

State of .NET

.NET 7



Markus Egger

President and Chief Software Architect
CODE Magazine, CODE Consulting, CODE Staffing

Kicking Things Off

Jim Duffy

- Director of Business Development
CODE Magazine & Consulting
- Former Developer – Drawn to the Dark Side: Now Responsible for
Marketing & Business Development
- jduffy@codemag.com / [My Bio](#)
- International Author and Speaker
- Former Microsoft RD (Regional Director) 9 years
- Former 11-time Microsoft Most Valuable Professional (MVP)
- Twitter: @jmduffy



About CODE Consulting

“Helping People Build Better Software”

- Microsoft Certified Partner
- Custom Software Development, Training, Mentoring,...
- Web, Cloud, Mobile, Desktop, Serverless, Databases,...
- User Interface and Interaction Design
- Project Rescue, App Modernization (VB, VFP, Access, etc.)
- Development Team Staff Augmentation



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- [REACT & JavaScript Web Developers](#)
- [Senior C# Developers](#)
- [.NET Desktop Developers](#)

<https://codemag.com/Jobs>

CODE Developer Security Training

- Topics Include

- Introduction to Cyber Security
- Introduction of Cryptography
- Authentication and Authorization
- Injection Attacks
- Introduction to Secure Coding and Motivation
- Secure Coding Best Practices
- API Security Considerations

- **Secure Coding For C# Developers**

- Jan 24 – 26
- Mar 7 – 9
- Apr 18 – 20
- Jun 6 - 8

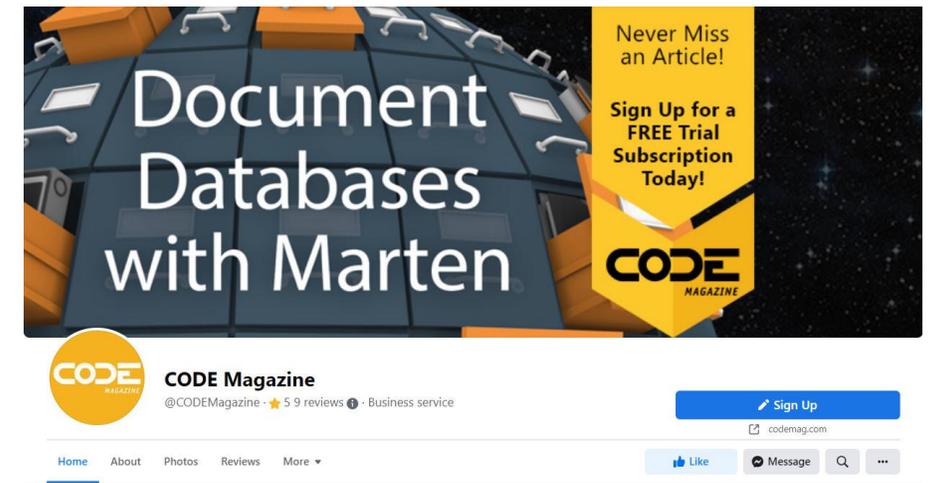
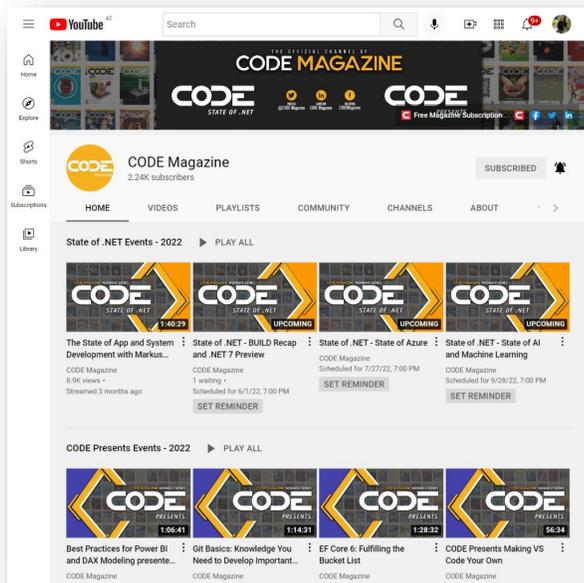
- **Secure Coding For Java Developers**

- Jan 31 – Feb 2
- Mar 21 – 23
- May 2 – 4
- Jun 20 - 22

Outlines & Abstracts at <https://codemag.com/Training>

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CODE Magazine App

- Check out the new CODE Magazine Mobile application!
- Available for iOS & Android



Event Survey – Win \$100!

