



FREE CIRCLE

.NET Core & Linux

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Telegram: @kipters

“ I went into .NET thinking this was a programming language, but it seems I've stumbled upon a mini operating system with support for multiple execution environments, programming languages, and now I have so many questions.

— Kelsey Hightower (@kelseyhightower) [July 30, 2020](#)

”

Multiple execution environments

- .NET Framework
- .NET Core
- Mono
- .NET Micro
- .NET Nano
- CoreRT

Multiple languages

- C#
- F#
- VB

Multiple languages

- C#
- F#
- VB
- C++
- Python
- PHP
- ...

Codice  **CIL**  **CLR**  

Codice ➔ CIL ➔ CLR ➔ ⚡

Java ➔ bytecode ➔ JVM ➔ ⚡

CLR | Common Language Runtime

"La JVM"

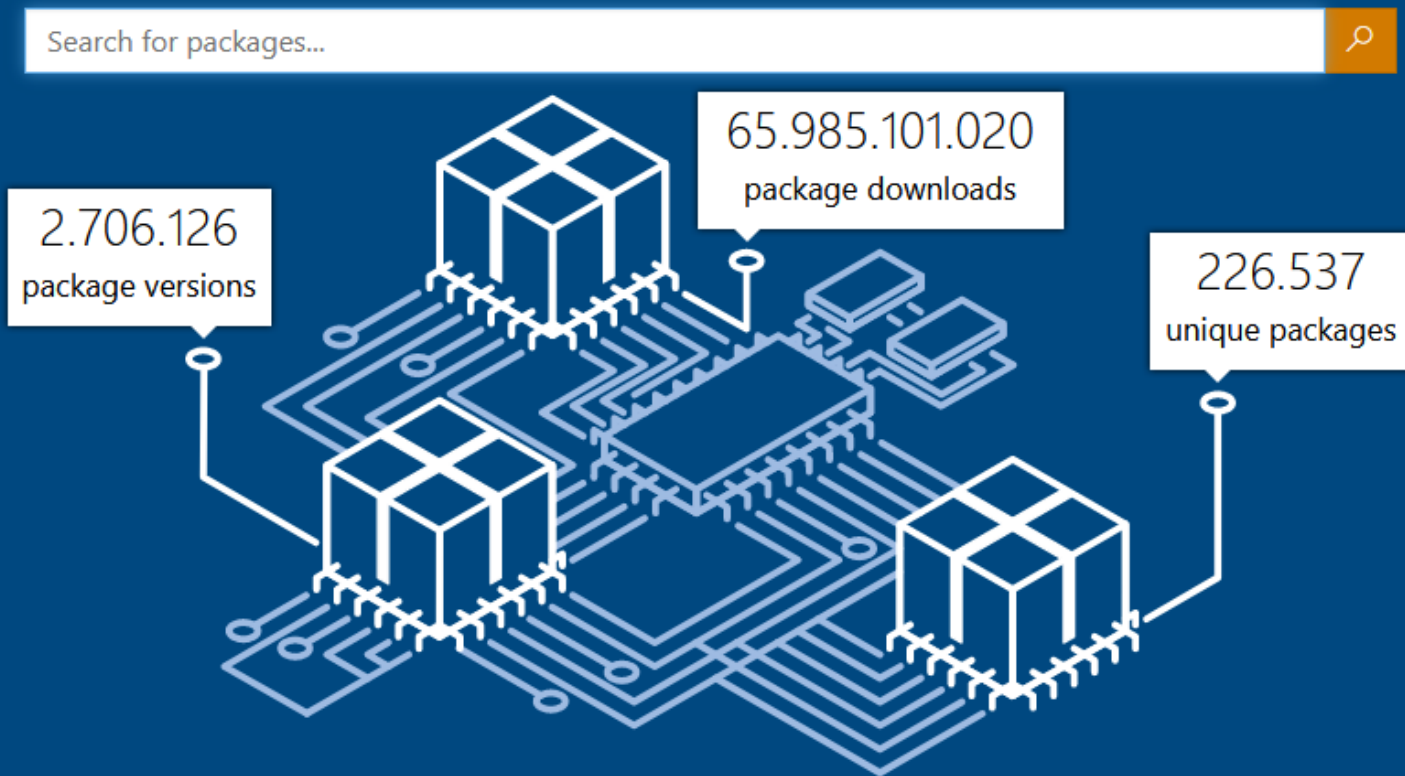
- CLR
- Mono
- CoreCLR

BCL | Base Class Library

L'intero set di librerie e classi a disposizione delle applicazioni .NET

Nuget

Create .NET apps faster with NuGet



dotnet CLI

```
x> dotnet -h 22:45:44
.NET Core SDK (3.1.403)
Sintassi: dotnet [runtime-options] [path-to-application] [arguments]

Esegue un'applicazione di .NET Core.

runtime-options:
  --additionalprobingpath <path> Percorso che contiene i criteri di esecuzione probe e gli assembly per cui eseguire il probe.
  --additional-deps <path> Percorso del file deps.json aggiuntivo.
  --fx-version <version> Versione di Shared Framework installata da usare per eseguire l'applicazione.
  --roll-forward <setting> Esegue il roll forward alla versione del framework (LatestPatch, Minor, LatestMinor, Major, LatestMajor, Disable).

path-to-application:
  Percorso di un file DLL dell'applicazione da eseguire.

Sintassi: dotnet [sdk-options] [command] [command-options] [arguments]

Esegue un comando di .NET Core SDK.

sdk-options:
  -d|--diagnostics Abilita l'output di diagnostica.
  -h|--help Visualizza la Guida della riga di comando.
  --info Visualizza le informazioni su .NET Core.
  --list-runtimes Visualizza i runtime installati.
  --list-sdks Visualizza gli SDK installati.
  --version Visualizza la versione di .NET Core SDK in uso.

Comandi SDK:
```

