



A CLOUD GURU

Exploring K8s Scheduling



Will Boyd

DEVOPS TRAINING ARCHITECT

LESSON BREAKDOWN

Exploring K8s Scheduling

What Is Scheduling?

Scheduling Process

nodeSelector

nodeName

Hands-On Demonstration

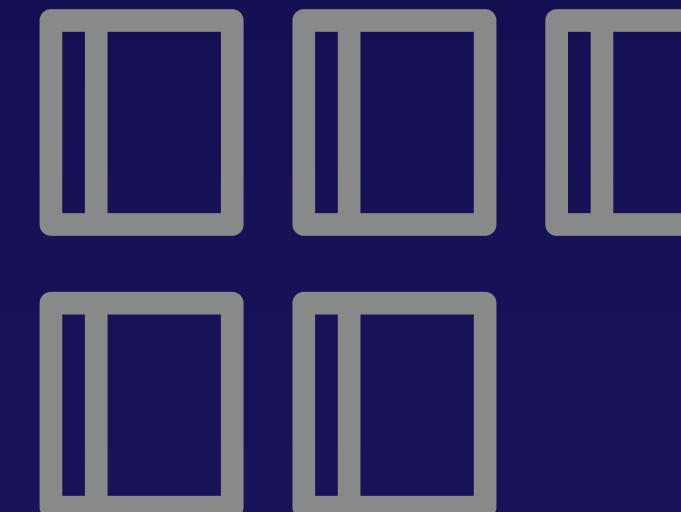
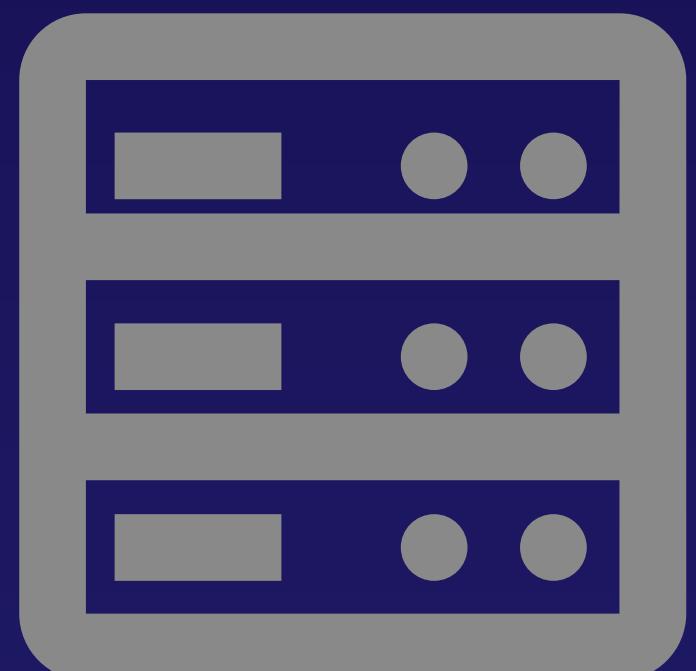
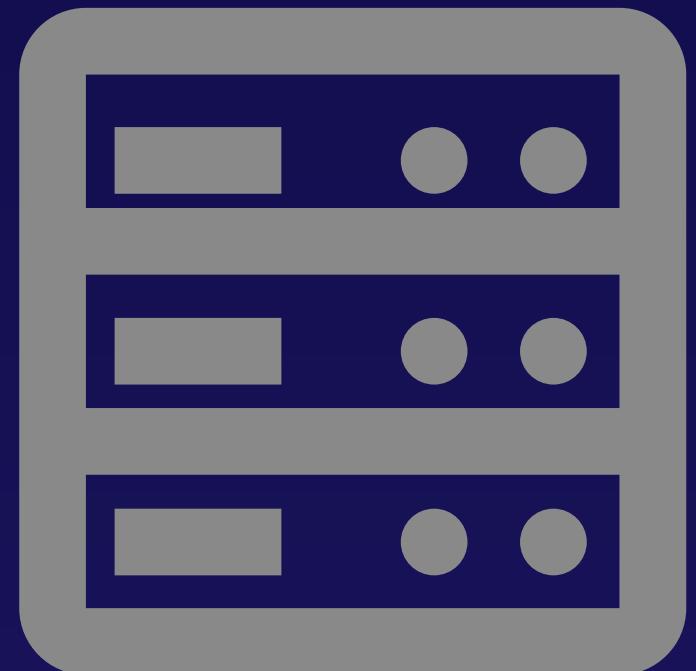
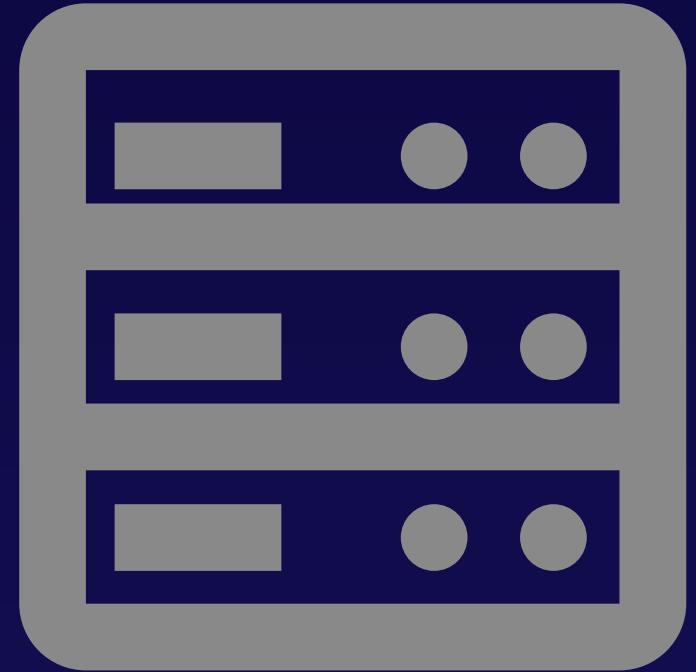


