

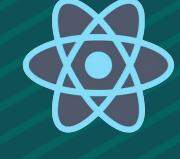


Flying High with Xamarin!

Sam Basu | [@samidip](https://twitter.com/samidip)
Telerik Developer Advocate | Progress

Mobile Your Way

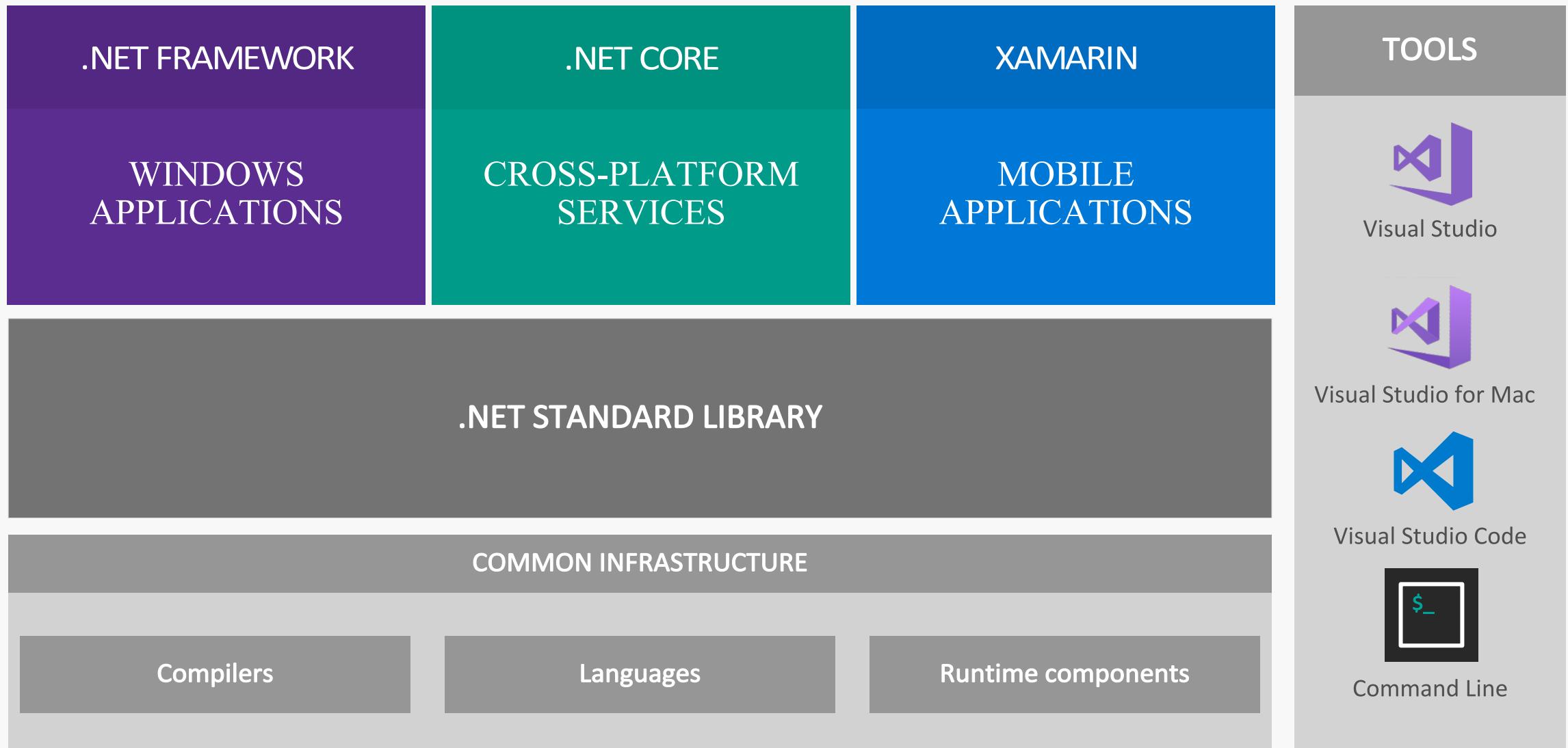
It's 2017 | Developers have choices

1	Mobile Web / PWA	 
2	Native	  
3	Hybrid	 
4	JS Native	  
5	X-Compiled	



The Xamarin Lovefest!

.NET – The Big Picture

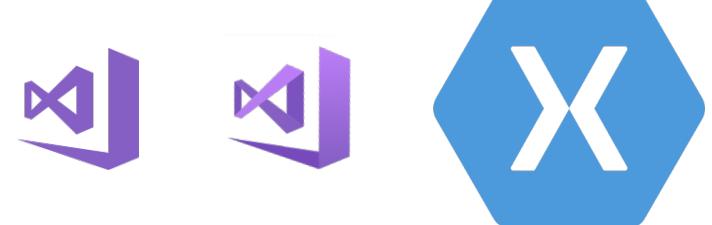




Xamarin Democratizes .NET Mobile Development
Truly Native | Truly Cross-Platform

Why Xamarin

1. Target iOS, Android, MacOS & UWP from single code base
2. Reach Smart Watches and Smart TVs
3. Reuse existing skills in C#/XAML | Familiar software paradigms
4. Consistent cross-platform APIs
5. Top-notch tooling/IDEs – Visual Studio on Windows or Mac
6. Great deployment & testing tools
7. Lots of frameworks, utilities & Standardization efforts
8. Support for full DevOps workflows
9. Fantastic developer community





Xamarin Technology Stack

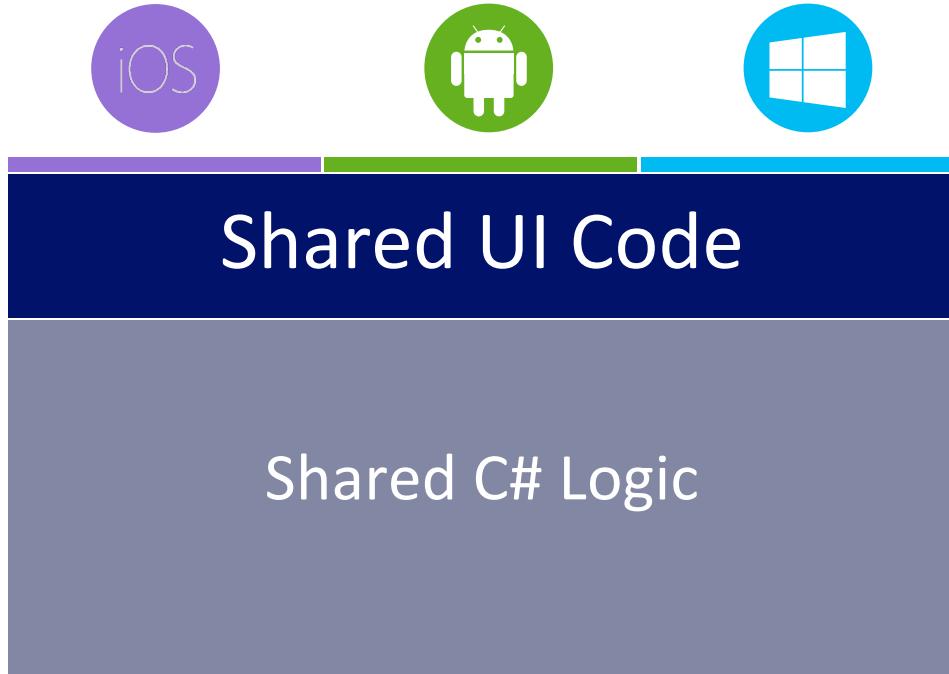
Traditional UI approach



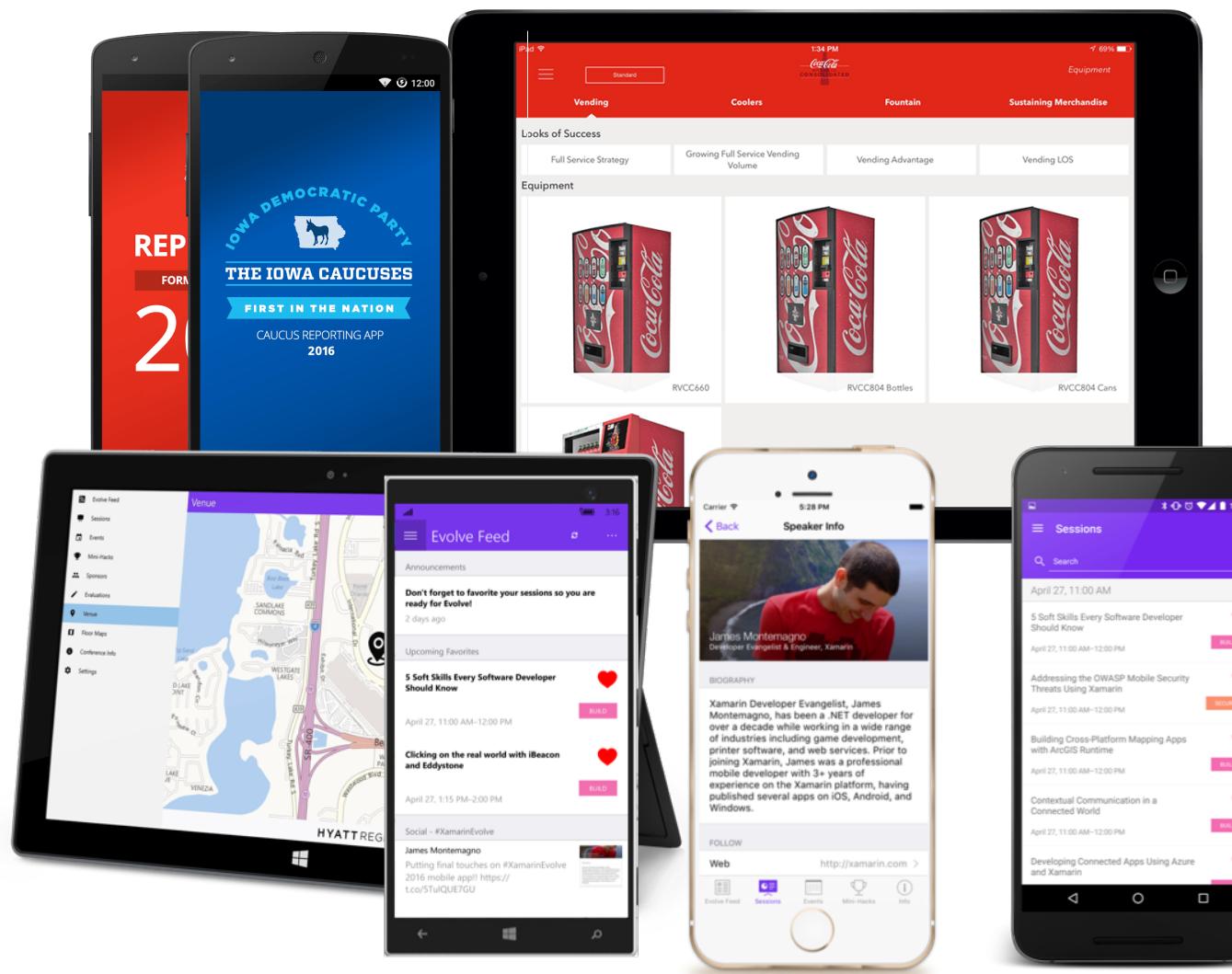
3 Native User Interfaces
Shared App Logic



Xamarin.Forms approach

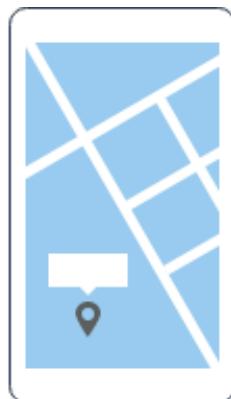
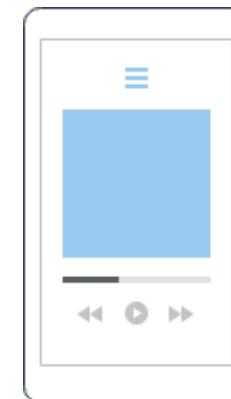


Shared User Interface
Shared App Logic



When Xamarin.iOS & Xamarin.Android

1. Apps needing Native behaviors
2. Apps that use many Platform-specific APIs
3. Apps where custom UI is more important than code sharing
4. Apps that have complex Native UI renderings
5. Games
6. Forms Embedding options

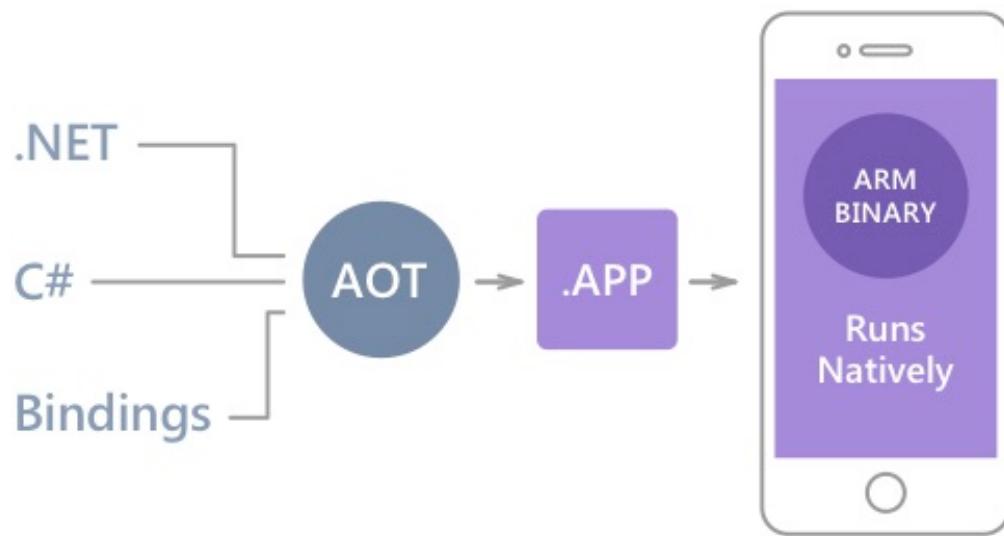


When Xamarin.Forms

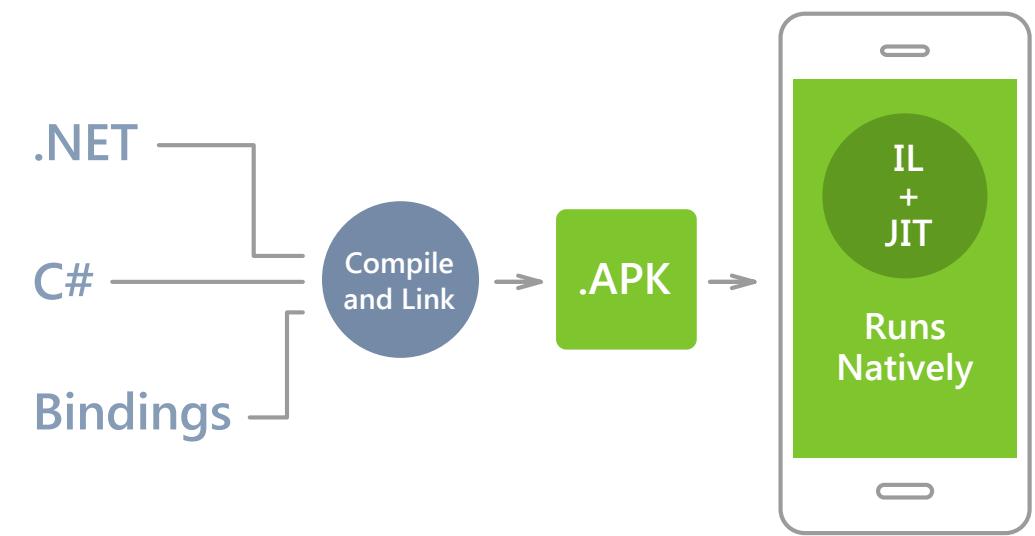
1. Apps needing little Platform-specific functionality
2. Apps where code sharing is more important than custom UI
3. Apps built by developers comfortable in XAML
4. LOB apps with lots of lists or data entry screens
5. Simple cloud-connected apps
6. Apps needing uniform UI across Platforms
7. Custom Renderers & Native Embedding options



