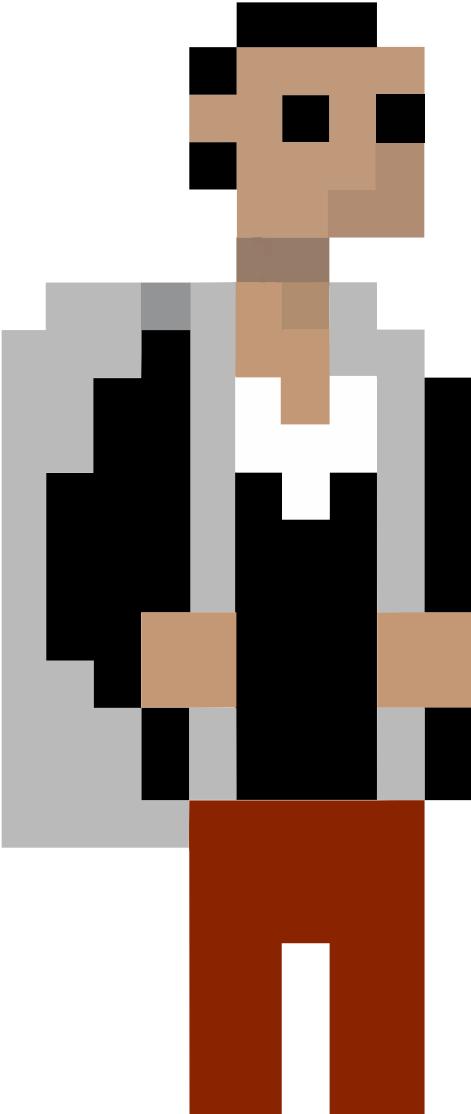


# XAML & C# Powered iOS, Android, and Windows apps

James Montemagno  
@JamesMontemagno



# Who's this guy?



James  
Montemagno  
Developer Evangelist, Xamarin

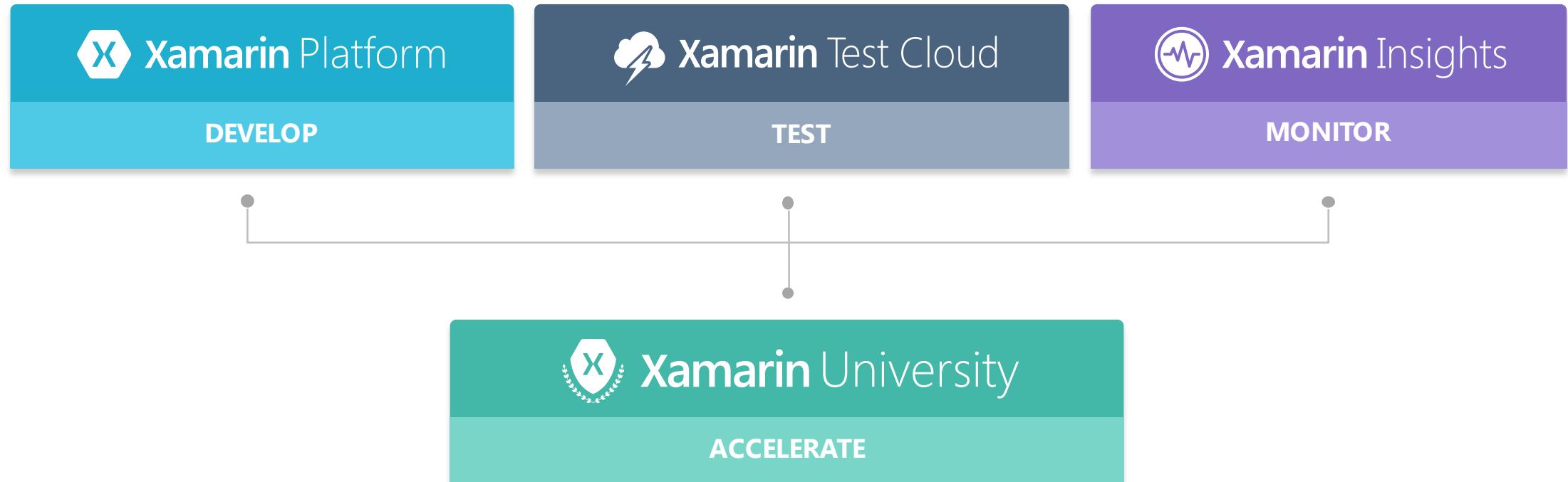
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james@xamarin.com

motzcod.es

@JamesMontemagno

# Xamarin – Your Complete Mobile Solution

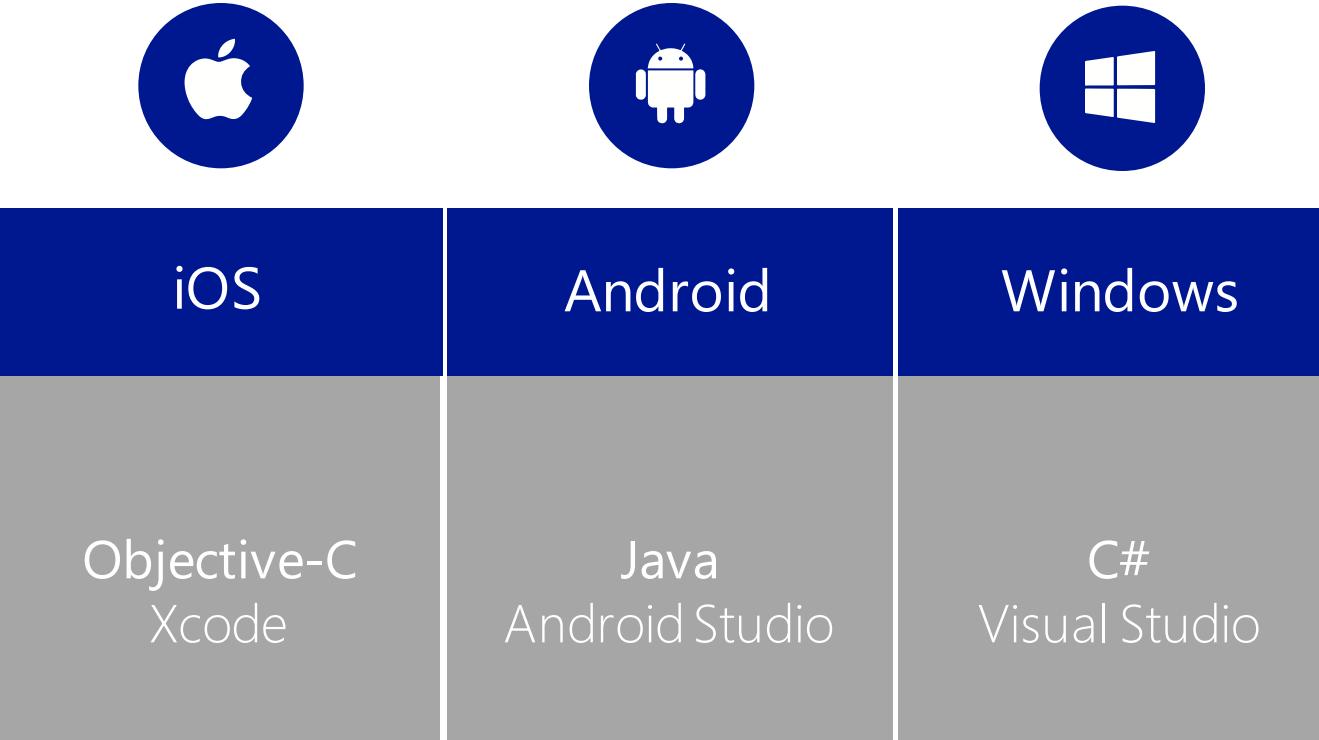


What is Native?



