Source: github.com/blog

Source: github.com/dotnet/brand

**GitHub Copilot:
The Future of .NET Modernization**

Jordan Cleigh

Staff Software Engineer at FMG

GitHub Copilot certified

fmg

GitHub
Copilot

Certification
Program

Link to slide deck

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- A brief look at the "GitHub Copilot app modernization for .NET" Visual Studio extension

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- An in-depth look at the Azure modernization tools

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  ○ Sorry, I was unable to convince my org to switch clouds so I could try them!

- Using other AI tools to do the same work

  ○ They might work, but that's a different talk!

Upgrade & Modernization Defined

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Bumping the .NET runtime version (.NET Framework → Core → 8, 9, 10)

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Modernization

Adopting new patterns, architectures, cloud enablement, etc.

What are some of the benefits of Upgrading .NET?

Performance

Security

Support

Features & Tooling

- Runtime

- Compiler

- Memory & Garbage Collection

Performance

Security

Support

Features & Tooling

- **Monthly security patches**
- **Cryptography improvements**
- **Auth improvements**

Performance

Security

Support

Features & Tooling

- **Stay in the current/LTS lifecycle**
- **Official and community support**
- **Compliance**

Performance

Security

Support

Features & Tooling

- New language features and APIs
- Library improvements
- AI extensions & tooling

What are some of the benefits of Modernizing .NET?

New Architectures

Cloud Migration

Agility

Cost Reduction

- Microservices
- Event-Driven
- API-First
- AI-Native

New Architectures

Cloud Migration

Agility

Cost Reduction

- Scalability

- Availability

- Redundancy

- Reliability

New Architectures

Cloud Migration

Agility

Cost Reduction

- Reduced friction
- Improved velocity
- Team autonomy
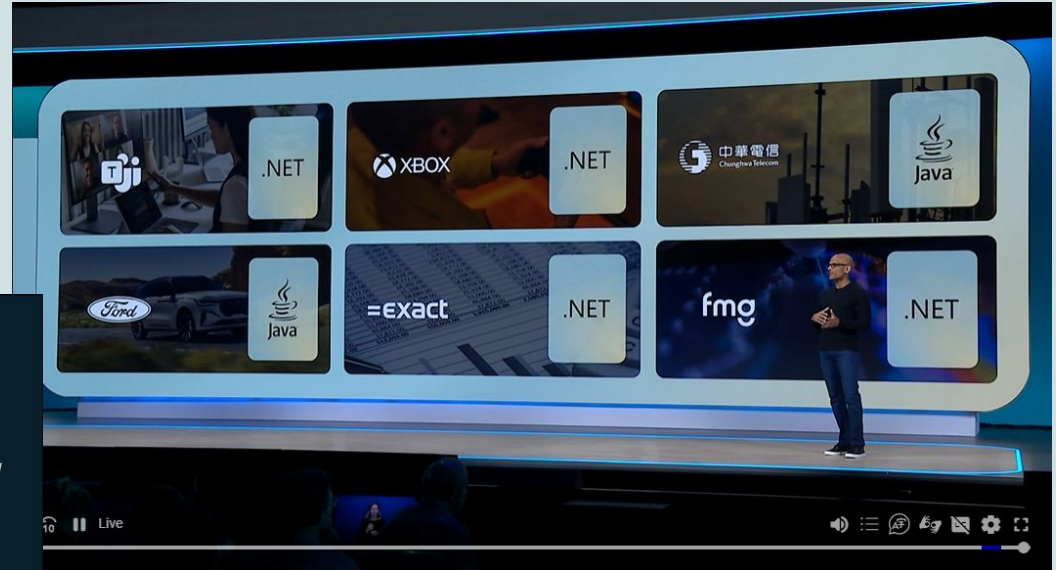
New Architectures

Cloud Migration

Agility

Cost Reduction

- On-demand, usage-based pricing
- Leaner headcount
- Automate time-consuming tasks

