Xamarin

The platform for the mobile enterprise

In partnership with Microsoft .NET Visual Studio

The Siloed approach: Build native apps multiple times

High volume of issues due to no code re-use between platforms

iOS app

Objective-C

XCode

Android app

Java

Eclipse

Windows app

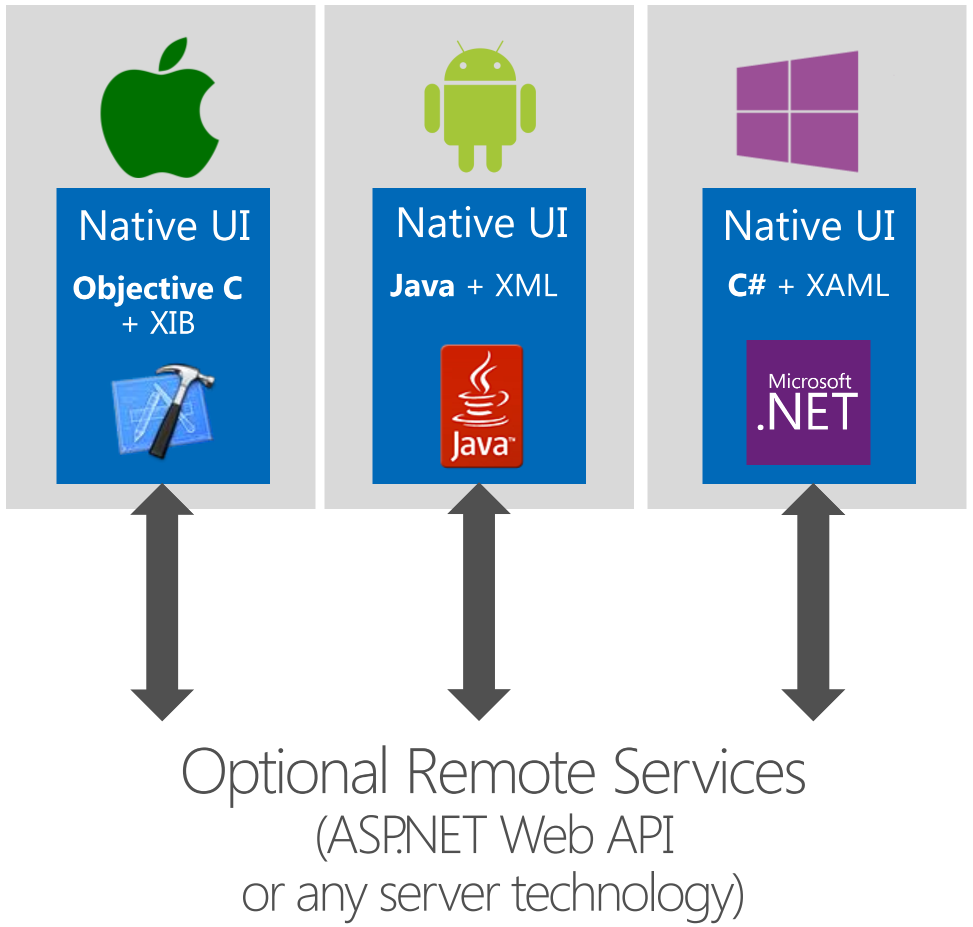
.NET/C#   -   HTML/JS   -   C++

Visual Studio

Siloed approach

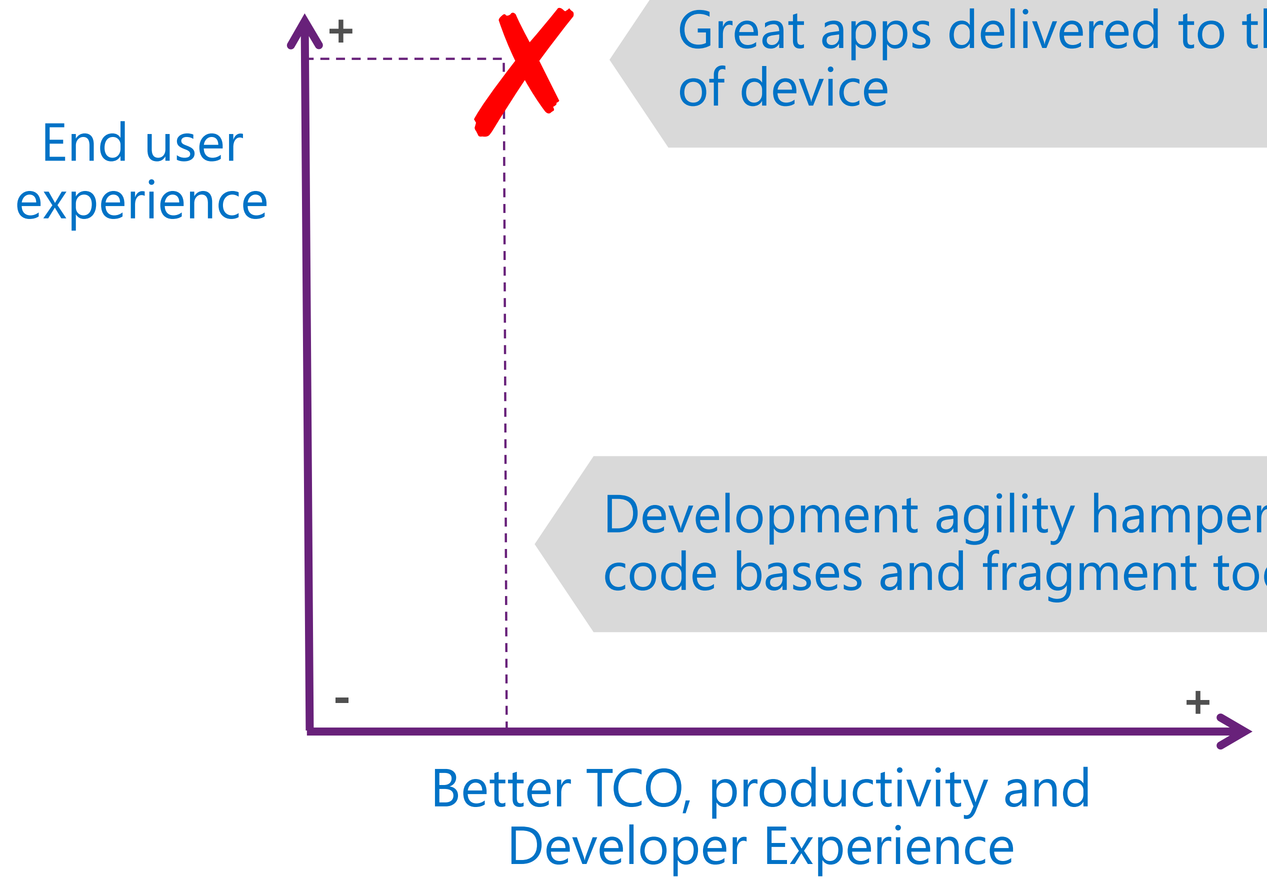
Build native apps multiple times means:

- Client development is completely different for each device type
- Only the Services (server-side) can be re-used, with certain differences when consuming them
- TCO grows exponentially



