



A CLOUD GURU

K8s Deployments Overview



Will Boyd

DEVOPS TRAINING ARCHITECT

LESSON BREAKDOWN

K8s Deployments Overview

What Is a Deployment?

Desired State

Use Cases

Hands-On Demonstration

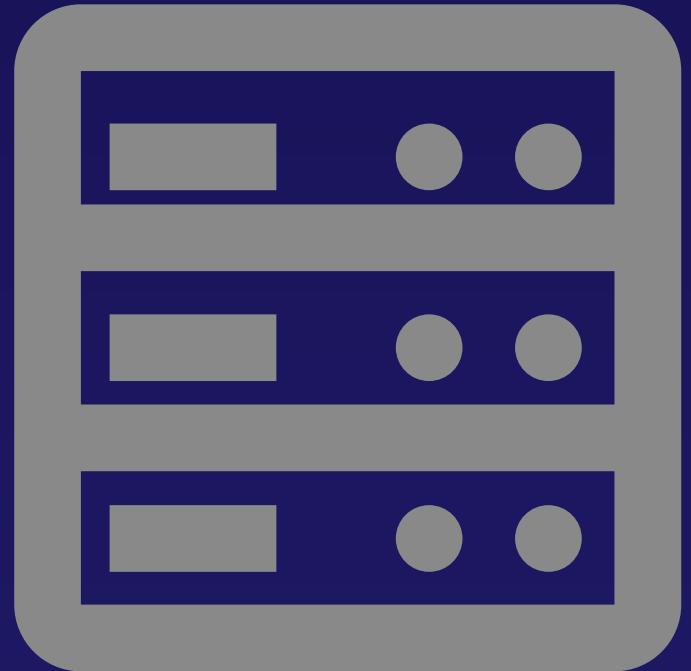
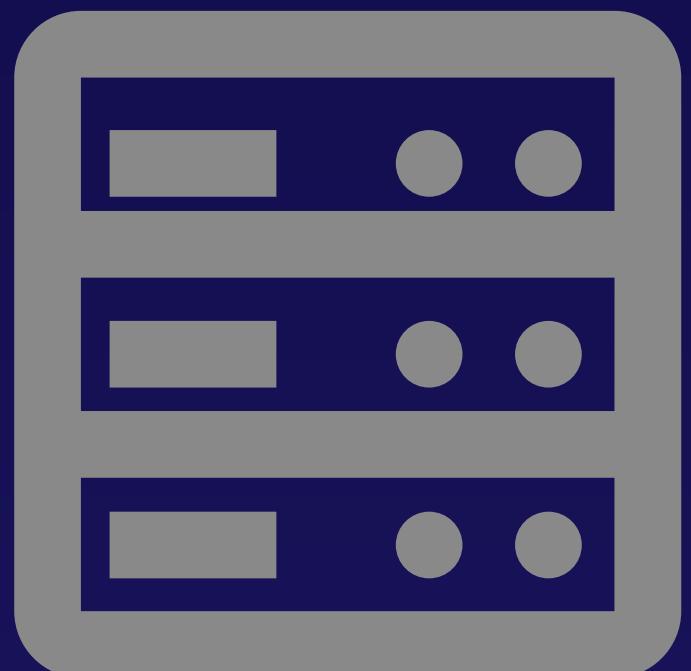
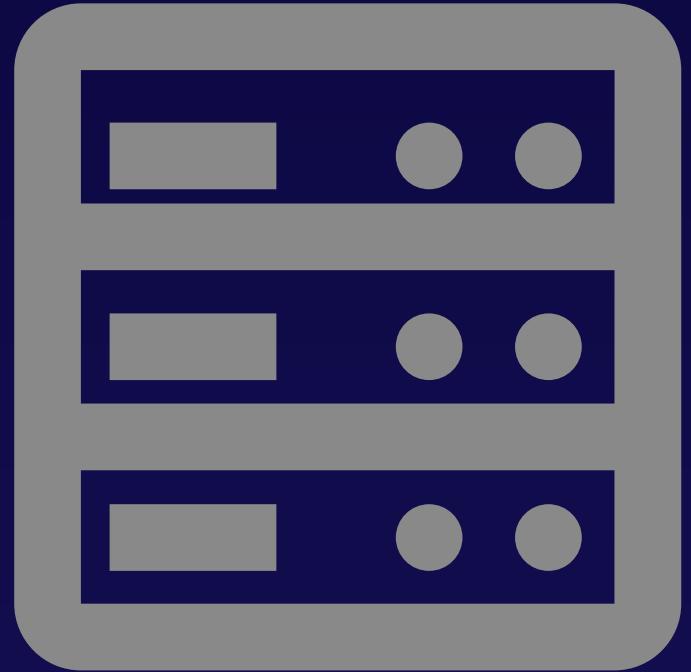