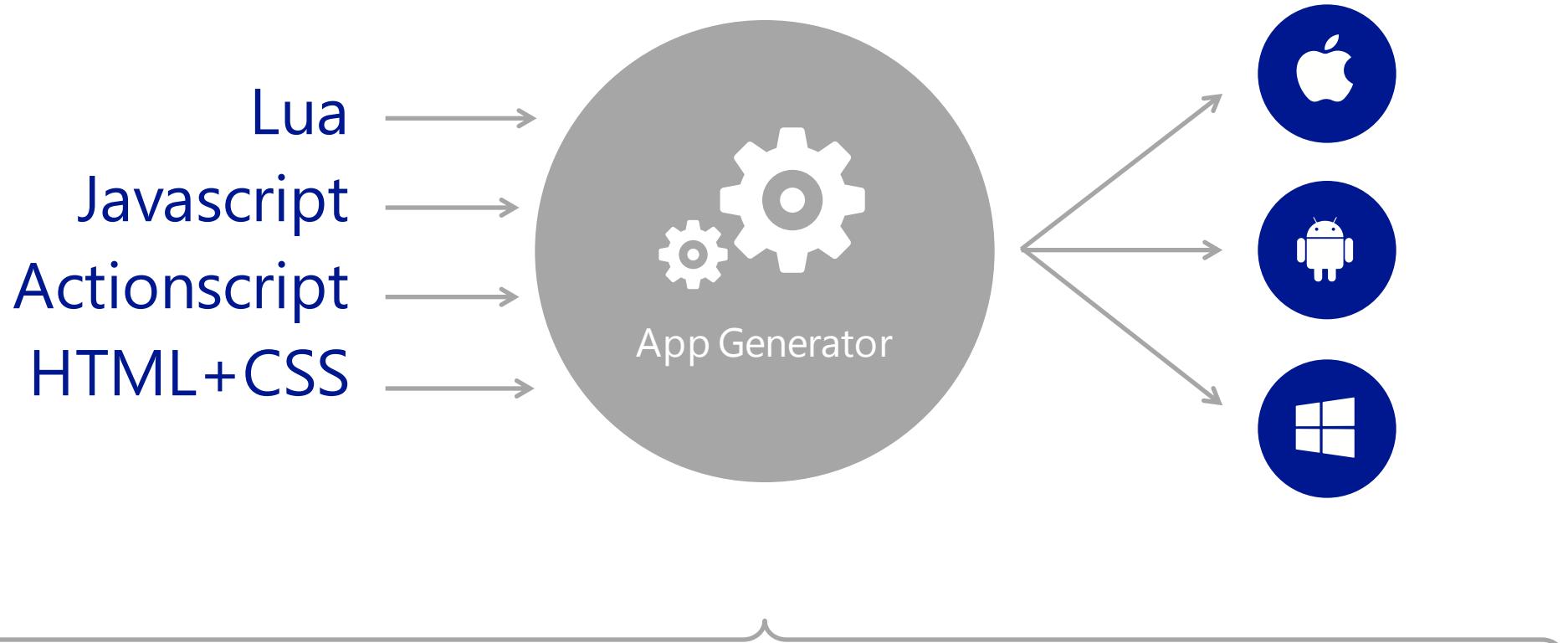
# Architecting Mobile Apps

# Silo Approach



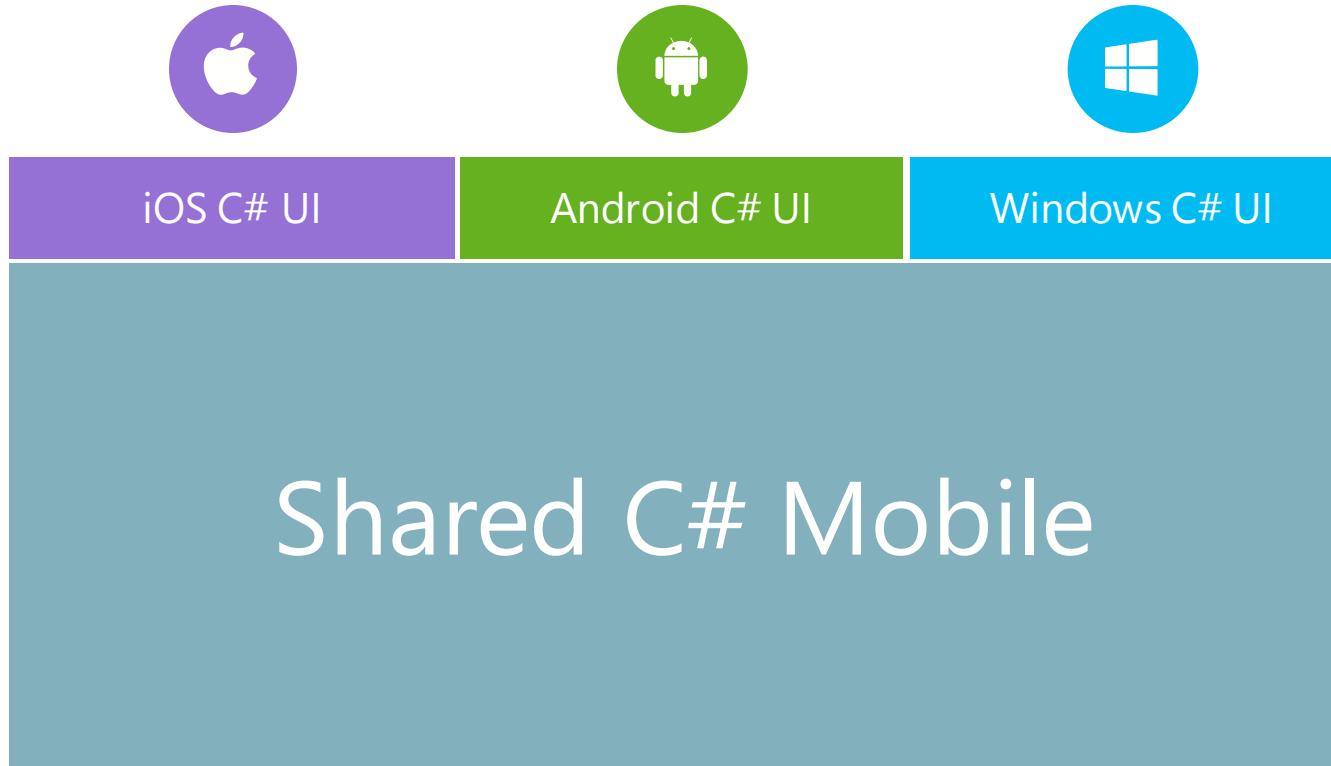
No shared code • Many languages & development environments • Multiple teams

# Write Once, Run Anywhere



Limited native API access • Slow performance • Poor user experience

# Xamarin's Unique Approach



Shared C# codebase • 100% native API access • High performance

# Windows APIs

Microsoft.Phone	Microsoft.Networking	Windows.Storage	Windows.Foundation	Microsoft.Devices
System.Net	System	System.IO	System.Linq	System.Xml
System.Data	System.Windows	System.Numerics	System.Core	System.ServiceModel



C#

# iOS – 100% API Coverage

MapKit	UIKit	iBeacon	CoreGraphics	CoreMotion
System.Net	System	System.IO	System.Linq	System.Xml
System.Data	System.Windows	System.Numerics	System.Core	System.ServiceModel



C#

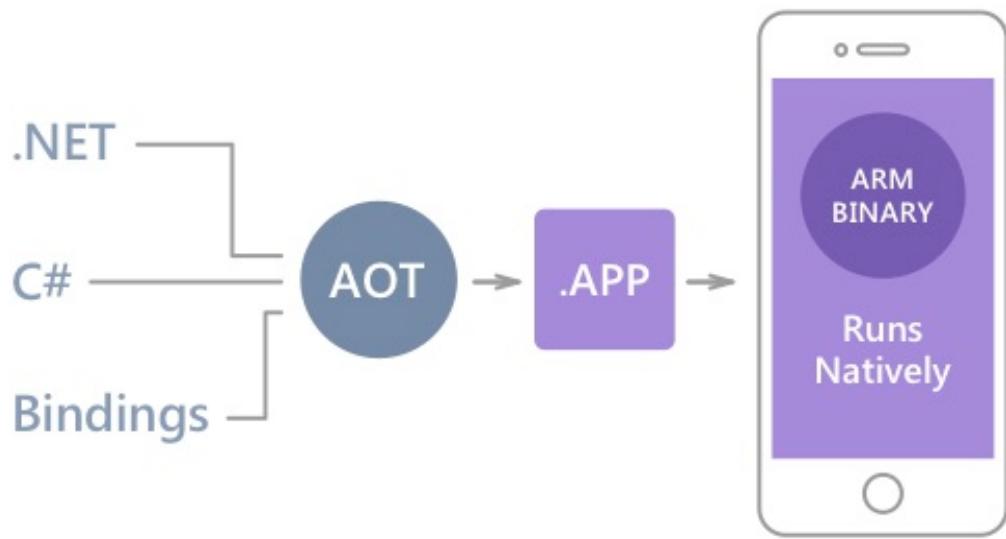
# Android – 100% API Coverage

Text-to-speech	ActionBar	Printing Framework	Renderscript	NFC
System.Net	System	System.IO	System.Linq	System.Xml
System.Data	System.Windows	System.Numerics	System.Core	System.ServiceModel