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What Is Scheduling?



Scheduling

The process of assigning Pods to Nodes so kubelets can run them

Scheduler

Control plane component that handles scheduling

M	T	W	T	F	S	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				



Scheduling Process

The Kubernetes scheduler selects a suitable Node for each Pod. It takes into account things like:

- Resource requests vs. available node resources
- Various configurations that affect scheduling using node labels

nodeSelector

You can configure a **nodeSelector** for your Pods to limit which Node(s) the Pod can be scheduled on.

Node selectors use node labels to filter suitable nodes.

```
apiVersion: v1
kind: Pod
metadata:
  name: nginx
spec:
  containers:
  - name: nginx
    image: nginx
  nodeSelector:
    mylabel: myvalue
```

nodeName

You can bypass scheduling and assign a Pod to a specific Node by name using `nodeName`.

```
apiVersion: v1
kind: Pod
metadata:
  name: nginx
spec:
  containers:
  - name: nginx
    image: nginx
  nodeName: k8s-worker1
```

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Using DaemonSets



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Using DaemonSets

What Is a DaemonSet?

DaemonSets and Scheduling

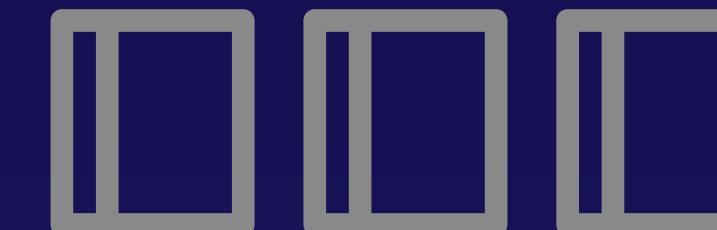
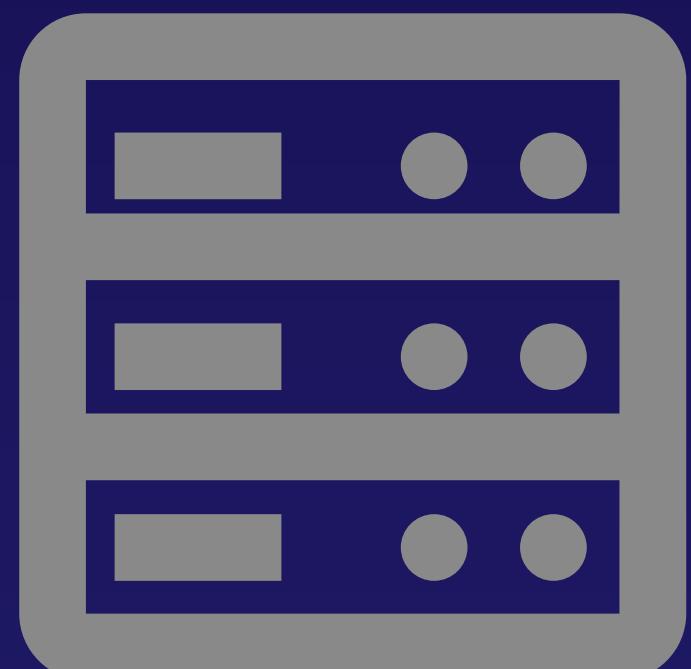
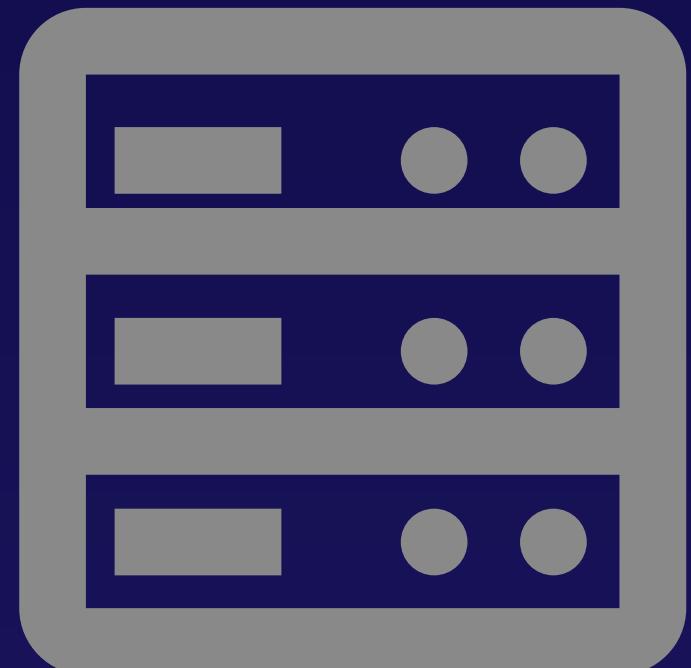
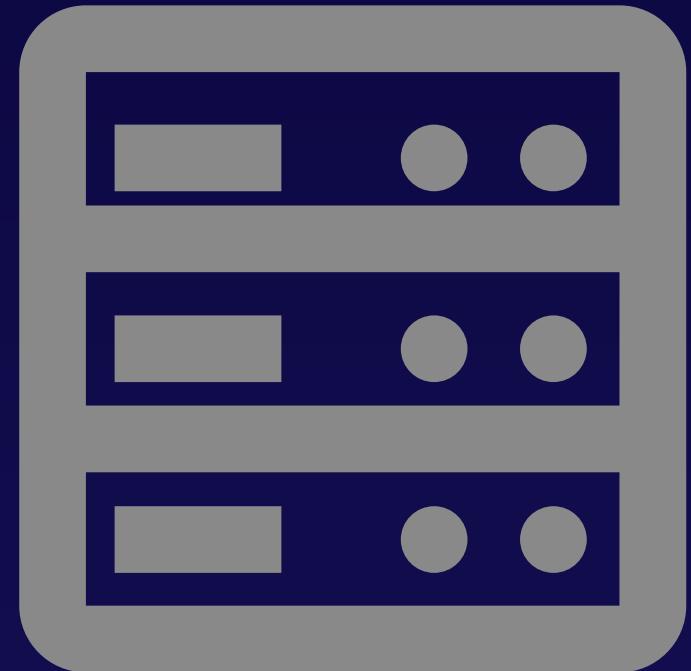
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DaemonSet

Automatically runs a copy of a Pod on each node.

DaemonSets will run a copy of the Pod on new nodes as they are added to the cluster.

DaemonSets and Scheduling

DaemonSets respect normal scheduling rules around node labels, taints, and tolerations. If a pod would not normally be scheduled on a node, a DaemonSet will not create a copy of the Pod on that Node.

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Using Static Pods



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Using Static Pods

What Is a Static Pod?

Mirror Pods

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What Is a Static Pod?

