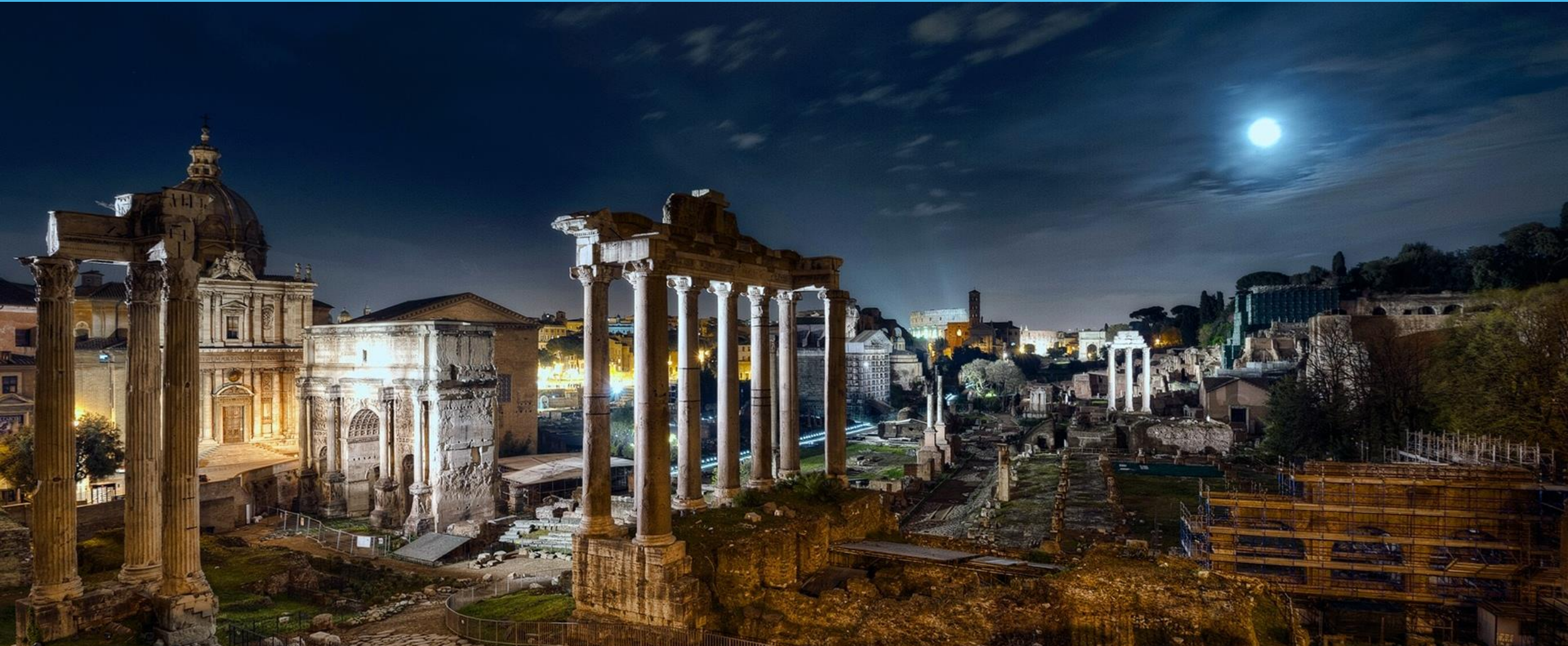


# ASP.Net Core

oxygen

14. november 2017



# Agenda

.NET Standard and Core

Compilers

Kestrel

ASP.NET Core

- Pipeline
- MVC
- Moving to production
- Future

Making a website





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.NET Standard and Core

# History of .NET

It gets bigger and bigger

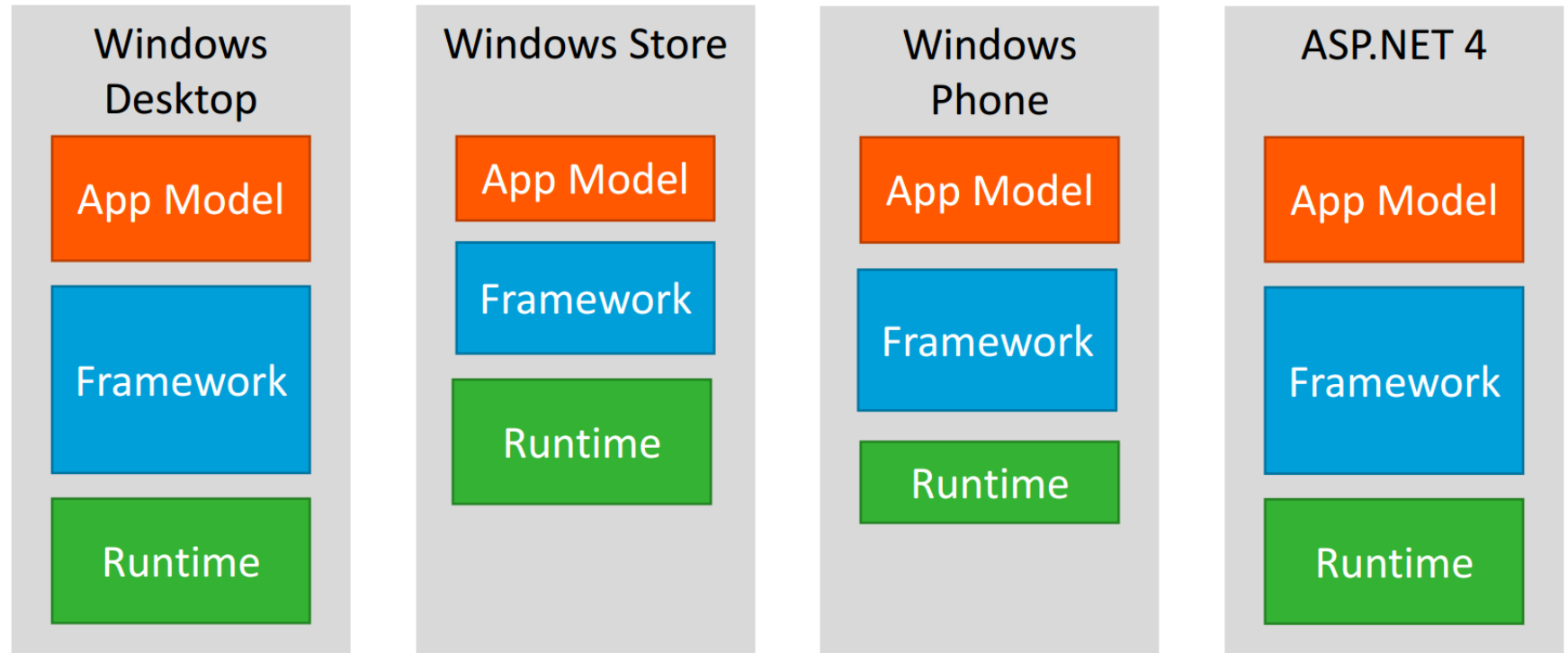
Historically, ASP.NET is tightly coupled to a specific version of .NET Framework