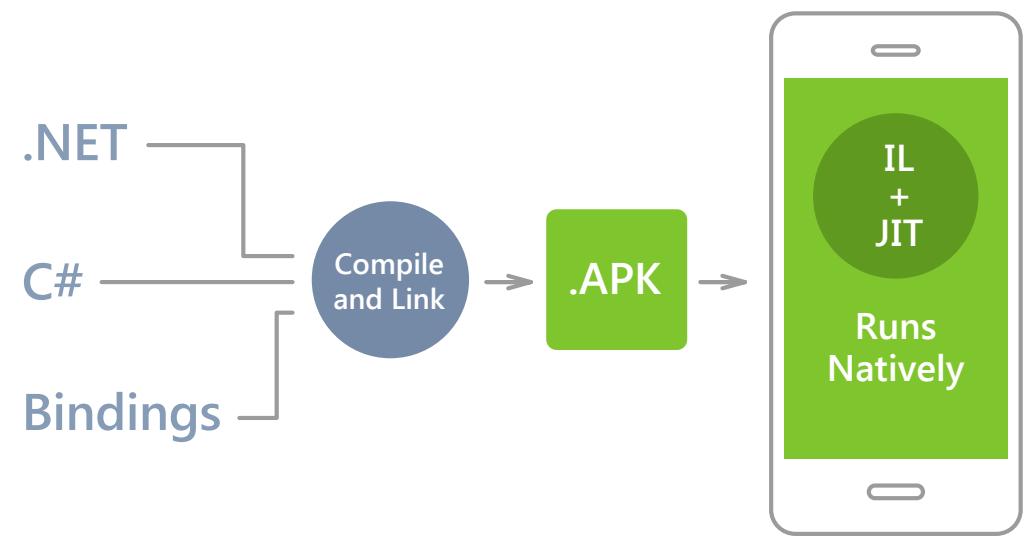


C#

# Native Performance



Xamarin.iOS does full Ahead Of Time (AOT) compilation to produce an ARM binary for Apple's App Store.



Xamarin.Android takes advantage of Just In Time (JIT) compilation on the Android device.



# Always Up-to-Date

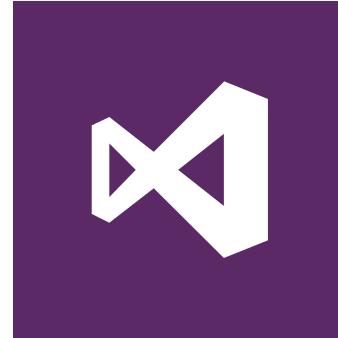
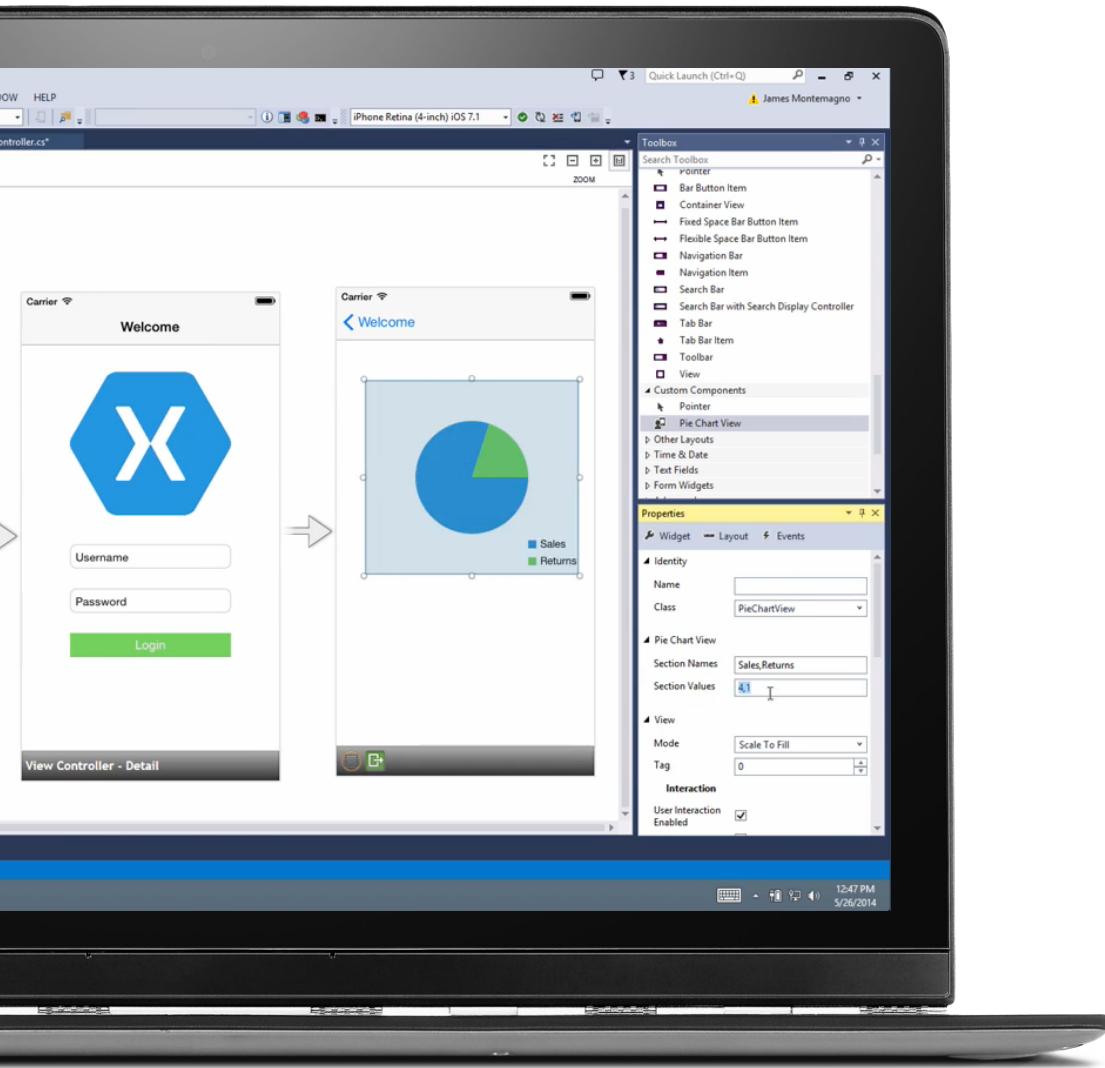
Same-day support:

- iOS 5
- iOS 6
- iOS 7
- iOS 7.1
- iOS 8
- iOS 9

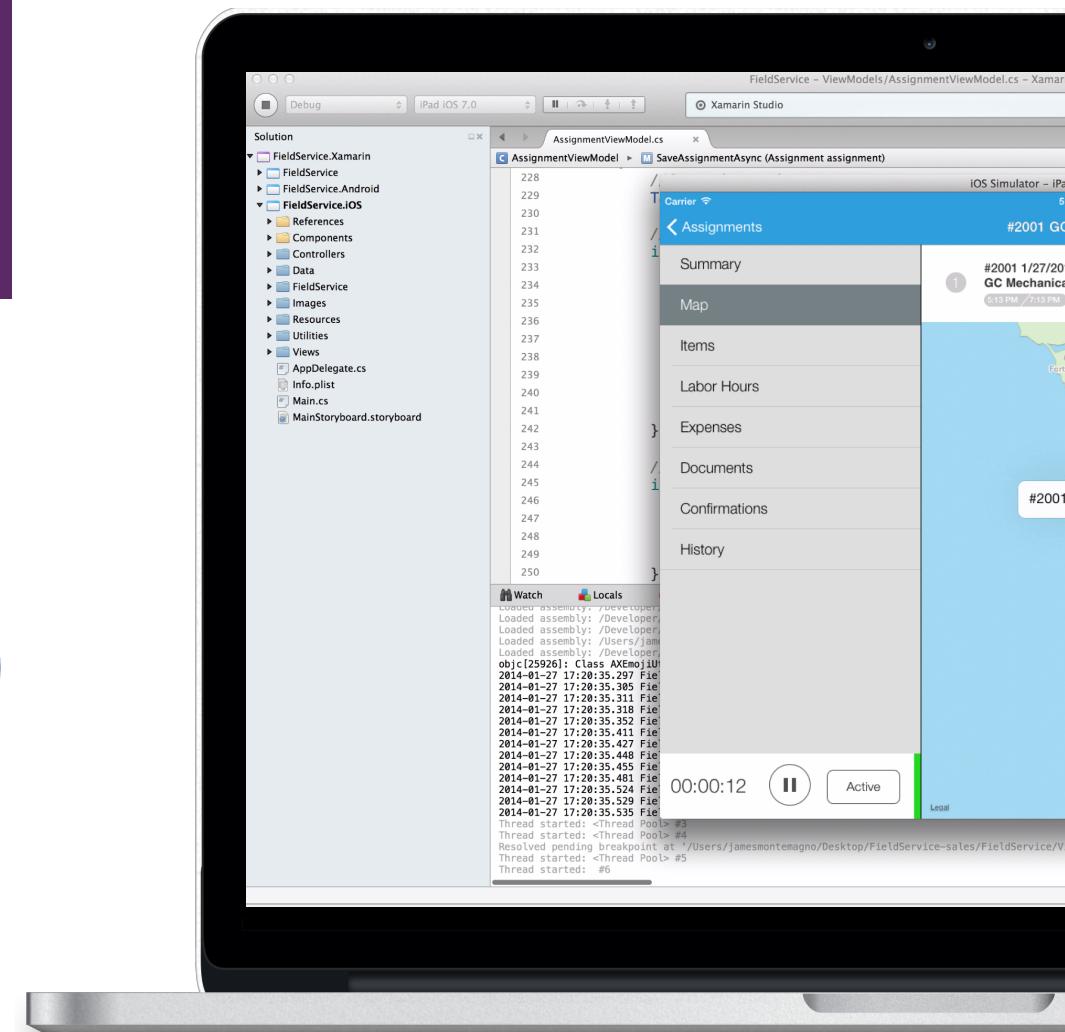
Full support for:

- Apple Watch
- Android Wear
- Android TV
- Amazon Fire TV
- Google Glass
- and much more