The Siloed approach: Build native apps multiple times

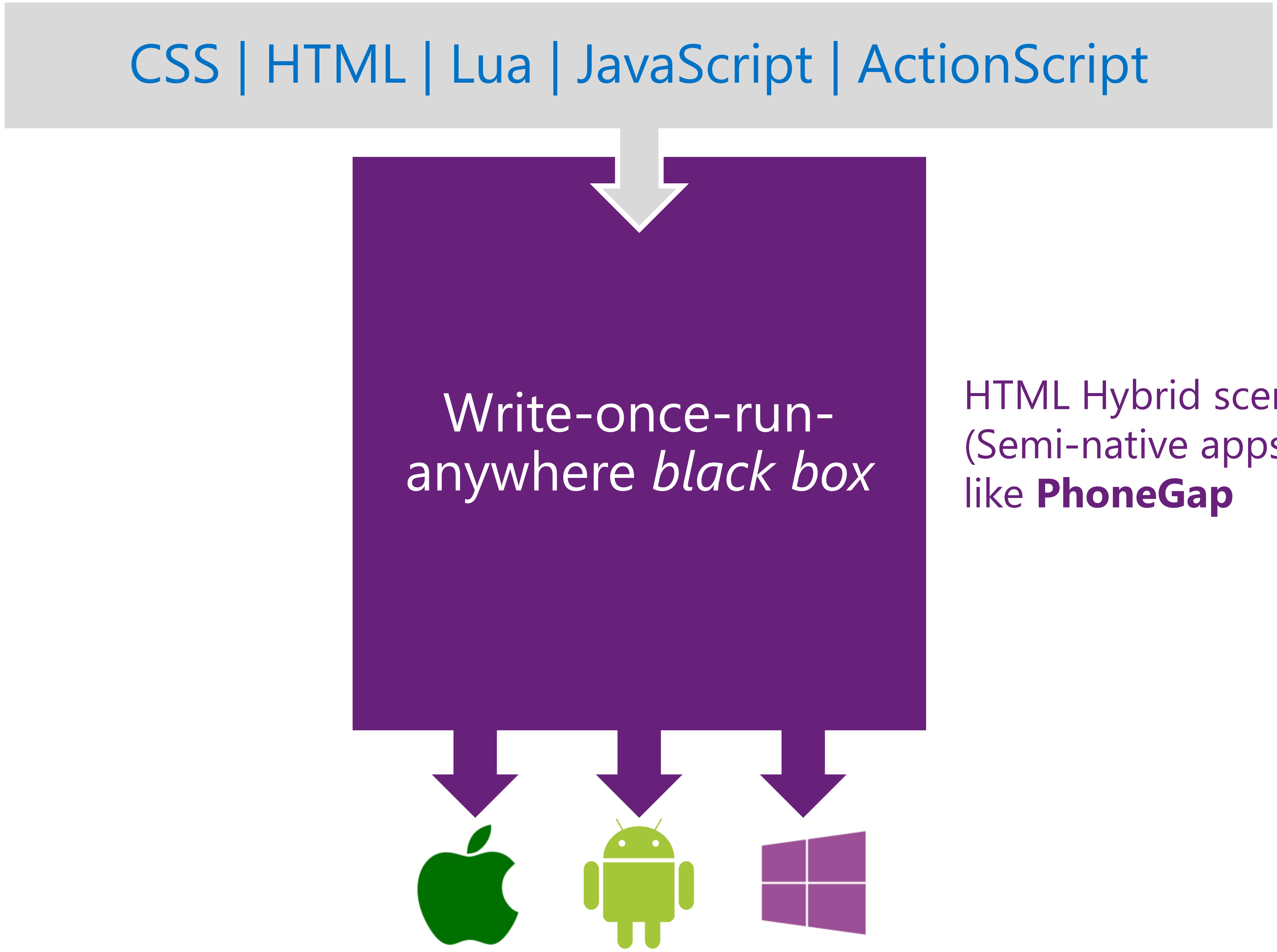
Multiple teams and multiple code bases are expensive and slow



