Running Worker Services in Production

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Overview

Running workers in containers

Running workers as Windows services

Running workers as Linux daemons

Running workers on Azure App Service

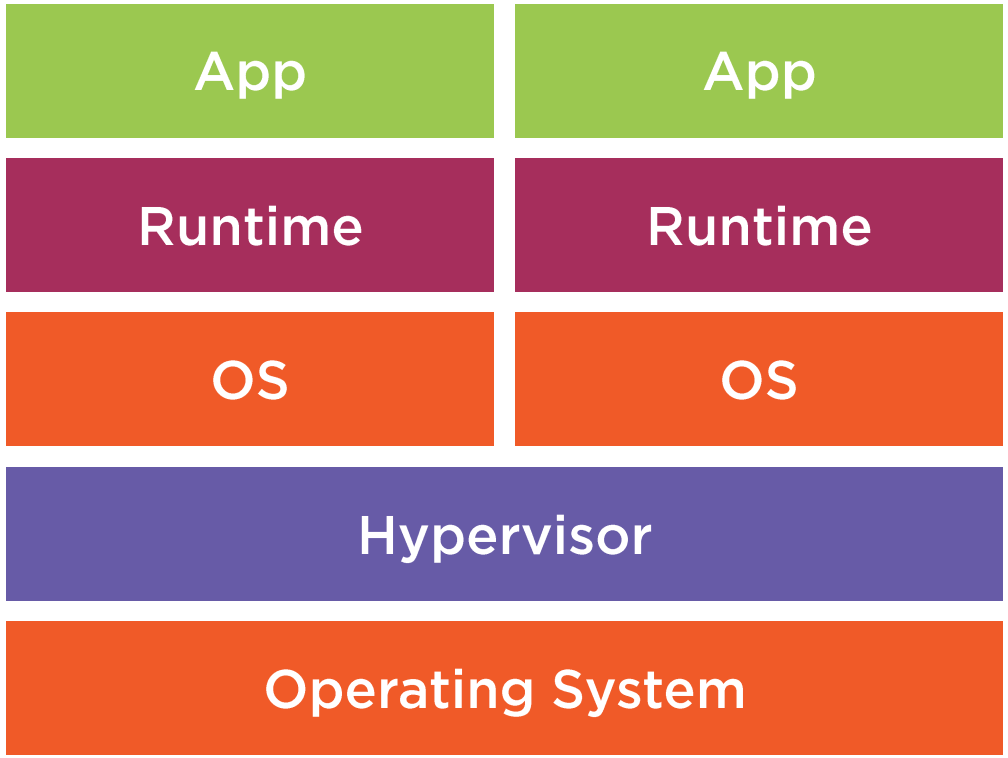
Docker Primer

Containers

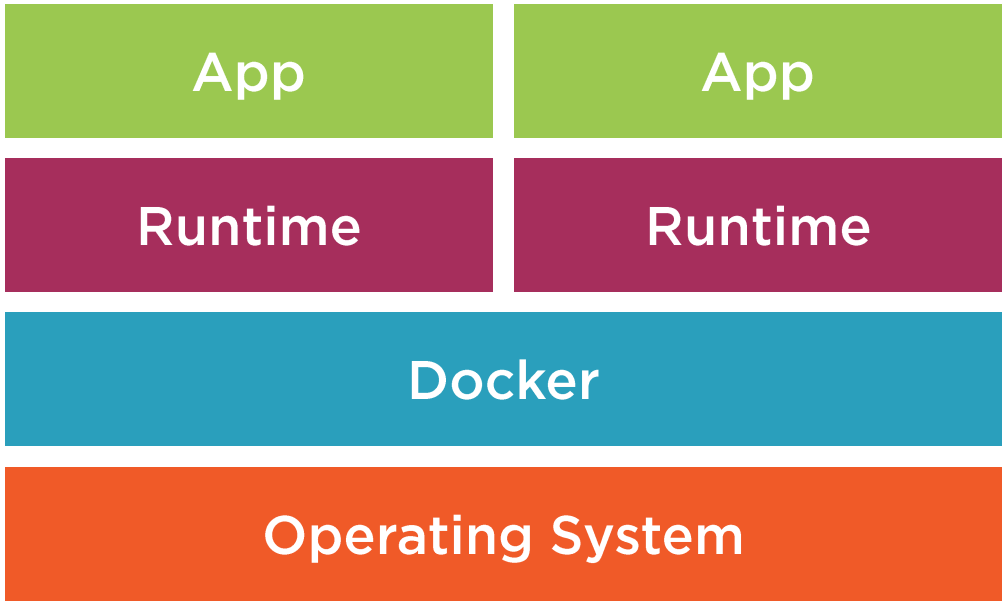
Containers are a popular choice for deploying microservices to production. Worker services can easily be deployed in containers.

