



What is new in .NET 6 and the future of .NET

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Here's Johnny

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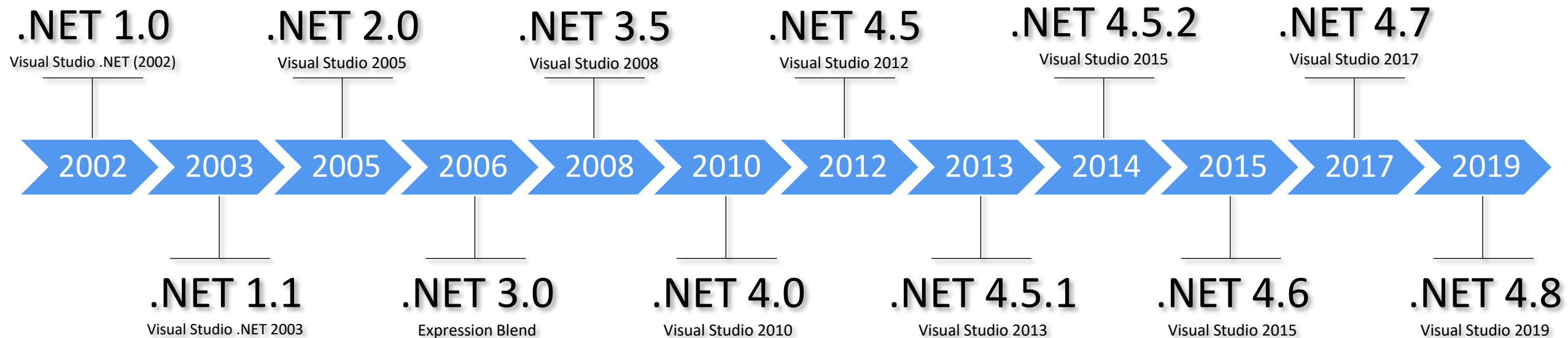
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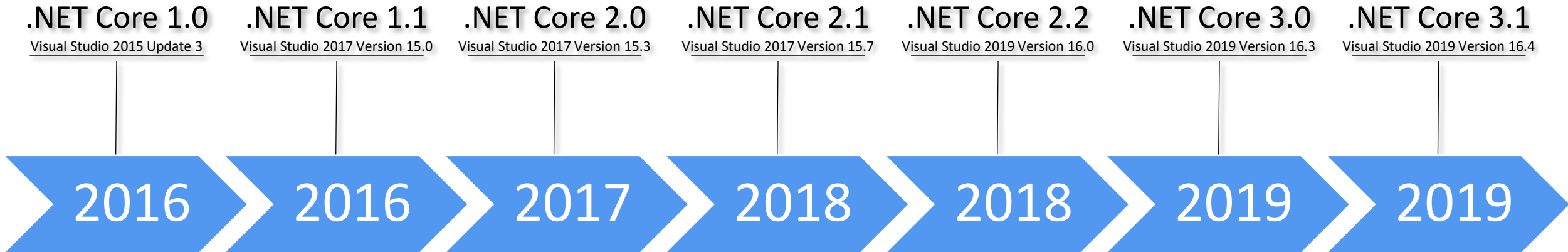
.NET Framework: a quick history



.NET Framework: support

.NET Framework 4.8	...
.NET Framework 4.7/4.7.1/4.7.2	...
.NET Framework 4.6.2	...
.NET Framework 4.5.2/4.6/4.6.1	April 26, 2022
.NET Framework 4.0/4.5/4.5.1	January 12, 2016
.NET Framework 3.5 SP1	January 9, 2029
.NET Framework 2.0/3.0	July 12, 2011

