



Visual Studio **LIVE!**  
EXPERT SOLUTIONS FOR .NET DEVELOPERS

SQL Server **LIVE!**  
TRAINING FOR DBAs AND IT PROS

**TECHMENTOR**

Artificial  
Intelligence **LIVE!**  
AI FOR DEVELOPERS AND DATA SCIENTISTS

Office &  
SharePoint **LIVE!**  
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Modern Apps **LIVE!**  
MOBILE, CROSS-DEVICE & CLOUD DEVELOPMENT

WIFI: live 360  
pin: live360

# VSS02 – HOL Xamarin Introduction to Xamarin

Marcel de Vries & Roy Cornelissen

*The Ultimate Education Destination*

2018  
**Orlando**



Level: Introductory - Intermediate

# Agenda

- Introduction to Xamarin
- (break at 11)
- Cross Platform UI with Xamarin.Forms
- *Lunch – 13:00 PM-14:00 PM*
- Breaking Through the Abstractions
- (break at 4PM)
- Mobile First Architecture
- Done at 6
- Resilient Connected Clients (bonus session)

# HI. I'M ROY



@roycornelissen  
[blog.roycornelissen.com](http://blog.roycornelissen.com)



# HI. I'M MARCEL



CTO  
Xpirit Netherlands  
@marcelv <http://fluentbytes.com>



Go to [www.menti.com](http://www.menti.com) and use the code 64 04 79

# What do you know about the Dutch/the Netherlands

 [Mentimeter](#)



Voting is closed

[Open voting](#)

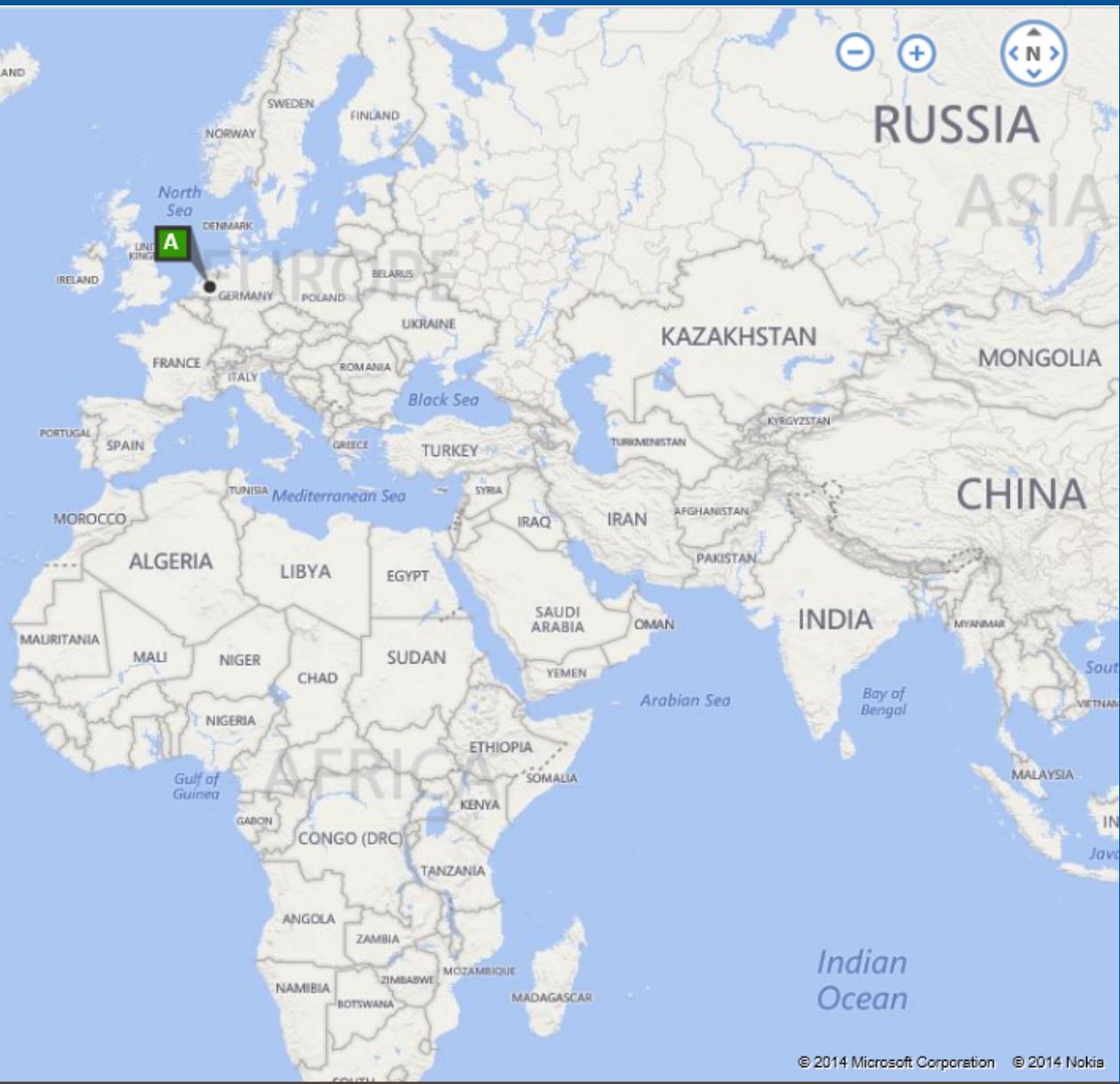
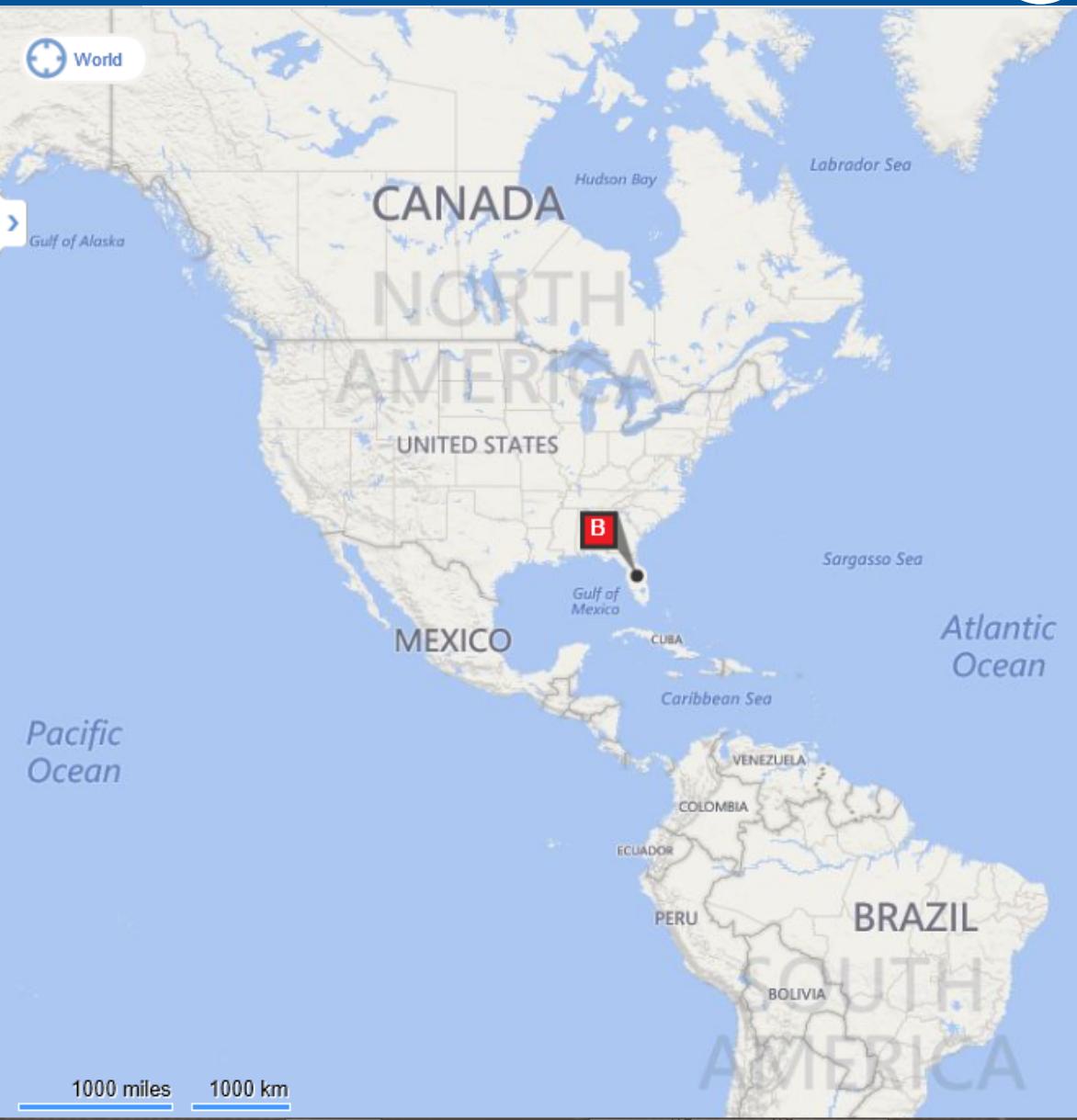


