

Visual Studio **LIVE!**
EXPERT SOLUTIONS FOR .NET DEVELOPERS | San Diego

Essential Tools for Xamarin Dev

Sam Basu | @samidip
Developer Advocate
Progress

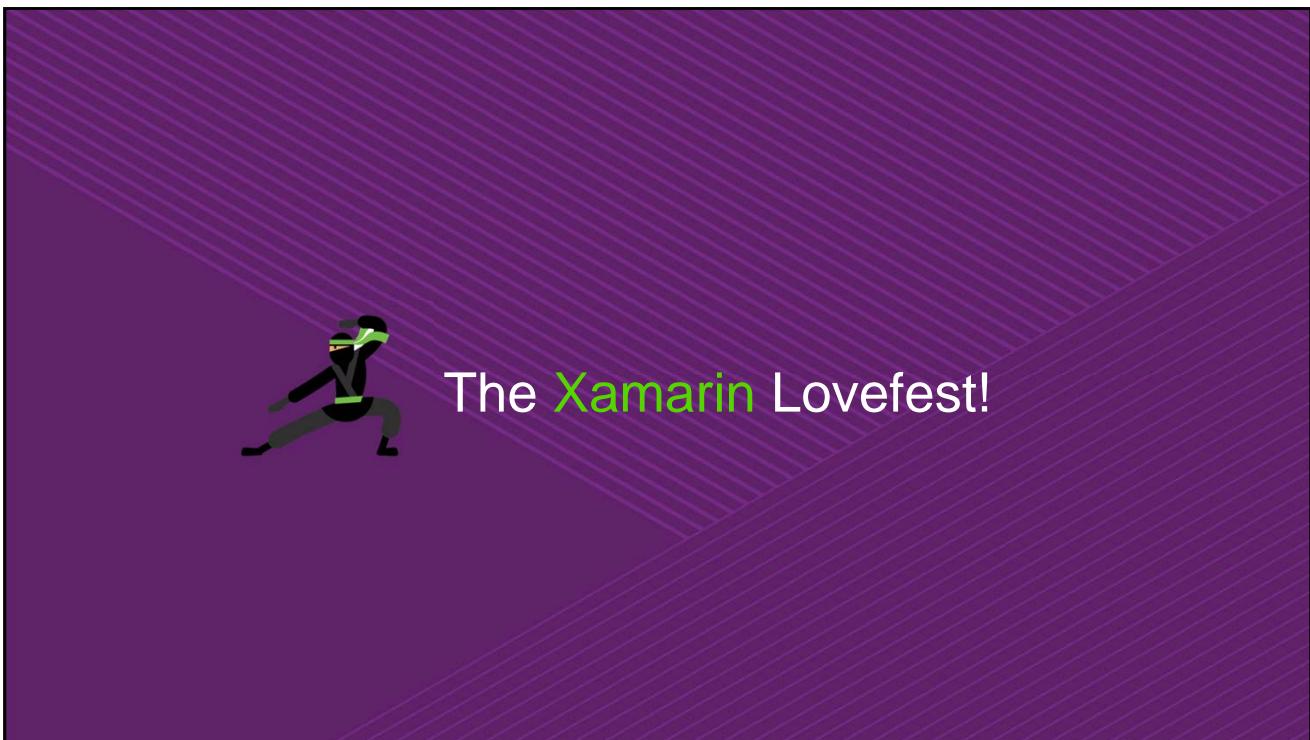
Code Again for the First Time!

