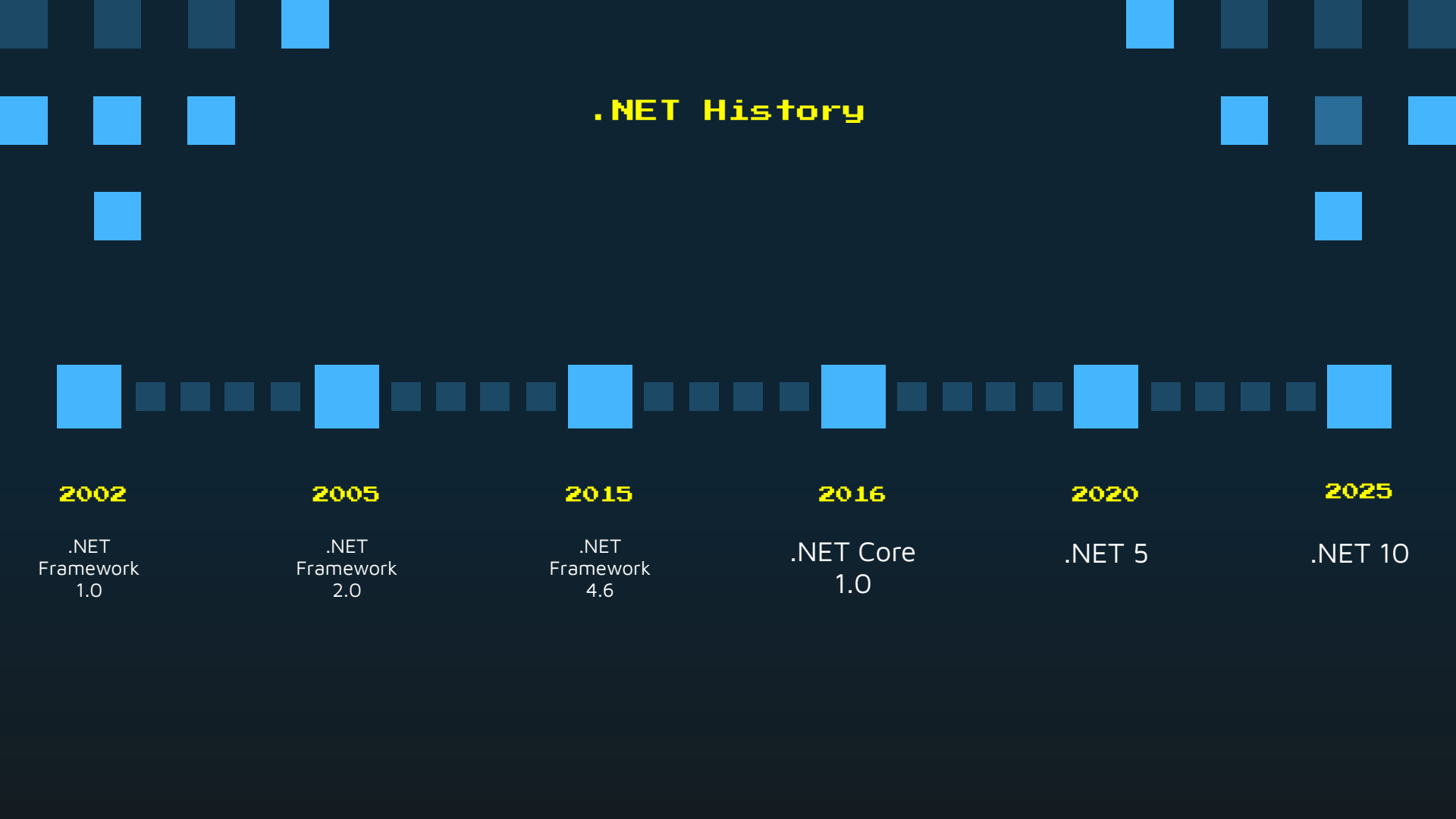


.NET 10

What's new?

Einar Ingebrigtsen



C# 14

The new magic sword with sharper syntax! Span conversions are now super effective, pattern matching is boosted, and records still crit like a boss. Write less, code more, and watch those bugs drop XP.

```
        sta $01    ;enable kernal
;Draw a test track from the screen
;memory location.
drawtrk    ldx #$00
            lda trackmem,x
            sta $0400,x ;screen ram
            lda trackmem+$0100,x
            sta $0500,x
            lda trackmem+$0200,x
            sta $0600,x
            lda trackmem+$02e8,x
            sta $06e8,x

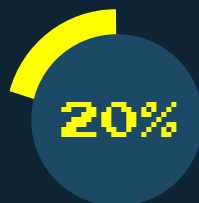
            ;Fill colour grey
            lda #12
            sta $d800,x ;colour ram
            sta $d900,x
            sta $da00,x
            sta $dae8,x
            inx
00, ok,00,00
x:0 line:58 bot:7e5c insert: line
```

.NET Runtime

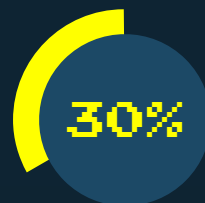
Enemies (a.k.a. performance bottlenecks) are now slower, your frame rate (apps) run faster, and garbage collection has gone from “lag spike” to “speed run.” Smooth pixels guaranteed.

