

# State of .NET

## Microsoft BUILD Recap

Markus Egger  
President and Chief Software Architect  
CODE Magazine & Consulting

# Kicking Things Off

## Jim Duffy

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



# Build Cross Platform Apps With Photino



- Build native, cross-platform desktop apps that are lighter than light.
- Lightweight open-source framework for building native, cross-platform desktop applications with Web UI technology.
- Photino is maintained by the CODE Magazine team with the help of the open-source community.
- [tryphotino.io](https://tryphotino.io)
- [Github.com/tryphotino](https://Github.com/tryphotino)

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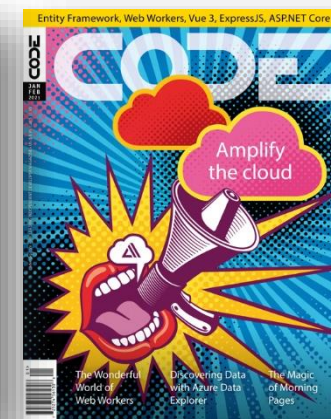
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# About the Presenter

- **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



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## "Helping People Build Better Software"

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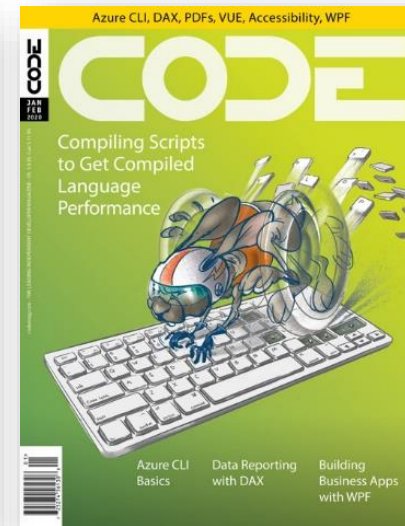
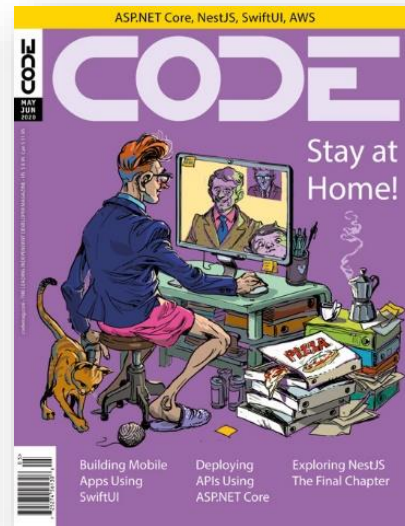
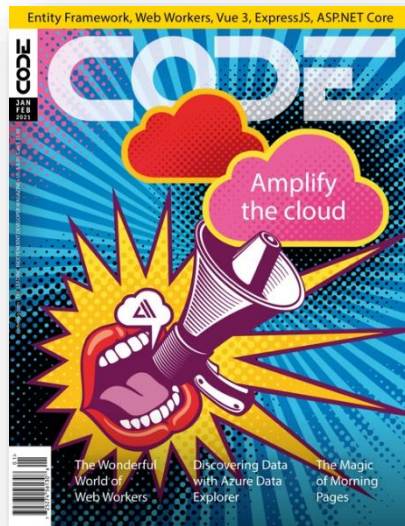
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- Just help from our team of experience software developers.
- Got questions? Stuck on an issue? Platform and/or architecture decisions to make? We can help!



Contact us at [info@codemag.com](mailto:info@codemag.com) or [jduffy@codemag.com](mailto:jduffy@codemag.com)

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- Survey must be completed by 11:59pm ET on 6/4/2021 to be eligible!
- Name selected from registered attendee list. Completed survey is required to win.

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\* Required

1. Full Name \*

Enter your answer

2. Company Name \*

Enter your answer

THIS SLIDE WILL BE REPEATED AT THE END AND SURVEY LINK REPEATED IN THE CHAT WINDOW!