1995

Java





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1996

Anders Hejlsberg



Linux Day 2020 | .NET Core & Linux

1996

Anders Hejlsberg

Turbo Pascal
Delphi



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1996

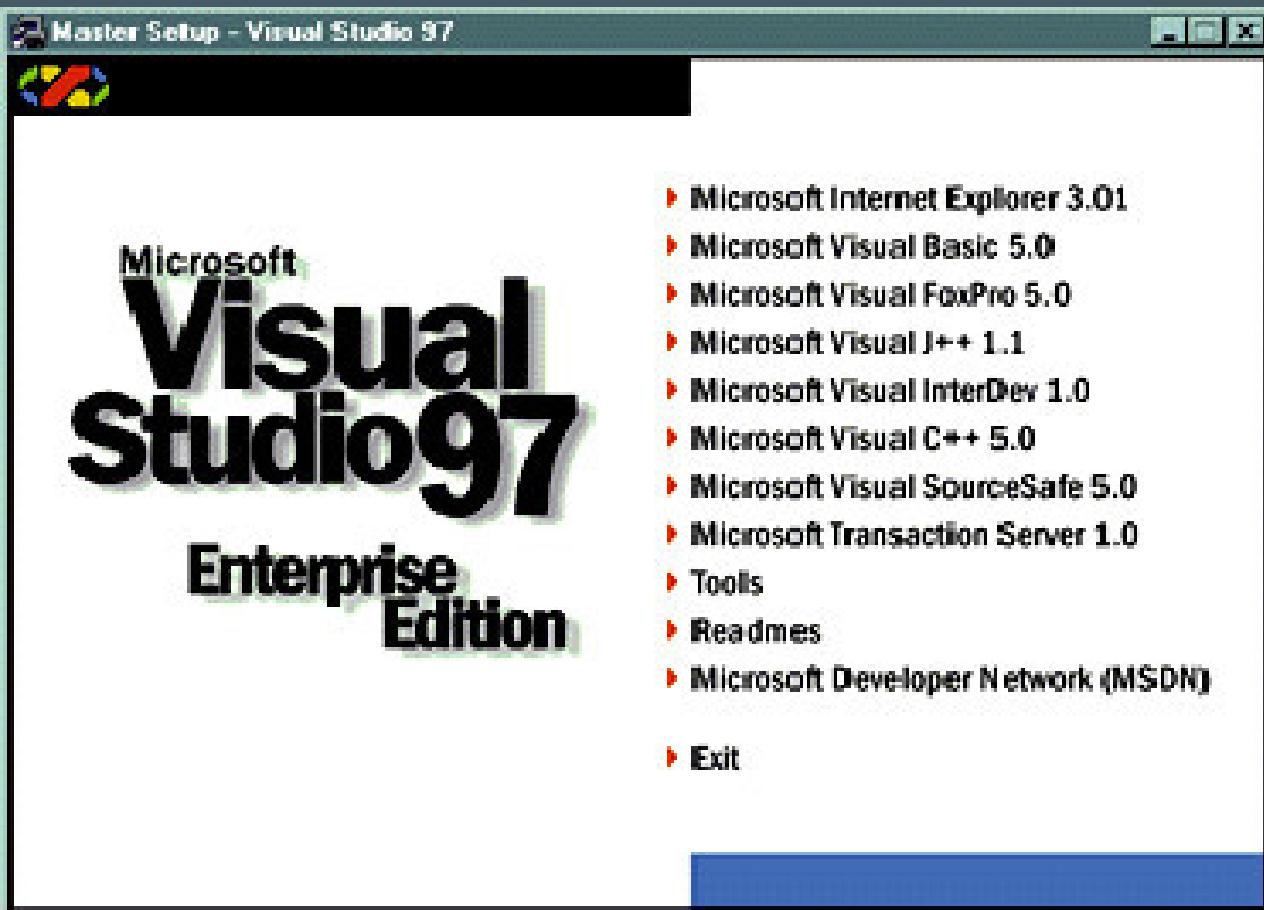
Anders Hejlsberg

Turbo Pascal