Native Performance

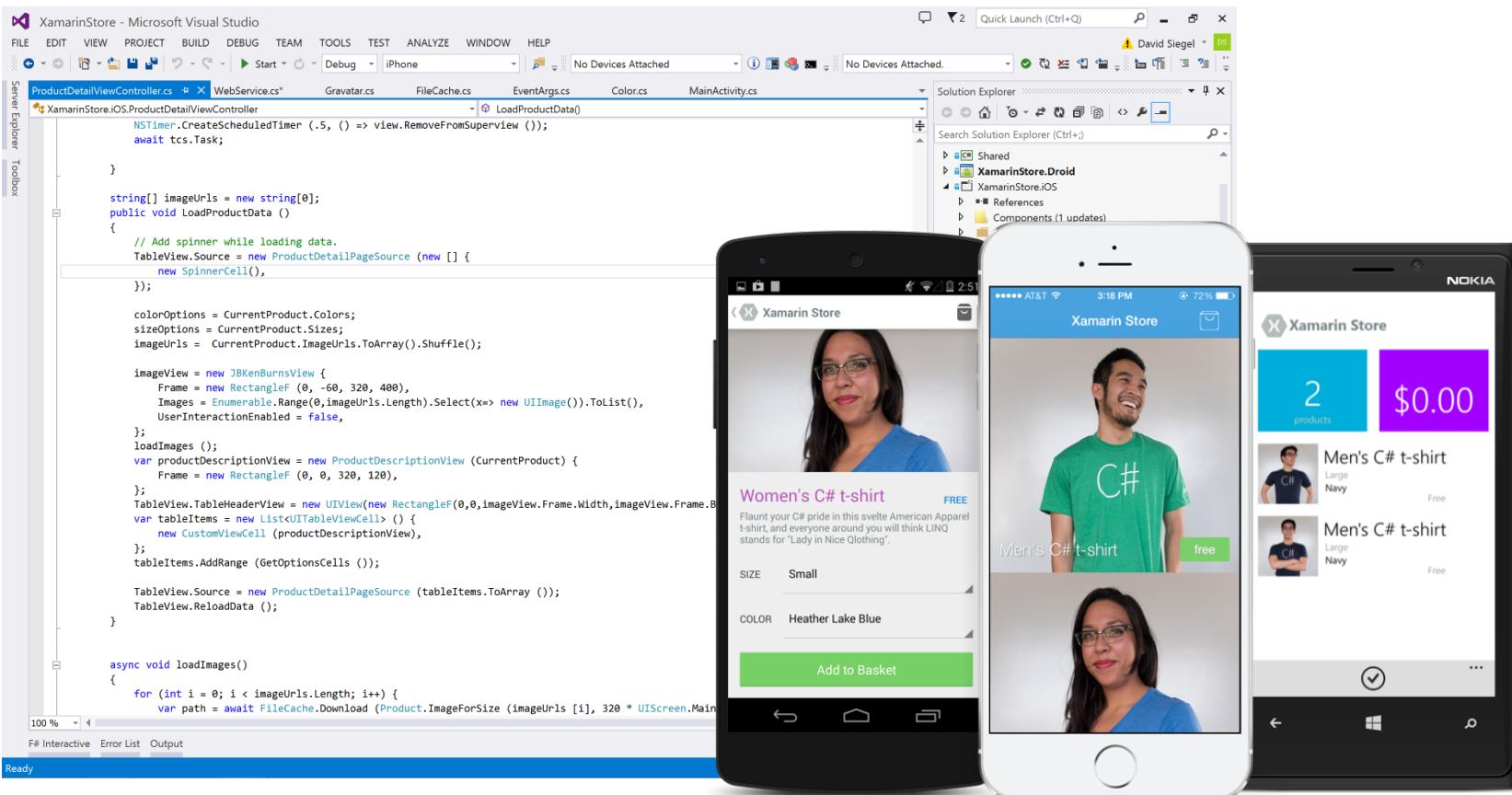


Xamarin.iOS does full Ahead Of Time (AOT) compilation to produce an ARM binary for Apple's App Store.



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

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



Open Source – open.xamarin.com



Xamarin
OPEN SOURCE

Xamarin SDK

Documentation Community

Contribute



A man with a beard and short hair is sitting on a couch, facing away from the camera. He is wearing a light gray t-shirt and blue jeans. He is holding a silver laptop on his lap. The laptop screen shows several stickers: a unicorn with a flag, a blue hexagon with an 'X', a blue icon of a person coding, the Apple logo, a purple circle with ".NET", and a cartoon character with the text "YES WE CODE". Behind him are two large bean bags, one red and one blue. In the background, there's a window with a colorful mural and some wooden structures. The overall atmosphere is casual and tech-oriented.

Build the future of apps
with Xamarin.

Xamarin SDK is now fully available under the MIT license.

Quick Demo!

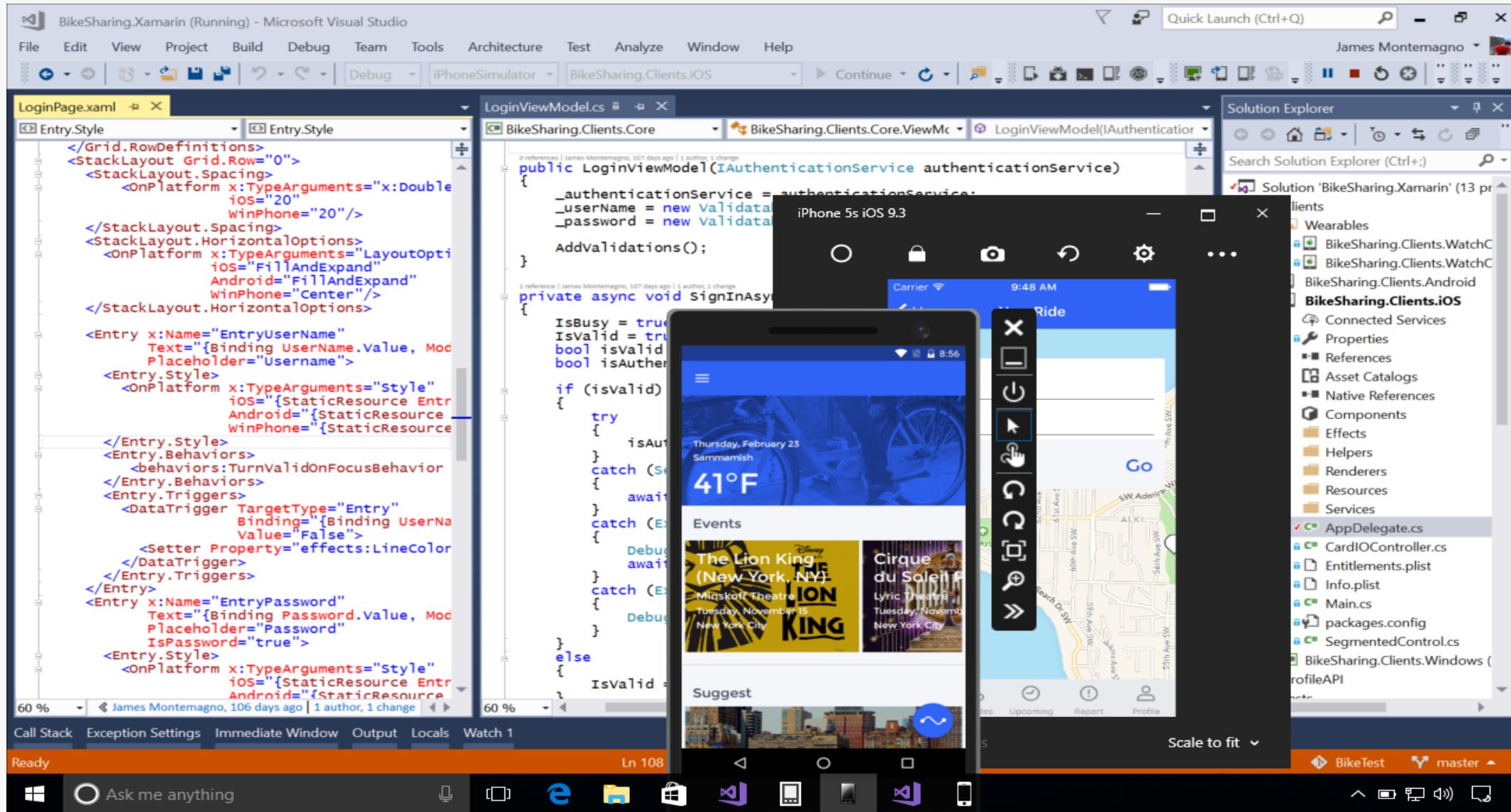


Essential Tools for Xamarin Dev!

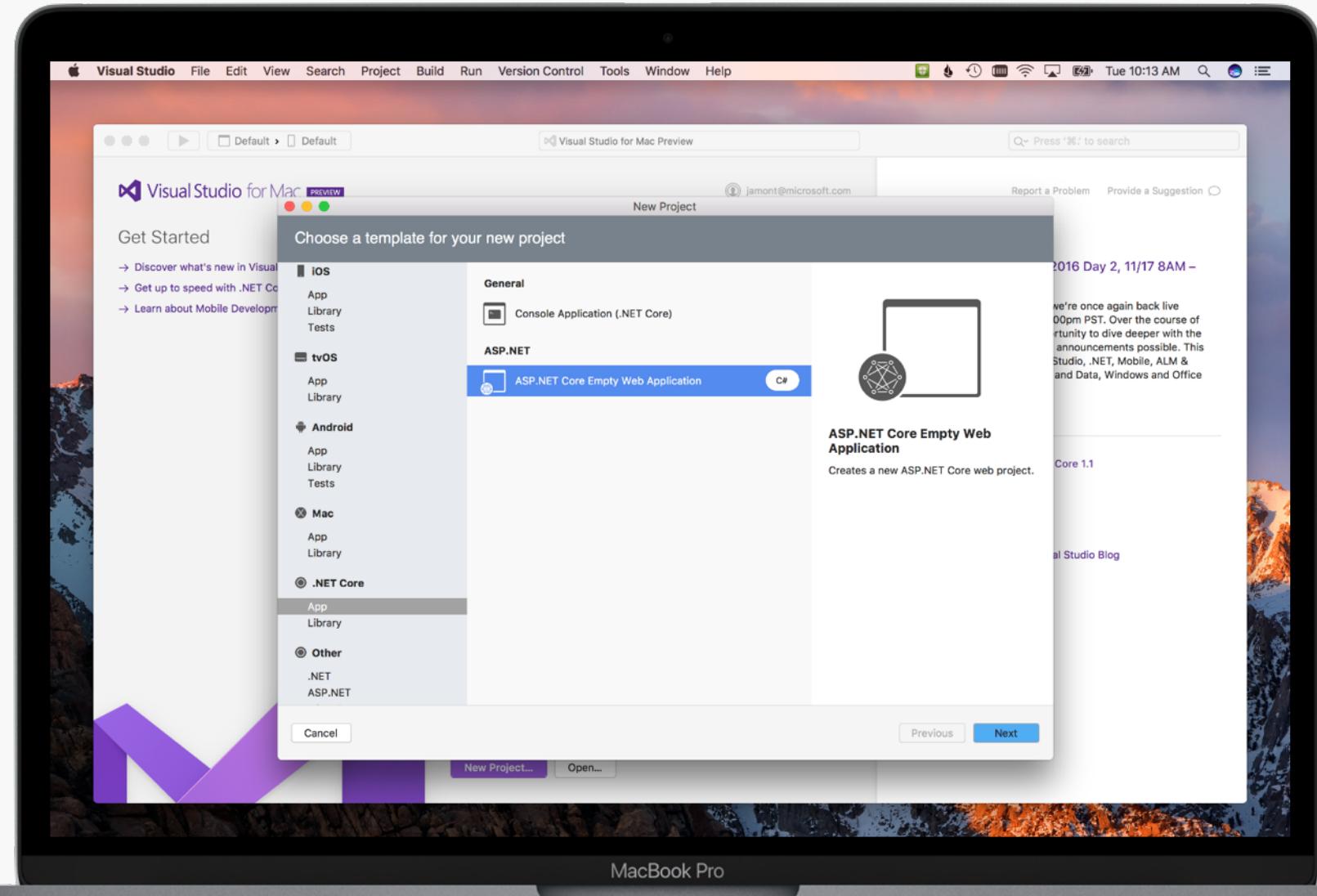


Choice in IDEs!

Visual Studio



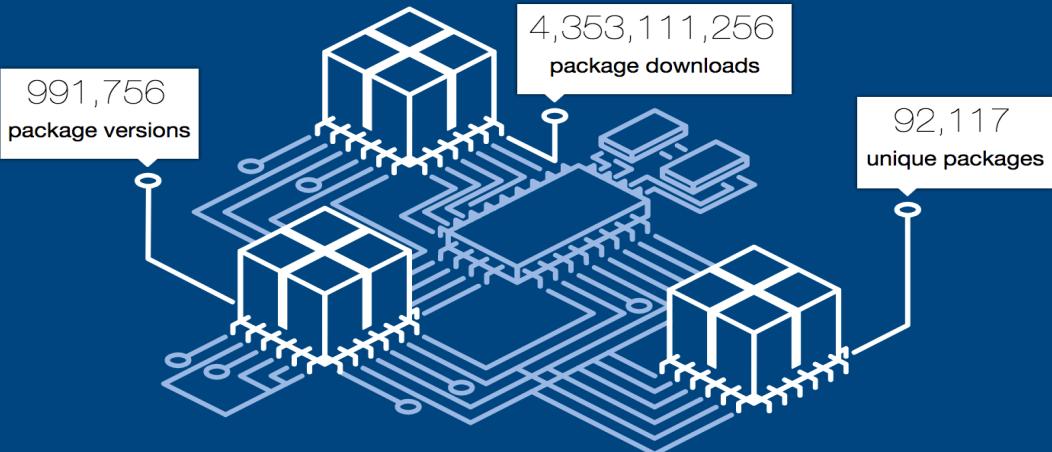
Visual Studio for Mac





App Building Blocks!

Create .NET apps faster with NuGet



What is NuGet?

NuGet is the package manager for .NET. The NuGet client tools provide the ability to produce and consume packages. The NuGet Gallery is the central package repository used by all package authors and consumers.



Learn



Explore



Create



This repository

Search

Pull requests Issues Marketplace Explore



xamarin / XamarinComponents

Watch 282

Star 920

Fork 219

Code

Issues 36

Pull requests 20

Projects 0

Wiki

Insights

Plugins for Xamarin <http://www.xamarin.com>

665 commits

10 branches

0 releases

23 contributors

MIT

Branch: master

New pull request

Create new file

Upload files

Find file

Clone or download

Redth committed on GitHub [ci] Fix addin versions to < cake 0.22 compatible

Latest commit 1d49755 a day ago

Android	[android-things] update binding to 0.5.1-devpreview	9 days ago
Mac/ITSwitch	[ITSwitch] Fix projectUrl in nuspec	2 months ago
Util	Update versions.csx	3 days ago
XPlat	[YouTube] Fixes for YouTube iOS component	23 days ago
iOS	Minor readme changes.	29 days ago
.gitignore	Ignore .DS_Store files	6 months ago
LICENSE	Initial commit	3 years ago
README.md	fix link	21 days ago
build.cake	Fixing the CI builds	2 months ago
build.ps1	Fixing syntax error with Copy-Item	9 months ago
build.sh	Bumping NuGet version to v4.1.0	5 months ago
cake.packages.config	[util] Bump cake to 0.17.0	6 months ago
common.cake	[common.cake] Added functions to build tvOS and macOS fat archives	2 days ago
manifest.yaml	[arcore] added to build manifest	23 days ago
publish.cake	[ci] Fix addin versions to < cake 0.22 compatible	a day ago

README.md

Open Source Components for Xamarin

Open Source Components for Xamarin are a collection of open source components (including bindings and plugins) created by Xamarin and others in the community.

