SQUADRA
Tecnologia

DOT NET CORE COMO VOCÊ NUNCA VIU, OU JÁ

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RODRIGO REIS

SOFTWARE LIVRE

CIÊNCIA DA COMPUTAÇÃO

PARTE DO TIME SQUADRA

DESDE 2013

ARQUITETO DE SOFTWARE

SOFTPLAN

ARQUITEURA E LIDERANÇA DO SQUAD1 (LOCO, REMOTO)
MICROSERVIÇOS DO SAJ-TRIBUNAIS

.NET CORE && DOCKER

FCA GROUP

E-GATE

.NET FULL, WINGS4CLOUD

MAGNETI MARELLI

SERVICE LABEL

.NET FULL, WINGS4CLOUD

Mar 2013

LOCALIZA HERTZ

RAC – RENT A CAR
MONITORAMENTO DA FROTA
GESTÃO DE COMBUSTÍVEL

SC – SOLUÇÕES CORPORATIVAS
ID RAPIDA

GF – GESTÃO DE FROTAS
ASSINATURA ELETRÔNICA

.NET FULL, ARQUITETURA LL

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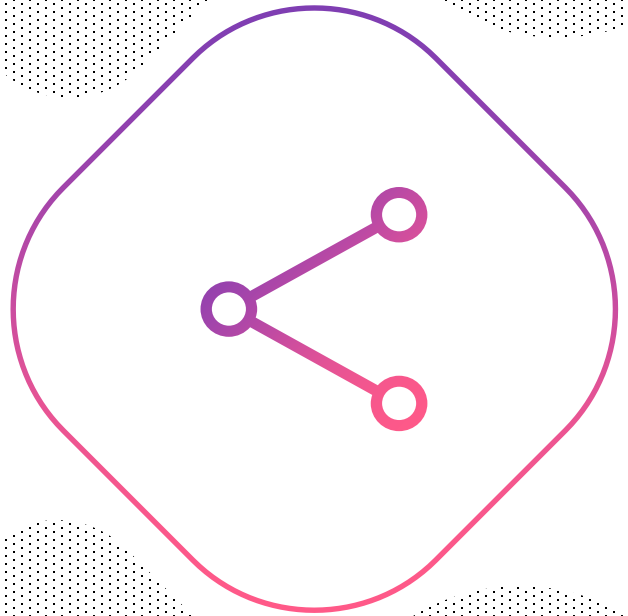
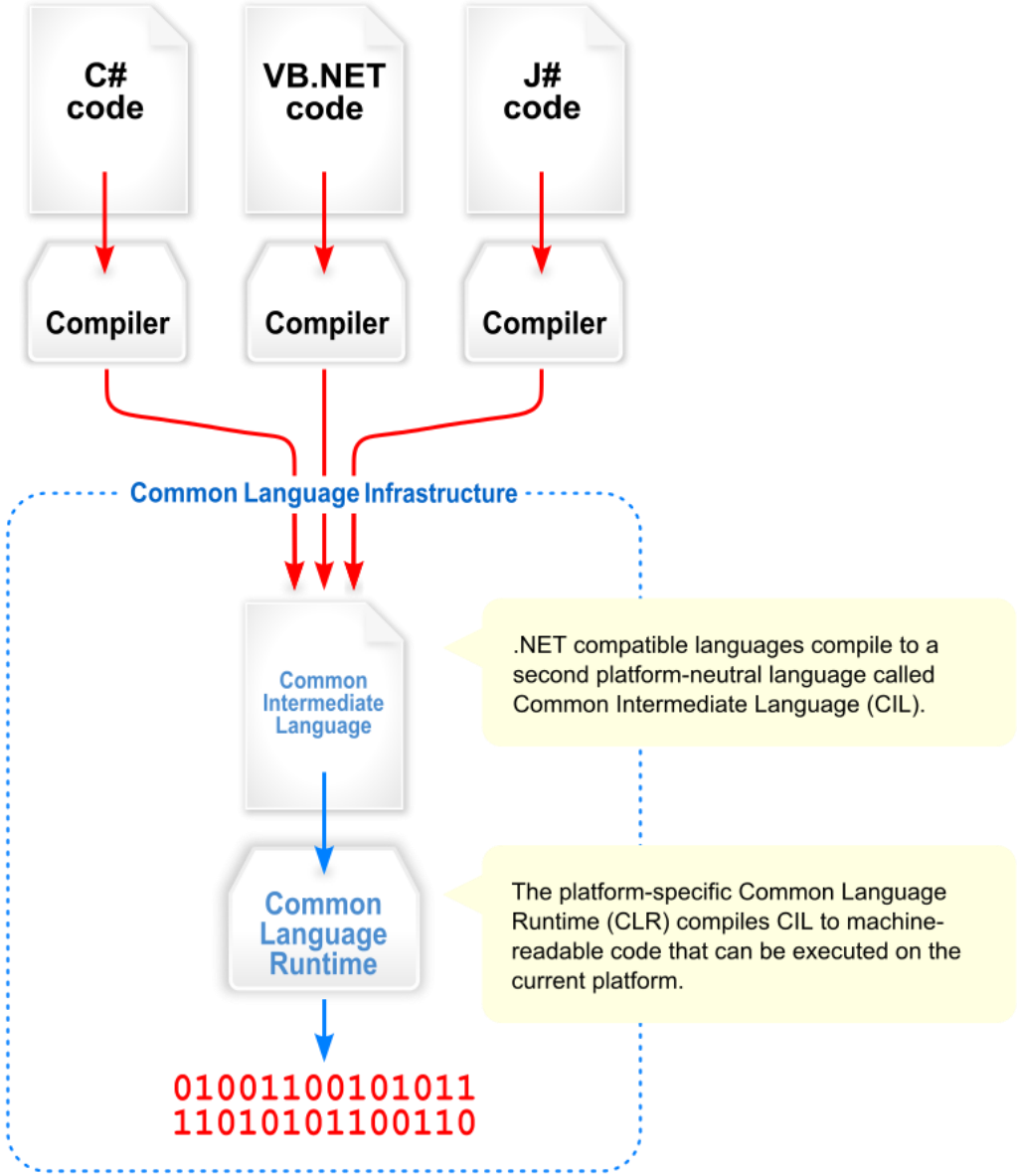


Componentes Arquiteturais: **.NET Standard**

.NET Framework, é uma iniciativa da empresa Microsoft, que visa uma **plataforma única** para desenvolvimento e execução de sistemas e aplicações.