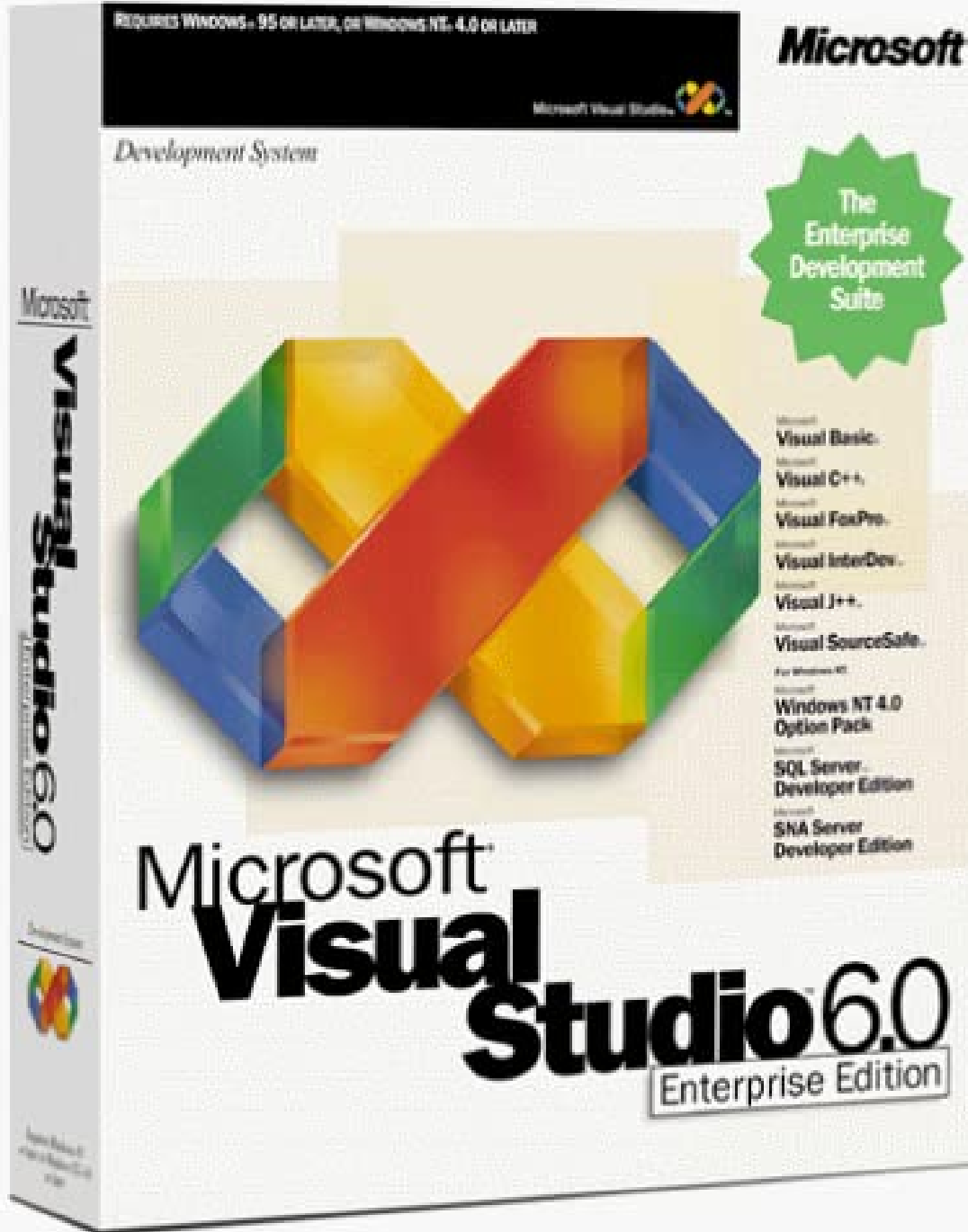
Delphi

C#

TypeScript



Visual J++ 1.1



Visual J++ 6.0

Visual J++ 1.x

Abbraccia Java

Visual J++ 6.0

Abbraccia Java

Estende Java (con le Windows Foundation Classes + estensioni)

Visual J++

Embrace Java

Extend Java (con le Windows Foundation Classes + estensioni)

???

