

# .NET FRAMEWORK

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# Report on the Evolution of the Architecture of .NET Framework

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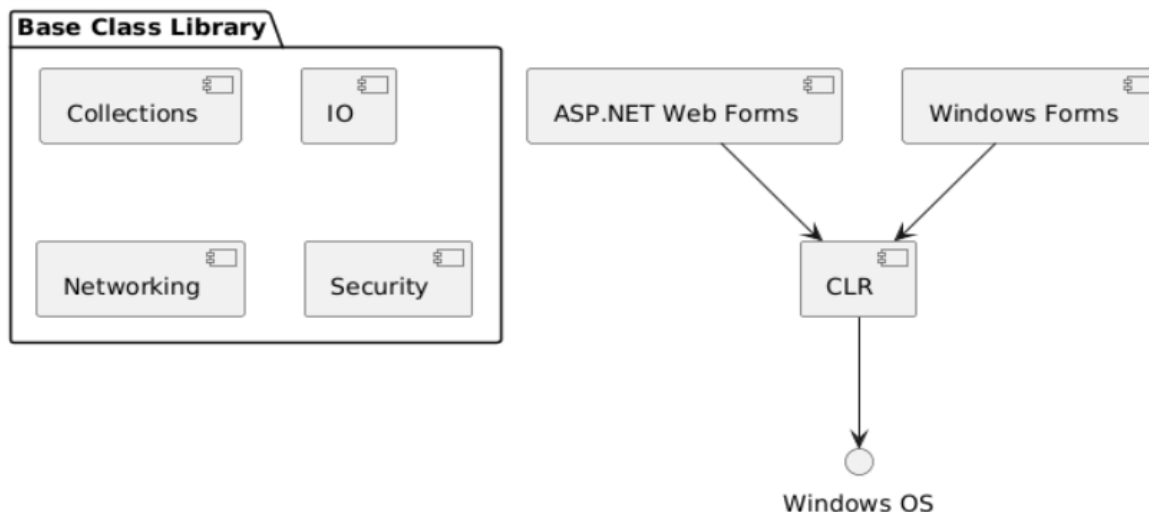
## Introduction

This report explores the architectural evolution of the .NET Framework, starting from its first release to the current latest release. It highlights major features, release numbers, architectural diagrams, and corresponding release notes. Contributions by group members are also documented. Additionally, it discusses the role of the programming languages, primarily C#, that have been integral to the framework's development.

## Evolution of .NET Framework

### 1. .NET Framework 1.0 (2002)

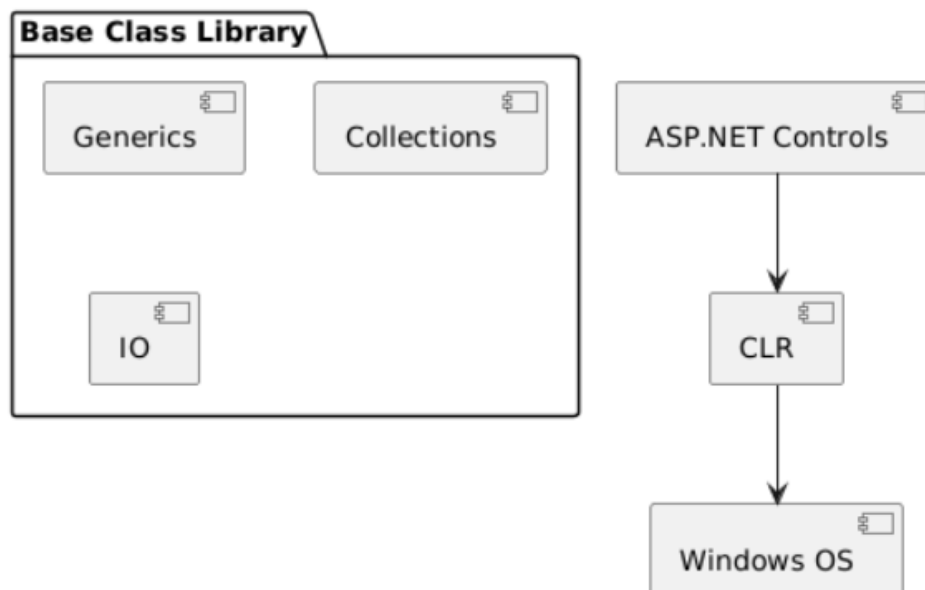
- **Release Number:** 1.0
- **Major Features:**
  - Introduced the Common Language Runtime (CLR).
  - Base Class Library (BCL) with foundational features.
  - Support for Windows Forms and ASP.NET Web Forms.
  - Primary programming language: C#, introduced alongside .NET as a modern, object-oriented language for building applications.
- **Architectural Diagram:**



