

C# 8.0, Visual Studio 2019, .NET vNext

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AGENDA

C# 8.0

C# vNext

Visual Studio 2019

.NET Framework v4.7.2, v4.8

.NET Core 2.2, 3.0

+ Entity Framework Core 2.2, 3.0

+ ASP.NET Core 2.2, 3.0

C# Language – v8.0

C# 7.3

DEMO

SHOW IT

C# 8.0: Default interface methods

```
interface IEnumerable<T>
{
    int Count()
    {
        int count = 0;
        foreach (var x in this)
            count++; return count;
    }
}
```

```
interface IList<T> : IEnumerable<T>
{
    int Count { get; }
    override int IEnumerable<T>.Count() => this.Count;
}
```

<https://github.com/dotnet/csharplang/blob/master/proposals/default-interface-methods.md>

C# Language – vNext (after 8.0)

C# vNext: Records

```
class Person(string First, string Last);
```

```
class Person : IEquatable<Person>
{
    public string First { get; }
    public string Last { get; }

    public Person(string First, string Last) => (this.First, this.Last) = (First, Last);

    public void Deconstruct(out string First, out string Last)
        => (First, Last) = (this.First, this.Last);

    public bool Equals(Person other)
        => other != null && First == other.First && Last == other.Last;

    public override bool Equals(object obj) => obj is Person other ? Equals(other) : false;
    public override int GetHashCode() => GreatHashFunction(First, Last);
    ...
}
```

C# vNext (??): Extension everything

```
extension Enrollee extends Person
{
    // static field
    static Dictionary<Person, Professor> enrollees = new Dictionary<Person, Professor>();

    // instance method
    public void Enroll(Professor supervisor) { enrollees[this] = supervisor; }

    // instance property
    public Professor Supervisor => enrollees.TryGetValue(this, out var supervisor) ? supervisor : null;

    // static property
    public static ICollection<Person> Students => enrollees.Keys;

    // instance constructor
    public Person(string name, Professor supervisor) : this(name) { this.Enroll(supervisor); }
}
```


C#/.NET vNext: Native-Sized Number Types

```
// now
IntPtr ptr;
UIntPtr uptr;
IntPtr.Size

// vNext
IntN i;
UIntN u;
FloatN f;
```

<https://github.com/dotnet/corefxlab/blob/master/docs/specs/nativesized.md>

Visual Studio

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Visual Studio 2017 version 15.9 (Released)

Navigate To Decompiled Sources

Test Explorer Hierarchy View (& Real-Time Tests Discovery)

"Reopen documents on solution load,, option

GIT Tags

Go To... – Recent files

CPU Profiling - Async Call Stack Stitching

Profiling - .NET Allocation Tracking

Code Cleanup

Multi-carret support

LibMan, ...

Oblíbené novinky ve Visual Studio 2018

DEMO

SHOW IT

Visual Studio 2019 Headlines

Debugger: A better performing and more reliable debugger, out-of-process 64-bit

.NET Core 3 tooling pro WinForms a WPF

„better refactorings, better navigation, more capabilities in the debugger, faster solution load, and faster builds“

DEMO

SHOW IT

Visual Studio 2019 – Startup, UI, IntelliCode, Code Cleanup

Visual Studio 2019 (Preview)

New startup experience (open code, clone, ...)

New project creation experience

Refreshed blue theme, Updated menu and title bar, Scrollbar status icon

IntelliCode

One-click code cleanup command for documents, projects and solutions

Pull request checkout + review

LiveShare

Find all references in Razor (.cshtml)

Commands search accuracy

Visual Studio 2019 Q1/19 Iteration Plan

- Unit Tests against multiple .NET frameworks
- Add more Azure services from the publish page
- Test Explorer updates – perf, grouping, sorting
- Xamarin.Forms 4.0 support
- WinForms and WPF development with .NET Core 3
- Move some services to the background so solutions load faster
- Multiple monitors with varying DPIs

The background features a faded city skyline on the left side and a large, white, 3D-style "SHOW IT" logo in the center, tilted slightly upwards to the right.