Slide is not active

[Activate](#)

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# The Dutch guys...



1000 miles 1000 km









Treasure hunt....



Let's get started.....



Go to [www.menti.com](http://www.menti.com) and use the code 64 04 79

## How would you rate your current Xamarin skills?

 Mentimeter



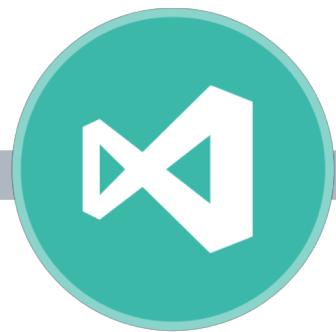
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# Native iOS & Android Development with Xamarin

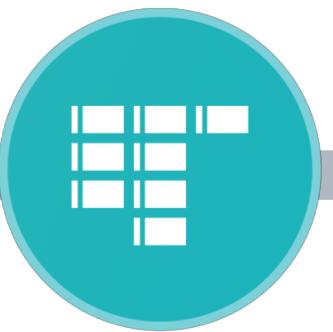
# Xamarin – Your Complete Mobile Solution



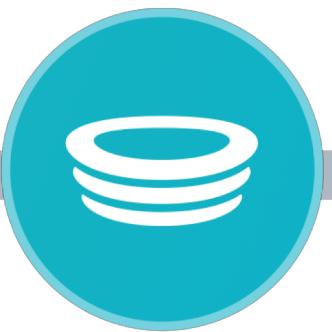
Develop



Test



Build



Distribute



Monitor

Xamarin test cloud > MonkeyChat > master > May 24, 2016 7:37 PM

New Test Run | Support | Docs | James ▾

Overview

RECODER TEST  
ScrollToEvent[AppView: Class=Xamarin.TestRec...

Filter devices

ALL RESULTS

Recorder Test

New Test

Tapped on view with class: AppCompatButton 6⚡  
Tapped on view with class: EntryEditText  
Tapped on view with class: AppCompatButton  
Tapped on view with class: EntryEditText 1⚡