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- Survey must be completed by 11:59pm ET on Friday 10/28/2022 to be eligible!
- Name selected from registered attendee list. Completed survey is required to win.
- **THIS SLIDE WILL BE REPEATED AT THE END AND SURVEY LINK REPEATED IN THE CHAT WINDOW!**

State of .NET - .NET 7 with Markus Egger

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* Required

1. Full Name *

Enter your answer

2. Company Name *

Enter your answer

Build Cross Platform Apps With Photino

- Build native, cross-platform desktop apps that are lighter than light.
- Open-source framework for building native, cross-platform desktop applications with Web UI technology (HTML/CSS & JavaScript).
- Photino is maintained by the CODE Team with the help of the open-source community.

- tryphotino.io
- [Github.com/tryphotino](https://github.com/tryphotino)



Recordings & Slide Decks

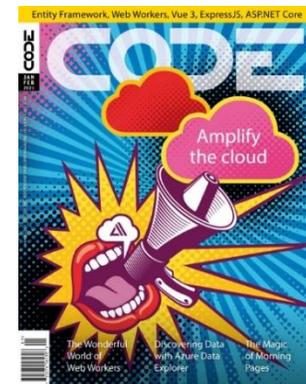
- State of .NET Webinar Series
 - <https://www.codemag.com/StateOfDotNet>
- CODE Presents Webinar Series
 - <https://www.codemag.com/CODEPresents>

Recent Event Recordings

State of .NET - The State of .NET App and System Development 2/23/2022	State of .NET - .NET Conf Recap 11/17/2021
	
State of .NET - .NET 6 Preview 10/27/2021	State of .NET - Azure Architecture 9/29/2021
	

About the Presenter

- **Markus Egger**
- President and Chief Software Architect
EPS Software Corp. (dba CODE Consulting)
- Publisher – CODE Magazine
- International Author and Speaker
- Microsoft RD (Regional Director)
- Microsoft MVP 1995-2019
- [Email: markus@codemag.com](mailto:markus@codemag.com)
- Twitter: @markusegger



Agenda

- Where are we at?
- Recap on recent announcements (Ignite,...)
- .NET 7 Preview

Microsoft Ignite



Most Important Ignite Announcements

- “Doing more with less”
- Azure
- CosmosDB
- No-Code development
- AI & Machine Learning everywhere

Microsoft Dev Box

Microsoft Dev Box - Preview

- Dev Box Preview is now generally available
- Microsoft Dev Box allows for virtualization of developer machines
- This is possible across projects and teams
- Centrally managed and maintained
- Quick and scalable availability



