ASP.NET CORE

8-9 December 2018

About me

- ASP.NET, C# Developer
- 5 years software engineer experience
- More then 10 project

ASP Classic → Web Forms → MVC → .Net Core

Summary

Introduction to .Net Core

- What is .Net Core
- .NET Standard
- .Net Core vs .Net
- Demo

Fundamentals

- Middleware
- Dependency Injection
- Configuration
- Host
- Servers

MVC

- All about MVC
- Demo

Introduction to .Net Core

What is .Net Core

- Open-Source
- Cross-platform
- Web applications, IOT apps and mobile backends
- Cloud ready
- Performance
- Built-In Dependency Injection

What is .Net Core

DESKTOP	CLOUD	MOBILE
.NET FRAMEWORK WINDOWS UWP	.NET CORE ASP.NET	XAMARIN

.NET STANDARD LIBRARY

COMMON INFRASTRUCTURE

Compilers	Languages	Runtime components

TOOLS

Visual Studio

Visual Studio for Mac

Visual Studio Code

.NET Standard

.NET Standard **is a specification**

A set of APIs that **all .NET platforms have to implement**

.NET Standard	**~**	**HTML specification**
.NET Framework	**~**	**Browsers**
.NET Core		
Xamarin		

.NET Standard

- https://github.com/dotnet/standard/blob/master/docs/faq.md
- https://github.com/dotnet/standard/blob/master/docs/metaphor.md

.NET Core vs .NET Framework

Similarities

- Support the latest C#, VB.NET, F#
- Implements .NET Standard API
- Supports ASP.NET Core and EF Core
- Best experience in Visual Studio
- Great experience in Visual Studio Code
- Can be used in/with Docker

.NET Core vs .NET Framework

Differences

- .NET Framework comes with Windows
- .NET Core installs side-by-side
- .NET Core is cross-platform and OSS
- .NET Core works on Nano
- .NET Core has a strong CLI experience

Command	Purpose
dotnet new	Initialize .NET projects.
dotnet restore	Restore dependencies specified in the .NET project.
dotnet run	Compiles and immediately executes a .NET project.
dotnet build	Builds a .NET project.
dotnet publish	Publishes a .NET project for deployment (incl. runtime).
dotnet test	Runs unit tests using the test runner specified in the project.
dotnet pack	Creates a NuGet package.
dotnet migrate	Migrates project.json project to msbuild based project.

Command	Purpose
dotnet clean	Clean build output(s).
dotnet sln	Modify solution (SLN) files.
dotnet add	Add reference to the project.
dotnet remove	Remove reference from the project.
dotnet list	List reference in the project.
dotnet nuget	Provides additional NuGet commands.
dotnet msbuild	Runs Microsoft Build Engine (MSBuild).
dotnet vstest	Runs Microsoft Test Execution Command Line Tool.