HTC One A9 Android 6.0.1

Huawei Nexus 6P Android 6.0.1

LG Nexus 5X Android 6.0.1

Samsung Galaxy S6 Android 5.1.1

HTC One M9 Android 5.0.2

Samsung Galaxy S6 Ed... Android 5.0.2

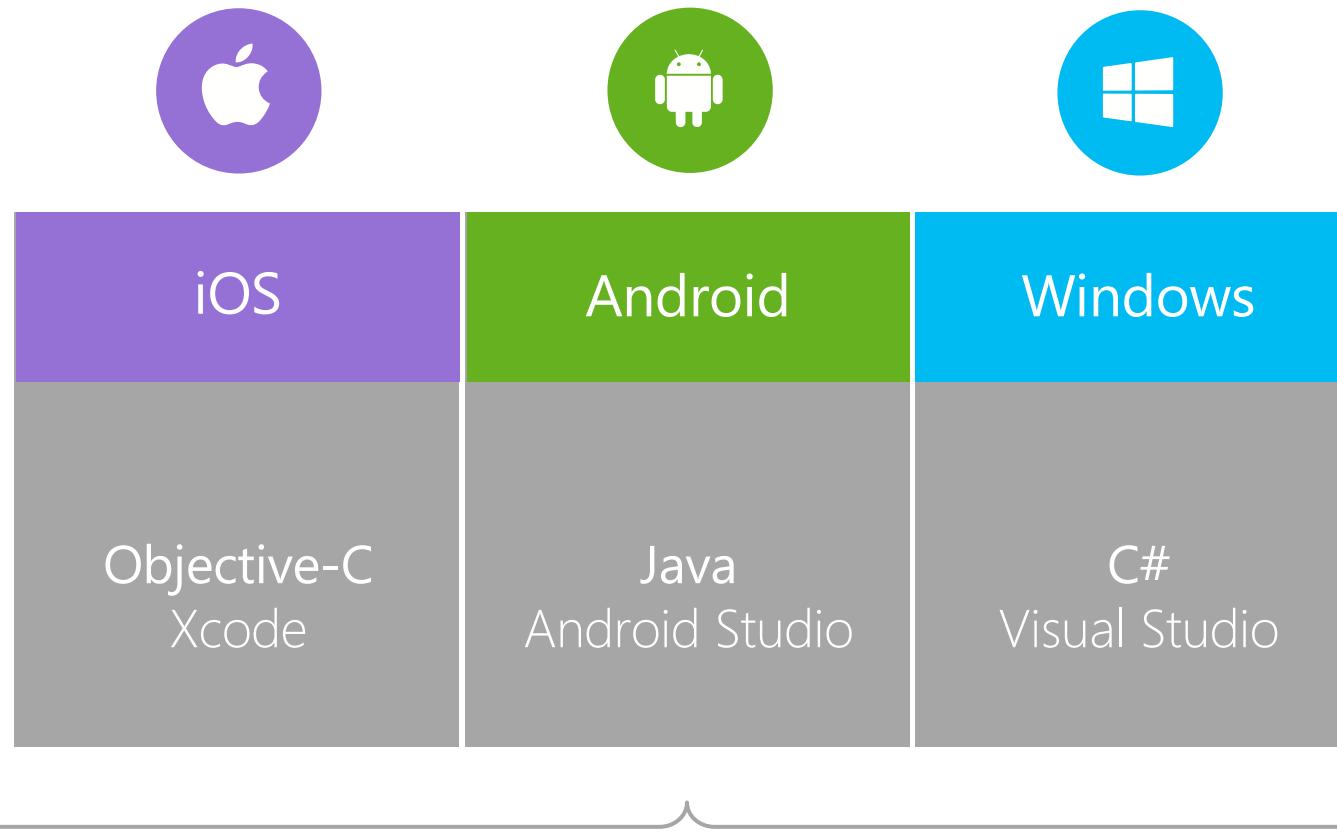
Samsung Galaxy S5 Android 5.0

Samsung Galaxy Note ... Android 4.3

The screenshot shows the Xamarin Test Cloud interface. At the top, there's a navigation bar with 'Xamarin test cloud', a breadcrumb trail ('MonkeyChat > master > May 24, 2016 7:37 PM'), and user account information ('James'). Below the navigation is a search bar and a 'Filter devices' button. The main area has tabs for 'Overview' and 'Recorder Test'. Under 'Recorder Test', it shows a log entry: 'RECODER TEST ScrollToEvent[AppView: Class=Xamarin.TestRec...]' with a red error icon. On the left, there's a sidebar with 'ALL RESULTS', 'Recorder Test' (selected), and 'New Test' sections, along with a list of tap events. The main content area displays a grid of 12 smartphone icons representing different device models and Android versions. Each device icon has its name and version number below it. The first few devices show a simple gray screen, while the last few show a screenshot of a map application.