.NET 7

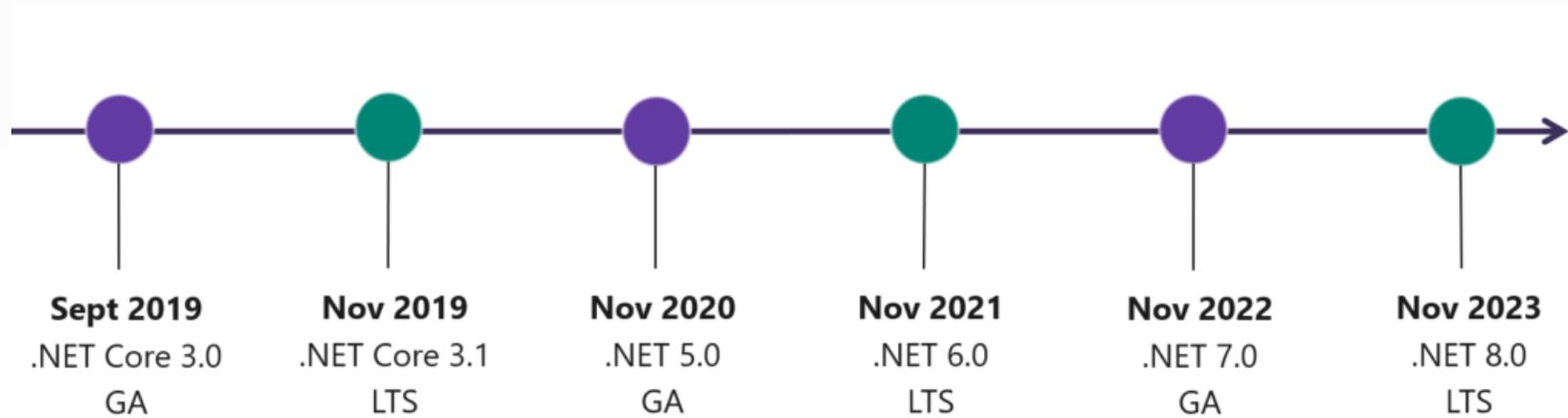
The .NET Vision

One .NET from Desktop, to
Web, Mobile, and Beyond!

The Journey to One .NET

- .NET now looks back at a history lasting two decades...
- ...with many twists and turns
- .NET Framework, .NET Core, Mono, Xamarin, UWP, Silverlight, Windows Phone,...
- Different components, project structures, APIs,...
- .NET 5/6/7 complete the journey to reunification of the .NET platform
- The goal is to get away from worrying about “what runs where” and simply “targeting .NET” with code that runs everywhere

.NET Timeline/Roadmap



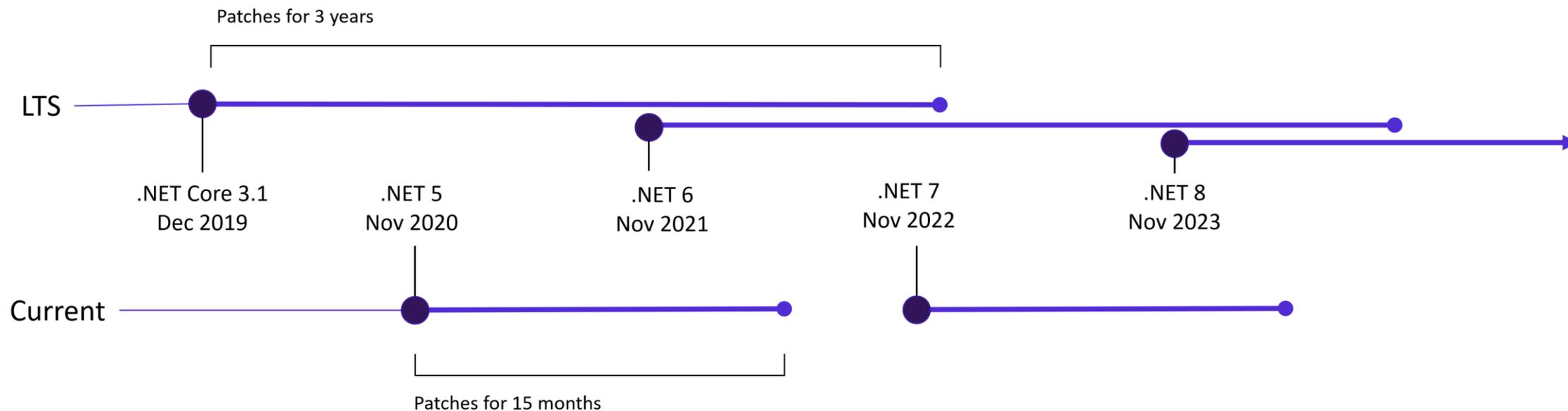
- .NET 7 Release: November 8th, 2022
 - DotNetConf – www.dotnetconf.net
- Azure services now support the new .NET 7 release
- Annual, predictable releases (started with .NET Core 3.1)
 - Minor Releases if needed



