReplicaSet "nginx-69c798ff6f" has successfully progressed.
65       reason: NewReplicaSetAvailable
66       status: "True"
67       type: Progressing
68     observedGeneration: 16
69     readyReplicas: 2
70     replicas: 2
71     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

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

```

18 nginx-5ff6c47455-r6jzw 0/1 ContainerCreating 0 0s <none>
   k8s.node1 <none> <none>
19 nginx-6bd7f599dd-jxqs1 1/1 Running 0 22m 10.244.1.16
   k8s.node1 <none> <none>
20 nginx-6bd7f599dd-k5md5 1/1 Running 0 22m 10.244.2.17
   k8s.node2 <none> <none>
21 nginx-6bd7f599dd-qcbjw 1/1 Terminating 0 22m 10.244.2.16
   k8s.node2 <none> <none>
22 → ~ kubectl get pod -n yurisa -owide
23 NAME READY STATUS RESTARTS AGE IP
   NODE NOMINATED NODE READINESS GATES
24 nginx-5ff6c47455-7hthn 1/1 Running 0 20s 10.244.2.18
   k8s.node2 <none> <none>
25 nginx-5ff6c47455-r6jzw 0/1 ContainerCreating 0 1s <none>
   k8s.node1 <none> <none>
26 nginx-6bd7f599dd-jxqs1 1/1 Running 0 22m 10.244.1.16
   k8s.node1 <none> <none>
27 nginx-6bd7f599dd-k5md5 1/1 Running 0 22m 10.244.2.17
   k8s.node2 <none> <none>
28 nginx-6bd7f599dd-qcbjw 1/1 Terminating 0 22m 10.244.2.16
   k8s.node2 <none> <none>
29 → ~ kubectl get pod -n yurisa -owide
30 NAME READY STATUS RESTARTS AGE IP
   NODE NOMINATED NODE READINESS GATES
31 nginx-5ff6c47455-7hthn 1/1 Running 0 21s 10.244.2.18
   k8s.node2 <none> <none>
32 nginx-5ff6c47455-r6jzw 0/1 ContainerCreating 0 2s <none>
   k8s.node1 <none> <none>
33 nginx-6bd7f599dd-jxqs1 1/1 Running 0 22m 10.244.1.16
   k8s.node1 <none> <none>
34 nginx-6bd7f599dd-k5md5 1/1 Running 0 22m 10.244.2.17
   k8s.node2 <none> <none>
35 → ~ kubectl get pod -n yurisa -owide
36 NAME READY STATUS RESTARTS AGE IP
   NODE NOMINATED NODE READINESS GATES
37 nginx-5ff6c47455-7hthn 1/1 Running 0 22s 10.244.2.18
   k8s.node2 <none> <none>
38 nginx-5ff6c47455-r6jzw 0/1 ContainerCreating 0 3s <none>
   k8s.node1 <none> <none>
39 nginx-6bd7f599dd-jxqs1 1/1 Running 0 22m 10.244.1.16
   k8s.node1 <none> <none>
40 nginx-6bd7f599dd-k5md5 1/1 Running 0 22m 10.244.2.17
   k8s.node2 <none> <none>
41 → ~ kubectl get pod -n yurisa -owide
42 NAME READY STATUS RESTARTS AGE IP
   NODE NOMINATED NODE READINESS GATES