Key principles and terminology

VMs vs. Containers

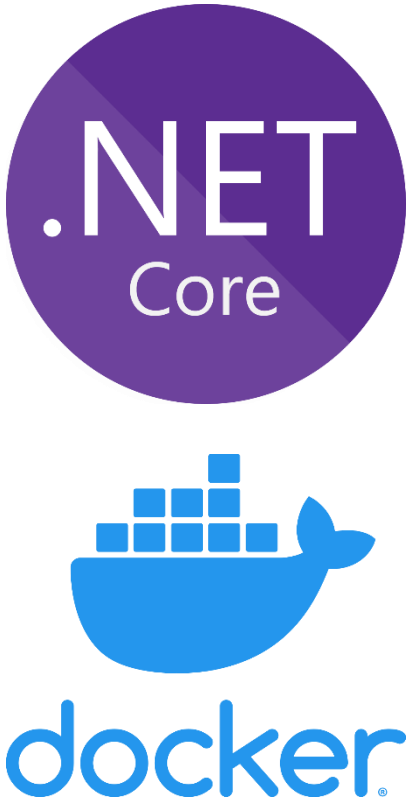


Virtual Machine Stack



Docker Stack

Docker and .NET Core



Windows

Linux

Mac

Docker Images

Include the dependencies needed to run an executable

Built from several immutable layers

Immutability provides consistency

New images can be based on existing ones

A unit of distribution and deployment

Docker Containers

Runnable instance of an image

Smaller footprint than virtual machines

Many containers can be run on a host

Run in isolation

Orchestrators

- Manage, schedule and deploy containers
- Health monitoring
- Scaling
- Load balancing
- Service discovery

Demo

Running a worker service in a container

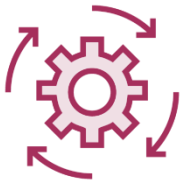
- Create a Dockerfile
- Build a Docker image
- Run the worker service container

Demo

Running a worker service as a Windows service

- Adapting the worker service code
- Building the executable
- Registering the Windows service

UseWindowsService Method



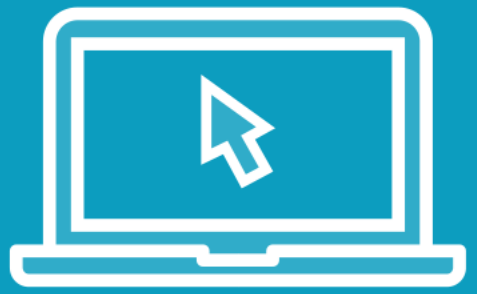
Configures the host to use a WindowsServiceLifetime

Sets the ContentRootPath to AppContext.BaseDirectory

Enables logging to the Windows event log

AWS credentials should be registered securely

Demo



Running a worker service as a Linux daemon

- Modify code to support Systemd
- Publish a Linux executable
- Transfer files to a Linux VM
- Load and start the Systemd service

Demo

Running a worker service on Azure App Service

- Publish to Azure
- Configure the App Service
- Review application logs

Summary

- Created a Docker image for the worker service
- Ran the Docker image as a container
- Converted for use as a Windows service
- Registered and ran the Windows service
- Converted for use as a Linux daemon
- Created a unit file and ran the daemon
- Published to Azure App Service

Review

- Added hosted services to an ASP.NET Core application
- Transferred data between requests and hosted services
- Learned about .NET Core worker services
- Built a worker service for processing messages from AWS SQS
- Learned about advanced concepts
- Deployed a worker service to production