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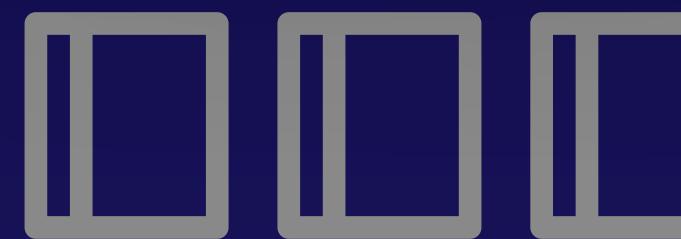
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What Is a Deployment?



Deployment
(with 3 replicas)



Deployment

A K8s object that defines a **desired state** for a ReplicaSet (a set of replica Pods). The Deployment Controller seeks to maintain the desired state by creating, deleting, and replacing Pods with new configurations.



A Deployment's Desired State Includes...

1

replicas

The number of replica Pods the Deployment will seek to maintain

2

selector

A label selector used to identify the replica Pods managed by the Deployment

3

template

A template Pod definition used to create replica Pods

Use Cases

There are many use cases for Deployments, such as:

- Easily scale an application up or down by changing the number of replicas.
- Perform rolling updates to deploy a new software version.
- Roll back to a previous software version.

Hands-On Demonstration

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Scaling Applications with Deployments



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LESSON BREAKDOWN

Scaling Applications with Deployments

What Is Scaling?

Deployment Scaling

How to Scale a Deployment

Hands-On Demonstration



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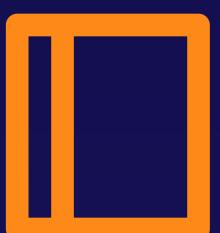
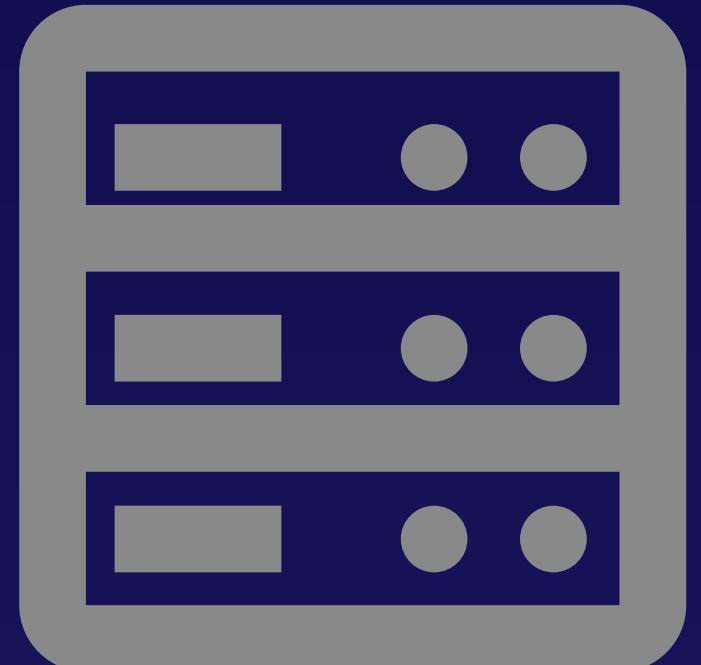
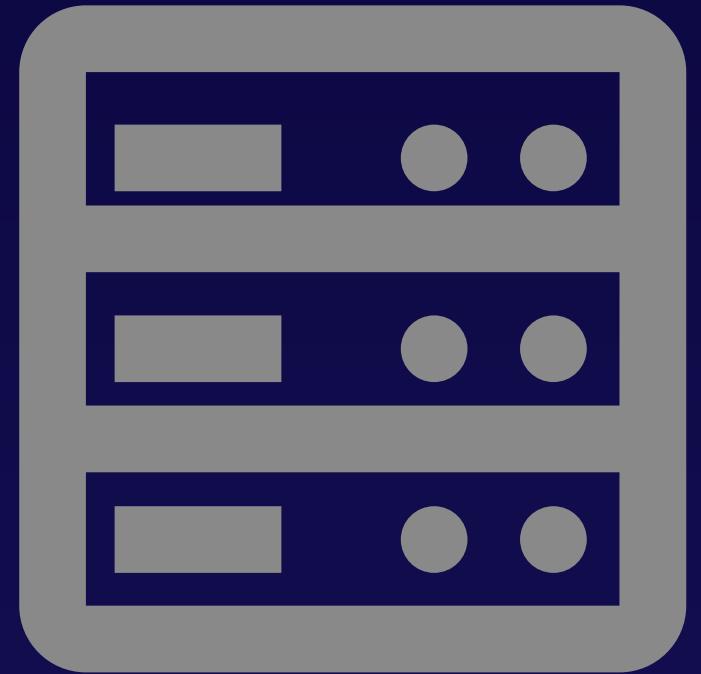