Complicates release cycles

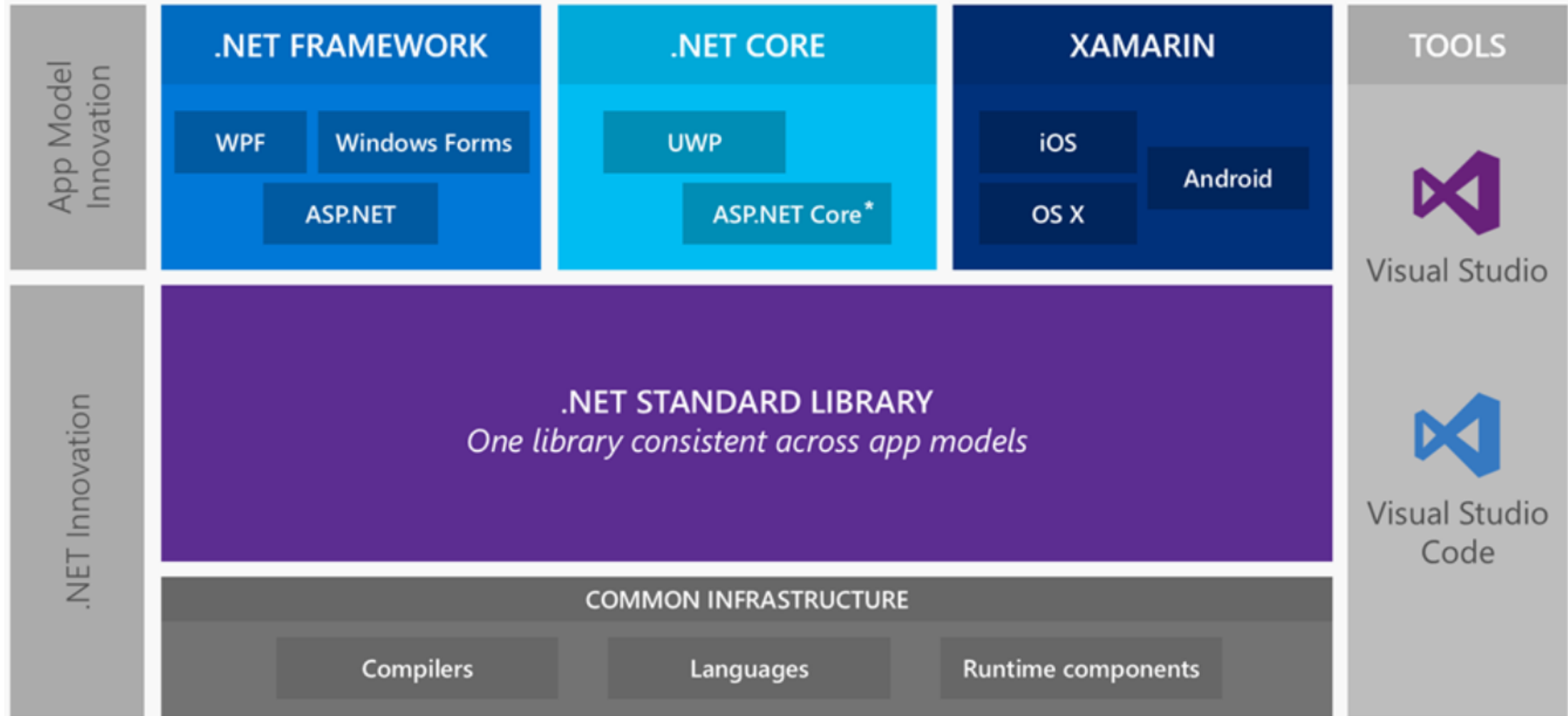
# Fragmentation

The .NET landscape is fragmented

Different platforms will always have different features and capabilities



# The stack today...



# .NET Standard, why?

To provide a more concrete guarantee of binary portability to future .NET capable platforms with an easier-to-understand platform versioning plan.

.NET Platform Standard	netstandard	1	1.1	1.2	1.3	1.4	1.5
.NET Core	netcoreapp	→	→	→	→	→	1
.NET Framework	net	→	→	→	→	→	4.6.2
		→	→	→	→	4.6.1	
		→	→	→	4.6		
		→	→	4.5.2			
		→	→	4.5.1			
		→	4.5				
Universal Windows Platform	uap	→	→	→	→	10	
Windows	win	→	→	8.1			
		→	8				
Windows Phone	wpa	→	→	8.1			
Windows Phone Silverlight	wp	8.1					
		8					
Mono/Xamarin Platforms		→	→	→	→	→	*
Mono		→	→	*			



