Xamarin.Forms

Introduction to Xamarin

Who is this guy?

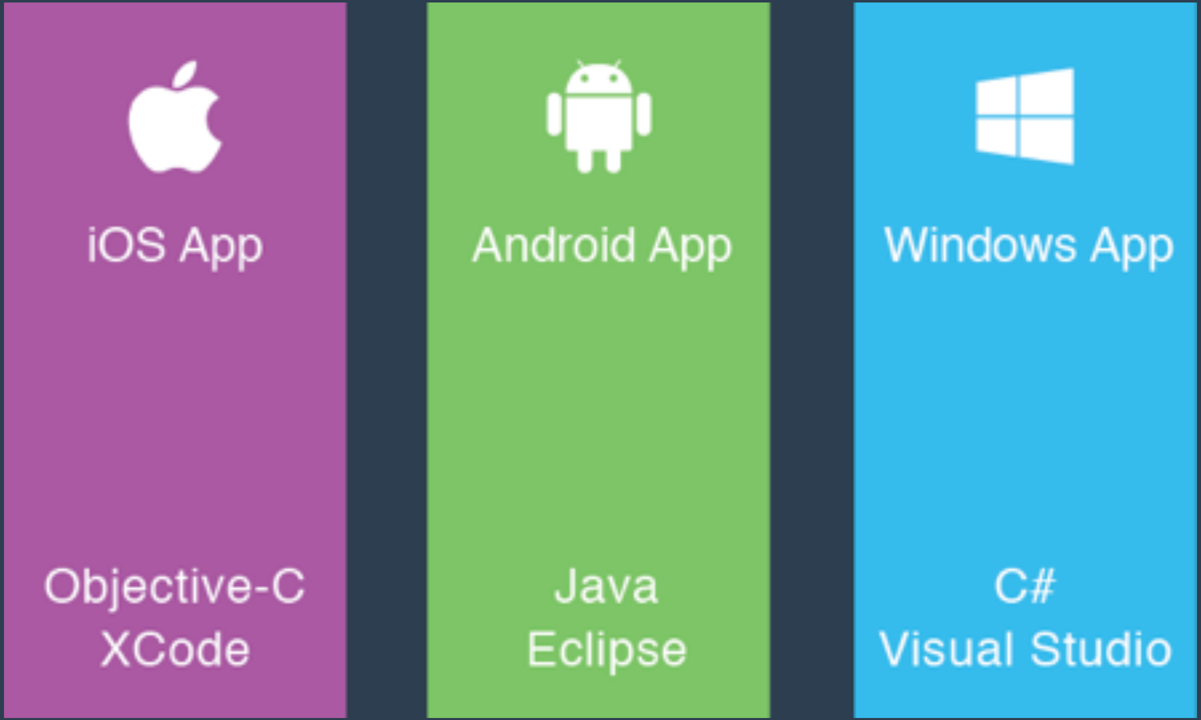
Cross platform developer

RedBull Event @ The London Eye

Architecting Mobile Apps

Build Apps

Multiple Times



iOS App

Objective-C
XCode

Android App

Java
Eclipse

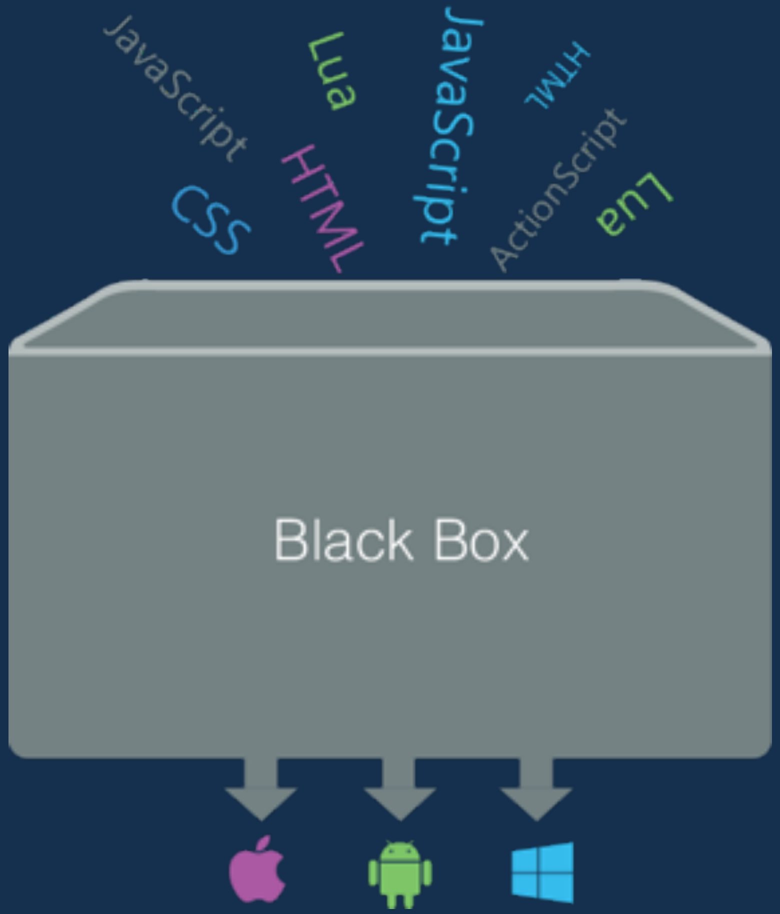
Windows App

C#
Visual Studio

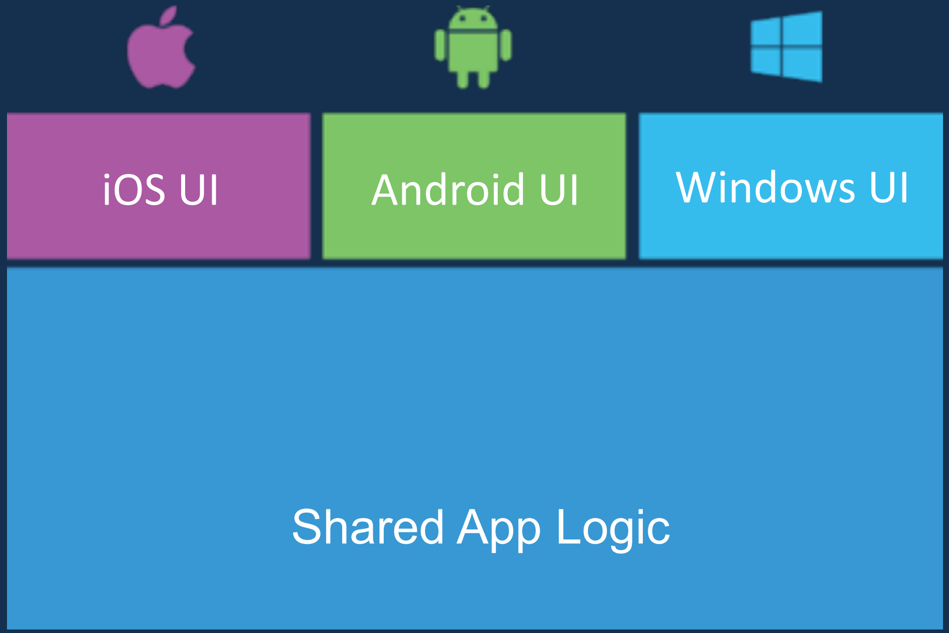
Lowest

Common