Great apps delivered to the user's choice of device

Development agility hampered by multiple code bases and fragment toolsets

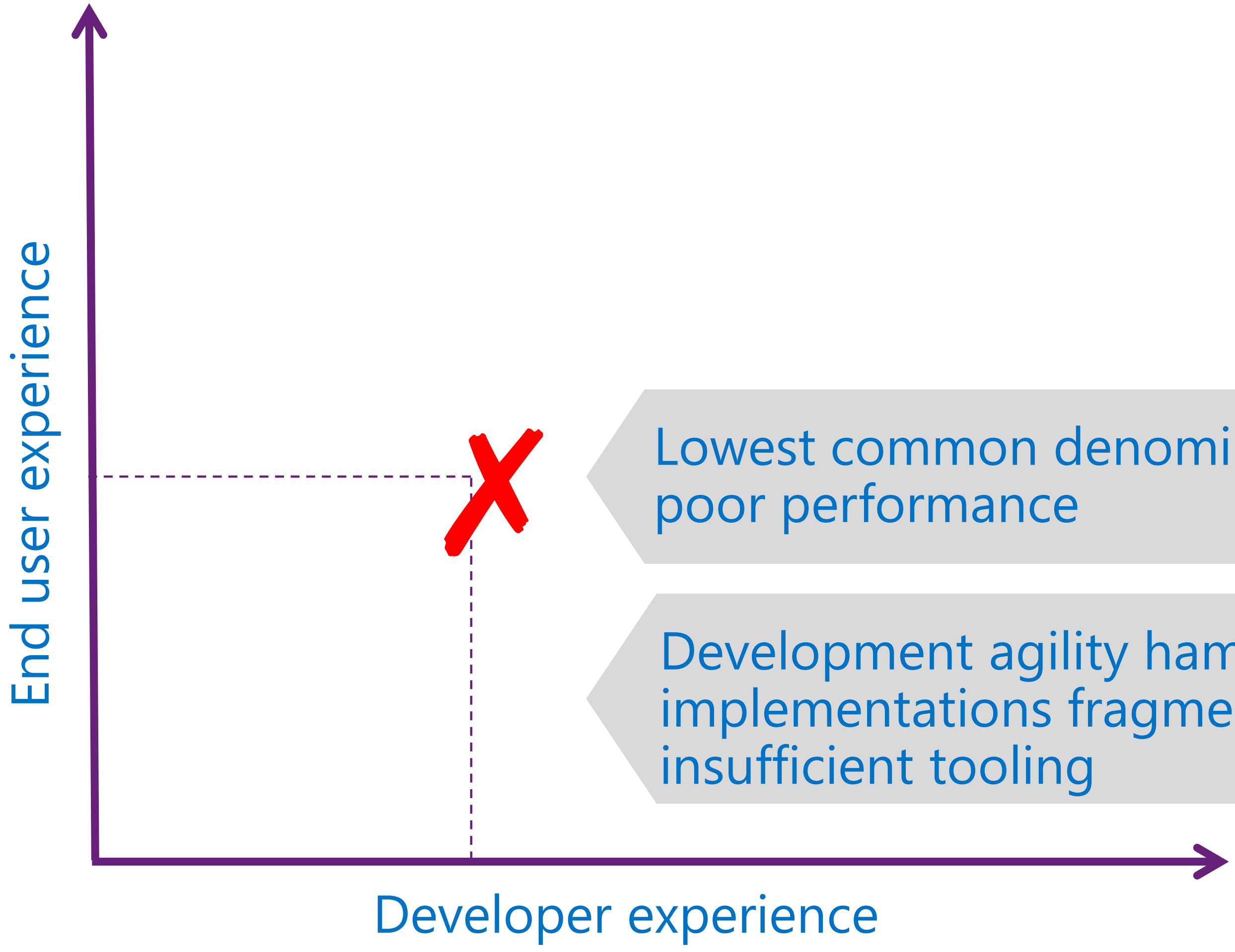
The write-once-run-anywhere approach


CSS | HTML | Lua | JavaScript | ActionScript
Write-once-run-anywhere *black box*

HTML Hybrid scenarios
(Semi-native apps)
like **PhoneGap**

The write-once-run-anywhere approach

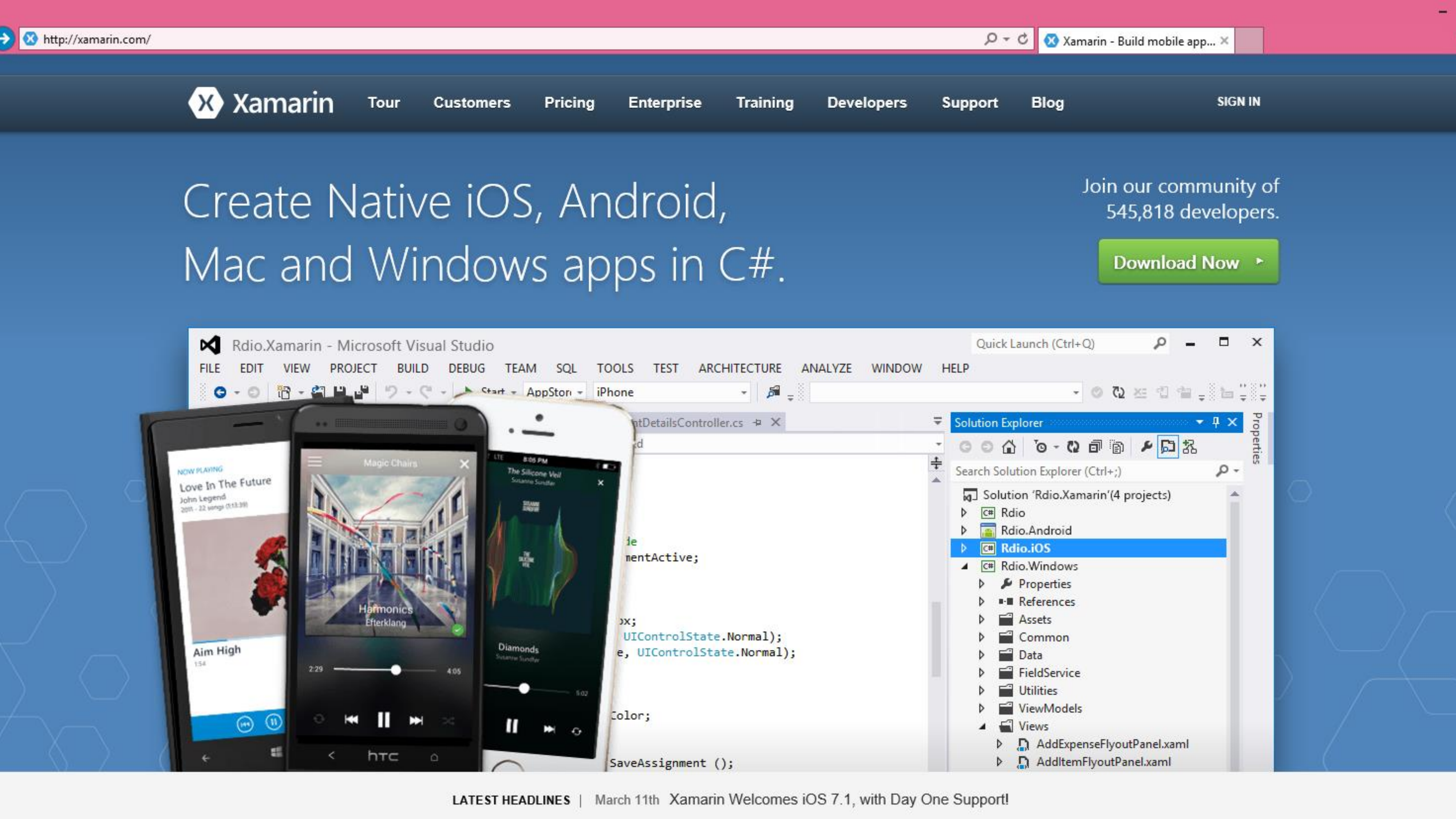
HTML Hybrid scenarios (Semi-native apps) like **PhoneGap**



Lowest common denominator apps with poor performance

Development agility hampered by HTML5 implementations fragmentation and insufficient tooling

Xamarin Platform



Create Native iOS, Android, Mac and Windows apps in C#.

Join our community of 545,818 developers.

```
de
mentActive;
ox;
 UIControlState.Normal);
e, UIControlState.Normal);
Color;
SaveAssignment ();
```

LATEST HEADLINES | March 11th Xamarin Welcomes iOS 7.1, with Day One Support!

