XFS4IoT SP-Dev Workgroup

2nd December 2025

Confidential

- Review of the year

- .NET 10

- SP-Dev Framework on 'embedded' hardware

- What's next?

- Next meeting

Review of the year, 2025

February

- Contactless card reader demo

- New specification version 2024-03

- How the SP-Dev code is created - Code generators

March

- Framework update

- Review of breaking changes in version 2024-03

- New JSON printer forms format, including demo

April

- Framework roadmap
- Demo - XFS3 running alongside XFS4IoT

May

- IBNS - What it is and how to use it, plus demo from Oberthur Cash Protection (now Oberthur Feerica)

June

- Demo of full XFS4IoT architecture

September

- PoC: code technology improvements
  — Ahead of Time compilation – smaller, faster
  — OpenTelemetry logging – centralized debug logging
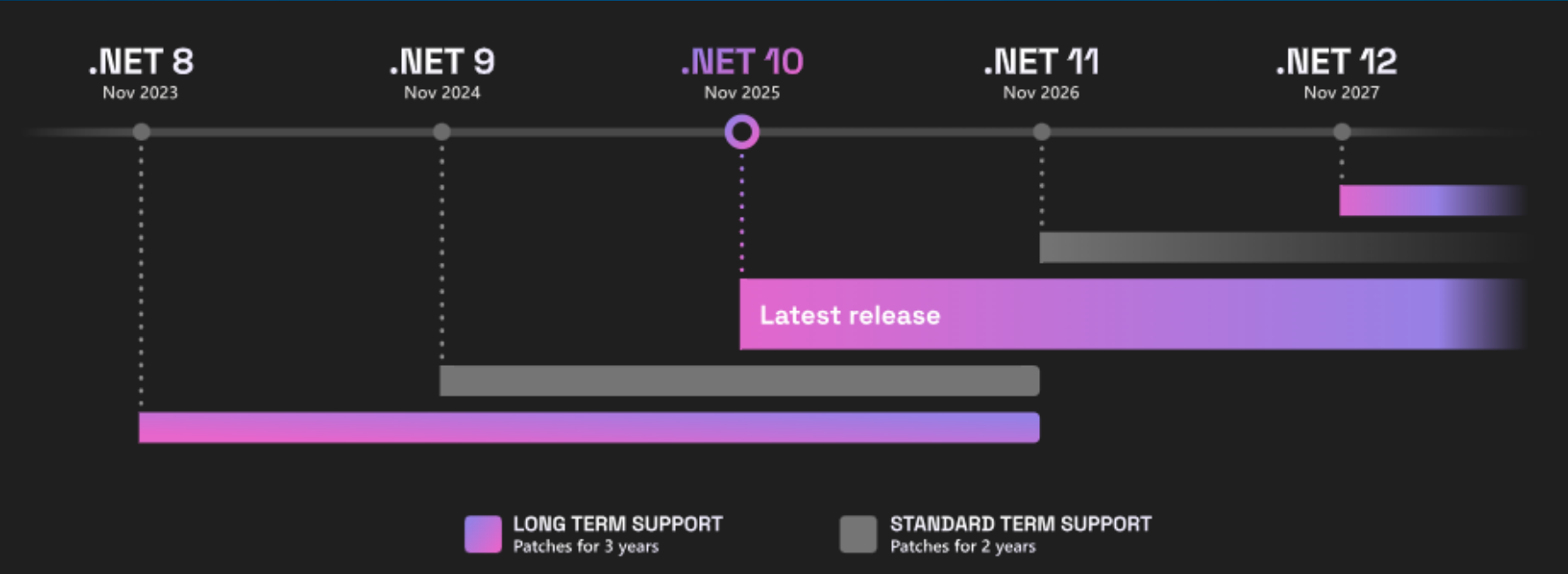
.NET 10 support

- .NET 10 is now released (11th November 2025)

- STS = Standard Term Support
- LTS = Long Term Support

- Microsoft have changed the timeframe for STS releases
  — Support will now end at the same time as the active LTS release

.NET release lifecycle and cadence

Version	Original release date	Latest patch version	Patch release date	Release type	Support phase	End of support
.NET 10	November 11, 2025	10.0.0	November 11, 2025	LTS	Active	November 14, 2028
.NET 9	November 12, 2024	9.0.11	November 11, 2025	STS	Active	November 10, 2026
.NET 8	November 14, 2023	8.0.22	November 11, 2025	LTS	Active	November 10, 2026

.NET 8 Nov 2023   **.NET 9** Nov 2024   **.NET 10** Nov 2025   **.NET 11** Nov 2026   **.NET 12** Nov 2027

Latest release

LONG TERM SUPPORT Patches for 3 years

STANDARD TERM SUPPORT Patches for 2 years

Why do we stay on the latest version?