Working with Microsoft

Microsoft Build 2025

https://youtu.be/3NFWcHrsba0?si=zEi51DS6AflR7Vy_&t=809

https://www.youtube.com/live/5sM3JguEMzQ?t=1363s

Visual Studio Extensions

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Requirements

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- **Visual Studio 2022**

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- **Git**

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- **Git**

- **GitHub Copilot paid subscription**

Visual Studio Extensions
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- **Visual Studio 2022**

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- **.NET SDK**

Visual Studio Extensions

Visual Studio Extensions

.NET Upgrade Assistant

Visual Studio Extensions

.NET Upgrade Assistant

https://learn.microsoft.com/en-us/dotnet/core/porting/upgrade-assistant-overview

PREVIEW

GitHub Copilot app modernization - upgrade for .NET

https://learn.microsoft.com/en-us/dotnet/core/porting/github-copilot-app-modernization-overview

Visual Studio Extensions

.NET Upgrade Assistant

https://learn.microsoft.com/en-us/dotnet/core/porting/upgrade-assistant-overview

PREVIEW

GitHub Copilot app modernization - upgrade for .NET

https://learn.microsoft.com/en-us/dotnet/core/porting/github-copilot-app-modernization-overview

Azure Migrate application and code assessment

https://learn.microsoft.com/en-us/azure/migrate/appcat/dotnet

Visual Studio Extensions

.NET Upgrade Assistant

https://learn.microsoft.com/en-us/dotnet/core/porting/upgrade-assistant-overview

PREVIEW

GitHub Copilot app modernization - upgrade for .NET

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Azure Migrate application and code assessment

https://learn.microsoft.com/en-us/azure/migrate/appcat/dotnet

PREVIEW

GitHub Copilot app modernization for .NET

https://learn.microsoft.com/en-us/dotnet/azure/migration/appmod/overview

Demos

website

.NET 5 ➔ .NET 9

This is a fork of the old, archived .NET Foundation website repo. Uses Statiq.Web library to generate a static site.

https://github.com/jcleigh/website

.NET Core Mixed Versions Example

Core 2.1, 2.2, 3.1 ➜ .NET 9

This is a demo recreation of the project structure of one of our legacy internal reporting applications.

https://github.com/jcleigh/dotnet-core-mixed-versions-example

eShop

.NET 8 ➔ .NET 9

This is a fork of the eShop reference app. The `dotnet8` branch is based off of the last commit prior to the main repo's upgrade to .NET 9.

https://github.com/jcleigh/eshop

MVC Movie .NET 6 Sample

.NET 6 ➔ .NET 9

This is a fork of the .NET 6 version of the ASP.NET Core tutorial MVC Movie application with RazorMovie and WpfMovie thrown in for good measure.

Intentionally problematic dependencies include:

- HTMLSanitizer
- BinaryFormatter

https://github.com/jcleigh/MvcMovieNet6

.NET Migration Copilot Samples

Azure migration demo

This is a fork of the Azure-Samples/DotNetMigrationCopilotSamples repo, created to showcase the Azure modernization tools.

Reminder: upgrading from .NET Framework to Modern is technically unsupported in GitHub Copilot app modernization – upgrade for .NET.
The recommended upgrade flow is to use .NET Upgrade Assistant to upgrade from .NET Fx.

https://github.com/jcleigh/dotnet-migration-copilot-samples

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- Verify that dependencies' licenses or terms have not unexpectedly changed before accepting the new versions

- Use System.Web.Adapters to bridge the gap on older projects with System.Web dependencies

Workflow Tips

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- Monitor the progress in the Output window in Visual Studio

- If the assistant stops unexpectedly, tell it to "please continue" to resume where it left off

Next Steps

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Stop kicking the can

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Embrace GitHub Copilot-powered modernization

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Stop kicking the can

Embrace GitHub Copilot-powered modernization

Start small and learn from the experience

Questions?

Thank you!

Connect with me:

- **jcleigh** on
- **jcleigh.dev**

Link to Feedback Survey