```

```

43 nginx-5ff6c47455-7hthn 1/1 Running 0 22s 10.244.2.18
   k8s.node2 <none> <none>
44 nginx-5ff6c47455-r6jzw 0/1 ContainerCreating 0 3s <none>
   k8s.node1 <none> <none>
45 nginx-6bd7f599dd-jxqs1 1/1 Running 0 22m 10.244.1.16
   k8s.node1 <none> <none>
46 nginx-6bd7f599dd-k5md5 1/1 Running 0 22m 10.244.2.17
   k8s.node2 <none> <none>
47 → ~ kubectl get pod -n yurisa -owide
48 NAME READY STATUS RESTARTS AGE IP
   NODE NOMINATED NODE READINESS GATES
49 nginx-5ff6c47455-7hthn 1/1 Running 0 23s 10.244.2.18
   k8s.node2 <none> <none>
50 nginx-5ff6c47455-r6jzw 0/1 ContainerCreating 0 4s <none>
   k8s.node1 <none> <none>
51 nginx-6bd7f599dd-jxqs1 1/1 Running 0 22m 10.244.1.16
   k8s.node1 <none> <none>
52 nginx-6bd7f599dd-k5md5 1/1 Running 0 22m 10.244.2.17
   k8s.node2 <none> <none>
53 → ~ kubectl get pod -n yurisa -owide
54 NAME READY STATUS RESTARTS AGE IP
   NODE NOMINATED NODE READINESS GATES
55 nginx-5ff6c47455-7hthn 1/1 Running 0 24s 10.244.2.18
   k8s.node2 <none> <none>
56 nginx-5ff6c47455-r6jzw 0/1 ContainerCreating 0 5s <none>
   k8s.node1 <none> <none>
57 nginx-6bd7f599dd-jxqs1 1/1 Running 0 22m 10.244.1.16
   k8s.node1 <none> <none>
58 nginx-6bd7f599dd-k5md5 1/1 Running 0 22m 10.244.2.17
   k8s.node2 <none> <none>
59 → ~ kubectl get pod -n yurisa -owide
60 NAME READY STATUS RESTARTS AGE IP
   NODE NOMINATED NODE READINESS GATES
61 nginx-5ff6c47455-7hthn 1/1 Running 0 25s 10.244.2.18
   k8s.node2 <none> <none>
62 nginx-5ff6c47455-r6jzw 0/1 ContainerCreating 0 6s <none>
   k8s.node1 <none> <none>
63 nginx-6bd7f599dd-jxqs1 1/1 Running 0 22m 10.244.1.16
   k8s.node1 <none> <none>
64 nginx-6bd7f599dd-k5md5 1/1 Running 0 22m 10.244.2.17
   k8s.node2 <none> <none>
65 → ~ kubectl get pod -n yurisa -owide
66 NAME READY STATUS RESTARTS AGE IP
   NODE NOMINATED NODE READINESS GATES
67 nginx-5ff6c47455-7hthn 1/1 Running 0 26s 10.244.2.18
   k8s.node2 <none> <none>

```



```

68 nginx-5ff6c47455-r6jzw    0/1    ContainerCreating    0          7s    <none>
   k8s.node1    <none>    <none>
69 nginx-6bd7f599dd-jxqs1    1/1    Running              0          22m    10.244.1.16
   k8s.node1    <none>    <none>
70 nginx-6bd7f599dd-k5md5    1/1    Running              0          22m    10.244.2.17
   k8s.node2    <none>    <none>
71 → ~ kubectl get pod -n yurisa -owide
72 NAME                                READY   STATUS              RESTARTS   AGE   IP
   NODE      NOMINATED NODE   READINESS GATES
73 nginx-5ff6c47455-7hthn    1/1    Running              0          27s    10.244.2.18
   k8s.node2    <none>    <none>
74 nginx-5ff6c47455-r6jzw    0/1    ContainerCreating    0          8s    <none>
   k8s.node1    <none>    <none>
75 nginx-6bd7f599dd-jxqs1    1/1    Running              0          22m    10.244.1.16
   k8s.node1    <none>    <none>
76 nginx-6bd7f599dd-k5md5    1/1    Running              0          22m    10.244.2.17
   k8s.node2    <none>    <none>
77 → ~ kubectl get pod -n yurisa -owide
78 NAME                                READY   STATUS              RESTARTS   AGE   IP
   NODE      NOMINATED NODE   READINESS GATES
79 nginx-5ff6c47455-7hthn    1/1    Running              0          27s    10.244.2.18
   k8s.node2    <none>    <none>
80 nginx-5ff6c47455-r6jzw    0/1    ContainerCreating    0          8s    <none>
   k8s.node1    <none>    <none>
81 nginx-6bd7f599dd-jxqs1    1/1    Running              0          22m    10.244.1.16
   k8s.node1    <none>    <none>
82 nginx-6bd7f599dd-k5md5    1/1    Running              0          22m    10.244.2.17
   k8s.node2    <none>    <none>
83 → ~ kubectl get pod -n yurisa -owide
84 NAME                                READY   STATUS              RESTARTS   AGE   IP
   NODE      NOMINATED NODE   READINESS GATES
85 nginx-5ff6c47455-7hthn    1/1    Running              0          28s    10.244.2.18
   k8s.node2    <none>    <none>
86 nginx-5ff6c47455-r6jzw    0/1    ContainerCreating    0          9s    <none>
   k8s.node1    <none>    <none>
87 nginx-6bd7f599dd-jxqs1    1/1    Running              0          22m    10.244.1.16
   k8s.node1    <none>    <none>
88 nginx-6bd7f599dd-k5md5    1/1    Running              0          22m    10.244.2.17
   k8s.node2    <none>    <none>
89 → ~ kubectl get pod -n yurisa -owide
90 NAME                                READY   STATUS              RESTARTS   AGE   IP
   NODE      NOMINATED NODE   READINESS GATES
91 nginx-5ff6c47455-7hthn    1/1    Running              0          29s    10.244.2.18
   k8s.node2    <none>    <none>
92 nginx-5ff6c47455-r6jzw    0/1    ContainerCreating    0          10s    <none>
   k8s.node1    <none>    <none>