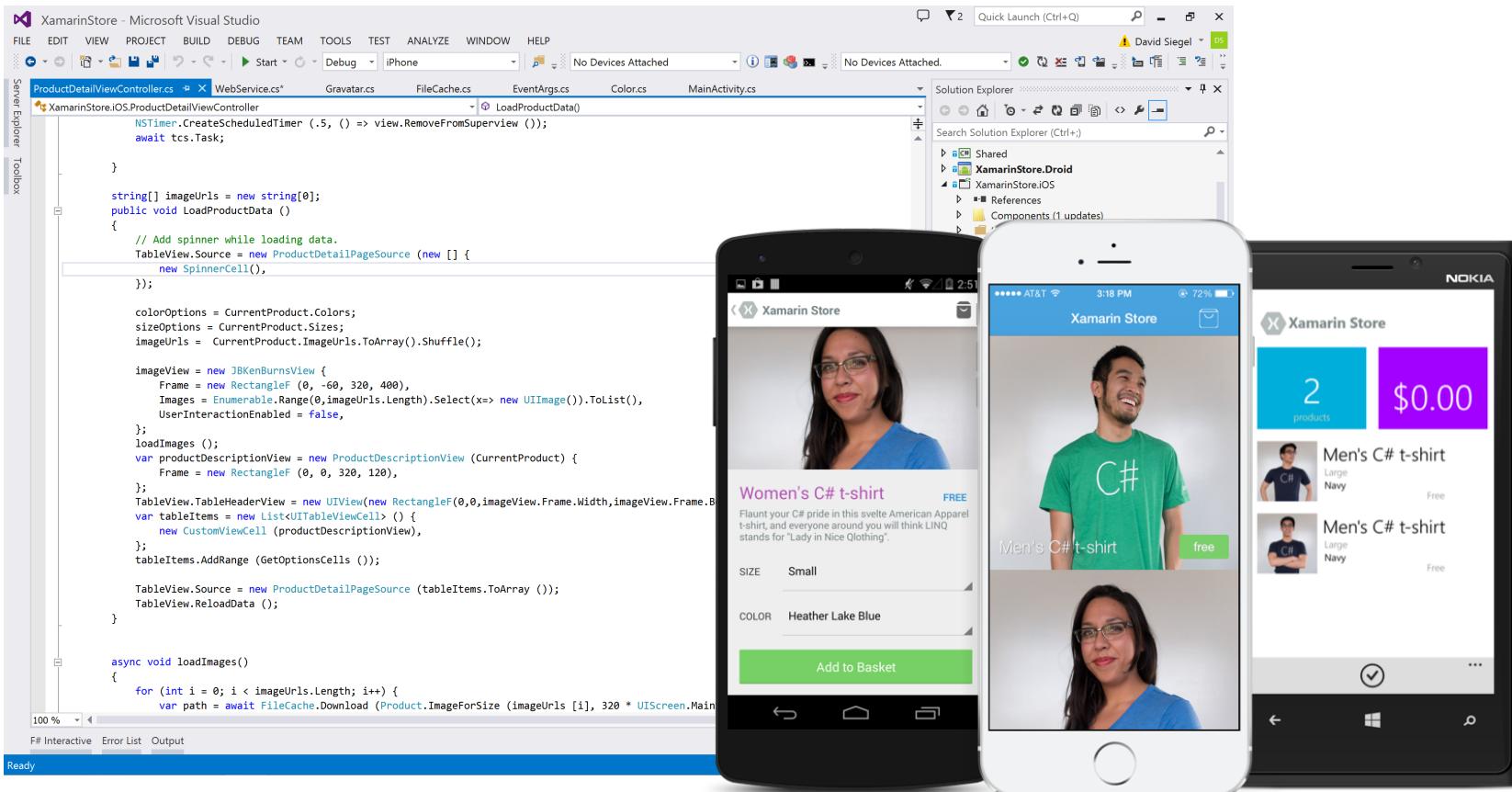
# Visual Studio



# Xamarin Studio

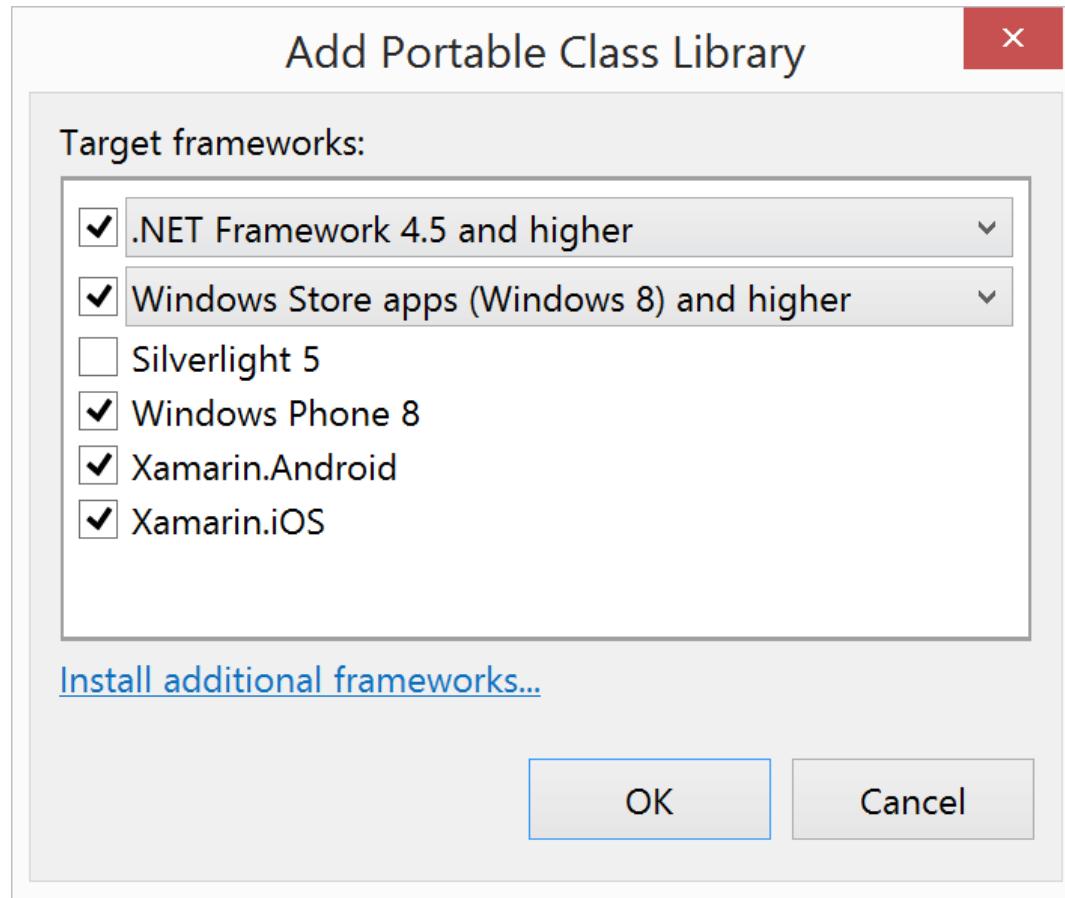


# Anything you can do in Objective-C, Swift, or Java can be done in C# and Visual Studio with Xamarin.



# Sharing Code

# Portable Class Libraries



1 Assembly  
Multiple Platforms

Including:  
Xamarin.iOS and Xamarin.Android

# NuGet

Add Packages

nuget.org

Xamarin.Social  
Share statuses, links, and images on Facebook, Flickr, Twitter, and more.

Xamarin.Auth  
A cross-platform API for authenticating users and storing their information.

Xamarin.Mobile  
Xamarin.Mobile is a library that exposes a single set of APIs for common mobile device functionality across iOS, Android and Windows Phone.

Xamarin.InAppBilling  
Component to assist in adding In-App Billing to a Xamarin application via Google Play Services.

Xamarin.FacebookBinding  
Xamarin Android Binding library for Facebook Android SDK.

BugSense plugin for Xamarin Android application  
BugSense is the leading crash reporting and quality metric analysis tool for mobile applications.

Show pre-release packages

Each package is licensed to you by its owner. Microsoft is not responsible for, nor does it grant any licenses to, third-party packages.

xamarin

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All

nuget.org

Motz NuGets

Microsoft and .NET

Updates

Stable Only

Sort by: Most Downloads

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EntityFramework  
.NET Entity Framework is Microsoft's recommended data access technology for new applications.

Json.NET  
.NET Json.NET is a popular high-performance JSON framework for .NET

Install

jQuery  
jQuery is a new kind of JavaScript Library. jQuery is a fast and concise JavaScript Library that simplifies HTM...

WebGrease  
Web Grease is a suite of tools for optimizing javascript, css files and images.

Microsoft ASP.NET MVC  
.NET This package contains the runtime assemblies for ASP.NET MVC.

Microsoft HTTP Client Libraries  
.NET This package provides a programming interface for modern HTTP/REST based applications.

Microsoft ASP.NET Web API 2.2  
.NET This package contains everything you need to host ASP.NET Web API on IIS.

?

xamarin

Created by: James Newton-King

Id: Newtonsoft.Json

Version: 6.0.3

Last Published: 4/27/2014

Downloads: 6189092

License

[View License](#)

[Project Information](#)

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Description:

Json.NET is a popular high-performance JSON framework for .NET

Tags: json

Dependencies:

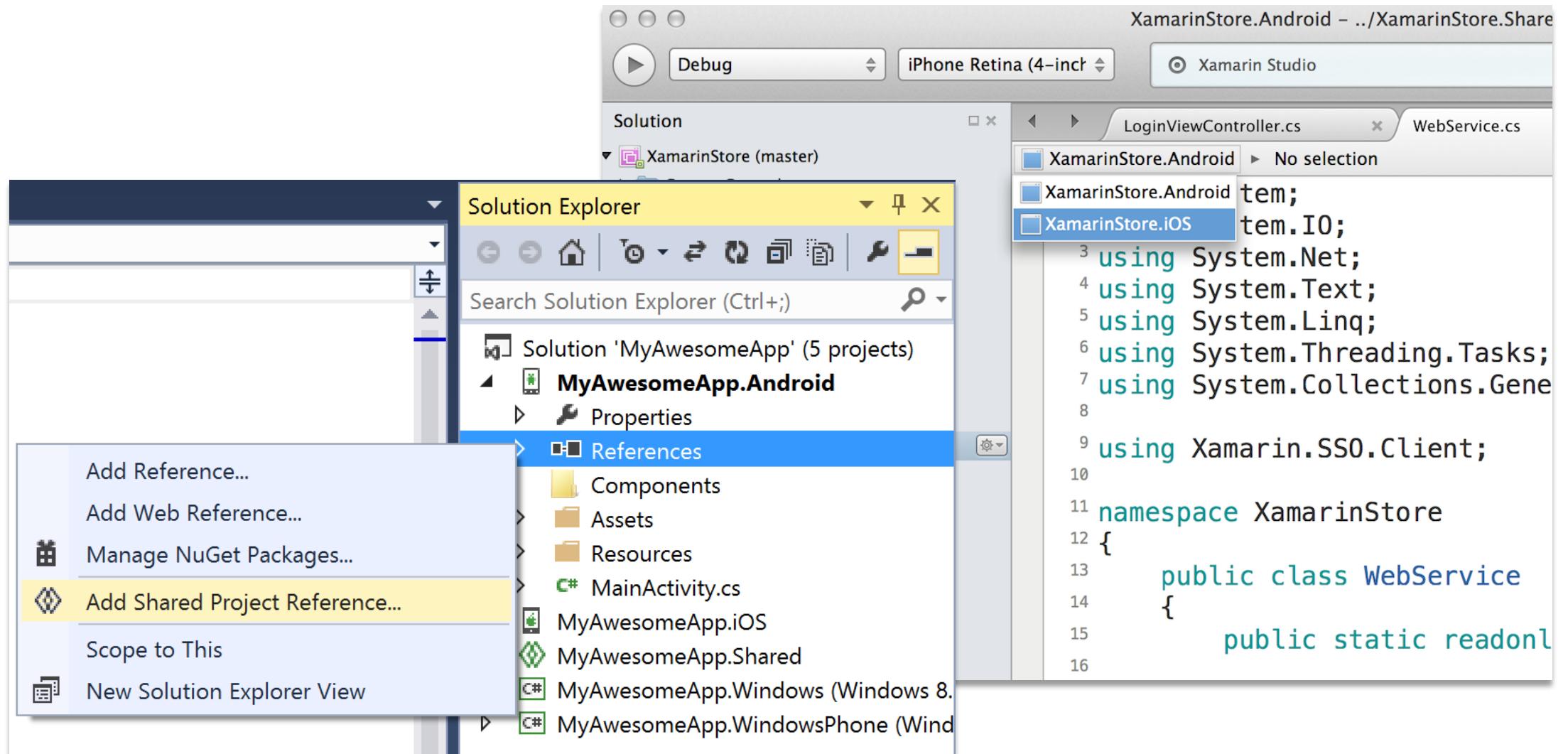
No Dependencies

1 2 3 4 5

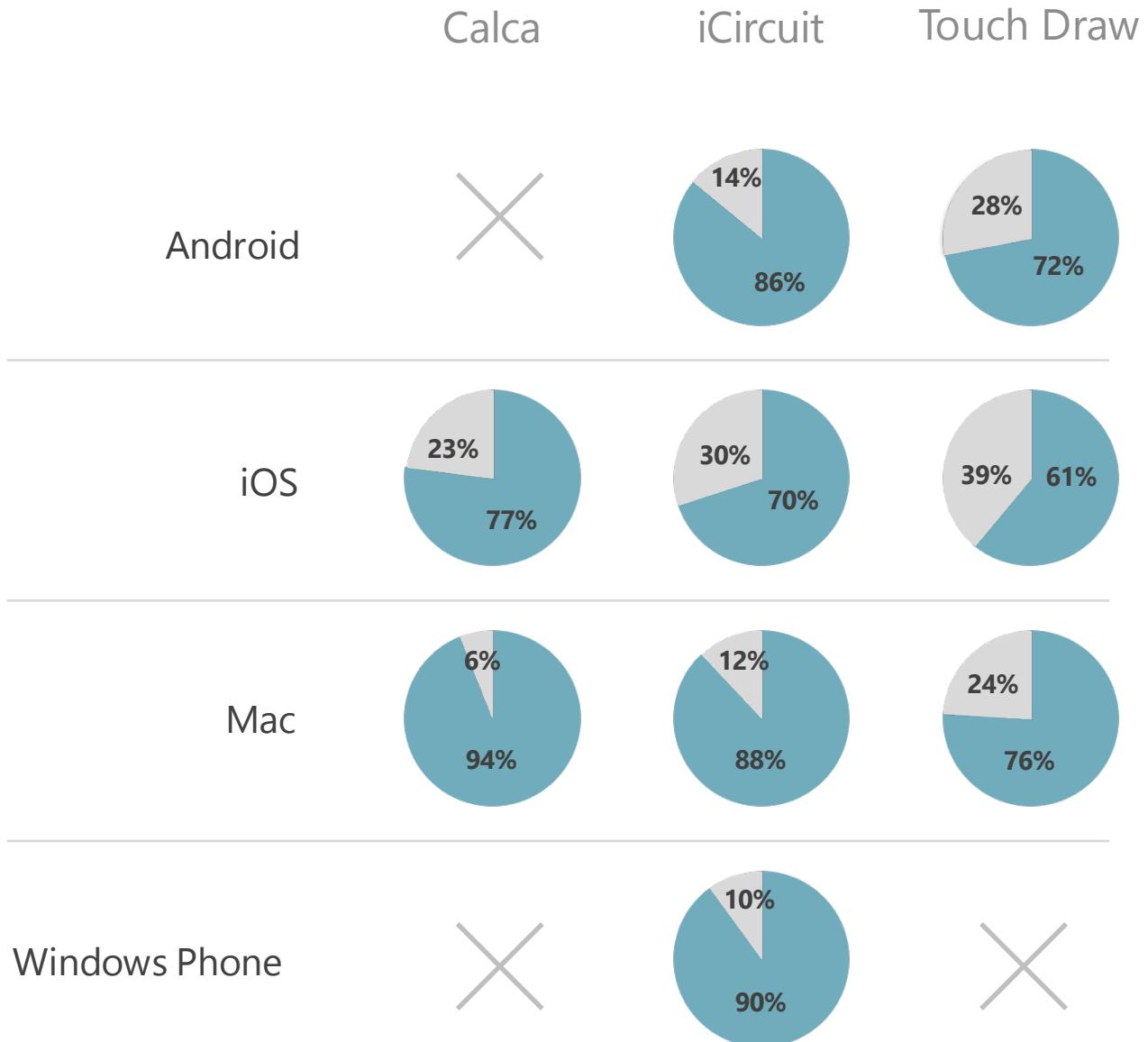
Settings

Close

# Shared Projects



# Code Sharing Stats

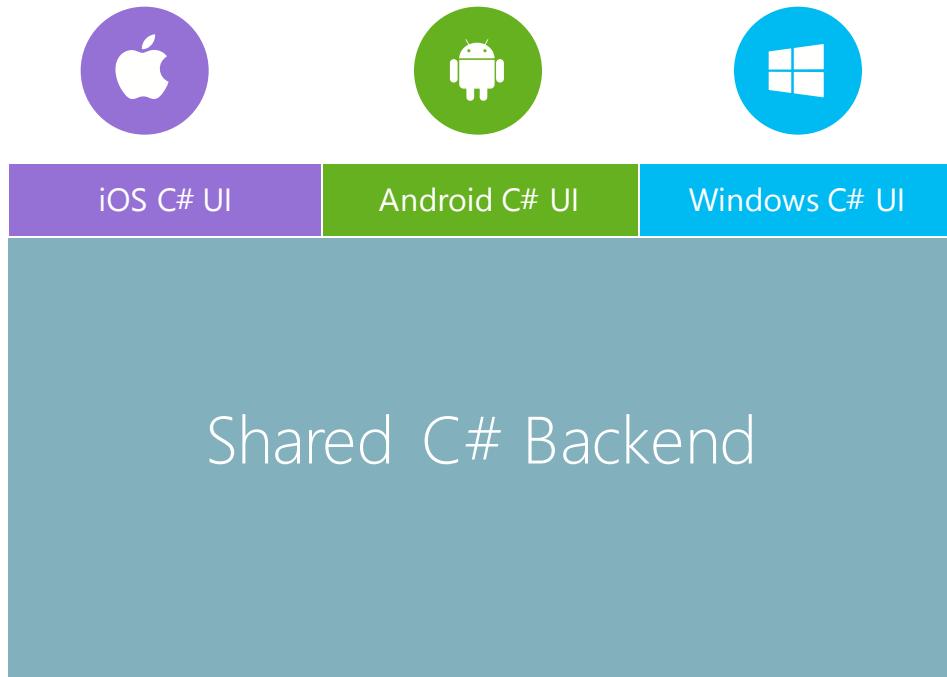


# Meet Xamarin.Forms

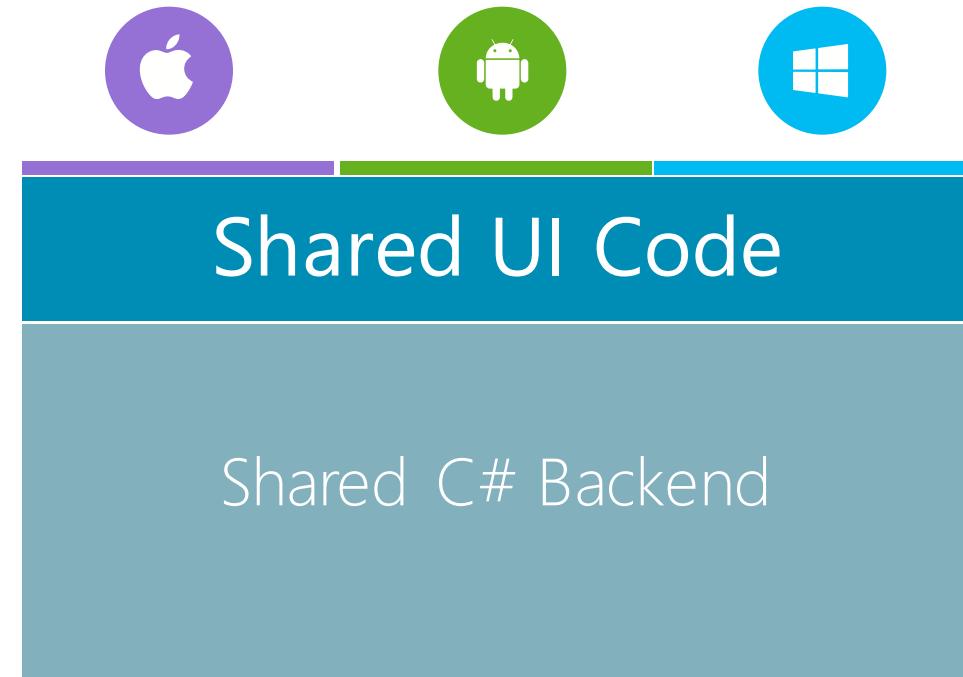


Build native UIs for iOS, Android, and Windows  
from a single, shared C# codebase.