DEMO

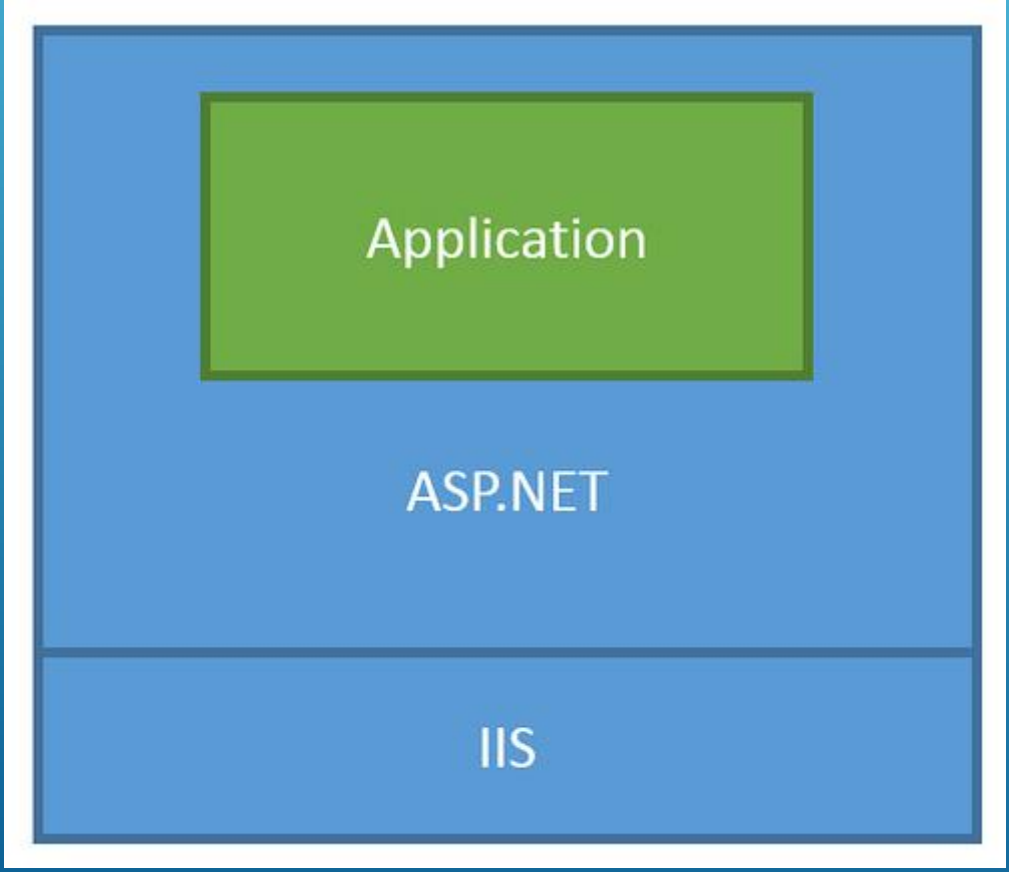
Introduction to .Net Core

Fundamentals

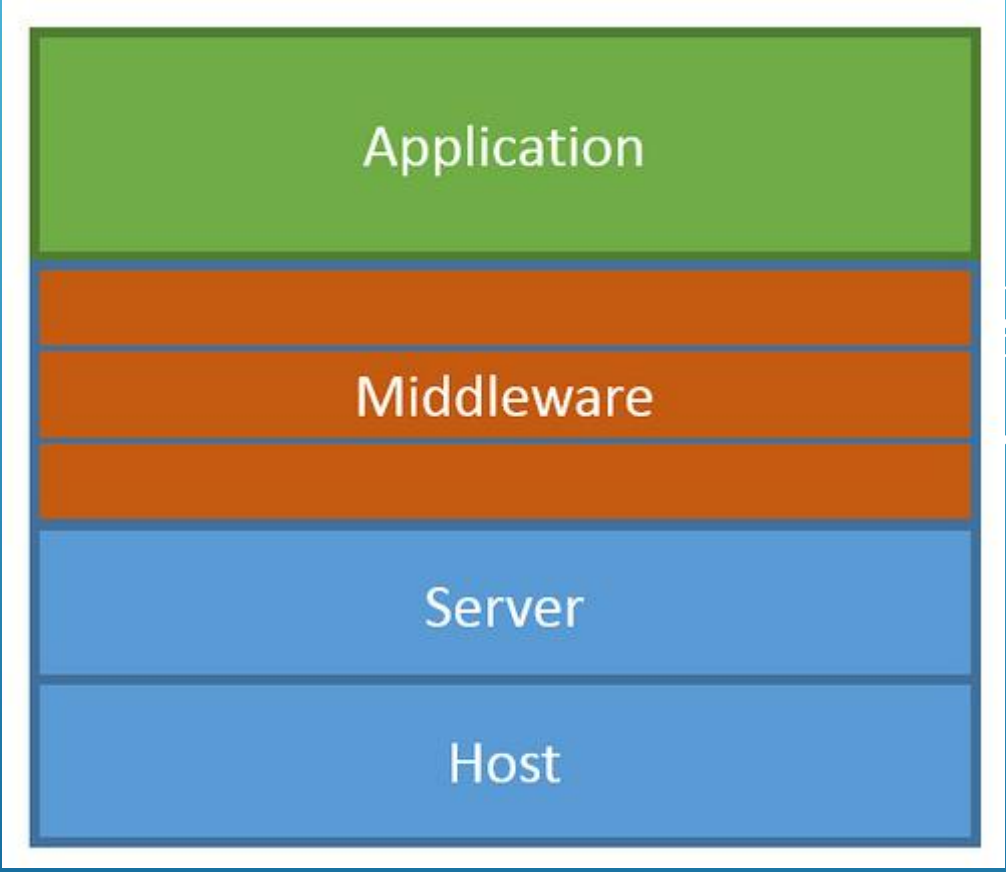
Middleware

Middleware

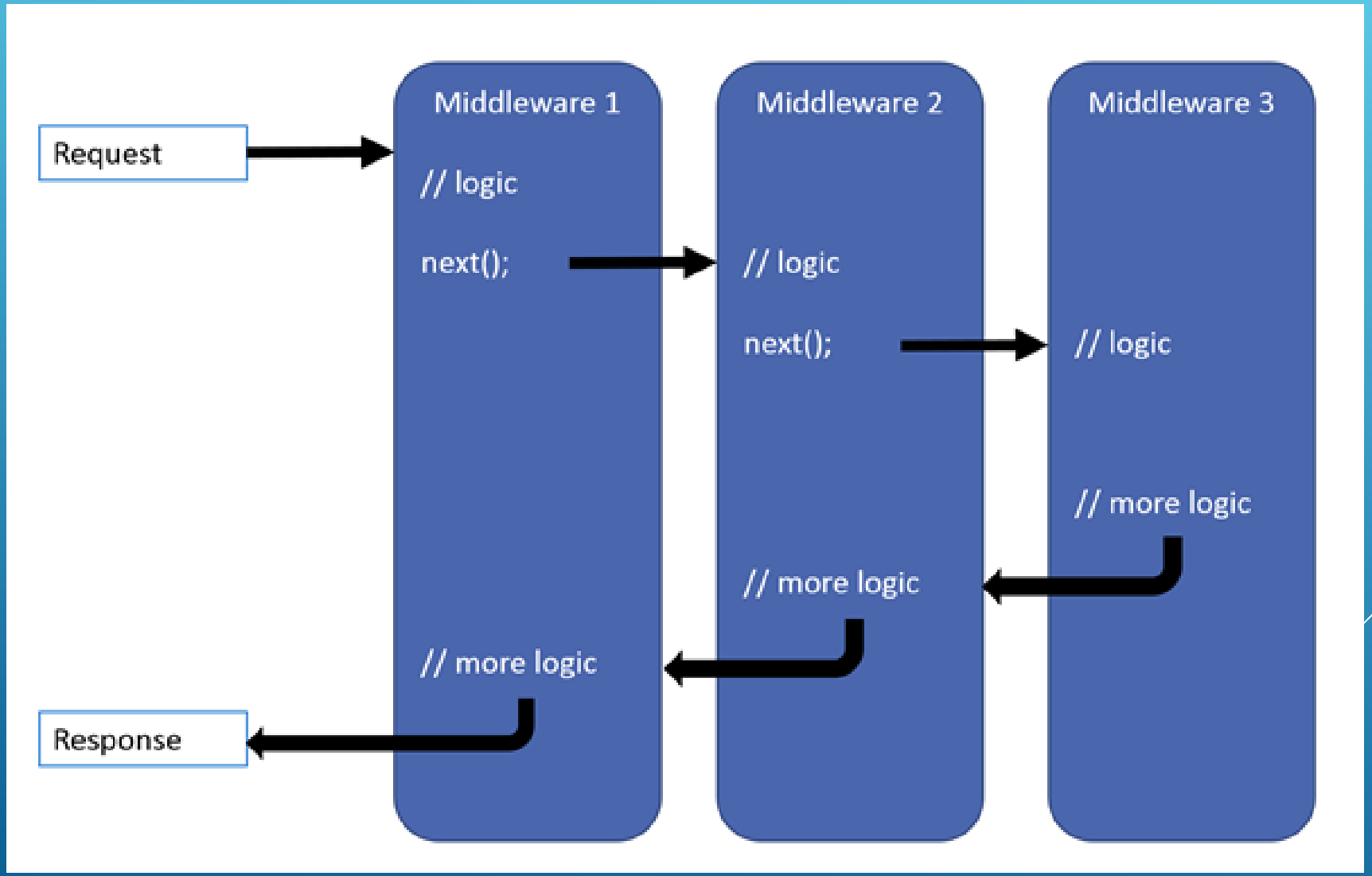
Traditional ASP.NET Application Model



ASP.NET Core Middleware



Middleware


Request
Middleware 1
// logic
next();
Middleware 2
// logic
next();
Middleware 3
// logic
// more logic
// more logic
// more logic
Response