```

```

93 nginx-6bd7f599dd-jxqs1 1/1 Running 0 22m 10.244.1.16
   k8s.node1 <none> <none>
94 nginx-6bd7f599dd-k5md5 1/1 Running 0 22m 10.244.2.17
   k8s.node2 <none> <none>
95 → ~ kubectl get pod -n yurisa -owide
96 NAME READY STATUS RESTARTS AGE IP
   NODE NOMINATED NODE READINESS GATES
97 nginx-5ff6c47455-7hthn 1/1 Running 0 30s 10.244.2.18
   k8s.node2 <none> <none>
98 nginx-5ff6c47455-r6jzw 0/1 ContainerCreating 0 11s <none>
   k8s.node1 <none> <none>
99 nginx-6bd7f599dd-jxqs1 1/1 Running 0 22m 10.244.1.16
   k8s.node1 <none> <none>
100 nginx-6bd7f599dd-k5md5 1/1 Running 0 22m 10.244.2.17
   k8s.node2 <none> <none>
101 → ~ kubectl get pod -n yurisa -owide
102 NAME READY STATUS RESTARTS AGE IP
   NODE NOMINATED NODE READINESS GATES
103 nginx-5ff6c47455-7hthn 1/1 Running 0 30s 10.244.2.18
   k8s.node2 <none> <none>
104 nginx-5ff6c47455-r6jzw 0/1 ContainerCreating 0 11s <none>
   k8s.node1 <none> <none>
105 nginx-6bd7f599dd-jxqs1 1/1 Running 0 22m 10.244.1.16
   k8s.node1 <none> <none>
106 nginx-6bd7f599dd-k5md5 1/1 Running 0 22m 10.244.2.17
   k8s.node2 <none> <none>
107 → ~ kubectl get pod -n yurisa -owide
108 NAME READY STATUS RESTARTS AGE IP
   NODE NOMINATED NODE READINESS GATES
109 nginx-5ff6c47455-7hthn 1/1 Running 0 31s 10.244.2.18
   k8s.node2 <none> <none>
110 nginx-5ff6c47455-r6jzw 0/1 ContainerCreating 0 12s <none>
   k8s.node1 <none> <none>
111 nginx-6bd7f599dd-jxqs1 1/1 Running 0 22m 10.244.1.16
   k8s.node1 <none> <none>
112 nginx-6bd7f599dd-k5md5 1/1 Running 0 22m 10.244.2.17
   k8s.node2 <none> <none>
113 → ~ kubectl get pod -n yurisa -owide
114 NAME READY STATUS RESTARTS AGE IP
   NODE NOMINATED NODE READINESS GATES
115 nginx-5ff6c47455-7hthn 1/1 Running 0 34s 10.244.2.18
   k8s.node2 <none> <none>
116 nginx-5ff6c47455-r6jzw 0/1 ContainerCreating 0 15s <none>
   k8s.node1 <none> <none>
117 nginx-6bd7f599dd-jxqs1 1/1 Running 0 22m 10.244.1.16
   k8s.node1 <none> <none>