C# code
VB.NET code
J# code
Compiler
Compiler
Compiler
Common Language Infrastructure
Common Intermediate Language
.NET compatible languages compile to a second platform-neutral language called Common Intermediate Language (CIL).
Common Language Runtime
The platform-specific Common Language Runtime (CLR) compiles CIL to machine-readable code that can be executed on the current platform.
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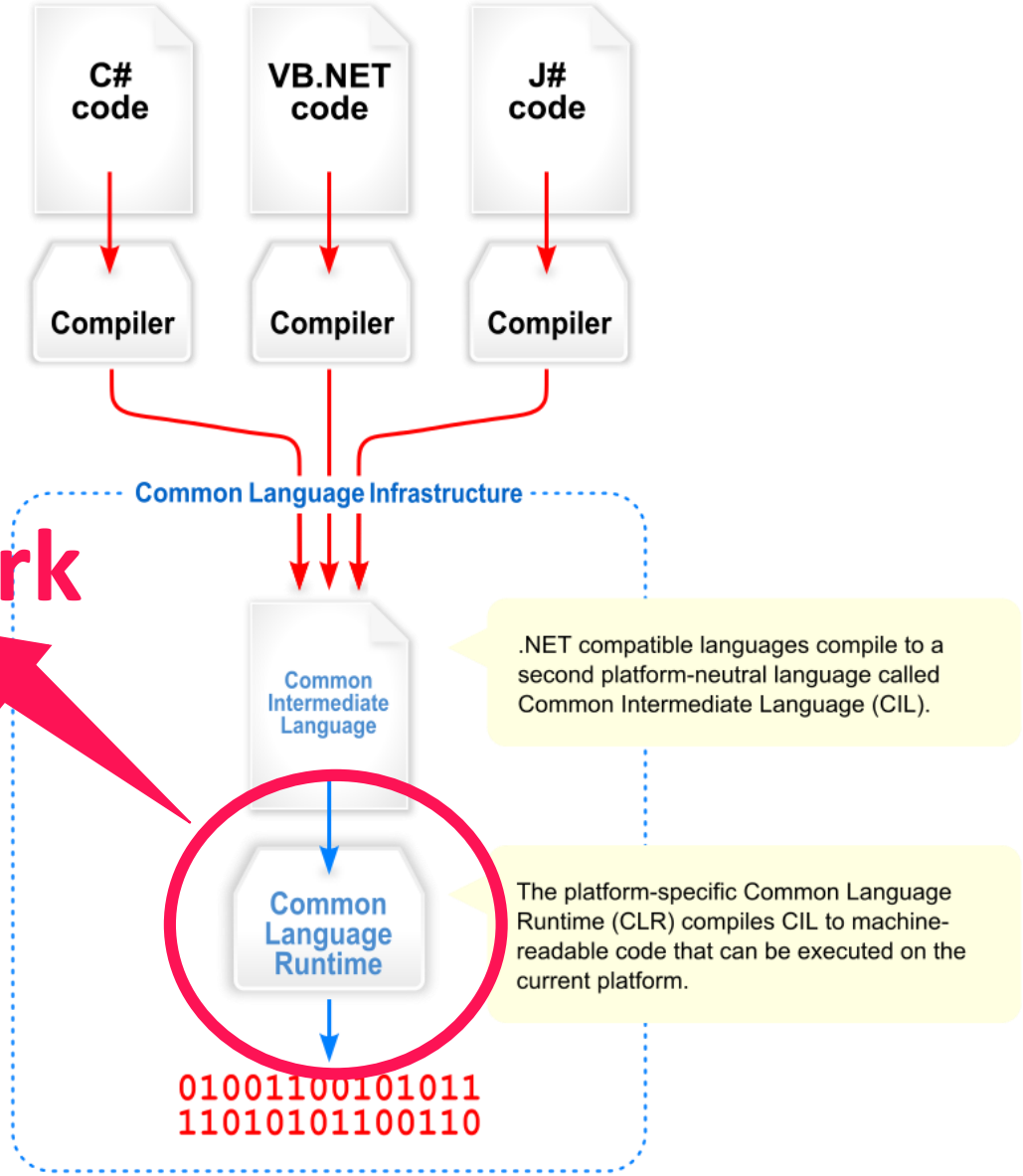
.Net Framework



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Resumo histórico de versões do .NET Framework[1][2]

Versão	Versão CLR	Data lançamento	Visual Studio	Incluso no		Substitui
				Windows	Windows Server	
1.0	1.0	2002-02-13	Visual Studio .NET[3]	XP[a]	—	—
1.1	1.1	2003-04-24	Visual Studio .NET 2003[3]	—	2003	1.0[4]
2.0	2.0	2005-11-07	Visual Studio 2005[5]	—	2003, 2003 R2,[6] 2008 SP2, 2008 R2 SP1	—
3.0	2.0	2006-11-06	Expression Blend[7][b]	Vista	2008 SP2, 2008 R2 SP1	2.0
3.5	2.0	2007-11-19	Visual Studio 2008[8]	7, 8[c], 8.1[c], 10[c]	2008 R2 SP1	2.0, 3.0
4.0	4	2010-04-12	Visual Studio 2010[9]	—	—	—
4.5	4	2012-08-15	Visual Studio 2012[10]	8	2012	4.0
4.5.1	4	2013-10-17	Visual Studio 2013[11]	8.1	2012 R2	4.0, 4.5
4.5.2	4	2014-05-05	—	—	—	4.0–4.5.1
4.6	4	2015-07-20	Visual Studio 2015[12]	10	—	4.0–4.5.2
4.6.1	4	2015-11-30[13]	Visual Studio 2015 Update 1	10 v1511	—	4.0–4.6
4.6.2	4	2016-08-02[14]		10 v1607	—	4.0–4.6.1
4.7	4	2017-04-05[15]	Visual Studio 2017	10 v1703	N/A	4.0-4.6.2
4.8	4	2019-05-10[16]	Visual Studio 2019	10 v1903	2019, 2016, 2012, 2012 R2, 2008 R2 SP1	4.0-4.7

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Mono, the open source development platform based on the .NET Framework, allows developers to build cross-platform applications with improved developer productivity. Mono's .NET implementation is based on the **ECMA standards** for **C#** and the **Common Language Infrastructure**.

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Version	Language specification			Date	.NET Framework	Visual Studio
	ECMA	ISO/IEC	Microsoft			
C# 1.0	December 2002	April 2003	January 2002	January 2002	.NET Framework 1.0	Visual Studio .NET 2002
C# 1.1 C# 1.2			October 2003	April 2003	.NET Framework 1.1	Visual Studio .NET 2003
C# 2.0	June 2006	September 2006	September 2005[c]	November 2005	.NET Framework 2.0	Visual Studio 2005
C# 3.0	None		August 2007	November 2007	.NET Framework 2.0 (Except LINQ)[42] .NET Framework 3.0 (Except LINQ)[42] .NET Framework 3.5	Visual Studio 2008 Visual Studio 2010
C# 4.0			April 2010	April 2010	.NET Framework 4	Visual Studio 2010
C# 5.0	December 2017	December 2018	June 2013	August 2012	.NET Framework 4.5	Visual Studio 2012 Visual Studio 2013
C# 6.0	None		Draft	July 2015	.NET Framework 4.6	Visual Studio 2015
C# 7.0			None	March 2017	.NET Framework 4.6.2	Visual Studio 2017
C# 7.1				August 2017	.NET Framework 4.7	Visual Studio 2017 version 15.3[43]
C# 7.2				November 2017	.NET Framework 4.7.1	Visual Studio 2017 version 15.5[44]
C# 7.3				May 2018	.NET Framework 4.7.2	Visual Studio 2017 version 15.7[44]