# Prior Webinar Recordings

- Slides & Videos:
- 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 - State of DevOps

3/31/2021



State of .NET - Windows Desktop Development in .NET 5

2/24/2021



State of .NET - Blazor Web Development with .NET 5 - with Markus Egger

1/27/2021



State of .NET - .NET 5 In-Depth (.NET Conf Recap)

11/18/2020



# Agenda

- BUILD overview of announcements
- What's new for developers
- News for various platforms
- Surprisingly little Azure (although there is some)
- Branching out beyond core development topics into areas you may have not thought of as interesting before

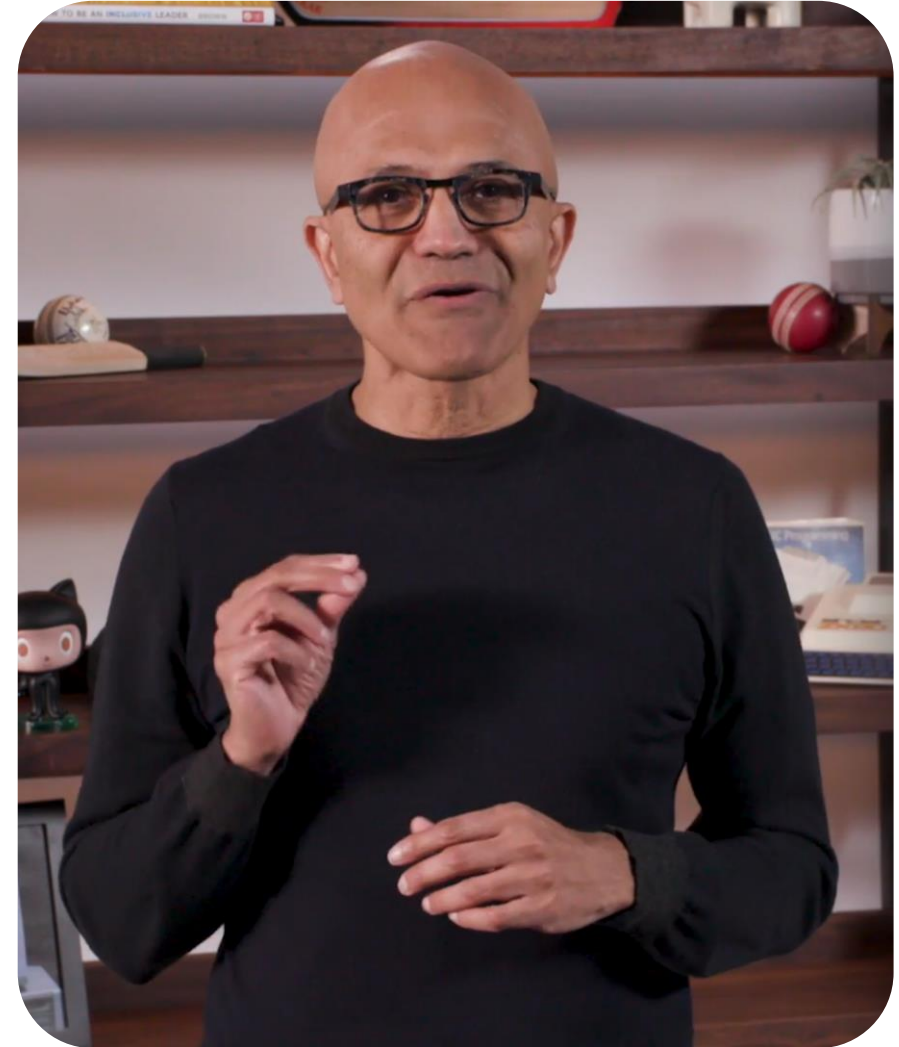


# BUILD Overview



# What BUILD 2021 Was Like

- As expected, BUILD was a virtual event
- Somewhat smaller in scope than previous BUILDs
- Will be supplemented with "What's Next?" events



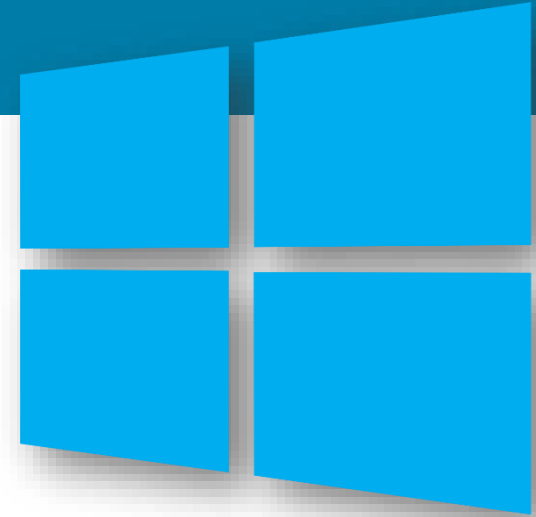


# BUILD – Major Announcements

- BUILD provided few surprises this year
- More Azure, .NET, Visual Studio, AI, Data,...
- An emergence of the “collaborative app”
- A return to “no-dev apps”