.NET 7 Preview

- .NET 7 (Release Candidate) is currently available to download
 - But the release version is just around the corner
- Official release date is November 8th, 2022

GA/Current vs. LTS



- Current versions (GA) are supported 15 months
 - (3 months after the next version's release date)
- LTS versions are supported for 3 years
- It should be easy to update from GA to LTS versions
- *Note: Since .NET 6 is a "LTS" version, lots of ".NET 7 technologies" target .NET 6 as a minimum version*

.NET – A unified platform



.NET ecosystem momentum

> 5M

.NET developers

In Visual Studio family

#1

Most Loved Framework (2019 & 2020)

.NET Core

Top 30

Highest velocity OSS projects

github.com/dotnet
github.com/aspnet



Top 5

Language on GitHub

C#



7X

Faster than Node.js

ASP.NET Core

40%

New to .NET are students

dot.net download survey

.NET 7 – Major Themes

- Performance
 - Simplification & Productivity
 - Build Modern Apps
 - Cloud-native Apps
-
- *My assessment: .NET, as well as building blocks (such as C#), are very mature products, and new features are very welcome, but not disruptive or world-changing*

Visual Studio

- Visual Studio release now coincide with .NET releases
- Visual Studio 2022 17.4 is currently available as a preview version

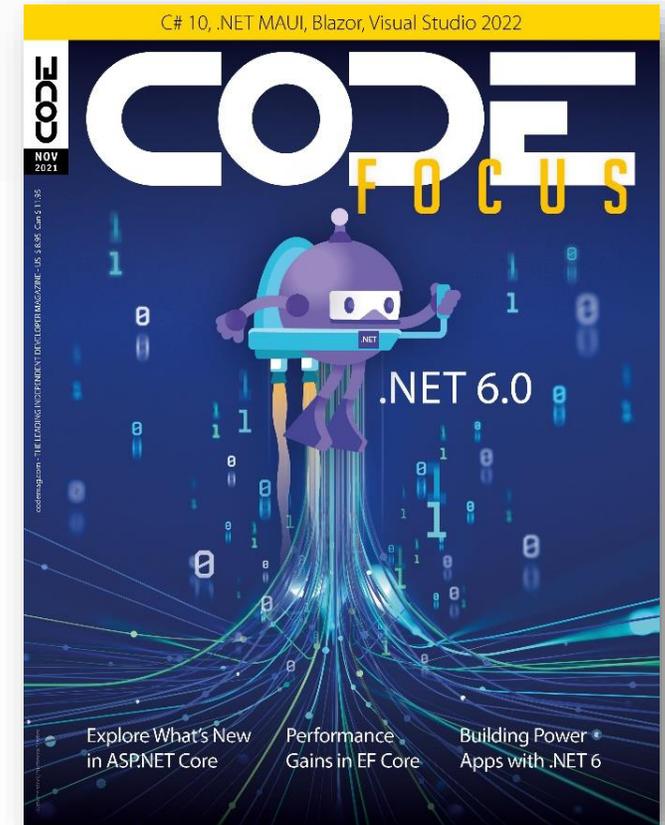
Side-Note: CODE Focus Magazine - .NET 7

- We created CODE Focus issue on .NET 7
- Great source of free information
- Produced in conjunction with Microsoft
- All CODE Magazine subscribers get this special issue for free
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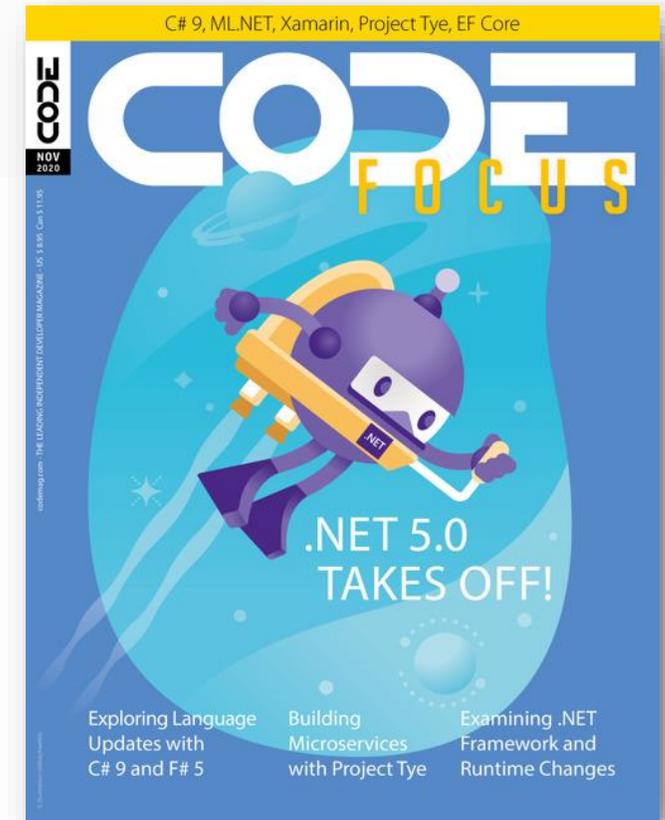
Side-Note: CODE Focus Magazine - .NET 6

- We also created a CODE Focus issue on .NET 6
- This is still available, free of charge, online
- www.codemag.com/focus



Side-Note: CODE Focus Magazine - .NET 5

- The same is true for our .NET 5 issue
- Content is still available online and very applicable today
- www.codemag.com/focus



C# 11

Major Themes in C# 11

- Improved developer productivity
 - Object initialization and creation
 - Generic math support