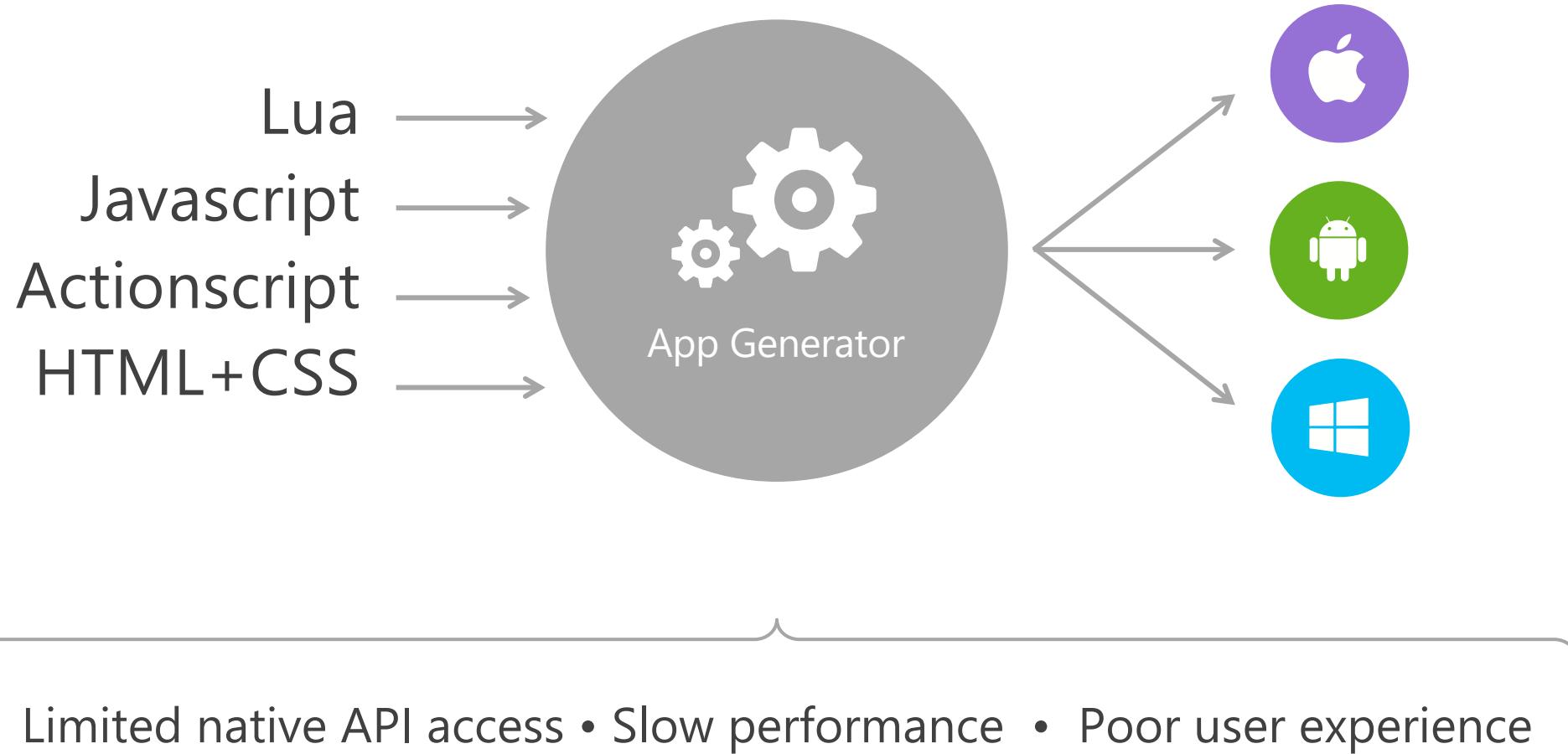
# Architecting Mobile Apps

# Silo Approach

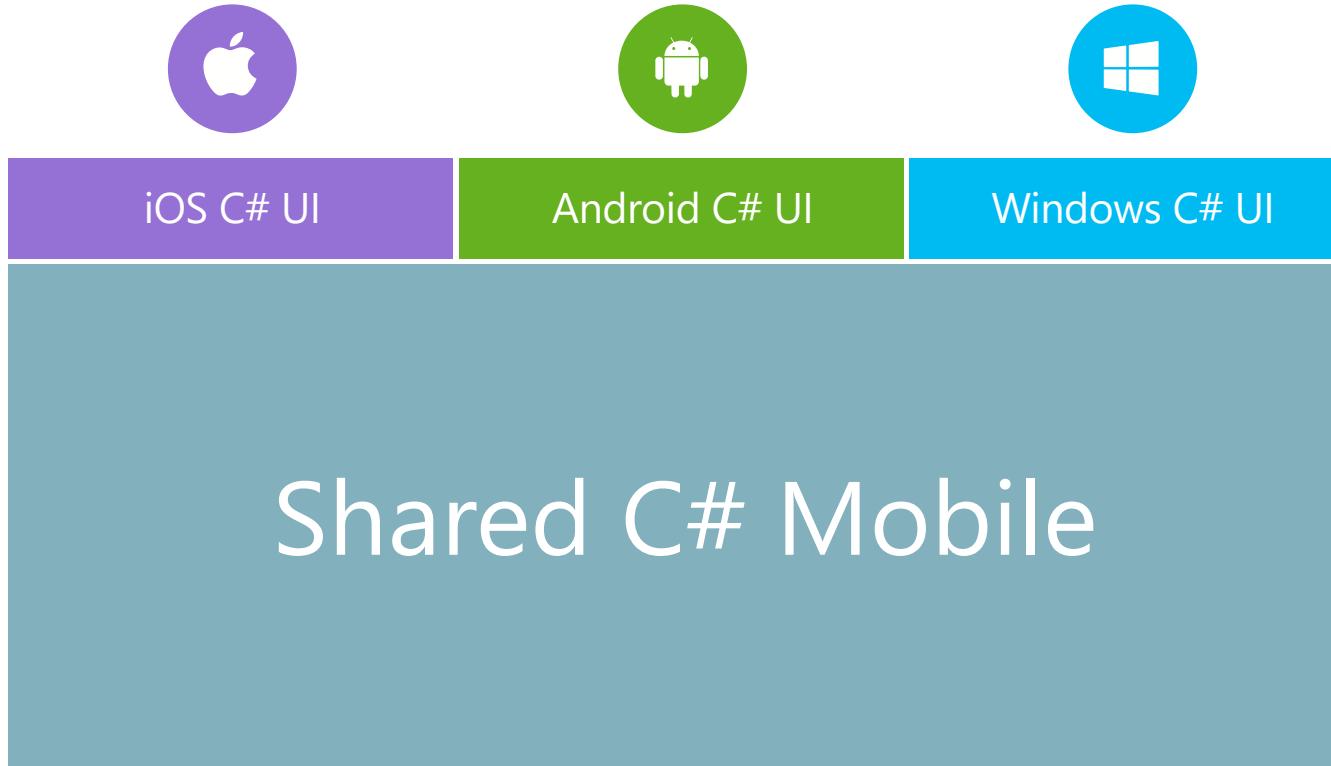


No shared code • Many languages & development environments • Multiple teams

# Write Once, Run Anywhere



# 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#

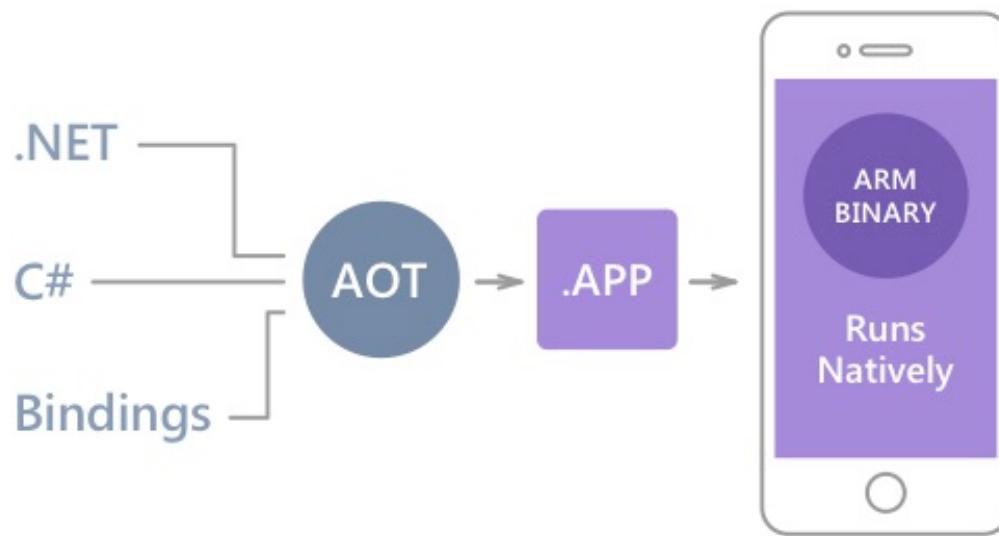
# Android – 100% API Coverage

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

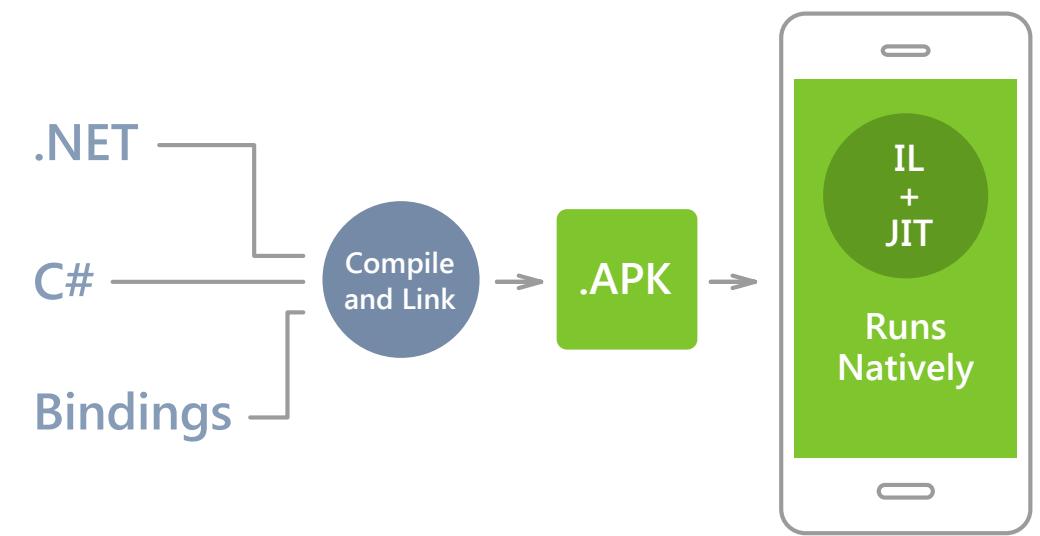


C#