# The Role of Tech in the World

- Growing from 5% to 10% of GDP
- Digital transformation that was projected to happen in the next 10 years is happening now
- Tech-hiring at non-tech firms is outpacing traditional hiring
- An estimated 5 million new apps will be built in the next 5 years
  - More than all apps built in the last 40 years
- 5x faster demand for new apps than IT departments can deliver
- For developers, this means that a world of opportunities has just opened up!



# BUILD – Windows Platform

# Windows

- 21H1 has rolled out
- Another push for ARM
  - Qualcomm ARM Kit
- Linux GUI support

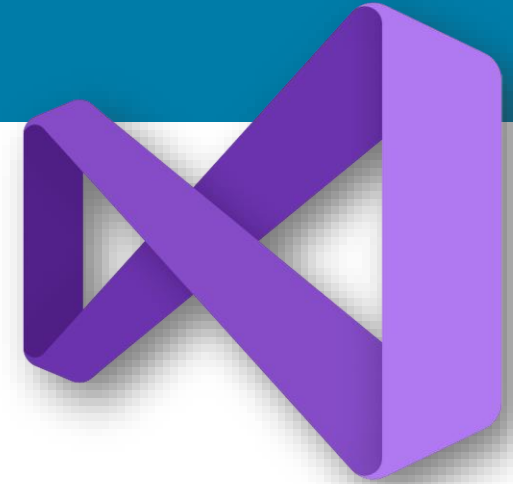
# Windows Future

- Not much is known at this point, but the fall update ("Sun Valley") is supposed to be big, with an overhauled UX
- We expect that there will be a new Windows Store
- We are expecting that there will be some interesting announcements over the next weeks and months



# Microsoft Edge News

- Edge 91 Update rolls out
- Features such as sleeping tabs and startup boost
- WebView2 has now been available for a while



# BUILD – For Developers

# .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](https://github.com/dotnet)  
[github.com/aspnet](https://github.com/aspnet)