# Compilers

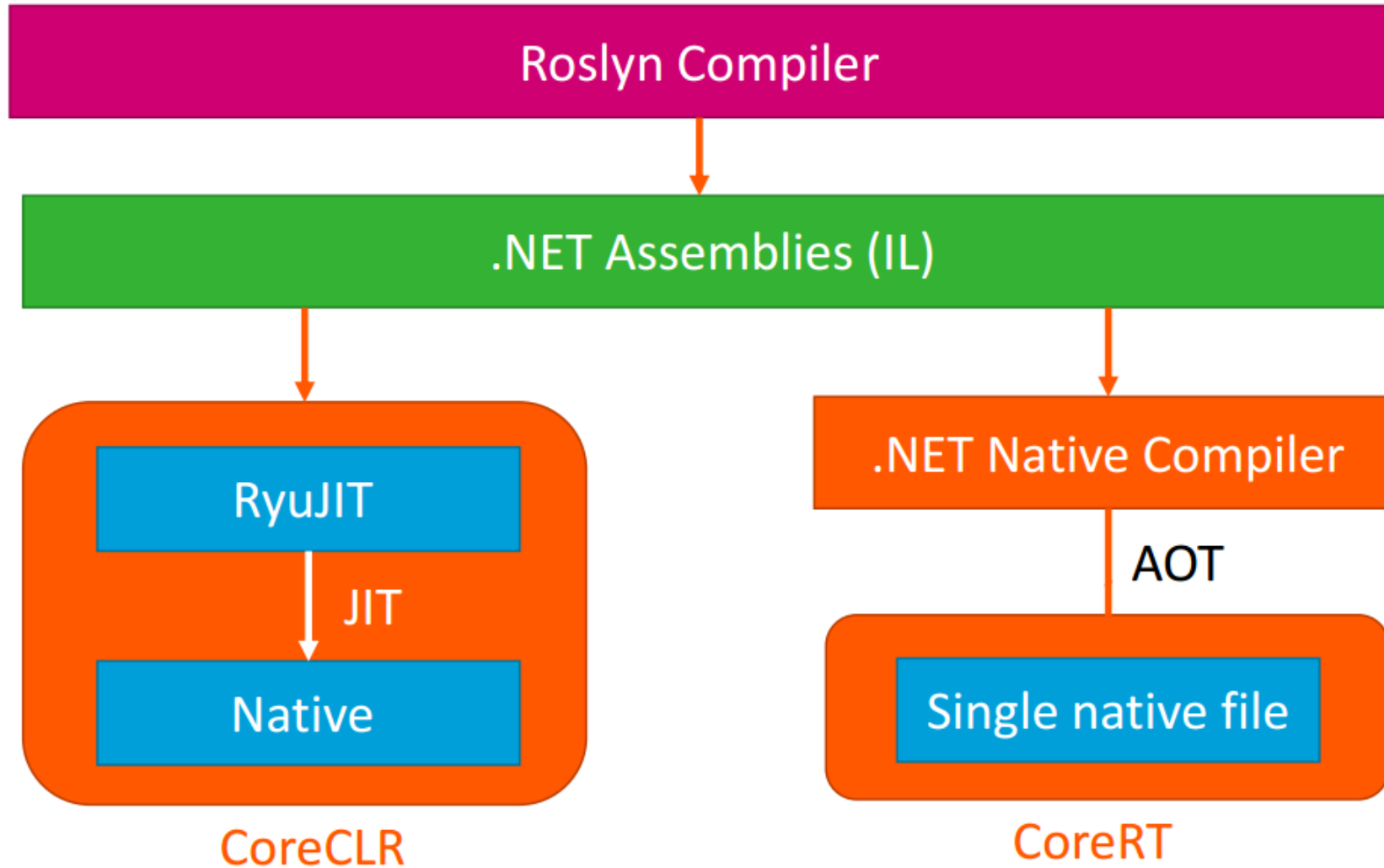
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# Roslyn

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# Why .NET Core?

It is lightweight

Modular

Cross-platform

Per-app installation

Allows for multiple versions in parallel

Faster release cycles – Package based

# Framework comparisons

.NET Framework	Mono	.NET Core
Machine wide	Machine wide	Per app
Existing code	Existing code	New code
Many types	Many types	Fewer types
Windows only	Cross platform	Cross platform

# When to use .NET Framework

.NET Framework is more mature

Backwards compatible with older .NET Framework versions



A photograph of a terraced garden with rows of green hedges in a forest setting. The hedges are arranged in a series of parallel, slightly curved rows that follow the contours of a hill. The background shows a dense forest with tall trees and a small evergreen tree in the foreground on the right. The lighting is soft and warm, suggesting a sunrise or sunset. The overall scene is peaceful and well-maintained.

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Kestrel



# Kestrel – what is it?

An open-source (source code available on GitHub)  
event-driven  
asynchronous  
I/O based webserver  
used to host ASP.NET applications on any platform.

# Kestrel – Why?

It allows ASP.NET Core applications to be run easily on other cross-platform web servers

- such as Nginx and Apache, without the need to address varying startup configurations.

By using Kestrel as an in-process server, applications will have a consistent startup process

- `Main()`
- `Startup.ConfigureServices()`
- `Startup.Configure()`

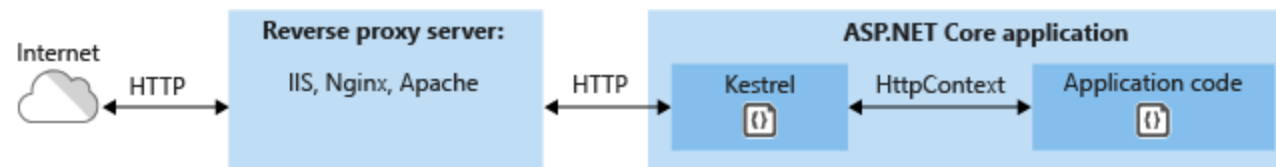
# Kestrel – Benefits

Kestrel is not a fully-featured web server, but that's precisely why it's fast.

If you feel the need for speed, Kestrel is the answer—especially since it is designed to be used in production for ASP.NET.

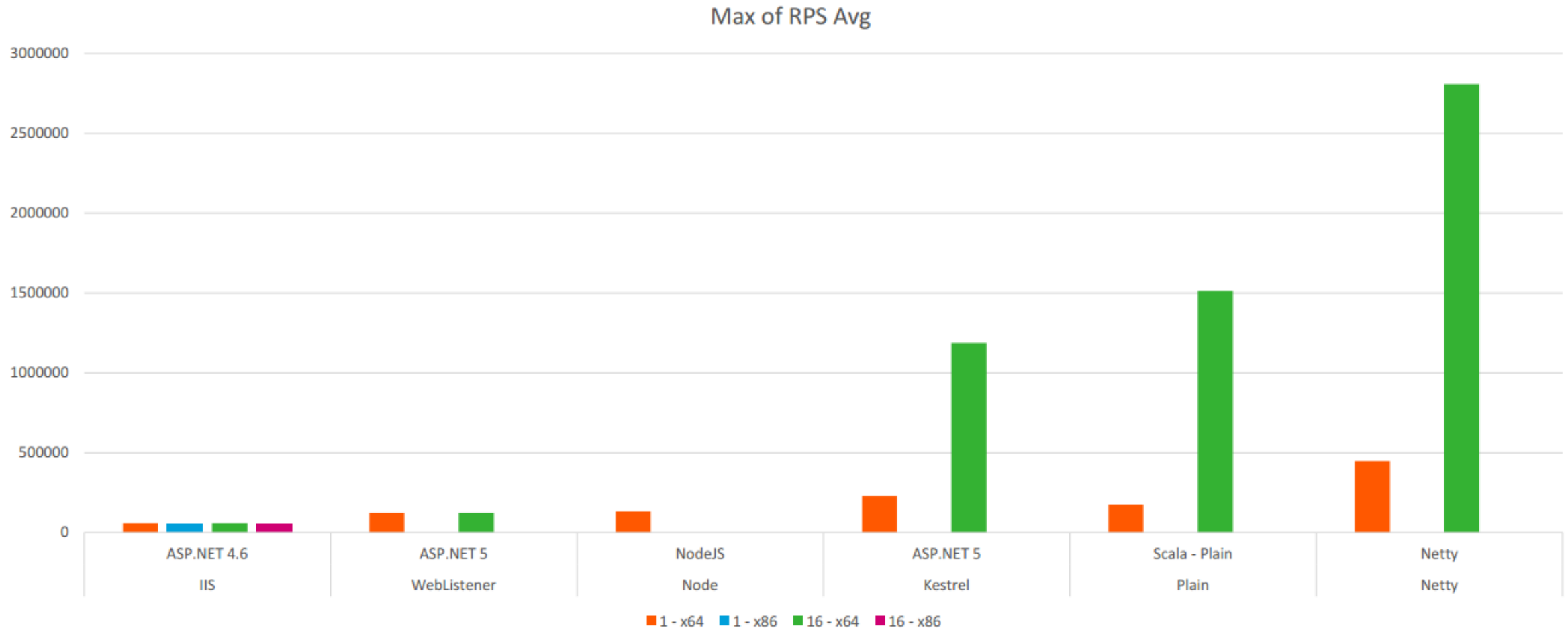
Now, even if you are not working cross-platform, you can run ASP.NET on a web server straight from the command line.