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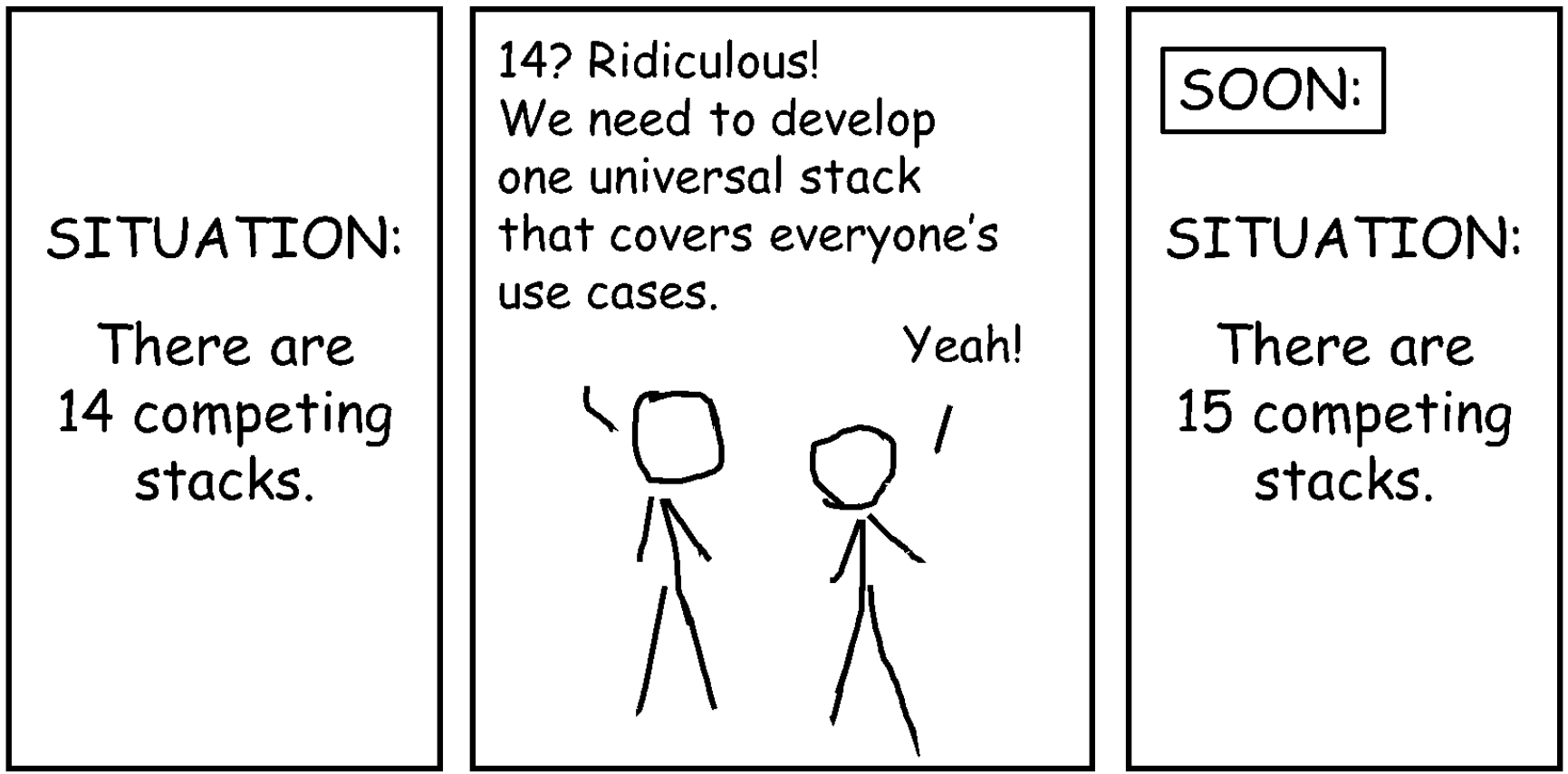
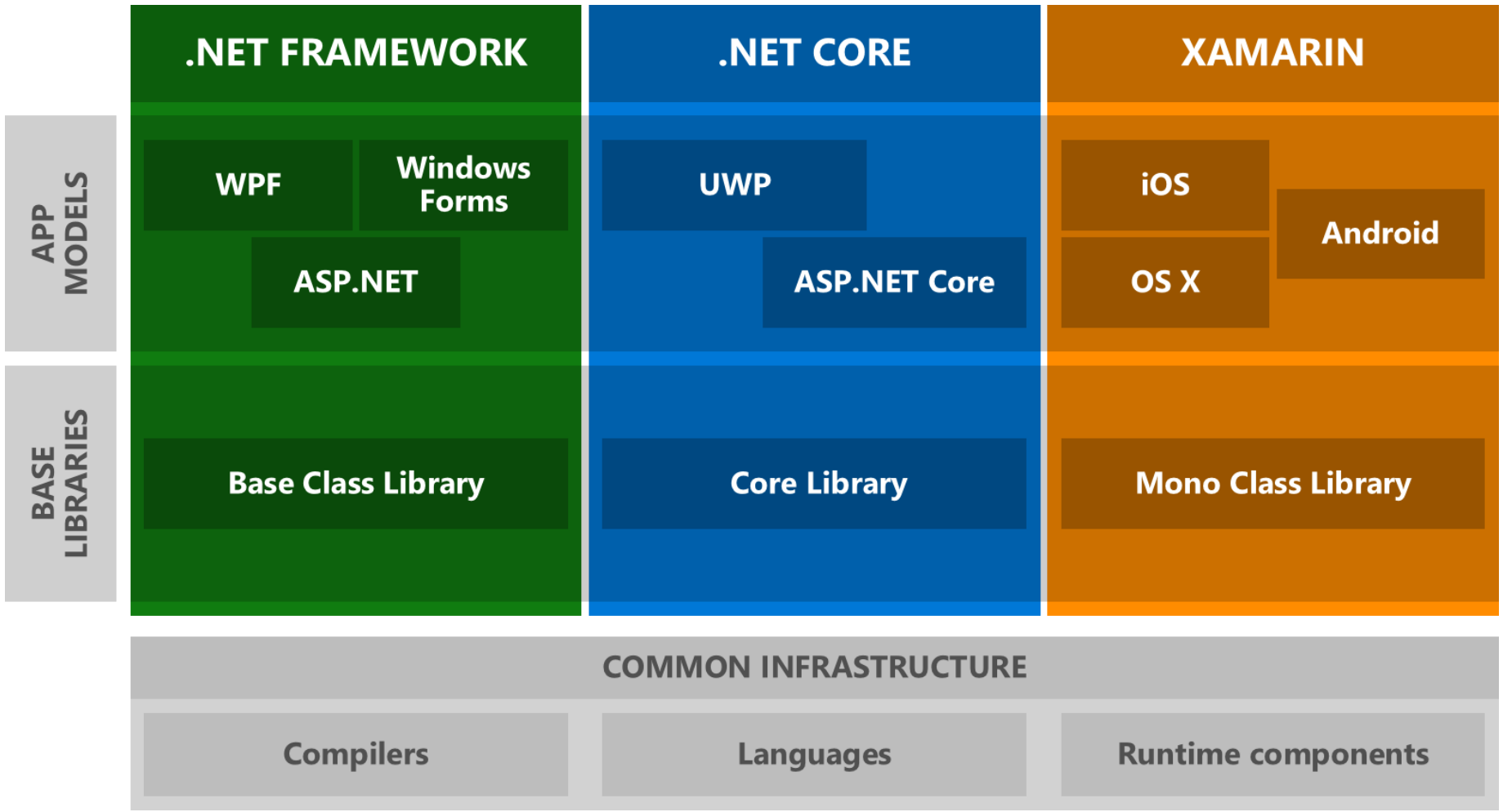
How .NET platforms proliferate



Inspired by http://xkcd.com/927/


.NET FRAMEWORK
.NET CORE
XAMARIN
APP MODELS
WPF
Windows Forms
ASP.NET
UWP
ASP.NET Core
iOS
Android
OS X
BASE LIBRARIES
Base Class Library
Core Library
Mono Class Library
COMMON INFRASTRUCTURE
Compilers
Languages
Runtime components

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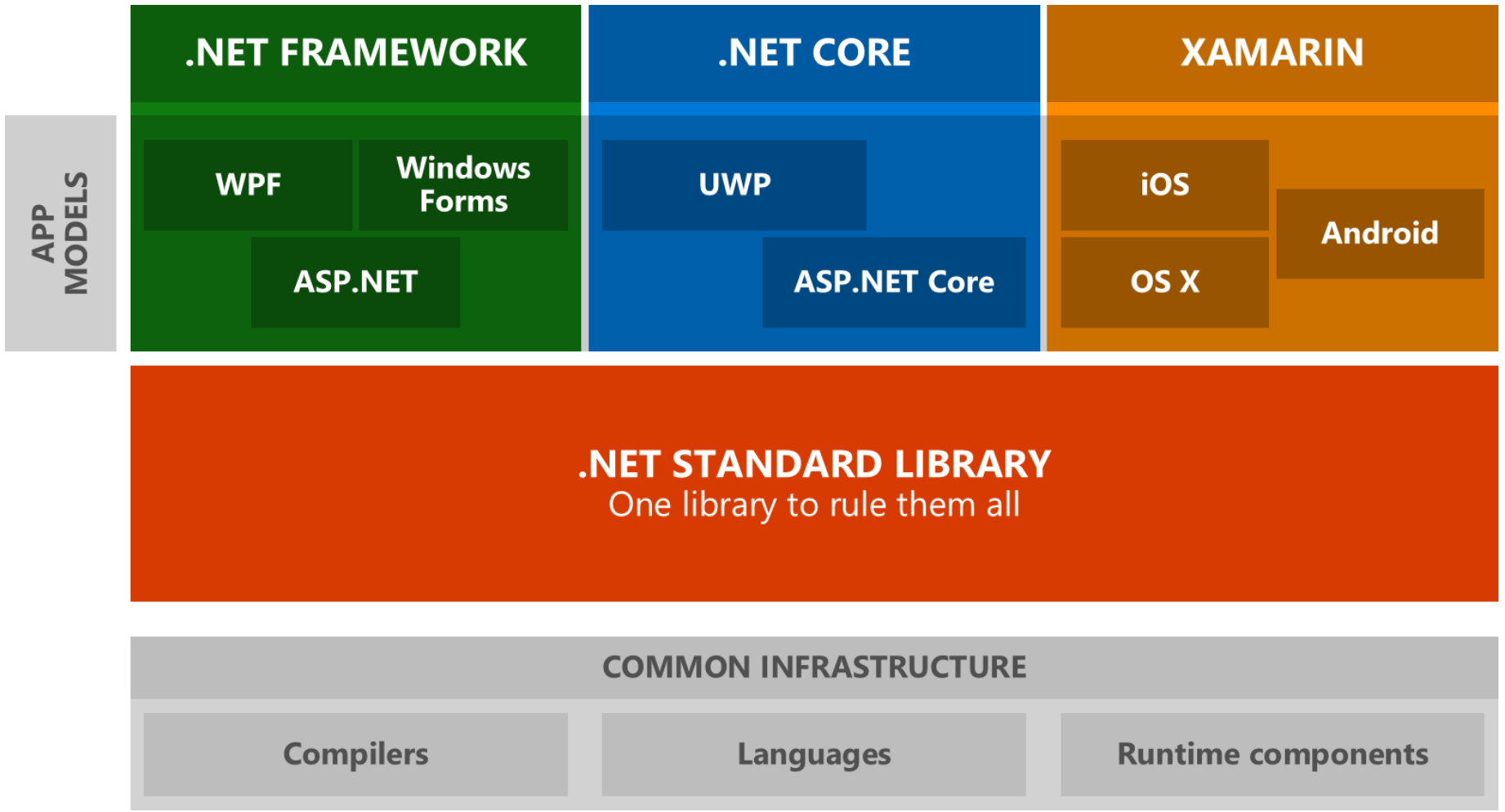

