

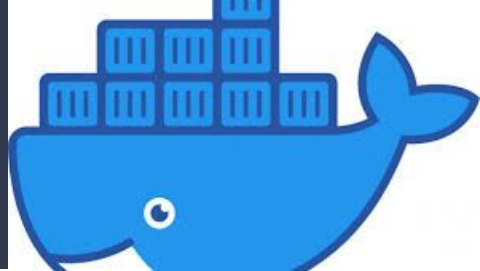


# Containerize .NET Applications and Deploy to Kubernetes

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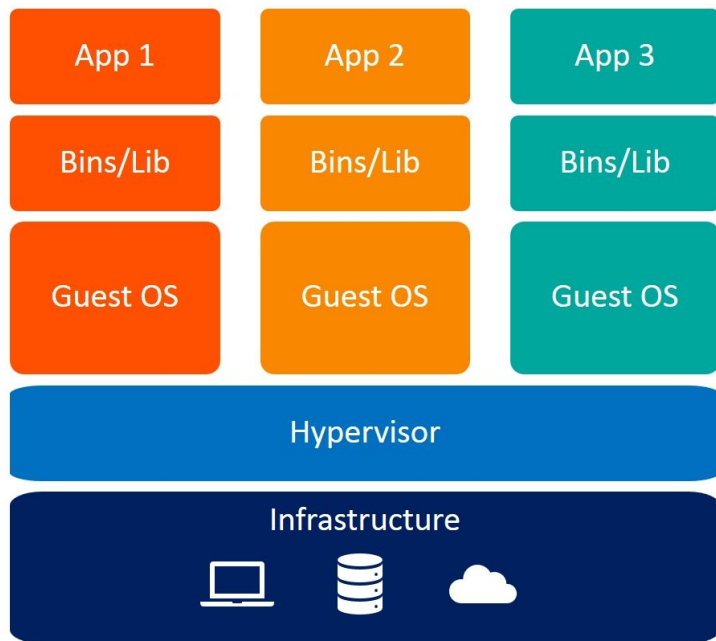


# Containers in a Nutshell

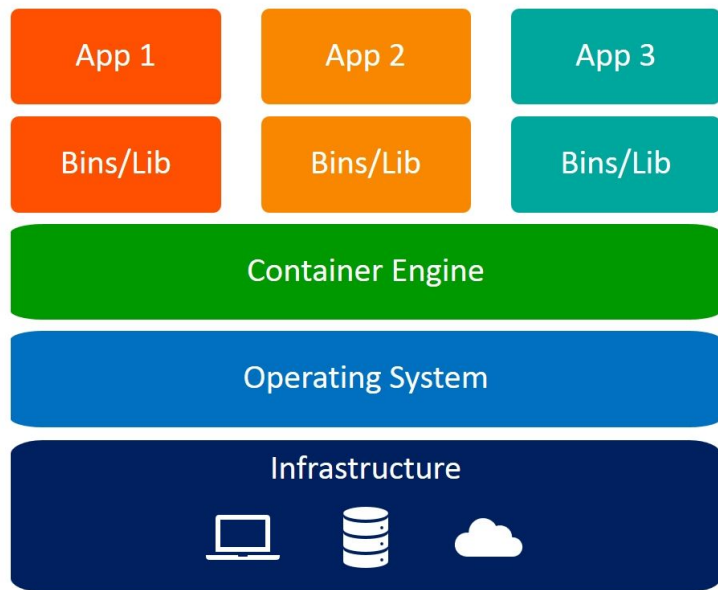


- Containers allow you to package your application with its runtime and all dependencies
  - Similar to virtual machines, but more lightweight
- Support both Linux and Windows operating systems
- Containers have a standardized format and can be used by Docker or Kubernetes

# Virtual Machines vs Containers



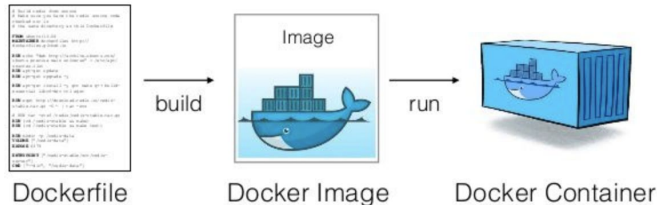
Virtual Machines



Containers

# Terminology: Container vs Image

- An image is an inert, immutable file that is a snapshot of a container
- A container is created by running an image
- Programming analogy: If an image is a class, a container is an instance of that class