Since Kestrel is not a fully-featured web server, you should run it behind IIS or NGNIX.





# Kestrel - Performance



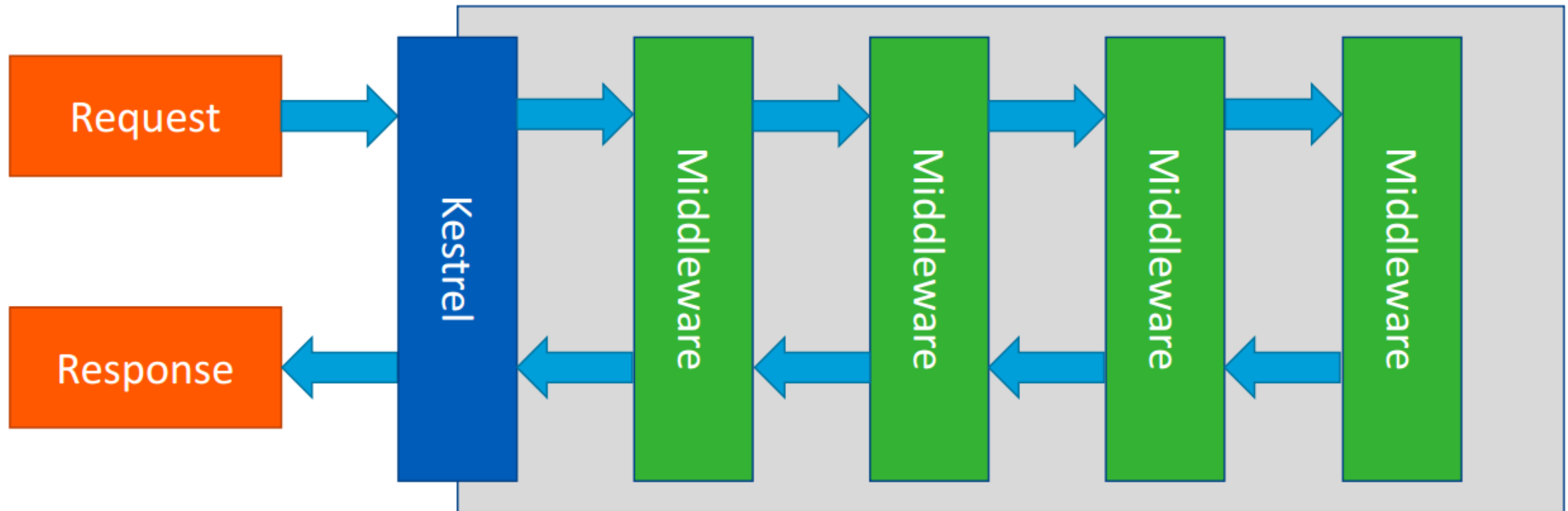
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# ASP.Net Core - Pipeline