Xamarin Supported Open Source Components

Xamarin Supported Open Source components are a collection of Xamarin built bindings and libraries.



[Suggest a Component](#) [Submit a Component](#)

Add some awesome to your app.

Add amazing functionality to your app in minutes with Xamarin Components.



Search Components 

CATEGORIES

 All Components ▶

 Cloud Services

 Libraries

 User Interface

 Themes

 Plugins

 Game Development

 Prime Components

TAGS

 iOS  Android  Windows

Order by **FEATURED** ▾ DOWNLOADS NAME FRESH

Prev 1 2 3 4 5 6 Next

 **AWS SDK - Amazon Simple Storage Service** by Amazon Web S... 
4 ratings

 **IBM MobileFirst SDK** by IBM 
10 ratings
Integrate your Xamarin apps with IBM MobileFirst Platform.

 **Microsoft Band SDK** by Xamarin Inc 
7 ratings
Extend the experience of your application to your users' wrists via a new dimension of interaction.

 **Oracle Mobile Cloud Service SDK** by Xamarin Inc 
2 ratings
Connect to Oracle MCS for data storage, user authentication, push notifications, and more.

 **Scandit Barcode Scanner SDK** by Scandit 
22 ratings
Enterprise-Grade Barcode Scanning for your Mobile App



Deployment Tools!

XCode & iOS Simulator

Xamarin Live Player
Sam's iPhone Player

Simulator

✓ iPhone 7 iOS 10.3.1

- iPhone 7 Plus iOS 10.3.1
- iPhone SE iOS 10.3.1
- iPhone 6s iOS 10.3.1
- iPhone 6s Plus iOS 10.3.1
- iPhone 6 iOS 10.3.1
- iPhone 6 Plus iOS 10.3.1
- iPhone 5s iOS 10.3.1
- iPhone 5 iOS 10.3.1
- iPad (5th generation) iOS 10.3.1
- iPad Pro (10.5-inch) iOS 10.3.1
- iPad Pro (12.9-inch) (2nd generation) iOS 10.3.1
- iPad Pro (9.7 inch) iOS 10.3.1
- iPad Pro (12.9 inch) iOS 10.3.1
- iPad Air 2 iOS 10.3.1
- iPad Air iOS 10.3.1

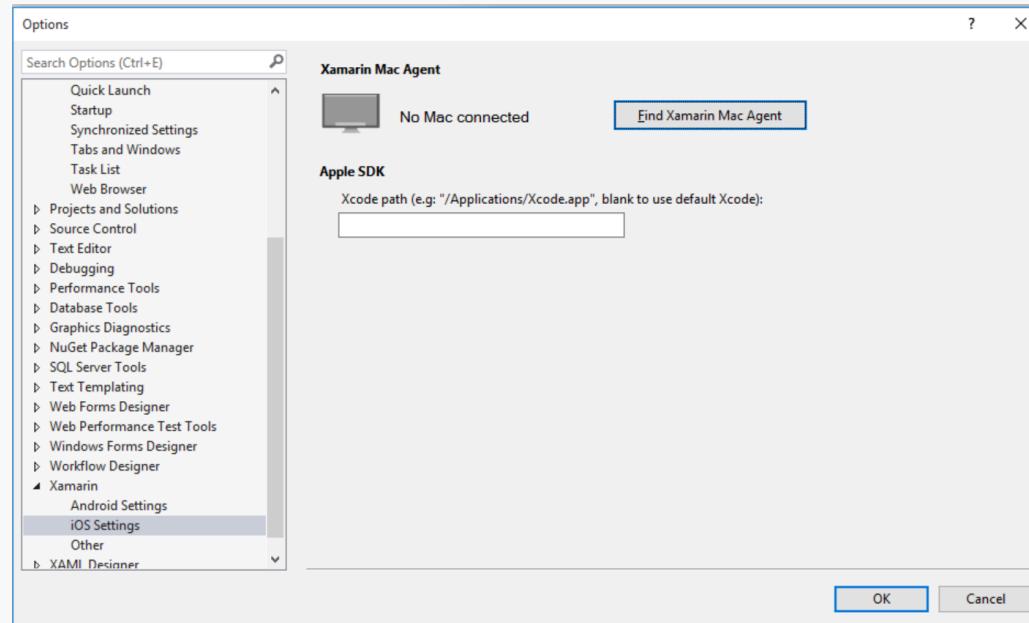
Device

Connect a provisioned Apple device via USB

Build Only Device

► Generic Device

Xamarin Live Player Devices...



iPhone 7 – iOS 10.1 (14B72)
Carrier 9:55 AM

 Boeing Business Jet
Passenger Capacity: 20-25

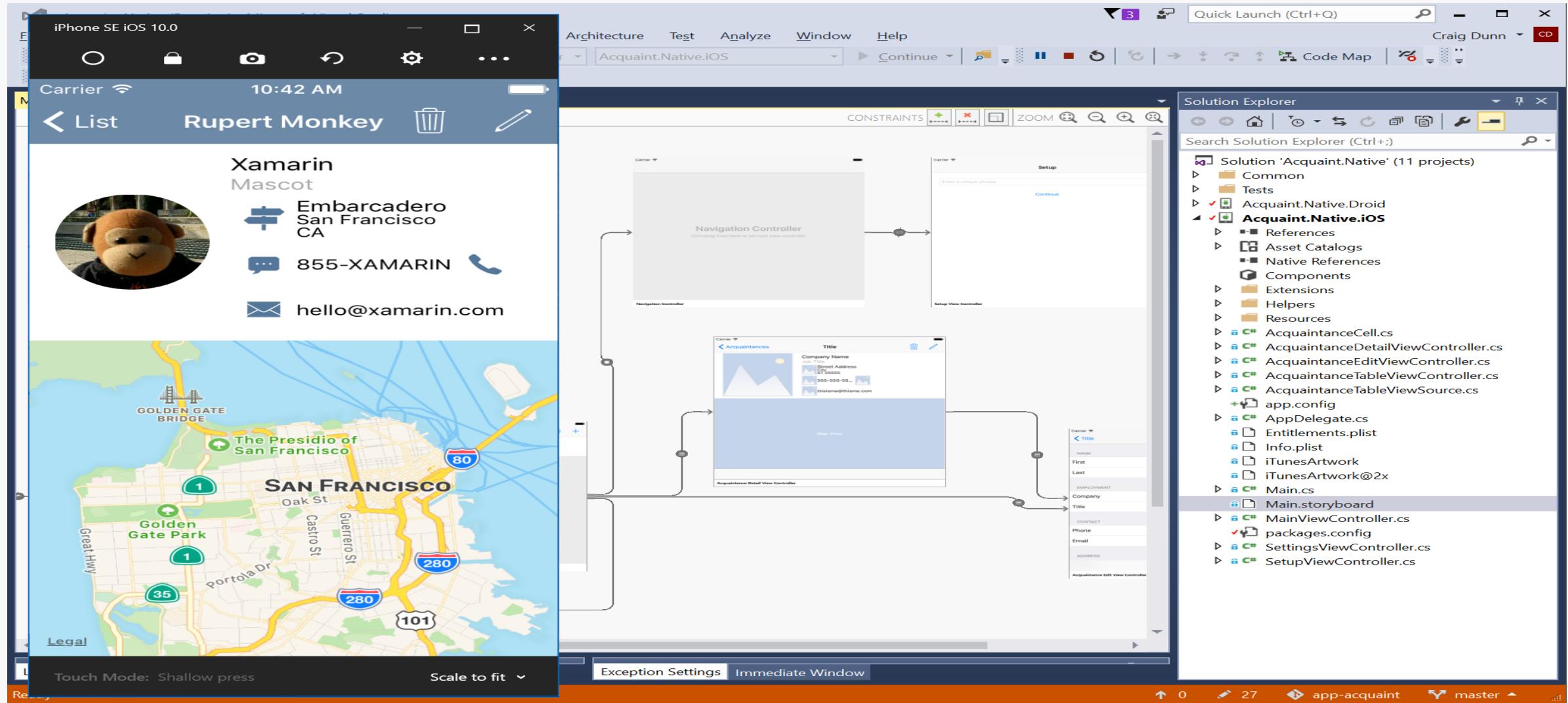
 Gulfstream V
Passenger Capacity: 15-19

 Citation X
Passenger Capacity: 10-12

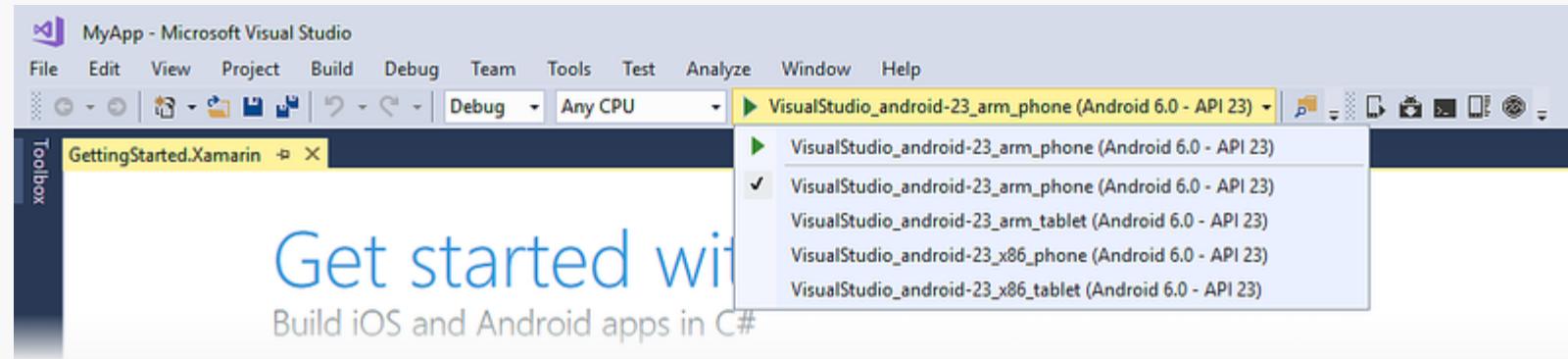
 Bombardier Challenger 604
Passenger Capacity: 9-10

 Embraer Legacy
Passenger Capacity: 13-15

Windows iOS Simulator



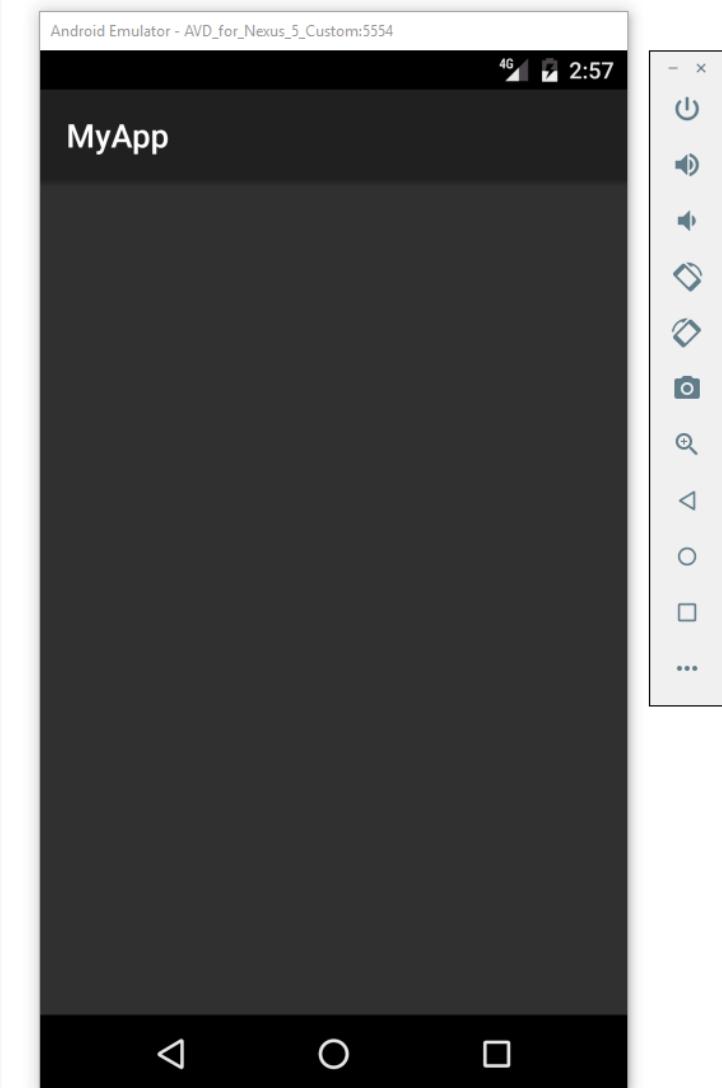
Android SDKs & Simulator



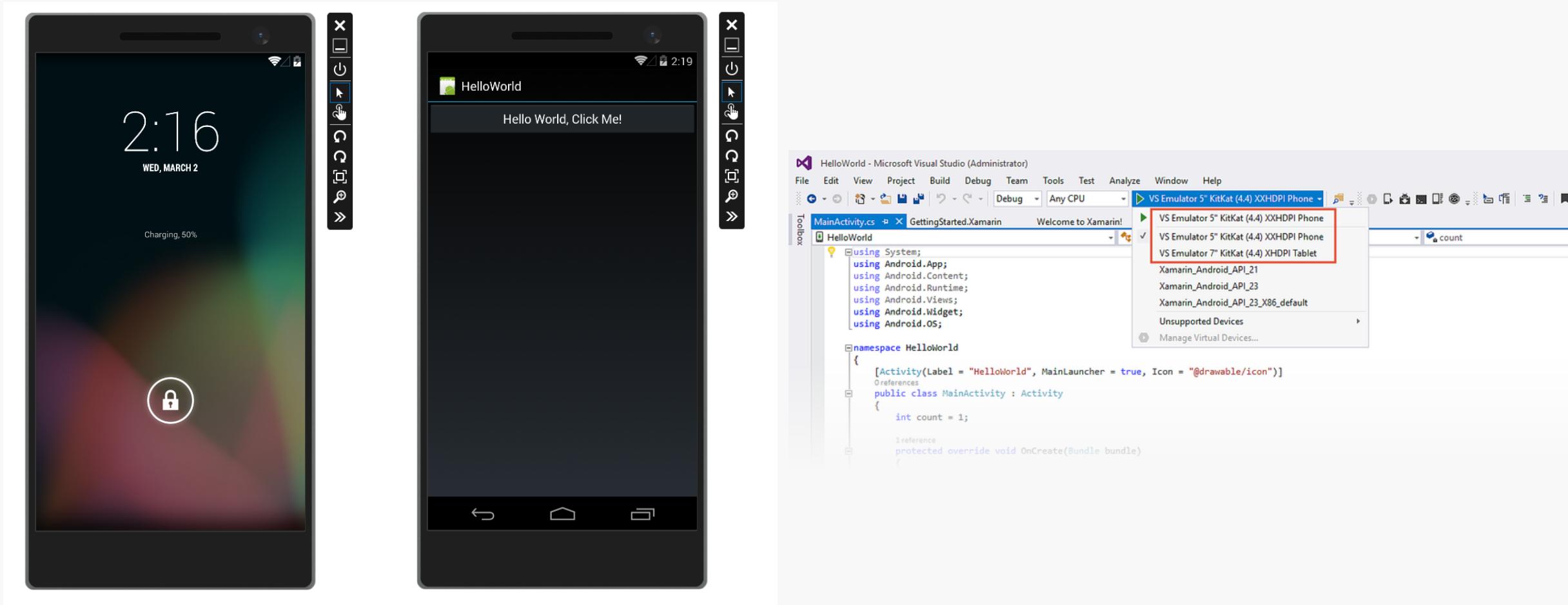
A screenshot of the 'Android Virtual Device (AVD) Manager' tool. The 'Android Virtual Devices' tab is selected. It shows a list of existing Android Virtual Devices located at C:\Users\mgm\.android\avd. The table data is as follows:

AVD Name	Target Name	Platform	API Level	CPU/ABI
VisualStudio_android-23_arm_phone	Android 6.0	6.0	23	Google apis ARM (armeabi-v7a)
VisualStudio_android-23_arm_tablet	Android 6.0	6.0	23	Google apis ARM (armeabi-v7a)
VisualStudio_android-23_x86_phone	Android 6.0	6.0	23	Google apis Intel Atom (x86)
VisualStudio_android-23_x86_tablet	Android 6.0	6.0	23	Google apis Intel Atom (x86)

At the bottom, there is a note: '⚠ A repairable Android Virtual Device. ✘ An Android Virtual Device that failed to load. Click 'Details' to see the error.'