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.NET implementation support

The following table lists the minimum platform versions that support each .NET Standard version.

.NET Standard	1.0	1.1	1.2	1.3	1.4	1.5	1.6	2.0
.NET Core	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0
.NET Framework [1]	4.5	4.5	4.5.1	4.6	4.6.1	4.6.1	4.6.1	4.6.1
Mono	4.6	4.6	4.6	4.6	4.6	4.6	4.6	5.4
Xamarin.iOS	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.14
Xamarin.Mac	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.8
Xamarin.Android	7.0	7.0	7.0	7.0	7.0	7.0	7.0	8.0
Universal Windows Platform	10.0	10.0	10.0	10.0	10.0	10.0.16299	10.0.16299	10.0.16299
Windows	8.0	8.0	8.1					
Windows Phone	8.1	8.1	8.1					
Windows Phone Silverlight	8.0							
Unity	2018.1	2018.1	2018.1	2018.1	2018.1	2018.1	2018.1	2018.1

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.NET implementation support

The following table lists the minimum platform versions that support each .NET Standard version.

.NET Standard	1.0	1.1	1.2	1.3	1.4	1.5	1.6	2.0
.NET Core	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0
.NET Framework [1]	4.5	4.5	4.5.1	4.6	4.6.1	4.6.1	4.6.1	4.6.1
Mono	4.6	4.6	4.6	4.6	4.6	4.6	4.6	5.4
Xamarin.iOS	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.14
Xamarin.Mac	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.8
Xamarin.Android	7.0	7.0	7.0	7.0	7.0	7.0	7.0	8.0
Universal Windows Platform	10.0	10.0	10.0	10.0	10.0	10.0.16299	10.0.16299	10.0.16299
Windows	8.0	8.0	8.1					
Windows Phone	8.1	8.1	8.1					
Windows Phone Silverlight	8.0							
Unity	2018.1	2018.1	2018.1	2018.1	2018.1	2018.1	2018.1	2018.1

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Como distribuir **cross-platform** em um **ambiente heterogêneo**?

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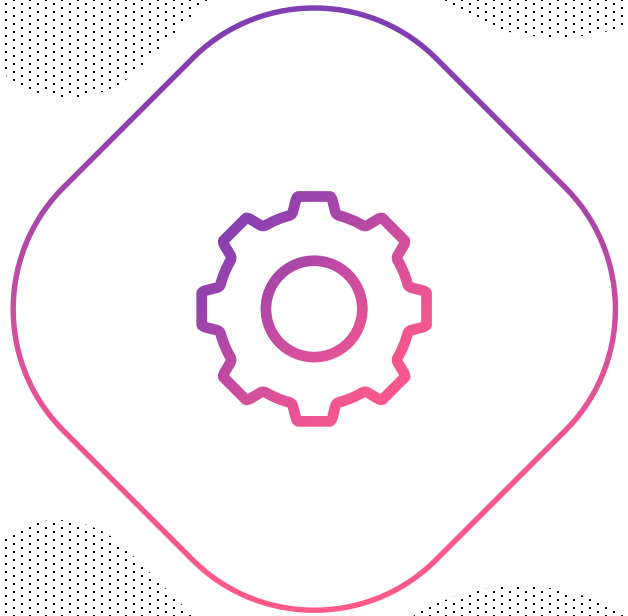

.NET Core:
O que é .NET Core

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O .NET Core é uma implementação **multiplataforma** do .NET,

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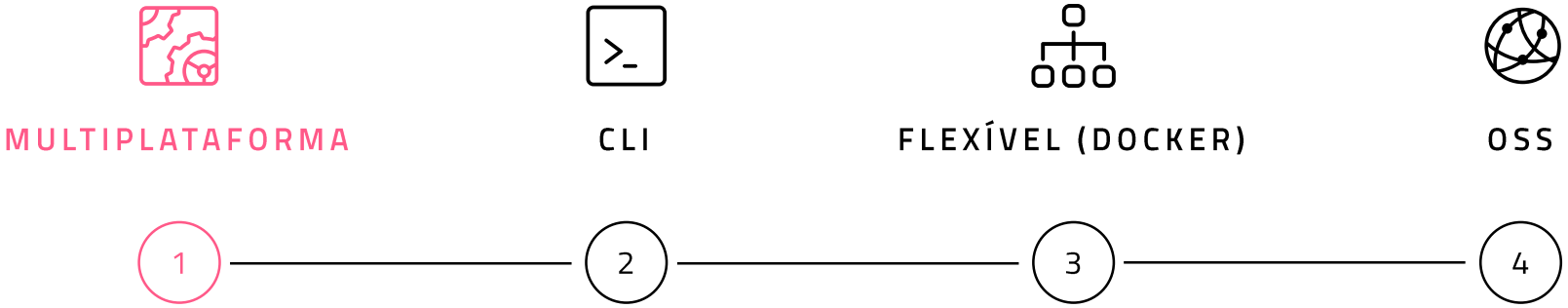

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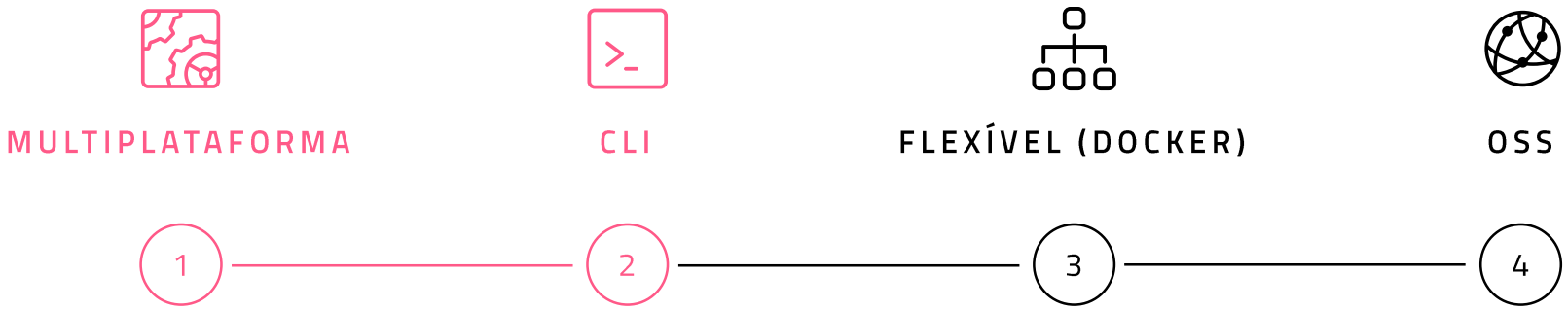