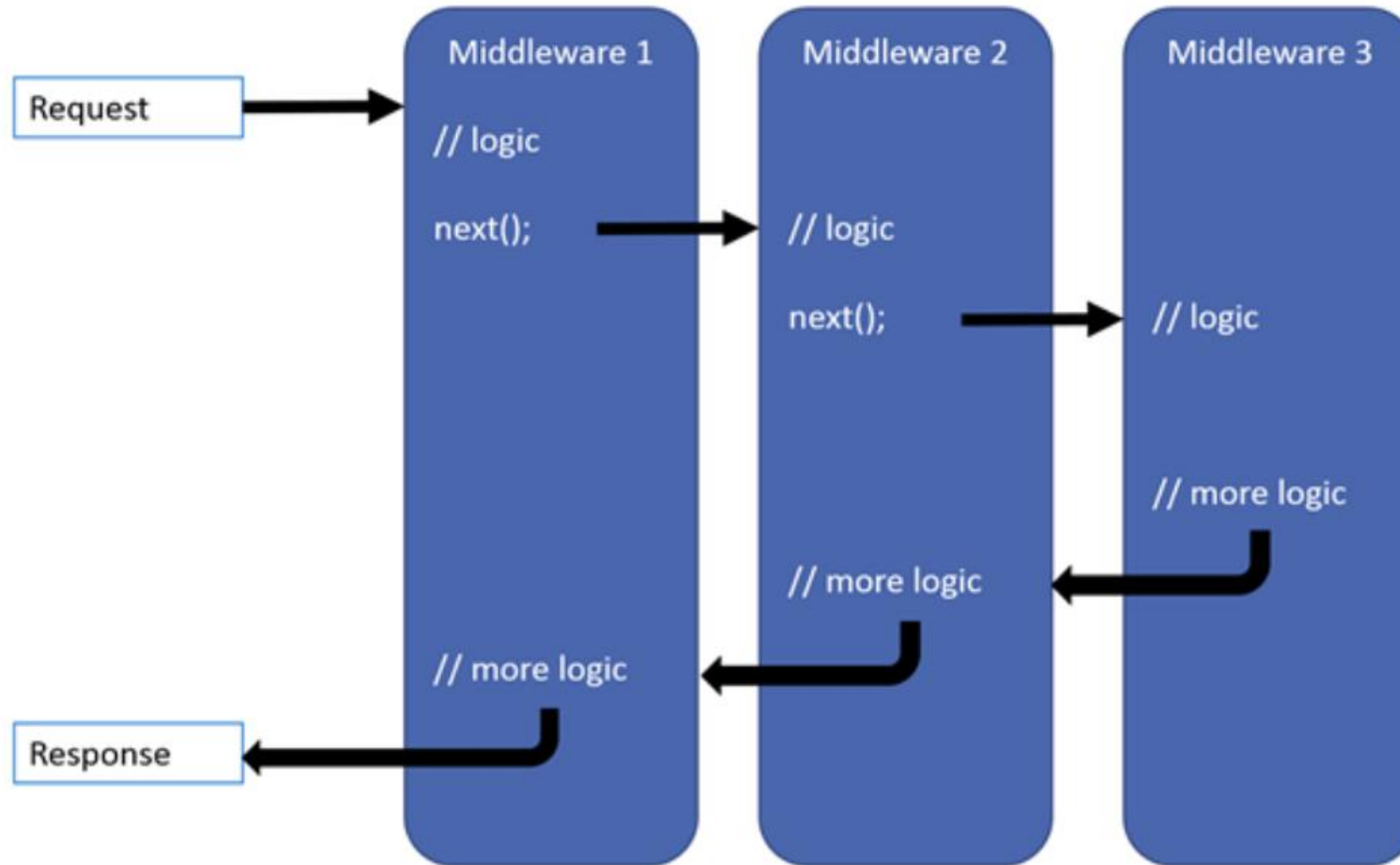
# ASP.NET Core – Pipeline

Kestrel passes request down through middleware

Middleware Pipeline uses method-chaining



# ASP.NET Core – Pipeline





# ASP.NET Core – Pipeline

Kestrel does nothing by default!

Everything is configurable

Middleware examples:

- Static files
- Cookie Authentication
- Facebook Authentication
- ASP.NET Core MVC
- Runtime Info page
- Developer exception page
- Status code pages
- Database error page

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# ASP.Net Core - MVC

# ASP.NET Core – MVC

Also known as MVC 6

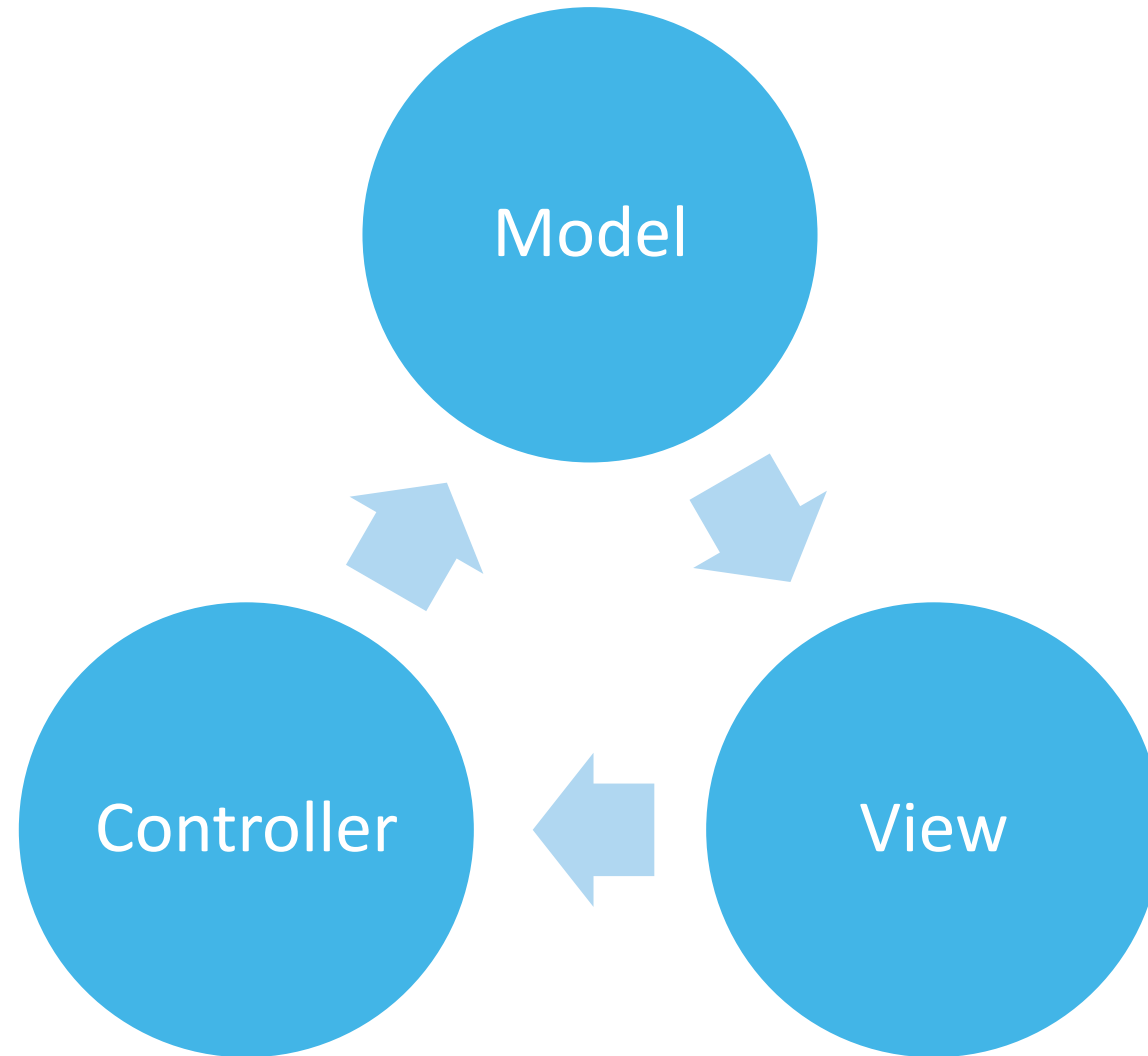
Provides:

- Routing
- Modelbinding
- Templating

Goals:

- Separation of concern
- Patterns based
- Full control of output types (html, json, xml)
- TDD friendly

