



# Certified Kubernetes Application Developer

Webinar Series 2/3



Session duration: 4:00 PM to 5:50 PM

## Online Meeting Rules

- If not muted, mute yourself.
- Ask your questions in the chat window.
- Use mic if you are explicitly asked.
- If you want to show something, we will make you a presenter
- If you like you can activate your camera. We love to see you all 😊
- Please do not spam the chat window.
- Do not post inappropriate content.
- Have a fun. 😊





# Azure Meetup

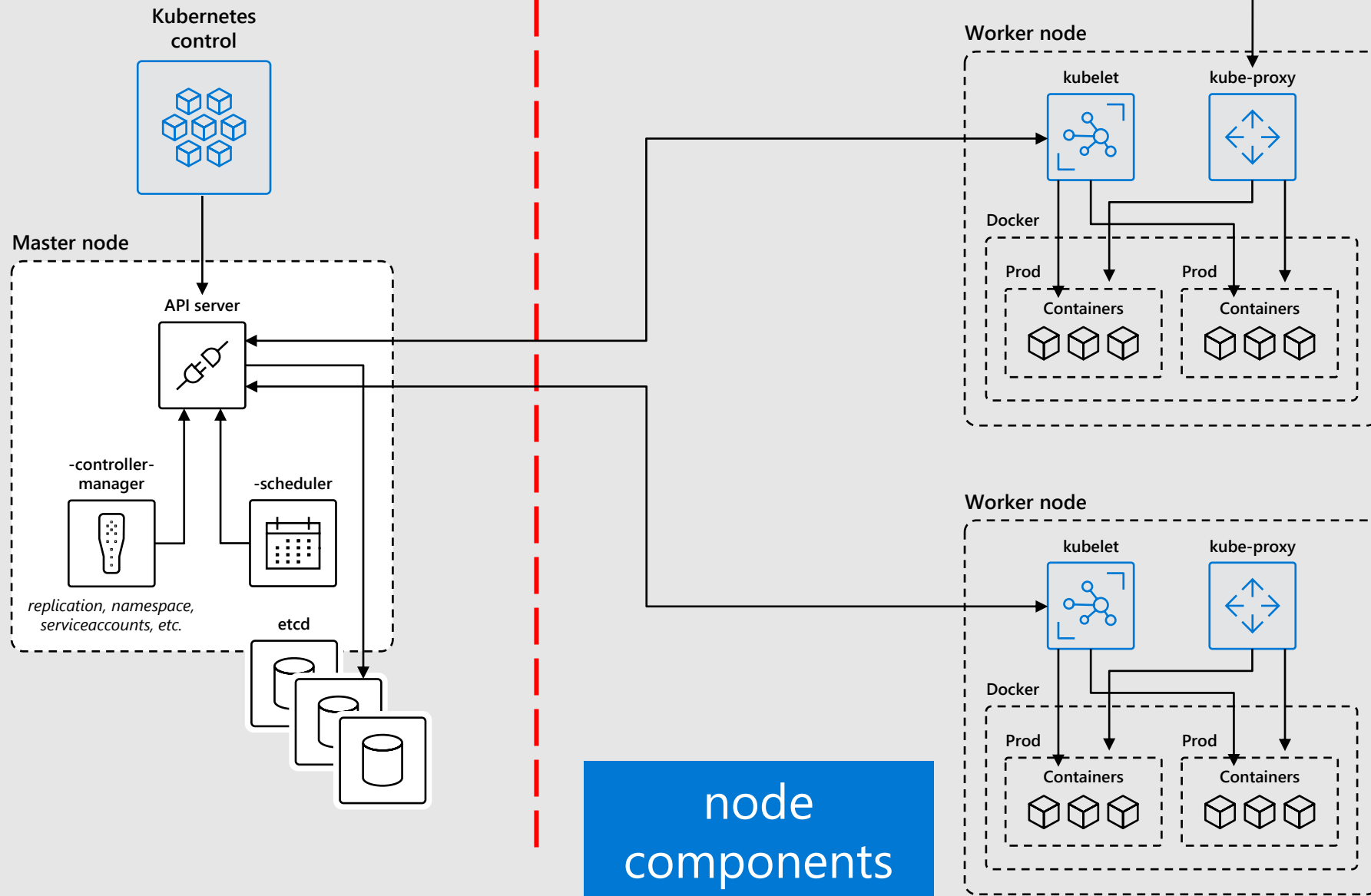