Denominator



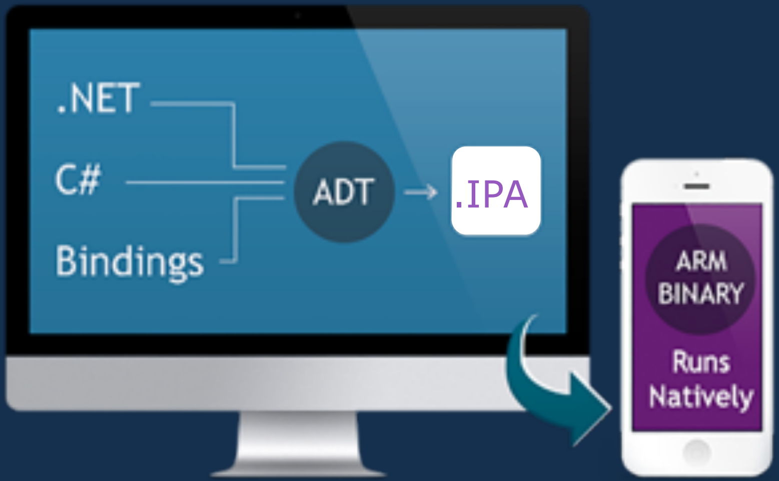
Xamarin Standard App Architecture



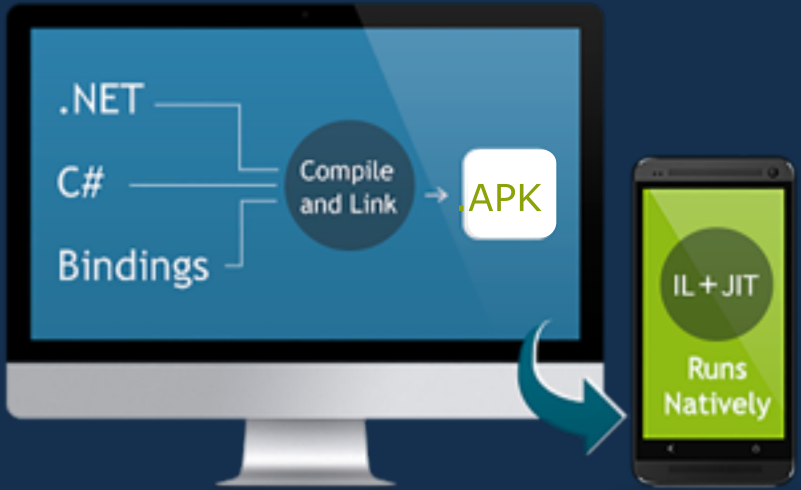
- Business logic, data models and common code shared between all platforms.
- All platform-specific UI and API calls are in C# as well.
- Retain fine-grain control app user interface
- Recommended for sophisticated UX requirements (complicated gestures, animations, design)