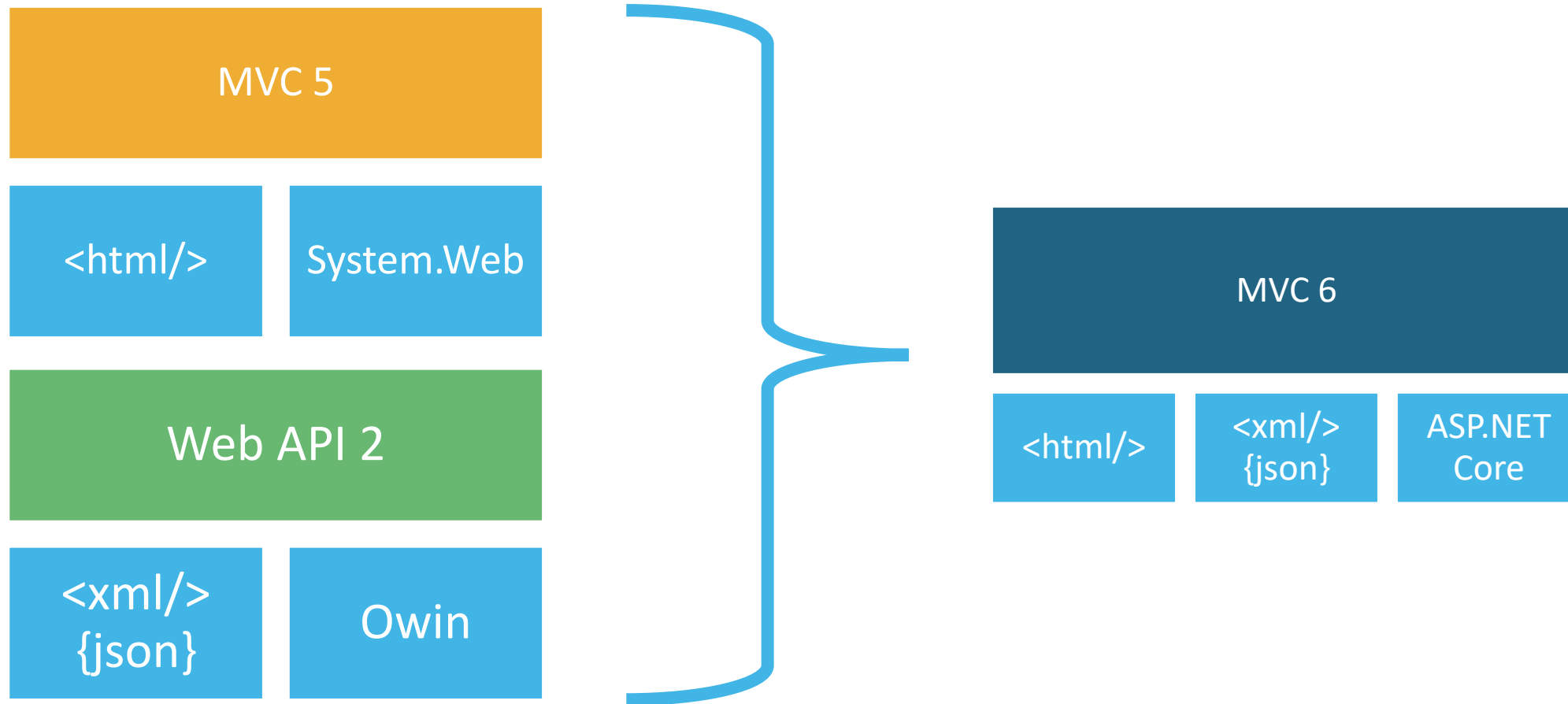
# ASP.NET Core – MVC





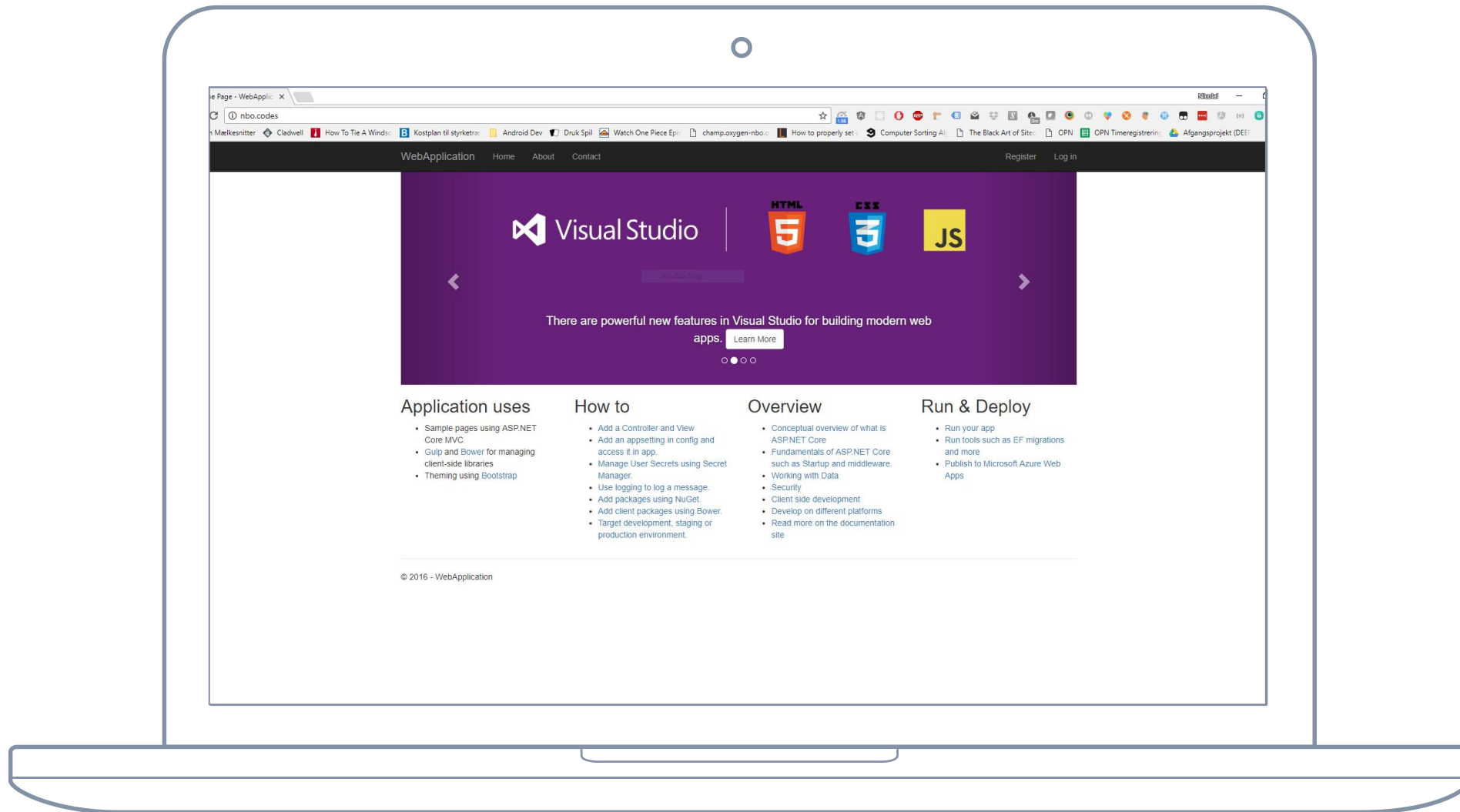
# ASP.NET Core – MVC

Merges MVC Controllers and Web API controllers



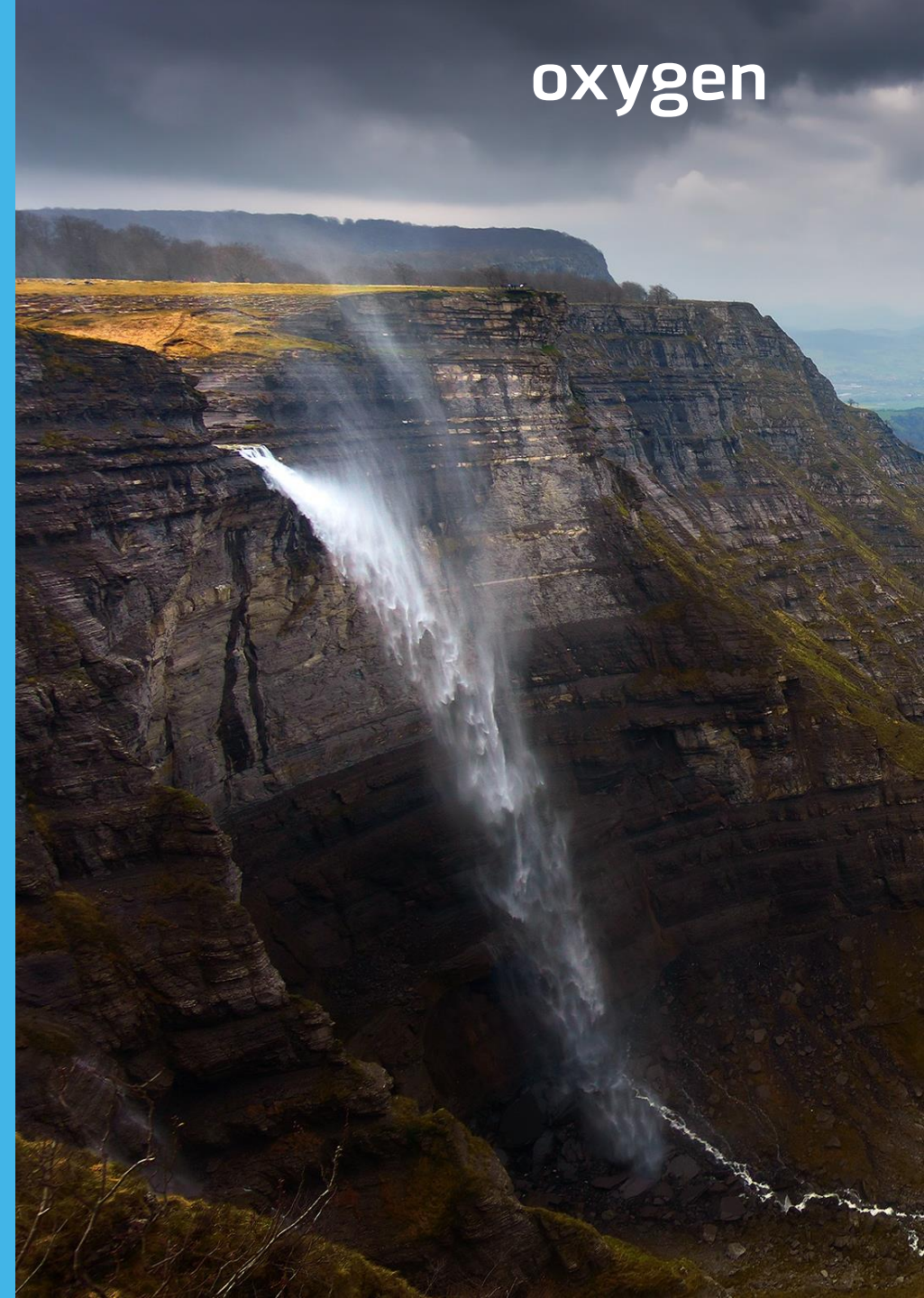
# Demo time

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# ASP.Net Core – Moving to production

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# ASP.NET Core – Moving to production