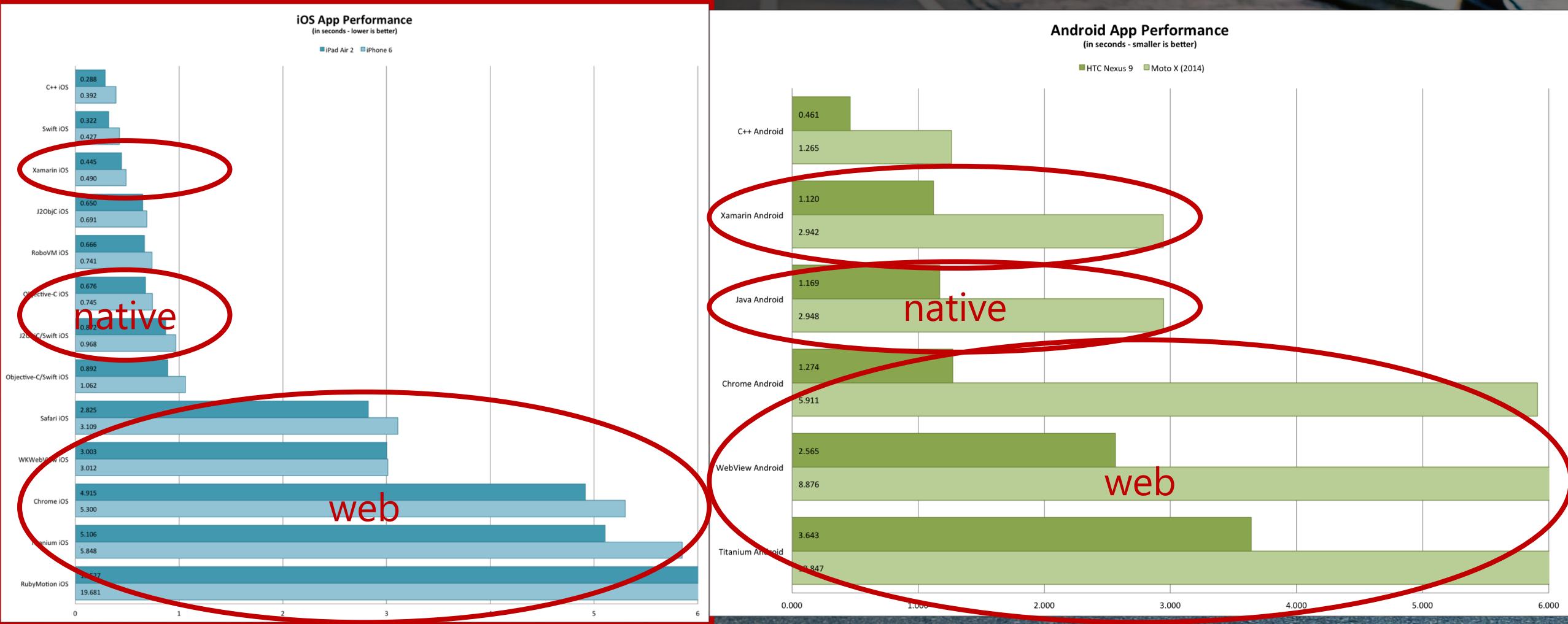
# Native Performance



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.

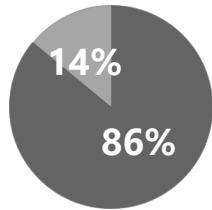


<http://bit.ly/mobile-app-performance>

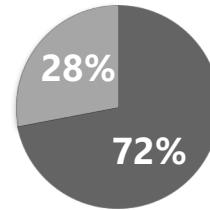
# DOES IT PERFORM?

# Code sharing stats

iCircuit

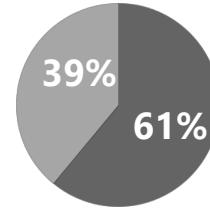
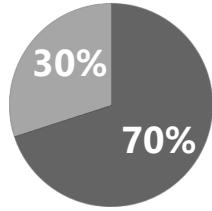


Touch Draw

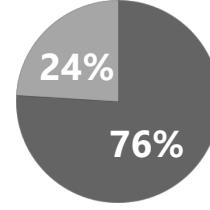
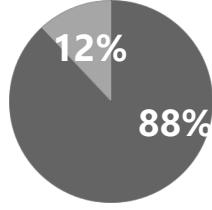