# Xamarin + Xamarin.Forms

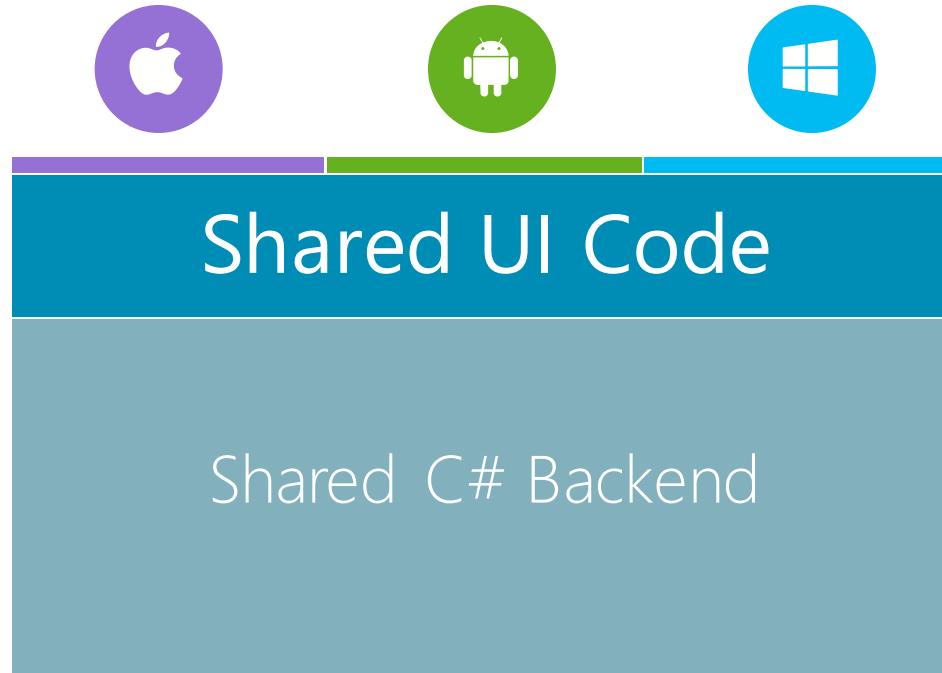


Traditional Xamarin  
Approach



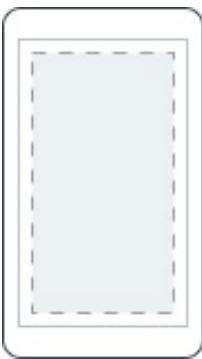
With Xamarin.Forms:  
More code-sharing, all native

# What's included



- ✓ 40+ Pages, layouts, and controls  
(Build from code behind or XAML)
- ✓ Two-way data binding
- ✓ Navigation
- ✓ Animation API
- ✓ Dependency Service
- ✓ Messaging Center

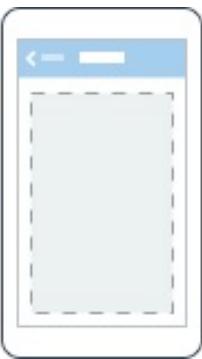
# Pages



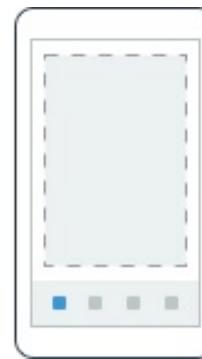
Content



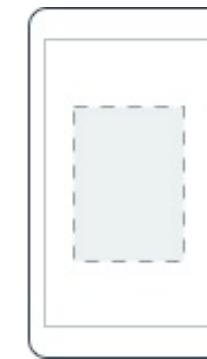
MasterDetail



Navigation

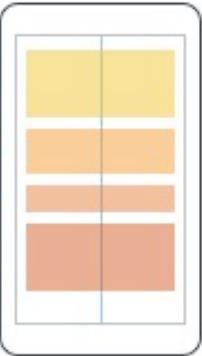


Tabbed

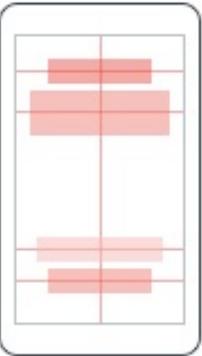


Carousel

# Layouts



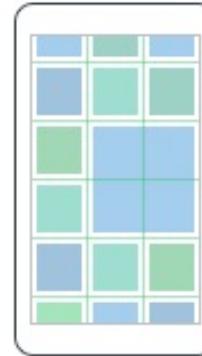
Stack



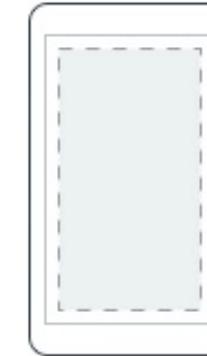
Absolute



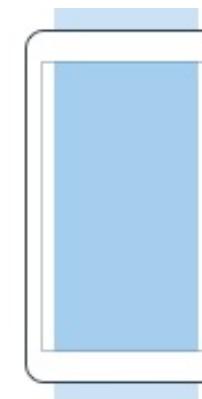
Relative



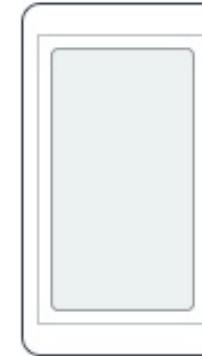
Grid



ContentView



ScrollView



Frame

# Controls

ActivityIndicator	BoxView	Button	DatePicker	Editor
Entry	Image	Label	ListView	Map
OpenGLView	Picker	ProgressBar	SearchBar	Slider
Stepper	TableView	TimePicker	WebView	EntryCell
ImageCell	SwitchCell	TextCell	ViewCell	

Xamarin.Forms  
Button

Clicked  
Text

Android  
Button

Clicked  
Text

iOS  
UIButton

TouchUpInside  
Text

Windows  
Button

Clicked  
Content

# Xamarin.Forms Ecosystem



# Control Comparison

Windows	Xamarin.Forms
StackPanel	StackLayout
TextBox	Entry
ListBox	ListView
CheckBox	Switch
ProgressBar	ActivityIndicator
Grid	Grid
Label	Label
Button	Button
Image	Image
Date/TimePicker	Date/TimePicker

Windows	Xamarin.Forms
DataContext	BindingContext
{Binding Property}	{Binding Property}
ItemsSource	ItemsSource
ItemTemplate	ItemTemplate
DataTemplate	DataTemplate

```
<Label Text="{Binding Color.R,  
        Converter={StaticResource intConverter},  
        ConverterParameter=255,  
        StringFormat='R={0:X2}' }" />
```

## Binding Comparison

```
<StackLayout>
    <Label Text="ROTATION"
        BindingContext="{x:Reference Name=slider}"
        Rotation="{Binding Path=Value}"
        FontAttributes="Bold"
        FontSize="Large"
        HorizontalOptions="Center"
        VerticalOptions="CenterAndExpand" />

    <Slider x:Name="slider"
        Maximum="360"
        VerticalOptions="CenterAndExpand" />

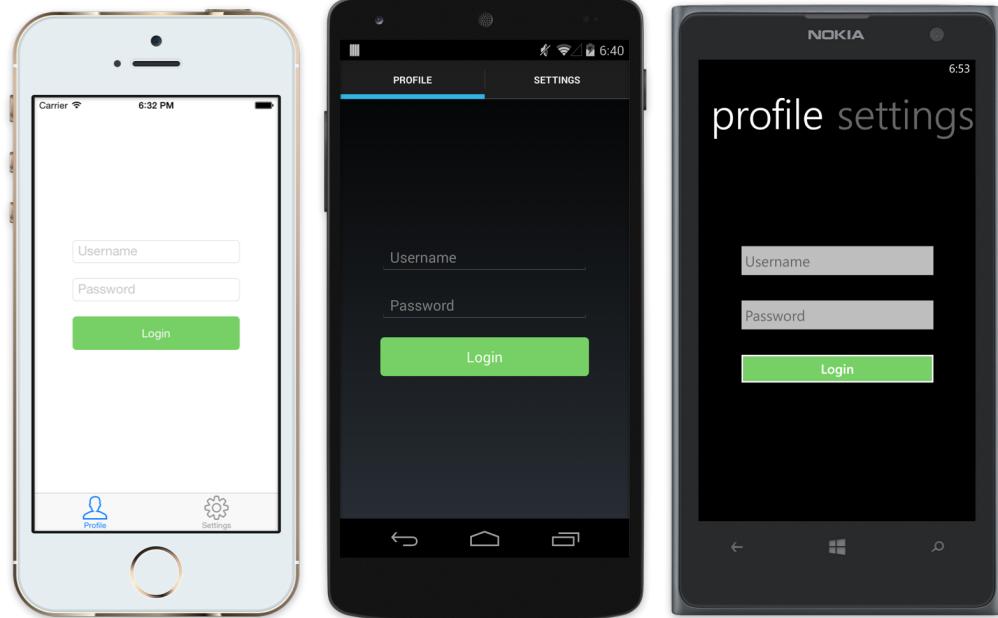
    <Label BindingContext="{x:Reference slider}"
        Text="{Binding Value,
            StringFormat='The angle is {0:F0} degrees'}"
        FontAttributes="Bold"
        FontSize="Large"
        HorizontalOptions="Center"
        VerticalOptions="CenterAndExpand" />
</StackLayout>
```