One Language, One Framework

- Generics
- LINQ
- Lambdas
- Async / Task Parallel Libraries

- Type safety
- Garbage Collection

C# unique approach

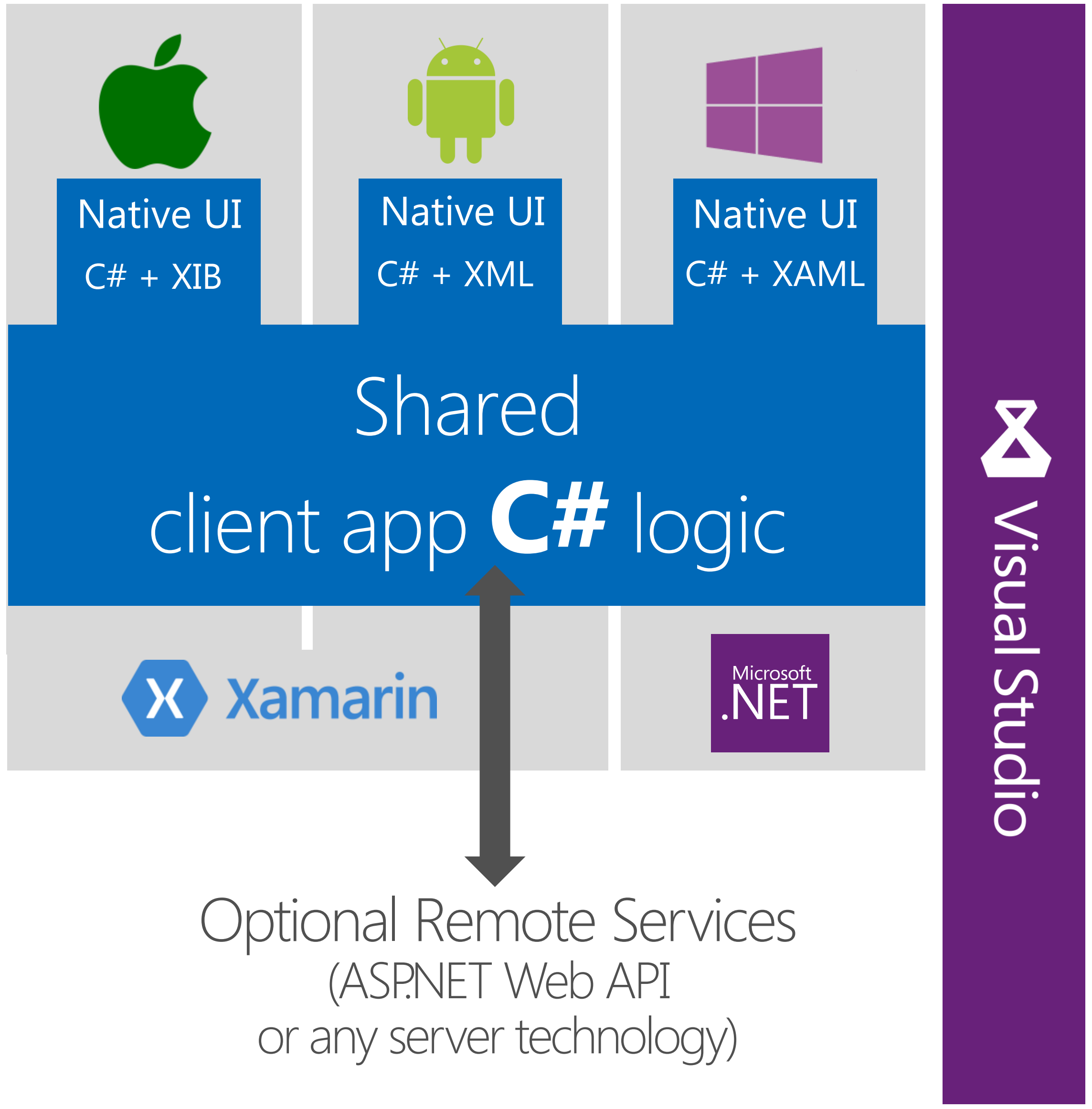
powered by Xamarin and Microsoft .NET

Fully native apps **written entirely in C#**

Xamarin exposes 100% of iOS and Android APIs in C#

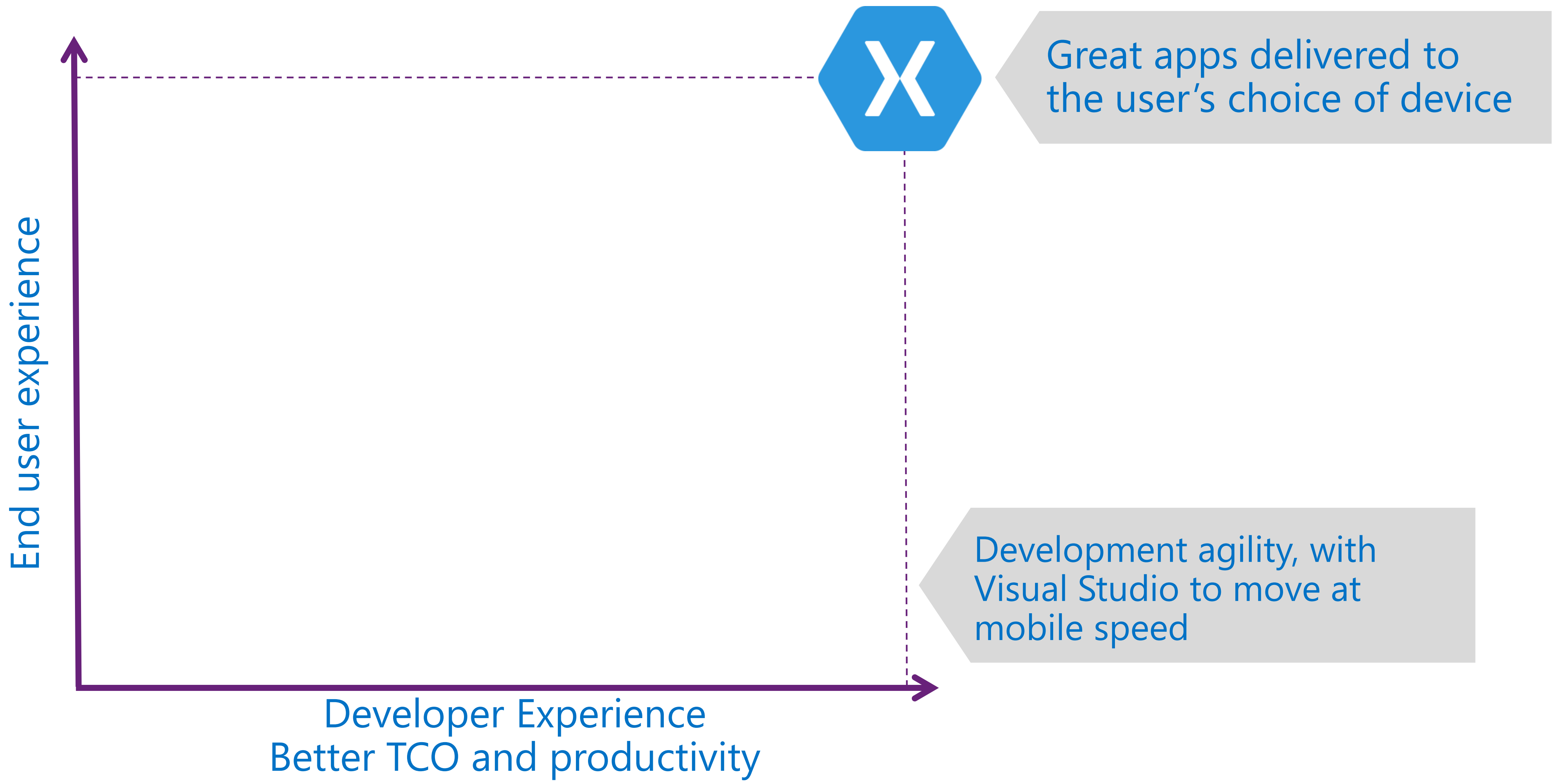
Mobilize existing code, skills, and tools including Visual Studio

Share app logic code across device platforms



C# and Xamarin's unique approach

The best of all worlds


Great apps delivered to the user's choice of device
Development agility, with Visual Studio to move at mobile speed
End user experience
Developer Experience
Better TCO and productivity

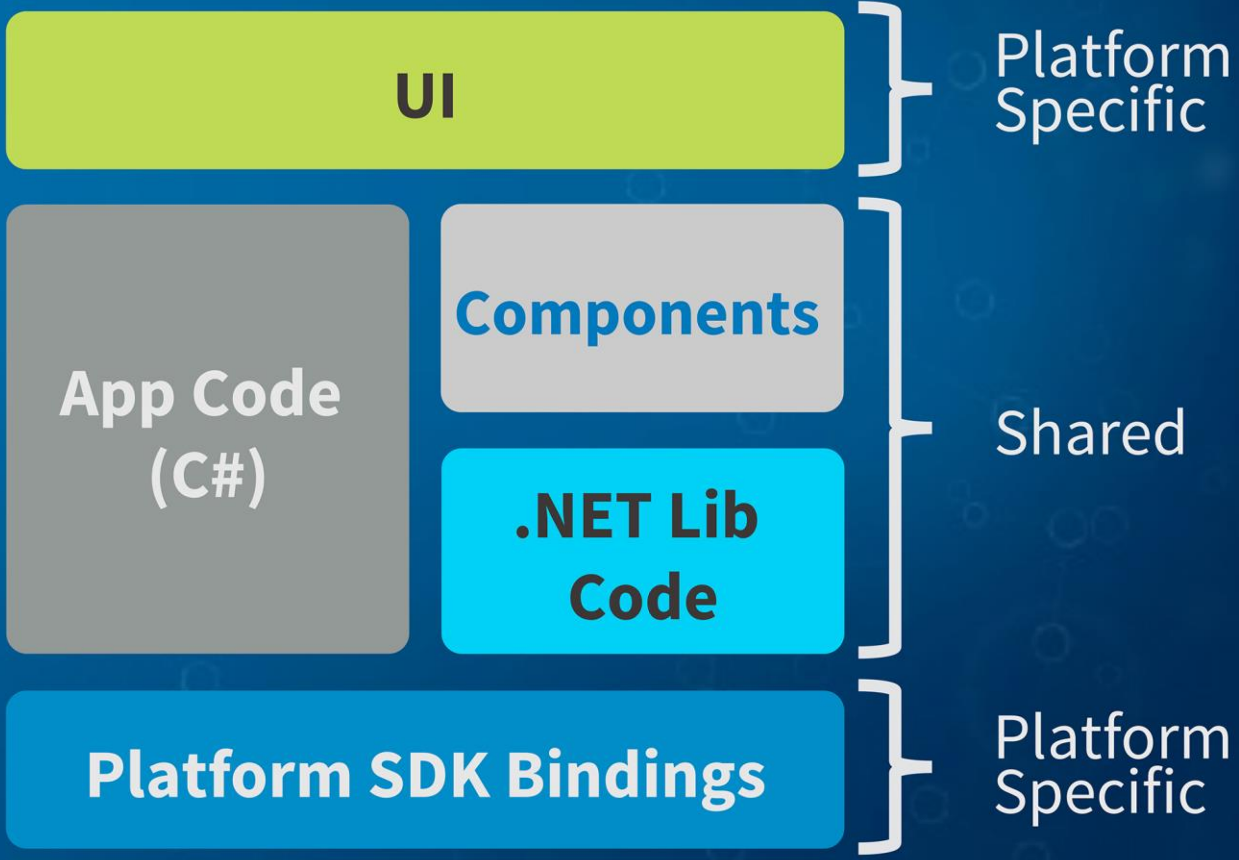
Phoneword (Programming Android using C#)

Demo

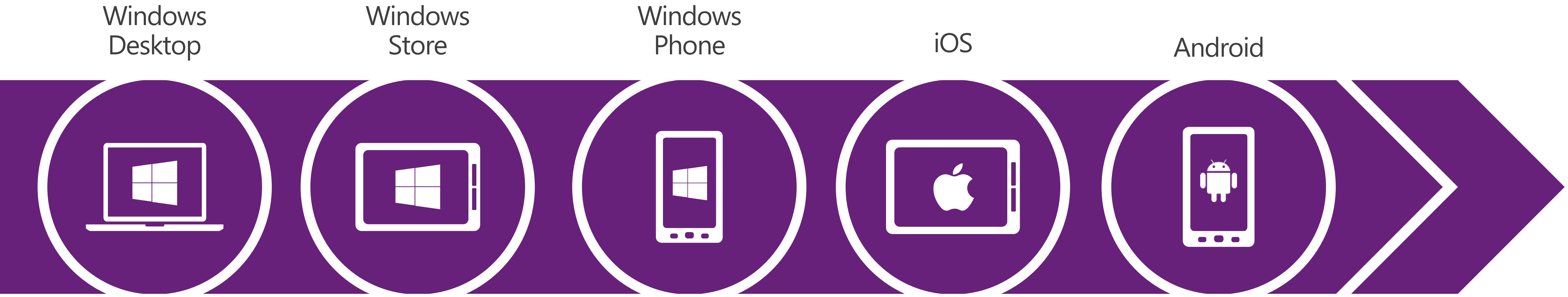
Code Sharing Across Platforms

- Same app structure across all platforms
  - UI is native & platform-specific
  - App code is C# and potentially sharable

- Not a "Write-Once-Run-Anywhere" solution but can have up to 95% shared code, depending on patterns used