Top 5

Language on GitHub

C#



7X

Faster than Node.js

ASP.NET Core

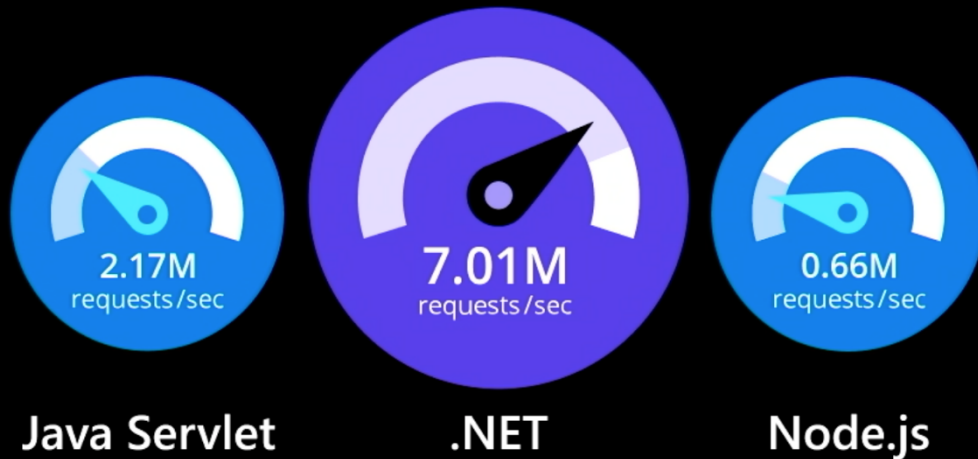
40%

New to .NET are students

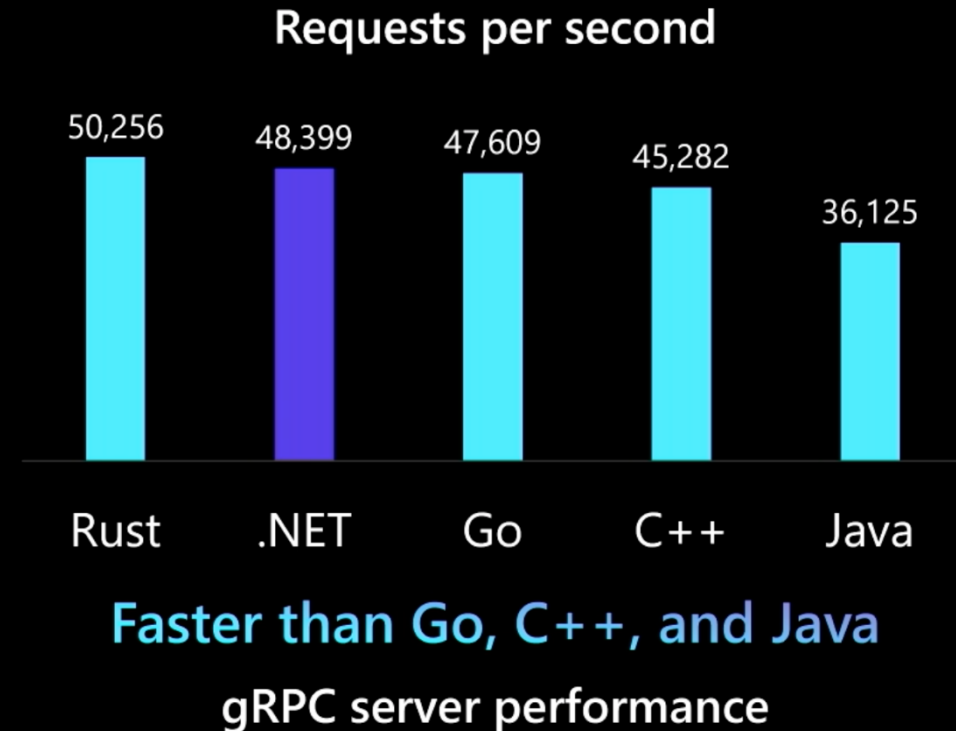
dot.net download survey

Sources: [insights.stackoverflow.com/survey/2019#most-loved-dreaded-and-wanted](https://insights.stackoverflow.com/survey/2019#most-loved-dreaded-and-wanted) & [insights.stackoverflow.com/survey/2020#most-loved-dreaded-and-wanted](https://insights.stackoverflow.com/survey/2020#most-loved-dreaded-and-wanted) [github.com/cncf/velocity/](https://github.com/cncf/velocity/) [octoverse.github.com/](https://octoverse.github.com/) [www.techempower.com/benchmarks/#section=data-r18&hw=ph&test=plaintext](https://www.techempower.com/benchmarks/#section=data-r18&hw=ph&test=plaintext)

# .NET 5 performance



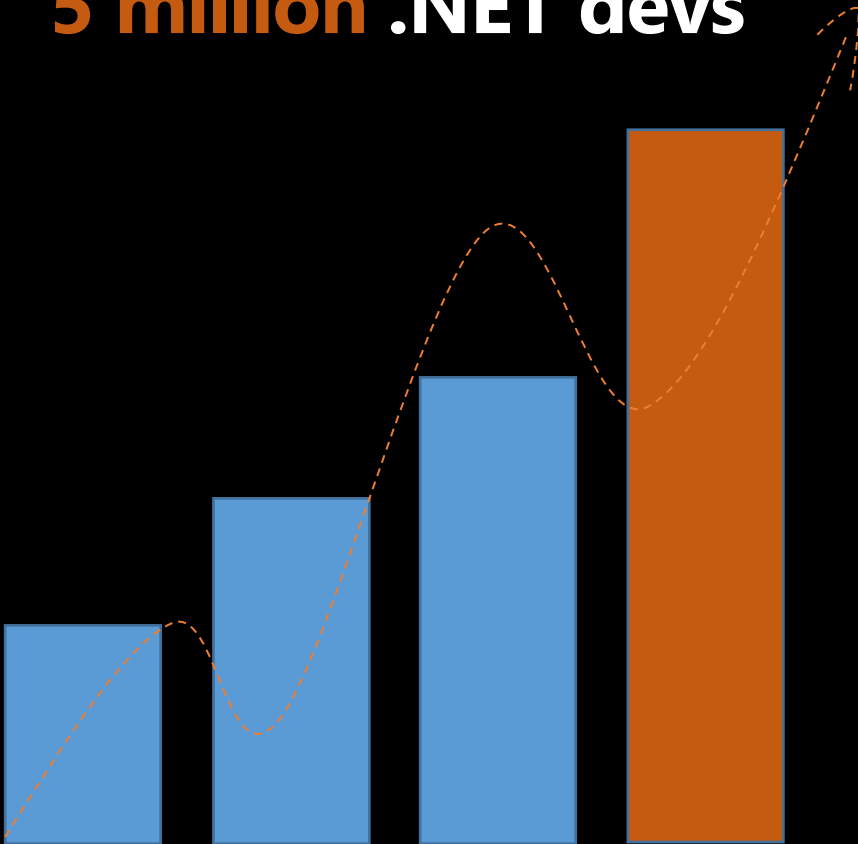
**>10X** faster than Node.js  
ASP.NET Core web framework



