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.Net - Happy start

Agenda

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What is .NET?

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.NET

.NET is a free, cross-platform, open source developer platform for building many different types of applications.

With .NET, you can use multiple languages, editors, and libraries to build for web, mobile, desktop, gaming, and IoT.

What is .NET?

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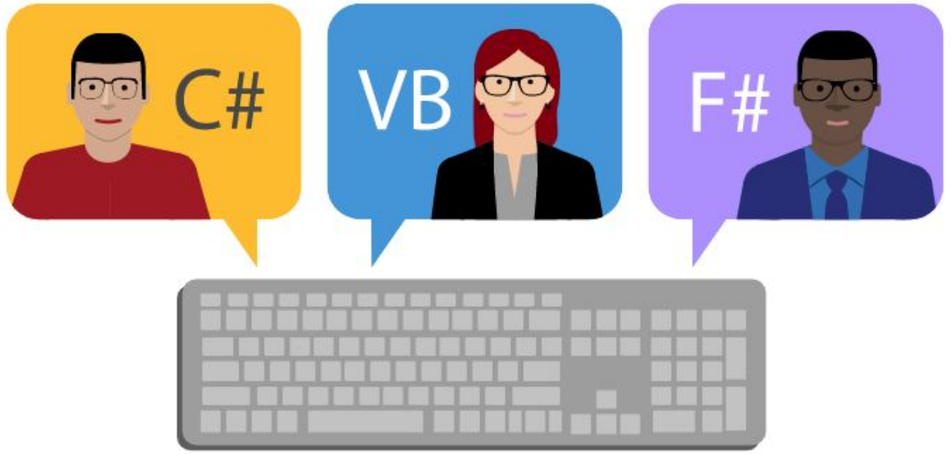
Languages

You can write .NET apps in C#, F#, or Visual Basic.

- C# is a simple, modern, object-oriented, and type-safe programming language.
- F# is a cross-platform, open-source, functional programming language for .NET. It also includes object-oriented and imperative programming.
- Visual Basic is an approachable language with a simple syntax for building type-safe, object-oriented apps.



What is .NET?

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Cross Platform

Whether you're working in C#, F#, or Visual Basic, your code will run natively on any compatible OS. Different .NET implementations handle the heavy lifting for you:

- **.NET Core** is a cross-platform .NET implementation for websites, servers, and console apps on Windows, Linux, and macOS.
- **.NET Framework** supports websites, services, desktop apps, and more on Windows.
- **Xamarin/Mono** is a .NET implementation for running apps on all the major mobile operating systems.

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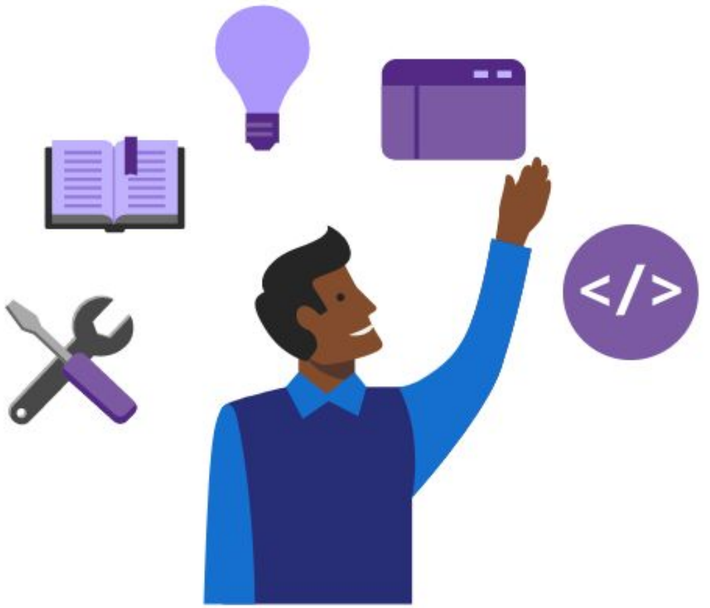
One consistent API

.NET Standard is a base set of APIs that are common to all .NET implementations.

Each implementation can also expose additional APIs that are specific to the operating systems it runs on. For example, .NET Framework is a Windows-only .NET implementation that includes APIs for accessing the Windows Registry.



