

INTRODUCTION TO XAMARIN MOBILE DEVELOPMENT

Part 1: Cross platform Mobile development using Xamarin



xamarin



INTRODUCTION



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INTRODUCTION



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www.microsoft.com



SERIES

PART 1: INTRODUCTION TO XAMARIN MOBILE DEVELOPMENT

Today

PART 2: BUILDING CROSS PLATFORM MOBILE APPLICATIONS USING XAMARIN

September 28, 2016 – 11:00-12:00 CET

PART 3: MOBILE DEV OPS POWERED BY XAMARIN AND MICROSOFT

October 12, 2016 – 11:00-12:00 CET

AGENDA

- APPROACHES TO MOBILE DEVELOPMENT
- INTRODUCTION INTO XAMARIN
- DEMO: XAMARIN IN ACTION

POLL:

What is your level of experience with Xamarin?

APPROACHES TO MOBILE DEVELOPMENT

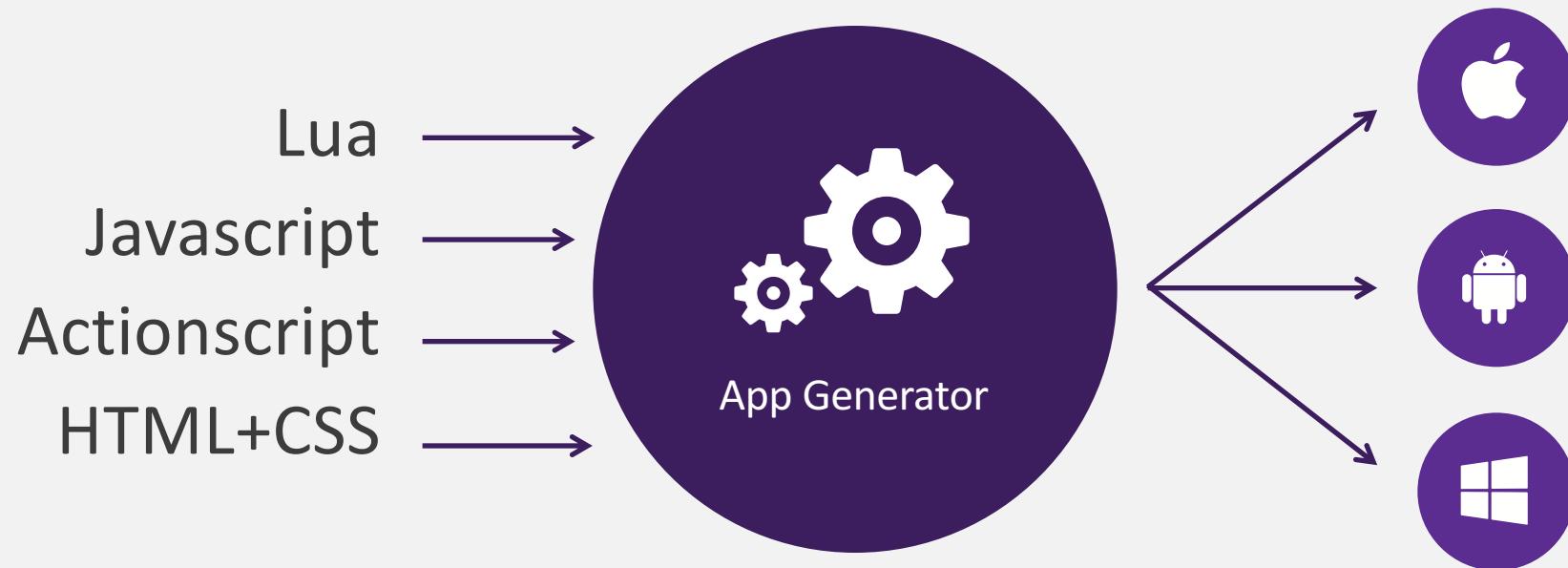
SILO APPROACH



iOS	Android	Windows
Swift /Objective-C Xcode	Java Android Studio	C# Visual Studio