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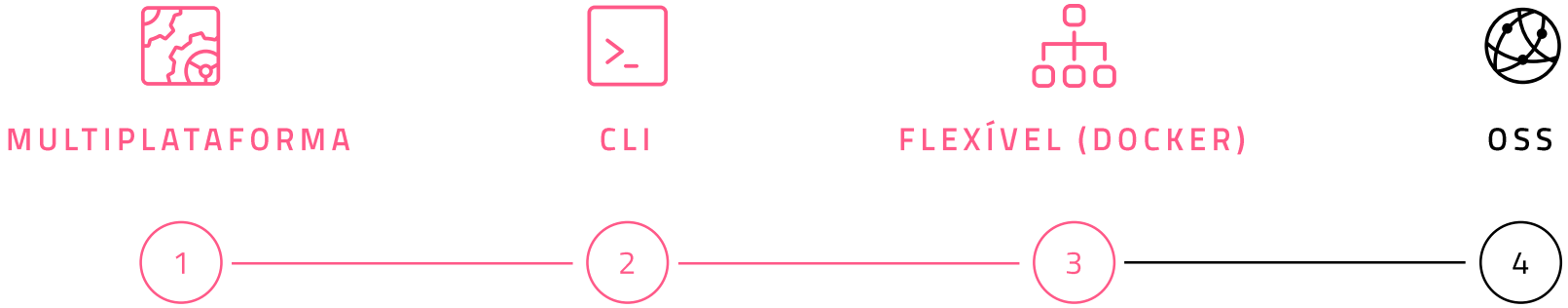

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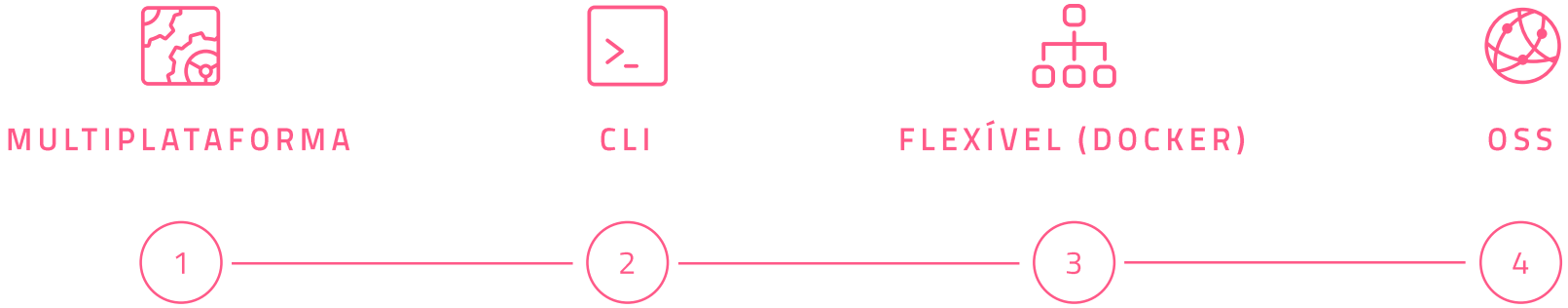

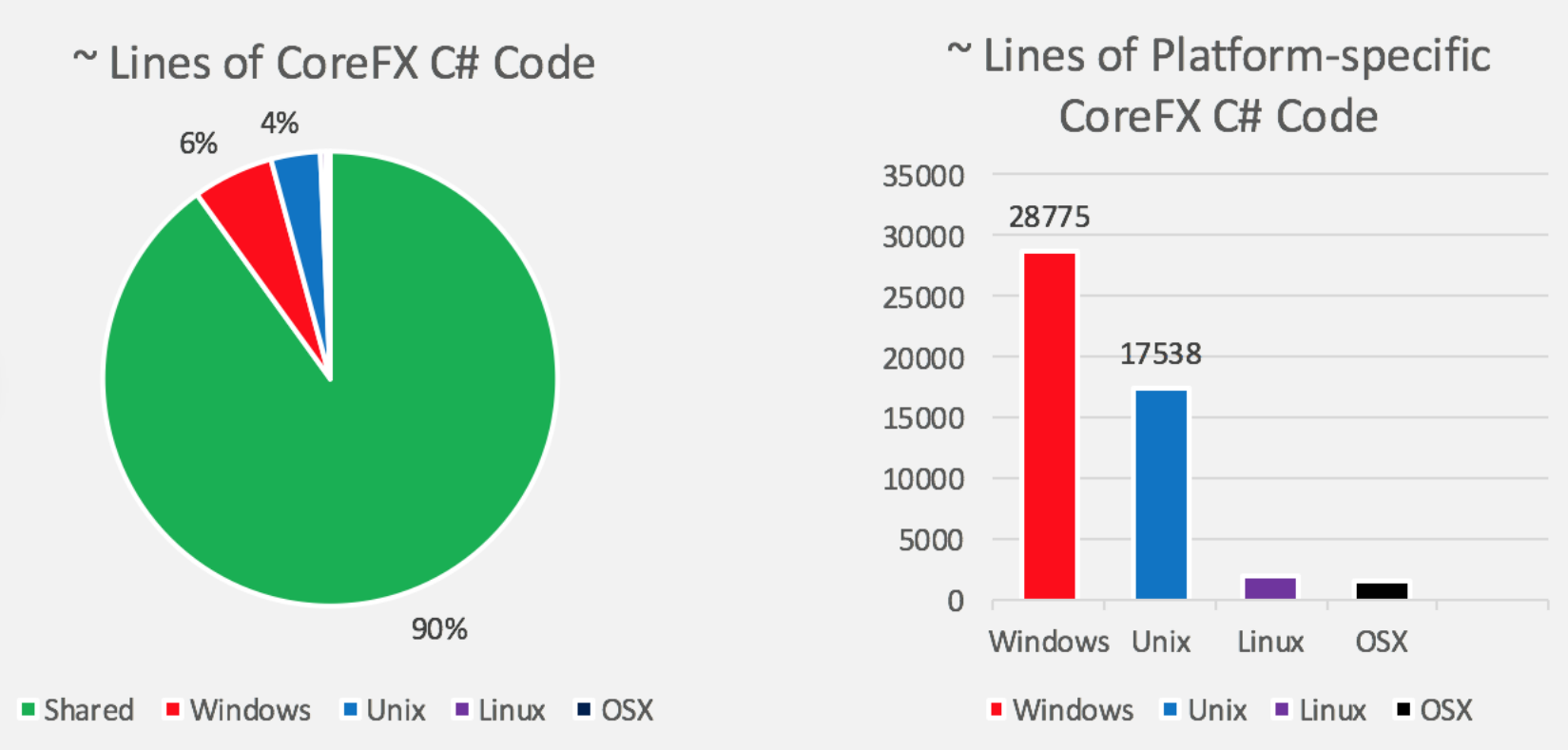

COREFX - System.* (e, até certo ponto, Microsoft.*)

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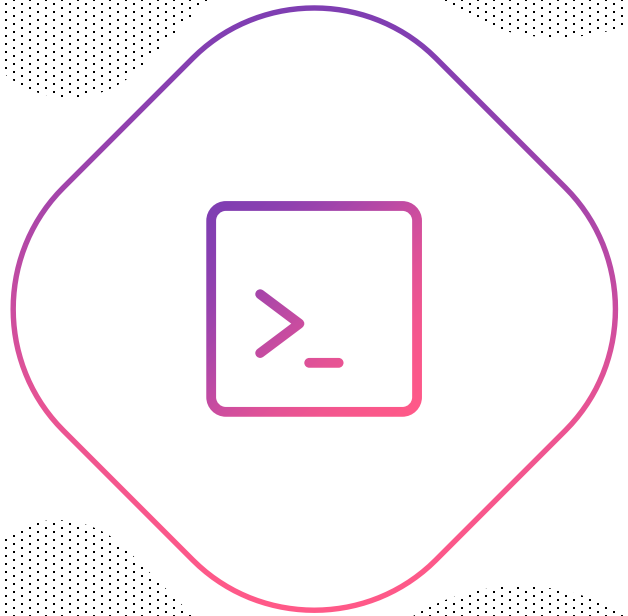