Configuration

- Configuration providers
- Key-value pairs
- Keys are case-insensitive
- Same key is set by same or different configuration => LAST
- Values are strings.
- Null values can't be stored in configuration or bound to objects.

Configuration

- **Sources**
  - Azure Key Vault
  - Command-line arguments
  - Custom providers (installed or created)
  - Directory files
  - Environment variables
  - In-memory .NET objects
  - Settings files

Configuration

- **Providers**
  - File Configuration Provider
  - Azure Key Vault Configuration Provider
  - User secrets
  - Environment Variables Configuration Provider
  - Command-line Configuration Provider
  - Custom configuration provider
  - Key-per-file Configuration Provider
  - Memory Configuration Provider

Configuration

- **Microsoft.Extensions.Configuration**

Dependency Injection

Dependency Injection

- Autofac
- Ninject
- StructureMap
- many others

Dependency Injection

- **Transient**
- **Scoped**
- **Singleton**

Dependency Injection

Microsoft.Extensions.DependencyInjection

Host

- **Web Host** => Web apps.
- **Generic Host(2.1)** => Non-web apps

Host

- **Web Host**
  - **IWebHostBuilder**

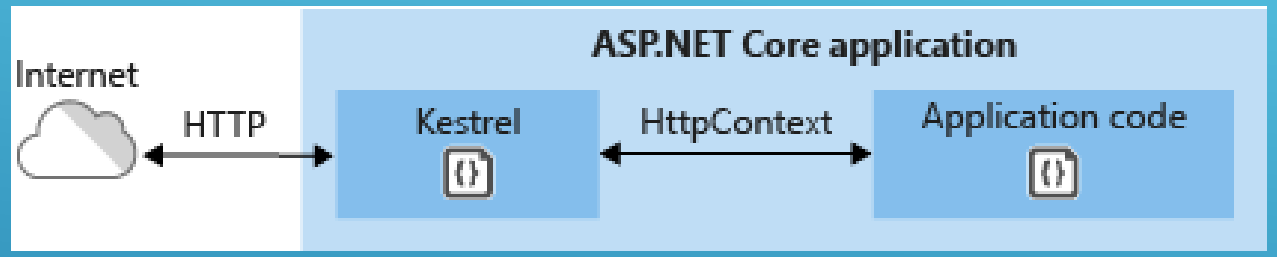
Host

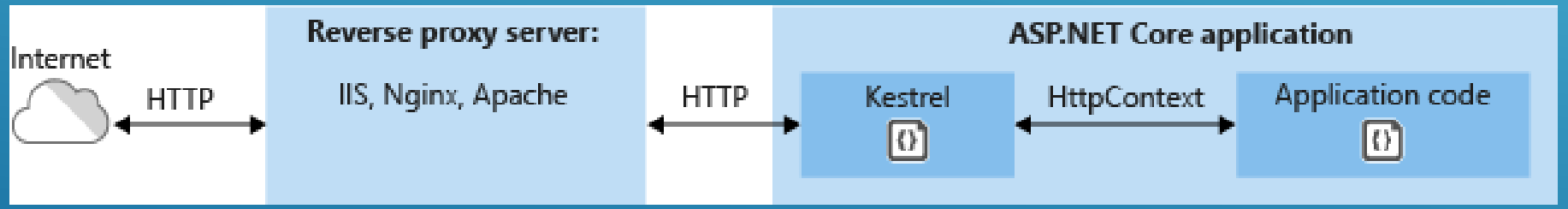
- **Generic Host**
  - **IHostBuilder**

Server

- **Kestrel** => Cross platform
- **HTTP.sys -> WebListener** => Windows

Server


ASP.NET Core application
Internet
HTTP
Kestrel
HttpContext
Application code

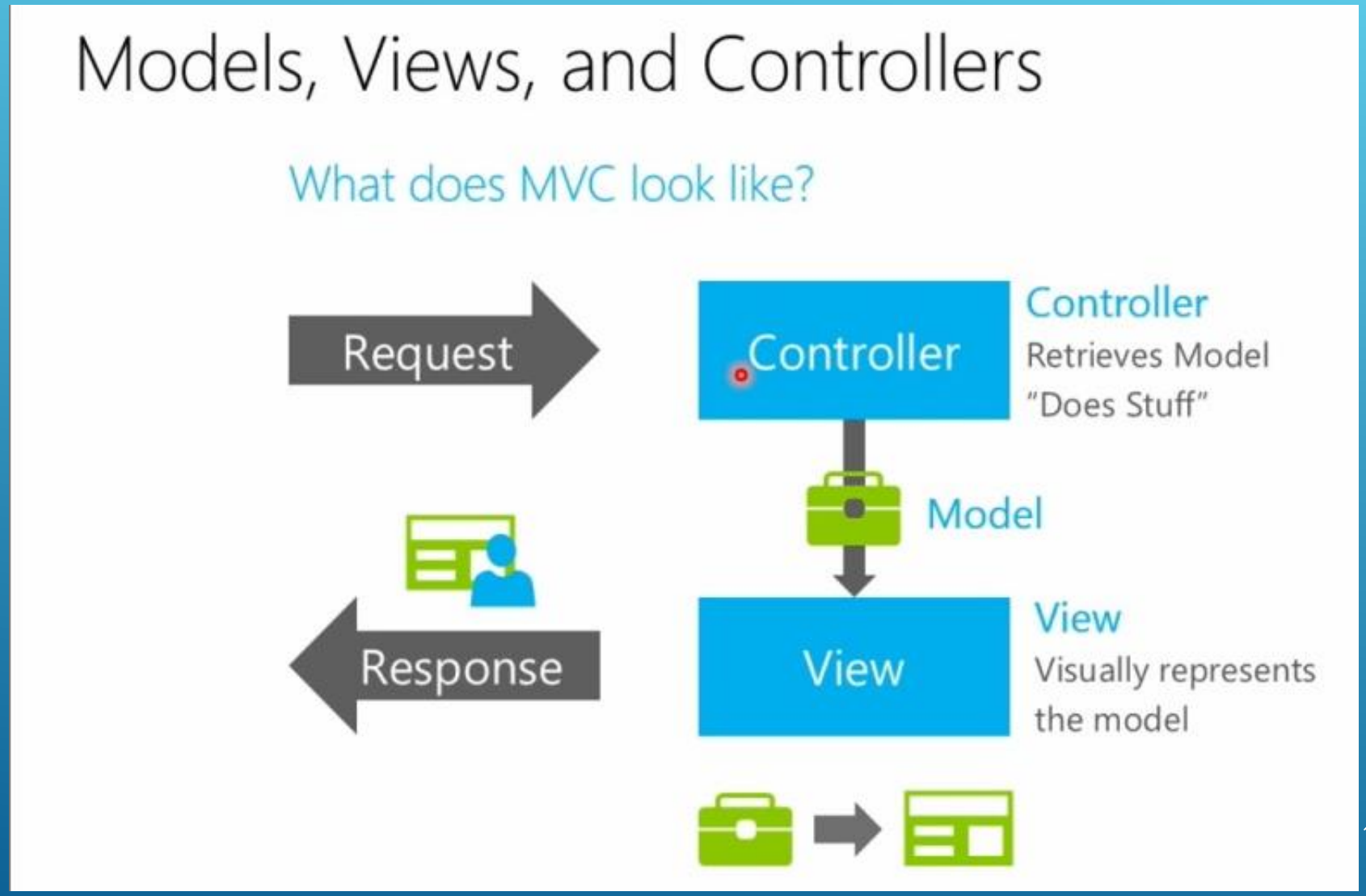

Reverse proxy server:
ASP.NET Core application
Internet
HTTP
IIS, Nginx, Apache
HTTP
Kestrel
HttpContext
Application code

Server

- **Custom servers**
  - **OWIN**

MVC

All about MVC



DEMO

MVC