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

WRITE ONCE, RUN EVERYWHERE APPROACH

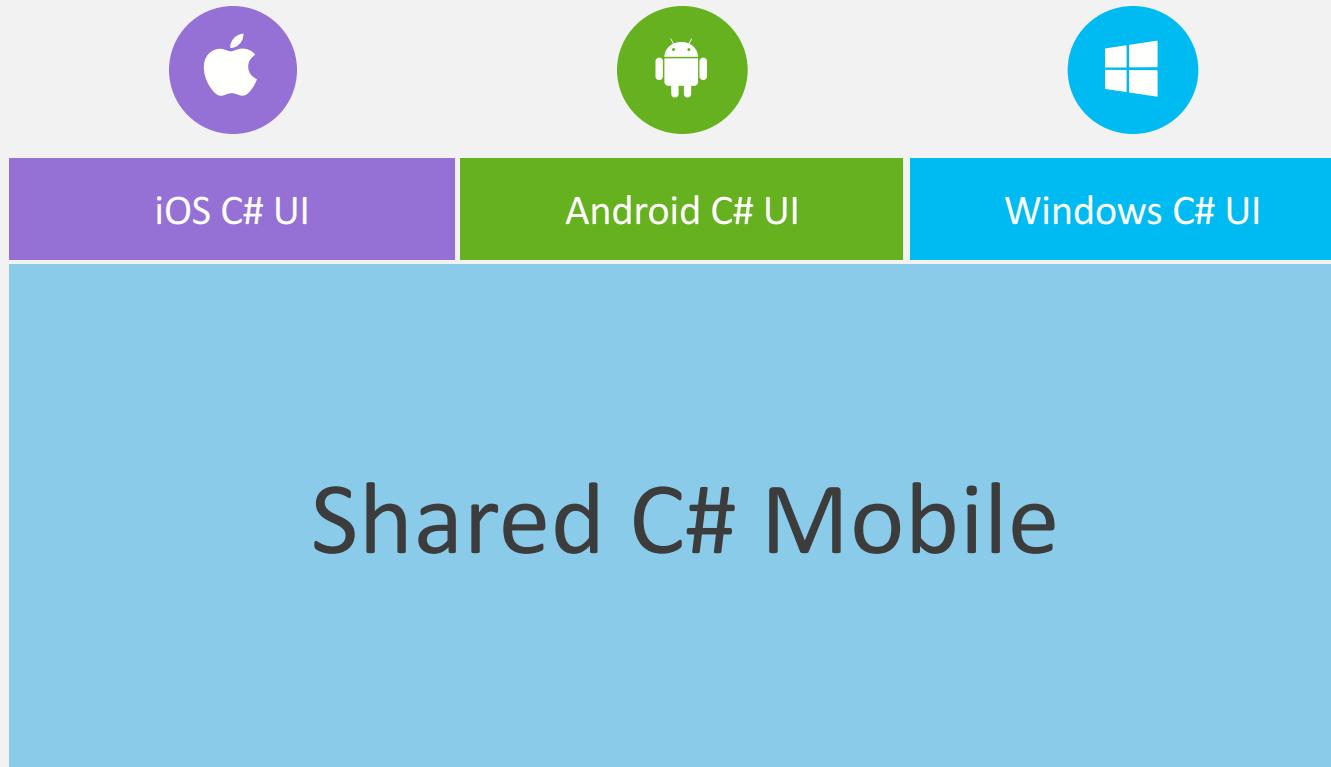


Limited native API access • Slow performance • Poor user experience



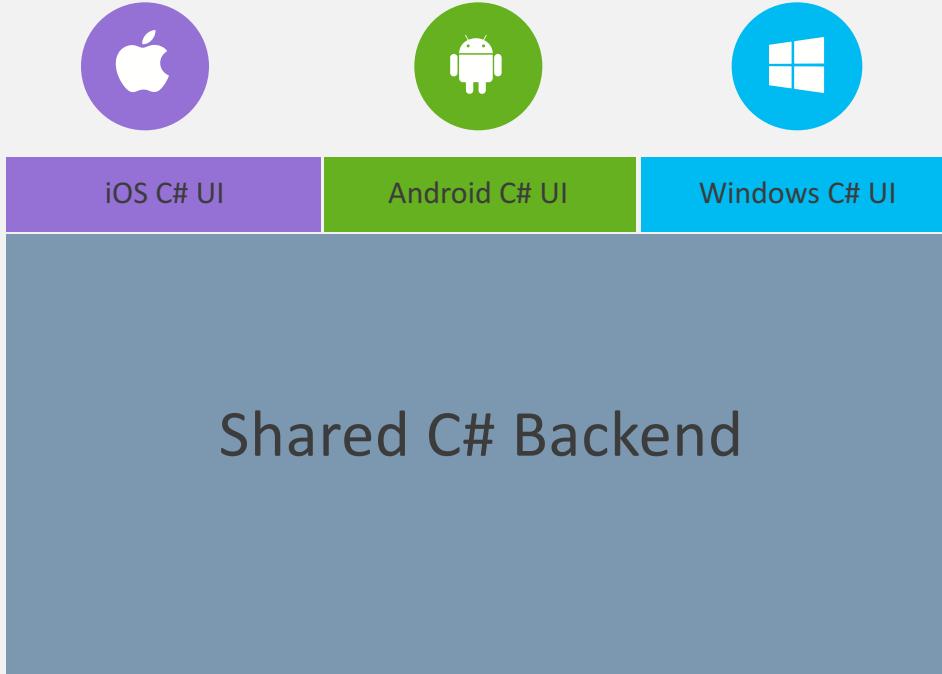
Xamarin

THE XAMARIN APPROACH

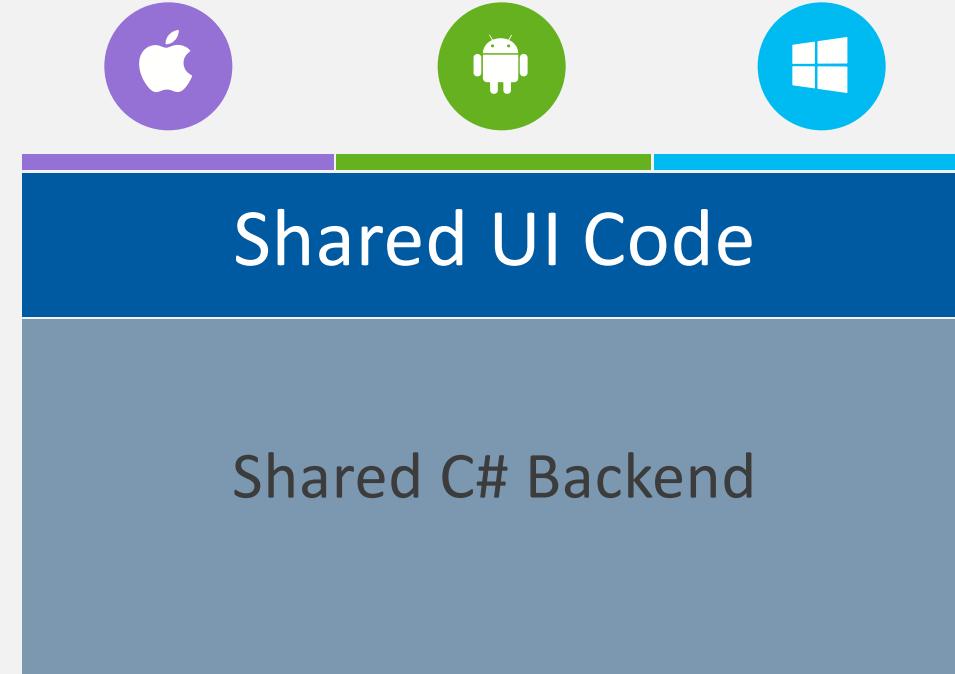


Shared C# codebase • 100% native API access • High performance