The ".NET and devices" vision



One Tool — Visual Studio

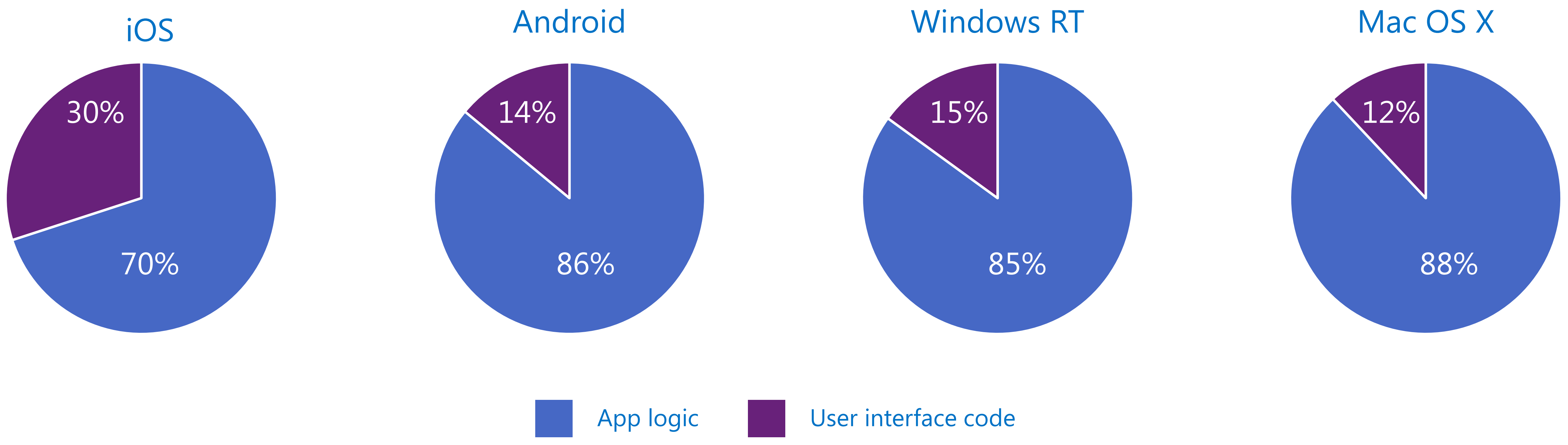
Unified Skills — C# / .NET Libraries

Shared Client Logic — Portable Libraries

Custom code for views (~20%)

Accelerate development with code sharing

- Code sharing statistics from production Xamarin app:



- iCircuit: real-time circuit simulator and editor used to design analog and digital circuits

Xamarin.* Libraries

- Cross-Platform API Abstractions

- Open Source
- `github.com/Xamarin/Xamarin.*`

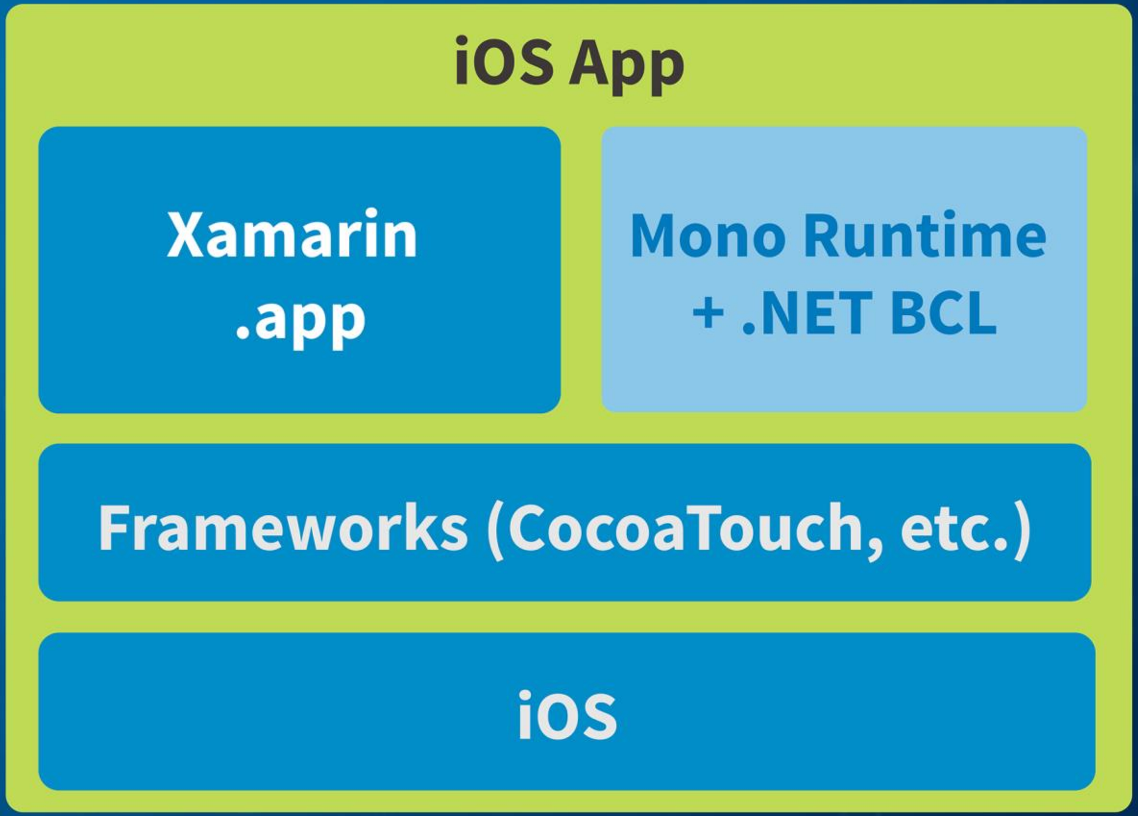
Mobile **Social** **Auth**

Diet Calculator (Cross Platform)

Demo

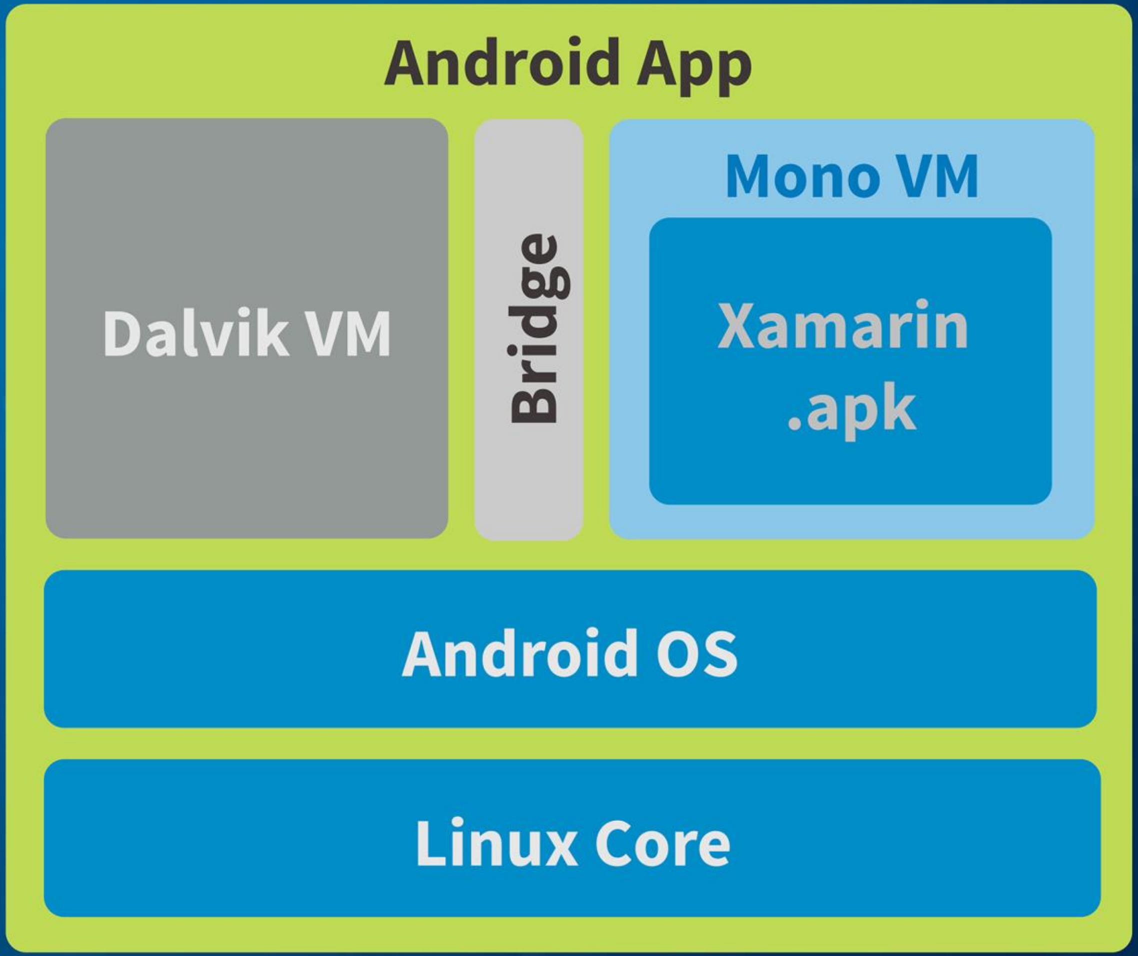
App Runtime Model: iOS

- Native ARMvX code – no JIT used
- Mono Runtime provides system services
- App has full access to iOS frameworks