Native Performance

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

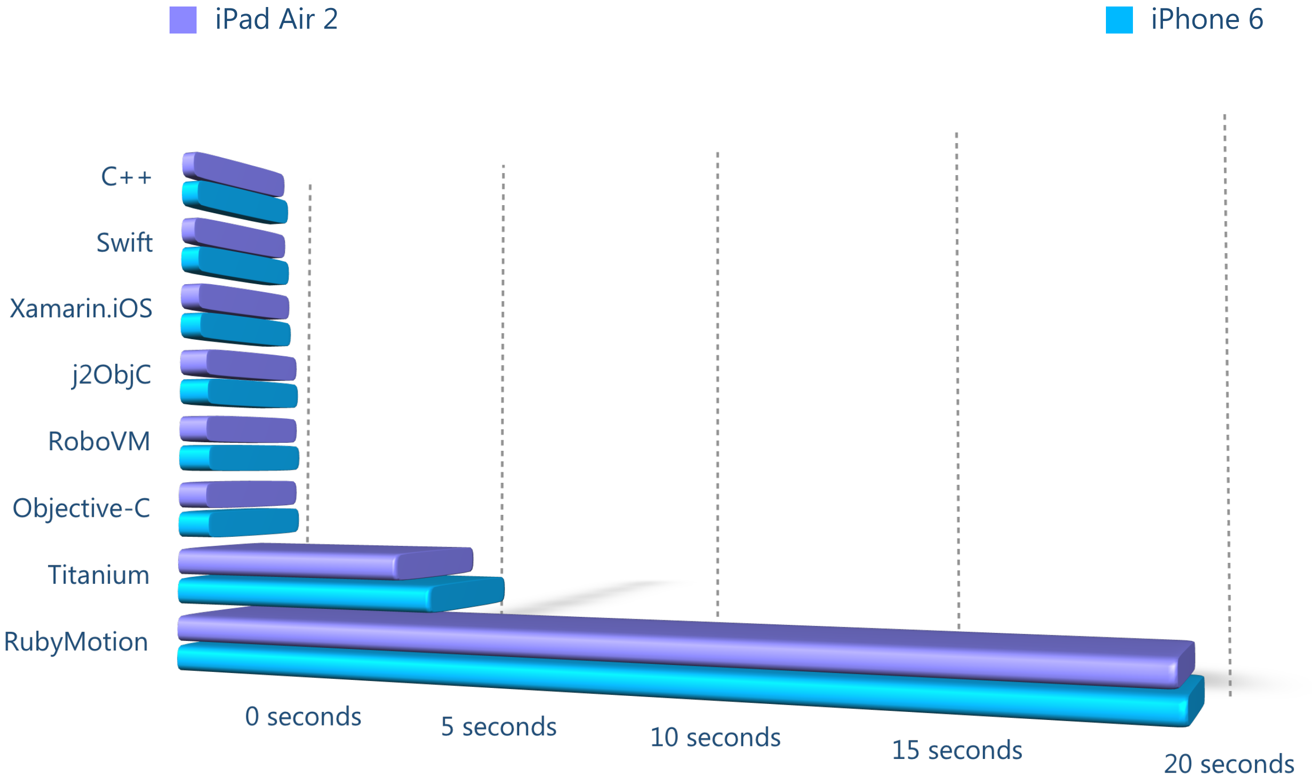


Xamarin.Android takes advantage of Just In Time (JIT) compilation on the Android device.