What Is Scaling?

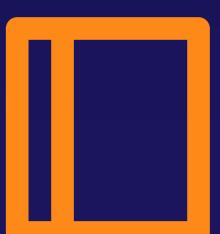
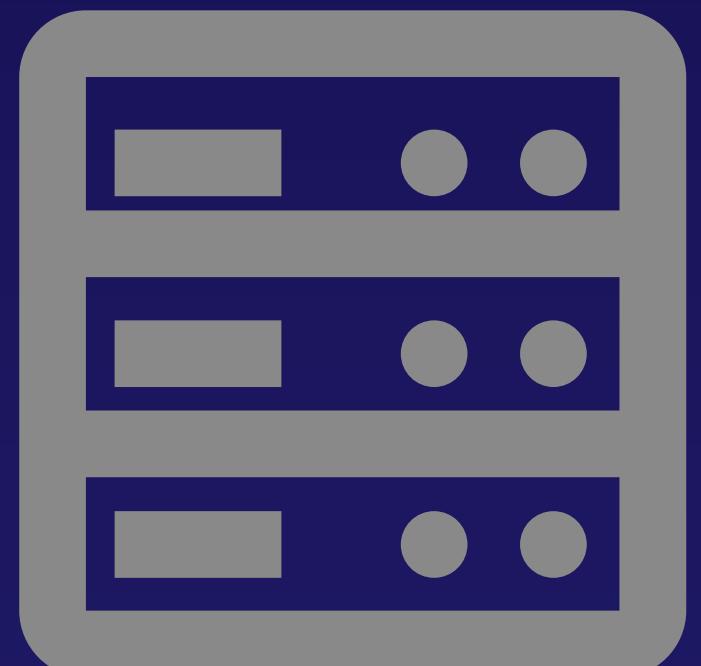
Scaling refers to dedicating more (or fewer) resources to an application in order to meet changing needs.

K8s Deployments are very useful in **horizontal scaling**, which involves changing the number of containers running an application.