Sun Microsystems fa causa a Microsoft

Visual J++ viene dismesso

Tre problemi da risolvere

- Runtime
 - Troppi linguaggi con runtime separati: vanno unificati
- Linguaggi
 - (Windows) Base Class Libraries, un set unificato di librerie
- Web
 - "Portare la OOP sul web"



Scott Guthrie

PDC 2000

Next generation Windows services

PDC 2000

Next generation ~~Windows~~ Web Services

PDC 2000

Next generation ~~Windows~~ Web Services

Una nuova piattaforma su standard aperti

- ECMA-334 (C#)
- ECMA-335 (CLR | Common Language Runtime)

Nasce ufficialmente .NET



Miguel de Icaza



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Miguel de Icaza

Midnight Commander

GNOME

Gnumeric



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Nat Friedman

CEO di Ximian
CEO di Xamarin
CEO di GitHub

2001



“ Mono is a free and open-source project to create an Ecma standard-compliant .NET Framework-compatible software framework, including a C# compiler and a Common Language Runtime.

— [Wikipedia](#)

”

PDC | Ottobre 2001

Prima release candidate di .NET 1.0

Febbraio 2002

Visual Studio .NET

Include .NET 1.0 e C# 1.0

“ 22 languages, one platform

”

Marzo 2002

Project Rotor

“ Shared source implementation of CLR ”

Include runtime, BCL e compilatore C#

Marzo 2002

Project Rotor

“ Shared source implementation of CLR ”

Include runtime, BCL e compilatore C#

Non è open source, è una licenza accademica

Aprile 2003

.NET 1.1

Giugno 2004

Mono 1.0

Novembre 2005

.NET 2.0

- CLR 2.0
- C# 2.0

Novembre 2006

.NET 3.0

- CLR 2.0
- C# 3.0

Mono 1.2

Settembre 2007

Silverlight

Per la prima volta .NET supporta ufficialmente un OS diverso da Windows (Mac OS X)

Ottobre 2007

"Scott Guthrie's ninja army"

Persone di alto profilo, coinvolte nell'open source

Ottobre 2007

alt dot net

Community per spingere l'open source tra gli utenti di tecnologie Microsoft

Scott Guthrie apre il keynote della prima conferenza

Demo pubblica di ASP.NET MVC (rilasciato poi sotto MS-PL)

Novembre 2008

.NET 3.5

- LINQ.
Il resto non importa. LINQ.

Mono 2.0

- In pari con .NET 2.0 (e C# 3.0)
- Cecil e Gtk#
- Annunciato Moonlight

Marzo 2010

iPad

Marzo 2010

iPad

Steve Jobs: "Thoughts on Flash"

Settembre 2009

MonoTouch 1.0, .NET su iOS

Aprile 2011

Mono for Android

Nasce Xamarin

2011

Roslyn

Un nuovo compilatore per C# e VB, scritto in C#

//Build/ | Aprile 2014

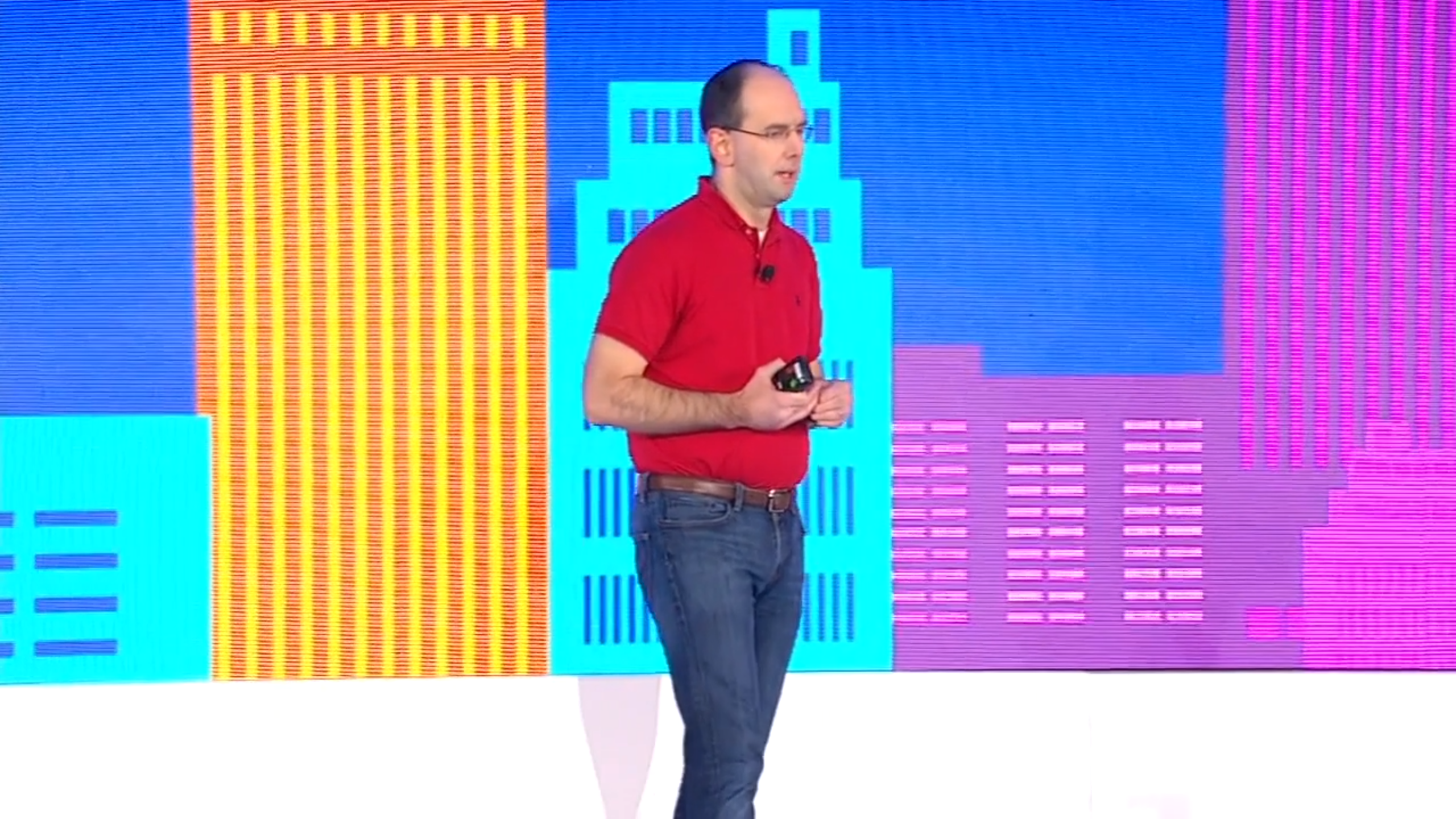
- Viene annunciata la .NET Foundation
- Xamarin, Microsoft e altri cedono codice alla .NET Foundation
- ASP.NET MVC, Entity Framework, Roslyn e altri componenti vengono rilasciati sotto licenza Apache 2.0