Visual Studio 25 YEARS OF CODING INNOVATION

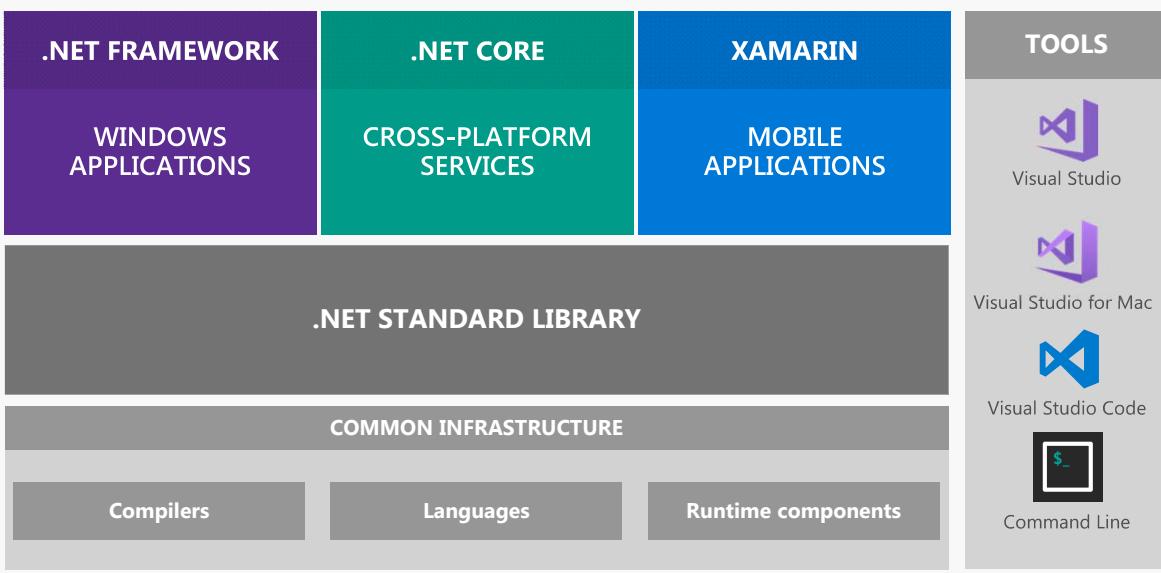
Mobile Your Way

It's 2018 | Developers have choices

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



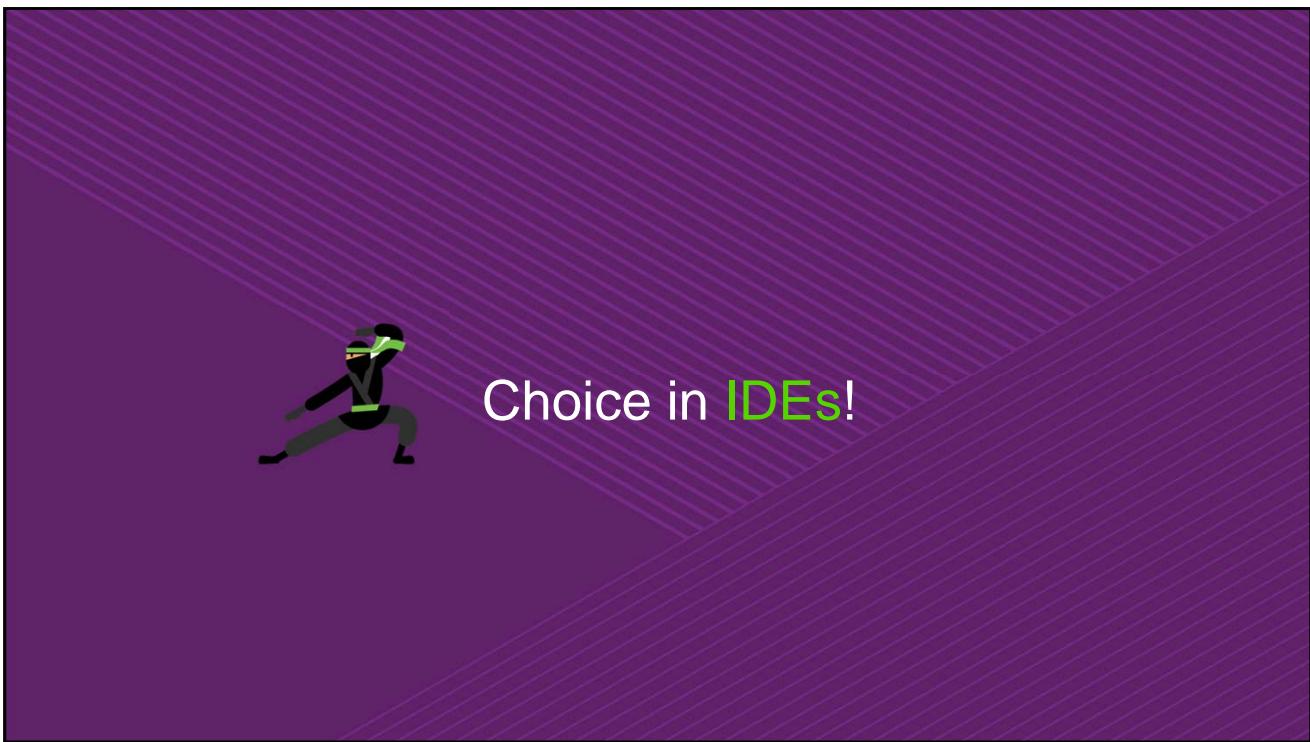
.NET – The Big Picture



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

Essential Tools for Xamarin Dev!

Visual Studio Live! San Diego 2018

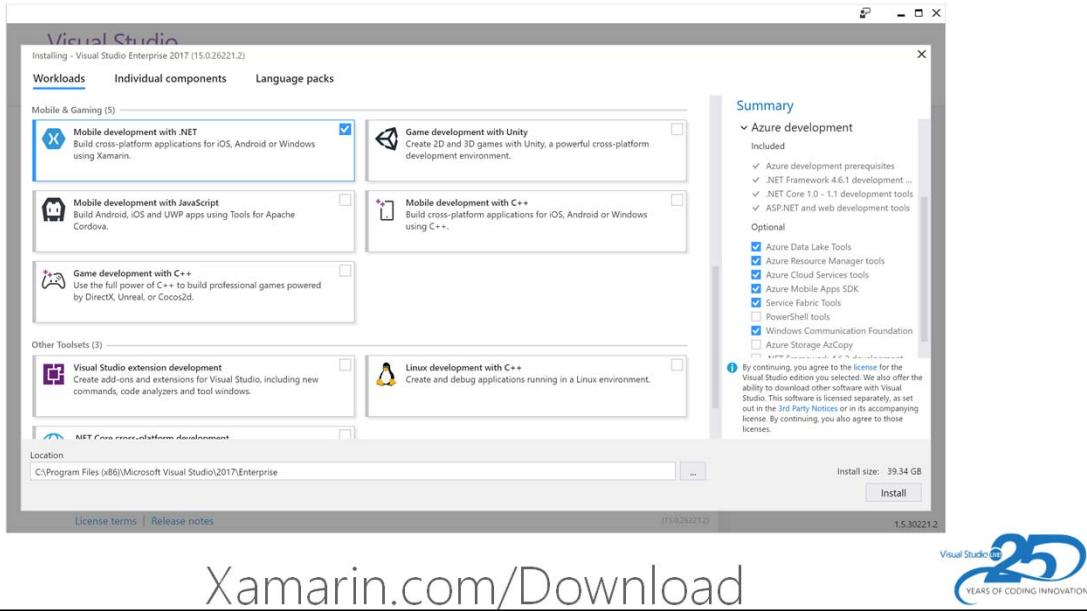


Visual Studio

The screenshot shows the Microsoft Visual Studio interface with several windows open:

- Solution Explorer:** Shows the project structure for "BikeSharing-Xamarin" with various files like `AppDelegate.cs`, `Main.cs`, and `SegmentedControl.cs`.
- Code Editor:** Displays the `LoginViewModel.cs` file, which contains C# code for handling user authentication.
- XAML Editor:** Displays the `LoginPage.xaml` file, showing XAML code for the login screen's UI.
- Mobile Device View:** Shows a simulated smartphone displaying a weather app with a map and event cards for "The Lion King" and "Cirque du Soleil".
- Task List:** Shows recent changes made to the project.
- Status Bar:** Shows the Visual Studio 25th anniversary logo.