How to host my app?

- dotnet run?

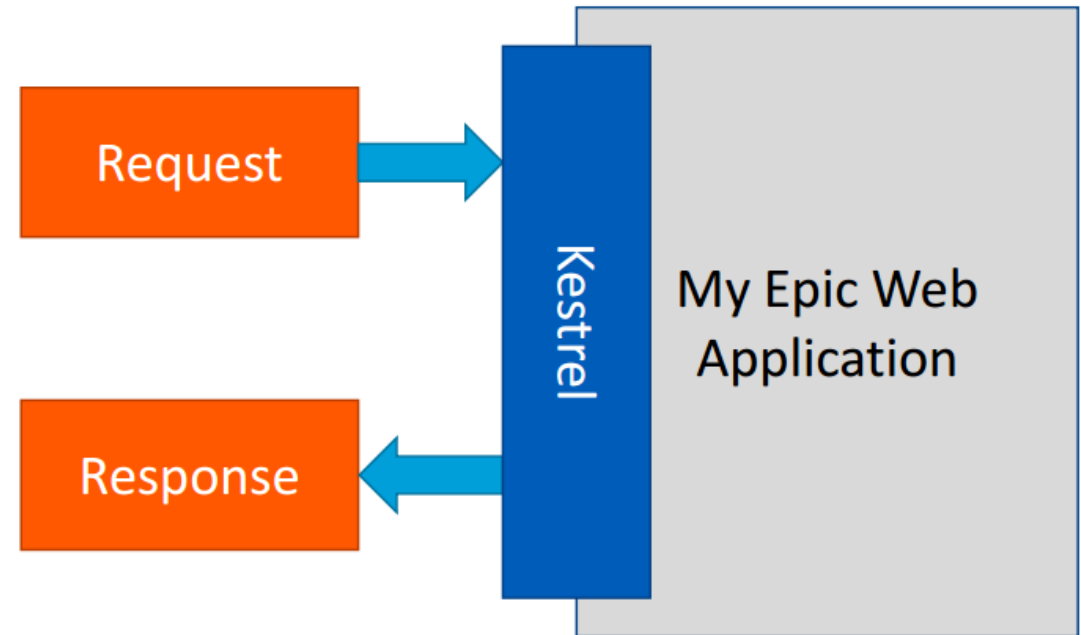
How to get multiple apps on one server?

- All uses port 80

How about SSL/HTTPS?

Authentication?

- Windows authentication?



# ASP.NET Core – Moving to production

How to host my app?

- Use a reverse proxy

How to get multiple apps on one server?

