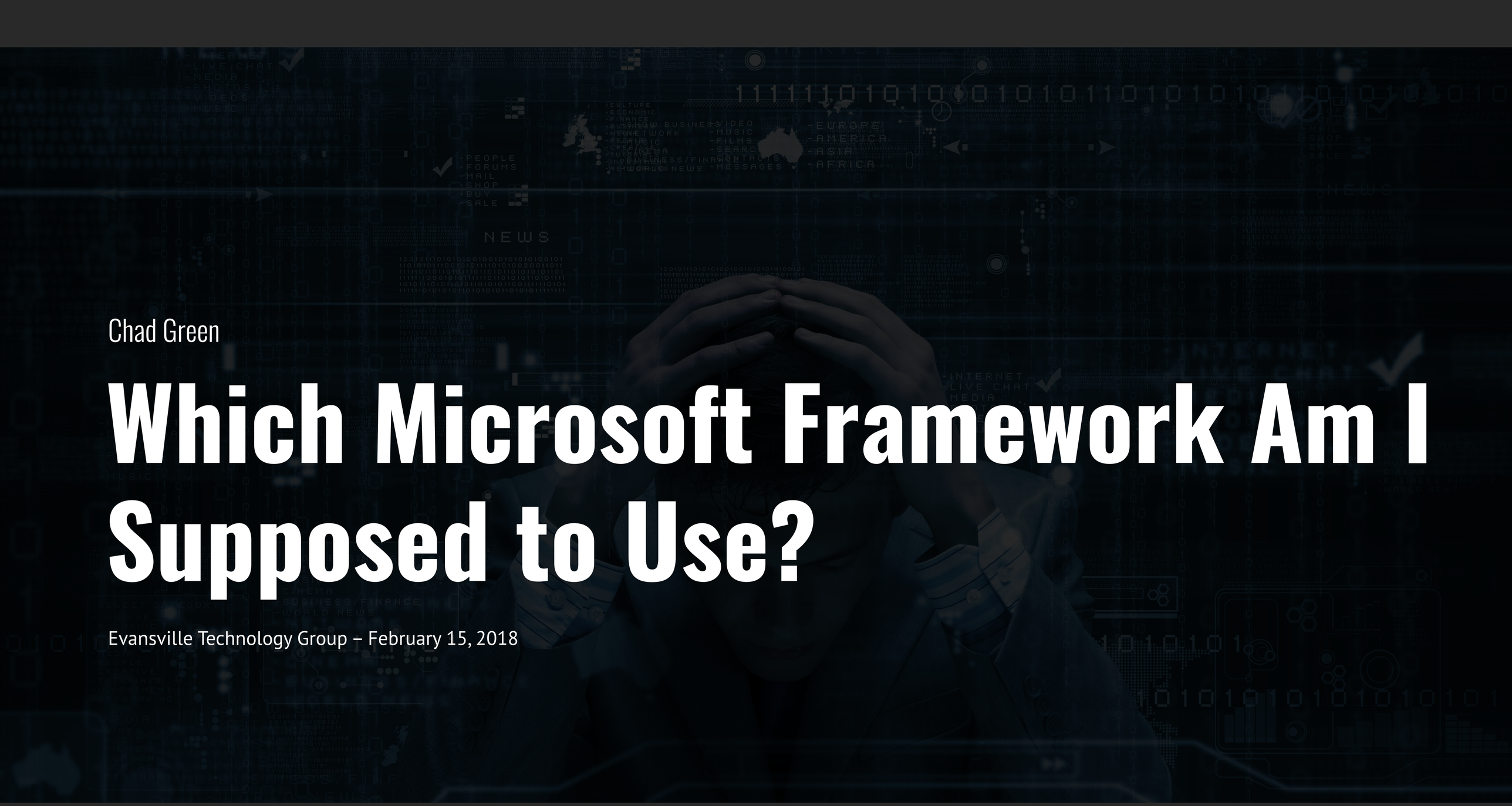

Chad Green

Which Microsoft Framework Am I Supposed to Use?

Evansville Technology Group – February 15, 2018

Who is Chad Green

- Data & Solutions Architect at ProgressiveHealth
- 39-Years Developing Applications (with Microsoft Development Tools)
- Community Involvement
    - Code PaLOUsa 2018 Conference Chair
    - Louisville .NET Meetup Organizer
    - Louisville Tech Leaders Meetup Co-Organizer
    - Louisville Tech Ladies Committee Member
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Which Microsoft Framework Am I Supposed to Use?

Quick History Lesson

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Microsoft Development Tools Up to .NET

- MicroSoft BASIC

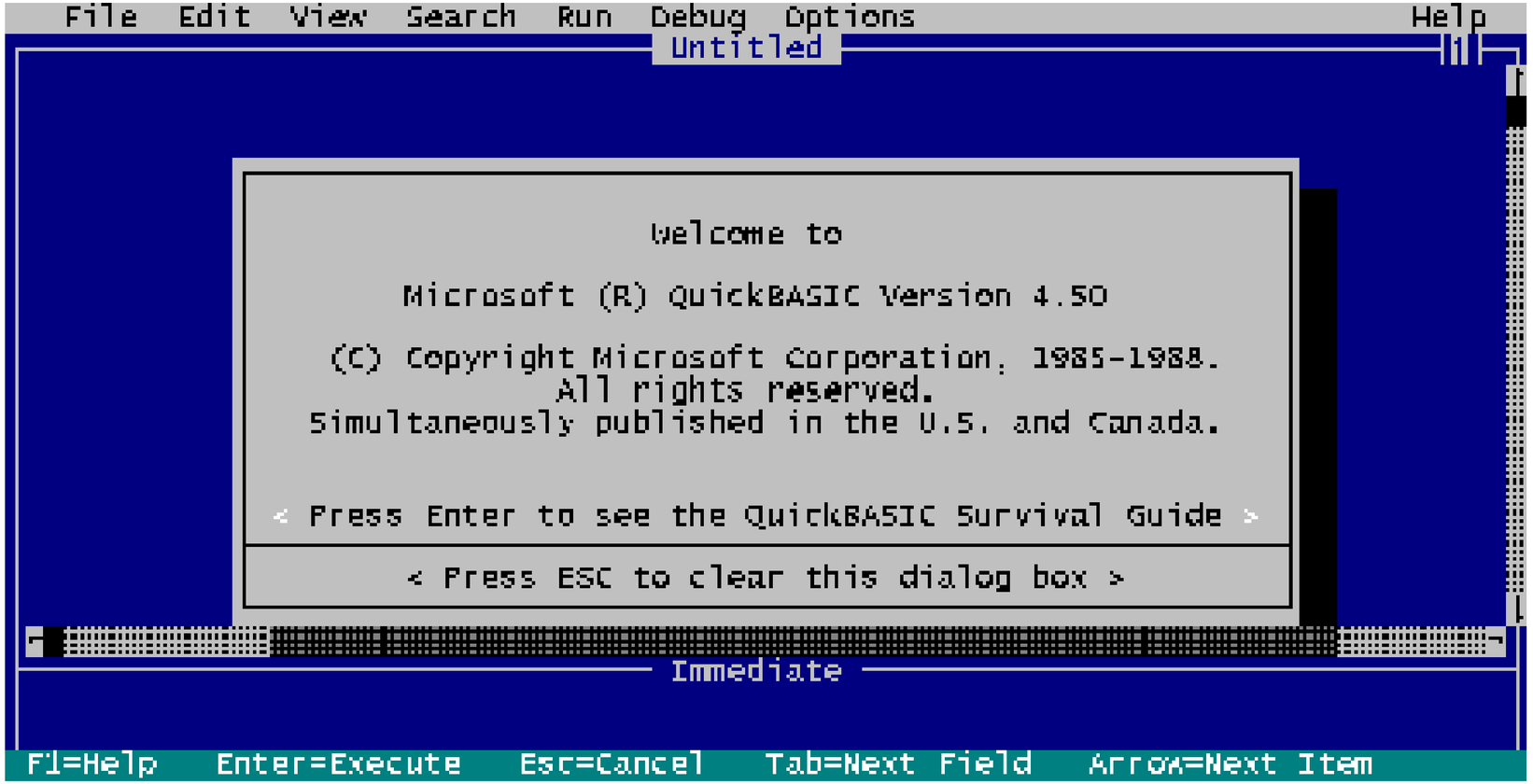
MICRO
SOFT

Code Sample – Microsoft BASIC

```
 10 FOR X=99 TO 1 STEP -1
 20 PRINT X;"bottle";
 30 IF X<>1 THEN PRINT "s";
 40 PRINT " of beer on the wall,";X;"bottle";
 50 IF X<>1 THEN PRINT "s";
 60 PRINT " of beer"
 70 PRINT "Take one down and pass it around,"
 80 PRINT X-1;"bottle";
 90 IF X<>1 THEN PRINT "s";
100 PRINT " of beer on the wall"
110 NEXT X
```