```

```

118 nginx-6bd7f599dd-k5md5    1/1    Running    0        22m    10.244.2.17
    k8s.node2    <none>    <none>

119 → ~ kubectl get pod -n yurisa -owide

120 NAME                                READY   STATUS    RESTARTS   AGE    IP
    NODE                                NOMINATED NODE   READINESS GATES

121 nginx-5ff6c47455-7hthn    1/1     Running    0          34s    10.244.2.18
    k8s.node2    <none>    <none>

122 nginx-5ff6c47455-r6jzw    0/1     ContainerCreating    0          15s    <none>
    k8s.node1    <none>    <none>

123 nginx-6bd7f599dd-jxqs1    1/1     Running    0          22m    10.244.1.16
    k8s.node1    <none>    <none>

124 nginx-6bd7f599dd-k5md5    1/1     Running    0          22m    10.244.2.17
    k8s.node2    <none>    <none>

125 → ~ kubectl get pod -n yurisa -owide

126 NAME                                READY   STATUS    RESTARTS   AGE    IP
    NODE                                NOMINATED NODE   READINESS GATES

127 nginx-5ff6c47455-7hthn    1/1     Running    0          35s    10.244.2.18
    k8s.node2    <none>    <none>

128 nginx-5ff6c47455-r6jzw    0/1     ContainerCreating    0          16s    <none>
    k8s.node1    <none>    <none>

129 nginx-6bd7f599dd-jxqs1    1/1     Running    0          22m    10.244.1.16
    k8s.node1    <none>    <none>

130 nginx-6bd7f599dd-k5md5    1/1     Running    0          22m    10.244.2.17
    k8s.node2    <none>    <none>

131 → ~ kubectl get pod -n yurisa -owide

132 NAME                                READY   STATUS    RESTARTS   AGE    IP
    NODE                                NOMINATED NODE   READINESS GATES

133 nginx-5ff6c47455-7hthn    1/1     Running    0          36s    10.244.2.18
    k8s.node2    <none>    <none>

134 nginx-5ff6c47455-r6jzw    0/1     ContainerCreating    0          17s    <none>
    k8s.node1    <none>    <none>

135 nginx-6bd7f599dd-jxqs1    1/1     Running    0          22m    10.244.1.16
    k8s.node1    <none>    <none>

136 nginx-6bd7f599dd-k5md5    1/1     Running    0          22m    10.244.2.17
    k8s.node2    <none>    <none>

137 → ~ kubectl get pod -n yurisa -owide

138 NAME                                READY   STATUS    RESTARTS   AGE    IP
    NODE                                NOMINATED NODE   READINESS GATES

139 nginx-5ff6c47455-7hthn    1/1     Running    0          37s    10.244.2.18
    k8s.node2    <none>    <none>

140 nginx-5ff6c47455-r6jzw    0/1     ContainerCreating    0          18s    <none>
    k8s.node1    <none>    <none>

141 nginx-6bd7f599dd-jxqs1    1/1     Running    0          22m    10.244.1.16
    k8s.node1    <none>    <none>

142 nginx-6bd7f599dd-k5md5    1/1     Running    0          22m    10.244.2.17
    k8s.node2    <none>    <none>

```

143 → ~ kubectl get pod -n yurisa -owide

NAME	READY	STATUS	RESTARTS	AGE	IP
NOMINATED NODE	READINESS GATES				
nginx-5ff6c47455-7hthn k8s.node2	1/1 <none>	Running <none>	0	37s	10.244.2.18
nginx-5ff6c47455-hkv76 k8s.node2	0/1 <none>	ContainerCreating <none>	0	0s	<none>
nginx-5ff6c47455-r6jzw k8s.node1	1/1 <none>	Running <none>	0	18s	10.244.1.18
nginx-6bd7f599dd-jxqs1 k8s.node1	1/1 <none>	Running <none>	0	22m	10.244.1.16
nginx-6bd7f599dd-k5md5 k8s.node2	1/1 <none>	Terminating <none>	0	22m	10.244.2.17

150 → ~ kubectl get pod -n yurisa -owide

NAME	READY	STATUS	RESTARTS	AGE	IP
NOMINATED NODE	READINESS GATES				
nginx-5ff6c47455-7hthn k8s.node2	1/1 <none>	Running <none>	0	38s	10.244.2.18
nginx-5ff6c47455-hkv76 k8s.node2	0/1 <none>	ContainerCreating <none>	0	1s	<none>
nginx-5ff6c47455-r6jzw k8s.node1	1/1 <none>	Running <none>	0	19s	10.244.1.18
nginx-6bd7f599dd-jxqs1 k8s.node1	1/1 <none>	Running <none>	0	22m	10.244.1.16
nginx-6bd7f599dd-k5md5 k8s.node2	1/1 <none>	Terminating <none>	0	22m	10.244.2.17