Sources: <https://www.techempower.com/benchmarks/#section=data-r20&hw=ph&test=plaintext>; [https://github.com/LesnyRumcajs/grpc\\_bench/wiki/2020-08-11-bench-results](https://github.com/LesnyRumcajs/grpc_bench/wiki/2020-08-11-bench-results)

# .NET adoption

**5 million .NET devs**



**Visual Studio**

**+1 million new**

Monthly active .NET developers in the last year

**.NET Core**

**+600K new**

Monthly active .NET Core developers in the last year

**.NET on Linux**

**2 million**

Publishes to Linux from Visual Studio



# .NET 6

- “One .NET” comes full circle
  - Finishing what .NET 5 aimed for
- Adds the Xamarin workloads among other things
- Will be released at .NET Conf 2021 (November 9-11)

# .NET 6 Preview 4

- This preview can now be downloaded
- Used with Visual Studio 2019 Preview

# Visual Studio 2022

- Preview available in the summer
- First real 64bit version of Visual Studio
- Performance improvements
- Support for .NET
- Support for C++ 20
- Updated UI
- Note: There will also be an updated Visual Studio for the Mac

# Project Reunion

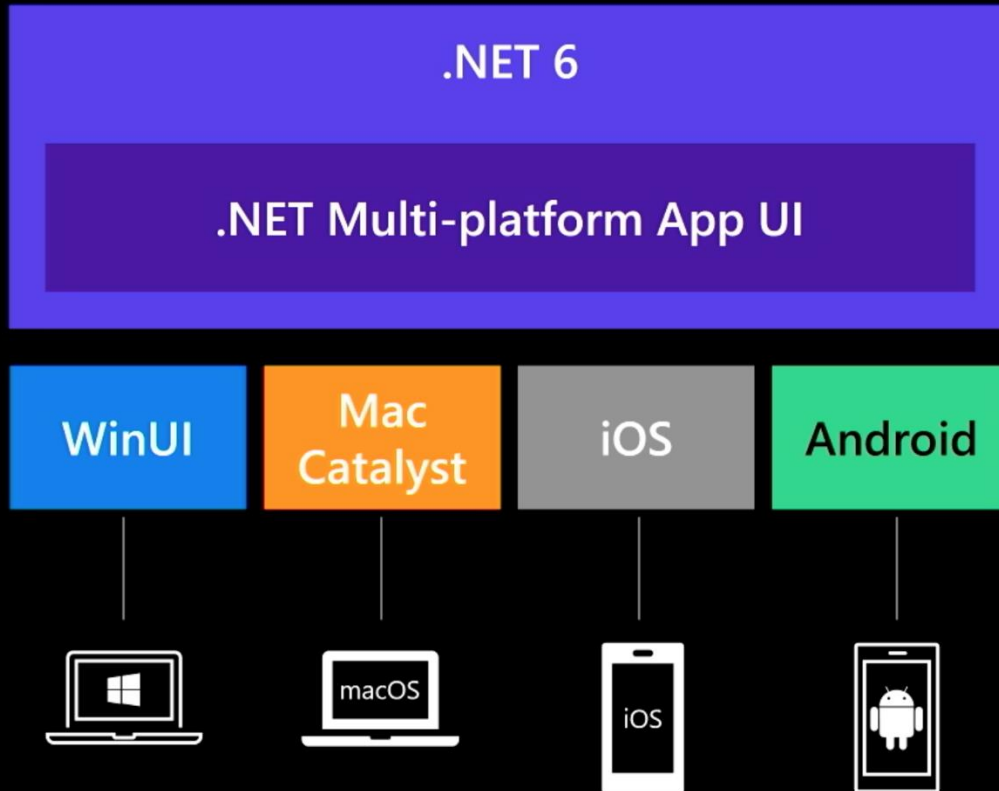
- Re-uniting all the different Microsoft UI technologies for Windows Desktop development
  - WinUI, UWP, WinForms, WPF,...
- Project Reunion 0.5 has been available since March
  - WinUI 3, WebView2
- Project Reunion 0.8 is now available
  - .NET 5 support, ARM support, general improvements
- Note: 0.x versions are supported versions
- Planned 1.0 release in the fall
- Snapdragon Desktop Development Kit available in the summer