By the numbers

Performance



Memory



Performance

<https://devblogs.microsoft.com/dotnet/performance-improvements-in-net-10/>

- Improved loop inversion - JIT enables more loops to become do-while
- Object stack allocation - compile time analysis improvements
- Devirtualization - arrays and iterations
- Bounds checking elimination - JIT optimization
- Inlining improvements- more permissive
- Improved code layout - reordering for hot code paths
- Constant folding - compile time operations
- AVX10.2 - x86/x64 newer vector instructions support

.NET libraries

Your inventory just got a major upgrade. Faster JSON, improved LINQ power-ups, and WebSocket potions of +10 speed. It's like looting a treasure chest full of NuGet gems.

Overview

- Improvements in cryptography
- Globalization and date/time
- String comparison : `CompareOptions.NumericOrdering`
- `TryAdd/TrGetValue` overloads on `OrderedDictionary` with indexes
- `JsonSerializer` support for Preserve reference handling (self references)
- Zip files - improved memory and performance + new async APIs

WebSockets

- New API: WebSocketStream
 - Higher level - reduce boilerplate
 - Stream based

```
public static async Task ConnectAndSend(AppMessage message, CancellationToken cancellationToken)
{
    using var websocket = new ClientWebSocket();
    await websocket.ConnectAsync(new Uri("ws://localhost:8080"), cancellationToken);
    using Stream messageStream = WebSocketStream.CreateWritableMessageStream(websocket, WebSocketMessageType.Text);
    JsonSerializer.Serialize(messageStream, message);
}
```

.NET SDK

The **.NET SDK** has become your blacksmith. Build times down, templates smarter, and you can forge apps faster than ever. Press “A” to compile — and “B” to brag.

Tools

- Platform specific .NET tools - packaging
- Run tools without installing them

dotnet tool exec

- Short hand **dnx** for running tools

dnx dotnetsay "Hello, world"



Miscellaneous

- Publish to native AOT
- Publish console apps as containers
`dotnet publish /t:PublishContainer`
- shebang support
`#!/usr/bin/env dotnet`
`Console.WriteLine("Hello shebang!");`
- Noun-first command order

dotnet package add/list/remove

- Native support for Microsoft Testing Platform

```
{  
  "test": {  
    "runner": "Microsoft.Testing.Platform"  
  }  
}
```

ASP.NET Core

ASP.NET Core enters the arena breathing fire! It's faster, meaner, and ready to tank thousands of requests like a pixelated paladin. Load times? More like warp zones now.

Blazor

- Blazor script as static web assets
- Route template highlighting in IDEs

```
[Route("/counter/{count:int}")]
```

- NavigateTo - no longer scrolls to top
- ReconnectModel - customization



Response streaming now enabled by default

```
<WasmEnableStreamingResponse>false</WasmEnableStreamingResponse>
```

```
requestMessage.SetBrowserResponseStreamingEnabled(false);
```

- Improved JavaScript interoperability

```
var classRef = await JSRuntime.InvokeConstructorAsync("jsInterop.TestClass", "Blazor!");  
var text = await classRef.GetValueAsync<string>("text");  
var textLength = await classRef.InvokeAsync<int>("getTextLength");
```

OpenAPI

- OpenAPI 3.1 support - significant update of the standard
 - nullable: true -> type array with null as one of the types
 - int/long properties no longer has type:integer
- YAML support



Transformers need to change from OpenApiObject to JsonObject

- Optional description on Produces* attributes
- XML doc comments when **GenerateDocumentationFile** is set to true

Validation

```
HTTP/1.1 400 Bad Request
Connection: close
Content-Type: application/json; charset=utf-8
Date: Wed, 12 Nov 2025 08:26:36 GMT
Server: Kestrel
Transfer-Encoding: chunked
```

```
app.MapPost("/", async (int id, string name) => {
    // ... validation logic ...
    return Results.BadRequest(new ValidationProblem() {
        Title = "One or more validation errors occurred.",
        Errors = {
            { "name", [
                "The name field is required."
            ] }
        }
    });
})
```

Miscellaneous

- ASP.NET Core Identity Metrics
- Passkey support - seamless integration with ASP.NET Core Identity
- Differentiation on redirects (401 vs 403) for cookie authentication
- Support for TLD **.localhost**
- Automatic eviction of memory pools (Kestrel, IIS and HTTP.sys)
- Support for custom memory pool factories
- Improved testing apps with top-level statements

```
public partial class Program;
```



Server Sent Events



EntityFramework Core

Mercury is the closest planet to the Sun and the smallest one in the Solar System—it's a bit larger than the Moon

Data Types

- Full support for vector data type

```
[Column(TypeName = "vector(1536)")]  
public SqlVector<float> Embedding { get; set; }
```

```
var sqlVector = /* some user query which we should search for similarity */;  
var topSimilarBlogs = context.Blogs  
    .OrderBy(b => EF.Functions.VectorDistance("cosine", b.Embedding, sqlVector))  
    .Take(3)  
    .ToListAsync();
```

- JSON Type

```
protected override void OnModelCreating(ModelBuilder modelBuilder)  
{  
    modelBuilder.Entity<Blog>().ComplexProperty(b => b.Details, b => b.ToJson());  
}
```

```
CREATE TABLE Orders  
(  
    order_id INT,  
    order_details JSON NOT NULL  
);
```

General

- Cosmos DB Full text search + hybrid search
- Complex types
- Parameterized collection improvements (SELECT ... in (,,,))
- LeftJoin and RightJoin operator support
- Named query filters

What about the rest...

Aspire

YOUR GAME MAP

One dashboard to rule them all

MAUI

TRUE PIXEL ARTIST

How much neon can you handle?

Orleans

NPC MANAGEMENT
SYSTEM

Scales like a swarm of 8-bit sprites, and respawns instantly.

Languages

F#, VB

Gathering around the campfire.

 **commodore**  **64**



<https://commodore.net>

THANKS

Do you have any questions?

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