157 → ~ kubectl get pod -n yurisa -owide

NAME	READY	STATUS	RESTARTS	AGE	IP
NOMINATED NODE	READINESS GATES				
nginx-5ff6c47455-7hthn k8s.node2	1/1 <none>	Running <none>	0	39s	10.244.2.18
nginx-5ff6c47455-hkv76 k8s.node2	0/1 <none>	ContainerCreating <none>	0	2s	<none>
nginx-5ff6c47455-r6jzw k8s.node1	1/1 <none>	Running <none>	0	20s	10.244.1.18
nginx-6bd7f599dd-jxqs1 k8s.node1	1/1 <none>	Running <none>	0	22m	10.244.1.16

163 → ~ kubectl get pod -n yurisa -owide

NAME	READY	STATUS	RESTARTS	AGE	IP
NOMINATED NODE	READINESS GATES				
nginx-5ff6c47455-7hthn k8s.node2	1/1 <none>	Running <none>	0	39s	10.244.2.18
nginx-5ff6c47455-hkv76 k8s.node2	0/1 <none>	ContainerCreating <none>	0	2s	<none>
nginx-5ff6c47455-r6jzw k8s.node1	1/1 <none>	Running <none>	0	20s	10.244.1.18

```

168 nginx-6bd7f599dd-jxqsl 1/1 Running 0 22m 10.244.1.16
    k8s.node1 <none> <none>
169 → ~ kubectl get pod -n yurisa -owide
170 NAME READY STATUS RESTARTS AGE IP
    NODE NOMINATED NODE READINESS GATES
171 nginx-5ff6c47455-7hthn 1/1 Running 0 40s 10.244.2.18
    k8s.node2 <none> <none>
172 nginx-5ff6c47455-hkv76 0/1 ContainerCreating 0 3s <none>
    k8s.node2 <none> <none>
173 nginx-5ff6c47455-r6jzw 1/1 Running 0 21s 10.244.1.18
    k8s.node1 <none> <none>
174 nginx-6bd7f599dd-jxqsl 1/1 Running 0 22m 10.244.1.16
    k8s.node1 <none> <none>
175 → ~ kubectl get pod -n yurisa -owide
176 NAME READY STATUS RESTARTS AGE IP
    NODE NOMINATED NODE READINESS GATES
177 nginx-5ff6c47455-7hthn 1/1 Running 0 41s 10.244.2.18
    k8s.node2 <none> <none>
178 nginx-5ff6c47455-hkv76 0/1 ContainerCreating 0 4s <none>
    k8s.node2 <none> <none>
179 nginx-5ff6c47455-r6jzw 1/1 Running 0 22s 10.244.1.18
    k8s.node1 <none> <none>
180 nginx-6bd7f599dd-jxqsl 1/1 Running 0 22m 10.244.1.16
    k8s.node1 <none> <none>
181 → ~ kubectl get pod -n yurisa -owide
182 NAME READY STATUS RESTARTS AGE IP
    NODE NOMINATED NODE READINESS GATES
183 nginx-5ff6c47455-7hthn 1/1 Running 0 42s 10.244.2.18
    k8s.node2 <none> <none>
184 nginx-5ff6c47455-hkv76 0/1 ContainerCreating 0 5s <none>
    k8s.node2 <none> <none>
185 nginx-5ff6c47455-r6jzw 1/1 Running 0 23s 10.244.1.18
    k8s.node1 <none> <none>
186 nginx-6bd7f599dd-jxqsl 1/1 Running 0 22m 10.244.1.16
    k8s.node1 <none> <none>
187 → ~ kubectl get pod -n yurisa -owide
188 NAME READY STATUS RESTARTS AGE IP
    NODE NOMINATED NODE READINESS GATES
189 nginx-5ff6c47455-7hthn 1/1 Running 0 43s 10.244.2.18
    k8s.node2 <none> <none>
190 nginx-5ff6c47455-hkv76 0/1 ContainerCreating 0 6s <none>
    k8s.node2 <none> <none>
191 nginx-5ff6c47455-r6jzw 1/1 Running 0 24s 10.244.1.18
    k8s.node1 <none> <none>
192 nginx-6bd7f599dd-jxqsl 1/1 Running 0 22m 10.244.1.16
    k8s.node1 <none> <none>