Visual Studio Android Simulator



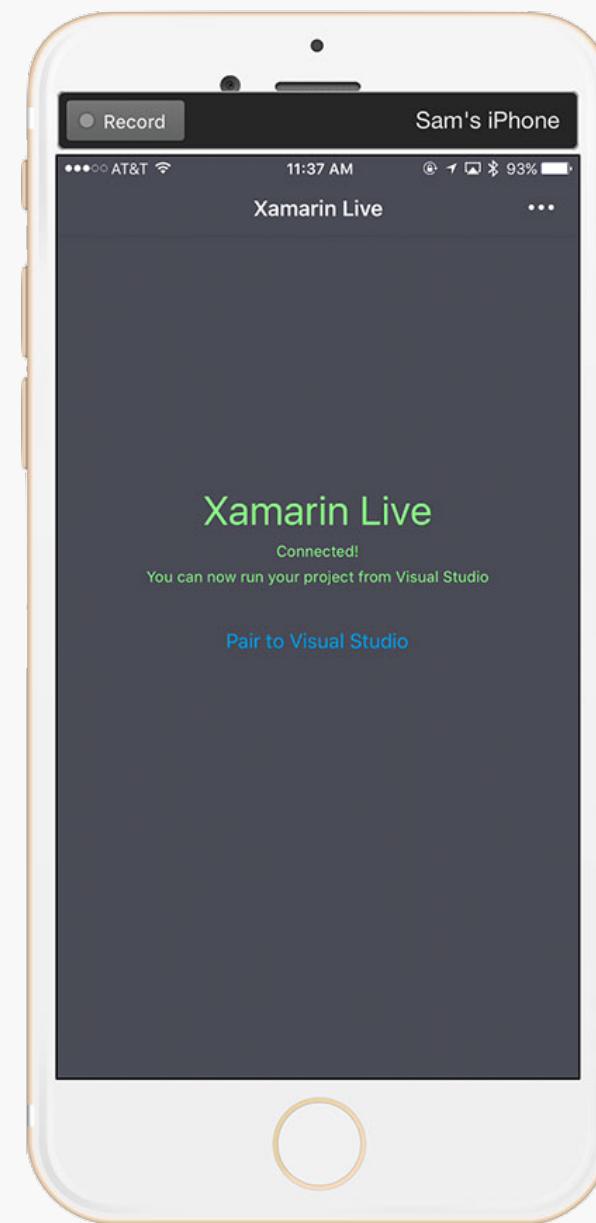
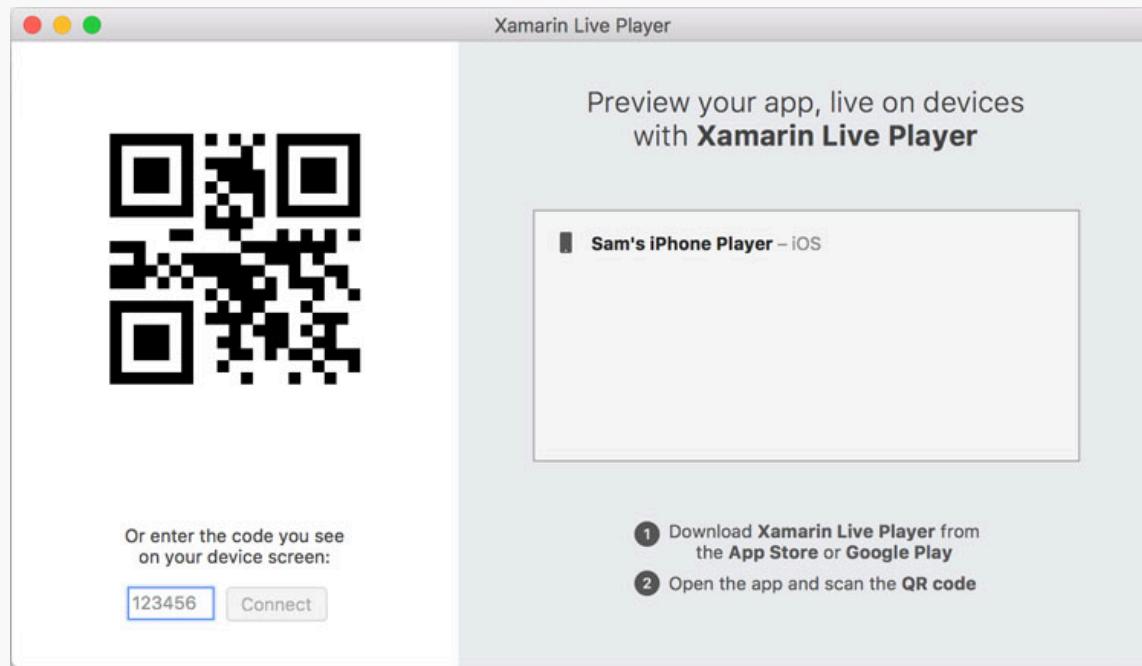
Xamarin Live Player



Visual Studio
for Windows or Mac



Player app running
on your iOS or
Android device





Easy Cloud BaaS!

Azure Services for your Mobile Apps



Web Apps

Web apps that scale



Mobile Apps

Build mobile apps for any device



API Apps

Easily build and consume APIs



Logic Apps

Automate business processes



Functions

Process events with serverless code



SQL Database

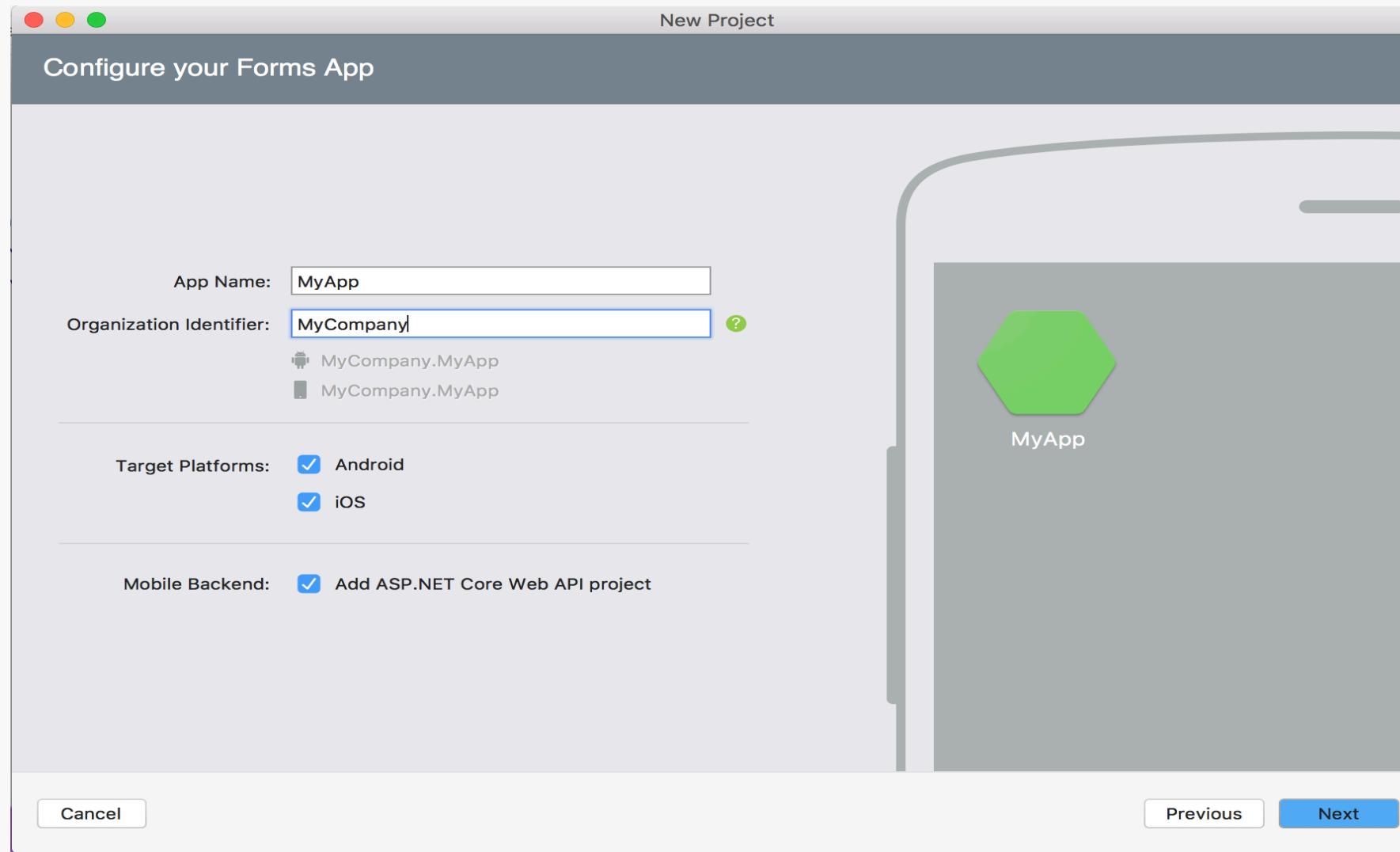
Managed relational SQL Database as a service