# MAUI

- .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
- Ships with .NET 6 this fall



# .NET Multi-platform App UI



Cross-platform, native UI

Single project system, single codebase

Deploy to multiple devices:  
mobile and desktop

General availability in .NET 6

[github.com/dotnet/maui](https://github.com/dotnet/maui)

# State of .NET – February 2021

- Our February State of .NET Event had a focus on Windows Desktop Development
- Watch the recording online
- Note: This was our 2<sup>nd</sup> most popular event ever!
- [www.StateOfDotNet.com](http://www.StateOfDotNet.com)

# Blazor Web Development

- Blazor is moving along nicely
- Blazor Desktop Apps are being added in the .NET 6 timeframe
- They can be combined with MAUI

# Build Cross Platform Apps With Photino



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

# Playwright

- A new Open-Source UI testing toolkit for modern web apps
- Script-based testing of HTML-based UIs
- Test-scripts can be recorded
- <https://playwright.dev>



# Hot Reload

- Microsoft is working on a really cool Visual Studio debug feature called "Hot Reload"
- This feature enables developers to change code on the fly while the app is running in debug mode and see the changes right away
- Think of it in the same terms as editing an HTML page on the fly, but in much more complex scenarios
- Unfortunately... I really couldn't get that working for a demo 😞

# .NET 6/C# 10 Minimal APIs

```
using Microsoft.AspNetCore.Builder;

var app = WebApplication.Create(args);

app.MapGet("/", () => {
    app.Run();
});
```

```
using var httpClient = new HttpClient();
httpClient.BaseAddress = new Uri("https://atlas.microsoft.com/weather/");
var baseQuery = $"api-version=1.0&subscription-key={app.Configuration["SubscriptionKey"]}&unit=imperial";

Task<T> GetAsync<T>(string path, string query) => httpClient.GetFromJsonAsync<T>($"{{path}}?{{baseQuery}}{{query}}");

app.MapGet("/weather/{{location}}", [EnableCors("weather")] async (Coordinate location) =>
{
    var currentQuery = GetAsync<CurrentWeather>("currentConditions/json", $"&query={{location}}");
    var hourlyQuery = GetAsync<HourlyForecast>("forecast/hourly/json", $"&query={{location}}&duration=24");
    var dailyQuery = GetAsync<DailyForecast>("forecast/daily/json", $"&query={{location}}&duration=10");

    // Wait for the 3 parallel requests to complete and combine the responses.
    await Task.WhenAll(currentQuery, hourlyQuery, dailyQuery);

    return new
    {
        CurrentWeather = currentQuery.Result.Results[0],
        HourlyForecasts = hourlyQuery.Result.Forecasts,
        DailyForecasts = dailyQuery.Result.Forecasts,
    };
});

app.Run();
```



# GitHub

- GitHub is gaining in importance every day
- Many of the things coming out of Microsoft now completely revolve around GitHub
  - Especially for things like CI or DevOps
  - GitHub Actions drive a lot of functionality
- Note: Azure DevOps continues to be supported, but GitHub is clearly the future

# Mark Your Calendar!

**Webinar: State of .NET - .NET 5 & .NET 6 Preview - with Markus Egger**

- **Wed, June 30**
- <https://bit.ly/3pci7Ut>

## June 2021

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			



# BUILD – Azure

A realistic image of the Earth from space, showing the Americas and parts of Europe and Africa. Overlaid on the globe are several thin, white, elliptical lines representing satellite orbits. A network of white dots and connecting lines is also overlaid, primarily concentrated in the Northern Hemisphere, suggesting a global communication or data network.