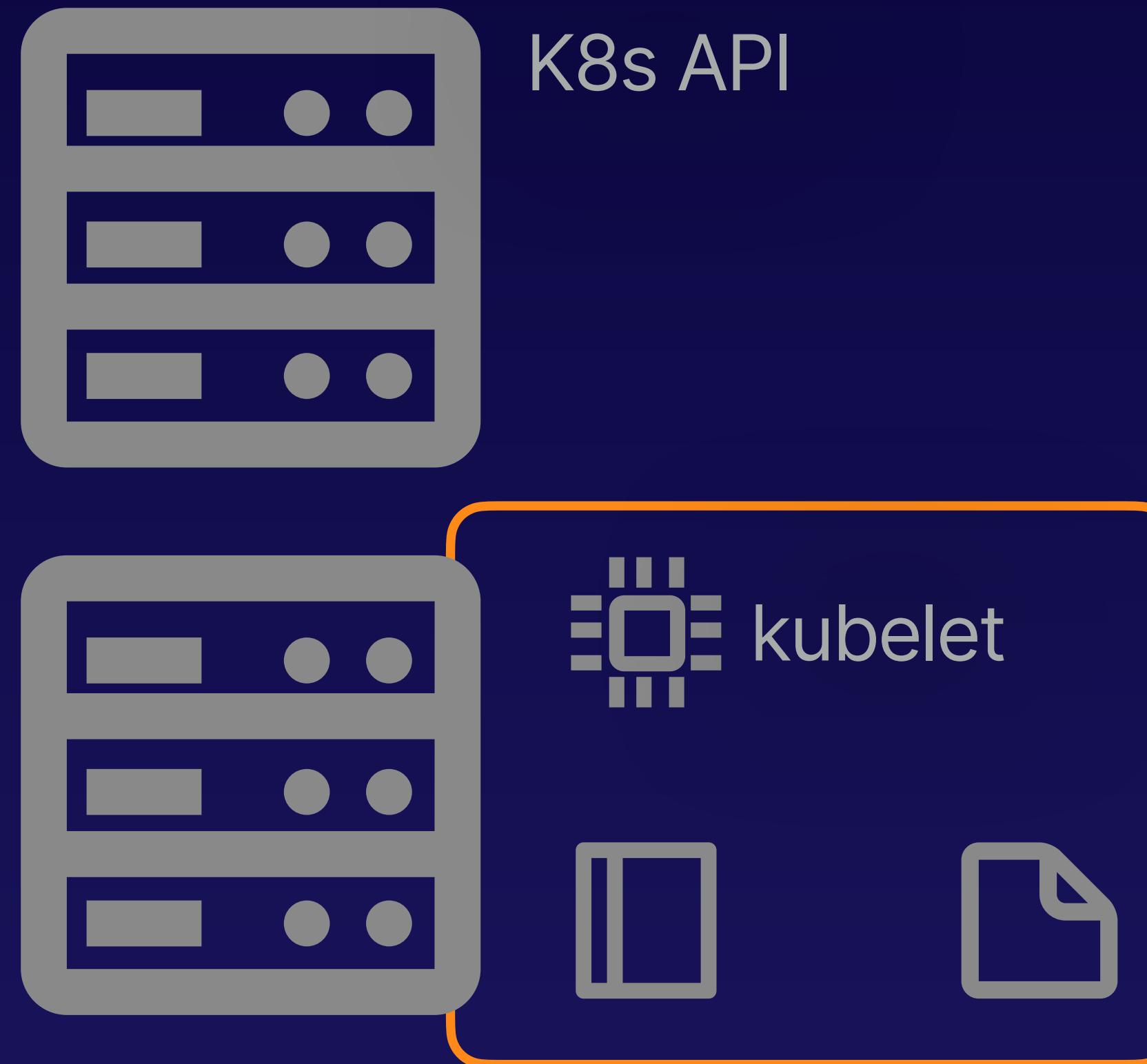


Static Pod

A Pod that is managed directly by the kubelet on a node, not by the K8s API server. They can run even if there is no K8s API server present.

Kubelet automatically creates static Pods from YAML manifest files located in the manifest path on the node.

Mirror Pods



Mirror Pods

Kubelet will create a **mirror Pod** for each static Pod. Mirror Pods allow you to see the status of the static Pod via the K8s API, but you cannot change or manage them via the API.

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