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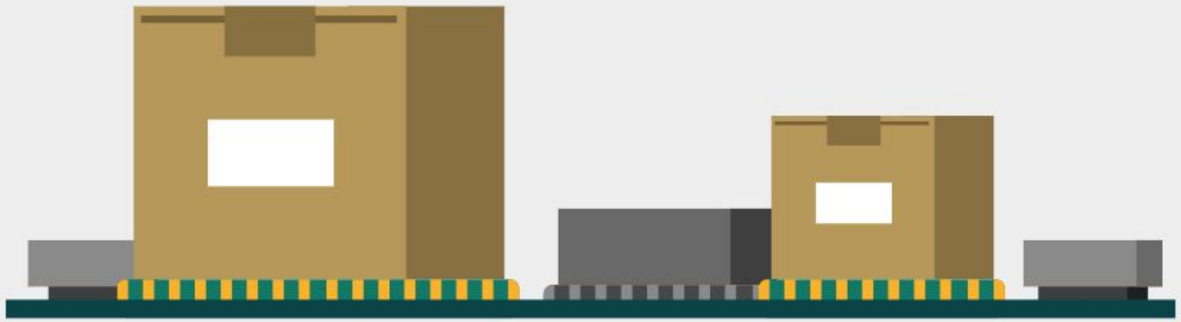

Libraries

To extend functionality, Microsoft and others maintain a healthy package ecosystem built on .NET Standard.

NuGet is a package manager built specifically for .NET that contains over 90,000 packages.

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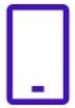
Application models

You can build many types of apps with .NET. Some are cross-platform, and some target a specific OS or .NET implementation.

Web

Build web apps and services for Windows, Linux, macOS, and Docker.



Mobile

Use a single codebase to build native mobile apps for iOS, Android, and Windows.

Desktop

Create beautiful and compelling desktop apps for Windows and macOS.

Gaming

Develop 2D and 3D games for the most popular desktops, phones, and consoles.

Machine Learning & AI

Add vision algorithms, speech processing, predictive models, and more to your apps.

Internet of Things

Make IoT apps, with native support for the Raspberry Pi and other single-board computers.

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Open source

Because .NET is open source, you can join the 25,000 developers and 1,700 companies already contributing to the .NET platform.

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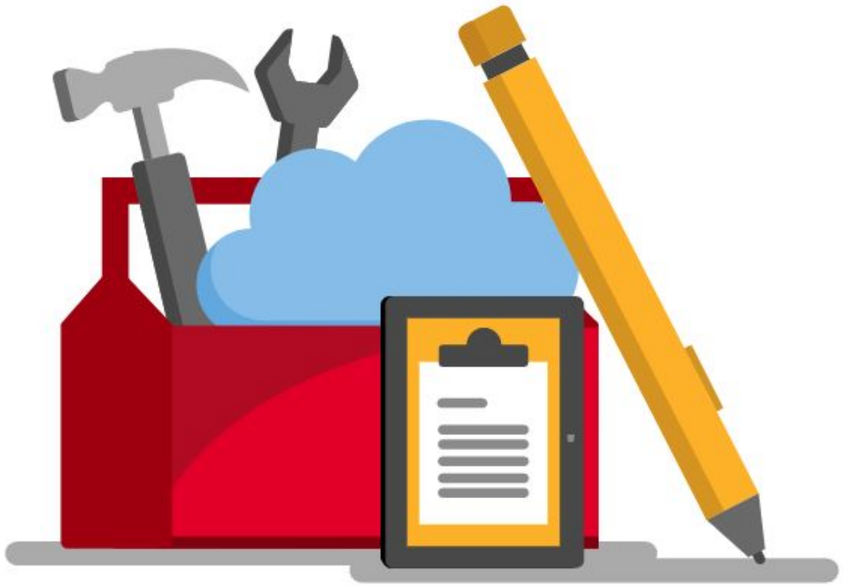
Tools

The Visual Studio product family provides a great .NET development experience on Windows, Linux, and macOS.

The Visual Studio Marketplace has thousands of editor extensions from Microsoft and others.

If you prefer to use a different editor, there are .NET command line tools and plugins for many popular editors.