 - Runtime performance
- *Note: Quite a few C# 11 features are either relatively hidden ("it now just works") or requested by the CLR team*

C# 11: Developer Productivity

- Raw string literals
- Newlines in string interpolations
- UTF-8 string literals
- Pattern matching `Span<char>` and `ReadOnlySpan<char>`
- List patterns

Object Initialization

- Required initialization fields:

```
public class Person
{
    public required string FirstName { get; init; }
    public required string LastName { get; init; }
}
```

Performance

Performance Overview

- .NET 7 – surprise! – is faster than .NET 6, which was faster than .NET 5, which was faster than... well...you get the idea 😊
- Many of the performance features are not specifically driven by the developer, but instead are baked in

Compilation Details

- JIT Compilation is great...
- ...but also has downsides, such as slower startup speed
- Tiered Compilation is a great compromise between JIT and native code
 - This has been introduced in .NET Core 3.0 and has been steadily improved since then

Performance Demo

- Note: Thank you to Stephen Toub, who originally created some of these demos for his article in our CODE Focus .NET 7 issue
- <https://codemag.com/article/2211042>



Upgrade Tooling

Upgrade Tooling

- Upgrade Assistant
 - This tool is turning more and more into an ecosystem of its own
 - New features include the ability to analyze binaries, CoreWCF upgrades, and more...
 - Used for analysis as well as in-place upgrades for class libraries or WPF, WinForms, console, or WCF apps
- ASP.NET Incremental Migration Tooling
 - **System.Web Adapters** in conjunction with ASP.NET Incremental Migration (to help the old and new projects interoperate) and to migrate class libraries with System.Web dependencies

Upgrade Process

Prepare

- Review dependencies
- Choose target .NET platform
- Upgrade to NetFx 4.8?
- Order projects

Upgrade project

- Update csproj format
- Update NuGet references

Upgrade source

- Config files
- Xaml, cshtml, etc.
- Static content
- Cross-cutting concerns like auth