# Kubernetes in a Nutshell

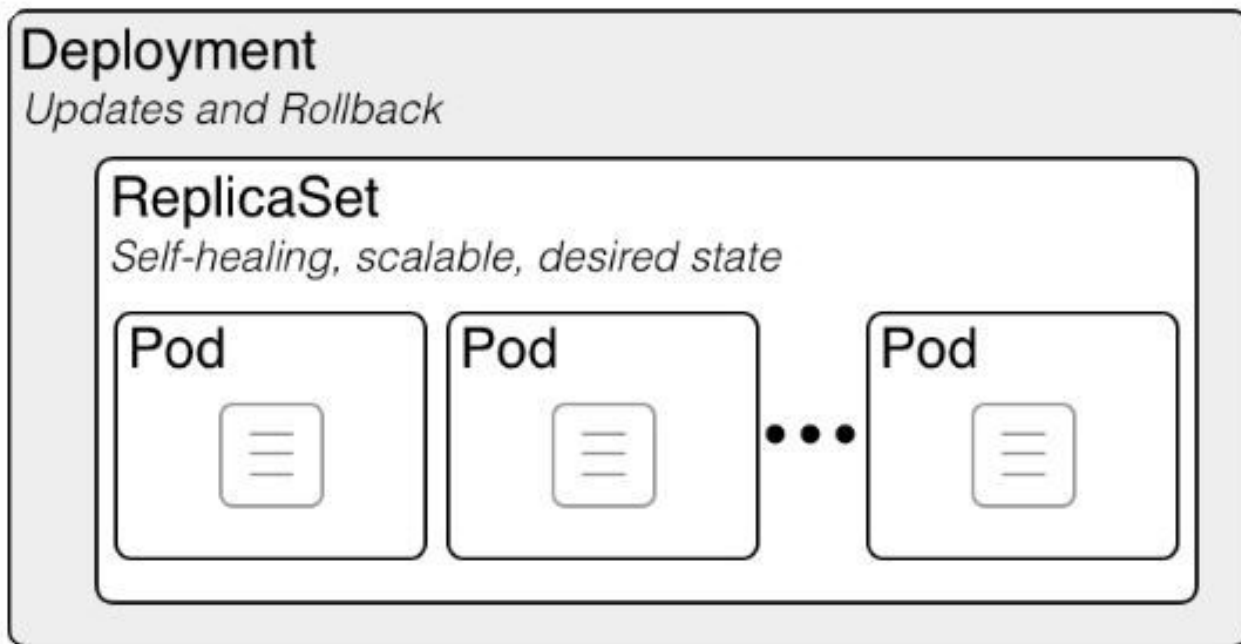


- Open-source container-orchestration system for automating computer application deployment, scaling, and management
- Runs containerized applications on clusters of servers
- Kubernetes is often abbreviated online as “k8s”
- Is administered by a command line tool called `kubectl` (pronounced “kube-control” or “kube-cuttle”)
  - This is done by feeding information to `kubectl` in YAML format
  - For example: `kubectl apply -f my-deployment.yaml`

# Example of Kubernetes YAML

```
object1.yaml x
apiVersion: apps/v1beta1
kind: Deployment
metadata:
  name: nginx-deployment
spec:
  replicas: 3
  template:
    metadata:
      labels:
        app: nginx
    spec:
      containers:
      - name: hello-world
        image: hello-world:latest
        ports:
        - containerPort: 80
```

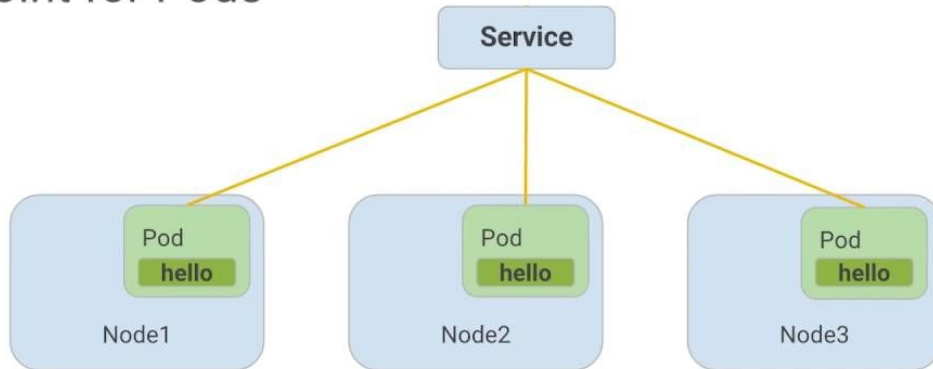
# Kubernetes Deployments, ReplicaSets, and Pods



# Kubernetes Services

## Services

Persistent Endpoint for Pods





# Thank You!

## Any Questions?

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- Presentation content available at:  
<https://github.com/fjb4/containerize-dotnet-and-deploy-to-k8s>