.NET Framework version history

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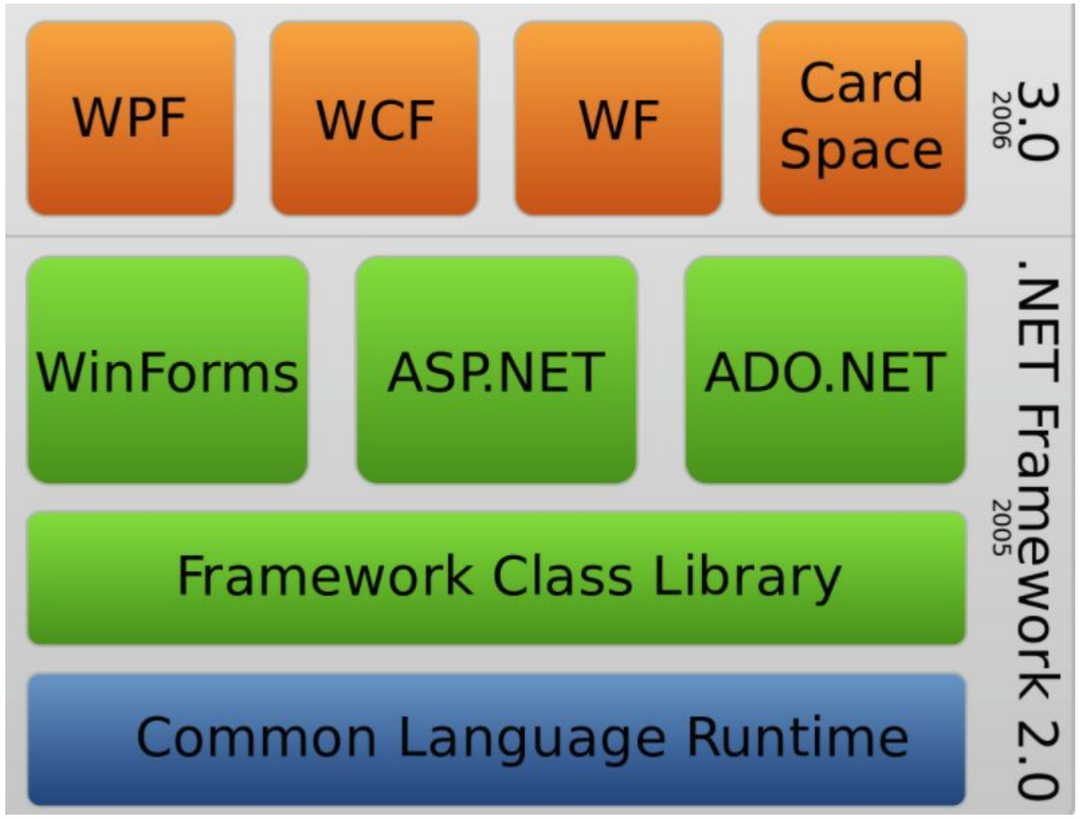