**Release Notes:** Initial release providing a platform for managed code execution.

## 2. .NET Framework 2.0 (2005)

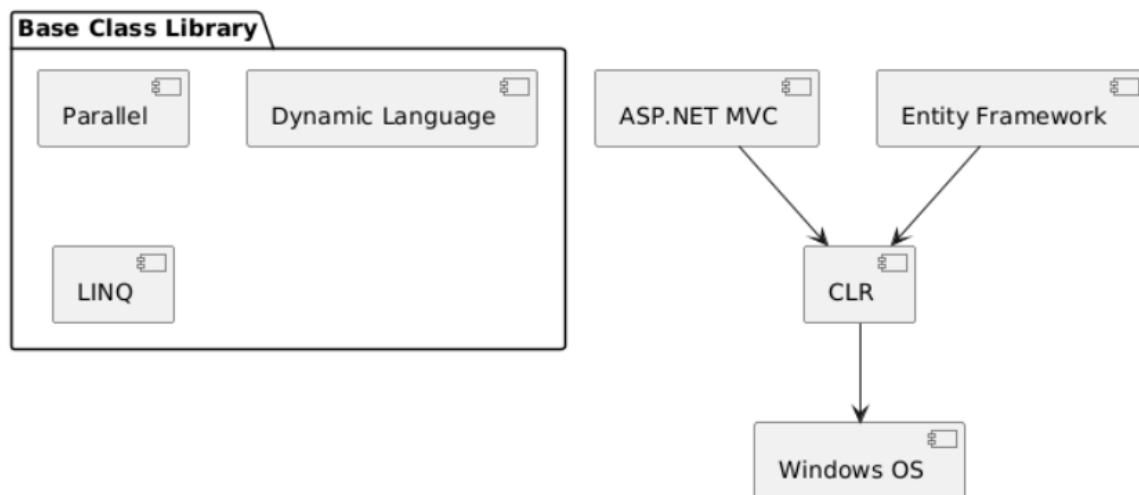
- **Release Number:** 2.0
- **Major Features:**
  - Generics for type safety and performance.
  - Improved ASP.NET with new controls and features.
  - 64-bit support.
  - Continued focus on C#, introducing features like anonymous methods and iterators.
- **Architectural Diagram:**



- **Release Notes:** Enhanced developer productivity with new language features.

### 3. .NET Framework 4.0 (2010)

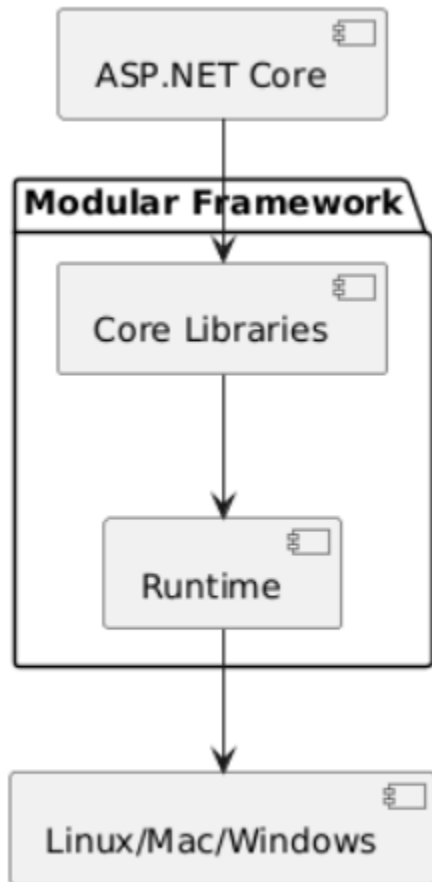
- **Release Number:** 4.0
- **Major Features:**
  - Parallel programming support.
  - Dynamic Language Runtime (DLR).
  - ASP.NET MVC and Entity Framework.
  - Further enhancements in C#, including dynamic typing and the Task Parallel Library.
- **Architectural Diagram:**



