



# Developing .NET cloud native applications with AWS

Dror Helper

Senior Microsoft Specialist Architect  
AWS

# Can you use .NET on AWS?



# Challenges to overcome

Run .NET code  
on AWS

Call AWS  
Services from  
.NET Code

Use existing  
development  
tools

Have a  
migration plan  
for existing code



# Never ending commitment to .NET

Customer Adoption

485 instance types

255 different AMIs for Windows workloads

40 different Linux AMIs with .NET or SQL Server pre-configured



2010

2012

2014

2016

2018

2020

Today

© 2022, Amazon Web Services, Inc. or its affiliates.



# AWS SDK for .NET

AWSSDK.\* family  
of assemblies

Distributed via  
NuGet packages

Provide APIs to  
all AWS Services

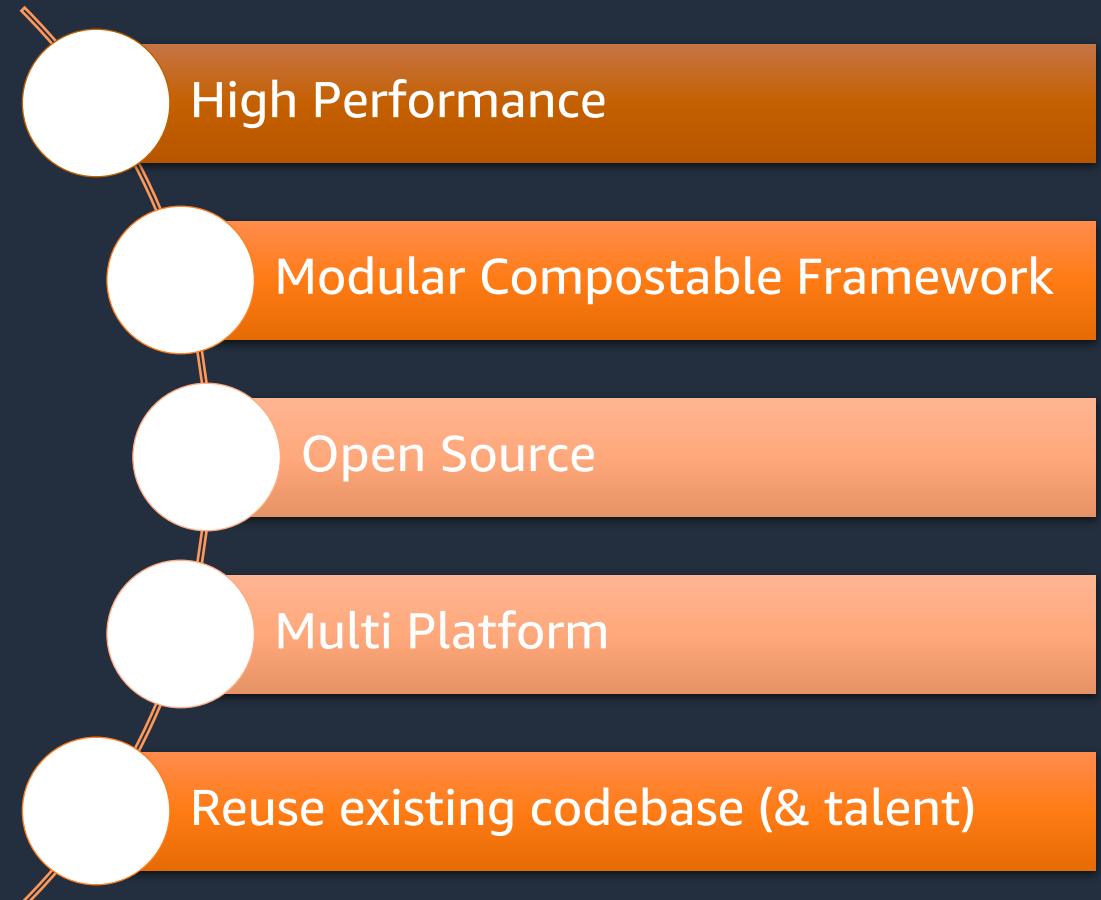
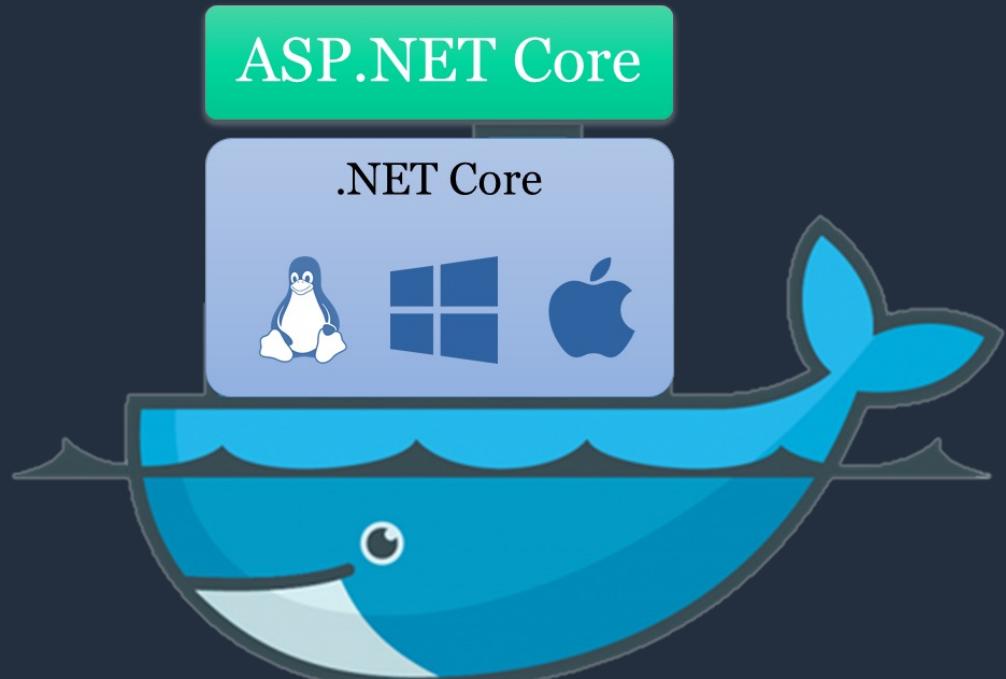
Extension  
libraries cover  
"high level"  
functionality