App Runtime Model: Android

- Mono VM + Dalvik execute side-by-side
- Mono VM JITs IL into native code and executes most of your code
- Interop directly with Android OS + Dalvik



Platform Comparisons

App Package	.app	.apk	.xap
typeof(Screen)	Controller	Activity	Page
typeof(Control)	View	Widget	Control
UI Files (xml)	.storyboard	.axml	.xaml
UI Pattern	MVC	MVC	MVVM

Native package file

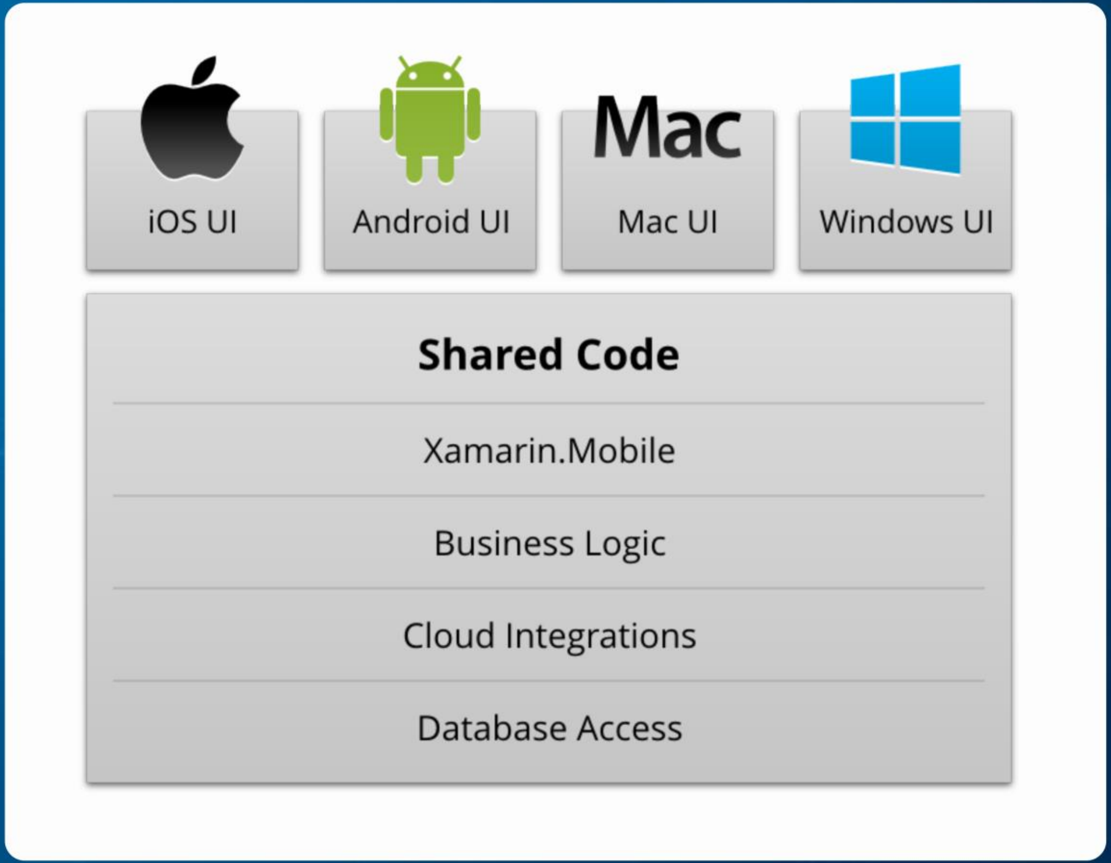
Demo

Architecture

- Use Layers
  - Separation of Responsibility

- Use Encapsulation
  - Enables core code sharing

- Same architectural patterns used in other software projects



Sharing the Data Access Layer

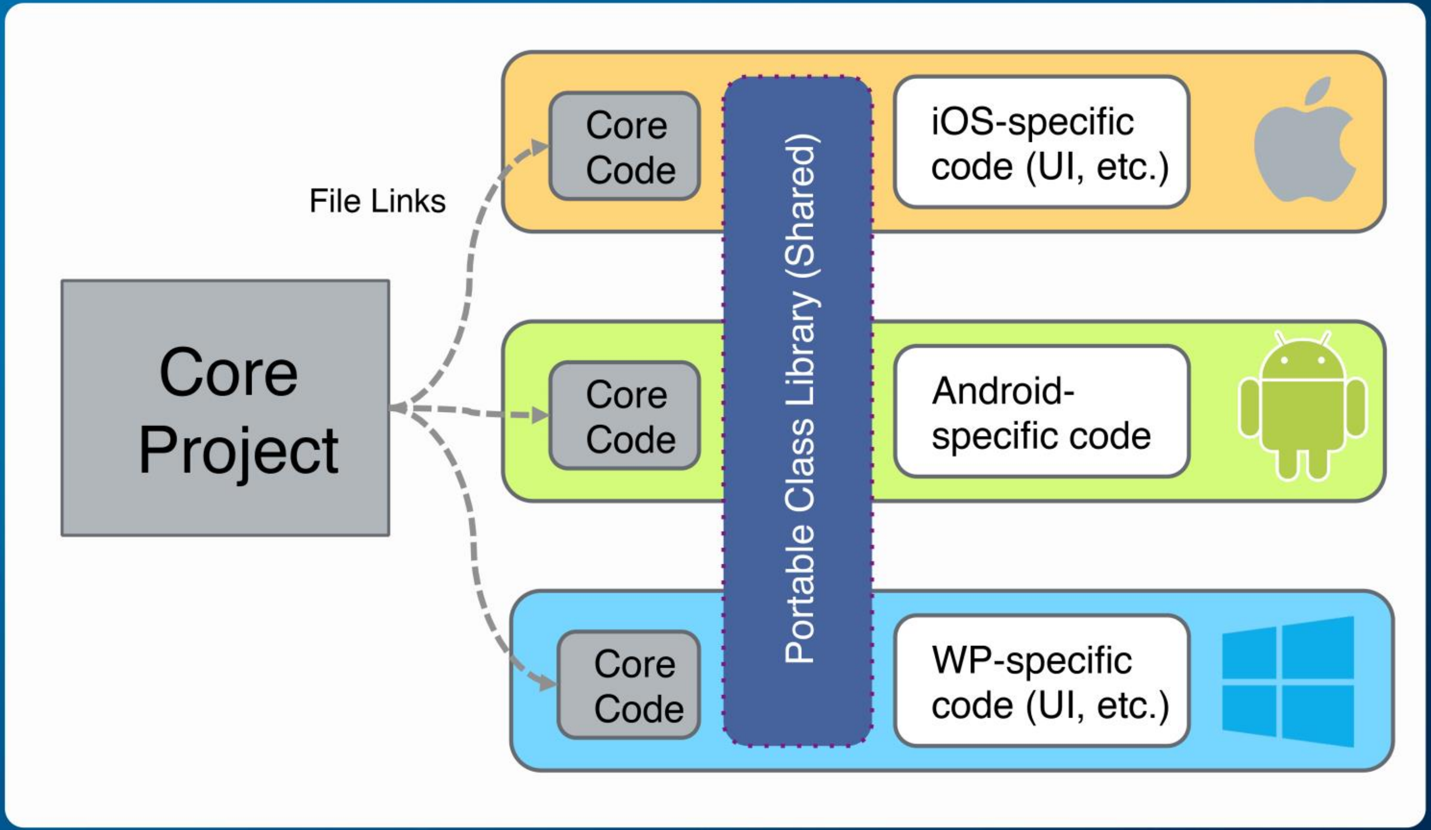
- SQLite available for iOS + Android
  - Can use ADO.NET
- C#-SQLite for Windows
  - `code.google.com/p/csharp-sqlite/`
- SQLite.NET ORM
  - available in the Component Store