XAMARIN + XAMARIN FORMS

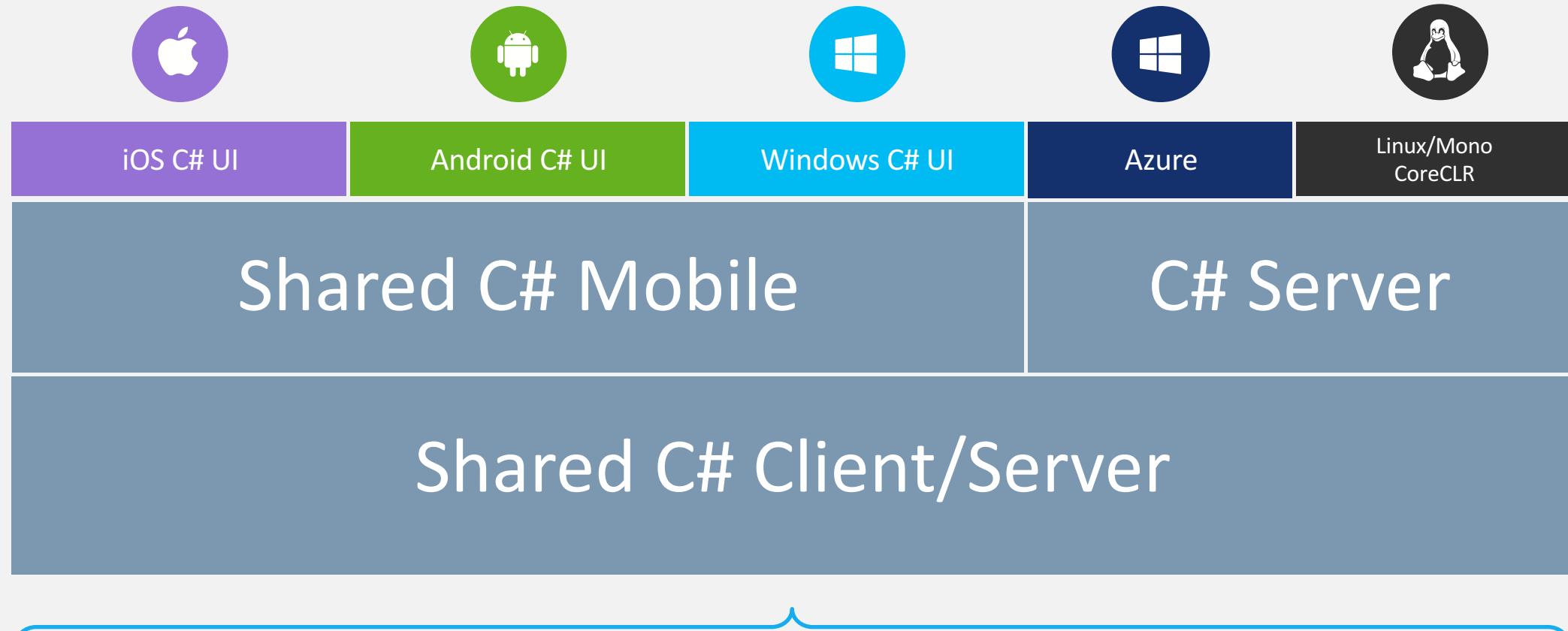


Traditional Xamarin Approach



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

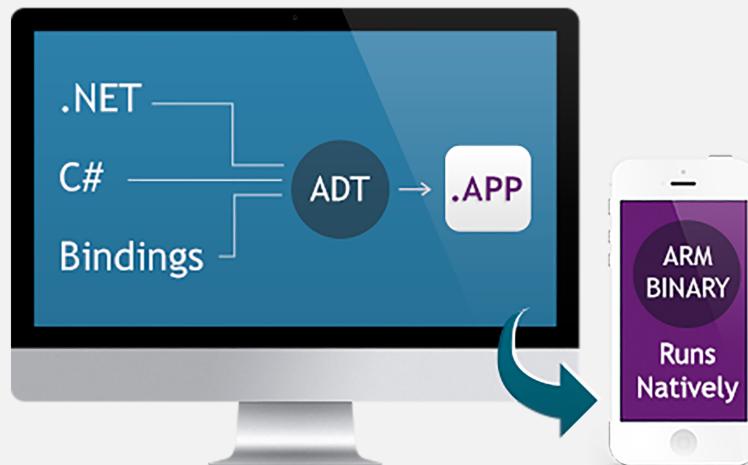
TAKING IT EVEN A STEP FURTHER



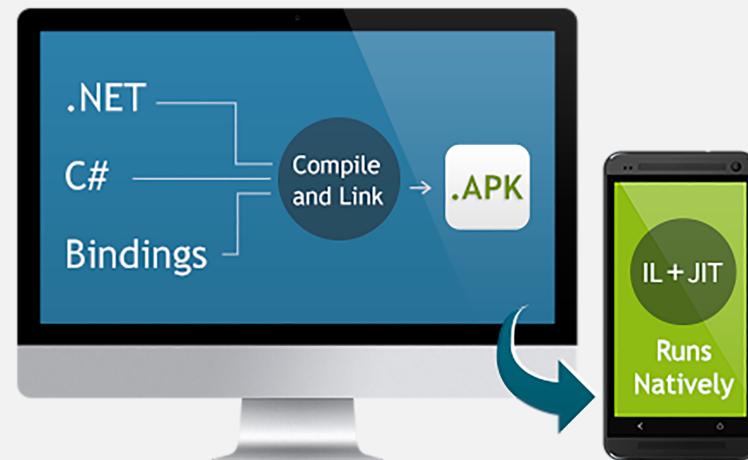
Shared C# codebase • 100% native API access • High performance