Microsoft Development Tools Up to .NET

- Microsoft BASIC
- QuickBASIC

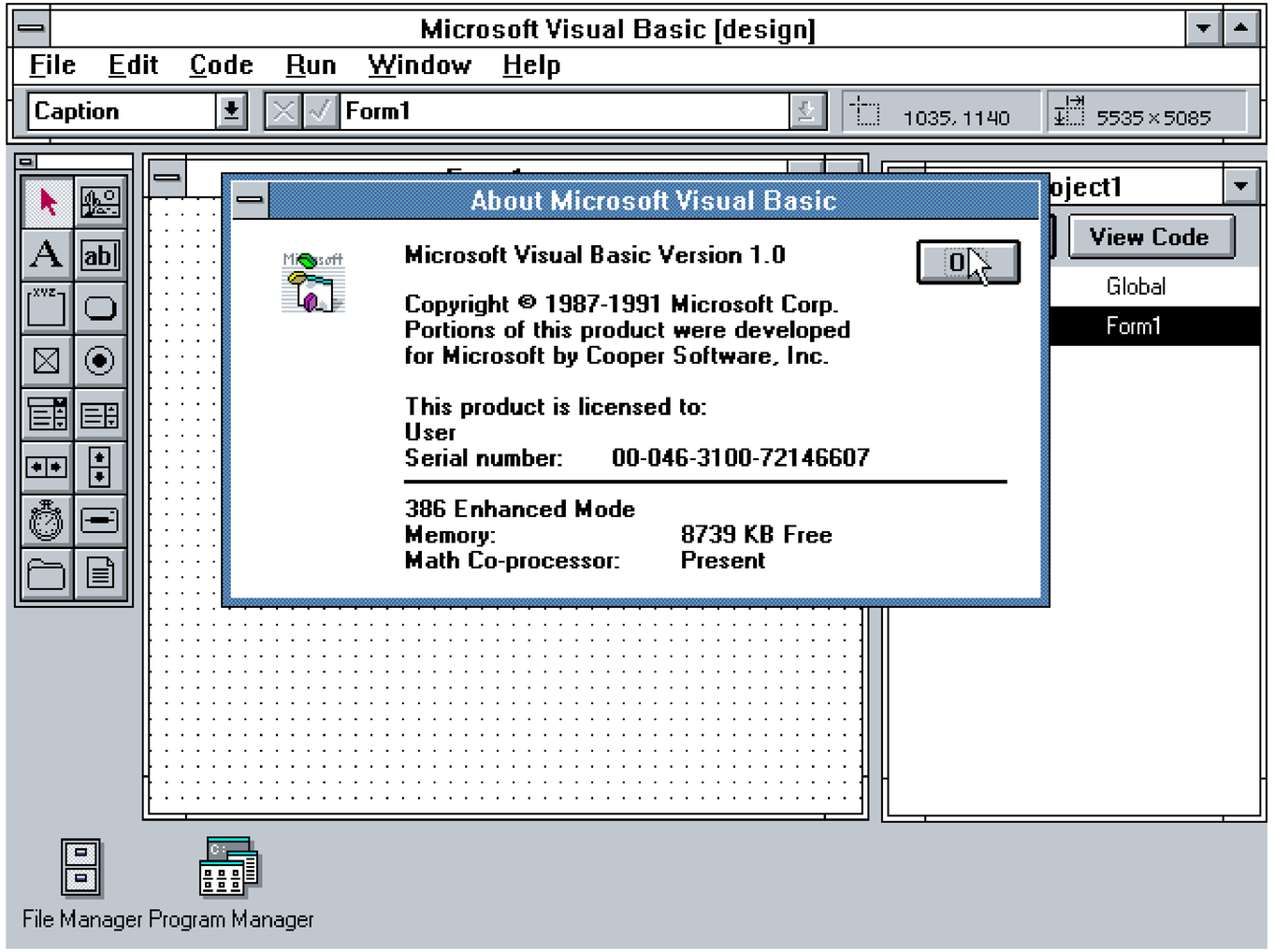


Code Sample – QuickBASIC

```
CLS

n = 100
DO UNTIL n = 1
    n = n - 1
    PRINT n; "bottle";
    IF n <> 1 THEN PRINT "s";
    PRINT " of beer on the wall . . ."
    PRINT n; "bottle";
    IF n <> 1 THEN PRINT "s";
    PRINT " of beer!"
    PRINT "Take one down, pass it around . . ."
    PRINT n - 1; "bottle";
    IF n - 1 <> 1 THEN PRINT "s";
    PRINT " of beer on the wall!"
    PRINT
LOOP

END
```

Microsoft Development Tools Up to .NET

- Microsoft BASIC
- QuickBASIC
- Visual Basic



Code Sample – Visual Basic

```
Dim n As Integer
  Dim s As String

  Width = 6000
  Height = Screen.Height * 2 / 3
  Top = (Screen.Height - Height) / 2
  Left = (Screen.Width - Width) / 2
  Caption = "99 Bottles of Beer"
  List1.Top = 0
  List1.Left = 0
  List1.Width = Form1.ScaleWidth
  List1.Height = Form1.ScaleHeight

  List1.AddItem s & "99 bottles of Beer on the wall,"
  List1.AddItem s & "99 bottles of Beeeer..."
  List1.AddItem "You take one down, pass it around..."
  For n = 98 To 1 Step -1
     s = IIf(n = 1, n & " final bottle", n & " bottles")
     List1.AddItem s & " of Beer on the wall."
     List1.AddItem ""
     List1.AddItem s & " of Beer on the wall,"
     List1.AddItem s & " of Beeeer..."
     List1.AddItem "You take one down, pass it around..."
  Next n
  List1.AddItem "No more bottles of Beer on the wall."
```

Introduction of Microsoft .NET

- Java
- Managed Runtime
- Runtime of many names
    - COM+
    - Component Object Runtime (COR)
    - Universal RunTime (URT)
    - Next-Gen Windows Services (NGWS)
    - .NET

Introduction of Microsoft .NET

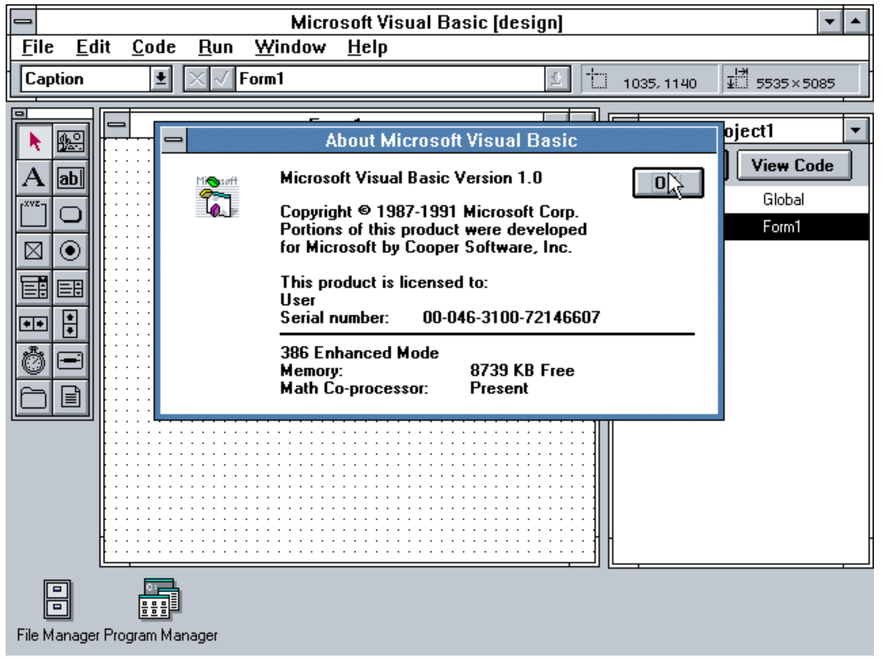
- Microsoft actually wanted industry support
    - Took the specifications to ECMA
    - ECMA 334 – C# Language Specification
    - ECMA-335 – Common Language Infrastructure (CLI)
    - Microsoft, HP, Intel were core sponsors