.NET Framework

.NET Framework 4.7.2 (30.4.2018 / VS 2017 v15.8)

[ASP.NET] SameSite cookie in ASP.NET

[ASP.NET] WebForms Dependency Injection

[ClickOnce] Per-monitor support for WPF and HDPI apps deployed via ClickOnce

[SQL] Always Encrypted enhancements in SQL Connectivity

[Networking & BCL] Enhanced .NET Framework support for .NET Standard 2.0

[BCL] Cryptography improvements

[WPF] Diagnostic enhancements

.NET Framework 4.8 (Early Access Builds)

Modern browser and modern media controls

Access to touch and UWP Controls from WinForms and WPF

[Runtime] JIT and NGEN improvements (based on .NET Core 2.1)

[WCF] Health Monitoring endpoint (ServiceHealthBehavior)

[WPF] High DPI improvements

[Windows Forms] Accessibility enhancements (Tooltips, LiveRegions, Notification Events)

[WPF] SelectionTextBrush Property

[BCL] Updated ZLib

...+ maaaany fixes

<https://github.com/Microsoft/dotnet-framework-early-access/blob/master/release-notes/NET48/dotnet-48-changes.md>

The background features a faded city skyline on the left and a large, faint, 3D-style "SHOW IT" logo in the center. The main title ".NET Core Ecosystem" is overlaid on the center of the slide.

.NET Core Ecosystem

.NET Core 2.1 (Released 30/MAY 2018)

Long-term Support (“LTS Release”)

.NET Core Tools

Performance Improvements – Build, Runtime, Networking

Span<T>, Memory<T>, and friends

Brotli Compression

New Cryptography APIs

Windows Compatibility Pack (+ 20 000 APIs)

Tiered Compilation

SourceLink

Self-contained application publishing

.NET Core 2.2 (2.2.1)

Tiered Compilation Enabled (released in .NET Core 2.1)

CoreCLR events (GC, JIT, ThreadPool, and interop)

Support for AccessToken in SqlConnection

Injecting code prior to Main (Host Startup Hook)

Windows ARM32 support

ASP.NET Core 2.2

Entity Framework Core 2.2

.NET Core 3.0 Plans (Preview 2)

Desktop Development - WinForms, WPF (tooling in VS2019)