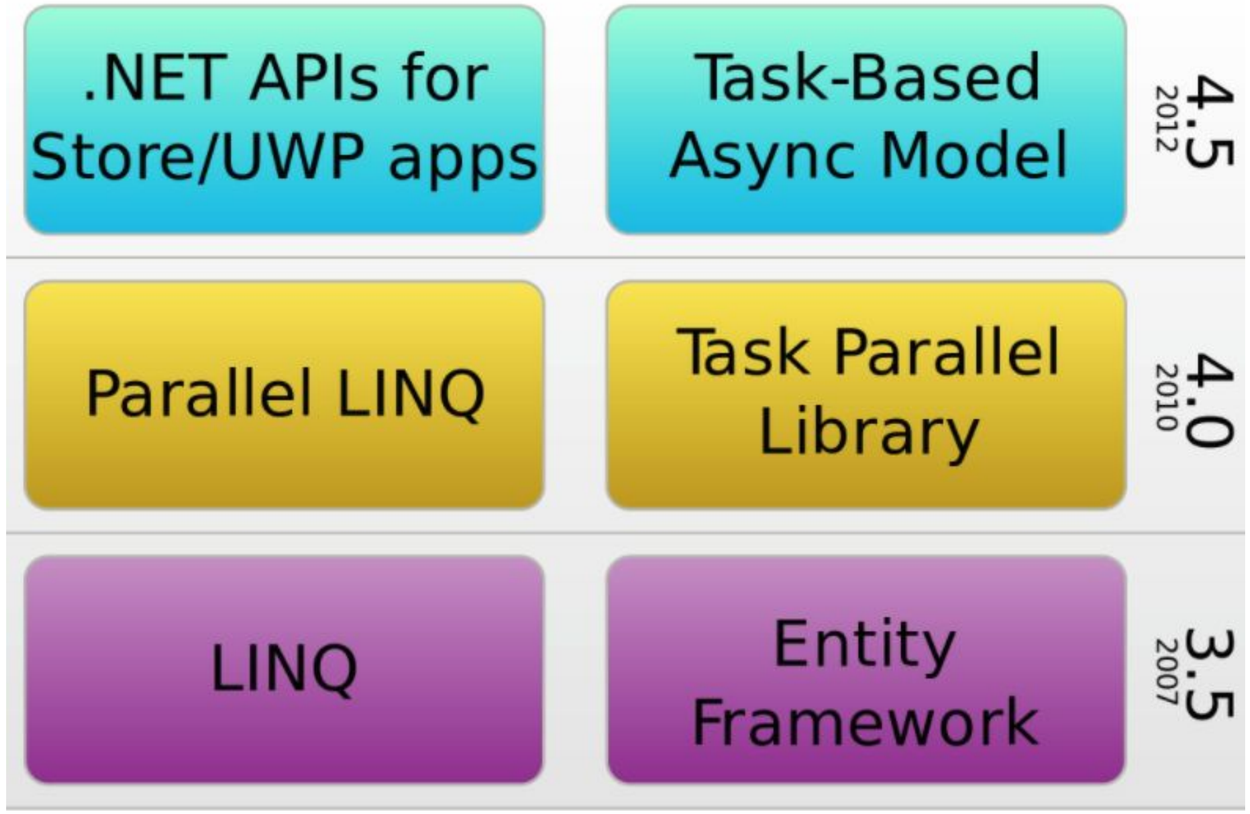

Common Language Runtime

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- Performance improvements.
- The ability to easily use components developed in other languages.
- Extensible types provided by a class library.
- Language features such as inheritance, interfaces, and overloading for object-oriented programming.
- Support for explicit free threading that allows creation of multithreaded, scalable applications.
- Support for structured exception handling.
- Support for custom attributes.
- Garbage collection.
- Use of delegates instead of function pointers for increased type safety and security.

Windows Forms

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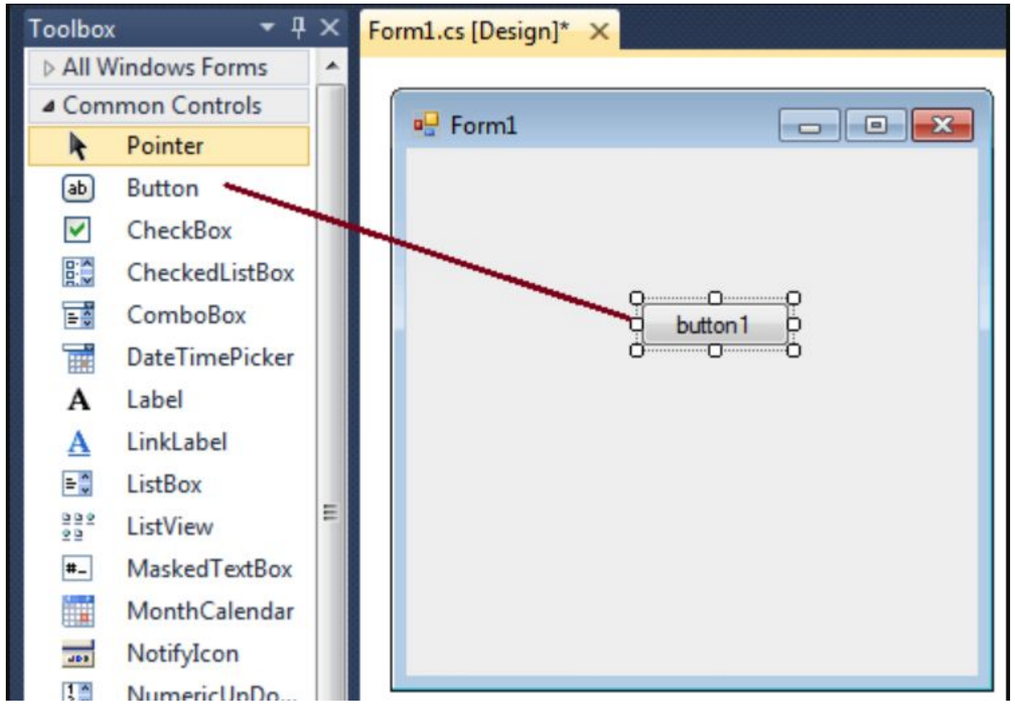
As forms are the base unit of your application, it is essential that you give some thought to their function and design.

A form is ultimately a blank slate that you, as a developer, enhance with controls to create a user interface and with code to manipulate data. To that end, Visual Studio provides you with an integrated development environment (IDE) to aid in writing code, as well as a rich control set written with the .NET Framework.

By complementing the functionality of these controls with your code, you can easily and quickly develop the solutions you need.