.NET Core:
dotnet CLI

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```
C:\Users\rodrigo.reis
λ dotnet

Usage: dotnet [options]
Usage: dotnet [path-to-application]

Options:
  -h|--help         Display help.
  --info            Display .NET Core information.
  --list-sdks       Display the installed SDKs.
  --list-runtimes   Display the installed runtimes.

path-to-application:
  The path to an application .dll file to execute.
```

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```
Comandos do SDK:
  add                 Adicionar um pacote ou uma referência a um projeto do .NET.
  build               Criar um projeto do .NET.
  build-server        Interagir com servidores iniciados por um build.
  clean               Limpar as saídas do build de um projeto do .NET.
  help                Mostrar a ajuda da linha de comando.
  list                Listar as referências de um projeto do .NET.
  migrate             Migrar um projeto project.json para um projeto do MSBuild.
  msbuild             Executar comandos do MSBuild (Microsoft Build Engine).
  new                 Criar um novo projeto ou arquivo do .NET.
  nuget               Fornece comandos adicionais do NuGet.
  pack                Criar um pacote do NuGet.
  publish             Publicar um projeto do .NET para implantação.
  remove              Remover um pacote ou uma referência de um projeto do .NET.
  restore             Restaurar as dependências especificadas em um projeto do .NET.
  run                 Criar e executar uma saída de projeto do .NET.
  sln                 Modificar os arquivos da solução do Visual Studio.
  store               Armazenar os assemblies especificados no repositório de pacotes do tempo de execução.
  test                Executar testes de unidade usando o executor de testes especificado em um projeto do .NET.
  tool                Instalar ou gerenciar ferramentas que ampliam a experiência do .NET.
  vstest              Executar comandos do VSTest (Microsoft Test Engine).
```

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```
Modelos                                           Nome Curto        Idioma          Marcas
--------------------------------------------------------------------------------------------------------------
Console Application                               console           [C#], F#, VB    Common/Console
Class library                                     classlib          [C#], F#, VB    Common/Library
Unit Test Project                                 mstest            [C#], F#, VB    Test/MSTest
NUnit 3 Test Project                              nunit             [C#], F#, VB    Test/NUnit
NUnit 3 Test Item                                 nunit-test        [C#], F#, VB    Test/NUnit
xUnit Test Project                                xunit             [C#], F#, VB    Test/xUnit
Razor Page                                        page              [C#]            Web/ASP.NET
MVC ViewImports                                   viewimports       [C#]            Web/ASP.NET
MVC ViewStart                                     viewstart         [C#]            Web/ASP.NET
ASP.NET Core Empty                                web               [C#], F#        Web/Empty
ASP.NET Core Web App (Model-View-Controller)      mvc               [C#], F#        Web/MVC
ASP.NET Core Web App                              webapp            [C#]            Web/MVC/Razor Pages
ASP.NET Core with Angular                         angular           [C#]            Web/MVC/SPA
ASP.NET Core with React.js                        react             [C#]            Web/MVC/SPA
ASP.NET Core with React.js and Redux              reactredux        [C#]            Web/MVC/SPA
Razor Class Library                               razorclasslib     [C#]            Web/Razor/Library/Razor Class Library
ASP.NET Core Web API                              webapi            [C#], F#        Web/WebAPI
global.json file                                  globaljson                        Config
NuGet Config                                      nugetconfig                       Config
Web Config                                        webconfig                         Config
Solution File                                     sln                               Solution

Examples:
    dotnet new mvc --auth Individual
    dotnet new globaljson
    dotnet new --help
```

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.NET Core:
Tecnologia ASP.NET Core

Nova estrutura de projeto

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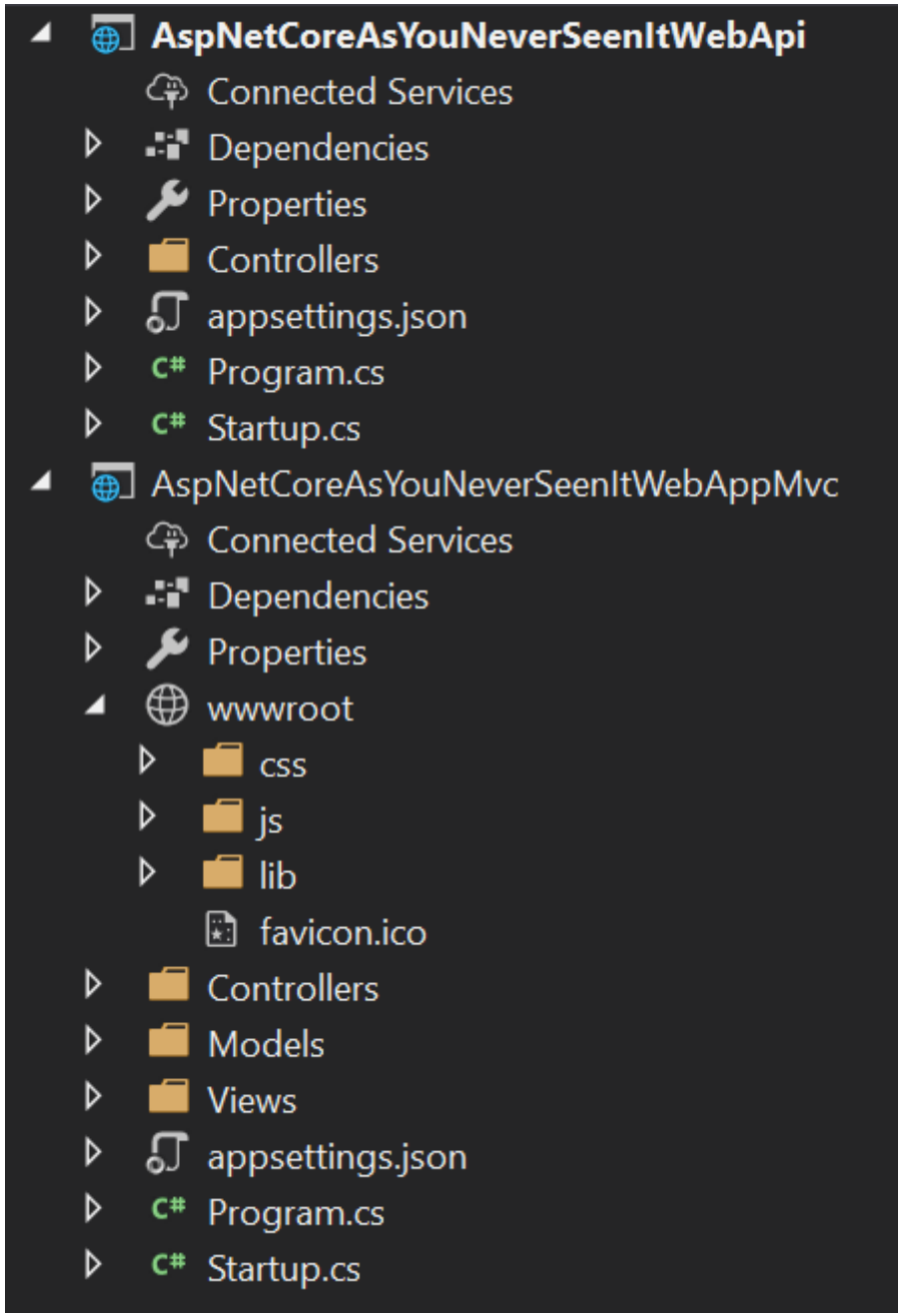

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```
// This method gets called by the runtime. Use this method to add services to the container.
0 references
public void ConfigureServices(IServiceCollection services)
{
    services.AddMvc();
}

// This method gets called by the runtime. Use this method to configure the HTTP request pipeline.
0 references
public void Configure(IApplicationBuilder app, IHostingEnvironment env)
{
    app.UseMvc(routes =>
    {
        routes.MapRoute(
            name: "default",
            template: "{controller=Home}/{action=Index}/{id?}");
    });
}
```