Visual Studio Integration



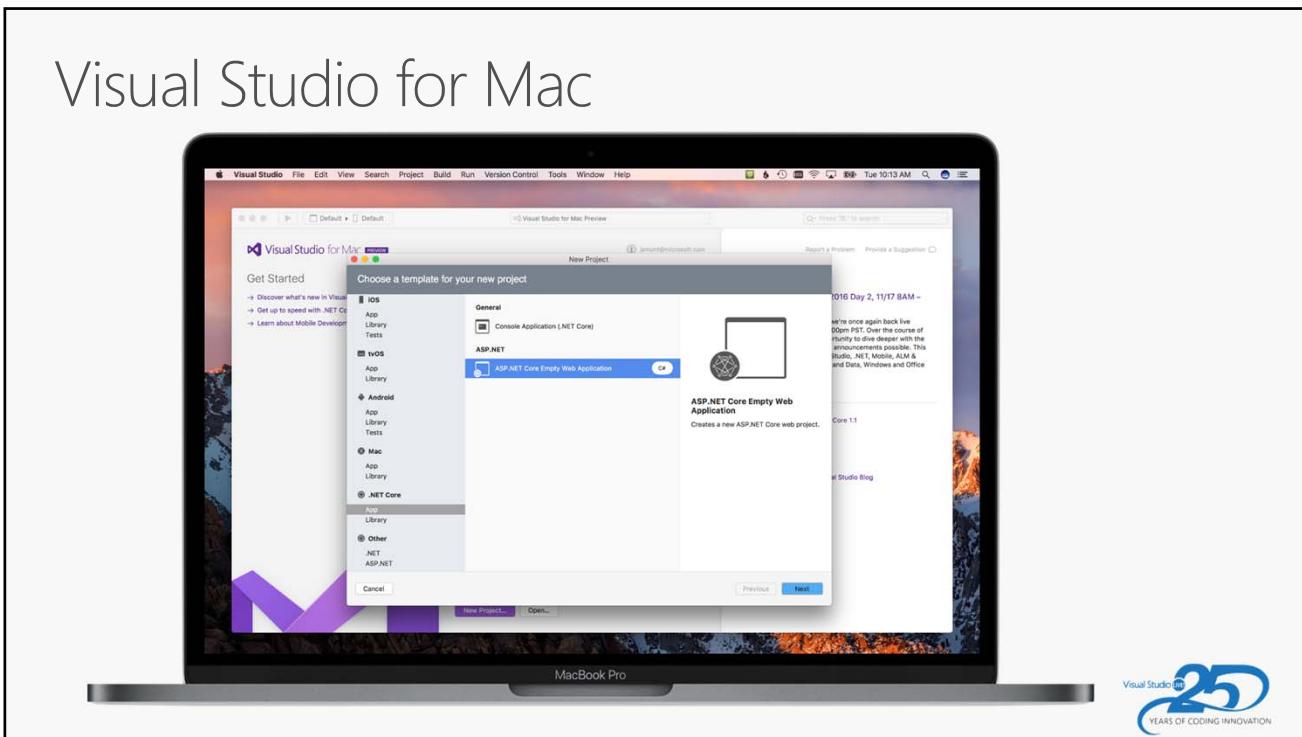
Visual Studio Tools for Xamarin

Write code faster, with higher quality

-  Inspector
-  Profiler
-  Forms previewer
-  iOS simulator
-  Connected services
-  New templates
-  Workbooks
-  Test recorder



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Visual Studio
25
YEARS OF CODING INNOVATION

A screenshot of the Rider IDE website. The top navigation bar includes links for Tools, Languages, Solutions, Support, Store, and a user icon. The main header features the 'Rider' logo and the tagline 'Fast, powerful, cross-platform .NET IDE'. Below this, it says 'Develop .NET, ASP.NET, .NET Core, Xamarin or Unity applications on Windows, Mac, Linux'. A large 'DOWNLOAD' button with a 'Free 30-day trial' link is prominently displayed. The bottom of the page includes a 'WHAT IS RIDER' section and a note: 'JetBrains Rider is a new cross-platform .NET IDE based on IntelliJ Platform and ReSharper.'



Traditional UI approach

The diagram illustrates the traditional UI approach. At the top, three platform icons (iOS, Android, and Windows) are shown above a horizontal bar divided into three colored segments: purple (labeled 'iOS C#'), green (labeled 'Android C#'), and blue (labeled 'Windows C#'). Below this bar is a large blue area labeled 'Shared C# Logic'. To the right, several mobile devices (an iPhone, an Android phone, a laptop keyboard, an Apple Watch, and another smartphone) are displaying various native user interface screens, such as social media feeds, maps, and financial apps. A legend at the bottom left identifies the components: '3 Native User Interfaces' (pointing to the devices) and 'Shared App Logic' (pointing to the blue area).