ASP.NET

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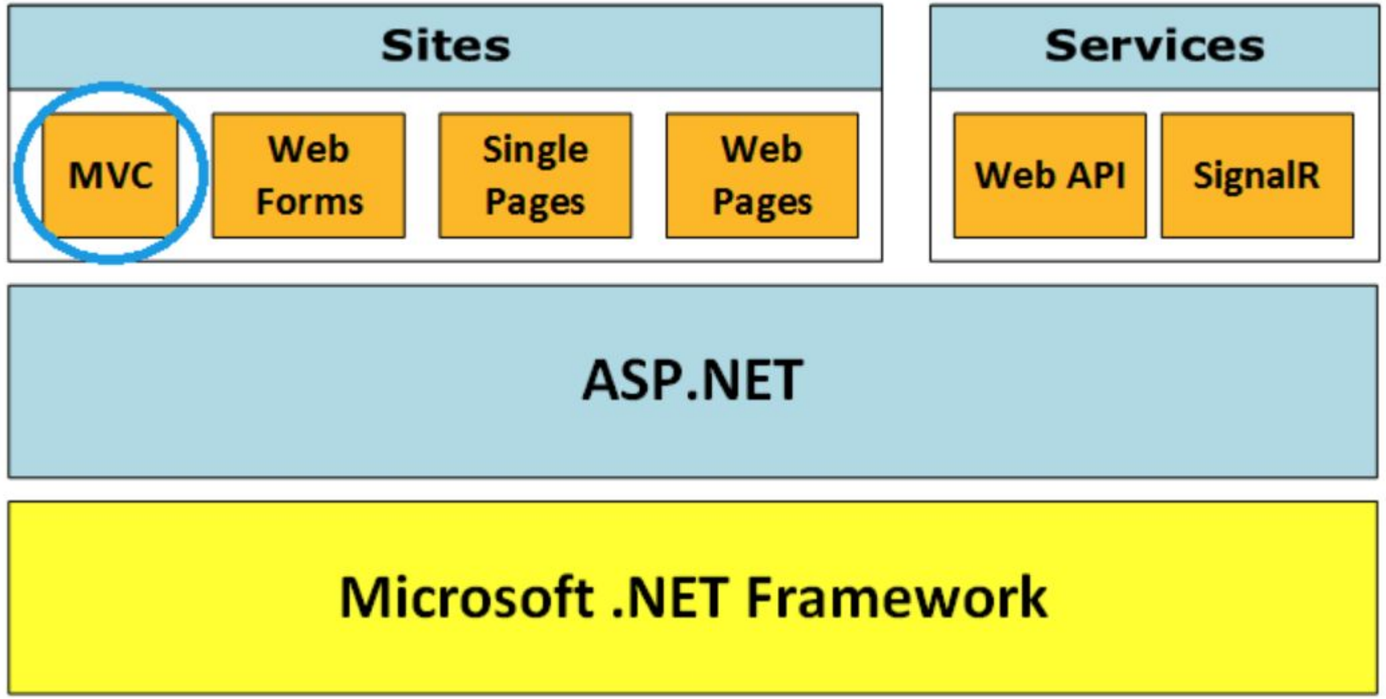
ASP.NET is an open-source server-side web application framework designed for web development to produce dynamic web pages.

It was developed by Microsoft to allow programmers to build dynamic web sites, web applications and web services.