The app of the future  
is cloud native

# Azure Main Areas

- Cloud-Native Technologies
  - Microservices, Containers, Kubernetes Service, Application Services, APIs, Functions, Dapr (Distributed Application Runtime), DevOps
  - Cloud Databases
  - Azure Arc
- AI & Machine Learning

# State of .NET – April 2021

- Last month's State of .NET Event focused entirely on Azure
- The recording is available online for free
- Note: There were prior recordings for Azure as well
- [www.StateOfDotNet.com](http://www.StateOfDotNet.com)



# BUILD – MS Teams

# MS Teams

- Teams is the fastest growing Microsoft product ever
- Currently at 145 million ***daily*** active users!
  - More than twice what it was a year ago (and the pandemic was already in full swing then)!
- This is a very interesting developer platform

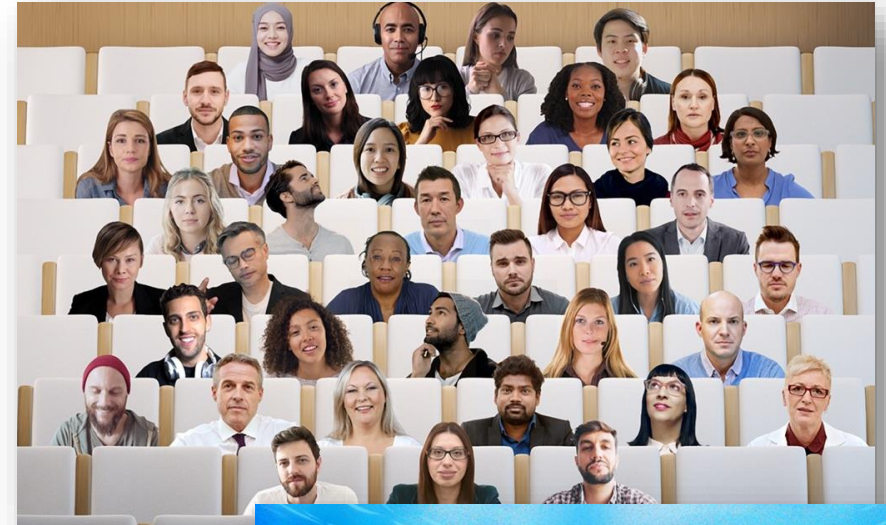


# MS Teams Toolkit

- Extensions are available both for Visual Studio and Visual Studio Code
- This is an area of very active development, so expect these extensions (and associated APIs) to be updated very frequently

# MS Teams Development

- New Meeting APIs
- New Together Mode Toolkit
- New Media APIs
- Real-time access to audio and video streams
- Developing for the Teams App Store

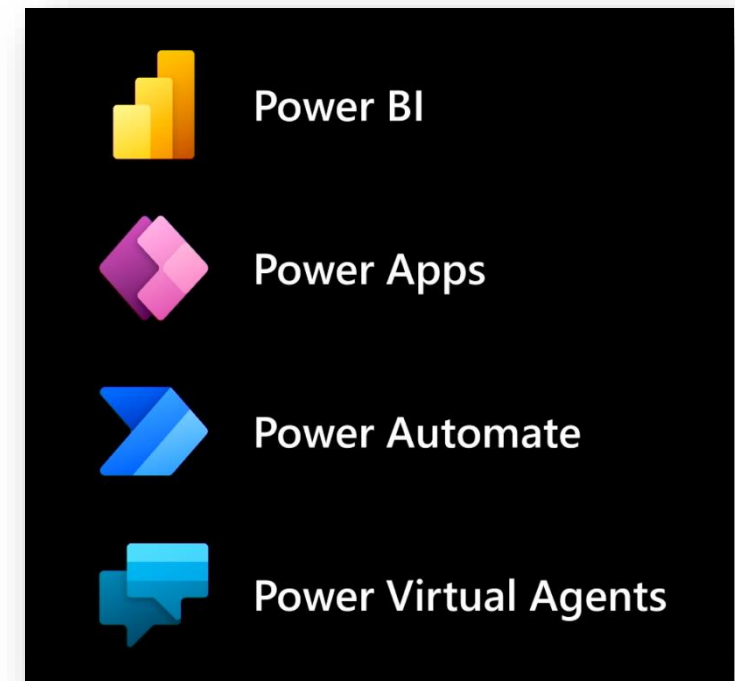




# BUILD - Power Platform

# Power Platform Overview

- A platform that enables “Citizen Developers” and “Code-First Developers” to work together
- Codeless development
- “Application islands”
- Hugely extensible