Test and deploy

- Test for runtime differences
- Deploy on-prem or in the cloud

CoreWCF

CoreWCF 1.0

- CoreWCF is a Microsoft-lead community project
- V1.0 is now in **supported** production release
- Provides many WCF server-side features in .NET 6 **and** .NET 7
- Requires relatively minor code changes in the hosting environment, but likely not in the actual service implementation

.NET MAUI

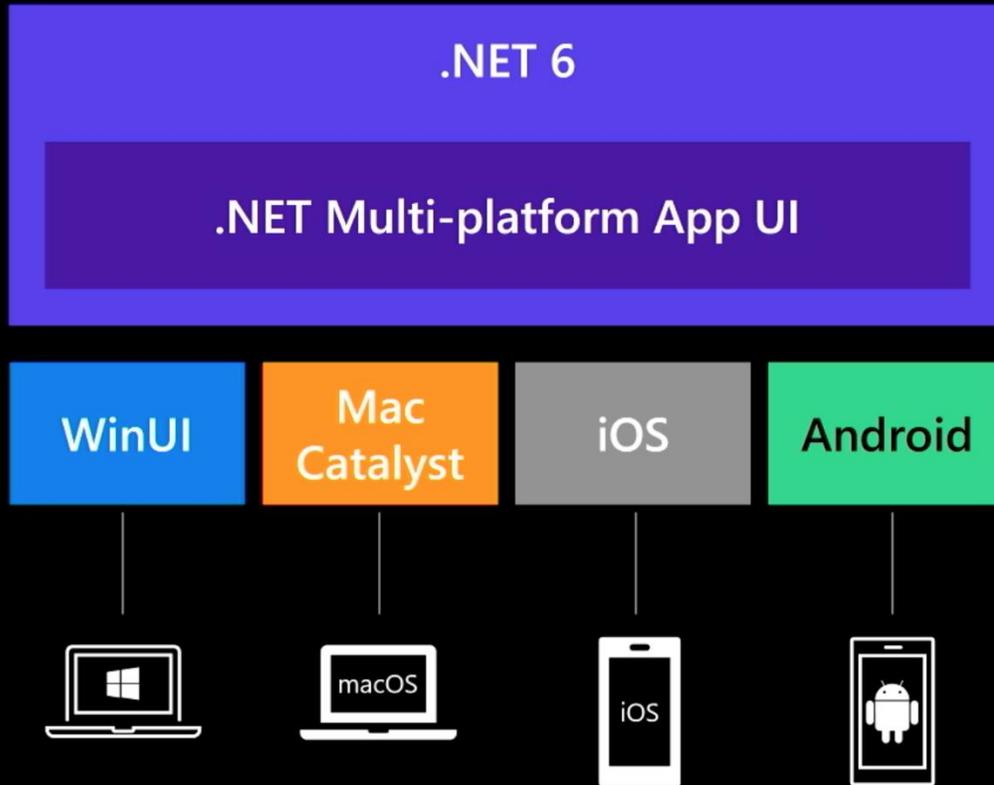


.NET MAUI

A tropical beach scene with palm trees, a sandy shore, and a blue sky with white clouds. The text ".NET MAUI" is overlaid in the top left corner.

- .NET Multi-Platform Application UI
- An evolution of the Xamarin.Forms Toolkit
- XAML-based development experience for rich applications
- Supported on Android, iOS, macOS, and Windows
- Access to each platform's native features

.NET Multi-platform App UI



- Cross-platform, native UI
- Single project system, single codebase
- Deploy to multiple devices on mobile and desktop
- First official release last April
- <https://github.com/dotnet/maui>

Blazor

What is Blazor?