ADO.NET

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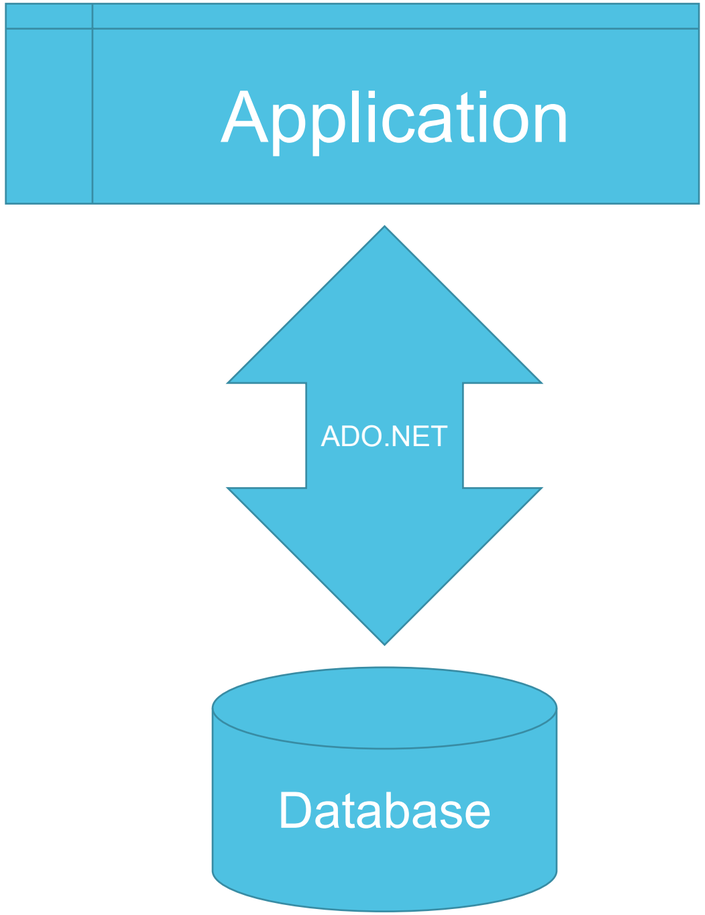
ADO.NET is a data access technology from the Microsoft .NET Framework that provides communication between relational and non-relational systems through a common set of components.

ADO.NET is a set of computer software components that programmers can use to access data and data services from a database. It is a part of the base class library that is included with the Microsoft .NET Framework. It is commonly used by programmers to access and modify data stored in relational database systems, though it can also access data in non-relational data sources.



Entity Framework

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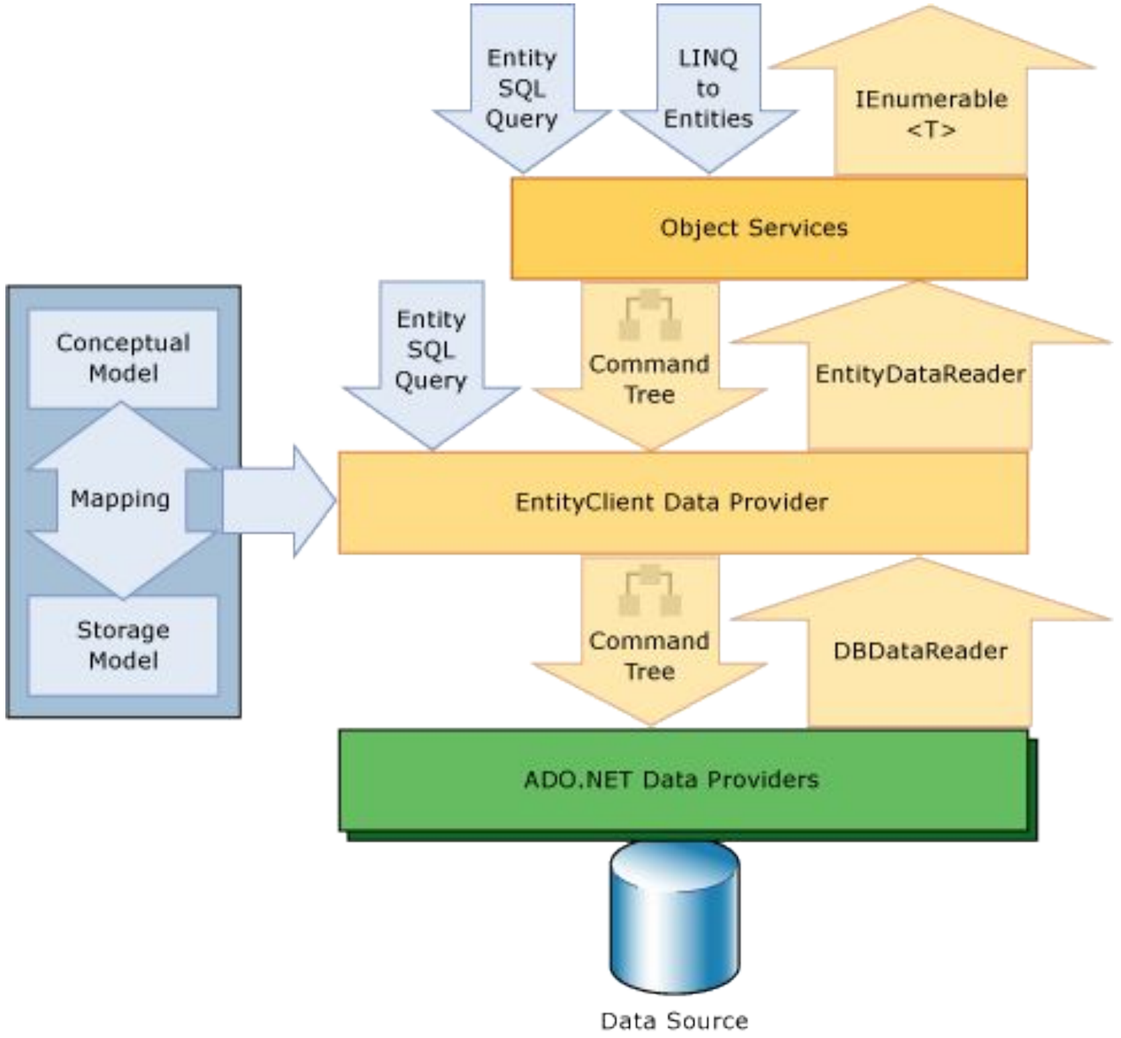
The Entity Framework is a set of technologies in ADO.NET that support the development of data-oriented software applications.