TRULY NATIVE CROSS-PLATFORM SOLUTION

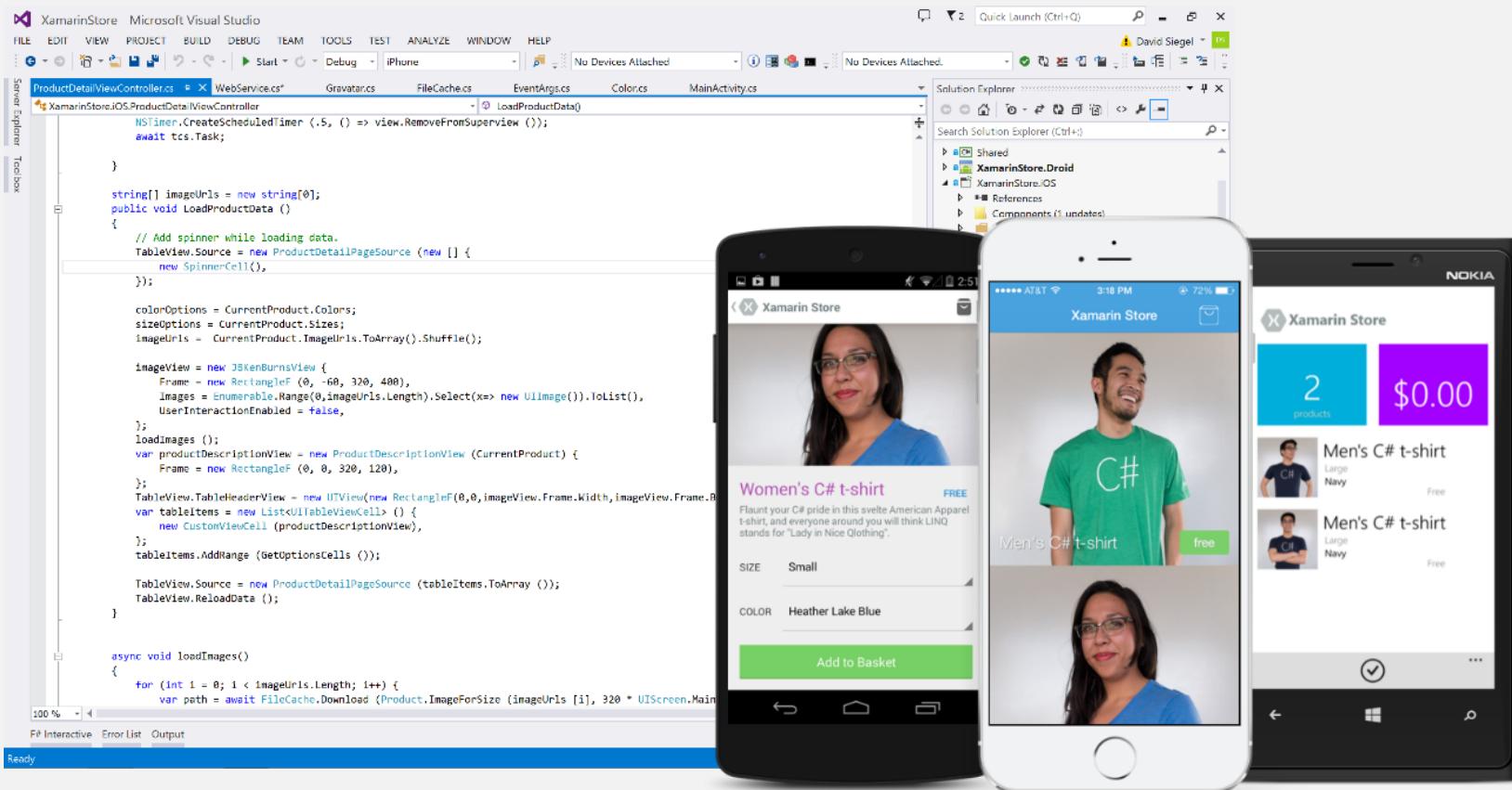
XAMARIN.IOS DOES FULL AHEAD OF TIME (AOT) COMPILATION TO PRODUCE AN ARM BINARY FOR APPLE'S APP STORE.



XAMARIN.ANDROID TAKES ADVANTAGE OF JUST IN TIME (JIT) COMPILATION ON THE ANDROID DEVICE.



ANYTHING YOU CAN DO IN OBJECTIVE-C, SWIFT, OR JAVA CAN BE DONE IN C# AND VISUAL STUDIO WITH XAMARIN.