```

193 → ~ 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-jxqs1	1/1	Running	0	22m	10.244.1.16
k8s.node1	<none>	<none>			

199 → ~ 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-jxqs1	1/1	Running	0	22m	10.244.1.16
k8s.node1	<none>	<none>			

205 → ~ 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-jxqs1	1/1	Running	0	22m	10.244.1.16
k8s.node1	<none>	<none>			

211 → ~ 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-jxqs1	1/1	Running	0	22m	10.244.1.16
k8s.node1	<none>	<none>			

217 → ~ kubectl get pod -n yurisa -owide

218	NAME NODE	READY NOMINATED NODE	STATUS READINESS GATES	RESTARTS	AGE	IP
219	nginx-5ff6c47455-7hthn k8s.node2	1/1 <none>	Running <none>	0	46s	10.244.2.18
220	nginx-5ff6c47455-hkv76 k8s.node2	0/1 <none>	ContainerCreating <none>	0	9s	<none>
221	nginx-5ff6c47455-r6jzw k8s.node1	1/1 <none>	Running <none>	0	27s	10.244.1.18
222	nginx-6bd7f599dd-jxqsl k8s.node1	1/1 <none>	Running <none>	0	22m	10.244.1.16
223	→ ~ kubectl get pod -n yurisa -owide					
224	NAME NODE	READY NOMINATED NODE	STATUS READINESS GATES	RESTARTS	AGE	IP
225	nginx-5ff6c47455-7hthn k8s.node2	1/1 <none>	Running <none>	0	47s	10.244.2.18
226	nginx-5ff6c47455-hkv76 k8s.node2	0/1 <none>	ContainerCreating <none>	0	10s	<none>
227	nginx-5ff6c47455-r6jzw k8s.node1	1/1 <none>	Running <none>	0	28s	10.244.1.18
228	nginx-6bd7f599dd-jxqsl k8s.node1	1/1 <none>	Running <none>	0	22m	10.244.1.16
229	→ ~ kubectl get pod -n yurisa -owide					
230	NAME NODE	READY NOMINATED NODE	STATUS READINESS GATES	RESTARTS	AGE	IP
231	nginx-5ff6c47455-7hthn k8s.node2	1/1 <none>	Running <none>	0	48s	10.244.2.18
232	nginx-5ff6c47455-hkv76 k8s.node2	0/1 <none>	ContainerCreating <none>	0	11s	<none>
233	nginx-5ff6c47455-r6jzw k8s.node1	1/1 <none>	Running <none>	0	29s	10.244.1.18
234	nginx-6bd7f599dd-jxqsl k8s.node1	1/1 <none>	Running <none>	0	22m	10.244.1.16
235	→ ~ kubectl get pod -n yurisa -owide					
236	NAME NODE	READY NOMINATED NODE	STATUS READINESS GATES	RESTARTS	AGE	IP
237	nginx-5ff6c47455-7hthn k8s.node2	1/1 <none>	Running <none>	0	48s	10.244.2.18
238	nginx-5ff6c47455-hkv76 k8s.node2	0/1 <none>	ContainerCreating <none>	0	11s	<none>
239	nginx-5ff6c47455-r6jzw k8s.node1	1/1 <none>	Running <none>	0	29s	10.244.1.18
240	nginx-6bd7f599dd-jxqsl k8s.node1	1/1 <none>	Running <none>	0	22m	10.244.1.16
241	→ ~ kubectl get pod -n yurisa -owide					
242	NAME NODE	READY NOMINATED NODE	STATUS READINESS GATES	RESTARTS	AGE	IP

```
243 nginx-5ff6c47455-7hthn 1/1 Running 0 49s 10.244.2.18
    k8s.node2 <none> <none>
244 nginx-5ff6c47455-hkv76 0/1 ContainerCreating 0 12s <none>
    k8s.node2 <none> <none>
245 nginx-5ff6c47455-r6jzw 1/1 Running 0 30s 10.244.1.18
    k8s.node1 <none> <none>
246 nginx-6bd7f599dd-jxqsl 1/1 Running 0 22m 10.244.1.16
    k8s.node1 <none> <none>
247 → ~ kubectl get pod -n yurisa -owide
248 NAME READY STATUS RESTARTS AGE IP
    NODE NOMINATED NODE READINESS GATES
249 nginx-5ff6c47455-7hthn 1/1 Running 0 50s 10.244.2.18
    k8s.node2 <none> <none>
250 nginx-5ff6c47455-hkv76 0/1 ContainerCreating 0 13s <none>
    k8s.node2 <none> <none>
251 nginx-5ff6c47455-r6jzw 1/1 Running 0 31s 10.244.1.18
    k8s.node1 <none> <none>
252 nginx-6bd7f599dd-jxqsl 1/1 Running 0 22m 10.244.1.16
    k8s.node1 <none> <none>
253 → ~ kubectl get pod -n yurisa -owide
254 NAME READY STATUS RESTARTS AGE IP
    NODE NOMINATED NODE READINESS GATES
255 nginx-5ff6c47455-7hthn 1/1 Running 0 50s 10.244.2.18
    k8s.node2 <none> <none>
256 nginx-5ff6c47455-hkv76 0/1 ContainerCreating 0 13s <none>
    k8s.node2 <none> <none>
257 nginx-5ff6c47455-r6jzw 1/1 Running 0 31s 10.244.1.18
    k8s.node1 <none> <none>
258 nginx-6bd7f599dd-jxqsl 1/1 Running 0 22m 10.244.1.16
    k8s.node1 <none> <none>
259 → ~ kubectl get pod -n yurisa -owide
260 NAME READY STATUS RESTARTS AGE IP
    NODE NOMINATED NODE READINESS GATES
261 nginx-5ff6c47455-7hthn 1/1 Running 0 51s 10.244.2.18
    k8s.node2 <none> <none>
262 nginx-5ff6c47455-hkv76 0/1 ContainerCreating 0 14s <none>
    k8s.node2 <none> <none>
263 nginx-5ff6c47455-r6jzw 1/1 Running 0 32s 10.244.1.18
    k8s.node1 <none> <none>
264 nginx-6bd7f599dd-jxqsl 1/1 Running 0 22m 10.244.1.16
    k8s.node1 <none> <none>
265 → ~ kubectl get pod -n yurisa -owide
266 NAME READY STATUS RESTARTS AGE IP
    NODE NOMINATED NODE READINESS GATES
267 nginx-5ff6c47455-7hthn 1/1 Running 0 52s 10.244.2.18
    k8s.node2 <none> <none>
```