Code Sample – C# (using Linq)

```
namespace _99Bottlez
{
    class Program
    {
        static void Main(string[] args)
        {
            int countOfBottles = 10;
            string lineTemplate = @"{X} bottles of beer on the wall, {X} bottles of beer. Take one down and pass it around, {Y} bottles of beer on the wall.";

            string lastLine =  @"No more bottles of beer on the wall, no more bottles of beer.Go to the store and buy some more, {X} bottles of beer on the
wall.";

            List<string> songLines = new List<string> ();
            Enumerable.Range(1, countOfBottles)
                .Reverse()
                .ToList()
                .ForEach
                 (c => songLines.Add(lineTemplate.Replace("{X}",
                 c.ToString()).Replace("{Y}", (c-1)!=0?(c - 1).ToString():@" No more bottles of beer on the wall.")));

            //Add the last line
            songLines.Add(lastLine.Replace("{X}", countOfBottles.ToString()));

            songLines.ForEach(c => Console.WriteLine(c));
            Console.ReadLine();
        }
    }
}
```

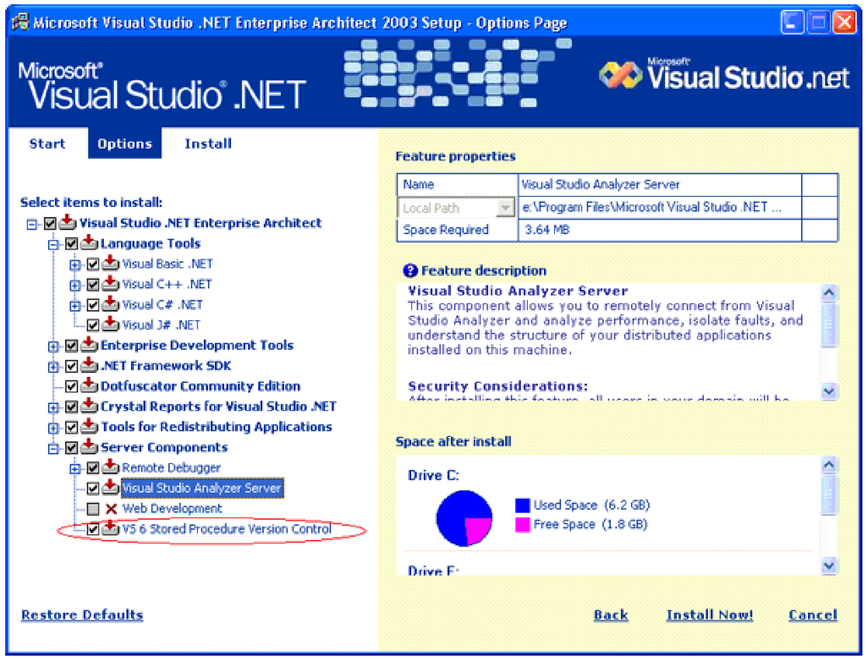
Microsoft .NET - .NET 1.0 / Visual Studio .NET

- Introduction of CLR
- Support for object-oriented Web application development
- Uses of DLL class libraries



Microsoft .NET - .NET 1.1 / Visual Studio .NET 2003

- Features enhancements to ASP.NET and ADO.NET
- Built-in support for mobile ASP.NET controls
- Security Enhancement
- Built-in support for ODBC and databases
- Internet Protocol version 6 (IPv6)

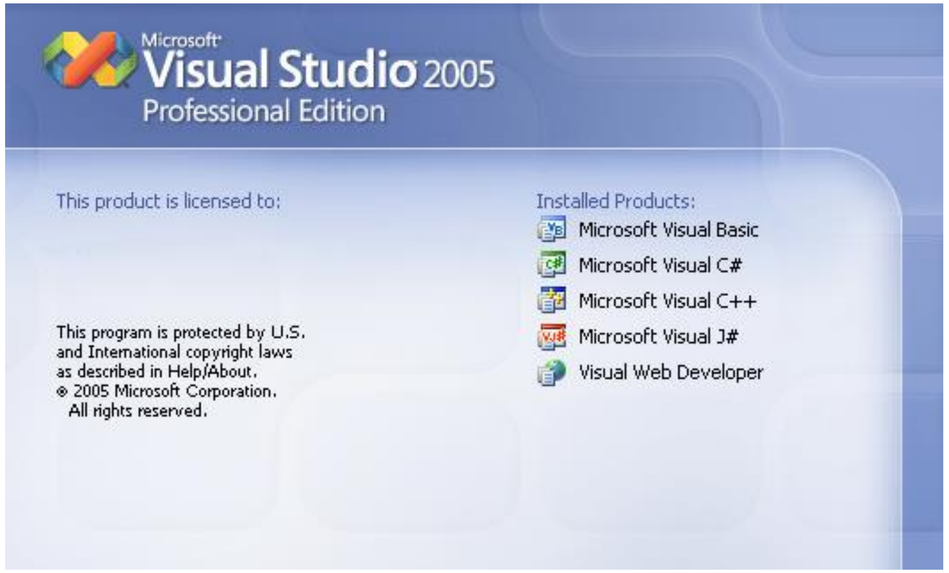


Microsoft .NET - .NET 2.0 / Visual Studio 2005

- CLR 2.0
- Generics and generic collections
- Partial classes
- Nullable types
- Anonymous methods
- Many new controls and features to ASP.NET

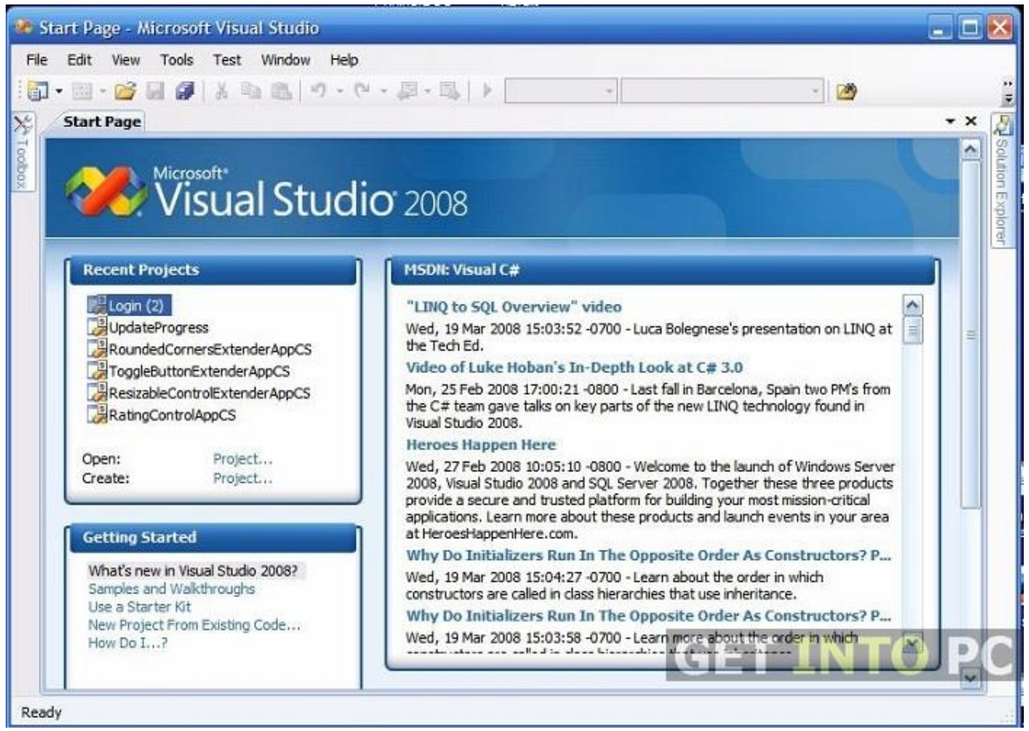
Microsoft .NET - .NET 3.0 / Visual Studio 2005

- Windows Presentation Foundation (WPF)
- Windows Communications Foundation (WCF)
- Windows Workflow Foundation (WF) and Cardspace