Sharing the Web Services Layer

- Use HttpClient for REST services
  - also supports WebClient or HttpWebRequest
- Supports WCF services
  - w/ BasicHttpBinding
- Legacy SOAP services
  - .asmx compatibility

Sharing Code Across Projects

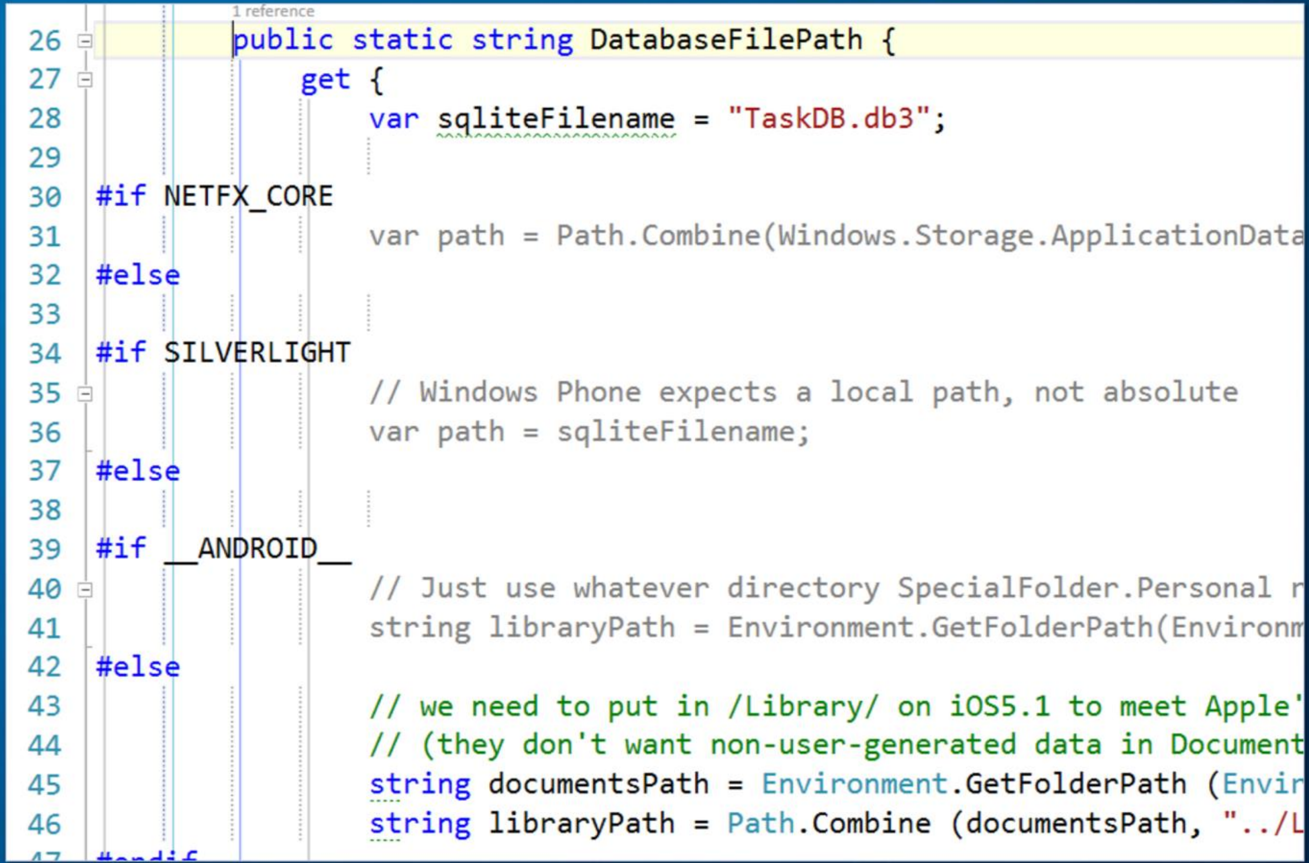
- Portable Class Libraries – great for components
- File Linking – share code at the source level
- Use multiple projects


Core Project
File Links
Core Code
Core Code
Core Code
Portable Class Library (Shared)
iOS-specific code (UI, etc.)
Android-specific code
WP-specific code (UI, etc.)

File Linking + Conditional Compilation

- Pre-Defined Symbols:

  ```
  #if __MOBILE__
  #if __ANDROID__
  #if __IOS__
  #if WINDOWS_PHONE
  #if SILVERLIGHT
  ```



```
        public static string DatabaseFilePath {
            get {
                var sqliteFilename = "TaskDB.db3";

#if NETFX_CORE
                var path = Path.Combine(Windows.Storage.ApplicationData
#else

#if SILVERLIGHT
                // Windows Phone expects a local path, not absolute
                var path = sqliteFilename;
#else

#if __ANDROID__
                // Just use whatever directory SpecialFolder.Personal r
                string libraryPath = Environment.GetFolderPath(Environm
#else
                // we need to put in /Library/ on iOS5.1 to meet Apple'
                // (they don't want non-user-generated data in Document
                string documentsPath = Environment.GetFolderPath (Envir
                string libraryPath = Path.Combine (documentsPath, "../L
#endif
```

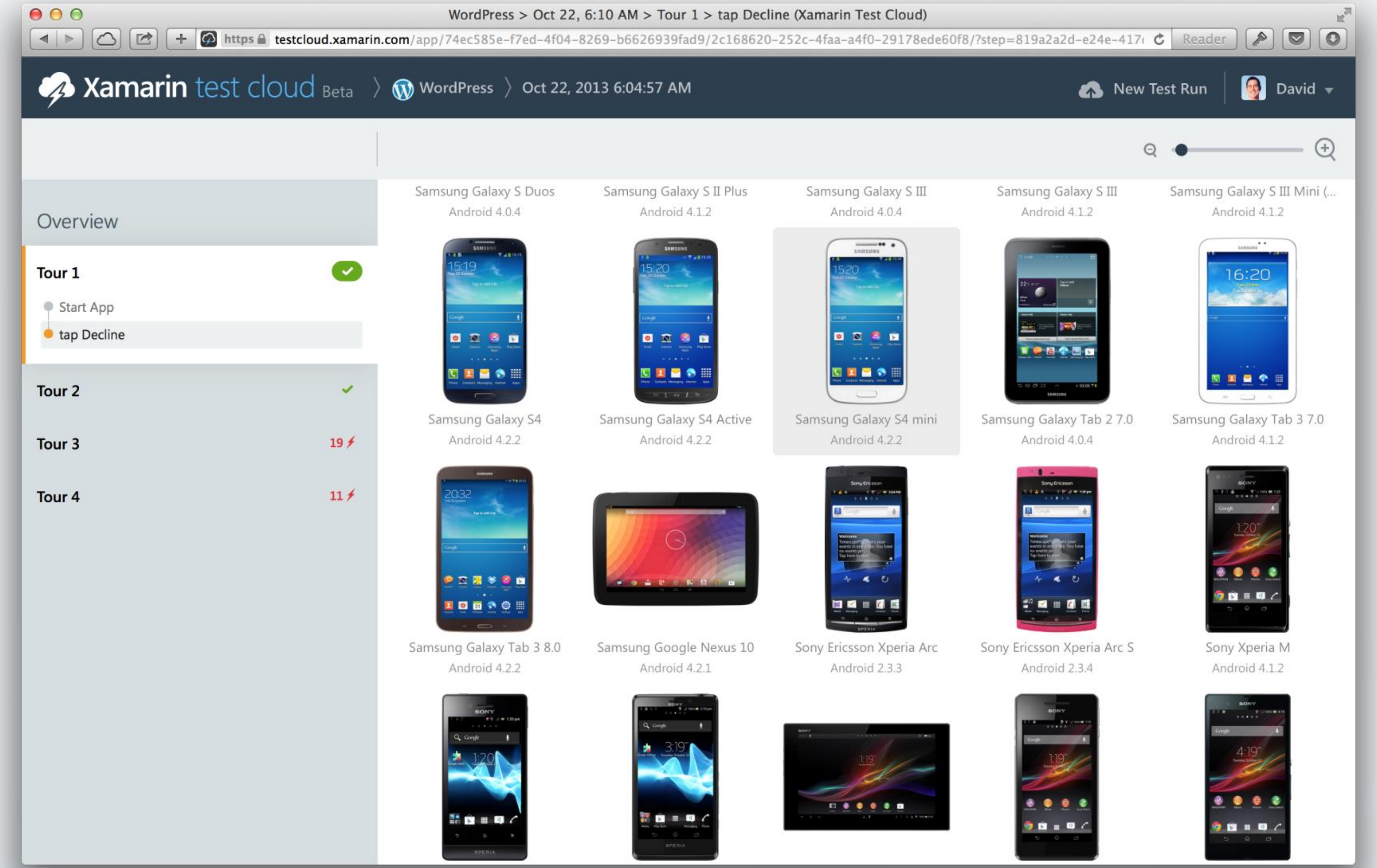
- Can add custom symbols in build settings