With the Entity Framework, developers can work at a higher level of abstraction when they deal with data, and can create and maintain data-oriented applications with less code than in traditional applications.



.Net Core

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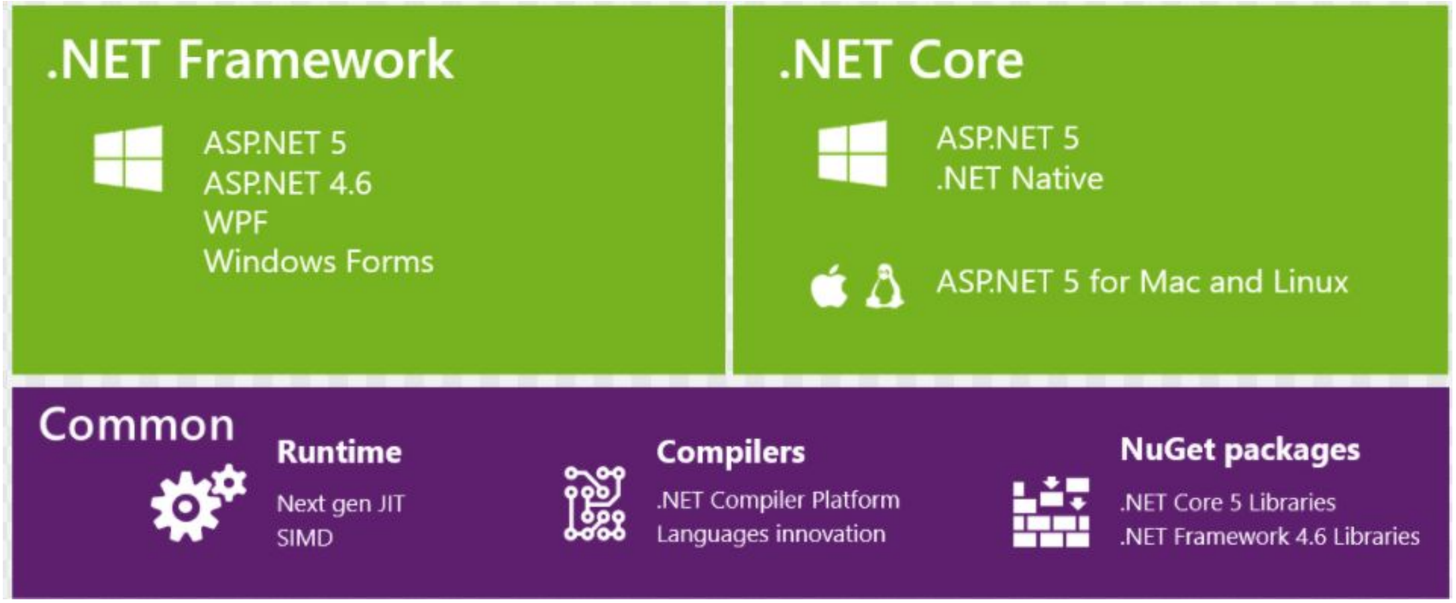
.NET Core is a cross-platform .NET implementation. The primary architectural concerns unique to .NET Core are related to providing platform-specific implementations for supported platforms.

.NET Core has been built as a very similar but unique product relative to other .NET products. It has been designed to enable broad adaptability to new platforms, for new workloads and with new compiler toolchains. It has several OS and CPU ports in progress and may be ported to many more.