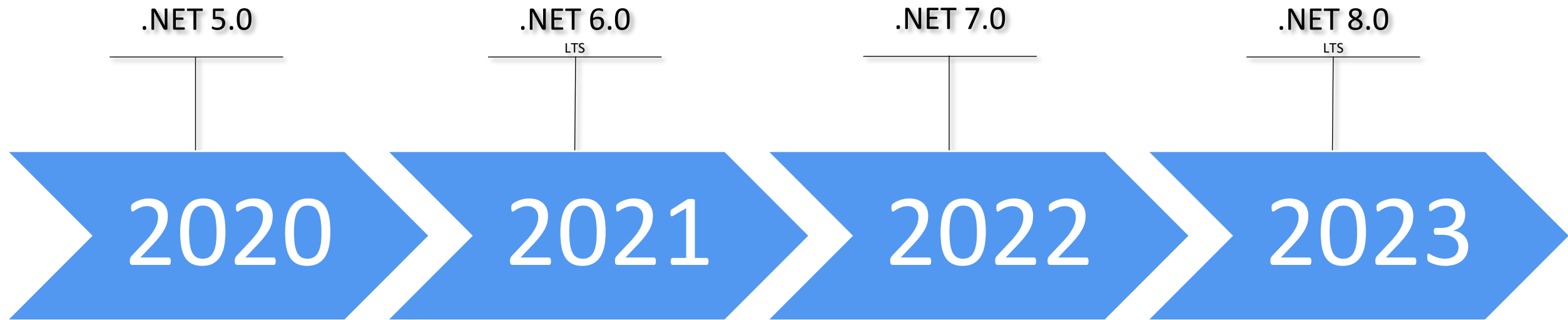
.NET Core: a quick history



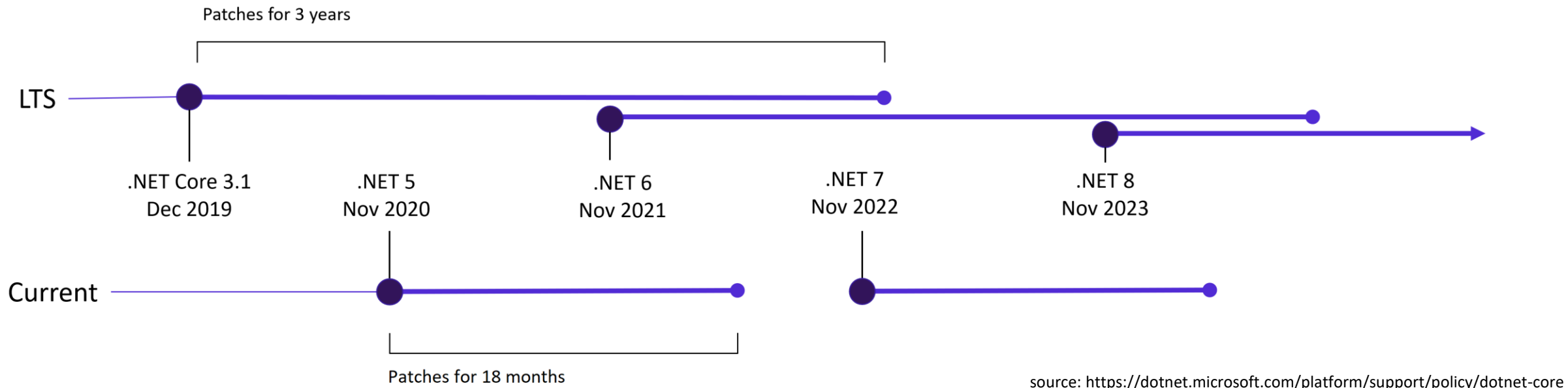
.NET Core: support

.NET Core 1.0	June 27, 2019
.NET Core 1.1	June 27, 2019
.NET Core 2.0	October 1, 2018
(LTS) .NET Core 2.1	August 21, 2021
.NET Core 2.2	December 23, 2019
.NET Core 3.0	March 3, 2020
(LTS) .NET Core 3.1	December 3, 2022

.NET: what about the future?



.NET: support





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0 – Performance and architecture

- Runtime
- JIT compiler
- AoT compilation
- Tiered compilation
- Profile-guided optimization
- Platform intrinsics
- Source generators
- [.NET 7] NativeAoT

1 – Single SDK Experience

- Single CLI
- `dotnet new` and workloads
- Target framework names (TFM)
- “net5.0” replaces and combines “netcoreapp” and “netstandard”
- “net5.0-windows” is OS-specific and includes OS-specific bindings
- “net6.0-android”, “net6.0-ios”, “net6.0-maccatalyst”
- “net7.0-macos”, “net7.0-tvos”
- Hot reload using “dotnet watch” and Microsoft Visual Studio
- Support for Azure Function Apps

2 – Deployment features

- Default Executable
- Runtime Identifiers
- Single File Executable
- Assembly Linking

3 – Modernized Templates

- Console Application
- ASP.NET Empty
- ASP.NET MVC
- Worker Service
- gRPC Service
- WinForms
- WPF

4 – .NET BCL & C# 10/11 features

- (C# 10) record structs, readonly record structs (and record classes)
- (C# 10) Global usings
- (C# 10) File-scoped namespaces
- (C# 10) const and interpolated strings
- (C# 11) Generic attributes
- (C# 11) Newlines in string interpolation
- (C# 11) Raw string literals
- (.NET SDK) Implicit usings
- (.NET SDK) Nullable
- (BCL) DateOnly and TimeOnly
- (BCL) ArgumentNullException
- (BCL) PriorityQueue
- (BCL) PeriodicTimer
- (BCL) Parallel.ForEachAsync

5 – New JSON features

- System.Text.Json
- Performance
- Source Generators
- IEnumerableAsync
- DOM

6 – Linq features

- Support for Indices and Ranges
- OrDefault with customizable defaults
- MaxBy, MinBy
- DistinctBy, UnionBy, IntersectBy, ExceptBy
- Chunk
- TryGetNonEnumeratedCount

7 – Async Dependency Injection

- `IAsyncDisposable` and `DisposeAsync`
- `CreateAsyncScope`

8 – Source Generators

- ASP.NET
- gRPC
- System.Text.Json
- [.NET 7] RegexGenerator
- Write your own...

9 – HW Intrinsics and NativeMemory

- Hardware Intrinsics = low-level API's for CPU instructions
- Since .NET Core 1.0 (SIMD, System.Numerics)
- Since .NET Core 3.0 (System.Runtime.Intrinsics)
- Since .NET 5 (support for ARM)
- SIMD has fallback if not supported on CPU
- Intrinsics does NOT have fallback if not supported on CPU
- NativeMemory = low-level API's for memory-related operation
- System.Runtime.InteropServices.NativeMemory
- Alloc, Realloc, Free, AlignedAlloc, AlignedRealloc, ...



Thank You

<https://github.com/Djohnnie/DotNet6-DevDaysEurope-2022>



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