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```
// This method gets called by the runtime. Use this method to add services to the container.
0 references
public void ConfigureServices(IServiceCollection services)
{
    services.AddMvc();
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// This method gets called by the runtime. Use this method to configure the HTTP request pipeline.
0 references
public void Configure(IApplicationBuilder app, IHostingEnvironment env)
{
    app.UseMvc();
}
```

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Arquivos de configuração

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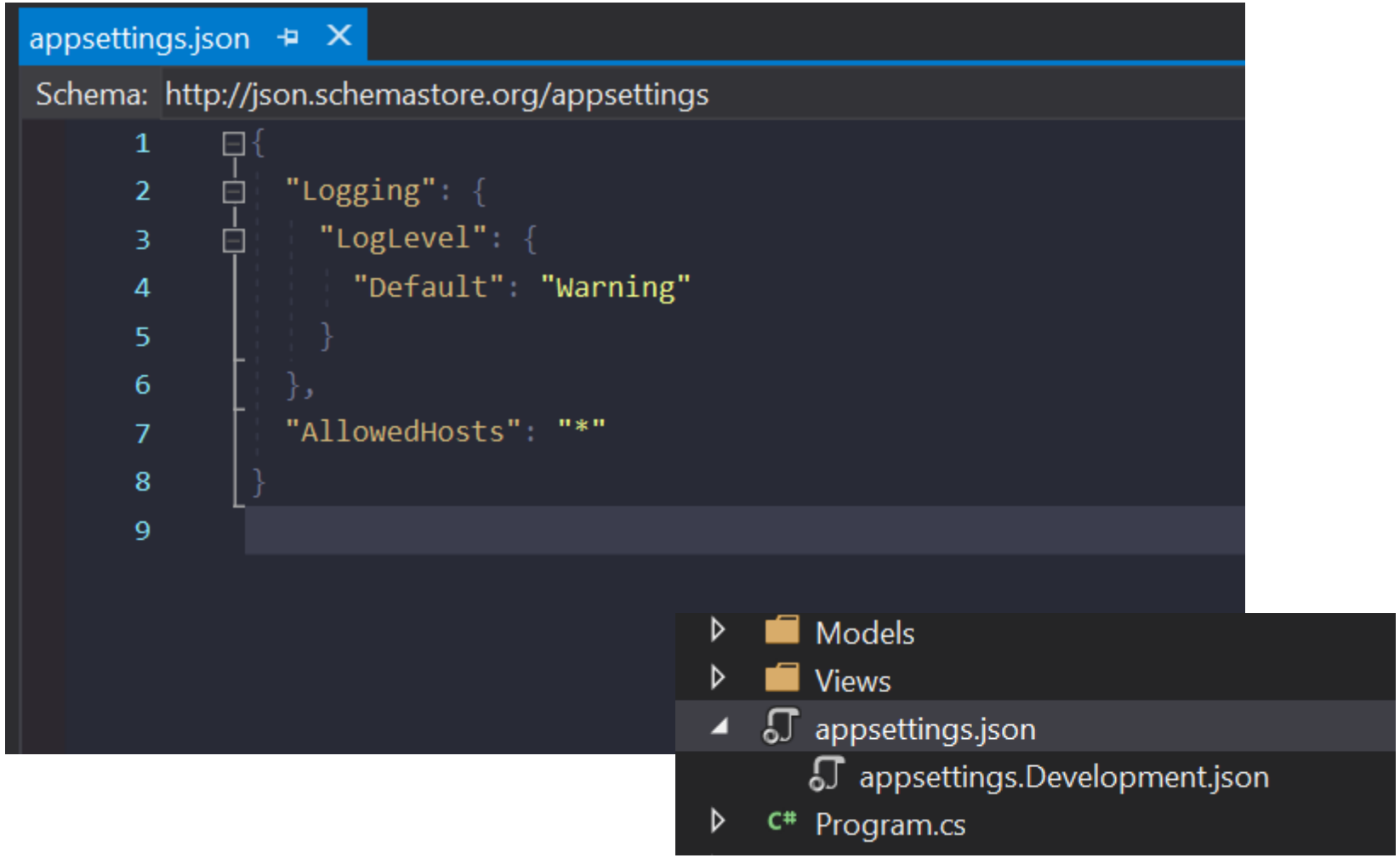

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launchSettings.json

Schema: http://json.schemastore.org/launchsettings

```
{
  "iisSettings": {
    "windowsAuthentication": false,
    "anonymousAuthentication": true,
    "iisExpress": {
      "applicationUrl": "http://localhost:60155",
      "sslPort": 0
    }
  },
  "profiles": {
    "IIS Express": {
      "commandName": "IISExpress",
      "launchBrowser": true,
      "environmentVariables": {
        "ASPNETCORE_ENVIRONMENT": "Development"
      }
    },
    "AspNetCoreAsYouNeverSeenItWebAppMvc": {
      "commandName": "Project",
      "launchBrowser": true,
      "applicationUrl": "http://localhost:5000",
      "environmentVariables": {
        "ASPNETCORE_ENVIRONMENT": "Development"
      }
    }
```

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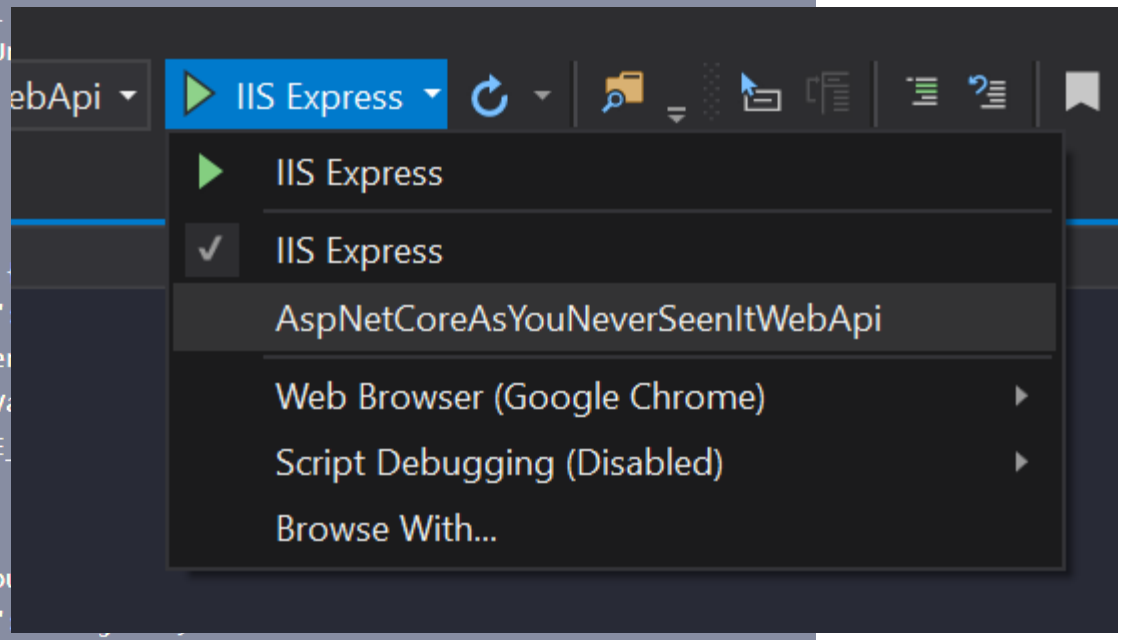
launchSettings.json

Schema: http://json.schemastore.org/launchsettings