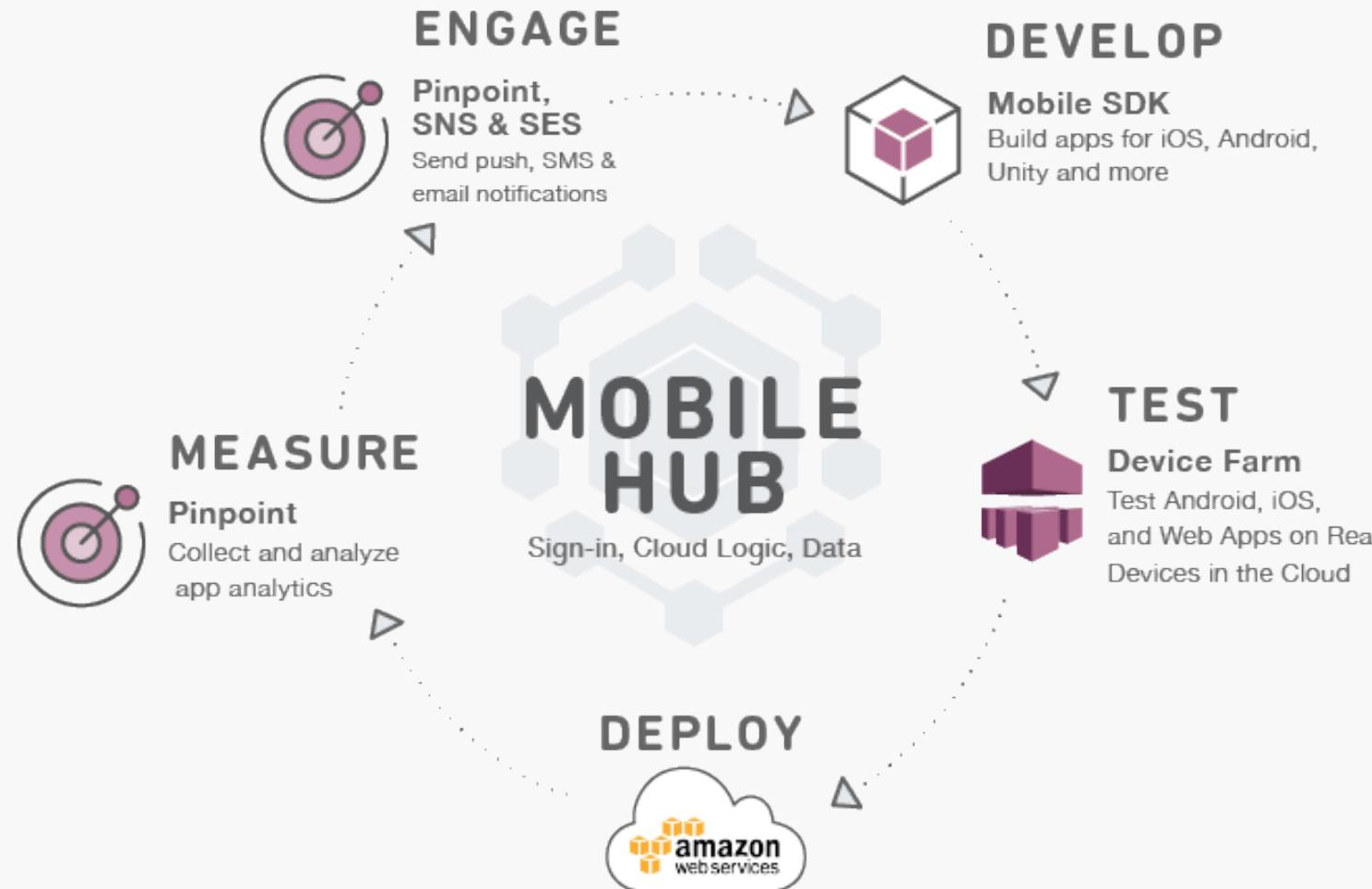
Storage

Durable, highly-available, and massively-scalable cloud storage

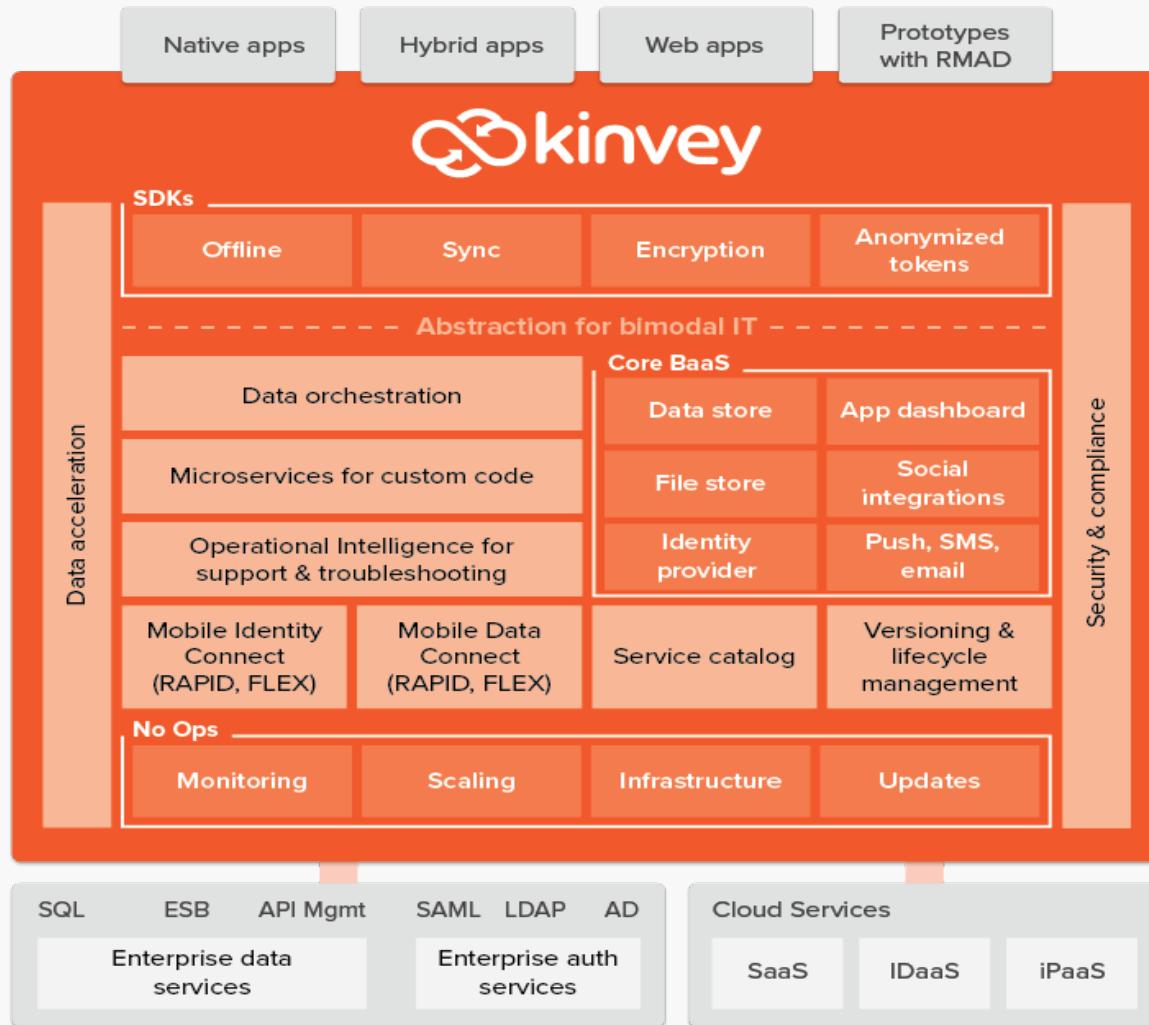
Built-In Azure BaaS Integration



AWS BaaS



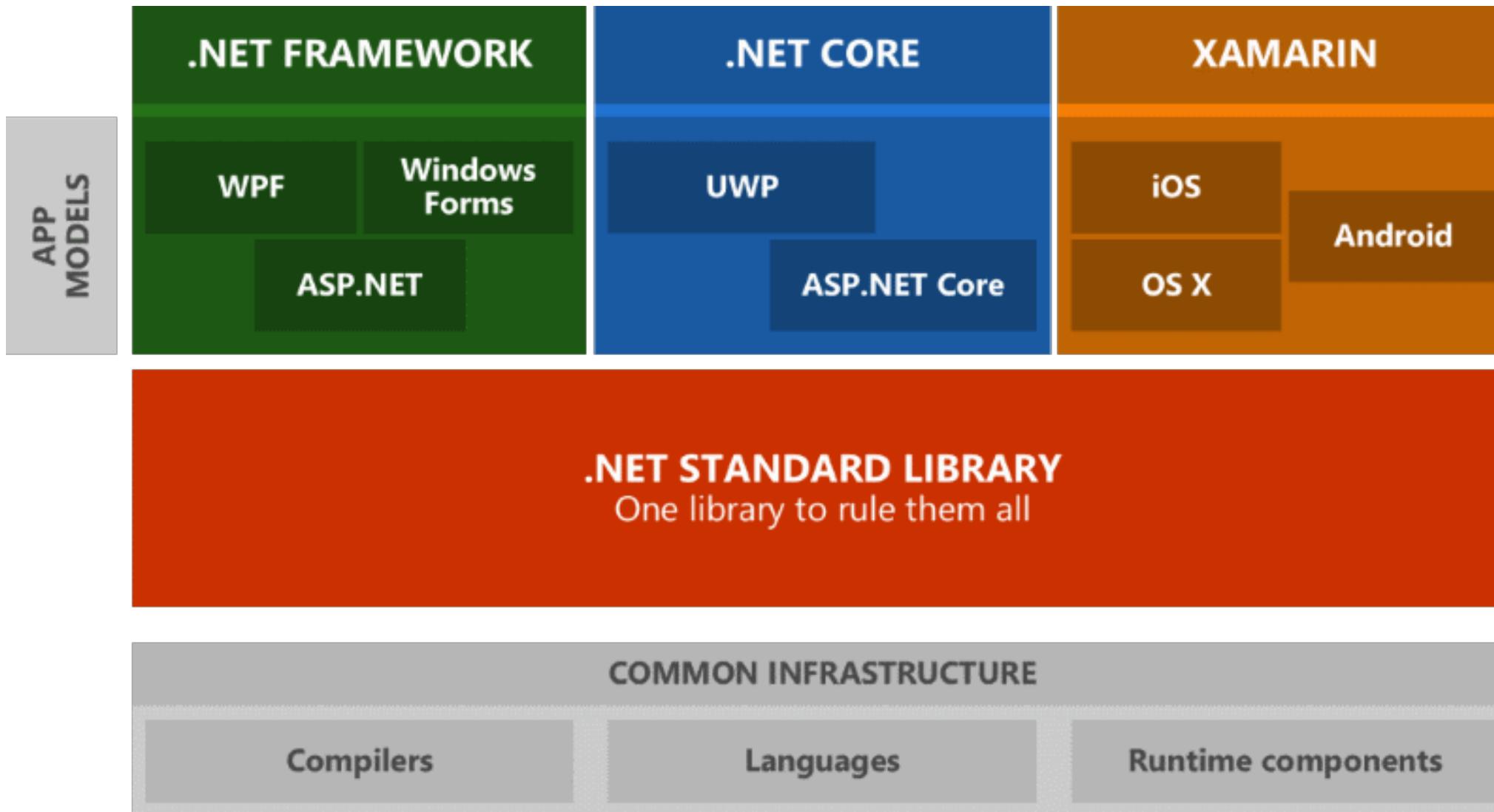
Kinvey BaaS





Code Reusability!

.NET Standard



XAML Standard

```
<!-- Xamarin.Forms XAML -->
<ContentView>
    <StackLayout Orientation="Horizontal">

        <Label Text="Work Order #"
            VerticalOptions="Center"/>

        <Entry Placeholder="Enter your work order"
            Text="{Binding WONumber, Mode=TwoWay}" />

        <Button Text="Save"
            TextColor="White"
            BackgroundColor="#77D065"
            Command="{Binding SaveCommand}" />

    </StackLayout>
</ContentView>
```

```
<!-- UWP XAML -->
<UserControl>
    <StackPanel Orientation="Horizontal">

        <TextBlock Text="Work Order #"
            VerticalAlignment="Center" />

        <TextBox PlaceholderText="Enter your work order"
            Text="{Binding WONumber, Mode=TwoWay}" />

        <Button Content="Save"
            Foreground="White"
            Background="#77D065"
            Command="{Binding SaveCommand}" />

    </StackPanel>
</UserControl>
```

Unified XAML Dialect • Shared UI across UWP & Xamarin.Forms • OSS Specs

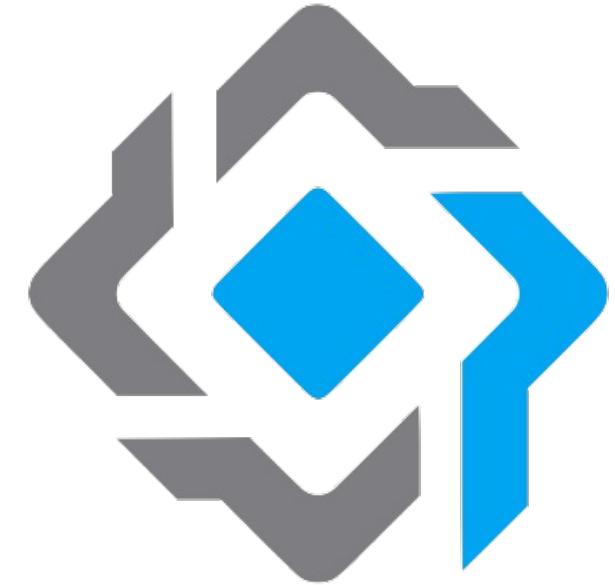


Great App Templates!

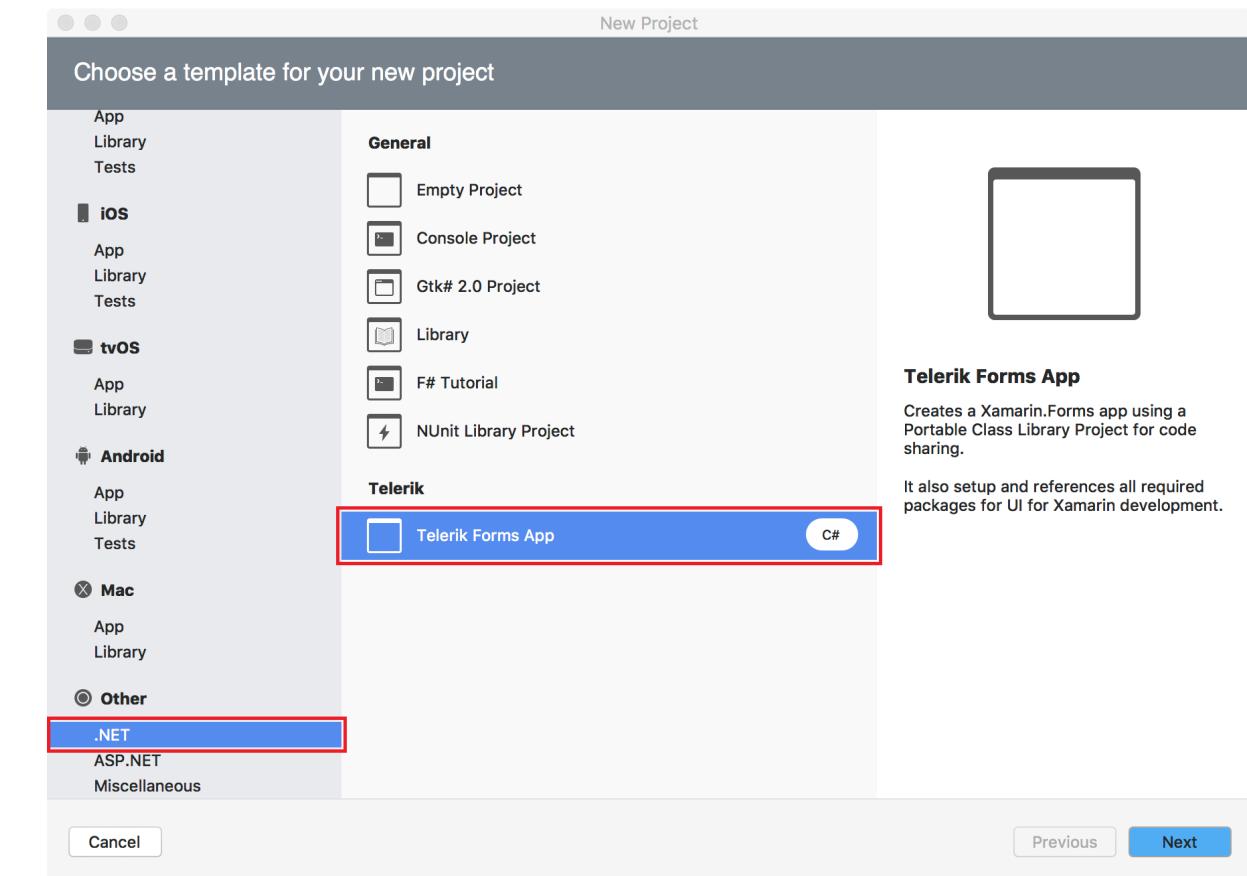
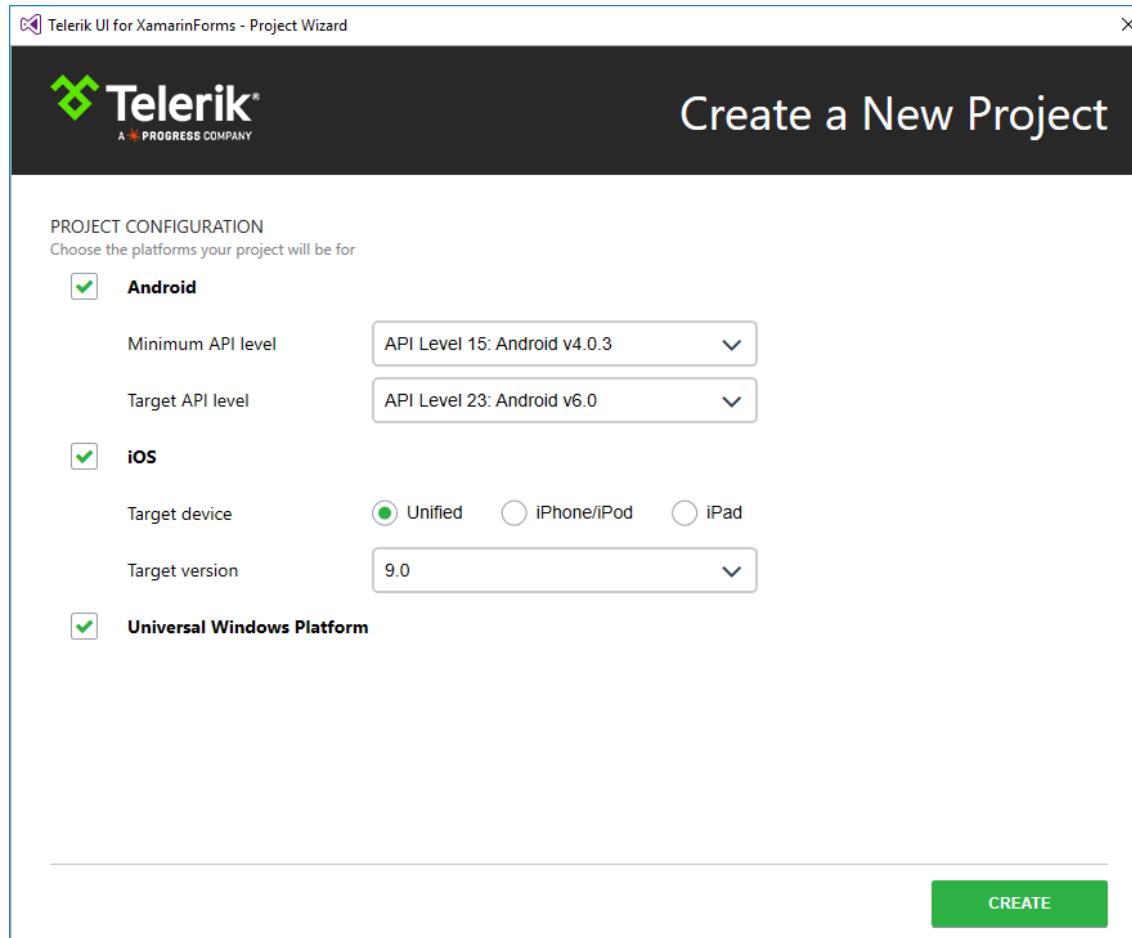
MVVM App Templates



MVVM Light Toolkit



UI App Templates

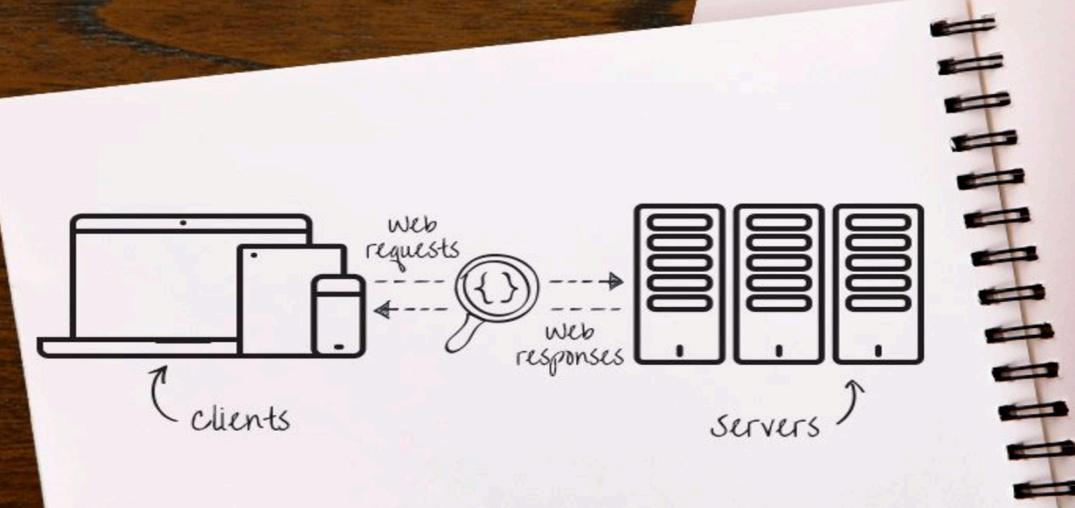




Network Utilities!