Cross-platform  
support

Open source



# Running .NET code on Linux



## AWS SDK & .NET (Core)

- All methods are `async`
- Add `AWSSDK.Extensions.NETCore.Setup`
  - Using the built-in dependency injection and middleware
- Use `appsettings.json` for ... AWS credentials and related settings
- Develop `serverless applications` using ASP.NET Core



# AWS Lambda



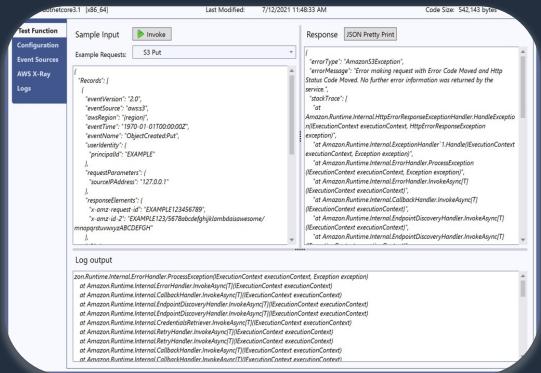
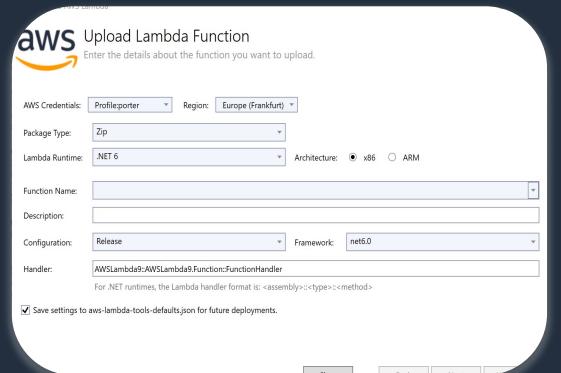
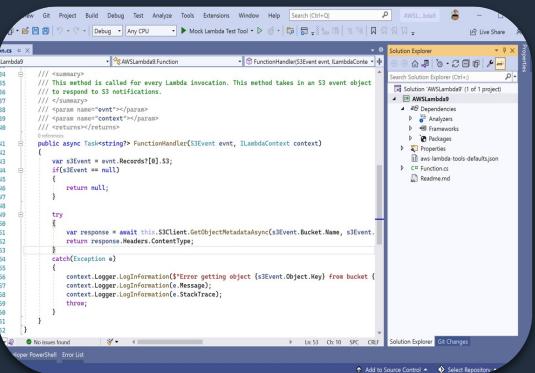
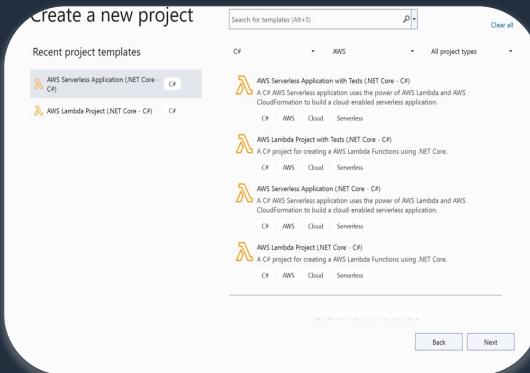
Introduced in 2014