Deployment Scaling



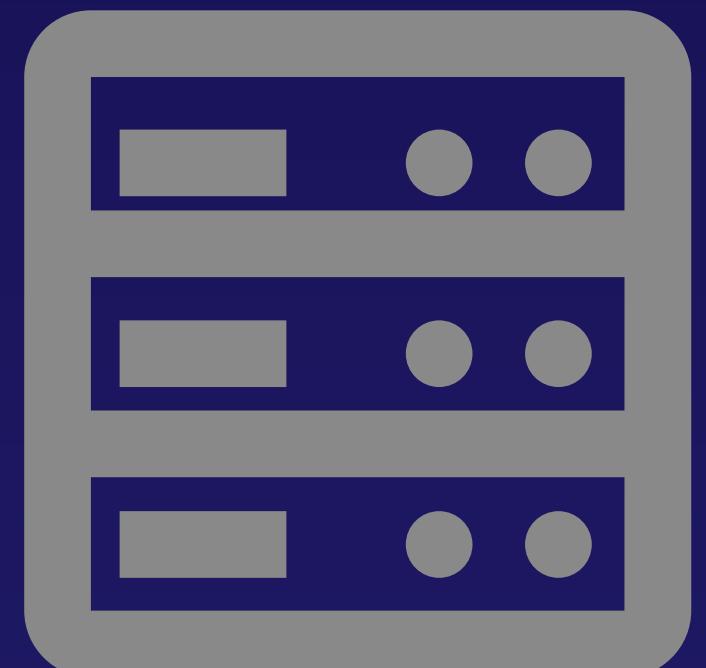
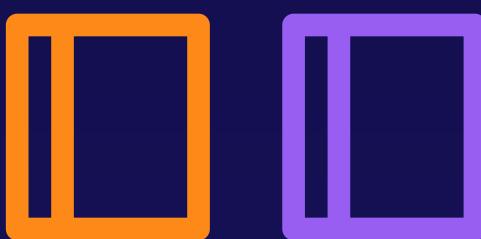
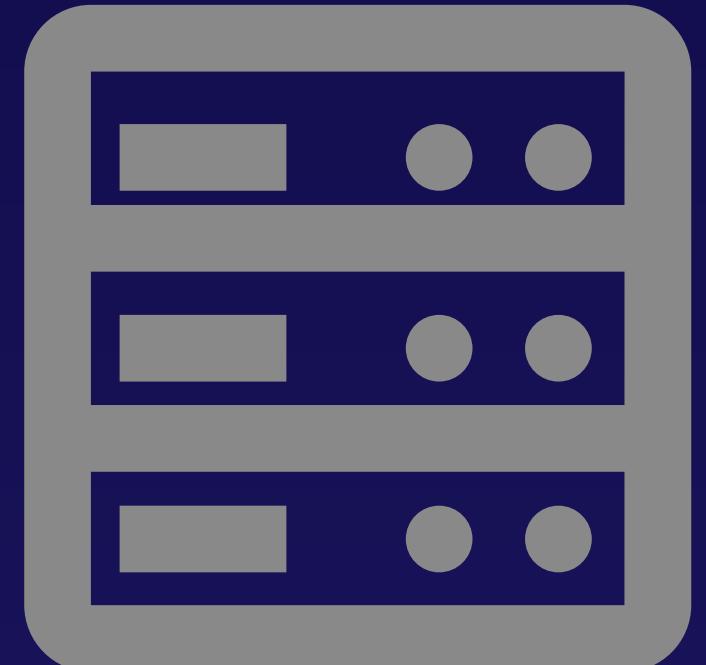
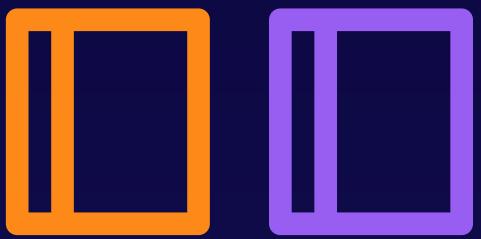
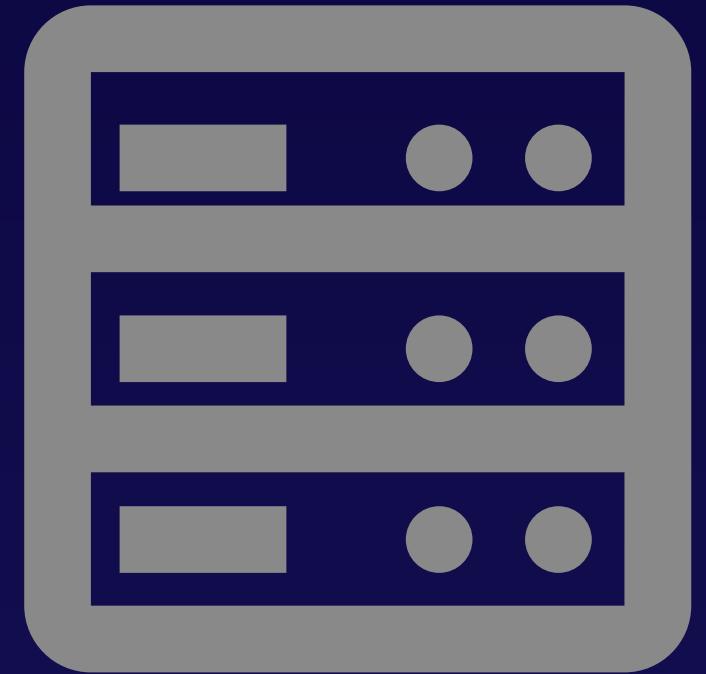
Deployment
Replicas: 3



Deployment Scaling

The Deployment's **replicas** setting determines how many replicas are desired in its desired state. If the **replicas** number is changed, replica Pods will be created or deleted to satisfy the new number.