//Build/ | Aprile 2014

- Viene annunciata la .NET Foundation
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- Viene annunciato Visual Studio Code
- Viene rilasciato TypeScript 1.0

Connect(); 2014 | Ottobre 2014



Connect(); 2014 | Ottobre 2014

**.NET Core viene rilasciato sotto Apache 2.0,
incluso:**

- CLR
- JIT
- Garbage Collector
- BCL

“ This includes everything necessary to execute .NET code”
– Scott Guthrie



Announcing

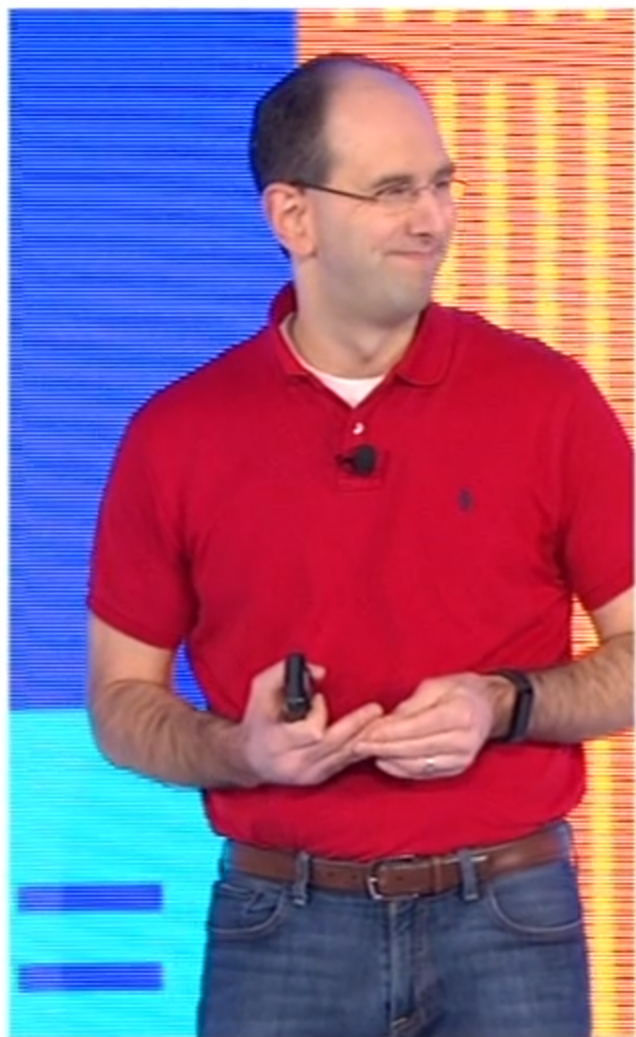
Open sourcing of the
.NET Core Runtime and Framework



Microsoft <3 Linux

Connect();