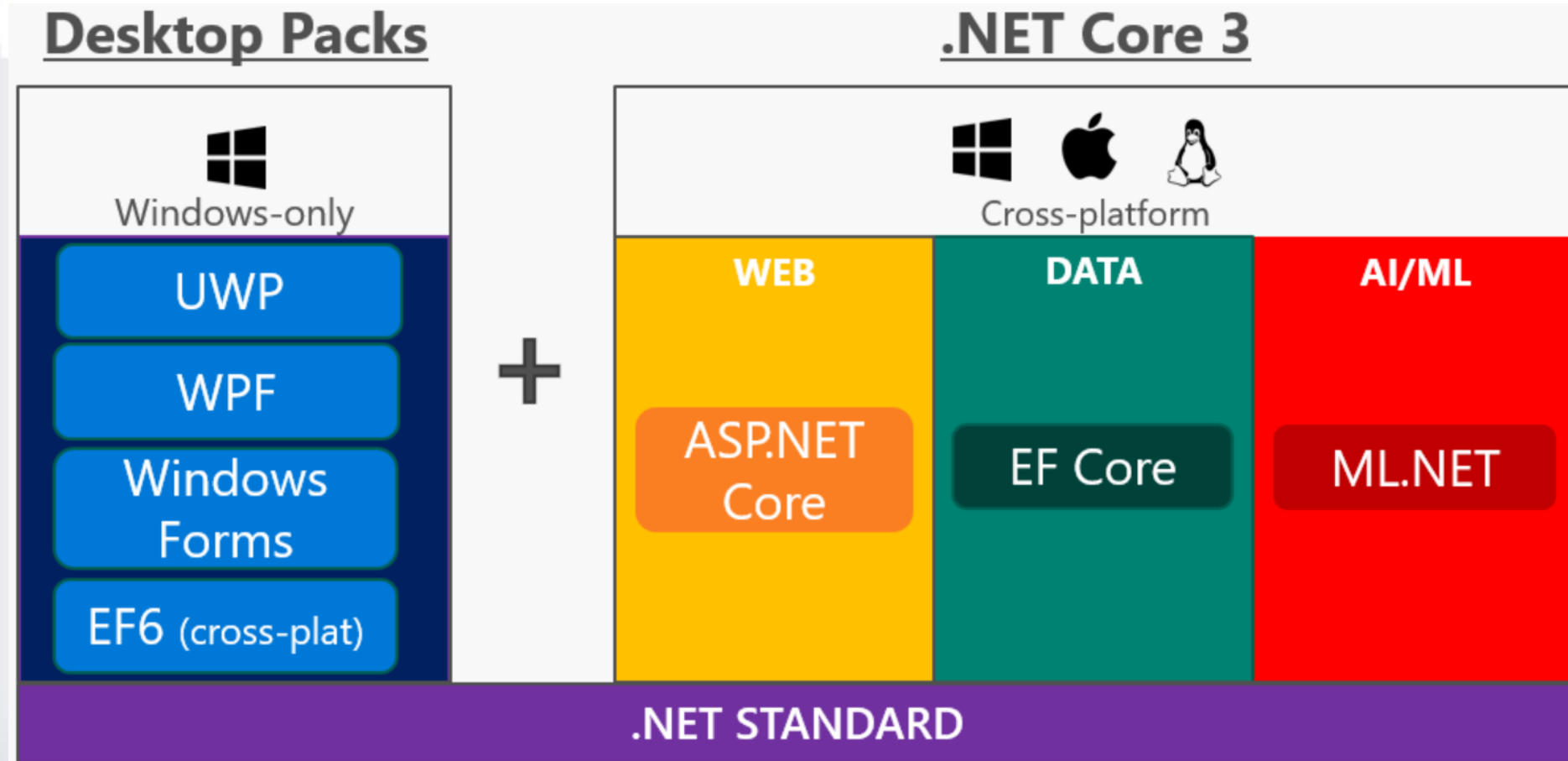
Access to all the Windows 10 API's

.NET Core App Bundler (Embed .NET directly into an application)

Razor Components (server-side Blazor)

Entity Framework 6 Support (Windows-only)

.NET Core 3 Ecosystem



Entity Framework Core 2.1 (Released on 30/MAY/2018)

LINQ GroupBy translation

Lazy Loading

Query types

[Owned] Attribute – Owned entities

Value conversions

Parameters in entity constructors

Data Seeding

Include for derived types

System.Transactions support

Entity Framework Core 2.2 (Released 4/DEC/2018)

SQL Server Spatial support

Support for collections of owned entities

Query Tags

+ maaany fixes

(+ maaany new bugs 😊)

Entity Framework Core 3.0

LINQ improvements (major refactoring)

CosmosDB support

C# 8.0 – Async Streams, Nullable Reference Types

Reverse engineering database views into query types

Property bag entities - Dictionary<string, object> (towards M:N 😊)

ASP.NET Core 2.1 (Released on 30/MAY/2018)

SignalR

Razor Class Libraries

Identity UI library & scaffolding

HTTPS – enabled by default, easy to configure

[ApiController], ActionResult<T>

IHttpClientFactory

Updated SPA templates – Angular, React, React + Redux

...and more

ASP.NET Core 2.2 (Released 4/DEC/2018)

Open API (Swagger) – API Controller Analyzers & Conventions

Endpoint Routing (LinkGenerator Service, Parameter Transformers, ...)

Health Checks API

Preview of HTTP/2 in Kestrel & HttpClient

In-proc ASP.NET Core Module (ANCM) = IIS in-process hosting model

Template Updates - Bootstrap 4 & Angular 6

SignalR Java client

ASP.NET Core 3.0 + vNext

.NET Core 3.0 only!

OpenAPI generation (Swagger) + API client generation (C# & TypeScript)

HTTP API REPL tooling

Authorization Server (OpenID Connect)

Server-Side Blazor (aka Razor Components)

HTTP/2 in Kestrel & HttpClient

REFERENCES

Demos - <https://github.com/hakenr/CSharp8Demo>

Blog – HAVIT Knowledge Base- <http://knowledge-base.havit.cz/> + .eu

Twitter - [@RobertHaken](https://twitter.com/RobertHaken)

YouTube - <https://www.youtube.com/user/HAVITcz>

Ďakujem za pozornosť.

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