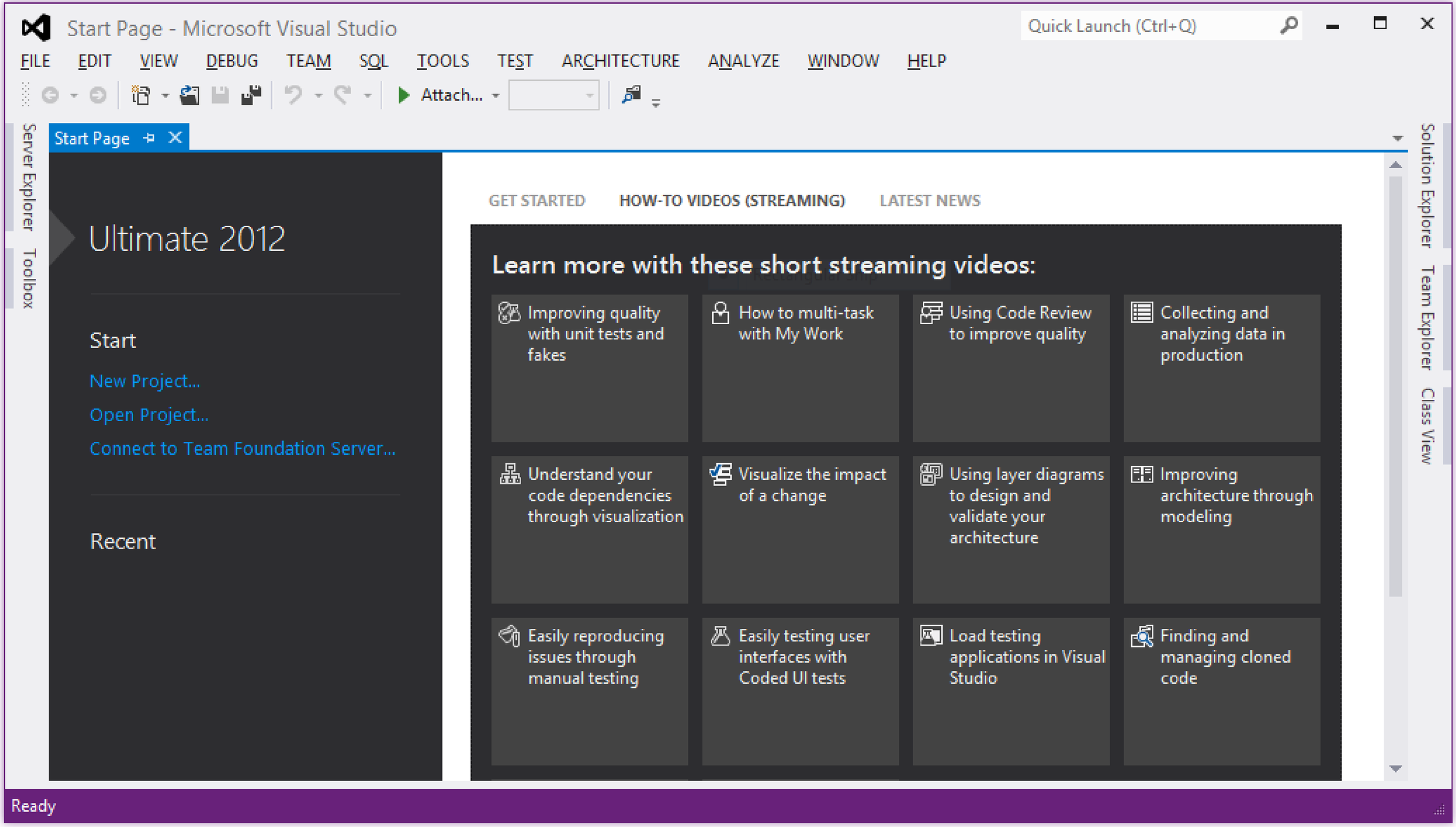
Microsoft .NET - .NET 3.5 / Visual Studio 2008

- Built-In AJAX Support
- LINQ
- Dynamic Data
- Multi-targeting Framework Support



Microsoft .NET - .NET 4.0 / Visual Studio 2010

- Introduced CLR 4.0
- Managed Extensibility Framework (MEF)
- Dynamic Language Runtime (DLR)
- Task Parallel Library (TPL)


Start Page - Microsoft Visual Studio
Quick Launch (Ctrl+Q)
FILE EDIT VIEW DEBUG TEAM SQL TOOLS TEST ARCHITECTURE ANALYZE WINDOW HELP
Attach...
Server Explorer
Toolbox
Start Page
Solution Explorer
Team Explorer
Class View
Ultimate 2012
Start
New Project...
Open Project...
Connect to Team Foundation Server...
Recent
GET STARTED
HOW-TO VIDEOS (STREAMING)
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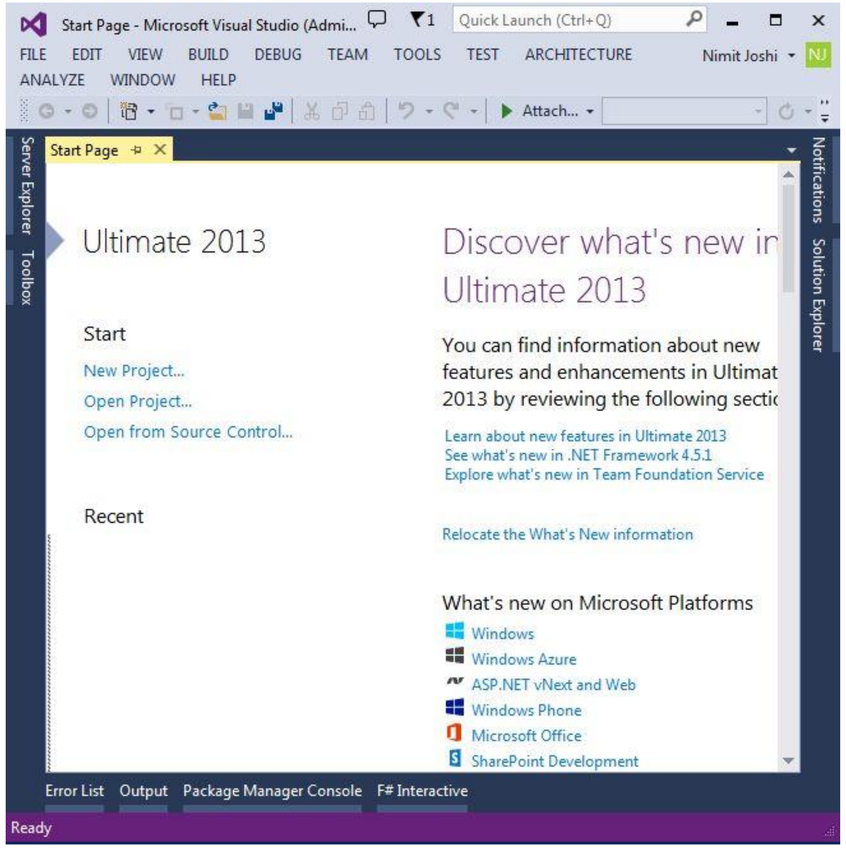
Visualize the impact of a change
Using layer diagrams to design and validate your architecture
Improving architecture through modeling
Easily reproducing issues through manual testing
Easily testing user interfaces with Coded UI tests
Load testing applications in Visual Studio
Finding and managing cloned code
Ready