Deployment Scaling

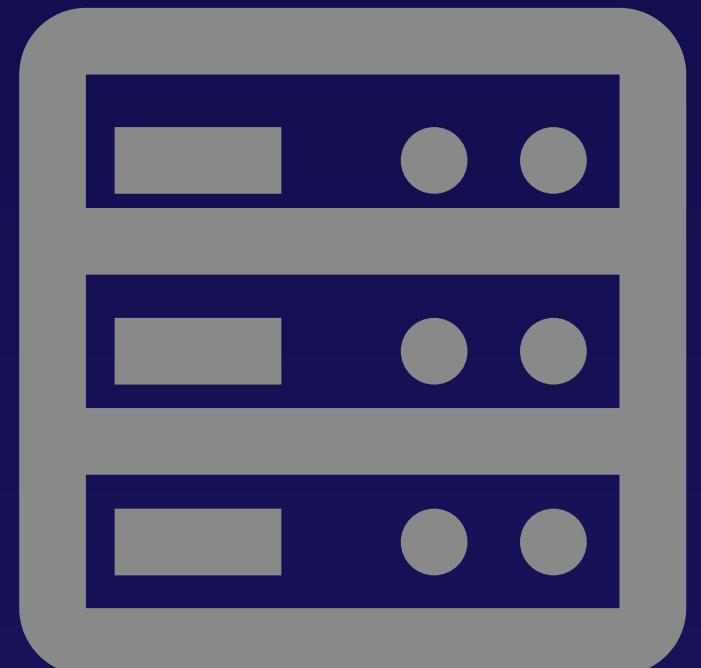
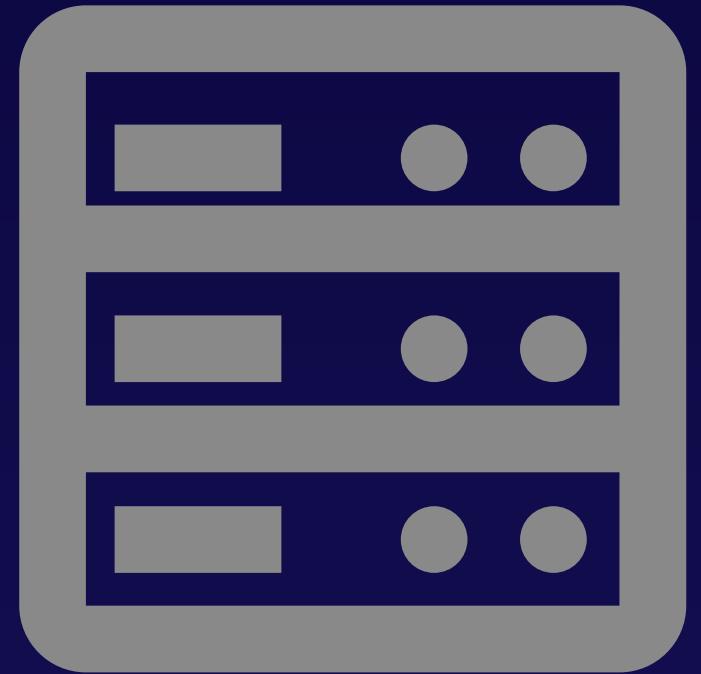