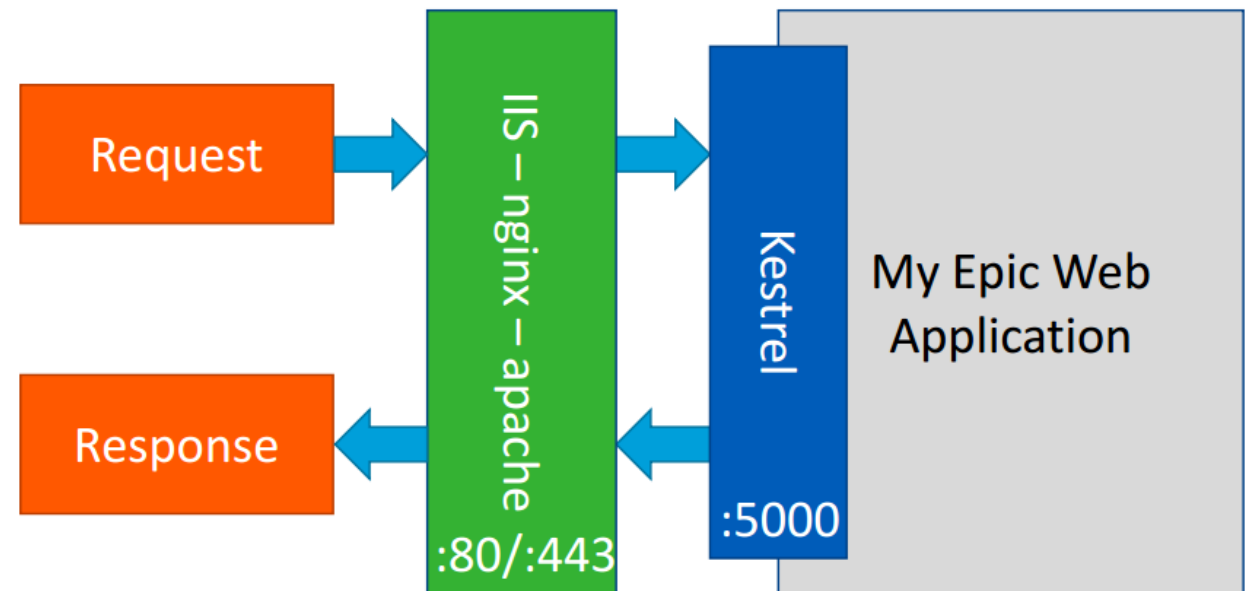
- Use IIS, NGINX or APACHE
- Remember to install ASP.NET Core Module first

How about SSL/HTTPS?

- Above solves that

Authentication?

- More or less built in 😊



# ASP.NET Core – Moving to production

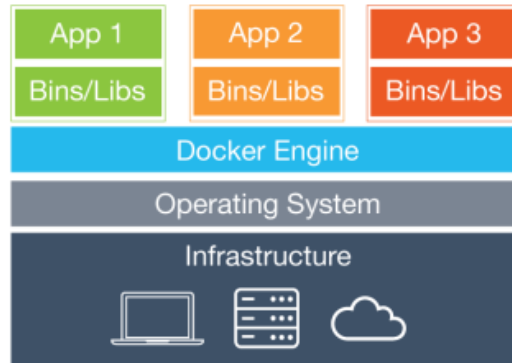
By using `dotnet publish`, you can prepare your application for publishing



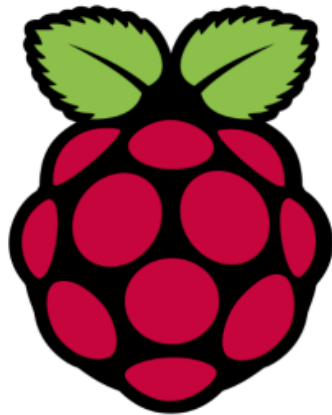
# ASP.Net Core – Future

# ASP.NET Core – Future

## Docker



## Raspberry PI (ARM)

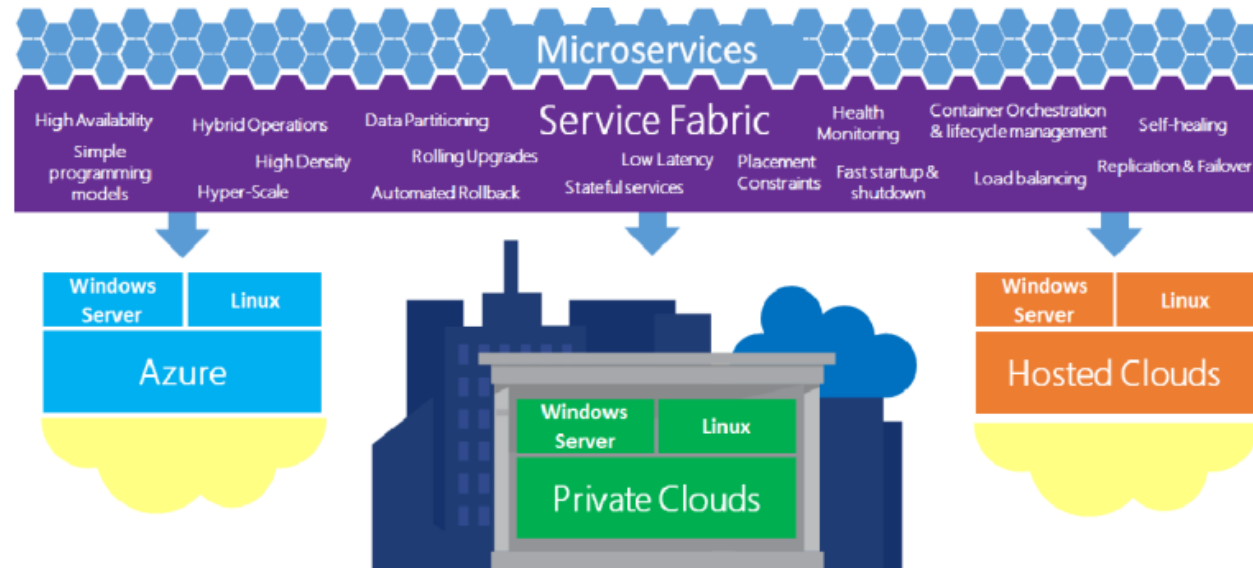


## Nano Server (size 550MB)



## Microservices

### Azure service fabric





A wide-angle photograph of a night sky featuring the Milky Way galaxy. The galaxy's bright, star-filled band stretches diagonally from the upper left towards the lower right. The sky is dark blue and black, filled with numerous stars. At the bottom of the image, a dark silhouette of a landscape is visible, including a road that recedes into the distance. A small, triangular road sign is visible on the right side of the road. The horizon is marked by a soft, orange-yellow glow, likely from distant city lights or the setting/rising sun. The word "oxygen" is written in white, lowercase letters in the upper right corner of the image.

oxygen

Making a website using ASP.NET Core

# Demo time

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# Exercise – Create a website

1. Create an ASP.NET Core MVC Web Application
2. Restore packages
3. Run project from VS2017 and test the page

# Exercise – Change the website

1. Add a new page to the website
2. This includes adding:
  - A new controller
  - A new view
  - A new model (for the view)
3. The page should be a profile page about you
4. Populate personal data into the model
5. Send the model to the view
6. Observer the new page on your website



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Questions?