Android

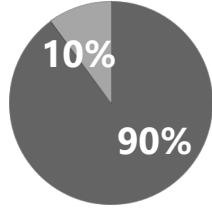
iOS



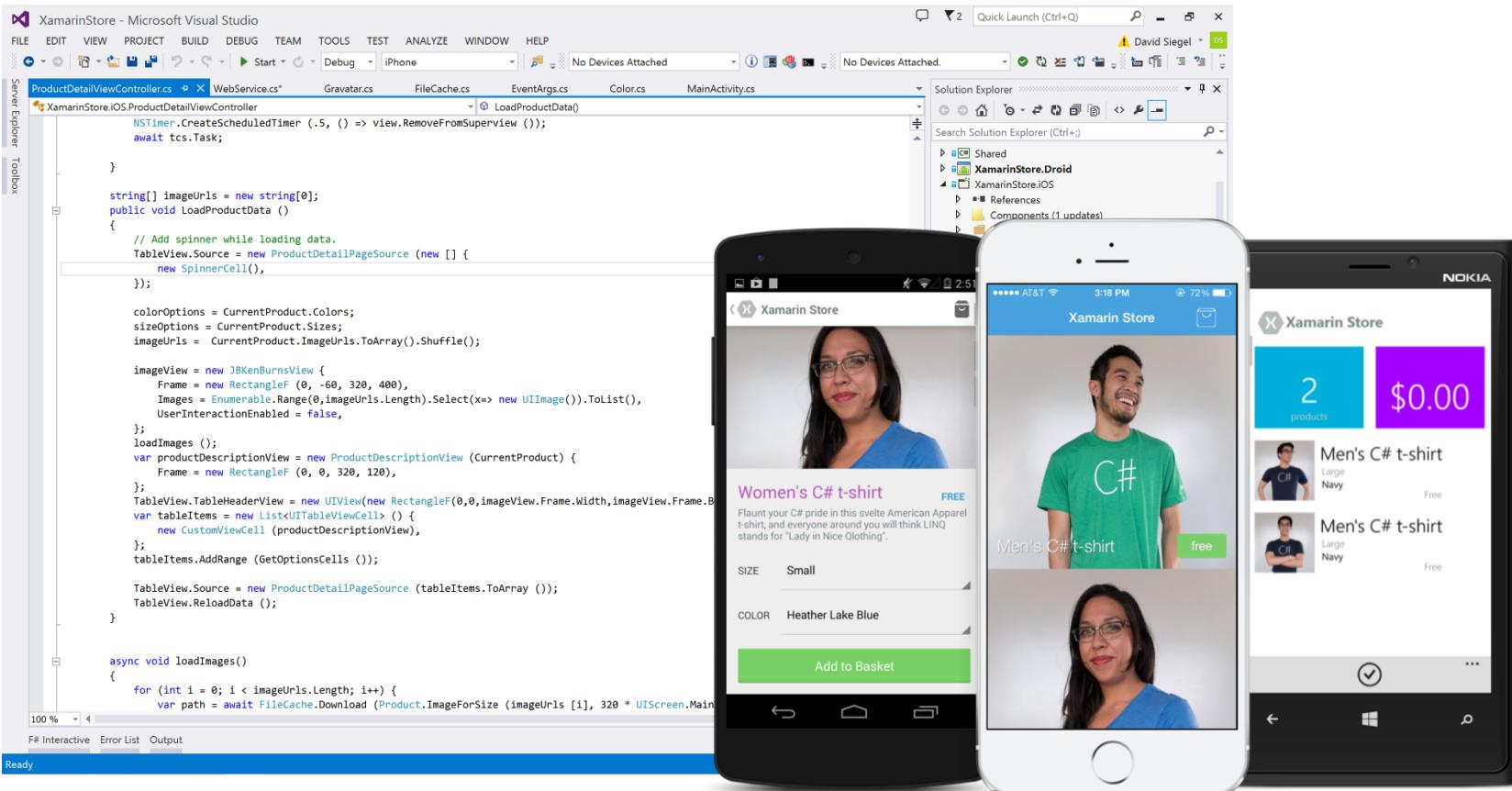
Mac



Windows



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



# ✓ Always Up-to-Date

Same-day support:

- iOS 6
- iOS 7
- iOS 8
- iOS 9
- iOS 10
- iOS 11
- iOS 12

Full support for:

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

# Development Experience

Xamarin is included in  
Visual Studio

Including Community Edition!

# Open Source – open.xamarin.com

A photograph of a man sitting at a desk, working on a laptop. He is wearing a light gray t-shirt with a "Xamarin OPEN SOURCE" logo. The laptop screen shows various stickers, including a unicorn, a flag, an apple logo, ".NET", and "YES WE CODE". The desk is cluttered with books, papers, and other office supplies, suggesting a busy developer's workspace.

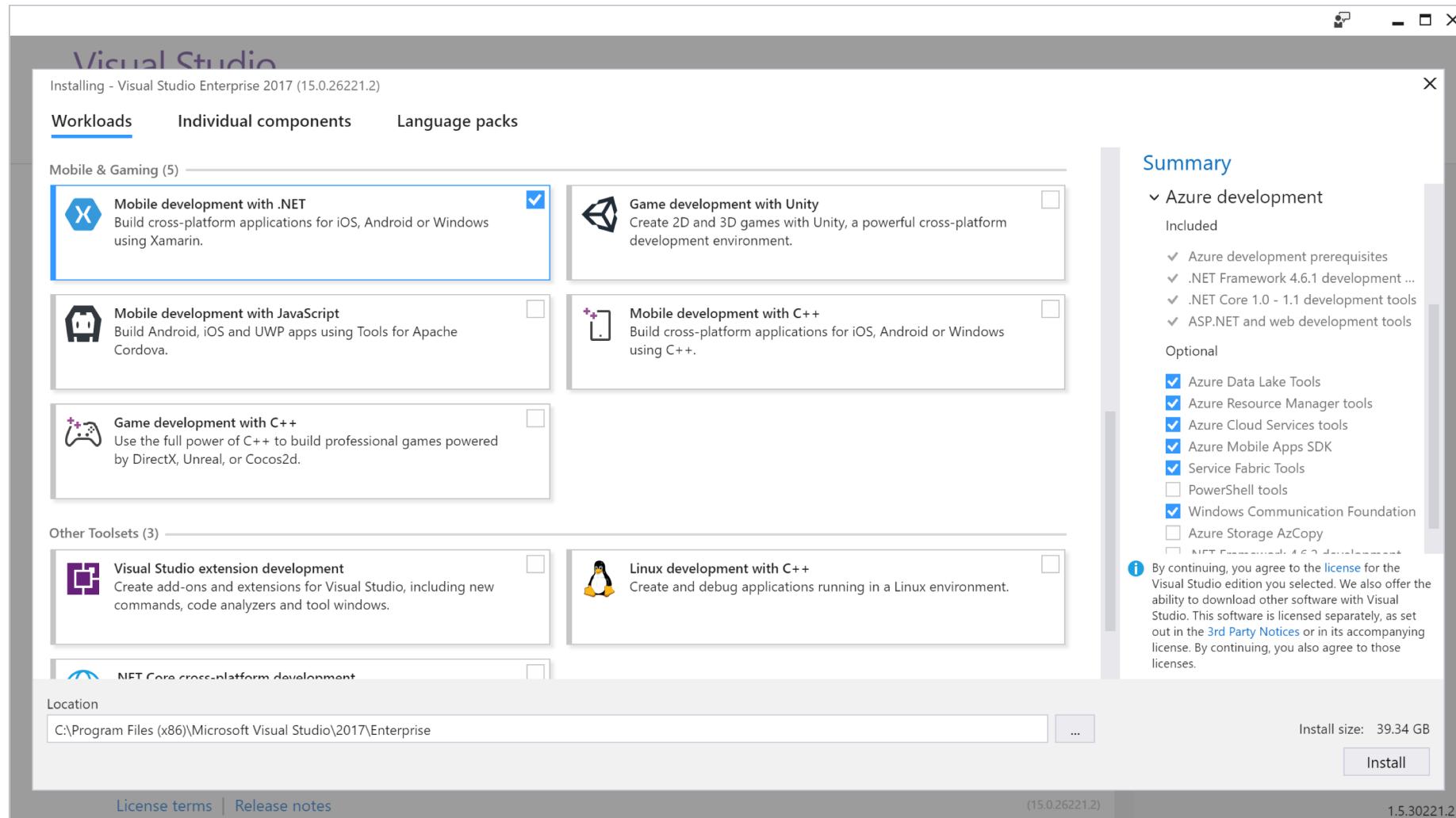
Xamarin  
OPEN SOURCE

Xamarin SDK Documentation Community Contribute

Build the future of apps with Xamarin.