Microsoft Visual Studio & Azure



Announcing

Official .NET server framework
distributions for Linux and OS X

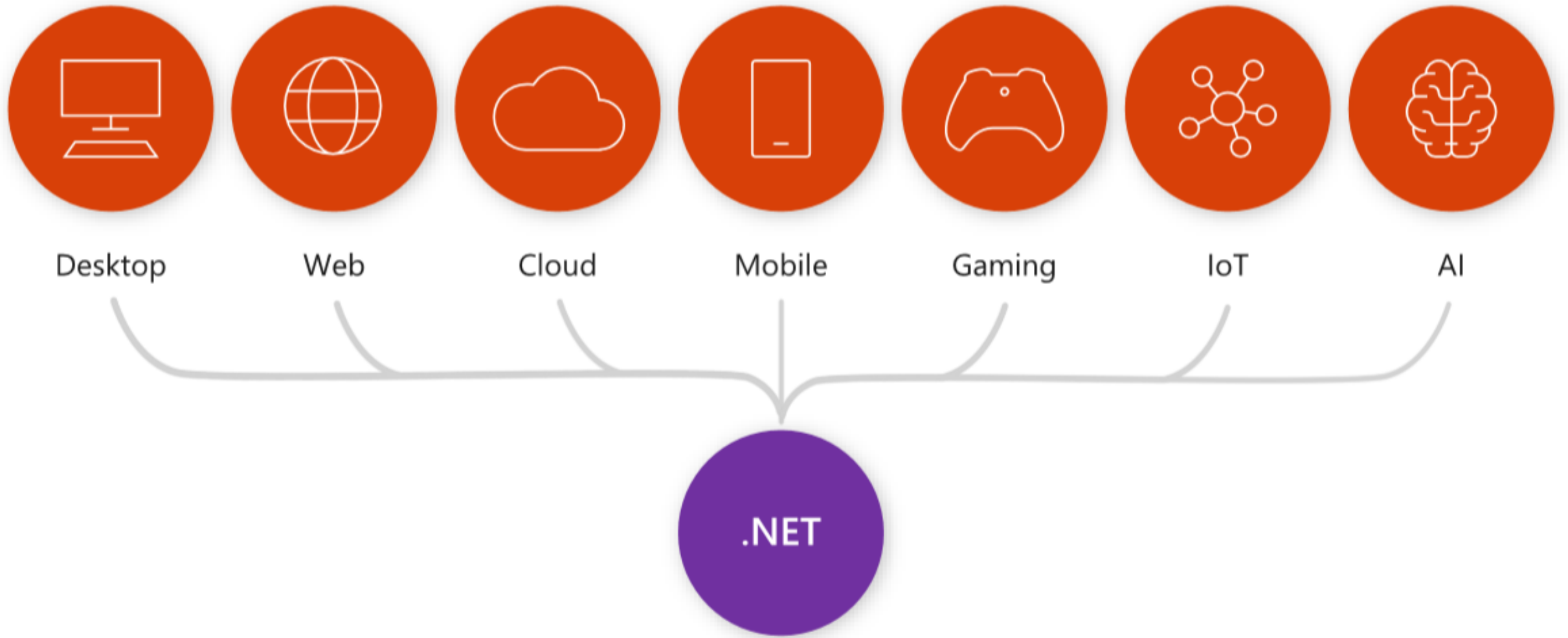
2016

Microsoft acquisisce Xamarin

- Xamarin.iOS, Xamarin.Android, Xamarin.Mac e Xamarin.tvOS rilasciati sotto Apache 2.0

Oggi

Your platform for building anything



I'm a button!

Hello GTK#!