3 Native User Interfaces

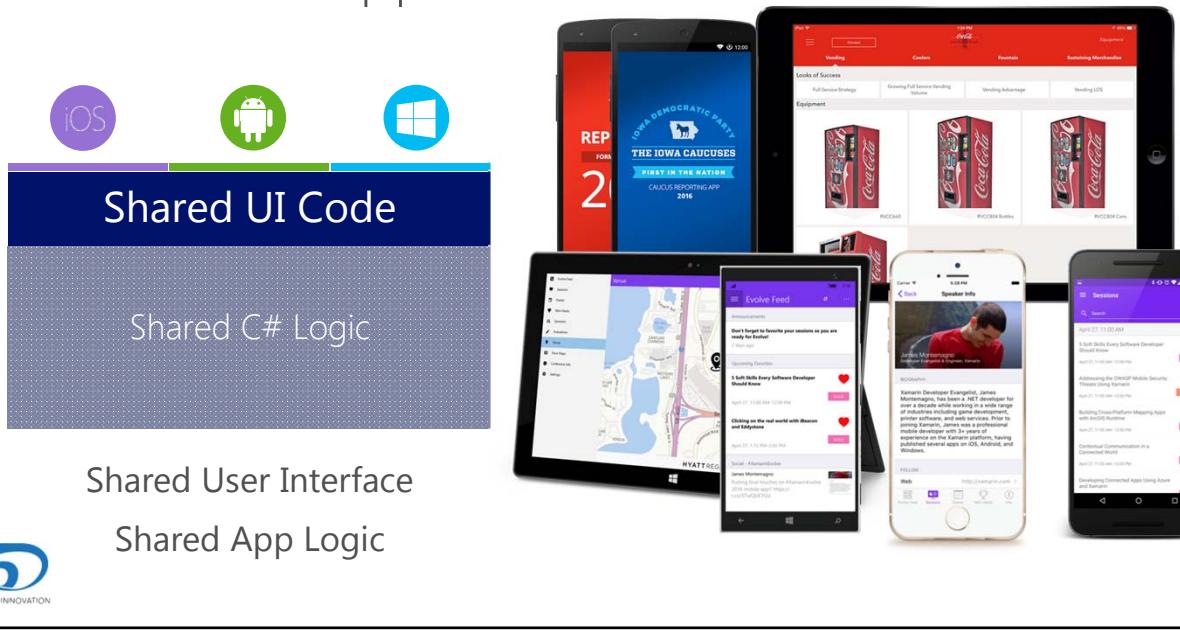
Shared App Logic

iOS C# Android C# Windows C#

Shared C# Logic

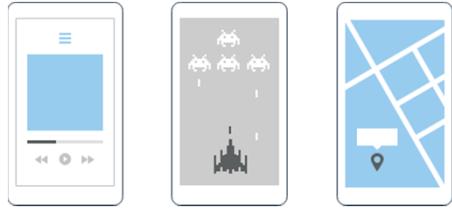
25 YEARS OF CODING INNOVATION

Xamarin.Forms approach



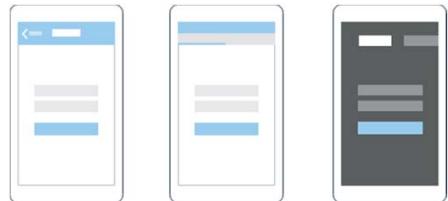
When Xamarin.iOS & Xamarin.Android

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

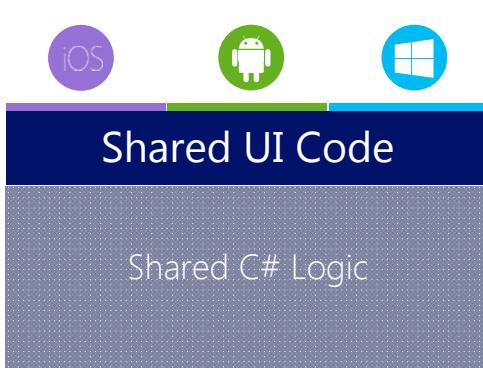


When Xamarin.Forms

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