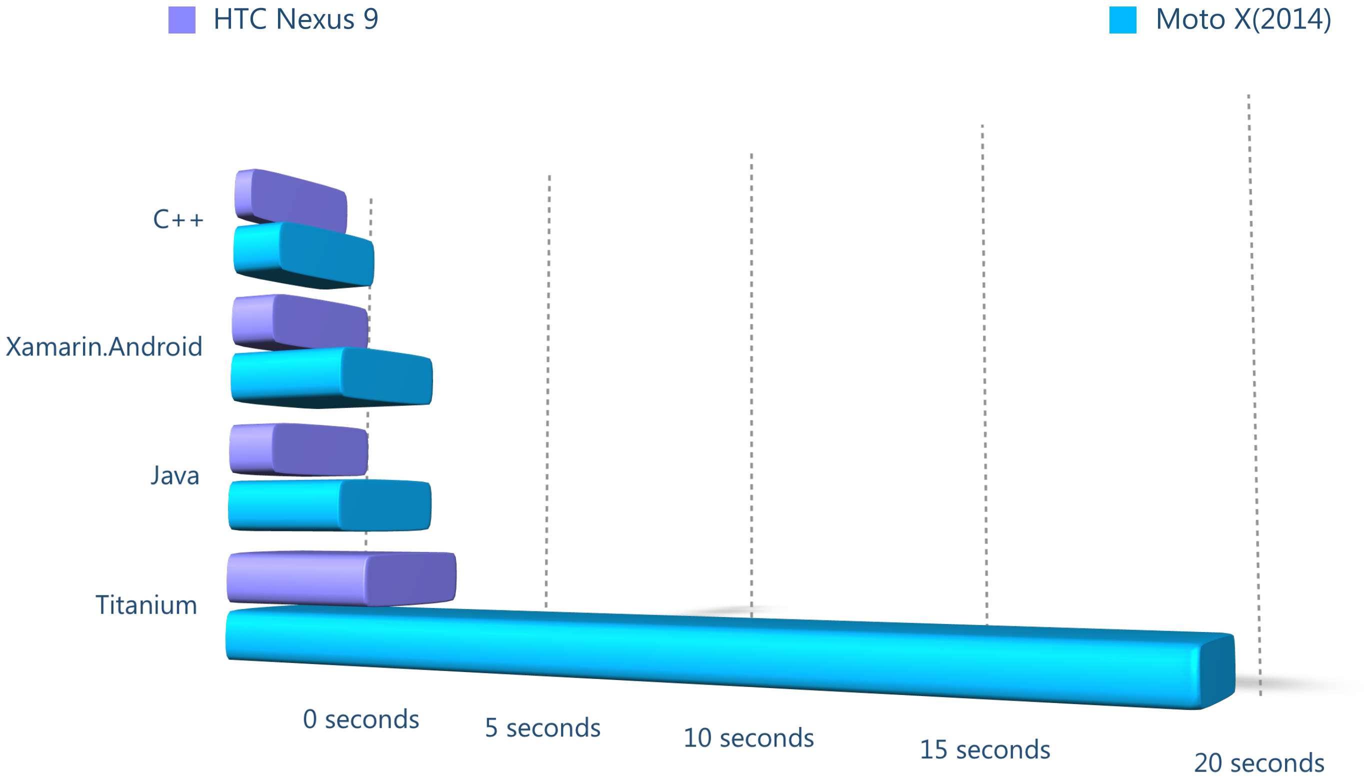
Xamarin

iOS Performance



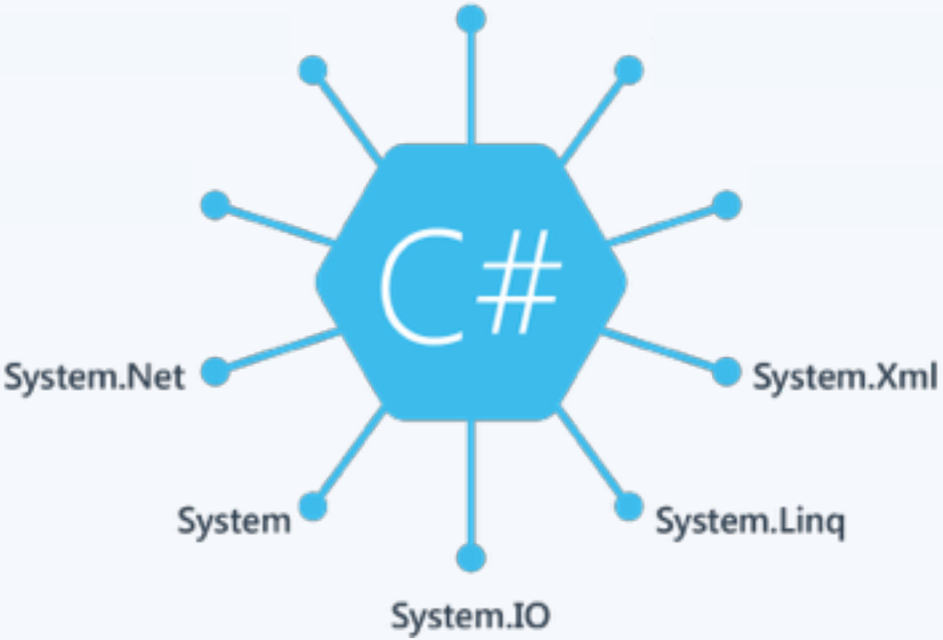
https://medium.com/@harrycheung/mobile-app-performance-redux-e512be94f976