Deployment
Replicas: 5

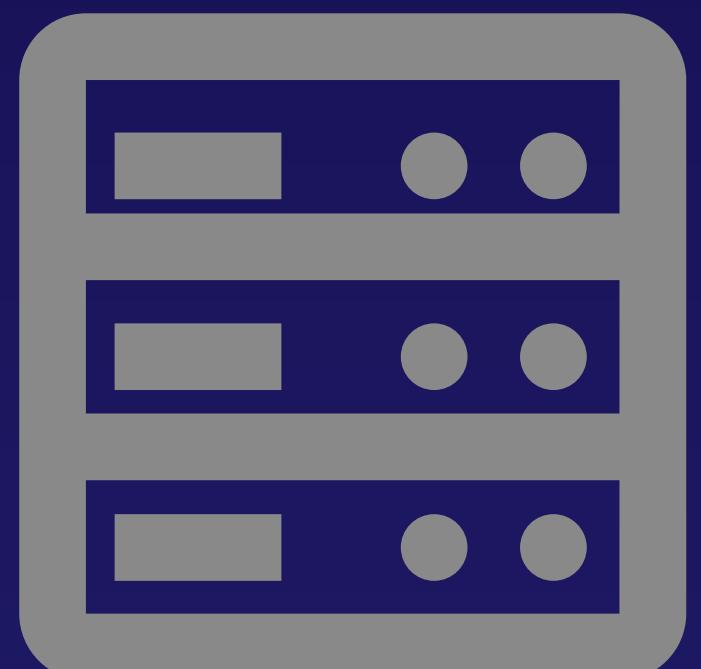
Deployment Scaling

The Deployment's **replicas** setting determines how many replicas are desired in its desired state. If the **replicas** number is changed, replica Pods will be created or deleted to satisfy the new number.

Deployment Scaling



Deployment
Replicas: 2



Deployment Scaling

The Deployment's **replicas** setting determines how many replicas are desired in its desired state. If the **replicas** number is changed, replica Pods will be created or deleted to satisfy the new number.

How to Scale a Deployment

Edit YAML

You can scale a deployment simply by changing the number of **replicas** in the YAML descriptor with **kubectl apply** or **kubectl edit**.

```
...  
spec:  
  replicas: 5  
...
```

kubectl scale

Or use the special **kubectl scale** command.

```
$ kubectl scale \  
  deployment.v1.apps/my-deployment \  
  --replicas=5
```

Hands-On Demonstration

LESSON BREAKDOWN

Scaling Applications with Deployments

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Managing Rolling Updates with Deployments



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LESSON BREAKDOWN

Managing Rolling Updates with Deployments

What Is a Rolling Update?

What Is a Rollback?