Runtime: .NET Core 3.1.9
Version: 3.1.9
X64 process on X64 OS

Linux 5.4.0-52-generic #57-Ubuntu SMP Thu Oct 15
10:57:00 UTC 2020

☰ Standard



0

MC

MR

M+

M-

MS

M⁺

%

√

 x^2 $1/x$

CE

C



÷

7**8****9**

×

4**5****6**

-

1**2****3**

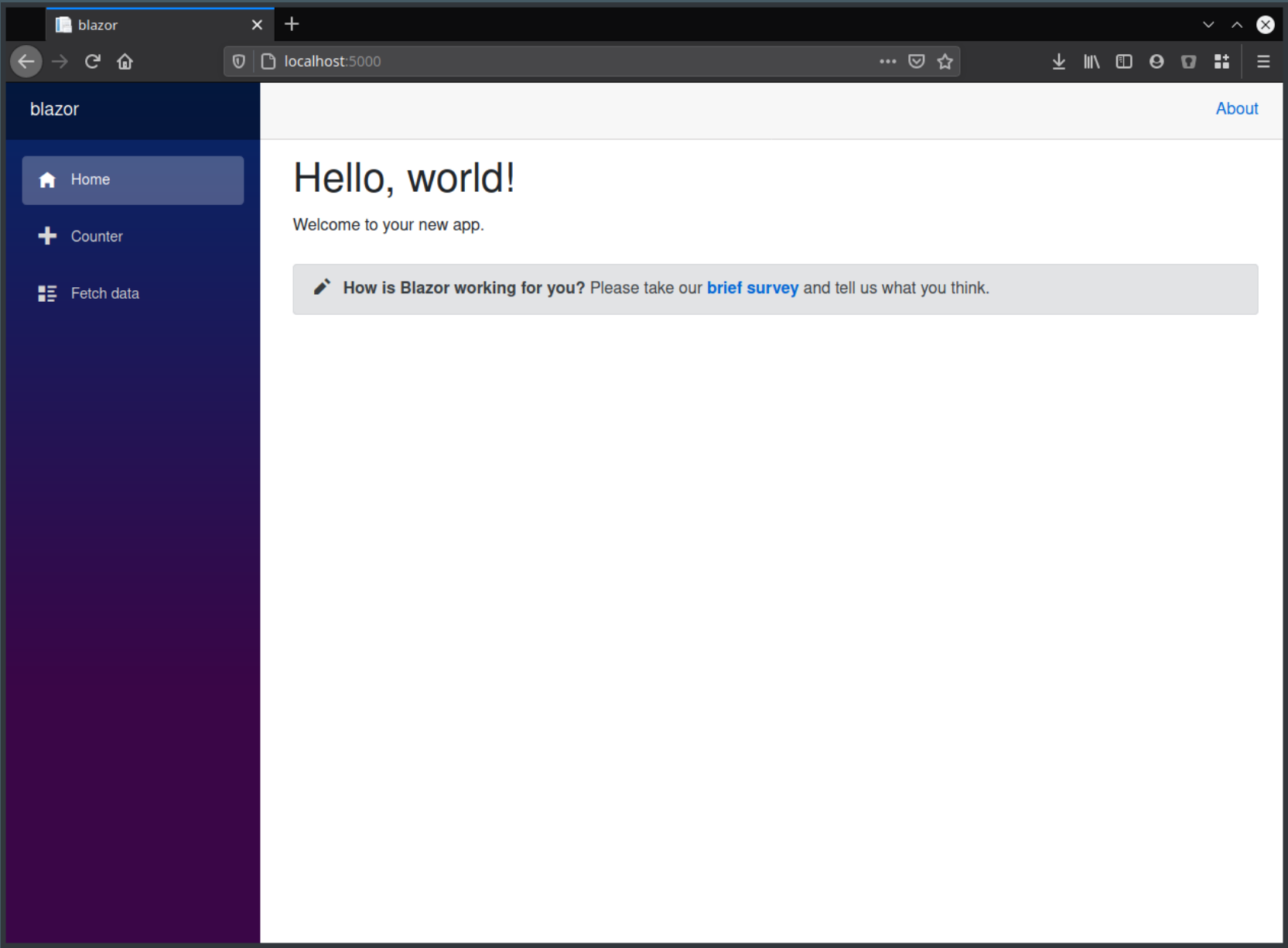
+

±

0

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=



🏠 Home

+ Counter

☰ Fetch data

Hello, world!

Welcome to your new app.

✍️ How is Blazor working for you? Please take our [brief survey](#) and tell us what you think.

Raw System.Text.Json

Just doing micro benchmarks to compare `System.Text.Json` with Json.NET yields the following output:

Scenario	Speed	Memory
Deserialization	2x faster	Parity or lower
Serialization	1.5x faster	Parity or lower
Document (read-only)	3-5x faster	~Allocation free for sizes < 1 MB
Reader	2-3x faster	~Allocation free (until you materialize values)
Writer	1.3-1.6x faster	~Allocation free

Age of Ascent - Developer Blog

ASP.NET Core: Saturating 10GbE at 7+ million request/s

February 4th, 2019 by Ben Adams

7+ Million HTTP requests per second from a single server

[Get Updates](#)



David Fowler

@davidfowl



Jan is one of the .NET runtime architects and he's slowly rewriting parts of the runtime code from C++ to C# [github.com/dotnet/coreclr...](https://github.com/dotnet/coreclr) Believe it or not, most of the time it results in faster code.



jkotas commented 4 days ago

Author

Member



This is greatly reducing the fixed `Array.Copy` overhead for common cases. E.g. Copying byte array of length one:

- `Array.Copy(Array, Array, int)` : 2.3x faster
- `Array.Copy(Array, int, Array, int, int)` : 1.5x faster



1



12

Best (bar chart)