- Performance improvements in the .NET runtime

- New APIs and features
  - System.Text.JSON

- Security updates in the .NET runtime

Impact on SP-Dev Framework

- The SP-Dev Framework will continue to at least LTS versions, and STS when possible

- SP-Dev Framework will be updated to .NET 10

- Minimal changes in the Framework
  — No changes to SP-Implementation other than retargeting to .NET 10

- Will be released in the next major version

- Changes in the SP-Dev Framework
  - — Field-backed properties

```
public StorageCashCountClass Transport
{
    get { return transport ??= new StorageCashCountClass(); }
    set { transport = new StorageCashCountClass(value); }
}
private StorageCashCountClass transport = new StorageCashCountClass();
```

```
public StorageCashCountClass Transport
{
    get => field ?? new StorageCashCountClass();
    set => field = new StorageCashCountClass(value);
}
```

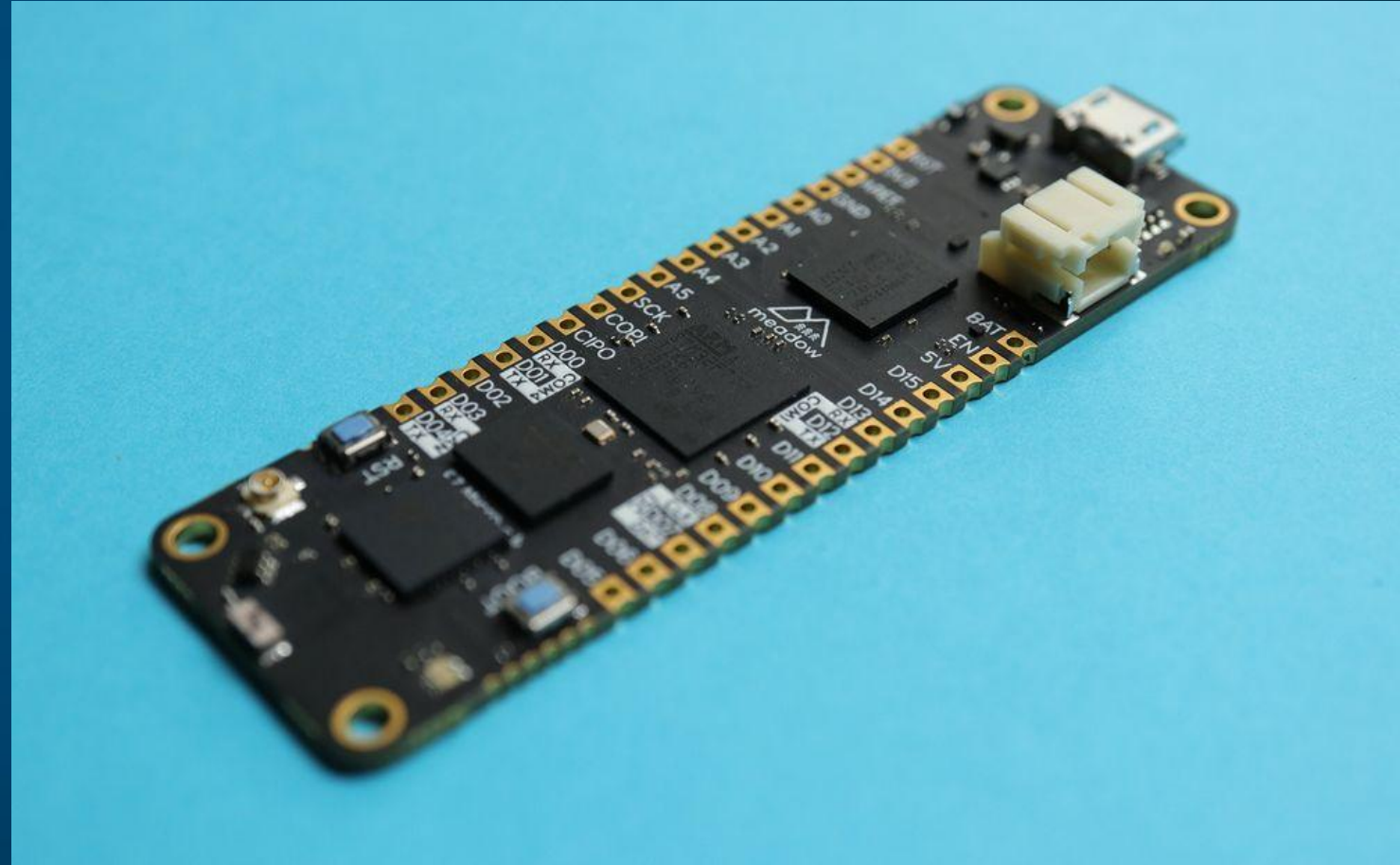# SP-Dev Framework on 'embedded' hardware

Aims from September 2025 (44th) meeting

- Remove reflection – use code generators ✅
- Use "Ahead of Time" (AoT) compilation ✅
- Use small footprint hardware… ❌

.NET nanoFramework

- .NET nanoFramework – support for tiny embedded systems

- Doesn't support "generics", which means no support for async programming

- This won't work for the SP-Dev Framework

Meadow F7 board

- Meadow F7, from Wilderness Labs

- Meadow.OS, runs full .NET standard v2.1
  — STM32F7 MCU
  — 32MB SDRAM
  — 64MB Flash storage

- Framework migrated to .NET standard v2.1

- Use of Websocket-sharp-netstandard-2.1

- Use of System.Text.Json NuGet package

- Compiled with AOT, native code

- Meadow tool fails to 'trim' the project

Our experiments

- Serialization/deserialization caches significant memory

- Only one command could be executed (e.g. SetLight)

- A second command fails to allocate enough memory

- Currently, trying JsonTypeInfo instead of Type + JsonSerializerContext

What's next?

What's next?

- Quarterly meetings moving forward

- Framework updates and roadmap

- More PoC and experimental work

- Guest speakers

- DK specification

- More demos (biometrics and more)

Next call

Zoom

Meeting once every quarter
at 1300 UK time for 30 mins

Next call: 3rd March 2026
            1300 UK, 0800 US EST, 2200 Tokyo time

Calls are 30 mins long

We will continue to use Zoom
(Interpretation in Japanese, Chinese and Spanish is available using Zoom's interpretation feature)