# Extensibility Model

- Connectors
- UI Controls
- Services

# Other Announcements

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- Just help from our team of experience software developers.
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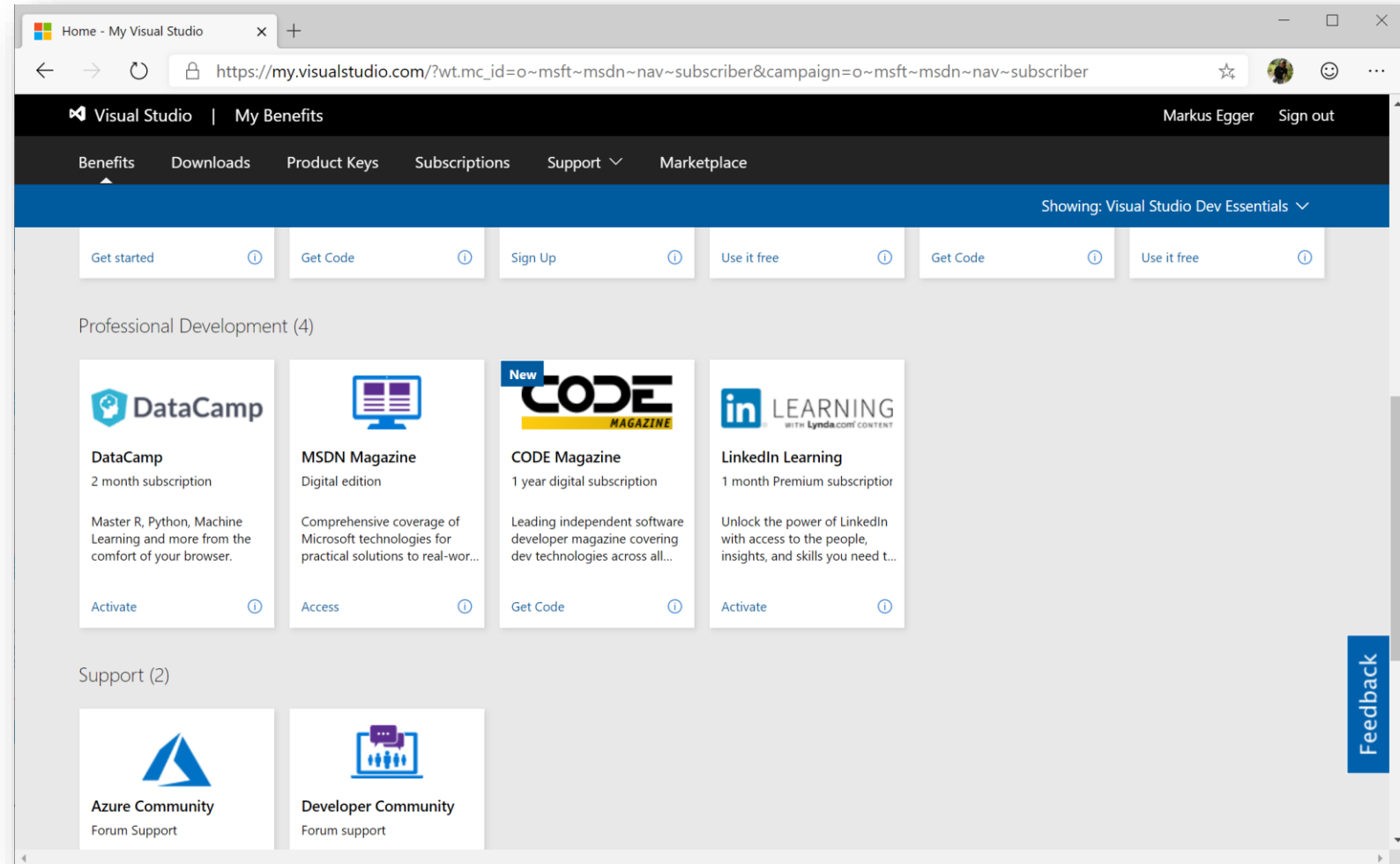
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- **Wed, June 16**
- <https://bit.ly/3yRyx9t>

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# Q&A

Contact us with questions!

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