Hands-On Demonstration



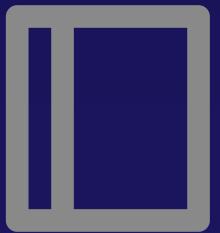
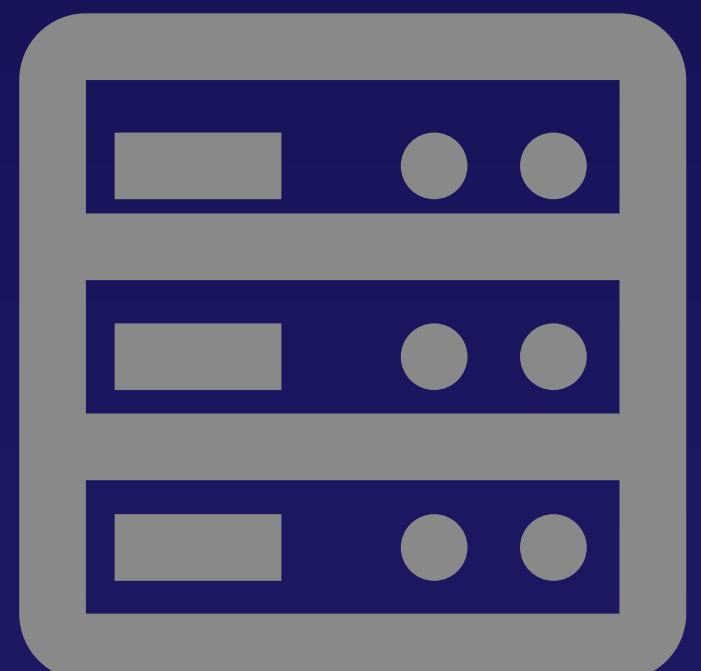
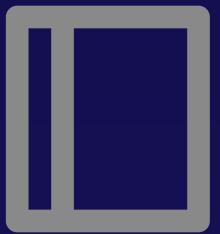
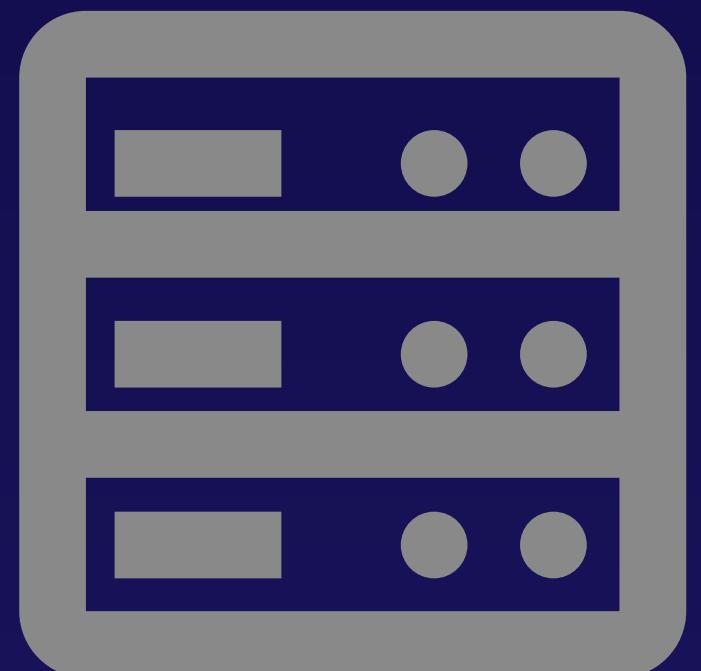
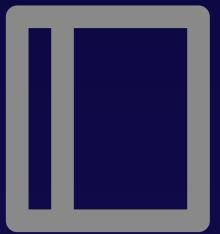
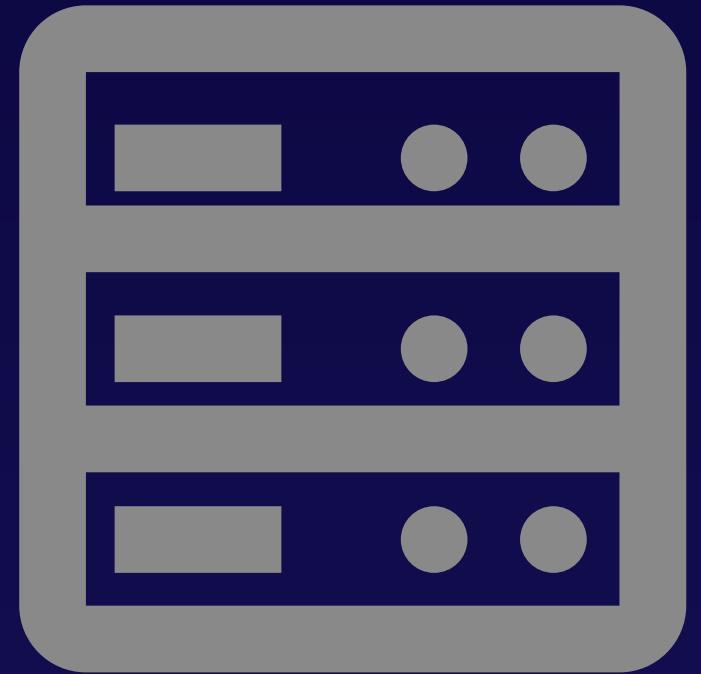
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What Is a Rolling Update?