```
{
  "iisSettings": {
    "windowsAuthentication": false,
    "anonymousAuthentication": true,
    "iisExpress": {
      "applicationU
      "sslPort": 0
    }
  },
  "profiles": {
    "IIS Express":
      "commandName"
      "launchBrowse
      "environmentV
        "ASPNETCORE_
      }
    },
    "AspNetCoreAsYou
      "commandName"
      "launchBrowser": true,
      "applicationUrl": "http://localhost:5000",
      "environmentVariables": {
        "ASPNETCORE_ENVIRONMENT": "Development"
      }
    }
}
```



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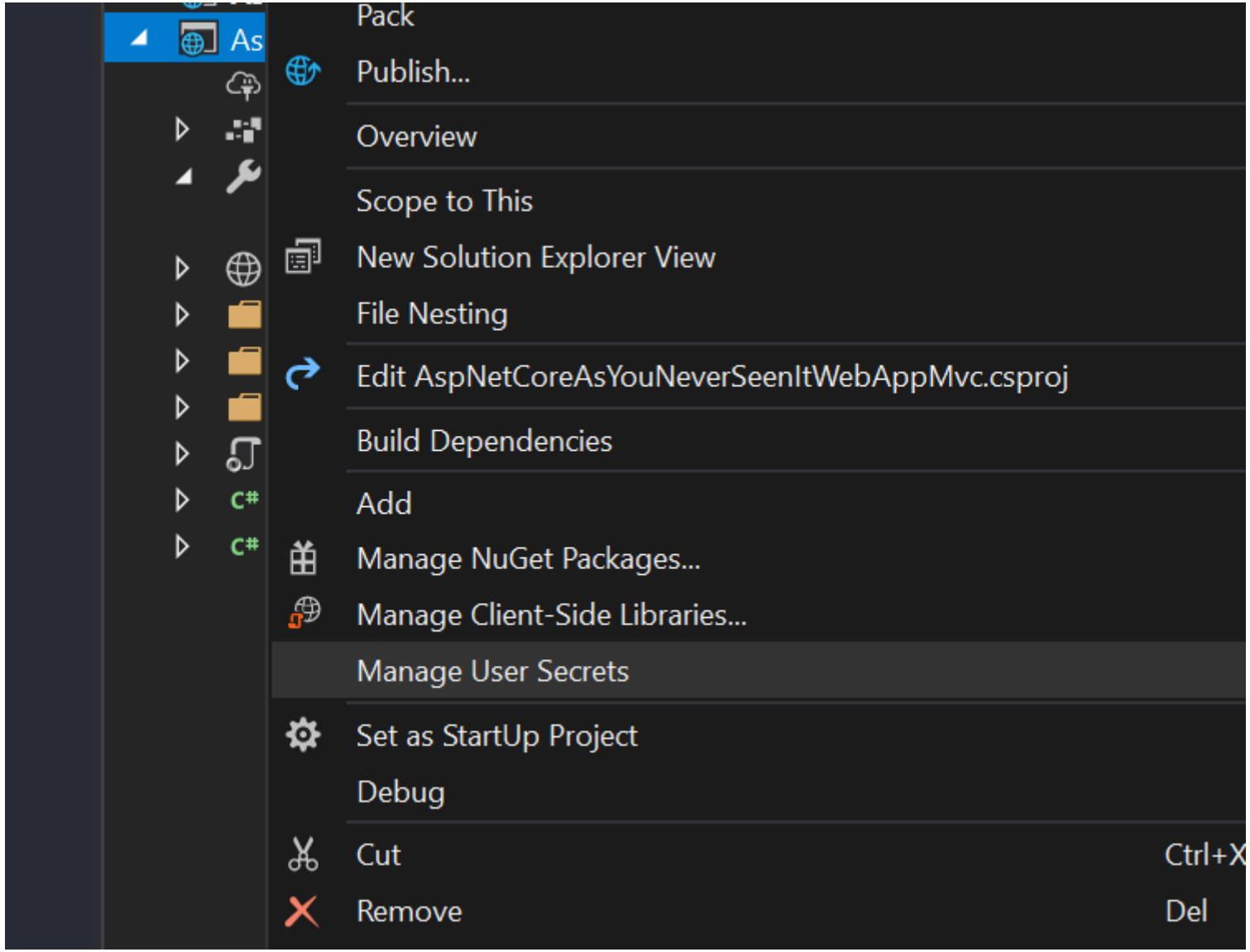

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Middlewares

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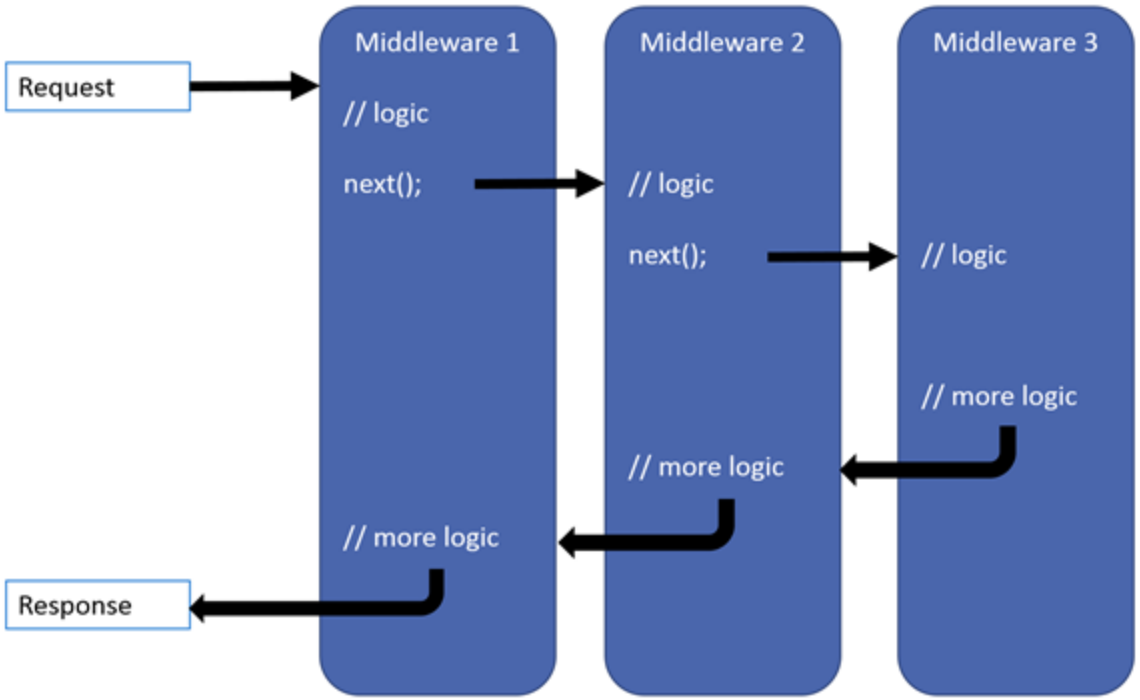
O middleware é um software montado em um pipeline de aplicativo para manipular solicitações e respostas


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

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```
public void Configure(IApplicationBuilder app, IHostingEnvironment env)
{
    app.Use(async (context, next) =>
    {
        await context.Response.WriteAsync("Primeiro middleware (antes)");
        await next();
        await context.Response.WriteAsync("Primeiro middleware (depois)");
    });

    app.Use(async (context, next) =>
    {
        await context.Response.WriteAsync("Segundo middleware (antes)");
        await next();
        await context.Response.WriteAsync("Segundo middleware (depois)");
    });

    app.Run(async (context) =>
    {
        await context.Response.WriteAsync("Middleware final");
    });
}
```

```
public void Configure(IApplicationBuilder app, IHostingEnvironment env)
{
    app.Use(async (context, next) =>
    {
        await context.Response.WriteAsync("Primeiro middleware (antes)");
        await next();
        await context.Response.WriteAsync("Primeiro middleware (depois)");
    });

    app.Use(async (context, next) =>
    {
        await context.Response.WriteAsync("Segundo middleware (antes)");
        await next();
        await context.Response.WriteAsync("Segundo middleware (depois)");
    });

    app.Run(async (context) =>
    {
        await context.Response.WriteAsync("Middleware final");
    });
}
```

```
Primeiro middleware (antes)
Segundo middleware (antes)
Middleware final
Segundo middleware (depois)
Primeiro middleware (depois)
```

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Hands-on:
Chat em ASP.NET Core

Dúvidas?

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Obrigado!

rodrigo.reis@Squadra.com.br

"Programming is a social activity."
Uncle Bob.