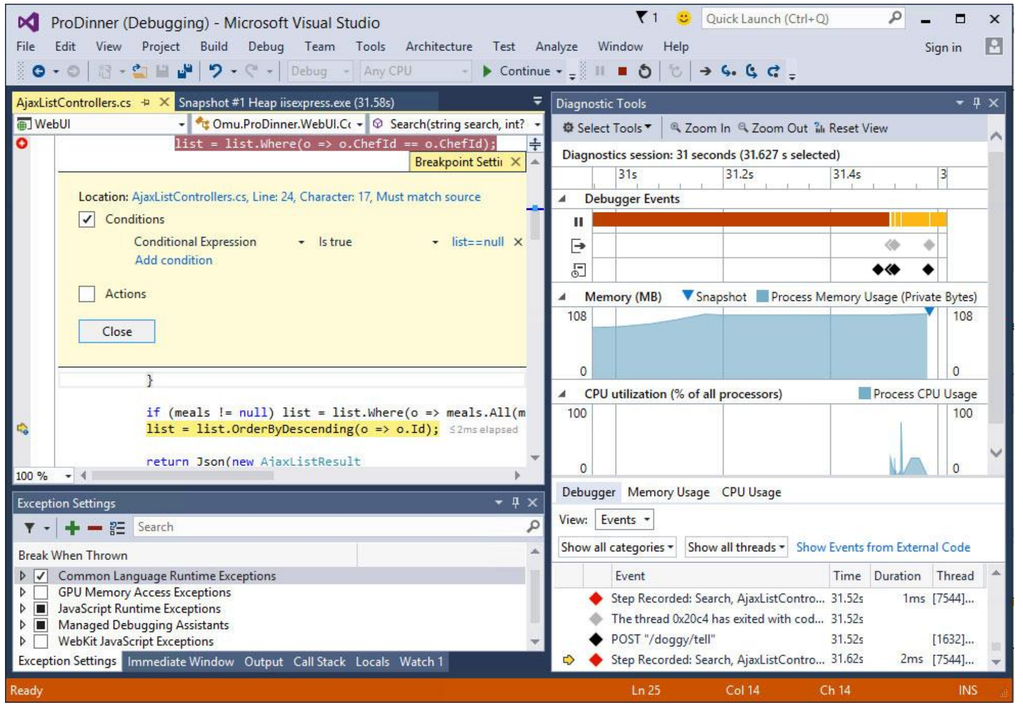
Microsoft .NET - .NET 4.5.1 / Visual Studio 2013

- Performance and debugging improvements
- Support for automatic binding redirection
- Enhanced support Windows Store apps



Microsoft .NET - .NET 4.6 / Visual Studio 2015

- Introduced RyuJIT
- Support for code page encodings
- Improvements to event tracing
- Open Source .NET Framework Packages



Which Microsoft Framework Am I Supposed to Use?

So why something different?

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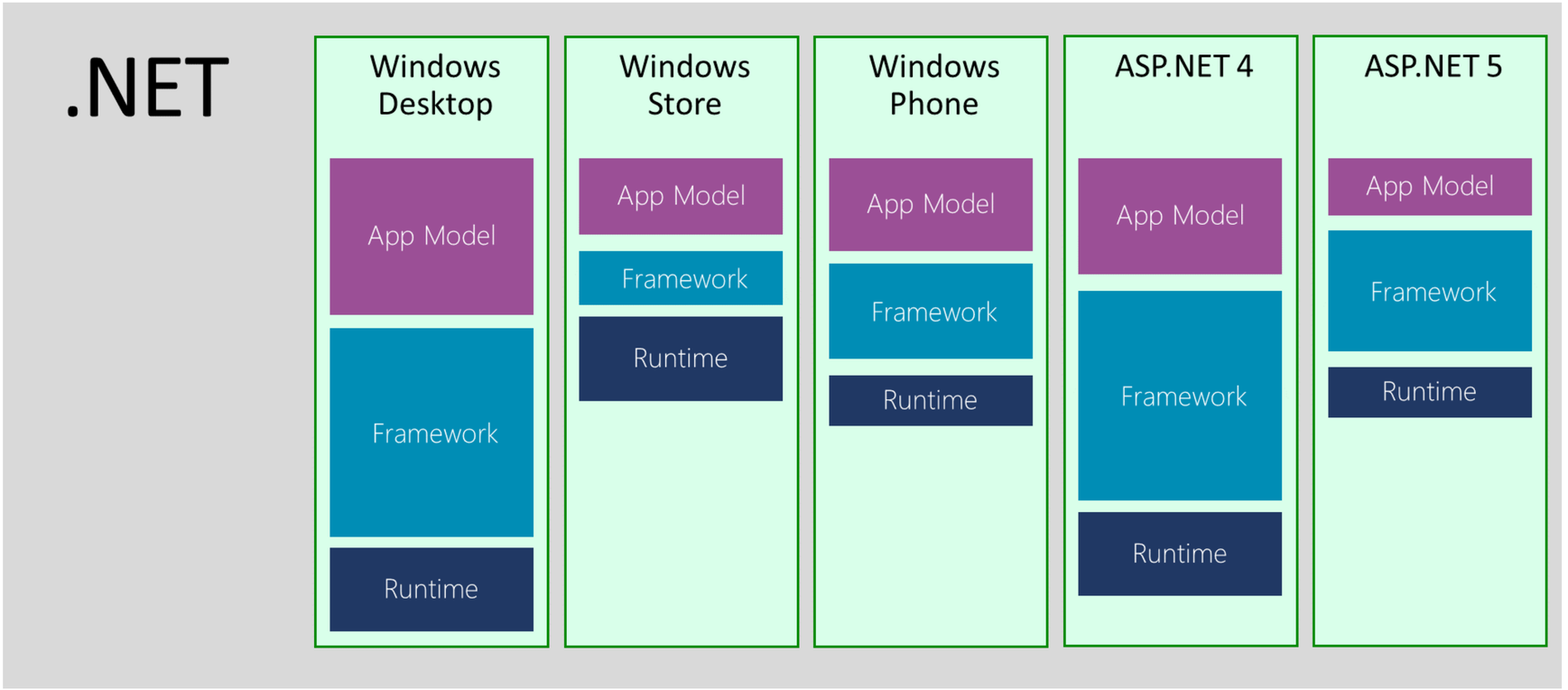
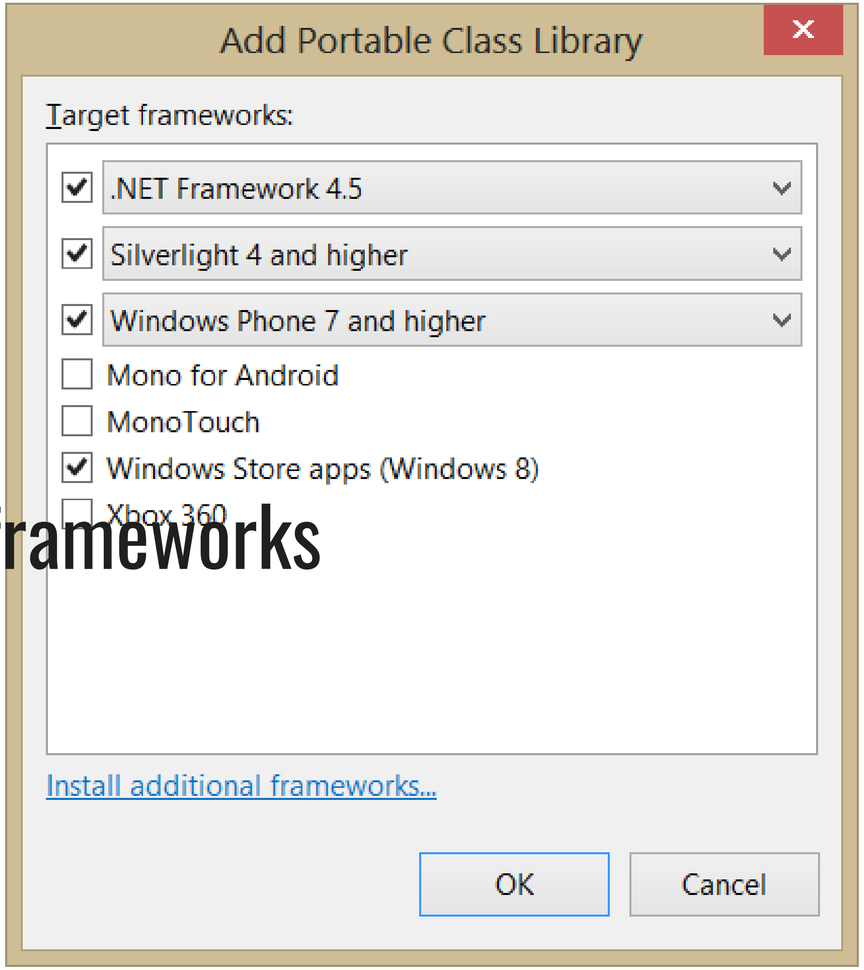
So why something different?