Execution time < 15min

Event driven

You can use C#

# Developing AWS Lambda functions in C#



## Create

## Develop

## Deploy

## Run



# Running .NET using AWS services

## .NET Framework



Amazon EC2



AWS Elastic  
Beanstalk



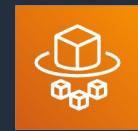
Amazon  
Lightsail



Amazon Elastic  
Container Service



Amazon Elastic  
Container Service  
for Kubernetes



AWS Fargate



AWS App Runner

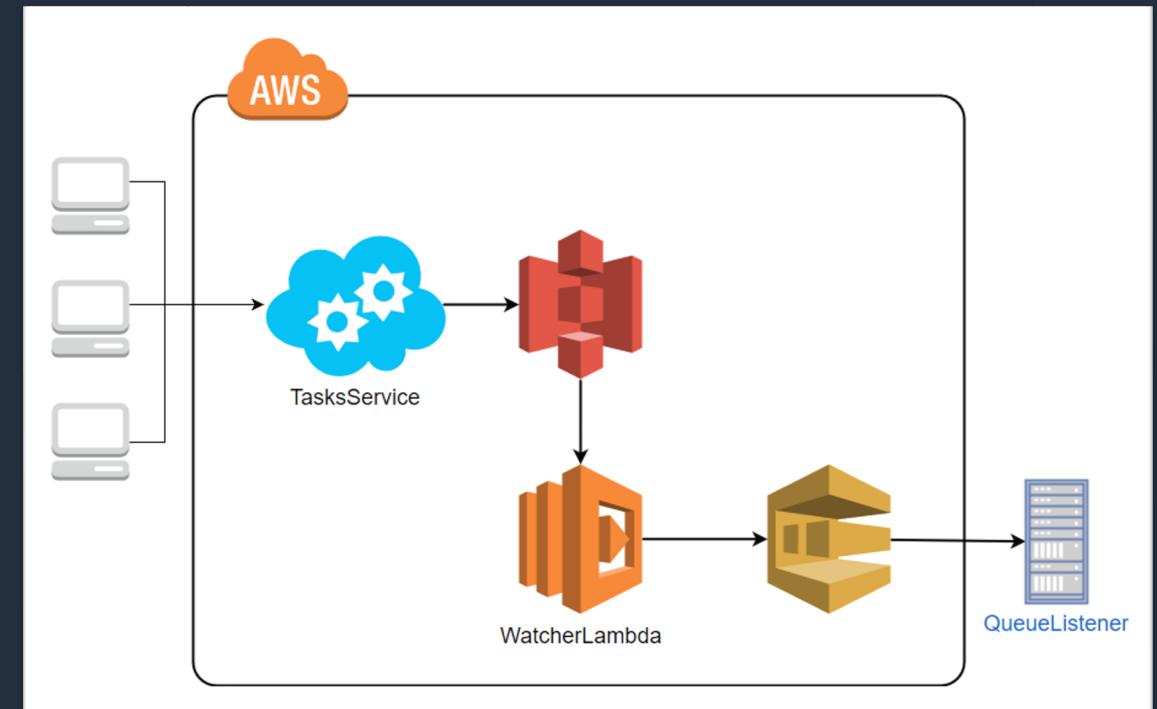


## .NET



# What we've just created

1. .NET Core microservice saves data to DynamoDB
2. New items trigger AWS Lambda (.NET)
3. Results are queued in Amazon SQS
4. Messages received by on-prem application



# Migration and Modernization Tools



# Migration and modernization tools



## AWS App2Container

Containerize and migrate  
existing applications



## Porting Assistant for .NET

Insight and assistance for porting  
from .NET Framework to .NET  
Core



## AWS Microservice Extractor for .NET

Simply refactor .NET applications

# You can use .NET on AWS!

## IDE Integration

AWS Toolkit for Visual Studio



AWS Toolkit for Visual Studio Code



AWS Toolkit for Rider



## Programmable SDK

AWS SDK for .NET



AWS CDK for .NET



## Command Line Tools

AWS Tools for PowerShell



'dotnet' CLI extensions



AWS CLI



AWS SAM



.NET deployment tool



## CI/CD Integration

AWS Toolkit for Azure DevOps



AWS CodePipeline/CodeBuild



## Migration / Modernization Tools

App2Container



Porting Assistant for .NET



AWS Microservice Extractor for .NET



# Additional resources

- .NET on AWS: <https://github.com/aws/dotnet>
- Developer Center - .NET on AWS:  
<https://aws.amazon.com/developer/language/net/>
- AWS Lambda for .NET Core: <https://github.com/aws/aws-lambda-dotnet>
- Working with the AWS CDK in C#:  
<https://docs.aws.amazon.com/cdk/v2/guide/work-with-cdk-csharp.html>
- AWS Toolkits:
  - Visual Studio: <https://aws.amazon.com/visualstudio/>
  - VS Code: <https://aws.amazon.com/visualstudiocode/>
  - Rider <https://aws.amazon.com/rider/>





# Thank you!

Dror Helper

[dhelper@amazon.com](mailto:dhelper@amazon.com)

@dhelper