Android Performance

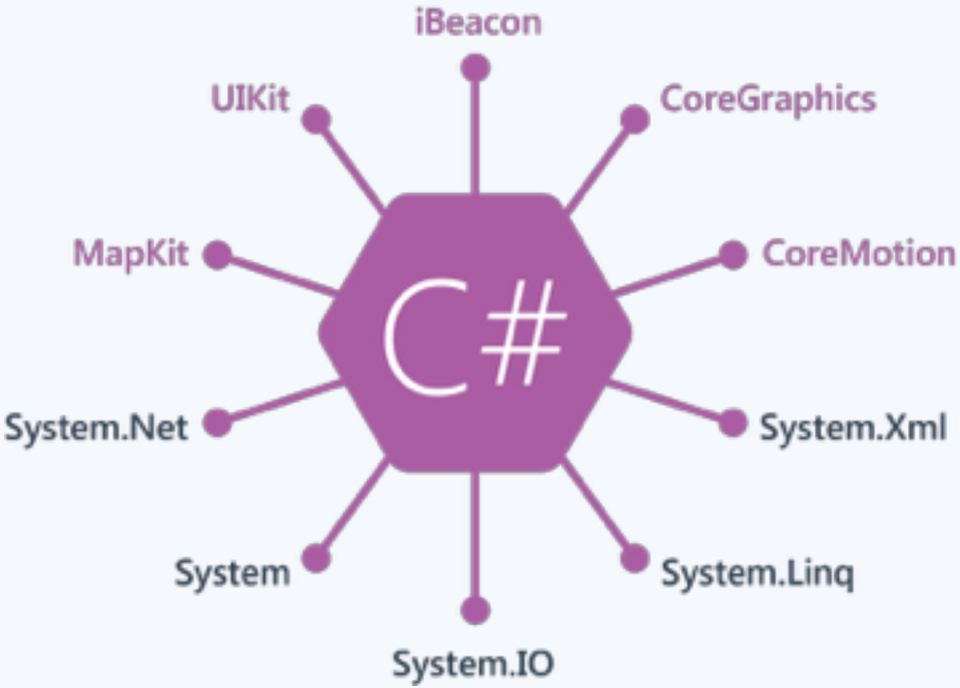


https://medium.com/@harrycheung/mobile-app-performance-redux-e512be94f976

Windows APIs

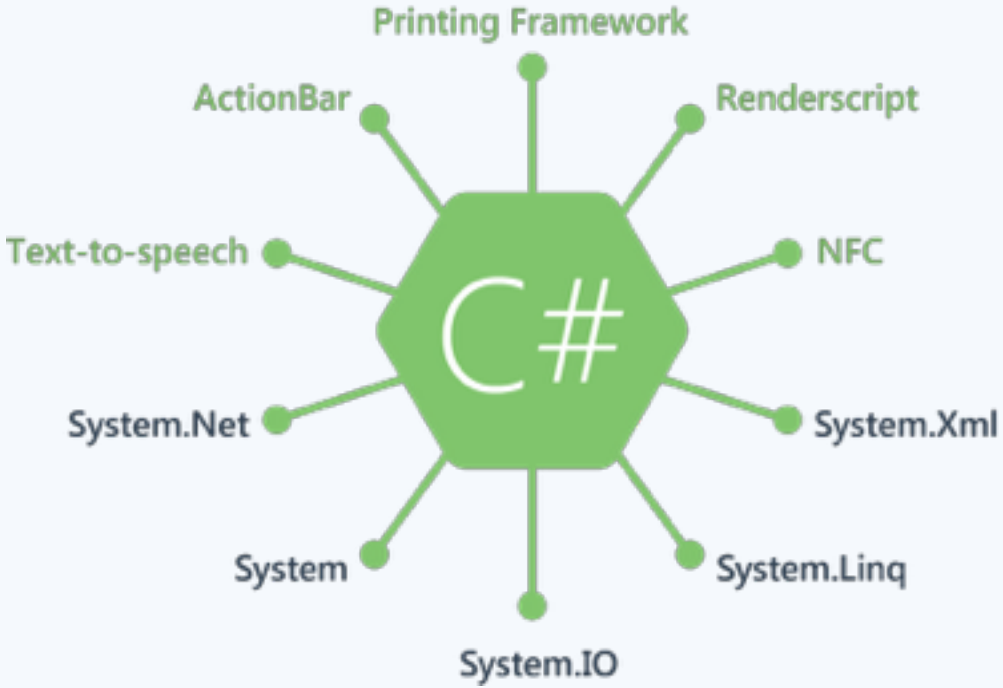


iOS APIs | 100% Coverage



Xamarin

Android APIs | 100% Coverage



Xamarin

iOS: 33,000+

APIs

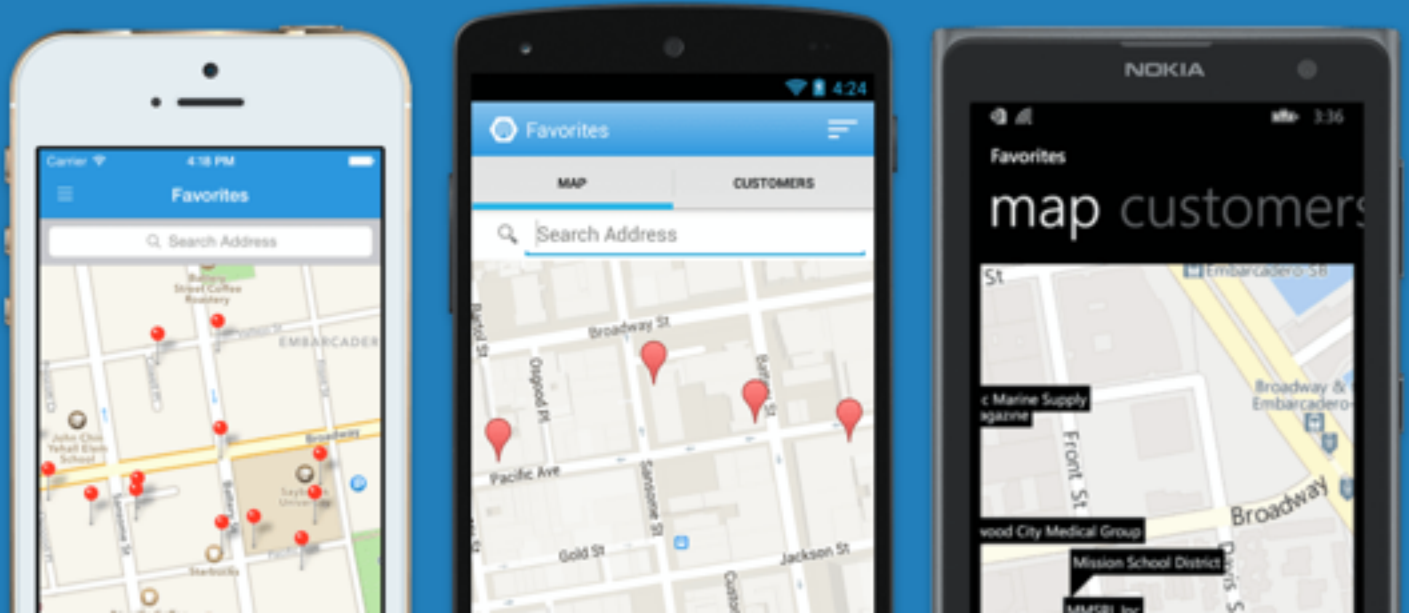
Android: 40,000+

Traditional Demo

Xamarin University

Meet Xamarin.Forms

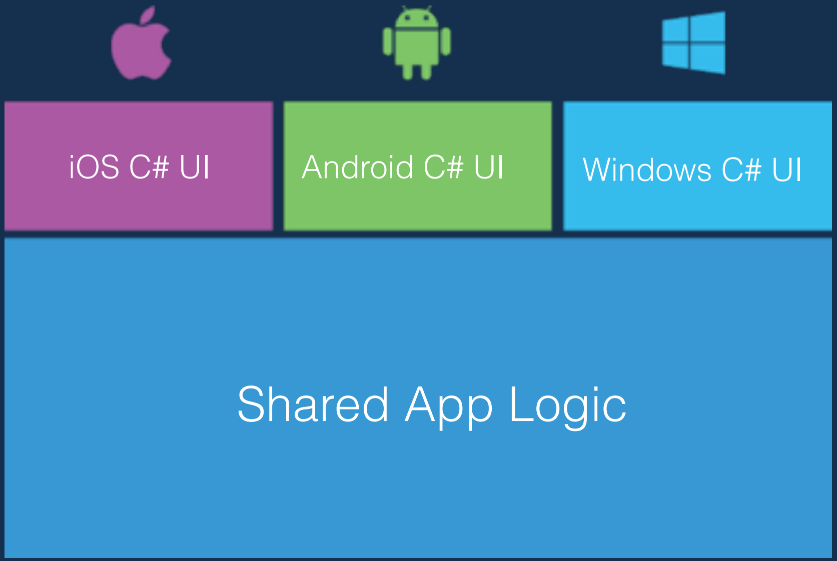
Build native UIs for iOS, Android and Windows Phone from a single, shared C# codebase.