POLL:
WHAT MOBILE PLATFORMS YOU ARE TARGETING?

C# ON IOS, ANDROID AND WINDOWS

C# IS AWESOME

```
from p in Table<Person> ()  
    where p.ID == id  
    select p;
```

LINQ Support

```
var doc = XDocument.Load(url);  
foreach(var item in doc.Root.Elements()) {  
    var text = item.Value;  
}
```

Work with XML Easily

```
button.TouchUpInside += (s, o) => {  
    message.Text = "Hello!";  
};
```

Event Handling & Delegates

JSON MADE EASY

Json.NET offers simple conversations to/from JSON strings and .NET objects:

```
public class Person
{
    public string Name { get; set; }
    public DateTime Birthday { get; set; }
}
var person = new Person { Name = "Bob", Birthday = new DateTime (1987, 2, 2) };
var output = Newtonsoft.Json.JsonConvert.SerializeObject (person);

person = Newtonsoft.Json.JsonConvert.DeserializeObject<Person> (output);
Console.WriteLine ("{0} - {1}", person.Name, person.Birthday);
```

ASYNC / AWAIT

```
public async Task ExecuteGetPodcastsCommand()
{
    if (IsBusy)
        return;

    try
    {
        IsBusy = true;
        var client = new HttpClient();
        // Request from server podcast xml
        var podcastString = await client.GetStringAsync(PodcastUrl);

        // Parse Xml into data model and load into list
        var casts = await ParseXml(podcastString);

        foreach (var cast in casts)
        {
            Podcasts.Add(cast);
            FilteredPodcasts.Add(cast);
        }
    }
}
```

WINDOWS API'S

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

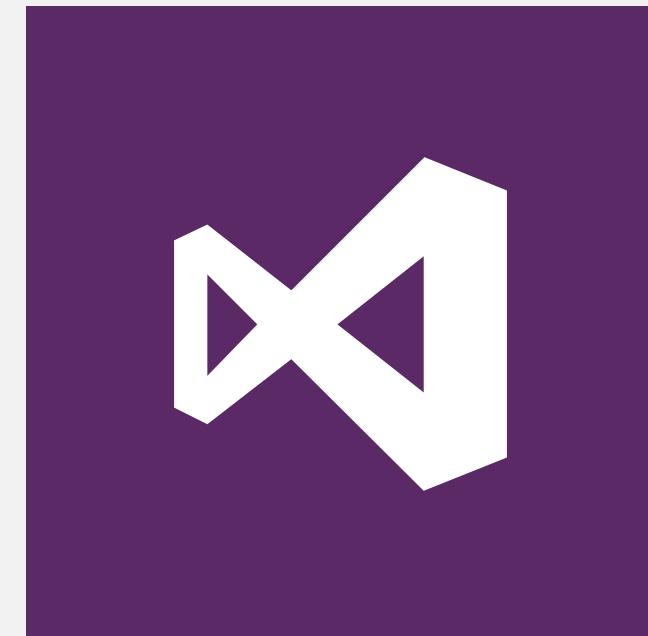
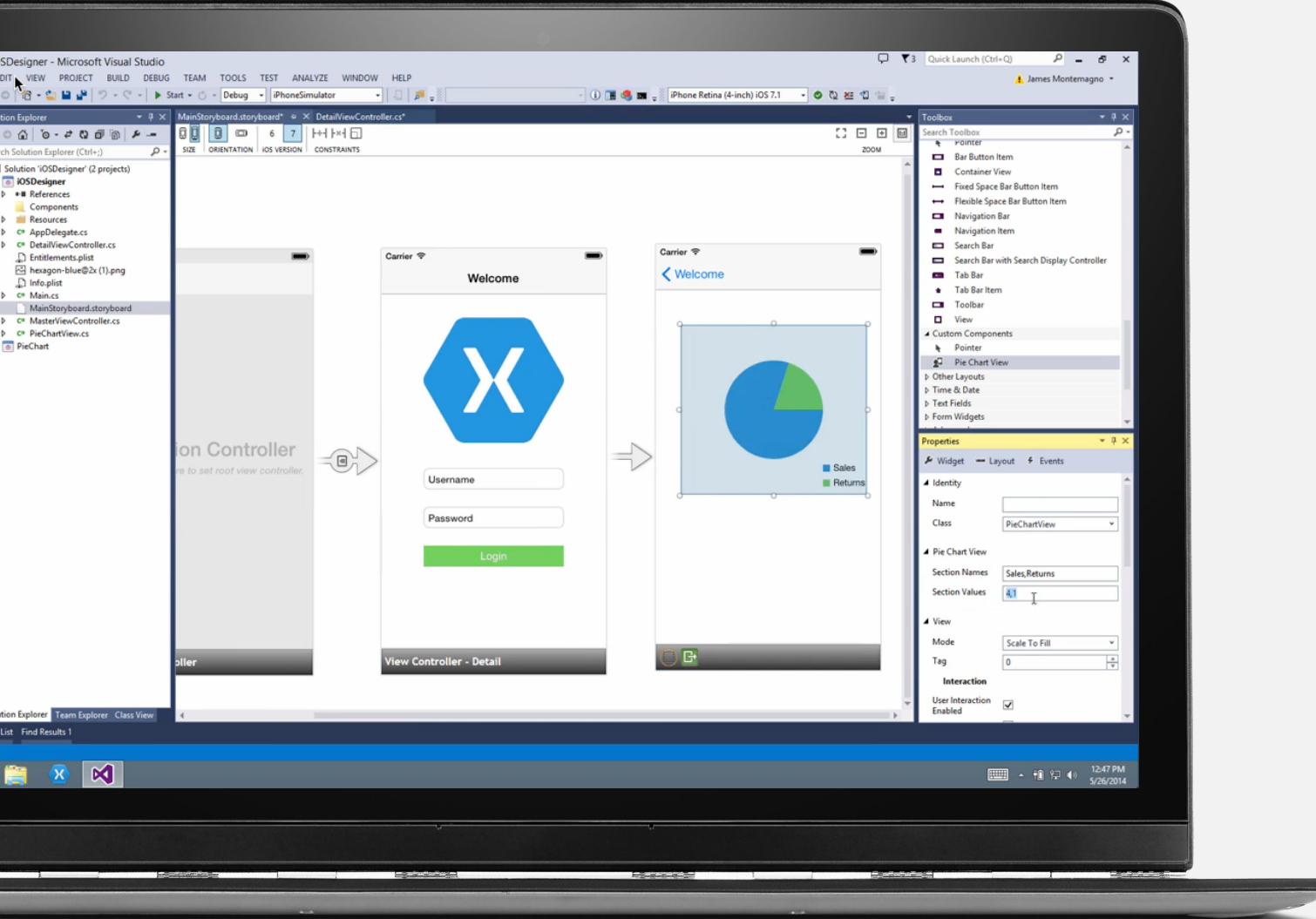
Text-to-speech	ActionBar	Printing Framework	Renderscript	NFC
System.Net	System	System.IO	System.Linq	System.Xml
System.Data	System.Windows	System.Numerics	System.Core	System.ServiceModel