## FRANKFURT



DEVELOPERS.DE

Architektur

# Kubernetes Architecture



master  
components

node  
components

# YAML

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: nginx-deployment
  labels:
    app: nginx
spec:
  replicas: 3
  selector:
    matchLabels:
      app: nginx
  spec:
    containers:
      - name: nginx
        image: nginx:1.7.9
        ports:
          - containerPort: 80
```

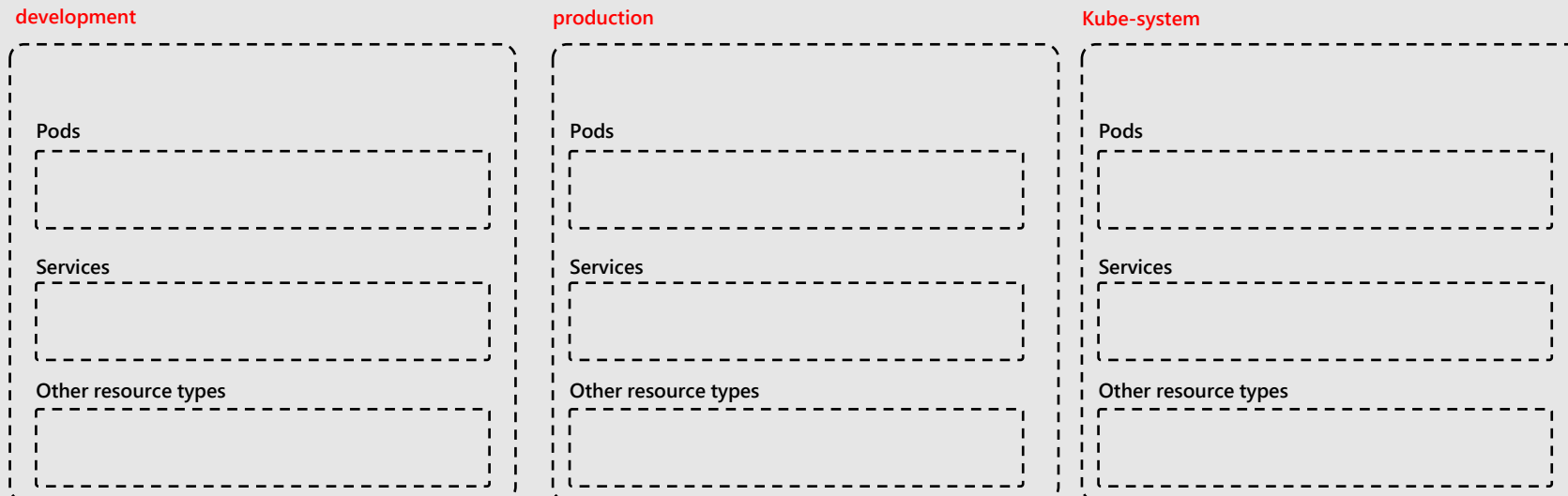
# Namespaces

# Namespaces

Logical Container for Kubernetes Resources.