- .NET – a set of verticals

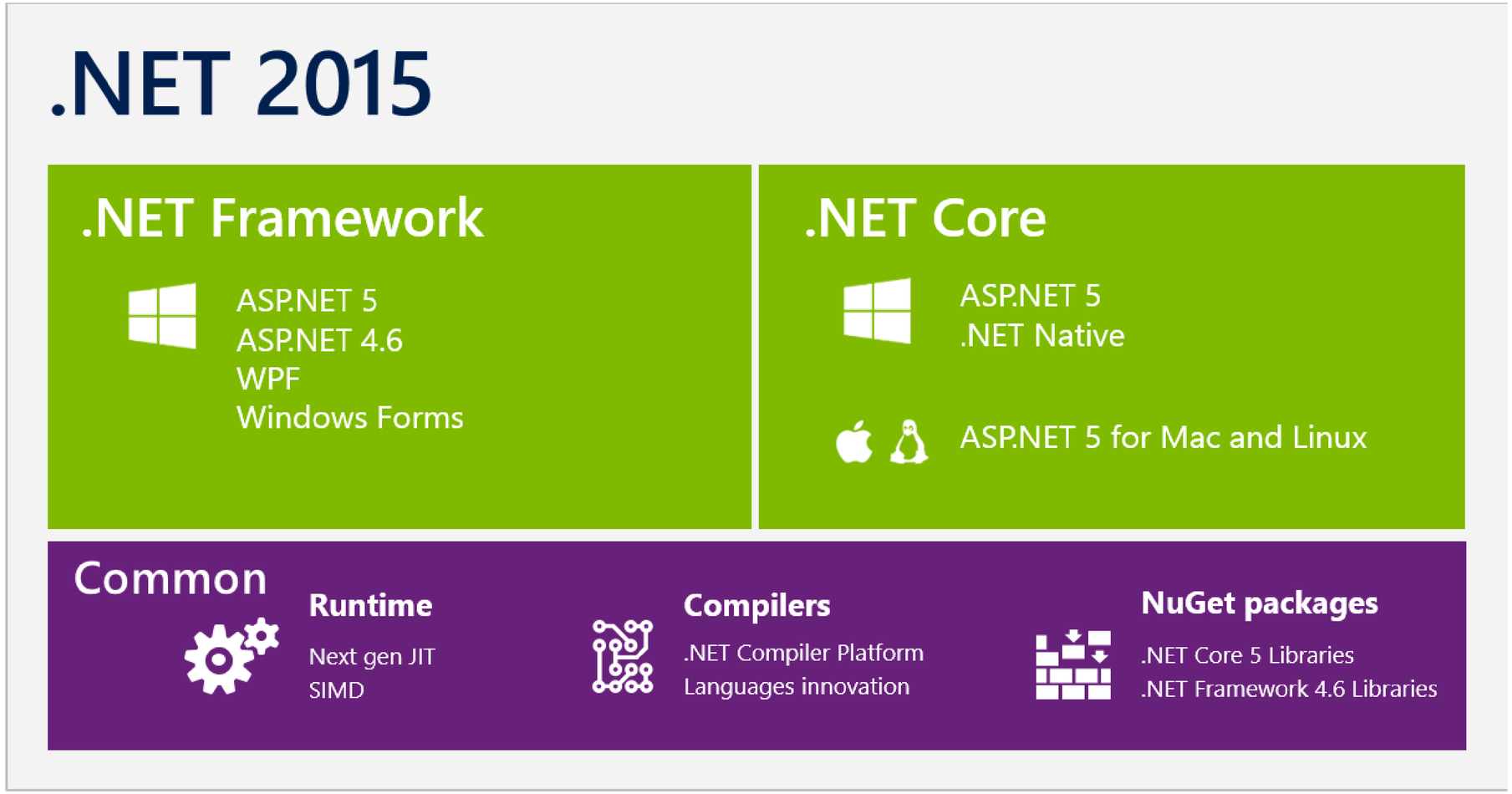


So why something different?

- .NET – a set of verticals
- Birth of portable class libraries
- Unifying API shape versus unifying implementation
- Machine-wide frameworks versus application-local frameworks
- Continued dominance (death of the PC)