C#

TOOLS

VISUAL STUDIO INTEGRATION



XAMARIN STUDIO



Xamarin Studio Business

New Project

Choose a template for your new project

Multiplatform

- App
- Library
- Tests

iOS

- App
- Library
- Tests

tvOS

- App
- Library

Mac

- App
- Library

Other

- .NET
- ASP.NET
- Miscellaneous

C# ▾

Solution

- CoffeeCups (master)
 - CoffeeCups
 - CoffeeCups.Droid
 - CoffeeCups.iOS**
 - References
 - Components
 - Packages (6 updates)
 - Helpers
 - Authentication.cs
 - Settings.cs
 - Resources
 - Images.xcassets
 - LaunchScreen.xib
 - app.config
 - AppDelegate.cs
 - Entitlements.plist
 - Info.plist
 - Main.cs
 - packages.config
 - CoffeeCups.UITests
 - CoffeeCups.UWP

AzureService.cs

```
1 using System;
2 using System.Threading.Tasks;
3 using Microsoft.WindowsAzure.MobileServices;
4 using CoffeeCups.iOS;
5 using CoffeeCups;
6 using Foundation;
7 using Xamarin.Forms;
8
9 [assembly: Dependency(typeof(AzureService))]
10 namespace CoffeeCups.iOS
11 {
12     public class AzureService : IAzureService
13     {
14         public async Task<User> LoginAsync(MobileServiceClient client, MobileServiceAuthProvider provider)
15         {
16             try
17             {
18                 var user = await client.LoginAsync(provider);
19                 return user;
20             }
21             catch (Exception ex)
22             {
23                 // Handle exception
24             }
25         }
26     }
27 }
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45 }
```