- A web development framework (from Microsoft)
 - Deployed in a variety of ways, such as client-side and server-side
- Originally conceived based on WebAssembly
- Turns out to be a compelling web development framework, whether you use it with WebAssembly or otherwise

The State of Blazor

- Blazor has become a mature product...
- ...with the incremental updates you would expect
- There are new features and new project templates
- Blazor components can now be used in other JavaScript frameworks, such as Angular, Vue.js, REACT,...
- However, the most exciting news around Blazor is the ability to use Blazor in hybrid scenarios, especially (but not only!) MAUI

Other Technologies

Other Technologies Worth Mentioning

- Entity Framework Core 7
- Desktop development with WPF and WinForms

Other Announcements

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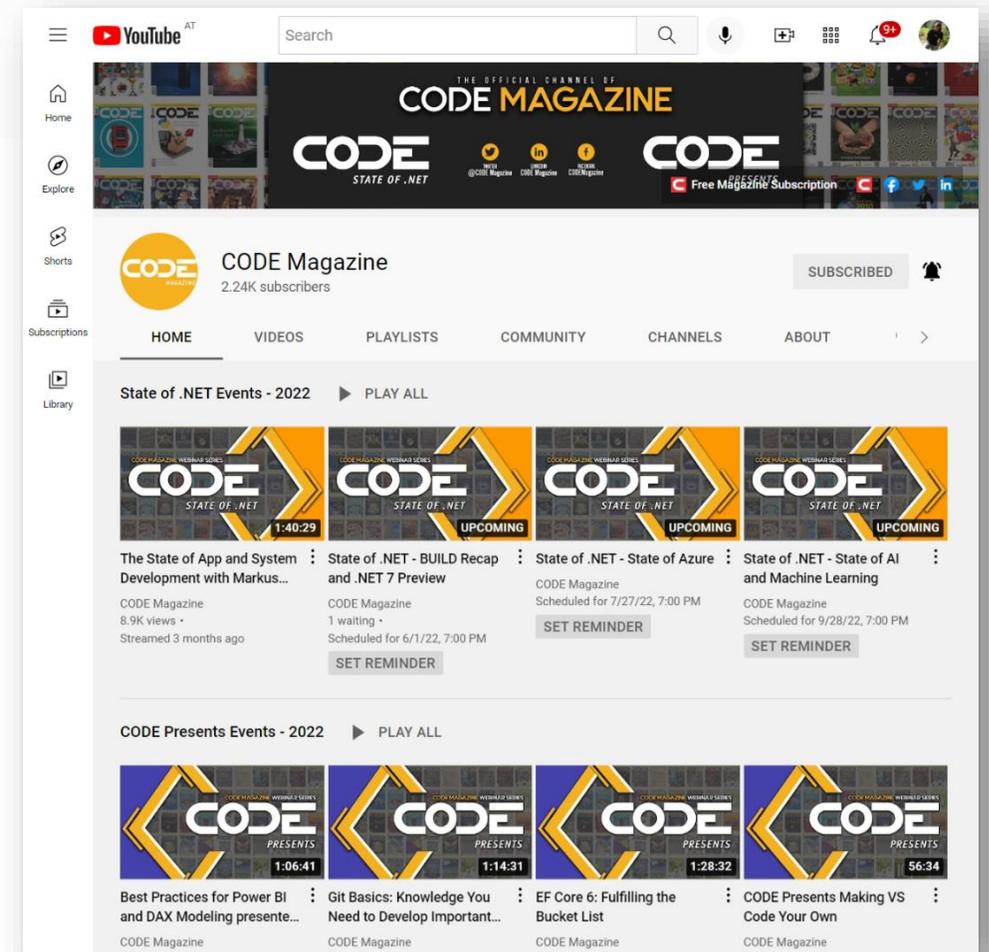
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Upcoming SODN Event



State of .NET

State of AI and Machine Learning

January 25th

<https://codemag.com/StateofDotNet>

.NET 7 Launch!

.NET Conf 2022

November 8-10



.NET 7 launch!

.NET Conf is a free, three-day, virtual developer event that celebrates the major releases of the [.NET development platform](#). It is co-organized by the .NET community and Microsoft, and sponsored by the .NET Foundation and our ecosystem partners. Come celebrate and learn about what you can do with .NET 7.

<https://www.dotnetconf.net/>

Q&A

Contact us with questions!

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