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The State of .NET on Mac OS

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About Me

- Director @ [Datachain Consulting](#)
- Microsoft Azure MVP (former Windows Dev Tech MVP)
- Co-Author of Cloud Analytics with Microsoft Azure
- Loves all things: .NET, Blockchain, Web, Mobile, Cloud, ML, IoT, and Data.



Agenda

 Nomenclature and Definition of Terms

 Different toolsets and IDE

 Mono and .NET

 Xamarin.Mac and Xamarin.Forms

 .NET 5 (ASP.NET Core and Worker Service)

 .NET 6, Mac Catalyst, and MAUI

Mono

- Started by [Miguel de Icaza](#) (GNOME, Novell, Xamarin, Microsoft)
- Mono is an open source implementation of Microsoft's .NET Framework.
- Enabled .NET apps (before .NET Core) to run on MacOS, Linux, and mobile operating systems such as Android, iOS, and Tizen.
- The roots of what's now called Xamarin.

Demo #1 : Mono and .NET

Xamarin.Mac

- Started as MonoMac.
- Native bindings of Mac OS APIs exposed via C#
- Works with Cocoa library features: ".storyboard" / ".xib"
- Follows the same native principles: AppDelegate, Main, Entitlements, Plist
- Uses XCode to bundle the ".app"

Xamarin.Forms

- Cross Platform UI Framework: MacOS, iOS, Android and Windows
- Create native components using XAML / C# / F#
- The Xamarin.Mac project references Xamarin.Forms project
- Can invoke platform specific methods
- Applies conventions like MVVM (Model-View-ViewModel)

Demo #2: Xamarin.Mac and Xamarin.Forms

.NET 5 (Core)

- General purpose framework to build apps targeting Windows, Linux, and MacOS
- **What works on Mac:**
 - ASP.NET Family (Blazor, API, gRPC, React, Angular, Vue, etc)
 - Console apps & worker services
 - Machine Learning, IoT, Docker
- On MacOS, it doesn't interface with Cocoa or rich native libraries
- You can invoke some System variables and call command line such as Airport

Demo #3: .NET 5 (Web and Worker Service)

Mac Catalyst

- Shared SDK codes between Mac OS and iPad OS (not iOS)
- Unified components like pop-up buttons, tooltips, window's sidebar
- Unified GameKit, PassKit, MediaPlyer, Core Audio, Core Bluetooth, etc
- Requires XCode 13 on MacOS Big Sur / Monterey

.NET 6 + MAUI (and beyond)

- More shared libraries across Xamarin/Mono and .NET Framework family
- Introduced the concept of `workload`
 - `dotnet workload install microsoft-macos-sdk-full`
 - `dotnet workload install microsoft-maccatalyst-sdk-full`
 - `dotnet workload install maui-maccatalyst`
- `Xamarin.Mac` => `Microsoft-MacOS`
- `Xamarin.MaciOS` + `Mac Catalyst` => **Microsoft-MacCatalst**
- `Xamarin.Forms` + `UWP` => **MAUI**

Demo #4: .NET 6, Mac Catalyst, and MAUI

Resources

[mjtpeña/Mac.NET.Samples](#)

[Mac Catalyst Overview - Apple Developer](#)

[.NET Blog \(microsoft.com\)](#)

[dotnet/maui-samples](#)

[Mono Project](#)

Thank you for watching! 🤝

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