Source Changes Blame Log Cancel

VISUAL STUDIO INTEGRATION

Windows / VS

OSX / XS



Supported

Supported



Supported *

Supported

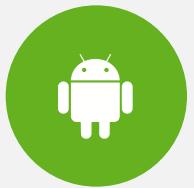


Supported

Not supported

* Requires connection with OSX build host

ADDITIONAL REQUIRED TOOLING



JAVA JDK + Android SDK



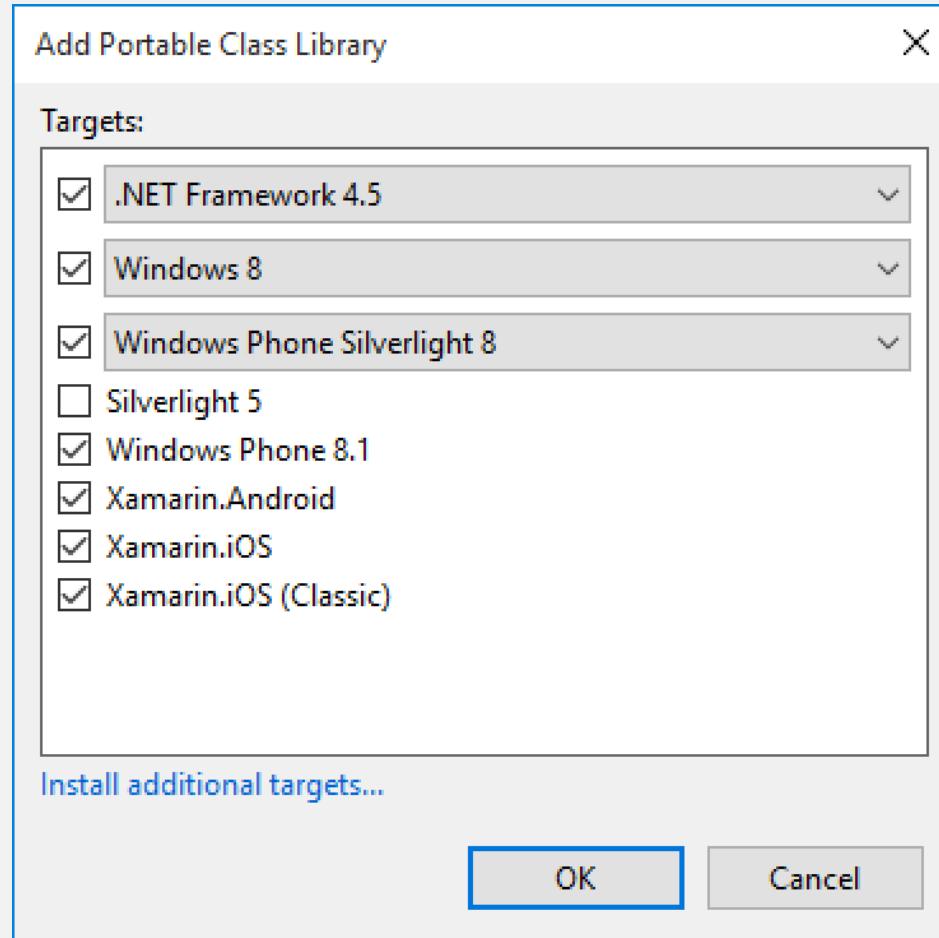
XCODE / iOS SDK



Windows UWP SDK

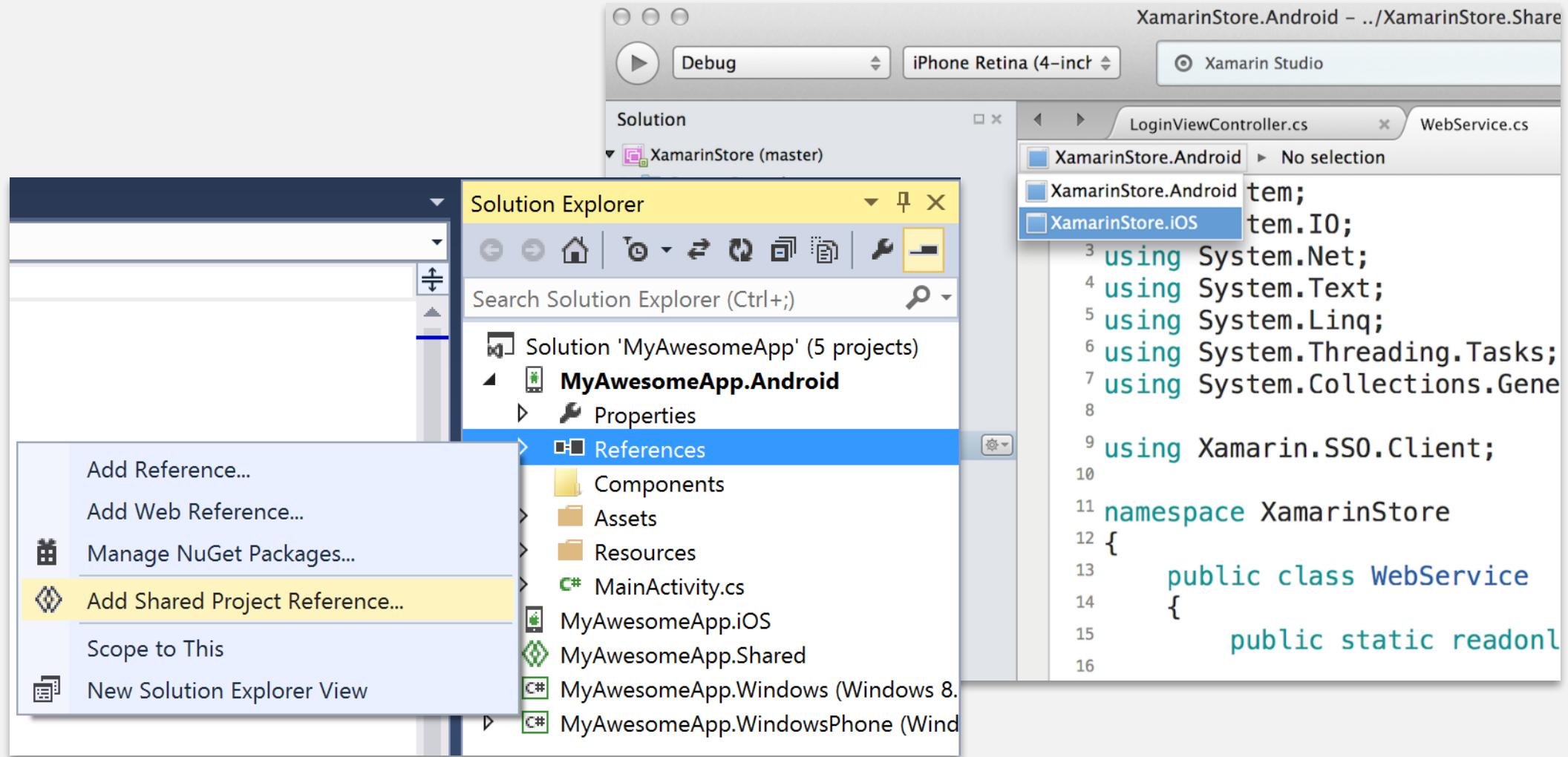
SHARING CODE

PORTABLE CLASS LIBRARIES



**1 ASSEMBLY
MULTIPLE PLATFORMS**

SHARED LIBRARIES



NUGET

Add Packages

nuget.org

xamarin

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

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

Xamarin.Mobile
Xamarin.Mobile is a library that exposes a single set of API...

Xamarin.InAppBilling
Component to assist in adding In-App Billing to a Xamarin...

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...