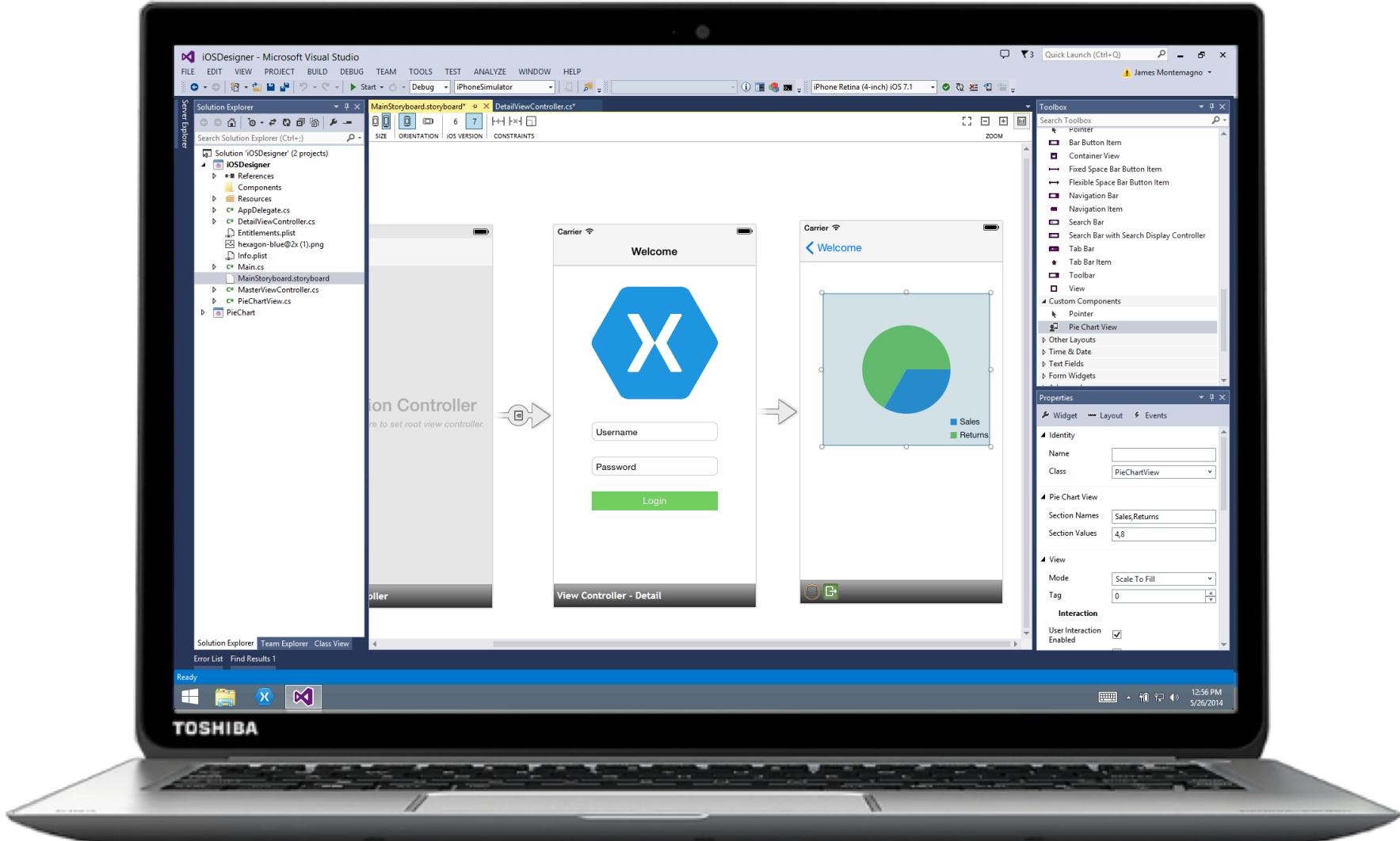
Xamarin SDK is now fully available under the MIT license.