Data table

Latency

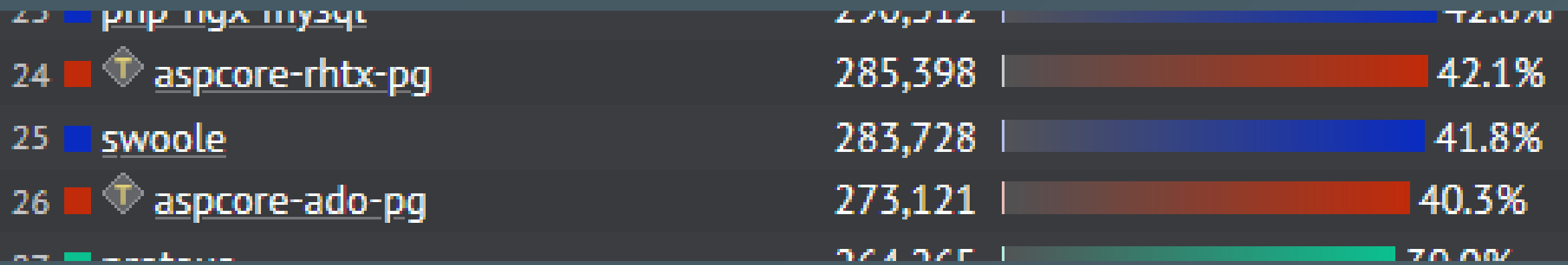
Framework overhead

Best plaintext responses per second, Dell R440 Xeon Gold + 10 GbE (405 tests)

Rnk Framework

Best performance (higher is better)

1	aspcore-rhtx	7,342,403	100.0%
2	pico.v	7,341,390	100.0%
3	aspcore	7,338,517	99.9%
4	actix-raw	7,322,463	99.7%
5	ulib-plaintext_fit	7,018,072	95.6%
6	cinatra	7,011,094	95.5%
7	ulib	7,010,858	95.5%





Alexander Köplinger @akoeplinger · 3h



In risposta a [@h0x0d](#)

we're moving Mono's LLVM fork from github.com/mono/llvm to the dotnet org as part of the .NET 5 consolidation :)



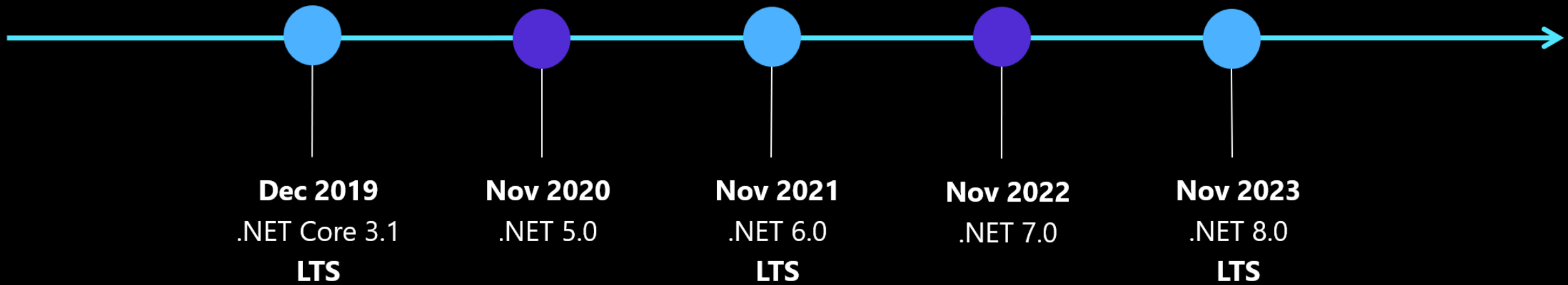
mono/llvm

Mono LLVM Repository. . Contribute to mono/llvm development by creating an account on GitHub.

github.com



.NET Schedule



- .NET 5.0 release in November 2020
- Major releases every year
- LTS for even numbered releases
- Predictable schedule, minor releases as needed

```
public static decimal CalculateToll(object vehicle) =>
    vehicle switch
    {
        ...

        DeliveryTruck t when t.GrossWeightClass > 5000 => 10.00m + 5.00m,
        DeliveryTruck t when t.GrossWeightClass < 3000 => 10.00m - 2.00m,
        DeliveryTruck _ => 10.00m,

        _ => throw new ArgumentException("Not a known vehicle type", nameof(vehicle))
    };
```

Demo

.NET Conf 2020

November 10-12

17

days

5

hours

51

minutes

Save the Date!



.NET 5 launch

Links

- dot.net
- try.dot.net
- Slides: kipte.rs/ld2020-slides
- Demo: kipte.rs/ld2020-demo
- [.NET org](https://dotnet.org)
- [M.A.U.I.](https://maui.dev)
- [Uno Platform](https://uno.dev)
- [Blazor](https://blazor.net)
- ["What is .NET?"](#)

People

- David Fowler @davidfowl
- Michal Strehovský @MStrehovsky
- Stephen Toub @stephentoub
- Jeremy Sinclair @sinclairinatOr

Grazie per l'attenzione!

Domande?