Show pre-release packages

Installed packages

Online

All

.NET

nuget.org

Motz NuGets

Microsoft and .NET

Updates

Stable Only

Sort by: Most Downloads

xamarin

EntityFramework
.NET Entity Framework is Microsoft's recommended data access...

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.

Created by: James Newton-King

Id: Newtonsoft.Json

Version: 6.0.3

Last Published: 4/27/2014

Downloads: 6189092

License

View License

Project Information

Report Abuse

Description:

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

Tags: json

Dependencies:

No Dependencies

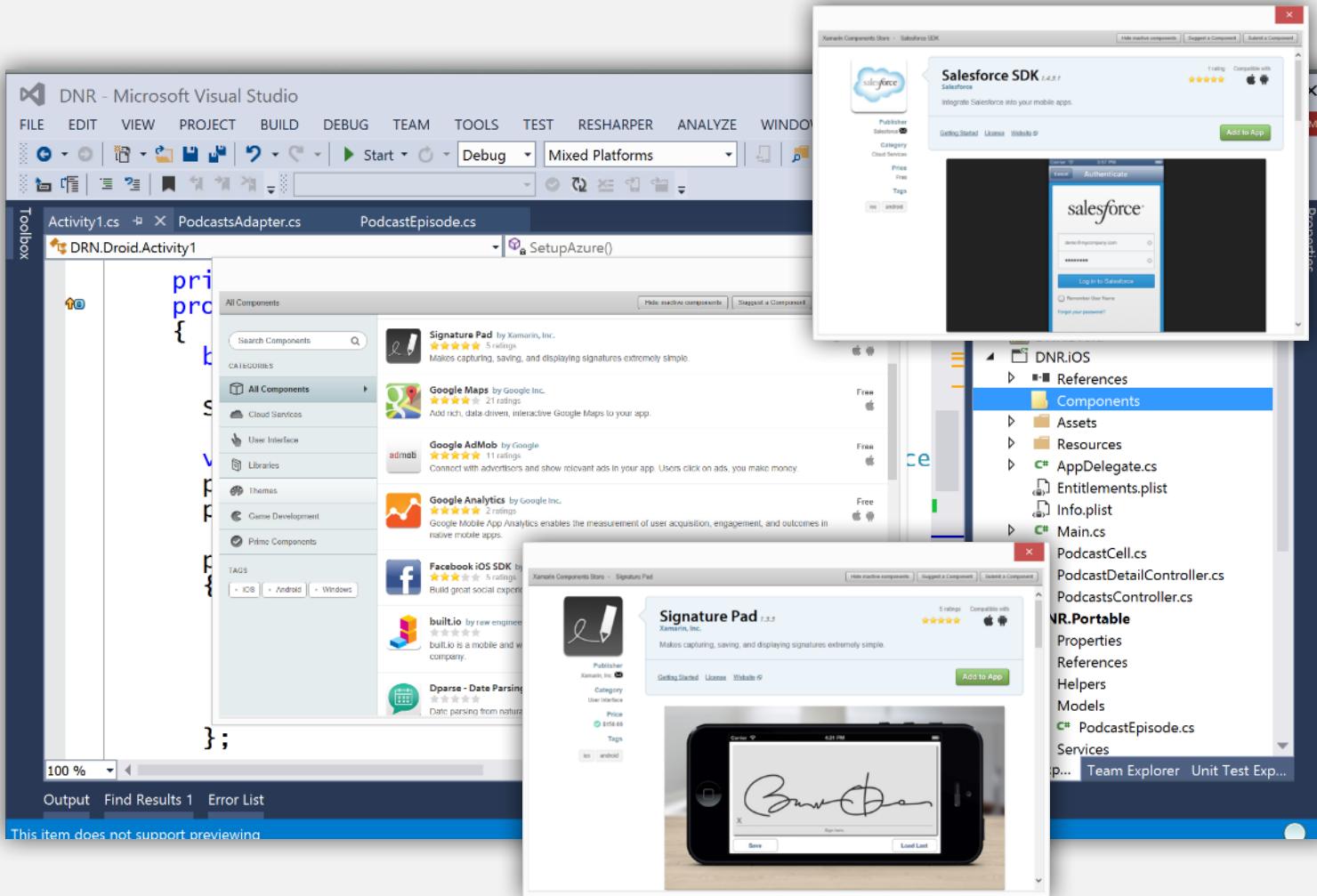
Each package is licensed to you by its owner. Microsoft is not responsible for, nor does it grant any licenses to, third-party packages.

Settings

Close

1 2 3 4 5

COMPONENTS



DEMO

XAMARIN IN ACTION

DEMO APP: XAMLOC

NATIVE IOS, ANDROID AND WINDOWS XAMARIN APP

App that uses GPS to find out in which county the users is and allows the user to upload county + username to backend so we can get an overview where our webcast viewers are from.



IOS AND ANDROID AVAILABLE IN STORES

<http://tinyurl.com/jjcklb5>

<http://tinyurl.com/hxyg5fl>

<https://github.com/chriskeynl/xamwebcasts>

THAT IS ALL FOR TODAY

ANY QUESTIONS?

EMAIL:

chris.key@opencirclesolutions.nl

LINKED IN:

<https://www.linkedin.com/in/keychris>

RESOURCES

SLIDES AND SOURCE FOR DEMO APP

<https://github.com/chriskeynl/xamwebcasts>

XAMARIN RESOURCES

https://developer.xamarin.com/guides/cross-platform/getting_started

DEMO APP: XAMLOC IOS

<http://tinyurl.com/hxyg5f1>

DEMO APP: XAMLOC ANDROID

<http://tinyurl.com/jjcklb5>