# Visual Studio Integration



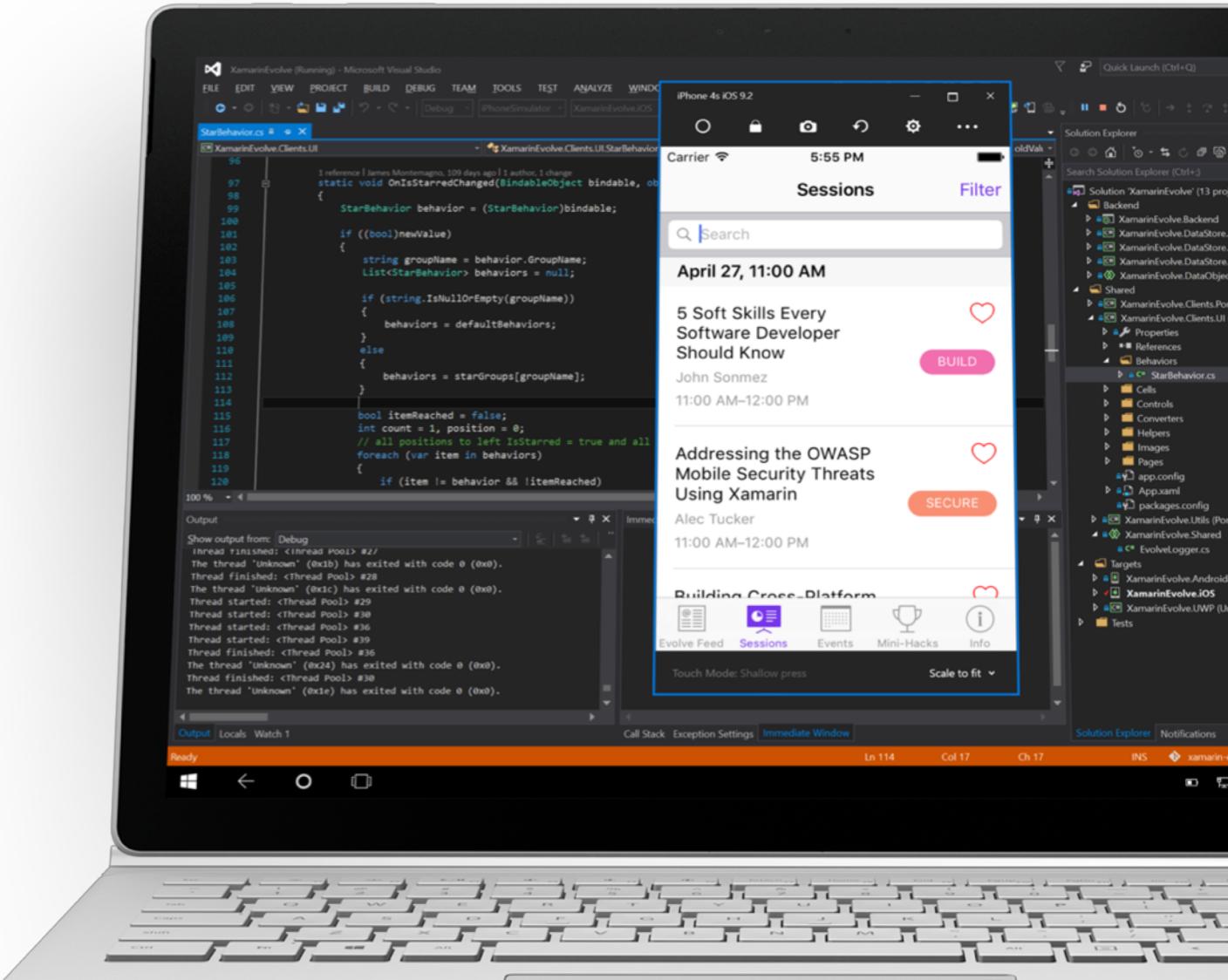
Xamarin.com/Download

# Xamarin for Visual Studio



# Visual Studio iOS Simulator Remoting

- Multi-Touch Enabled
- Pressure Sensitive
- Super Fast
- Rotate, screenshots, location changes
- Never leave VS



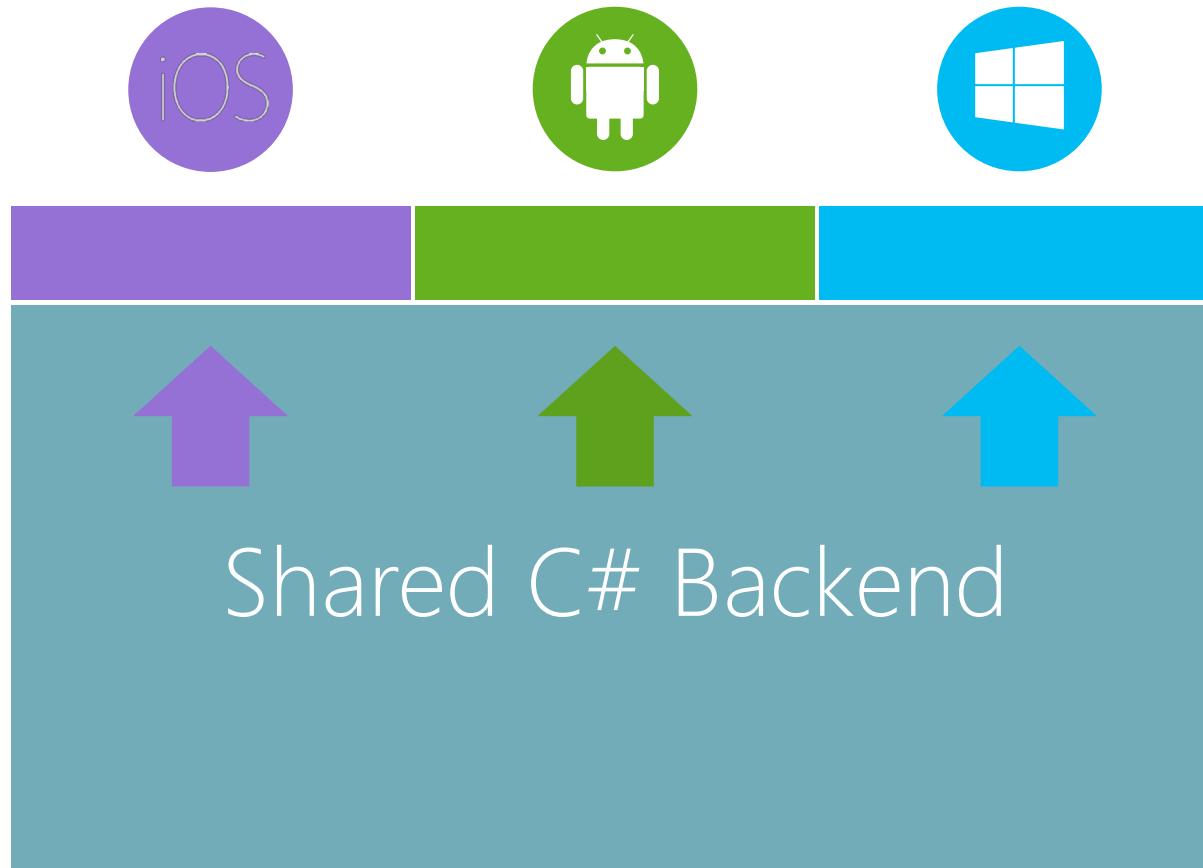
\*Requires Visual Studio Enterprise

## Demos, & Labs - Clone or Download

[github.com/xpiritbv/xamarin-hands-on-labs](https://github.com/xpiritbv/xamarin-hands-on-labs)

Validate your installation

Lab





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?

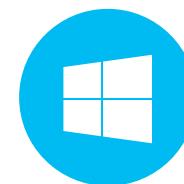
```
Speak("Hello World");
```



AVSpeechSynthesizer

TextToSpeech

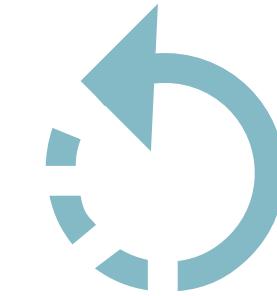
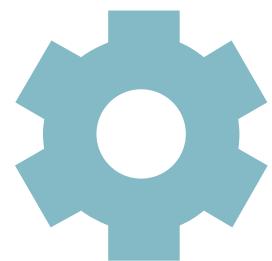
SpeechSynthesizer



# Plugins for Xamarin & Windows

[Xamarin.com/plugins](http://Xamarin.com/plugins)

Common API



Demo: iOS

# Demo: Android

Let's build a native app

Lab01 – app-helloworld  
pick Android or iOS (or both)