# Binding Comparison

```
<ContentPage.Padding>
    <OnPlatform x:TypeArguments="Thickness">
        <OnPlatform.iOS>
            0, 20, 0, 0
        </OnPlatform.iOS>
        <OnPlatform.Android>
            0, 0, 0, 0
        </OnPlatform.Android>
        <OnPlatform.WinPhone>
            0, 0, 0, 0
        </OnPlatform.WinPhone>
    </OnPlatform>
</ContentPage.Padding>
```

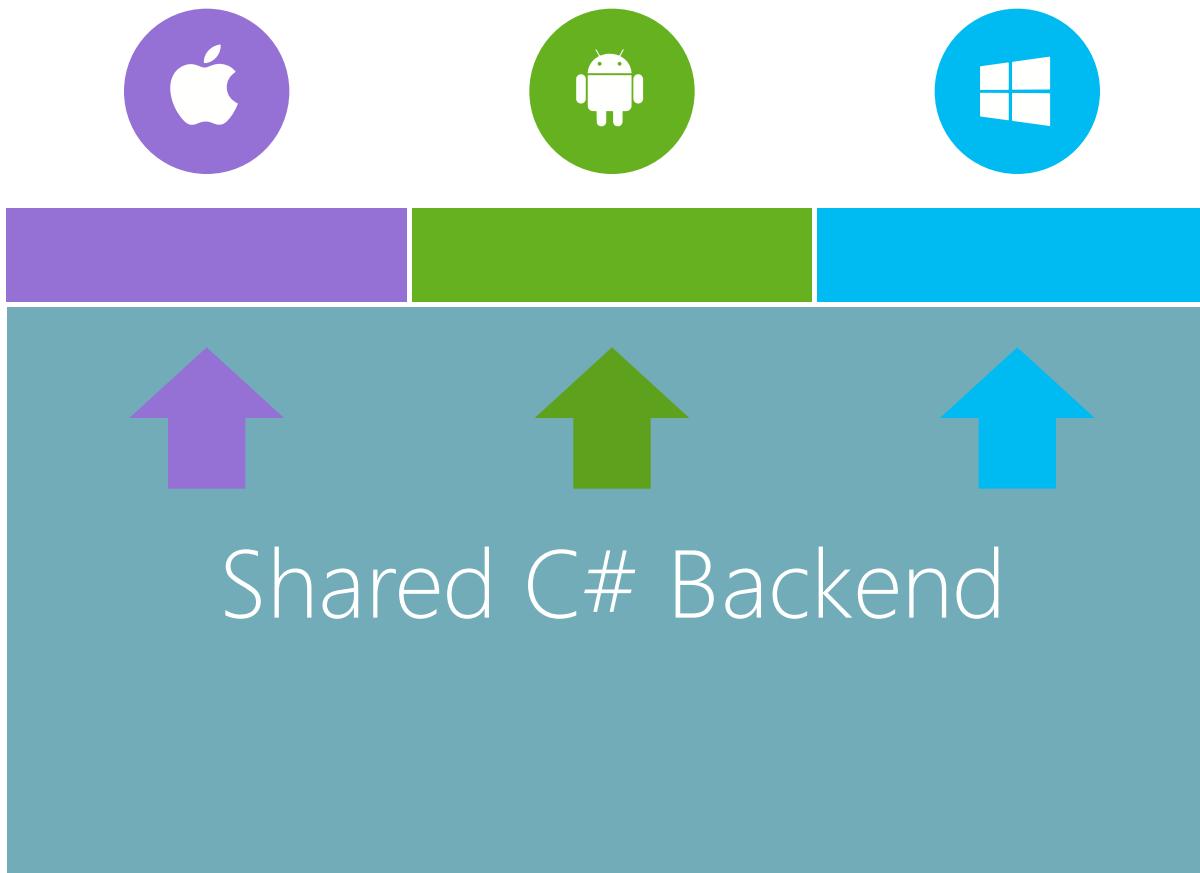
# Platform Customization

# Native UI from shared code



```
<?xml version="1.0" encoding="UTF-8"?>
<TabbedPage xmlns="http://xamarin.com/schemas/2014/forms"
             xmlns:x="http://schemas.microsoft.com/winfx/2009/xaml"
             x:Class="MyApp.MainPage">
<TabbedPage.Children>
<ContentPage Title="Profile" Icon="Profile.png">
    <StackLayout Spacing="20" Padding="20"
                 VerticalOptions="Center">
        <Entry Placeholder="Username"
              Text="{Binding Username}"/>
        <Entry Placeholder="Password"
              Text="{Binding Password}"
              IsPassword="true"/>
        <Button Text="Login" TextColor="White"
               BackgroundColor="#77D065"
               Command="{Binding LoginCommand}"/>
    </StackLayout>
</ContentPage>
<ContentPage Title="Settings" Icon="Settings.png">
    <!-- Settings -->
</ContentPage>
</TabbedPage.Children>
```

Let's Build  
An App





UI+APIs

Battery  
GPS  
Lights  
Notifications  
Settings  
Text To Speech

UI + APIs

Battery  
GPS  
Lights  
Notifications  
Settings  
Text To Speech

UI + APIs

Battery  
GPS  
Lights  
Notifications  
Settings  
Text To Speech

# Platform Specific Code

What if we didn't have to write this code?

What if we could access it from shared code?

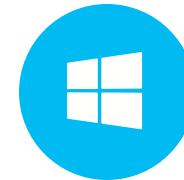
```
Speak("Hello World");
```



AVSpeechSynthesizer

TextToSpeech

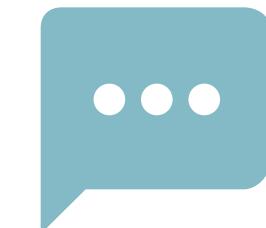
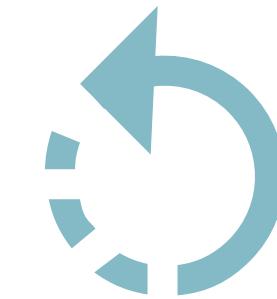
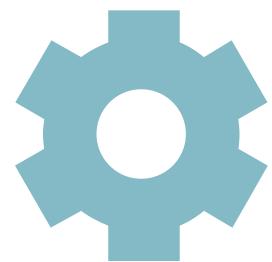
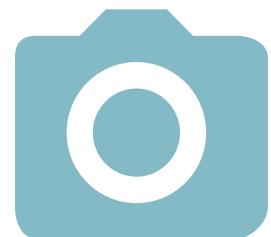
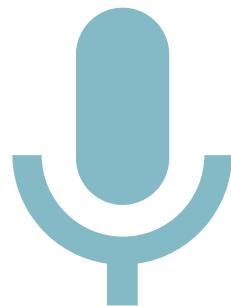
SpeechSynthesizer



# Plugins for Xamarin

[github.com/xamarin/plugins](https://github.com/xamarin/plugins)

Common API



Let's use a plugin!



Get Started Today  
[xamarin.com](http://xamarin.com)



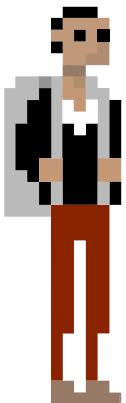
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# Thank you.



James  
Montemagno  
Developer Evangelist, Xamarin

[slideshare.net/JamesMontemagno](http://slideshare.net/JamesMontemagno)

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