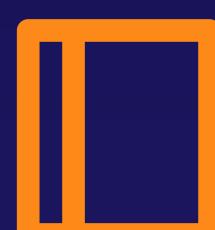
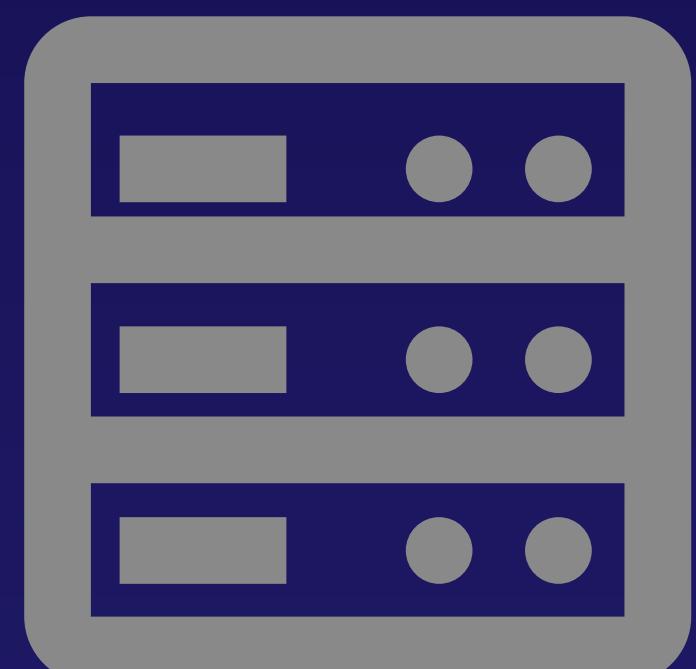
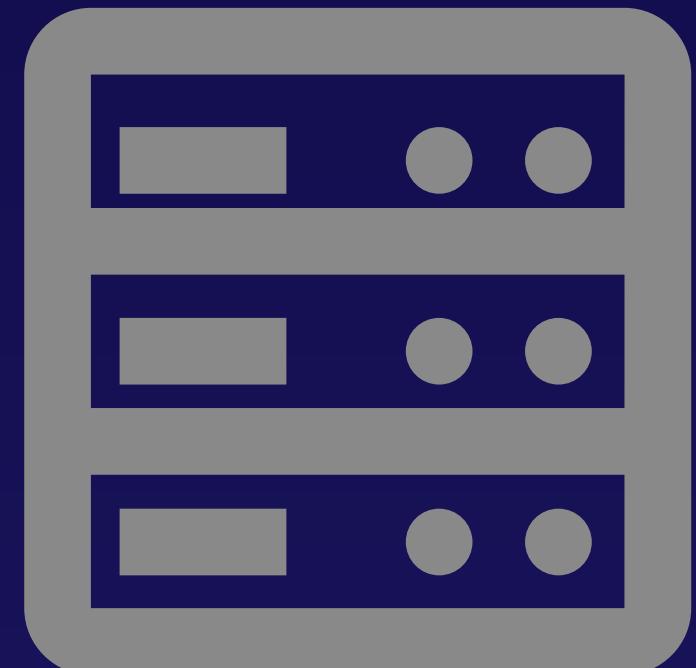
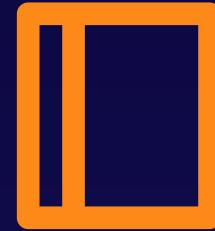
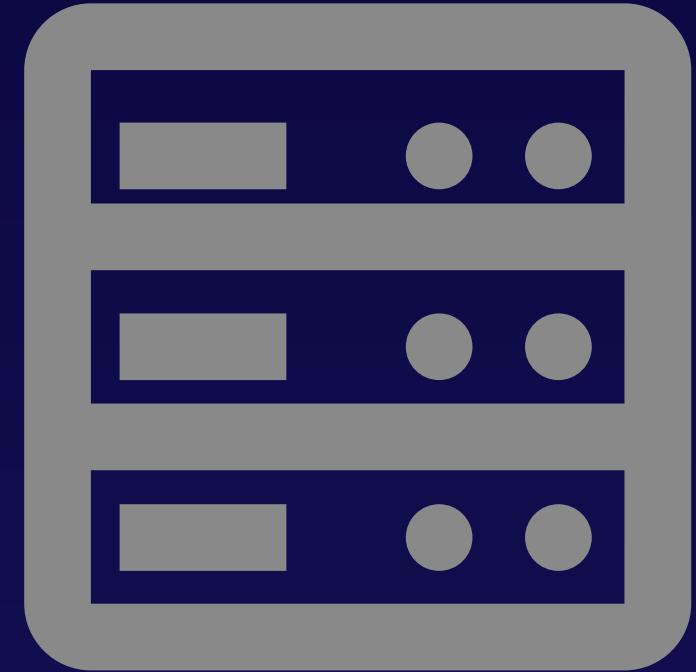
Deployment



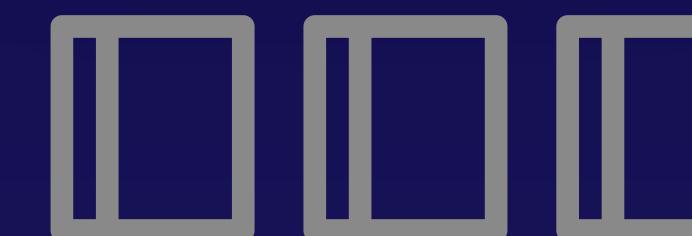
Rolling Update

Rolling updates allow you to make changes to a Deployment's Pods at a controlled rate, gradually replacing old Pods with new Pods. This allows you to update your Pods without incurring downtime.

What Is a Rollback?



Deployment



Rollback

If an update to a deployment causes a problem, you can **roll back** the deployment to a previous working state.

Hands-On Demonstration

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Managing Rolling Updates with Deployments

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