Considerations

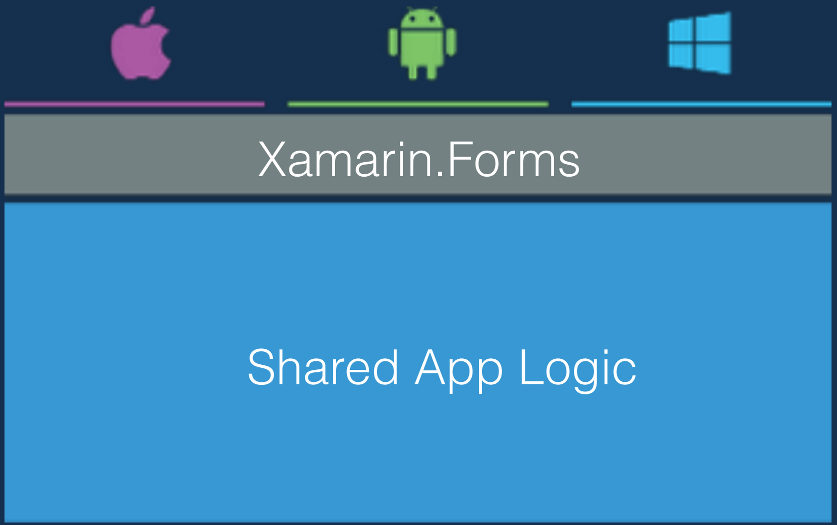
- Not for all types of apps
- Is your app very customised?
- Great for data driven apps
- Utility apps
- Also supports maps

Xamarin App Architectures



Option for OS – specific UI/UX elements

Recommended for: Sophisticated UX (complicated gestures, animations, design)



Option for 100% code share

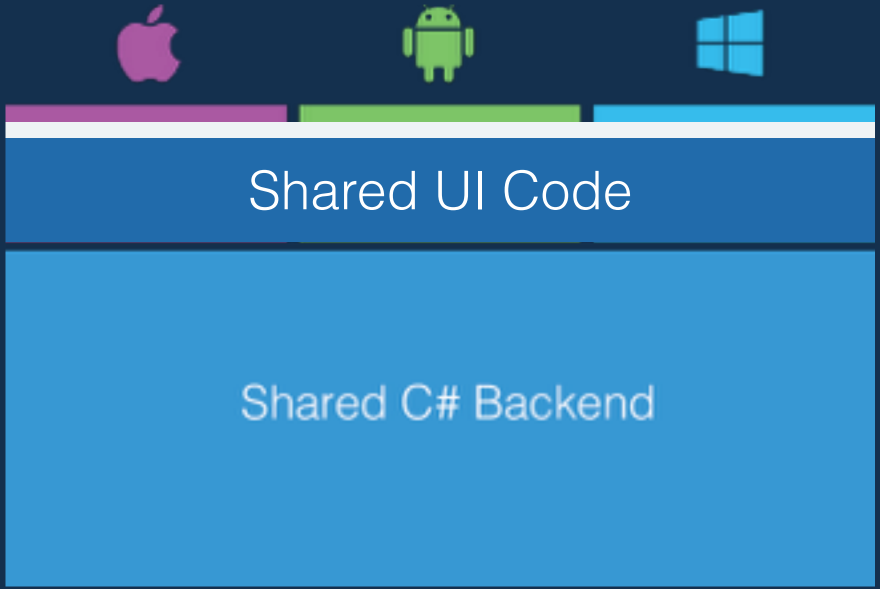
Recommended for: forms-based, apps with a lot of data entry screens

Xamarin.Forms

Quickly and easily build native user interfaces using shared code

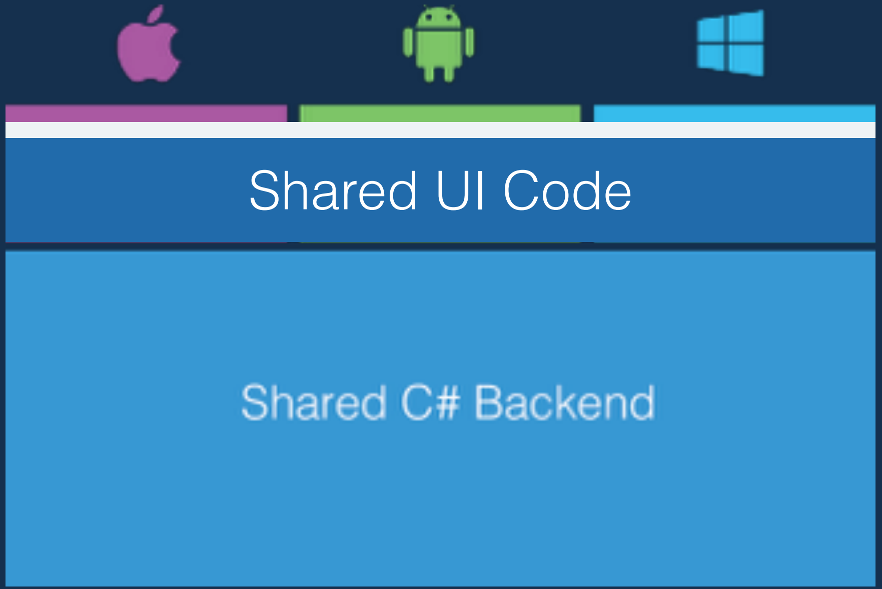
Xamarin.Forms elements map to native controls and behaviours