- **Release Notes:** Focus on performance and scalable web applications.

#### 4. .NET Core 1.0 (2016)

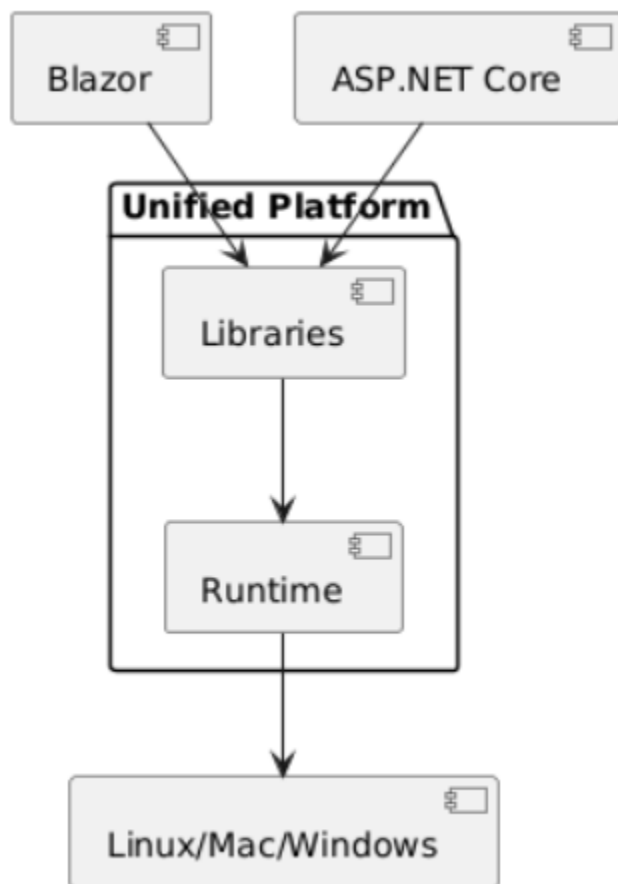
- **Release Number:** Core 1.0
- **Major Features:**
  - Cross-platform support.
  - Modular architecture.
  - New CLI for development.
  - Leveraged C#, providing language features such as pattern matching and local functions to support modern development needs.
- **Architectural Diagram:**



- **Release Notes:** Introduced lightweight, high-performance platform for cloud applications.

## 5. .NET 6 (2021)

- **Release Number:** 6.0
- **Major Features:**
  - Unified platform for all workloads.
  - Native AOT compilation.
  - Blazor for client-side web development.
- **Architectural Diagram:**



- **Release Notes:** Enhanced developer experience with improved performance and cross-platform capabilities.

## **Contributions by Group Members**

| <b>Member Name</b>         | <b>Contribution</b>                   |
|----------------------------|---------------------------------------|
| <b>Syed Ghazi Raza</b>     | Researched initial versions and notes |
| <b>Hassan Ali Mashwani</b> | Created Architecture UML diagrams     |
| <b>M. Aalyan Mughal</b>    | Compiled release notes and features   |

## **Conclusion**

The .NET Framework has evolved significantly from its inception, adapting to modern development needs with performance improvements and expanded features. The integration of C# as its primary programming language has played a vital role in making .NET a versatile and developer-friendly platform.