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268 nginx-5ff6c47455-hkv76    0/1    ContainerCreating    0        15s    <none>
    k8s.node2    <none>    <none>

269 nginx-5ff6c47455-r6jzw    1/1    Running              0        33s    10.244.1.18
    k8s.node1    <none>    <none>

270 nginx-6bd7f599dd-jxqs1    1/1    Running              0        22m    10.244.1.16
    k8s.node1    <none>    <none>

271 → ~ kubectl get pod -n yurisa -owide

272 NAME                                READY   STATUS              RESTARTS   AGE   IP
    NODE            NOMINATED NODE   READINESS GATES

273 nginx-5ff6c47455-7hthn    1/1    Running              0        52s    10.244.2.18
    k8s.node2    <none>    <none>

274 nginx-5ff6c47455-hkv76    0/1    ContainerCreating    0        15s    <none>
    k8s.node2    <none>    <none>

275 nginx-5ff6c47455-r6jzw    1/1    Running              0        33s    10.244.1.18
    k8s.node1    <none>    <none>

276 nginx-6bd7f599dd-jxqs1    1/1    Running              0        22m    10.244.1.16
    k8s.node1    <none>    <none>

277 → ~ kubectl get pod -n yurisa -owide

278 NAME                                READY   STATUS              RESTARTS   AGE   IP
    NODE            NOMINATED NODE   READINESS GATES

279 nginx-5ff6c47455-7hthn    1/1    Running              0        53s    10.244.2.18
    k8s.node2    <none>    <none>

280 nginx-5ff6c47455-hkv76    0/1    ContainerCreating    0        16s    <none>
    k8s.node2    <none>    <none>