Mix-and-match Xamarin.Forms with native APIs



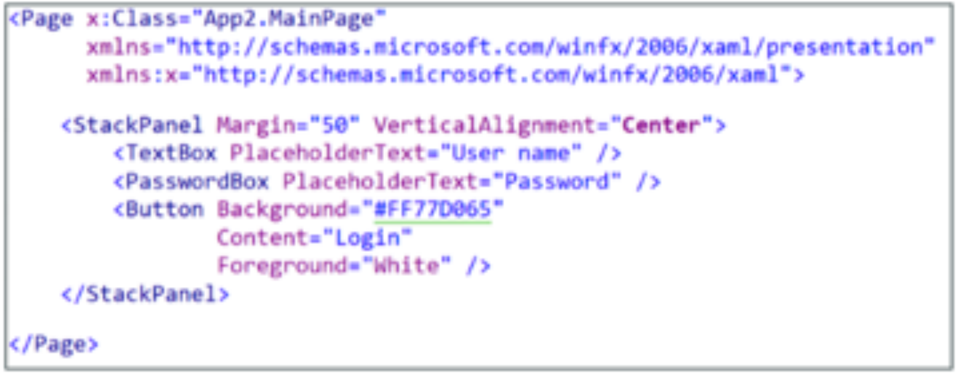
What's Included

- 40+ Pages, Layouts, and Controls
  - Build from code behind or XAML
- Two-way Data Binding
- Navigation
- Animation API
- Dependency Service
- Messaging Center



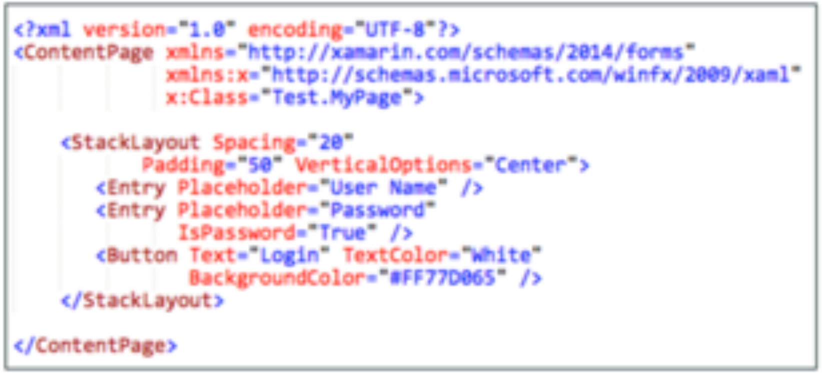
Microsoft XAML vs Xamarin.Forms

- Xamarin.Forms conforms to the XAML 2009 specification; the different are really in the controls and layout containers you use



```
<Page x:Class="App2.MainPage"
      xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"
      xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml">

    <StackPanel Margin="50" VerticalAlignment="Center">
        <TextBox PlaceholderText="User name" />
        <PasswordBox PlaceholderText="Password" />
        <Button Background="#FF77D065"
                Content="Login"
                Foreground="White" />
    </StackPanel>

</Page>
```

Microsoft XAML (WinRT)

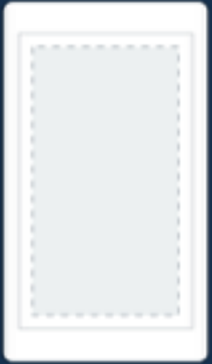


```
<?xml version="1.0" encoding="UTF-8"?>
<ContentPage xmlns="http://xamarin.com/schemas/2014/forms"
             xmlns:x="http://schemas.microsoft.com/winfx/2009/xaml"
             x:Class="Test.MyPage">

    <StackLayout Spacing="20"
           Padding="50" VerticalOptions="Center">
      <Entry Placeholder="User Name" />
      <Entry Placeholder="Password"
             IsPassword="True" />
      <Button Text="Login" TextColor="White"
              BackgroundColor="#FF77D065" />
    </StackLayout>

</ContentPage>
```

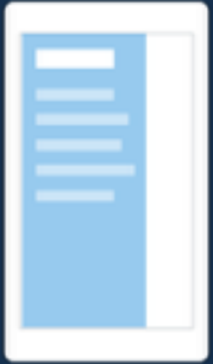
Xamarin.Forms

Feature	Supported in Xamarin.Forms
XAML 2009 compliance	Yes
Shapes (Rectangles, Ellipse,	BoxView
Resources, Styles and Triggers	Yes
Data binding	Yes
Data templates	Yes
Control Templates	Custom Renderers
Render Transforms	Yes
Animations	Code Only
Custom XAML behaviors	Yes
Custom markup extensions	Yes
Value converters	Yes