Microsoft Azure

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Microsoft Azure is a cloud computing service created by Microsoft for building, testing, deploying, and managing applications and services through a global network of Microsoft-managed data centers. It provides software as a service (SaaS), platform as a service and infrastructure as a service and supports many different programming languages, tools and frameworks, including both Microsoft-specific and third-party software and systems.

Microsoft Azure

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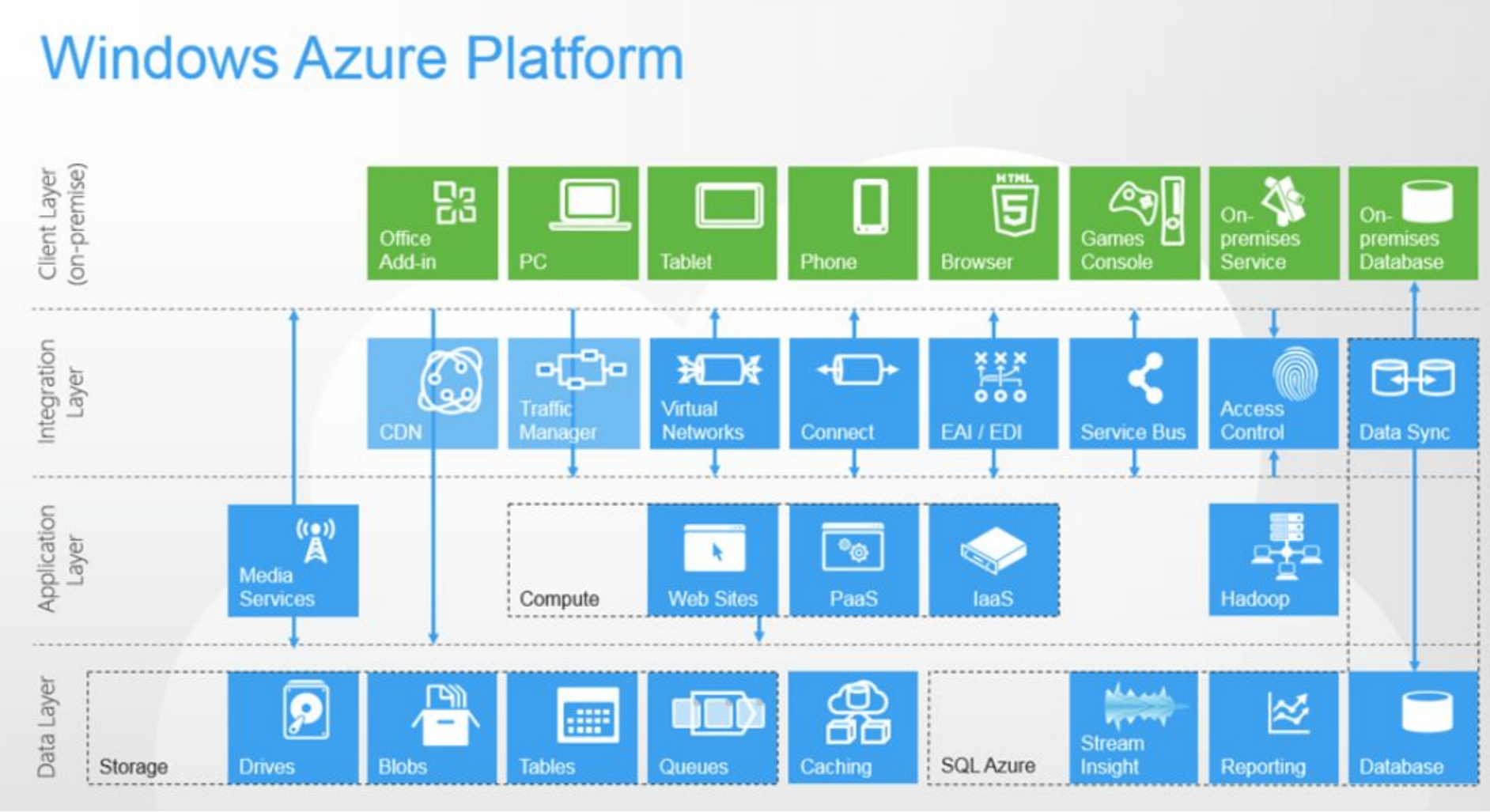

FAQ

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“Clean Code: A Handbook of Agile Software Craftsmanship”, by Robert C. Martin;

“C# 6.0 and the .NET 4.6 Framework”, by Andrew Troelsen

“Agile Principles, Patterns, and Practices in C#”, by Robert C. Martin

“CLR via C#”, by Jeffrey Richter