Fiddler

The free web debugging proxy
for any browser, system or platform



Fiddler Web Debugger

File Edit Rules Tools View Help GET /book ContentBlock

Replay Resume Stream Decode | Keep: All sessions Find Save Browse TextWizard Tearoff Online

#	Result	Protocol	Host	URL
1	301	HTTP	fiddler2.com	/UpdateCheck.aspx?isBeta
2	200	HTTP	www.telerik.com	/updatecheck.aspx?isBeta

Statistics Inspectors AutoResponder Composer Log Filters Timeline

Headers TextView WebForms HexView Auth Cookies Raw JSON XML

Request Headers [Raw] [Header Definitions]
GET /UpdateCheck.aspx?isBeta=False HTTP/1.1

Cache
Pragma: no-cache

Client
Accept-Encoding: gzip, deflate
accept-language: en-US
User-Agent: Fiddler/4.4.5.0 (MONO.NET 4.0.30319.17020; Mac Unix 13.0.0.0; en-US; 2x)

Miscellaneous
Referer: http://fiddler2.com/client/4.4.5.0

Transport
Connection: close

XML
Transformer | Headers | TextView | ImageView | HexView | Auth | Caching | Cookies | Raw | JSON

Response Headers [Raw] [Header Definitions]
HTTP/1.1 301 Moved Permanently

Cache
Cache-Control: no-cache
Date: Tue, 28 Jan 2014 13:03:26 GMT

Entity
Content-Length: 0

Miscellaneous
Server: Microsoft-IIS/7.5

Transport
Connection: close

Capturing All Processes 1 / 2 http://fiddler2.com/UpdateCheck.aspx?isBeta=False



POSTMAN

Developing APIs is hard
Postman makes it easy

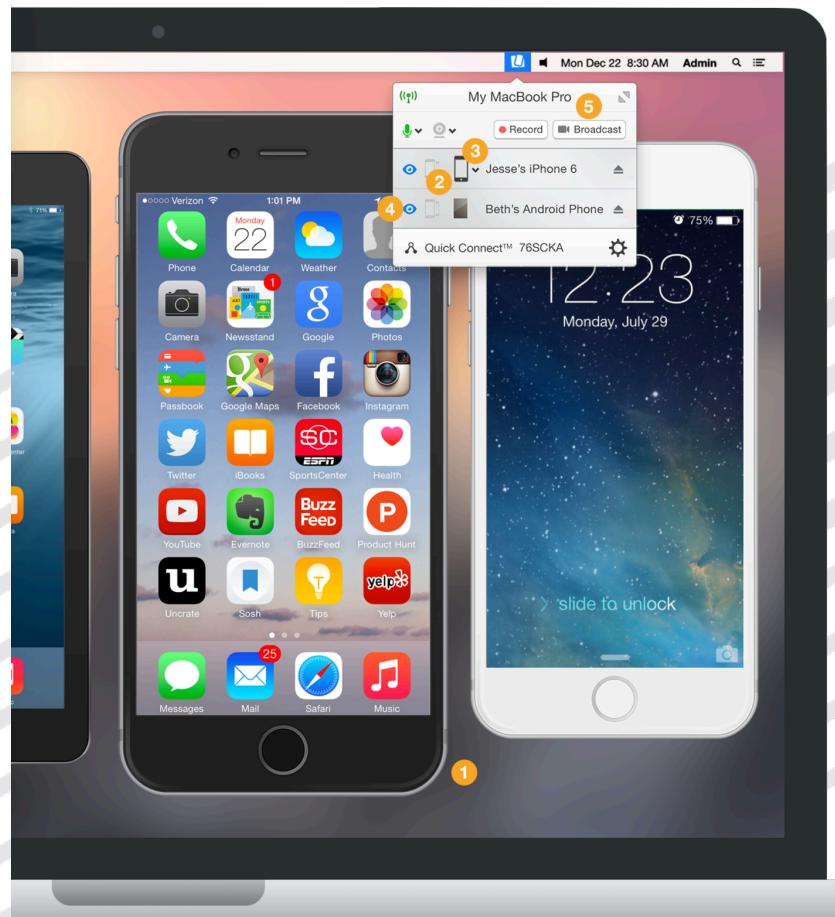
The screenshot shows the Postman application interface. On the left, there's a sidebar with a 'Collections' tab selected, displaying various API requests like 'Get Weather & Post to Slack', 'Get lat/long', and 'Hello World!'. The main area shows a request configuration for a 'GET' request to 'https://maps.googleapis.com/maps/api/geocode/json'. The 'Body' tab contains a pre-request script:

```
tests['Status Code is 200'] = (responseCode.code === 200);

try {
  var location_data = JSON.parse(responseBody);
  latlong = location_data.results[0].geometry.location;
  formatted_address = location_data.results[0].formatted_address;
}
```

On the right, there's a 'Generate Code' section with a list of code snippets for different assertions and response processing.

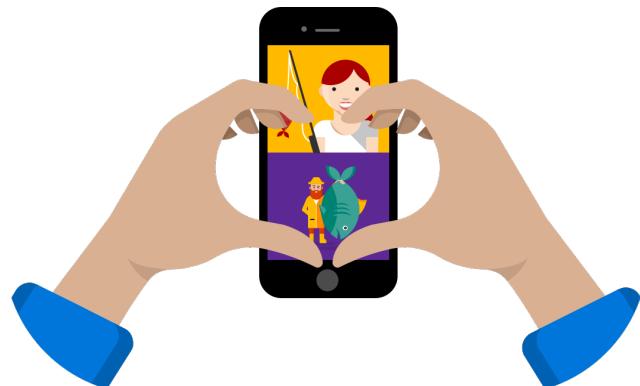
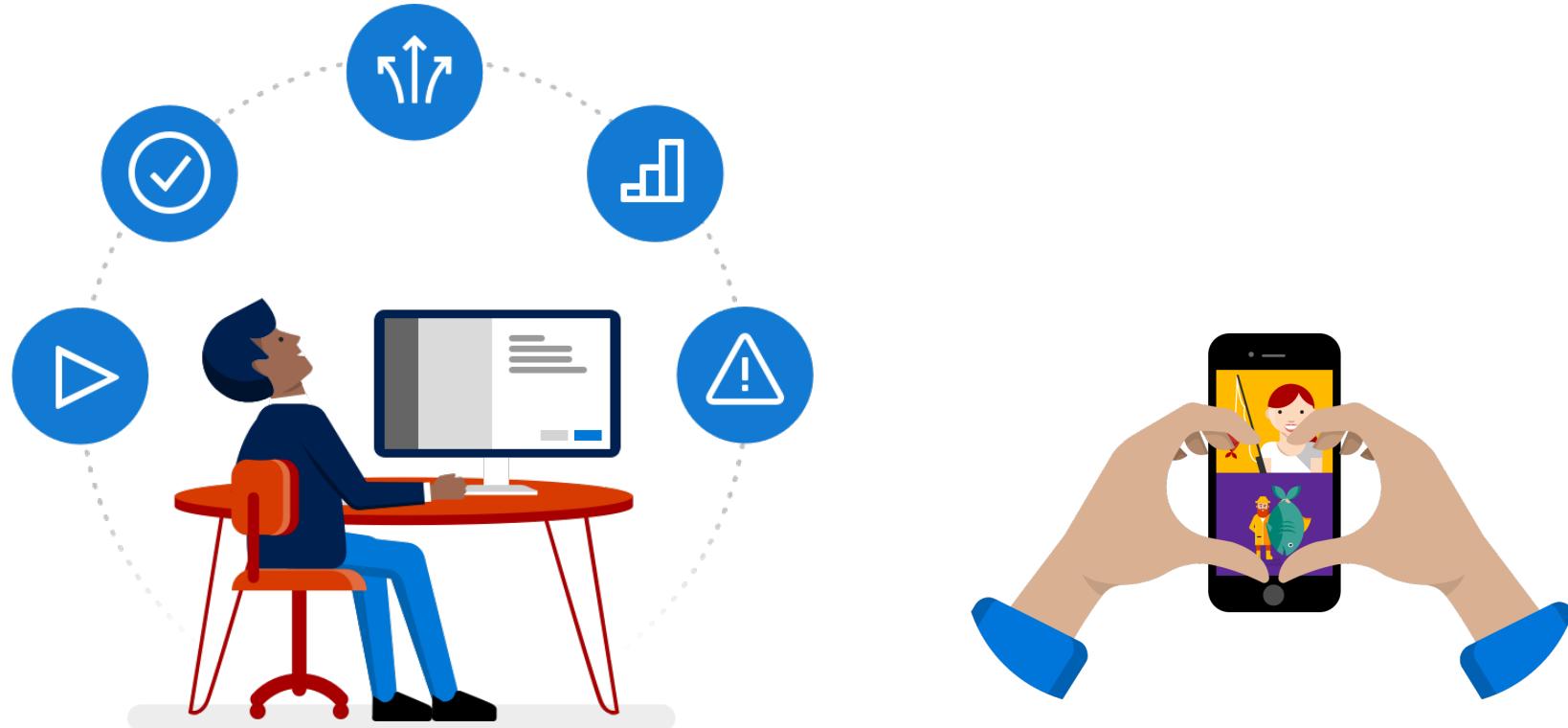
Reflector 2™





DevOps Workflows!

Visual Studio Mobile Center



Device Test Cloud

Screenshot of the Xamarin test cloud interface showing a grid of mobile device screenshots and a sidebar with test results.

Overview

ALL RESULTS

- Customers tests**
 - Check Customer Details ✓
 - Check Customer Navigation ✓
 - Check Customer Phone ✓
 - Investigate Customer Page ✓
- Sales tests**
 - Add an item**
 - First I launch the app ✓
 - Then I tap 'Sales' **1** ⚡
 - Then I tap 'Add'
 - Then I choose the first result
 - Then I set the title and description
 - Then I tap 'Save'
 - Then I go back
 - Inspect an item ✓
 - Remove an item ✓
- Order tests**
 - Add New Order ✓
 - Add New Order And Deliver ⚡
 - Deliver Order ✓
 - Edit Customer Order ✓

testcloud.xamarin.com

New Test Run | Vinicius

ADD AN ITEM
Then I tap 'Sales'

Filter devices

Device	OS Version
Apple iPhone 5C	iOS 8.2
Apple iPhone 5	iOS 8.3
Apple iPhone 5C	iOS 8.3
Apple iPhone 5S	iOS 8.3
Apple iPhone 6	iOS 8.3
Apple iPhone 6 Plus	iOS 8.3
Apple iPhone 5S	iOS 8.2
Apple iPhone 6	iOS 8.2
Apple iPhone 5S	iOS 8.1.3
Apple iPhone 6	iOS 8.1.3
Apple iPhone 5C	iOS 7.4
Apple iPhone 5S	iOS 7.4
Apple iPhone 6	iOS 7.4
Apple iPhone 5C	iOS 7.1.1
Apple iPhone 5S	iOS 7.1.1
Apple iPhone 6	iOS 7.1.1
Apple iPhone 6	iOS 7.0.4
Apple iPhone 5S	iOS 7.0.4
Apple iPhone 6	iOS 7.0.4
Apple iPhone 6	iOS 6.1
Apple iPhone 5S	iOS 6.1
Apple iPhone 6	iOS 6.1
Apple iPhone 5C	iOS 6.1
Apple iPhone 5S	iOS 6.1
Apple iPhone 6	iOS 6.1
Apple iPhone 5C	iOS 6.1
Apple iPhone 5S	iOS 6.1
Apple iPhone 6	iOS 6.1

App Analytics

Screenshot of the Xamarin Test Cloud interface showing app analytics for a Xamarin CRM application.

Test Details:

- Project: Xamarin CRM
- Branch: master
- Date: Aug 23, 2015 10:03:59 PM
- User: Vinicius

Test Overview:

- Passed step: First I launch the app, Then I tap 'Sales'
- Failed step: Add New Order And Deliver

Test Results:

- Customers tests:**
 - Check Customer Details: Passed
 - Check Customer Navigation: Passed
 - Check Customer Phone: Passed
 - Investigate Customer Page: Passed
- Sales tests:**
 - Add an item:
 - First I launch the app
 - Then I tap 'Sales'
 - Then I tap 'Add'
 - Then I choose the first result
 - Then I set the title and description
 - Then I tap 'Save'
 - Then I go back
 - Inspect an item: Passed
 - Remove an item: Passed
- Order tests:**
 - Add New Order: Passed
 - Add New Order And Deliver: Failed
 - Deliver Order: Passed
 - Edit Customer Order: Passed

Device Information: Apple iPhone 6 (iOS 8.2, iPhone7,2)

Performance Metrics:

- Test duration: 1142.99 sec
- Step duration: 6.53 sec
- Memory Usage: 78.62 MB
- CPU Usage: 22%

App Screenshots:

- 6-Week Sales:** A bar chart titled "6-Week Sales" showing weekly average sales. The chart shows values for weeks ending July 19, July 26, August 2, August 9, August 16, and August 23. The total weekly average is \$2,126.06.
- LEADS:** A list of leads with their status, value proposition, and amount. The leads are: Bay Tech Credit Union (50% - Value Proposi..., \$5,005.00), City of Richmond (75% - Proposal, \$8,000.00), Cityview Consulting (10% - Prospect, \$10,000.00), and East Bay Commercial Bank (100% - Pending, \$20,000.00).



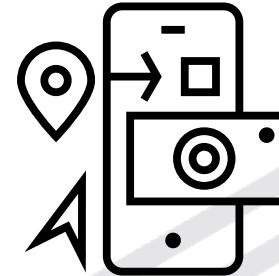
Need for Sharp UI!