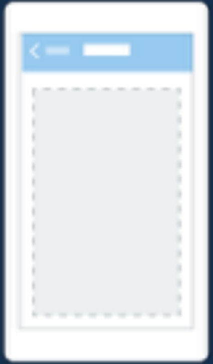
Pages



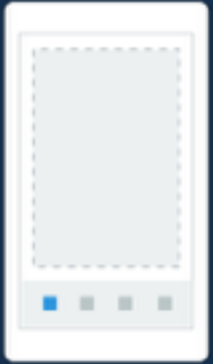
Content



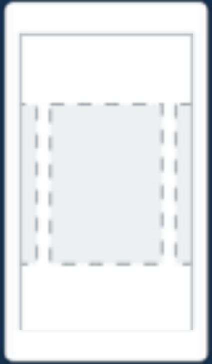
MasterDetail



Navigation

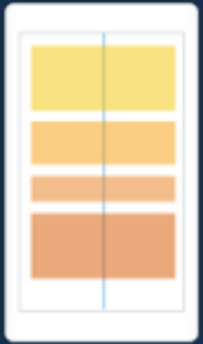


Tabbed

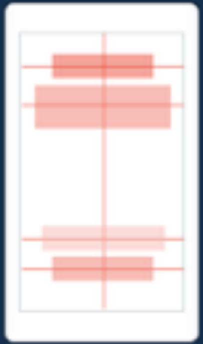


Carousel

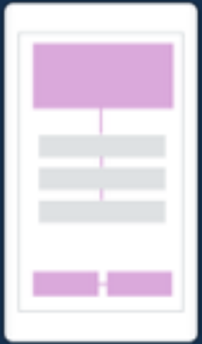
Layouts



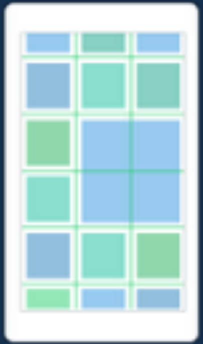
Stack



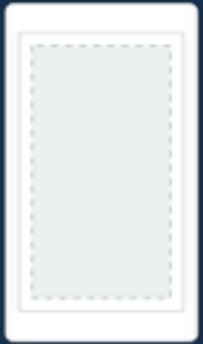
Absolute



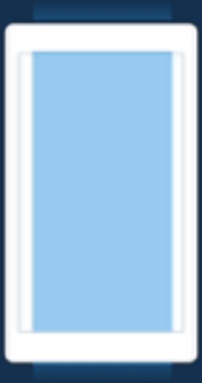
Relative



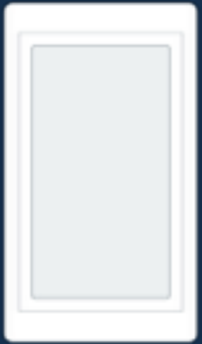
Grid



ContentView



ScrollView



Frame

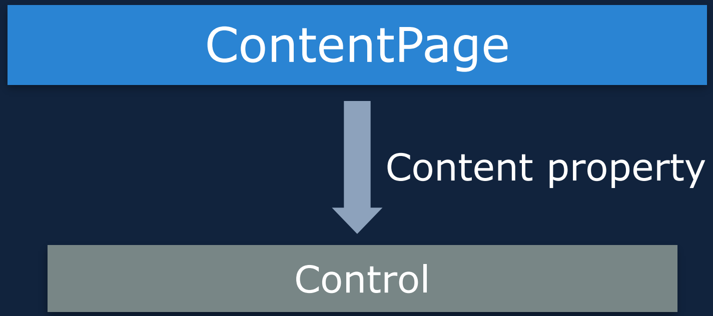
Controls

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

Demo

Pages

- Single screen of content
- ContentPage holds one visual element



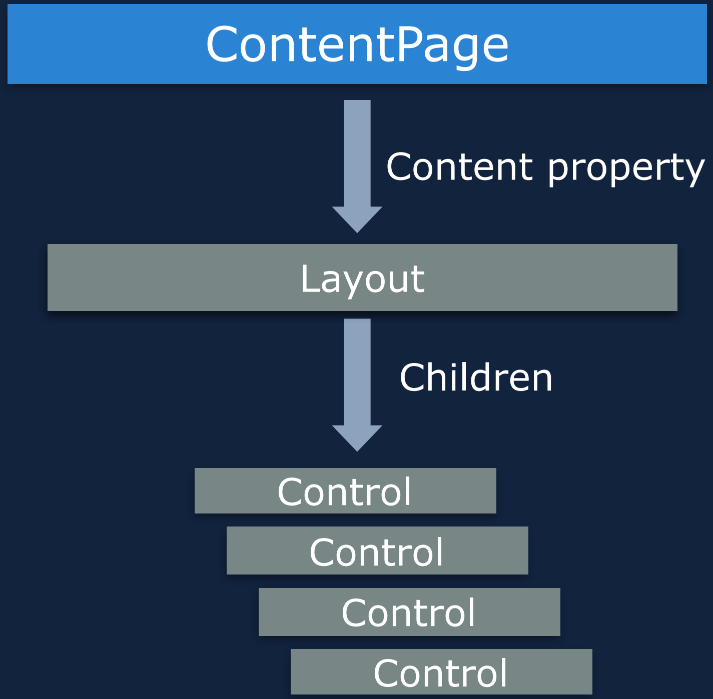
ContentPage

Content property

Control

Layout

- Layouts handle child elements
- Layouts come in two types: managed and unmanaged



ContentPage

Content property

Layout

Children

Control

Control

Control

Control

Demo

Plugins for Xamarin

Share even more code

Abstracts platform features

- Vibrate
- Location
- Connectivity
- Battery status
- Device Info
- ImageCircles
- Settings
- Text to speech
- External maps
- …

Example location code

```
var locator = CrossGeolocator.Current;
locator.DesiredAccuracy = 50;

var position = await locator.GetPositionAsync (timeout: 10000);

Console.WriteLine ("Position Status: {0}", position.Timestamp);
Console.WriteLine ("Position Latitude: {0}", position.Latitude);
Console.WriteLine ("Position Longitude: {0}", position.Longitude);
```

Flash Quiz

Flash Quiz

Xamarin.Forms uses native controls on each platform to render a UI

- True
- False

Flash Quiz

Xamarin.Forms uses native controls on each platform to render a UI

- **True**

- False

Flash Quiz

Tom wants to build an application that has a pixel perfect layout on both iPhone and iPad devices, Xamarin.Forms would be the perfect choice for this application

- True
- False

Flash Quiz

Tom wants to build an application that has a pixel perfect layout on both iPhone and iPad devices, Xamarin.Forms would be the perfect choice for this application

- True
- **False**

Flash Quiz

Xamarin.Forms is perfect for prototyping and quick data-entry type applications which do not require many custom UI elements

- True
- False

Flash Quiz

Xamarin.Forms is perfect for prototyping and quick data-entry type applications which do not require many custom UI elements

- **True**
- False

Thanks!
Questions?

Mike James

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