281 nginx-5ff6c47455-r6jzw    1/1    Running              0        34s    10.244.1.18
    k8s.node1    <none>    <none>

282 nginx-6bd7f599dd-jxqs1    1/1    Running              0        22m    10.244.1.16
    k8s.node1    <none>    <none>

283 → ~ kubectl get pod -n yurisa -owide

284 NAME                                READY   STATUS              RESTARTS   AGE   IP
    NODE            NOMINATED NODE   READINESS GATES

285 nginx-5ff6c47455-7hthn    1/1    Running              0        54s    10.244.2.18
    k8s.node2    <none>    <none>

286 nginx-5ff6c47455-hkv76    0/1    ContainerCreating    0        17s    <none>
    k8s.node2    <none>    <none>

287 nginx-5ff6c47455-r6jzw    1/1    Running              0        35s    10.244.1.18
    k8s.node1    <none>    <none>

288 nginx-6bd7f599dd-jxqs1    1/1    Running              0        22m    10.244.1.16
    k8s.node1    <none>    <none>

289 → ~ kubectl get pod -n yurisa -owide

290 NAME                                READY   STATUS              RESTARTS   AGE   IP
    NODE            NOMINATED NODE   READINESS GATES

291 nginx-5ff6c47455-7hthn    1/1    Running              0        55s    10.244.2.18
    k8s.node2    <none>    <none>

292 nginx-5ff6c47455-hkv76    0/1    ContainerCreating    0        18s    <none>
    k8s.node2    <none>    <none>

```

```

293 nginx-5ff6c47455-r6jzw 1/1 Running 0 36s 10.244.1.18
    k8s.node1 <none> <none>
294 nginx-6bd7f599dd-jxqs1 1/1 Running 0 22m 10.244.1.16
    k8s.node1 <none> <none>
295 → ~ kubectl get pod -n yurisa -owide
296 NAME READY STATUS RESTARTS AGE IP NODE
    NOMINATED NODE READINESS GATES
297 nginx-5ff6c47455-7hthn 1/1 Running 0 55s 10.244.2.18
    k8s.node2 <none> <none>
298 nginx-5ff6c47455-hkv76 1/1 Running 0 18s 10.244.2.19
    k8s.node2 <none> <none>
299 nginx-5ff6c47455-r6jzw 1/1 Running 0 36s 10.244.1.18
    k8s.node1 <none> <none>
300 nginx-6bd7f599dd-jxqs1 1/1 Terminating 0 22m 10.244.1.16
    k8s.node1 <none> <none>
301 → ~ kubectl get pod -n yurisa -owide
302 NAME READY STATUS RESTARTS AGE IP NODE
    NOMINATED NODE READINESS GATES
303 nginx-5ff6c47455-7hthn 1/1 Running 0 56s 10.244.2.18 k8s.node2
    <none> <none>
304 nginx-5ff6c47455-hkv76 1/1 Running 0 19s 10.244.2.19 k8s.node2
    <none> <none>
305 nginx-5ff6c47455-r6jzw 1/1 Running 0 37s 10.244.1.18 k8s.node1
    <none> <none>
306 → ~ kubectl get pod -n yurisa -owide
307 NAME READY STATUS RESTARTS AGE IP NODE
    NOMINATED NODE READINESS GATES
308 nginx-5ff6c47455-7hthn 1/1 Running 0 57s 10.244.2.18 k8s.node2
    <none> <none>
309 nginx-5ff6c47455-hkv76 1/1 Running 0 20s 10.244.2.19 k8s.node2
    <none> <none>
310 nginx-5ff6c47455-r6jzw 1/1 Running 0 38s 10.244.1.18 k8s.node1
    <none> <none>
311 → ~ kubectl get pod -n yurisa -owide
312 NAME READY STATUS RESTARTS AGE IP NODE
    NOMINATED NODE READINESS GATES
313 nginx-5ff6c47455-7hthn 1/1 Running 0 58s 10.244.2.18 k8s.node2
    <none> <none>
314 nginx-5ff6c47455-hkv76 1/1 Running 0 21s 10.244.2.19 k8s.node2
    <none> <none>
315 nginx-5ff6c47455-r6jzw 1/1 Running 0 39s 10.244.1.18 k8s.node1
    <none> <none>
316
317
318 # 版本由1.24变更到1.25的整个过程。

```