Data layer and Web service layer

Demo

Xamarin test cloud

Automatically test your app on hundreds of mobile devices



WordPress > Oct 22, 6:10 AM > Tour 1 > tap Decline (Xamarin Test Cloud)

https testcloud.xamarin.com/app/74ec585e-f7ed-4f04-8269-b6626939fad9/2c168620-252c-4faa-a4f0-29178ede60f8/?step=819a2a2d-e24e-417

Xamarin test cloud Beta 〉 WordPress 〉 Oct 22, 2013 6:04:57 AM — New Test Run — David

Overview

- Tour 1 ✓
  - Start App
  - tap Decline
- Tour 2 ✓
- Tour 3 19
- Tour 4 11

Samsung Galaxy S Duos Android 4.0.4	Samsung Galaxy S II Plus Android 4.1.2	Samsung Galaxy S III Android 4.0.4	Samsung Galaxy S III Android 4.1.2	Samsung Galaxy S III Mini (... Android 4.1.2
Samsung Galaxy S4 Android 4.2.2	Samsung Galaxy S4 Active Android 4.2.2	Samsung Galaxy S4 mini Android 4.2.2	Samsung Galaxy Tab 2 7.0 Android 4.0.4	Samsung Galaxy Tab 3 7.0 Android 4.1.2
Samsung Galaxy Tab 3 8.0 Android 4.2.2	Samsung Google Nexus 10 Android 4.2.1	Sony Ericsson Xperia Arc Android 2.3.3	Sony Ericsson Xperia Arc S Android 2.3.4	Sony Xperia M Android 4.1.2

Xamarin's enterprise success

500K

500,000 registered developers in just 2 years

30K+

Adding over 30,000 developers a month

185

Customers in 185 countries

10 years

Robust, enterprise-ready technology, in production use for 10 year

Recognized as mobile "Visionary" in 2013 Magic Quadrant for MADP Gartner®

Winner of 2013 Visual Studio Integration Partner of the Year Awarded

Visual Studio

Apps in all verticals and mobility use cases

Mobile CRM

Mobile field service

Consumer brand loyalty

Retail POS solutions

Supply chain management

Consumer media
and entertainment

Oil and gas field solutions

Airplane freight load balancing

mBanking and
wealth management

Insurance claims adjusting

“Second Screen” TV apps

mHealth/practice Management

Xamarin Customer reference

http://xamarin.com/apps

http://blogs.msdn.com/b/msdntaiwan/archive/2014/01/24/motech-casestudy-visualstudio-xamarin.aspx

http://www.thinkpower.com.tw/xamarin/index.aspx?lang=tw

Completely up-to-date with device OS releases

Always up-to-date with the latest APIs from Microsoft, Apple, and Google

Track record of offering some-day support: iOS 5, iOS 6, iOS 6.1, and **iOS 7**

Next Steps

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90-day trial

Experience state-of-the-art cross-platform mobile development with a fully-featured, 90-day trial of Xamarin for Visual Studio.

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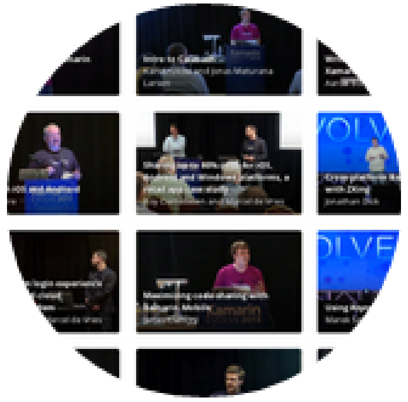
Exclusive training



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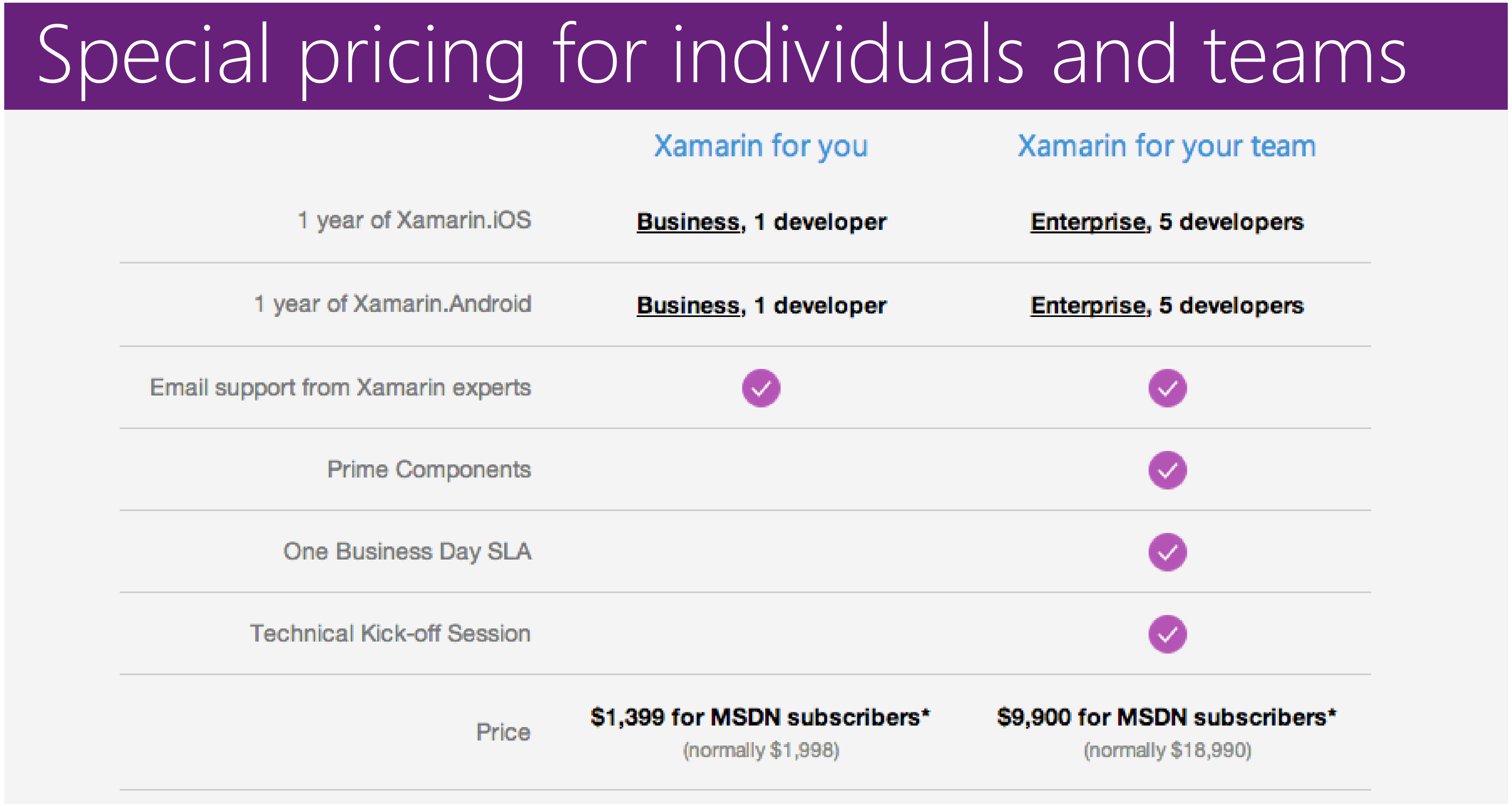

Special pricing for individuals and teams

	Xamarin for you	Xamarin for your team
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