- Provides Scope for Names
- Support RBAC Management
- default is used when none specified

Commands are scoped to the namespace, except if the --all-namespaces option is used

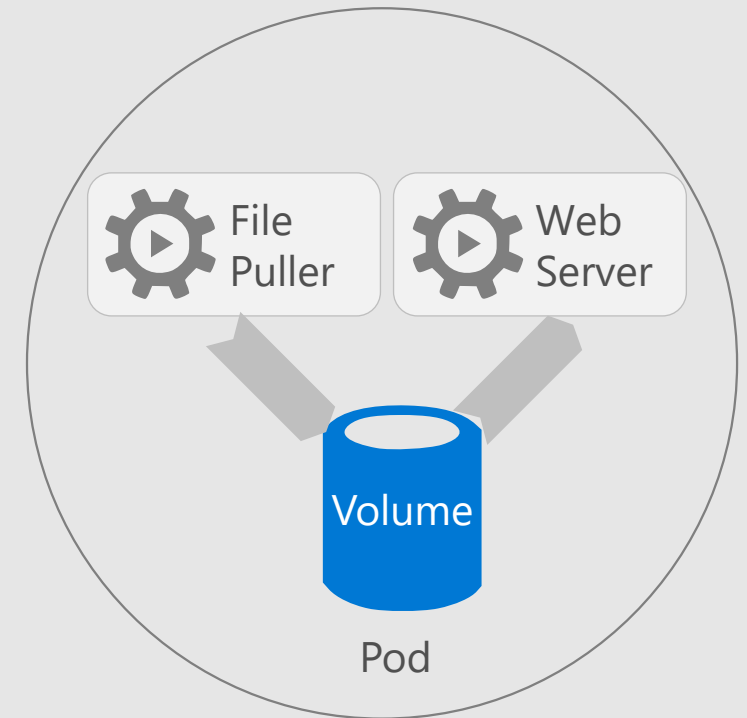




Pods

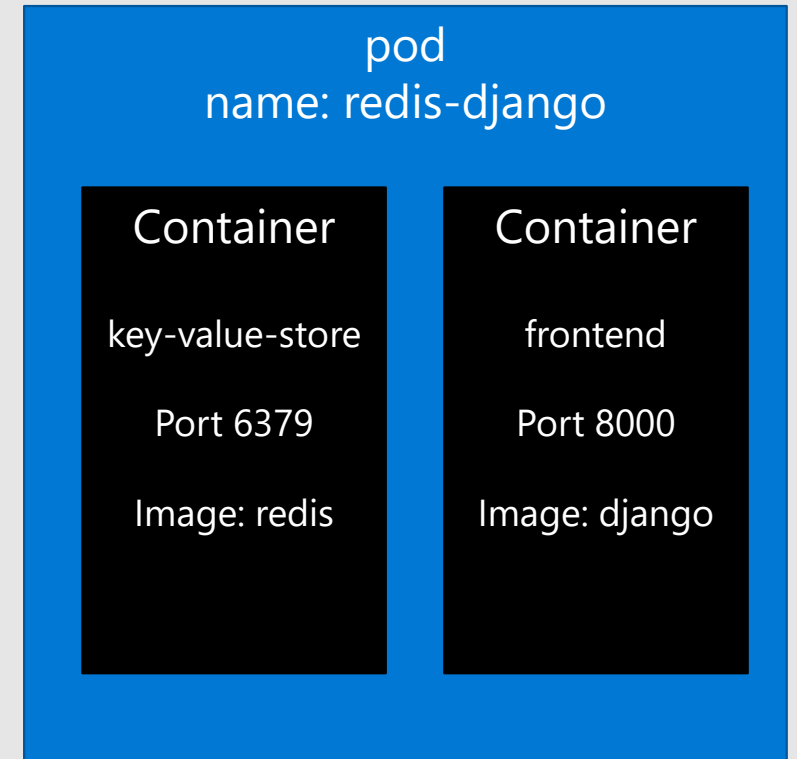
# What is a pod?

- Pod is the basic building block in Kubernetes
- Pods are how containers are delivered
- Can be multiple containers (side car)
- Encapsulates container(s), storage, network IP, and options on how to run



# Kubernetes manifest: Pod