Telerik®
by  Progress

Complete Rich .NET Toolbox
Any App | Any Platform

Why UI for Xamarin



1. Polished UI controls out of the box
2. Allows developers to focus on app features, rather sweating UI details
3. Native controls for Xamarin.iOS & Xamarin.Android
4. Cross-platform wrappers for Xamarin.Forms
5. Extreme performance tuned
6. Works seamlessly on Windows/Mac
7. Easy integration through NuGet and Templates
8. Lot of customization options
9. Sample apps in Stores

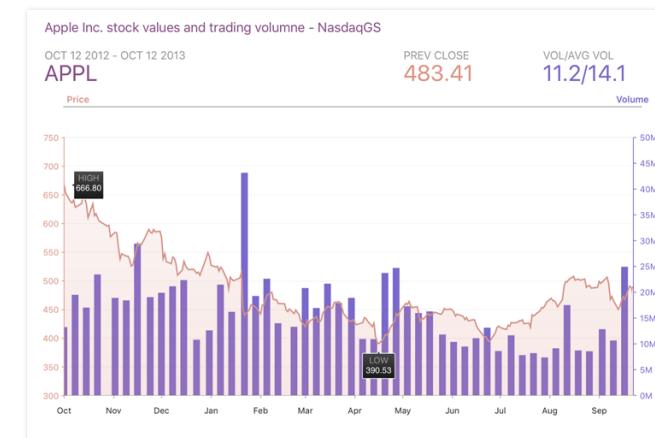
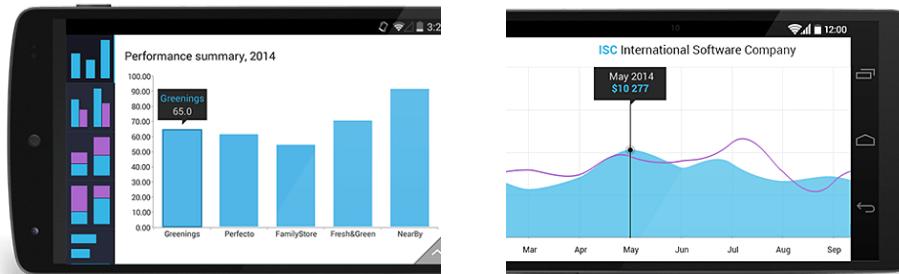
The Best .Xamarin UI for .NET Ninjas!



UI for Xamarin

Charts

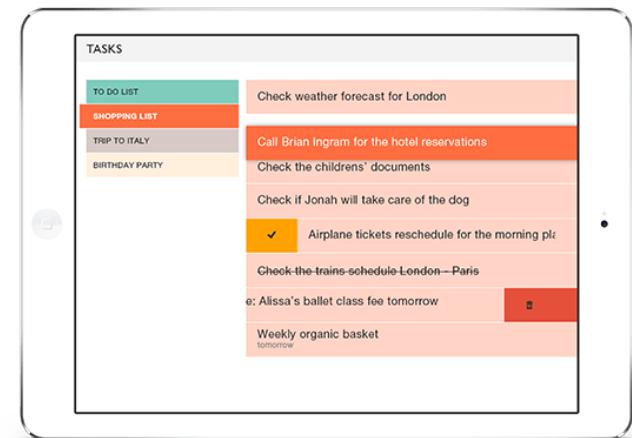
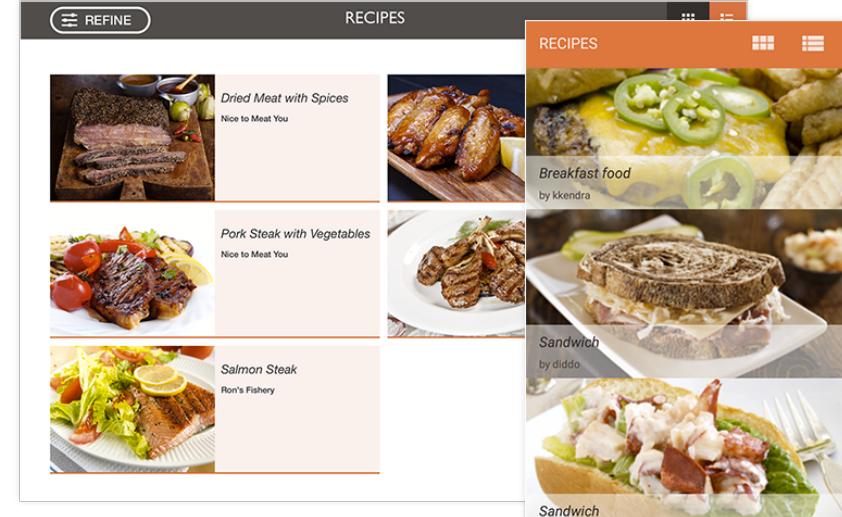
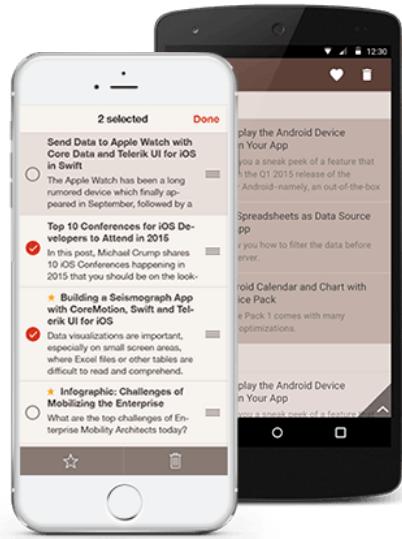
1. What Telerik is known for ☺
2. Stunning Data Visualization
3. 12+ Native Chart Types
4. Support for various Axes
5. Pan & Zoom Interactivity
6. Selection, Annotations & Legends
7. Tooltip visualizations



UI for Xamarin

ListView

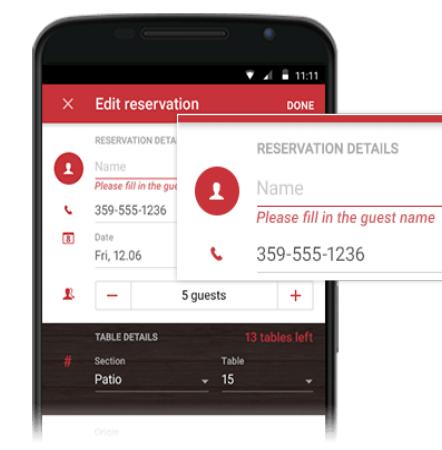
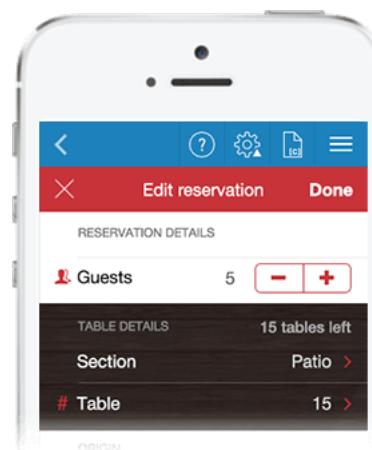
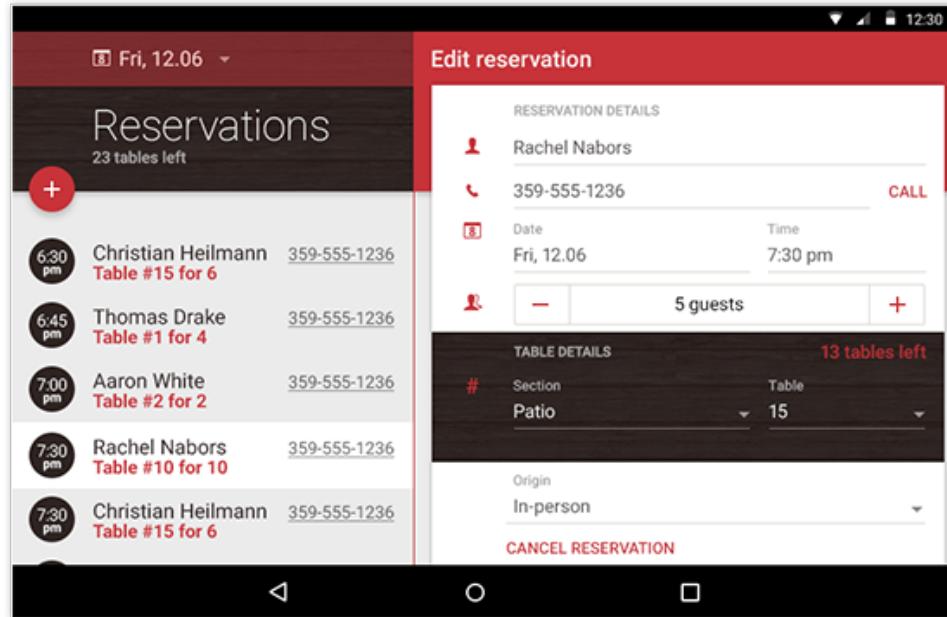
1. ListView on steroids
2. Pull to Refresh
3. Easy Data Binding
4. Item Reorder & Swipe actions
5. Selection & Animations
6. Data Virtualization with Load on Demand
7. Flexible Layouts & Templating



UI for Xamarin

DataForm

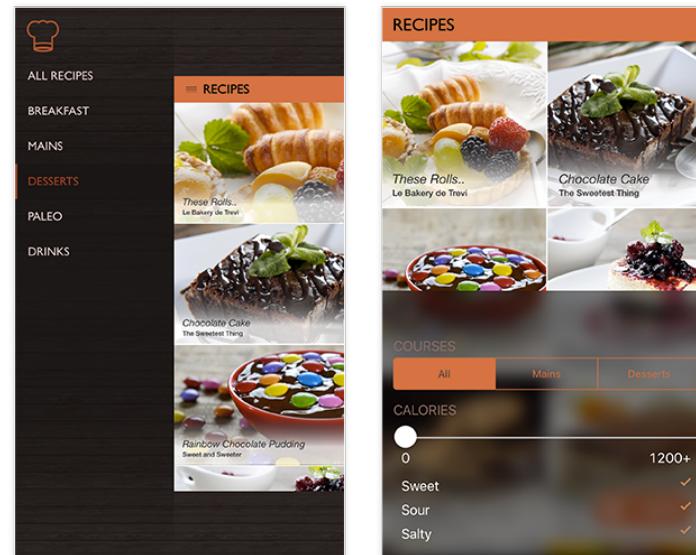
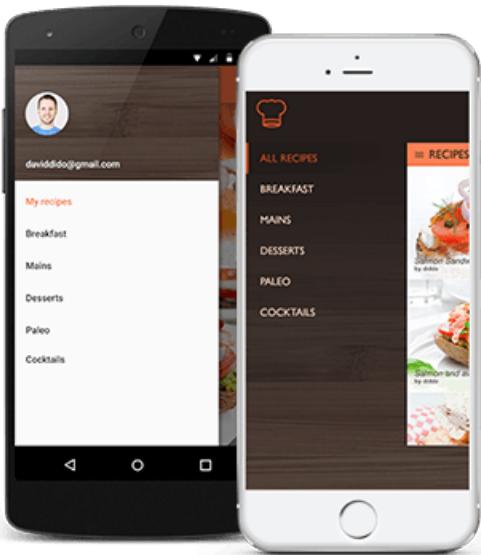
1. Build Forms quickly
2. Maps Object Properties to UI
3. Read-only or Editable Elements
4. Input Editor to Type matching
5. Three Commit modes
6. Built-in Validations & Feedback



UI for Xamarin

SideDrawer

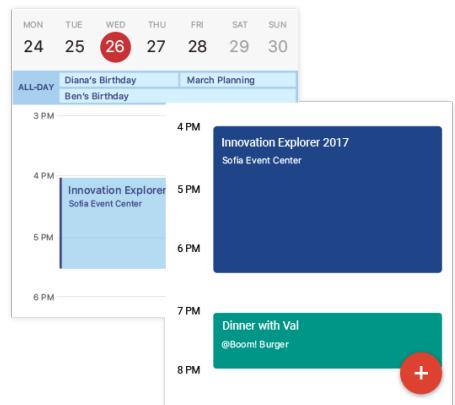
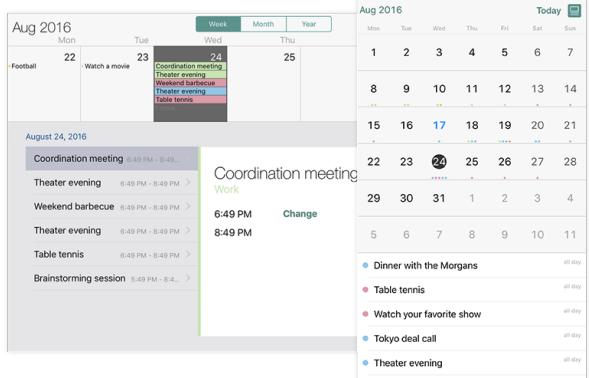
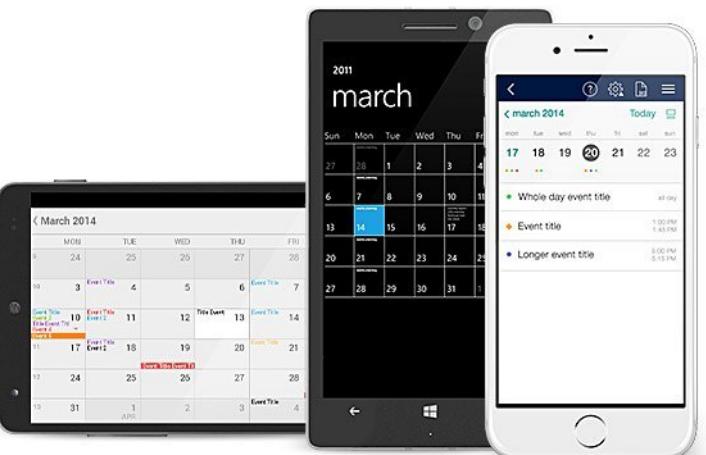
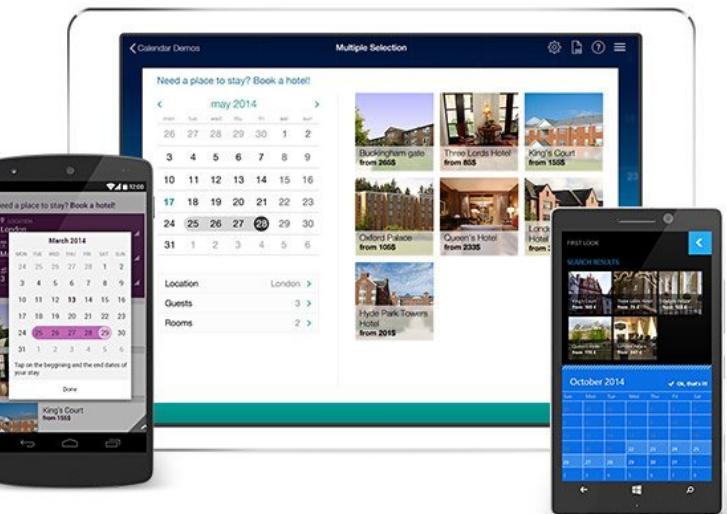
1. Extends popular Slide-out design
2. Great for Navigation & Organization
3. Embed any Content in Sliding Panel
4. Customizable Effects & Transitions



UI for Xamarin

Calendar

1. Week, Month & Year views
 2. Single, Multiple & Range Date Selections
 3. Support for Appointments
 4. Culture Localization built-in
 5. Flexible Style API
 6. Intuitive Day View



UI for Xamarin

Gauges

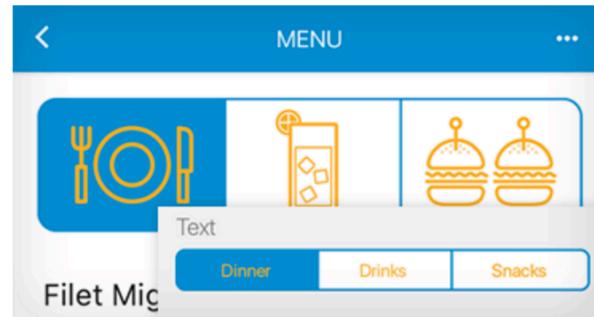
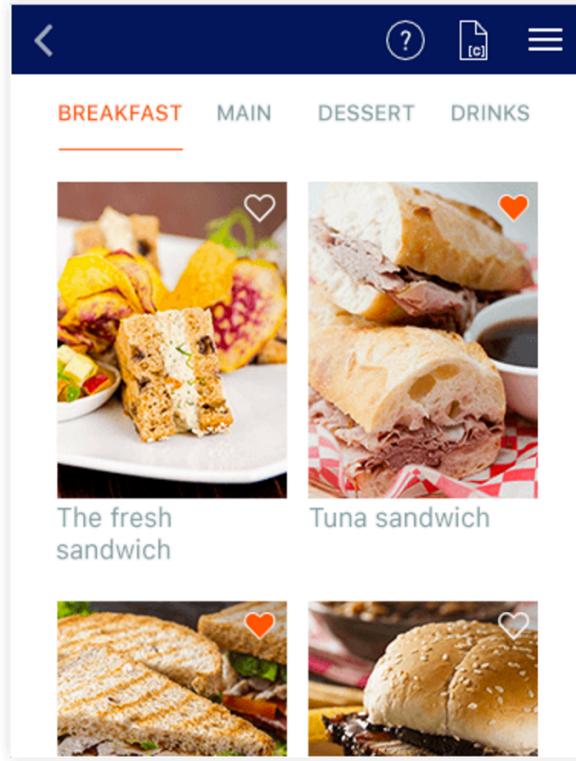
1. Plot Numeric Values over Range
2. Beautiful Radial Gauges
3. Variety of Linear Gauges
4. Highly Customizable API access
5. Smooth Animations Built-in
6. Swipe Gesture Interactivity