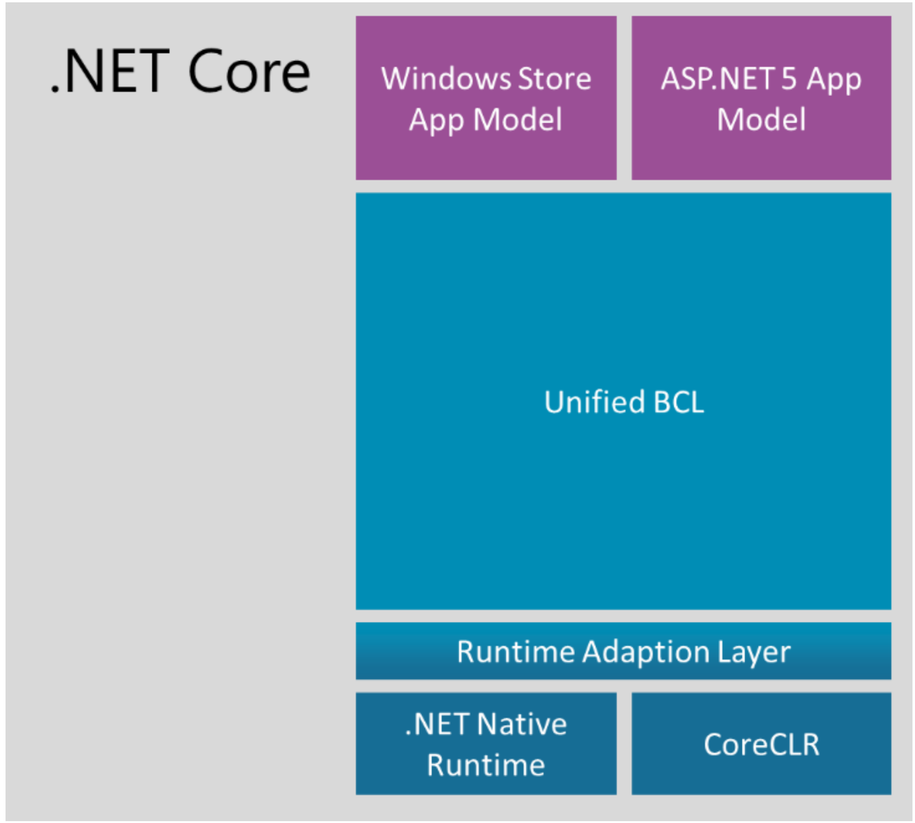


Enter .NET Core



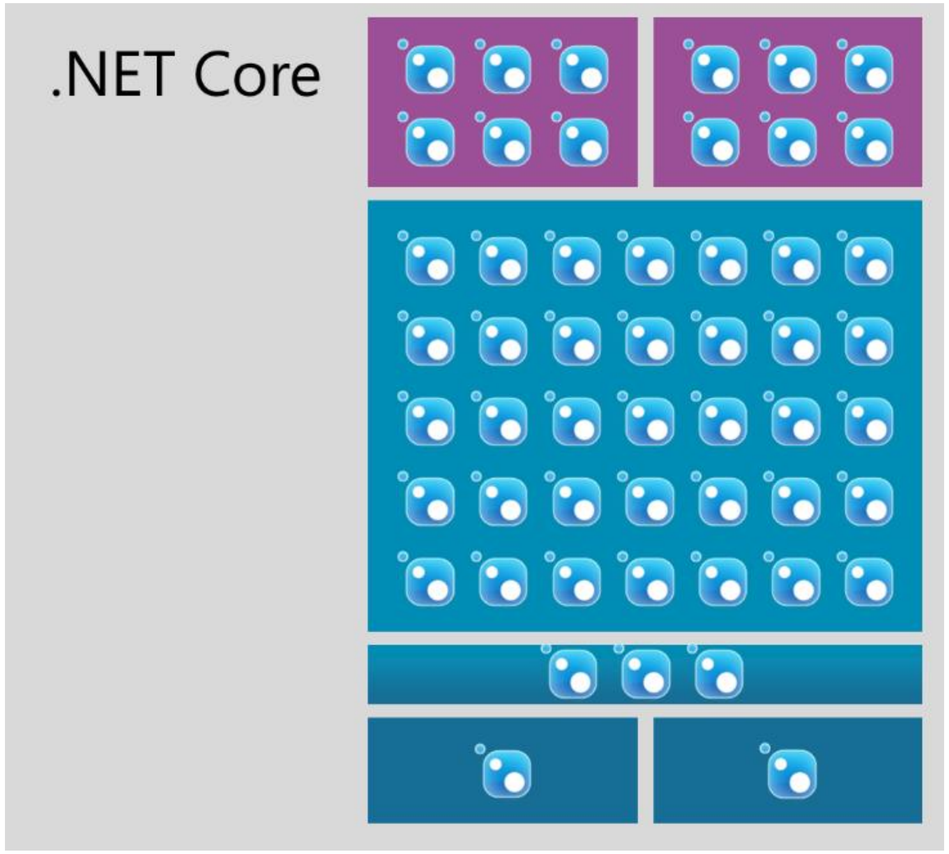
Enter .NET Core

- Unified implementation for .NET Native and ASP.NET



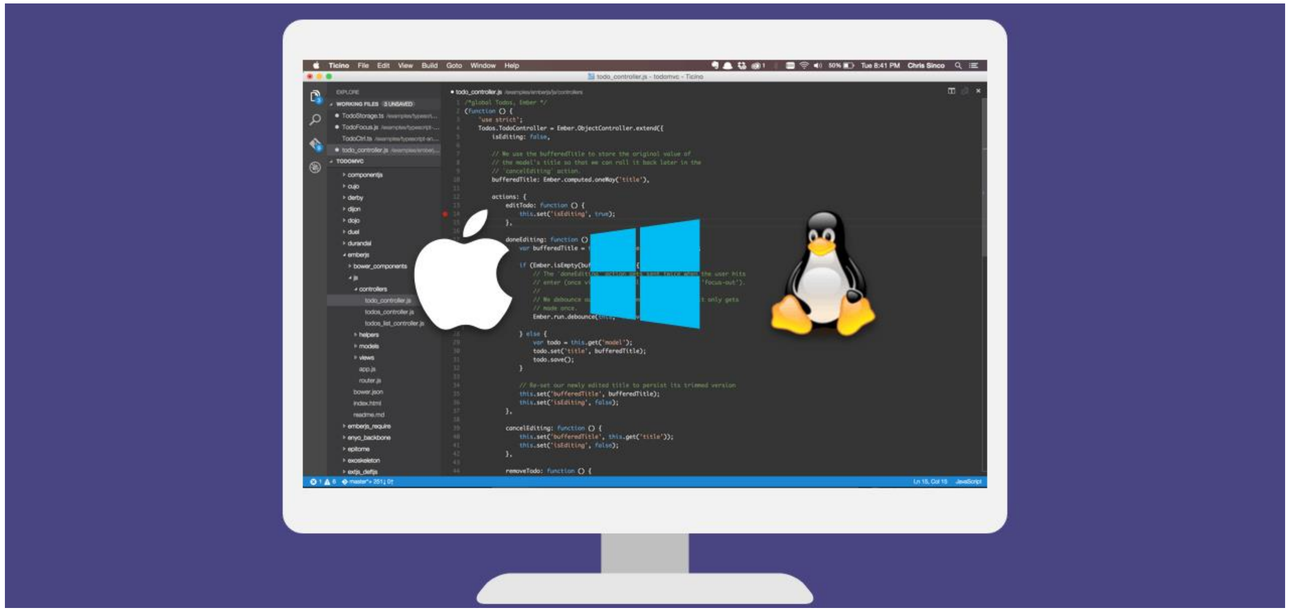
Enter .NET Core

- Unifying API shape versus unifying implementation
- NuGet as a first class delivery vehicle



Enter .NET Core

- Unifying API shape versus unifying implementation
- NuGet as a first class delivery vehicle
- Foundation for open source and cross platform



Code Sample – .NET Core

That’s enough of that stupid song

Which Microsoft Framework Am I Supposed to Use?

Awesome, then why .NET Standard?

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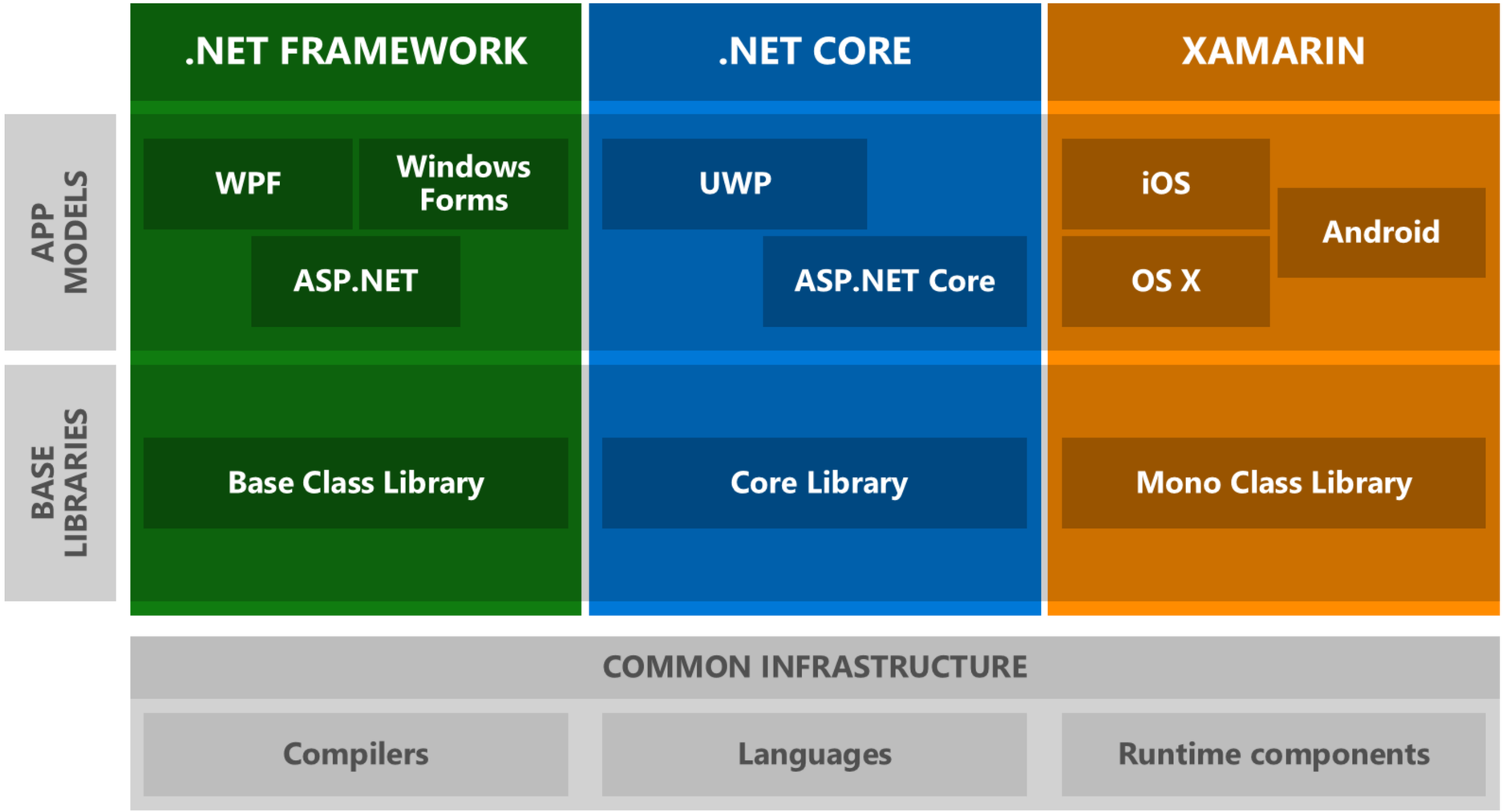
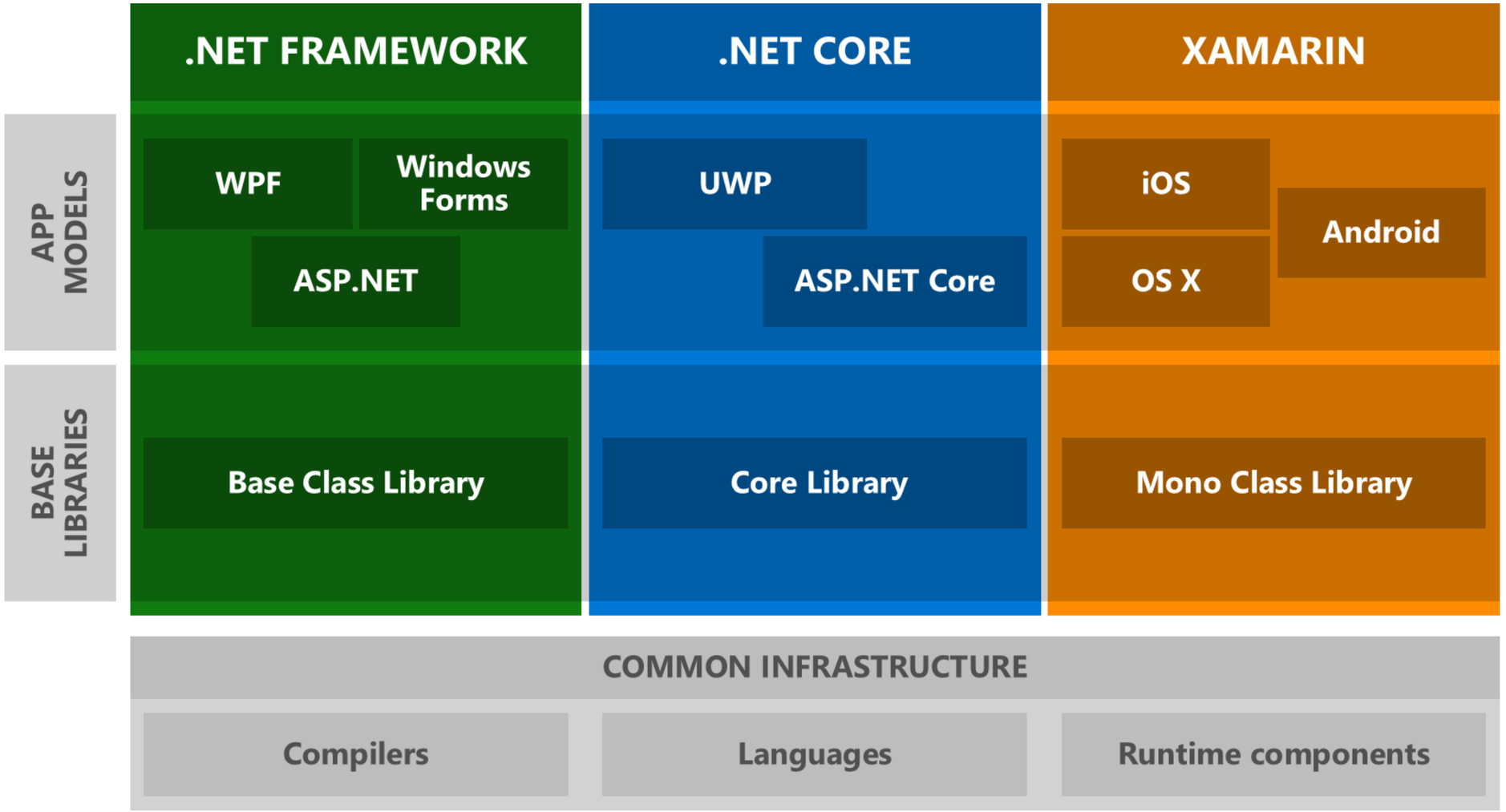
Awesome, then why .NET Standard?