```
apiVersion: v1
kind: Pod
metadata:
  name: redis-django
  labels:
    app: web
spec:
  containers:
    - name: key-value-store
      image: redis
      ports:
        - containerPort: 6379
    - name: frontend
      image: django
      ports:
        - containerPort: 8000
```



# Quality of Service

## QoS Classes:

- Guaranteed
  - Every Container in the Pod must have a memory limit and a memory request, and they must be the same.
  - Every Container in the Pod must have a CPU limit and a CPU request, and they **must be the same**.
- Burstable
  - The Pod does **not meet the criteria for QoS class Guaranteed**.
  - At least one Container in the Pod **has a memory or CPU request**.
- BestEffort
  - For a Pod to be given a QoS class of BestEffort, the Containers in the Pod **must not have any memory or CPU limits or requests**.

# Working with Pods/Services

# Port Forwarding

```
kubectl port-forward type/name <local_port>:443
```

```
--address <ip_address> list of IPs to bind
```

**Warning:** Known limitation, port forward today only works for TCP protocol.

# Execute Command

```
kubectl exec -it <pod name> bash
```

# Delete Resources

```
kubectl delete <type> <name>
```



# Deployments

# Deployment

Add Update-, Rollback- Logic and History to Replica Sets

# Stateful Set

StatefulSets are valuable for applications that require one or more of the following.

- Stable, unique network identifiers.
- Stable, persistent storage.
- Ordered, graceful deployment and scaling.
- Ordered, automated rolling updates.

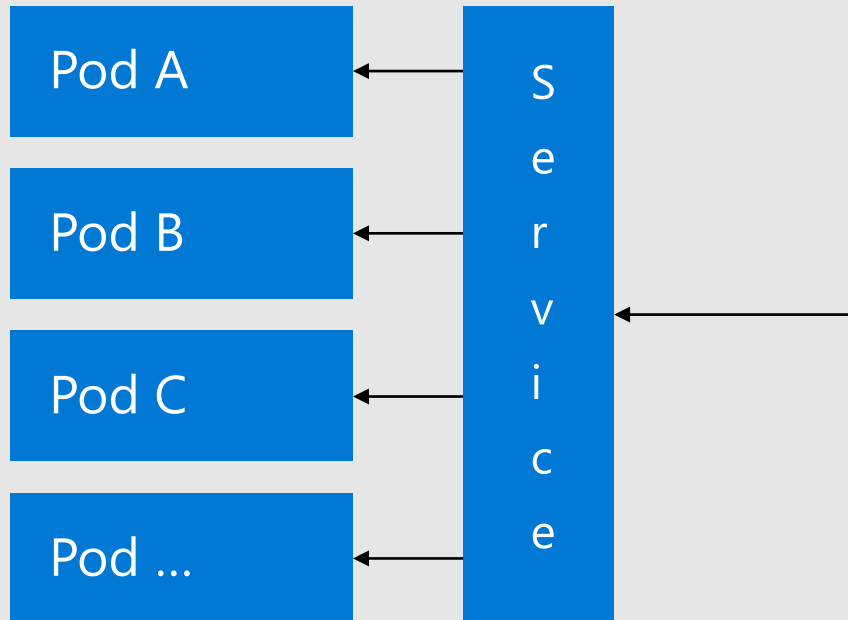
# Daemon Set

A *DaemonSet* ensures that all (or some) Nodes run a copy of a Pod. As nodes are added to the cluster, Pods are added to them. As nodes are removed from the cluster, those Pods are garbage collected. Deleting a *DaemonSet* will clean up the Pods it created.

Services

# Create a Service

```
kubectl create service <type> name
```



# Service Types

## ClusterIP

Exposes the Service on a cluster-internal IP. Choosing this value makes the Service only reachable from within the cluster

## NodePort

Exposes the Service on each Node's IP at a static port

## LoadBalancer

Exposes the Service externally using a cloud provider's load balancer

## ExternalName

Maps the Service to the contents of the externalName field (e.g. foo.bar.example.com), by returning a CNAME record with its value. No proxying of any kind is set up.

Q &A





# Thank You!

ευχαριστώ    Salamat Po    متشکرم    شکراً    Grazie

благодаря    ありがとうございます    Kiitos    Teşekkürler    谢谢

ໂພນຄຸນຄວັ້ນ    Obrigado    شكریه    Terima Kasih    Dziękuję

Hvala    Köszönöm    Tak    Dank u Wel    дякую    Tack

Mulțumesc    спасибо    Danke    Cám ơn    Gracias

多謝晒    Ďakujem    תודה    நன்றி    Děkuji    감사합니다