UI for Xamarin

TabView & Segmented UI

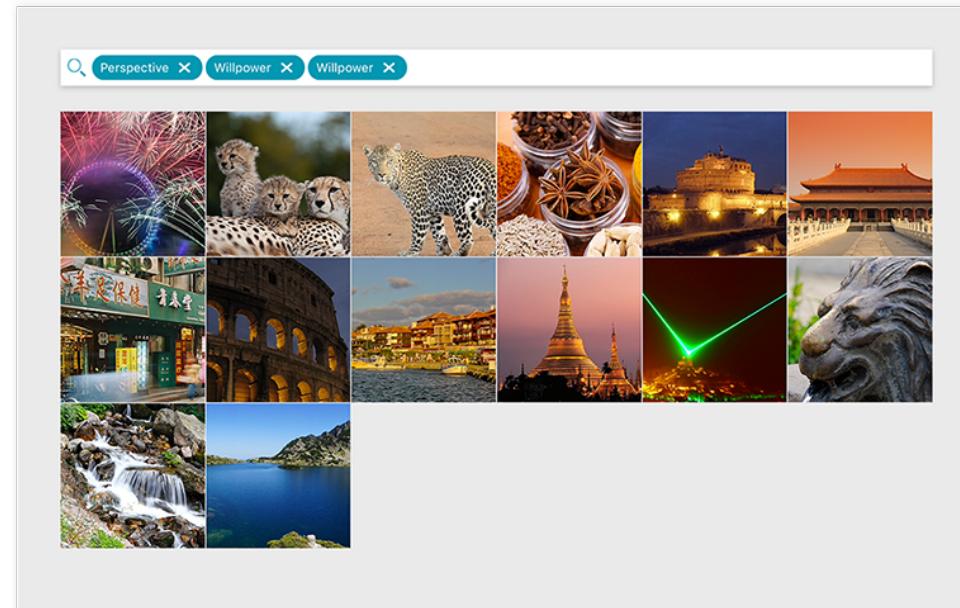
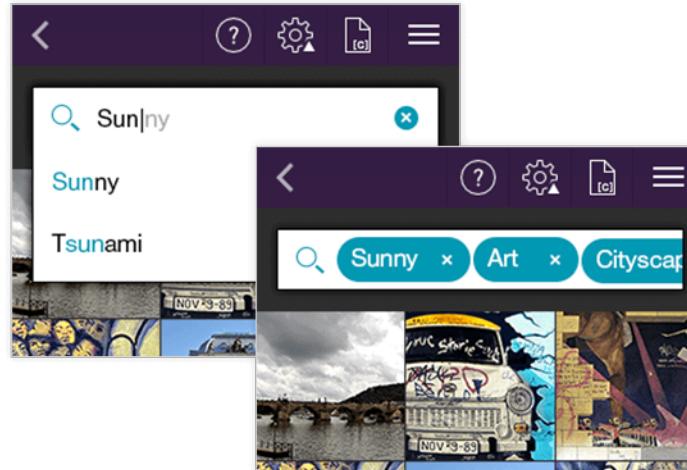
1. Intuitive New Tabs/Segments UI
2. Easy API & Navigation Support
3. Selection & Multiple Items Support
4. Customizable Templates for Content
5. Custom Normal/Selected States



UI for Xamarin

AutoComplete

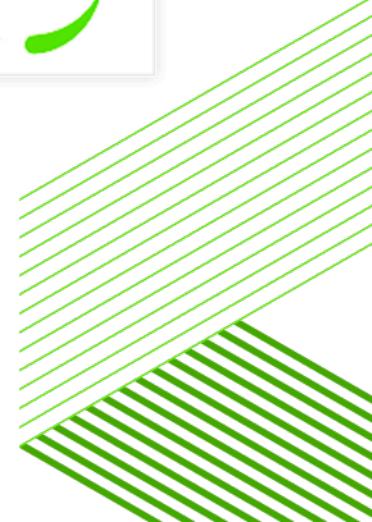
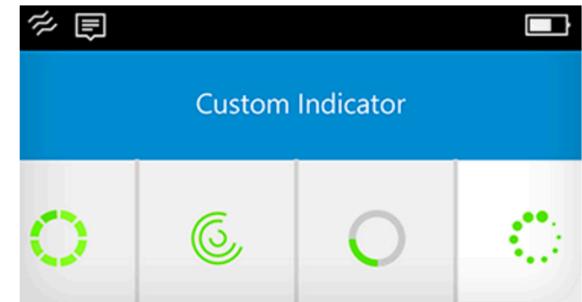
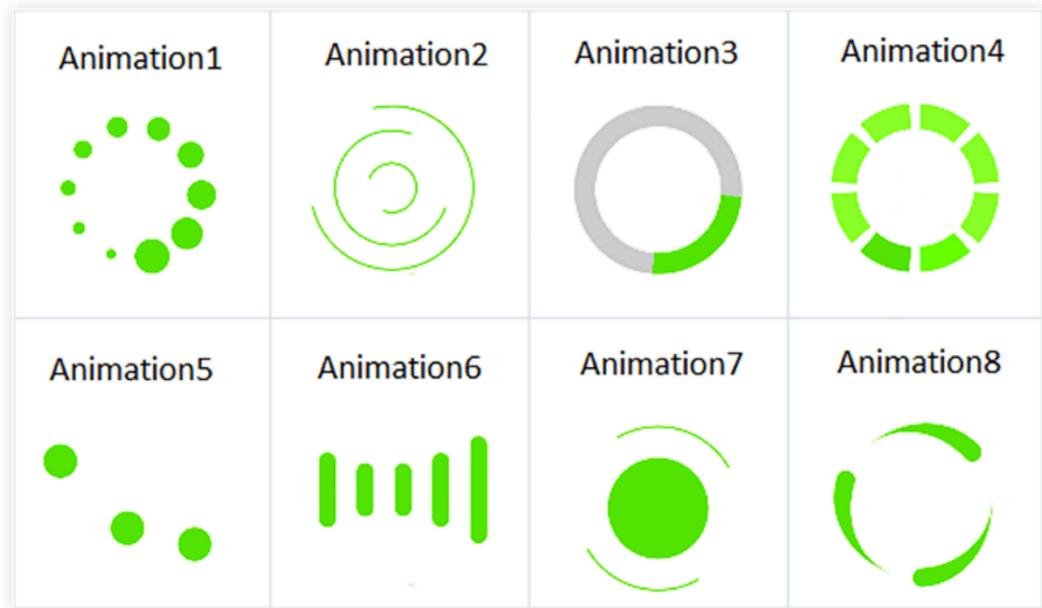
1. Make Typing Easier on Mobile
2. Easy Data Binding
3. Filter on Starts-With/Contains
4. Allow Single or Multiple Selections
5. Token Support



UI for Xamarin

Busy Indicator

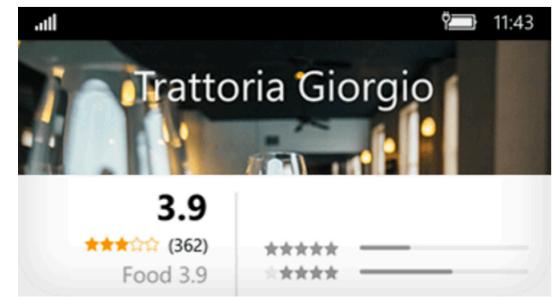
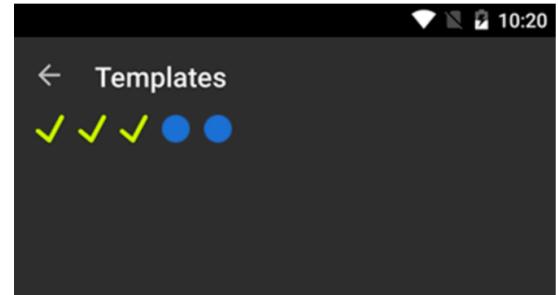
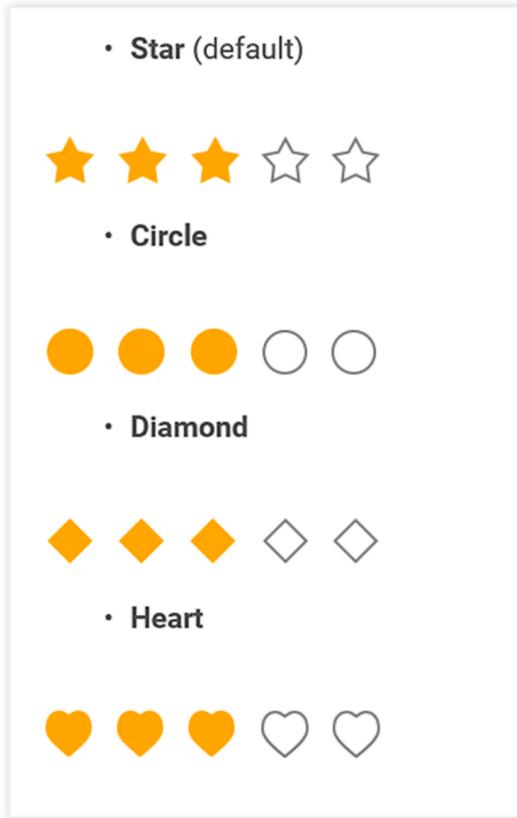
1. Variety of Busy Indicator UIs
2. User Feedback on Long Processes
3. Smooth Beautiful User Experience
4. Eight Stunning Animations out of Box
5. Support for Custom Content/Animations
6. Developer-friendly Placeholder API



UI for Xamarin

Rating

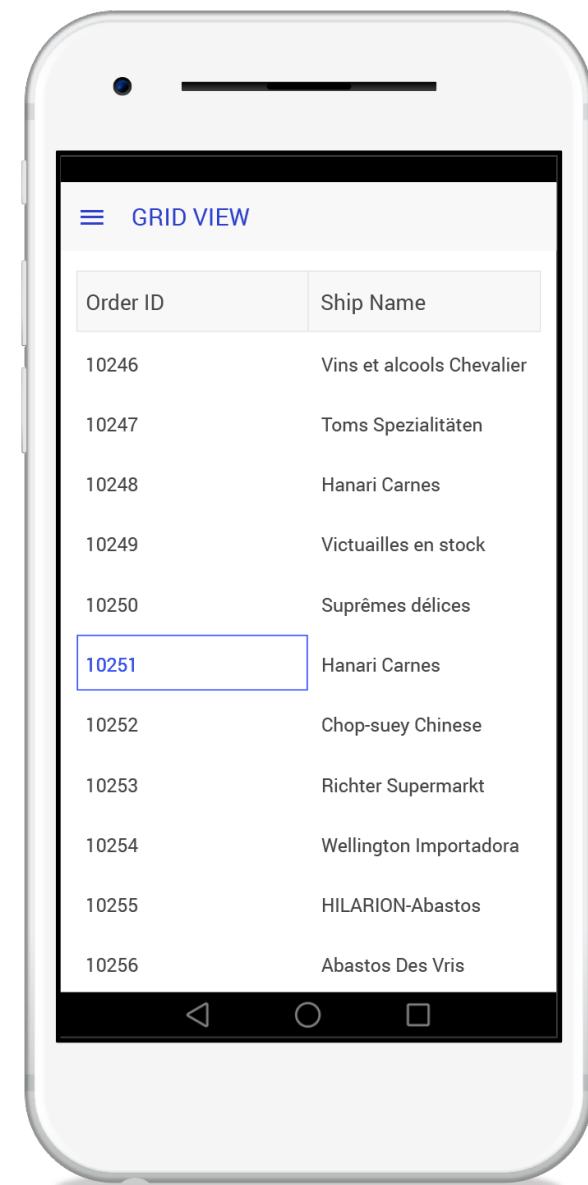
1. Intuitive Rating UI
2. Template Support in Normal/Selected Mode
3. Predefined & Extendable Shapes
4. Customizable User Experience
5. Easy Data Binding & Consumption API



UI for Xamarin

DataGrid (CTP)

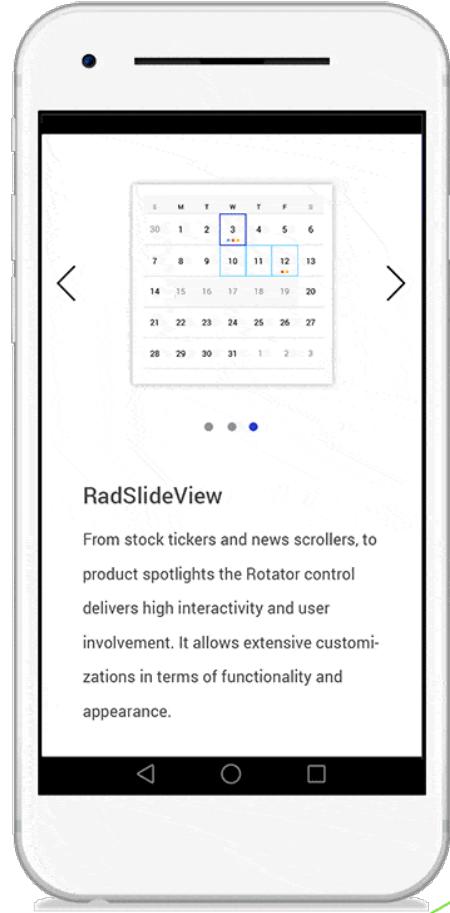
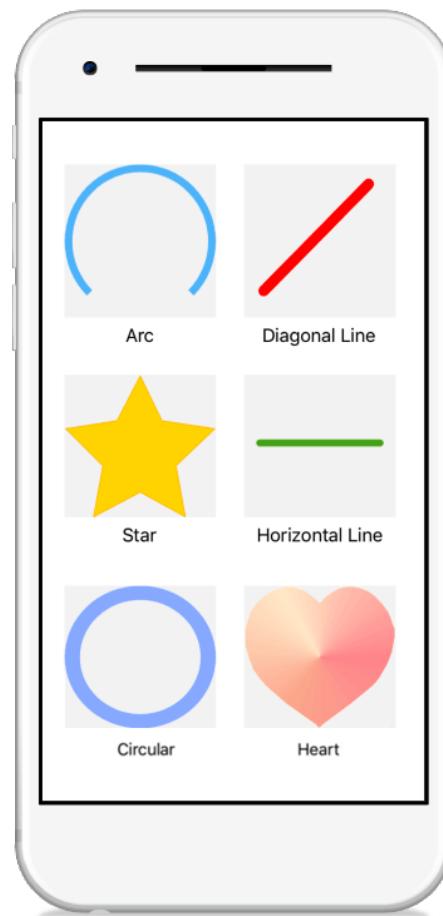
1. Visualize & Edit tabular data
2. Sorting, Filtering & Grouping built-in
3. Easy Two-way DataBinding
4. Easy CRUD operations on data
5. UI Virtualization
6. APIs for Validations & Styling



UI for Xamarin

RadPath & SlideView

1. Draw Complex Shapes in Xamarin.Forms
2. Support for various geometries
3. Present swipeable multi-page content
4. Easily create Image Galleries/Wizards



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