Awesome, then why .NET Standard?



Which Microsoft Framework Am I Supposed to Use?

OK, so what am I supposed to use?

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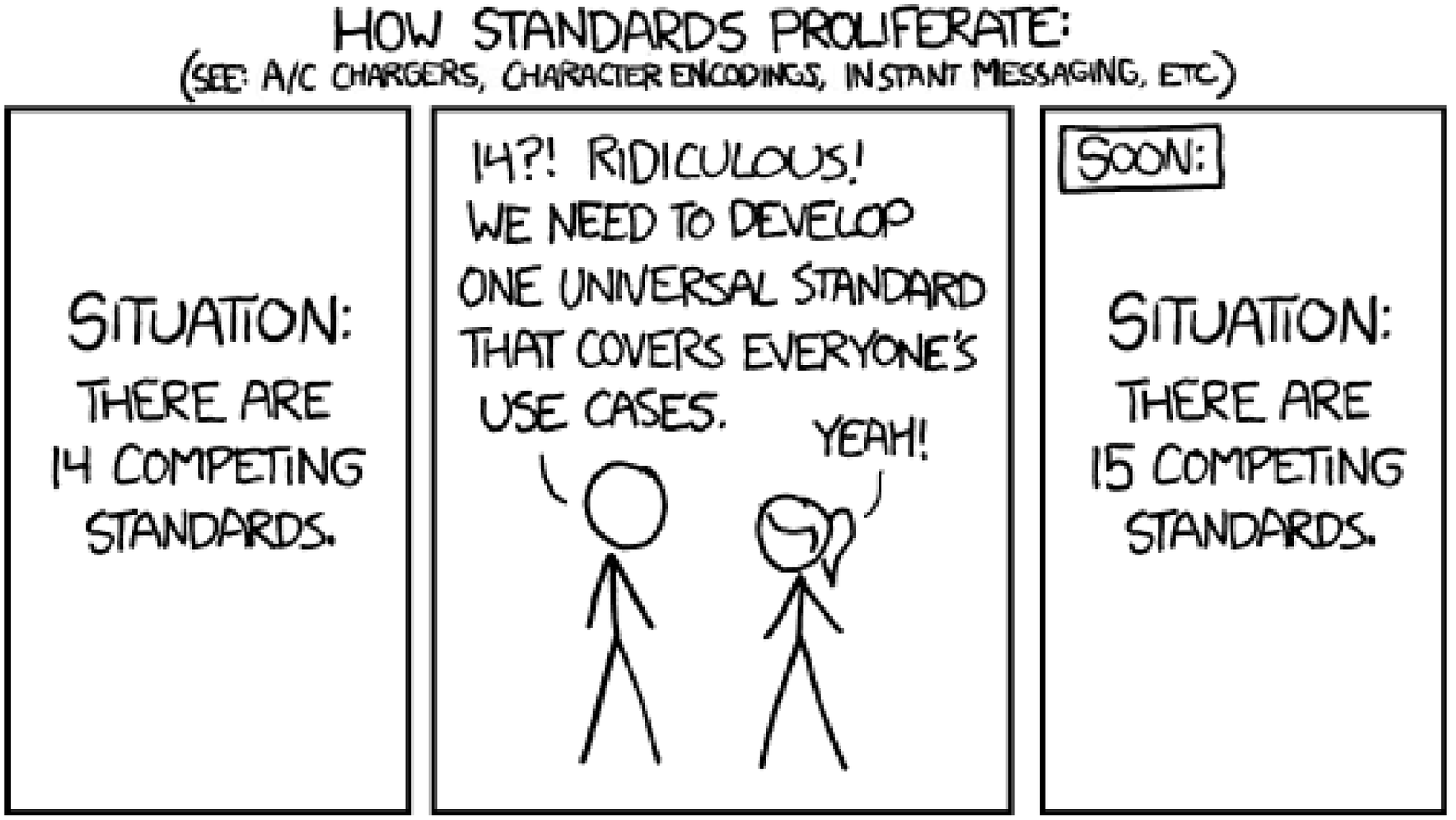
OK, so what am I supposed to use?



HTTPS://XKCD.COM/927/

OK, so what am I supposed to use?

- It depends
- .NET Framework
- .NET Core
- .NET Standard

OK, so what am I supposed to use?

.NET Standard	1.0	1.1	1.2	1.3	1.4	1.5	1.6	2.0
.NET Core	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0
.NET Framework (with .NET Core 1.x SDK)	4.5	4.5	4.5.1	4.6	4.6.1	4.6.2		
.NET Framework (with .NET Core 2.0 SDK)	4.5	4.5	4.5.1	4.6	4.6.1	4.6.1	4.6.1	4.6.1
Mono	4.6	4.6	4.6	4.6	4.6	4.6	4.6	5.4
Xamarin.iOS	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.14
Xamarin.Mac	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.8
Xamarin.Android	7.0	7.0	7.0	7.0	7.0	7.0	7.0	8.0
Universal Windows Platform	10.0	10.0	10.0	10.0	10.0	10.0.16299	10.0.16299	10.0.16299
Windows	8.0	8.0	8.1					
Windows Phone	8.1	8.1	8.1					
Windows Phone Silverlight	8.0							

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