Xamarin.Forms Going Places

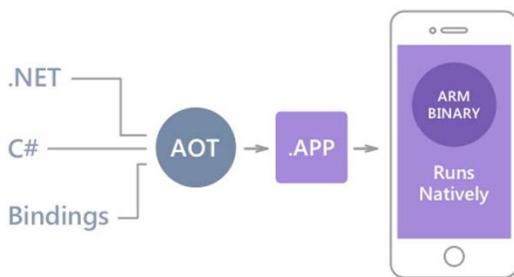


macOS Linux Windows Presentation Foundation

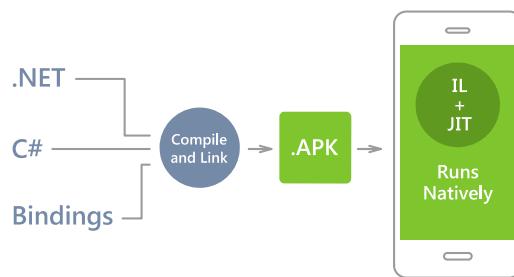
TIZEN™ World Wide Web



Native Performance



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



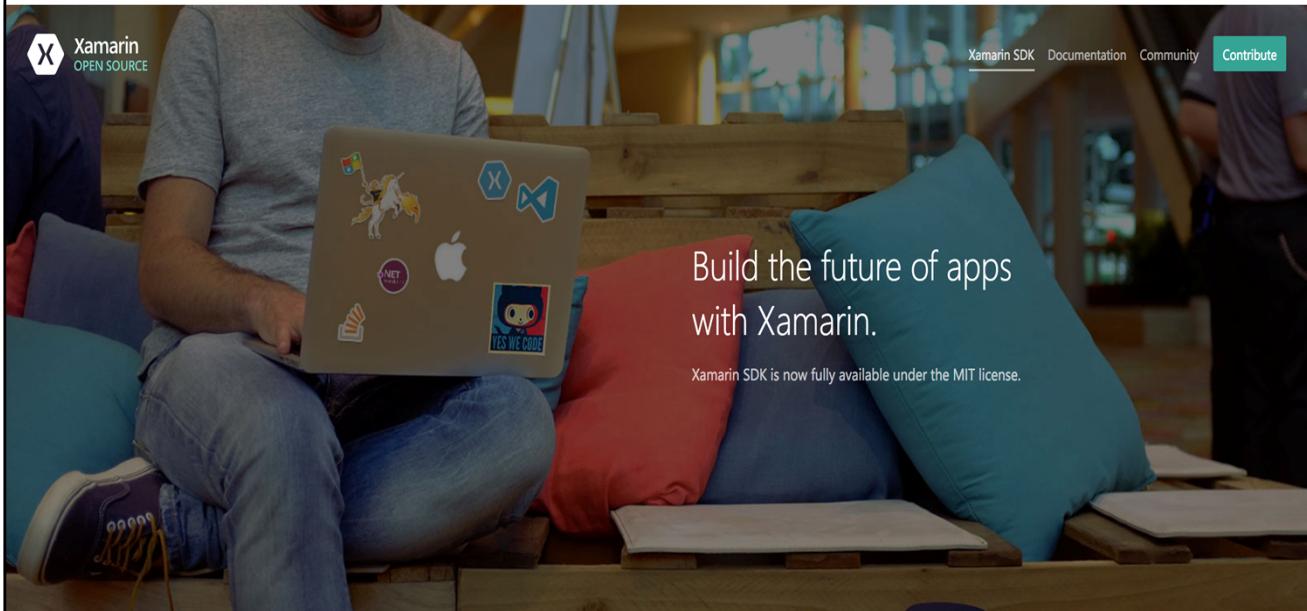
Xamarin.Android takes advantage of Just In Time (JIT) compilation on the Android device.



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



Open Source – open.xamarin.com



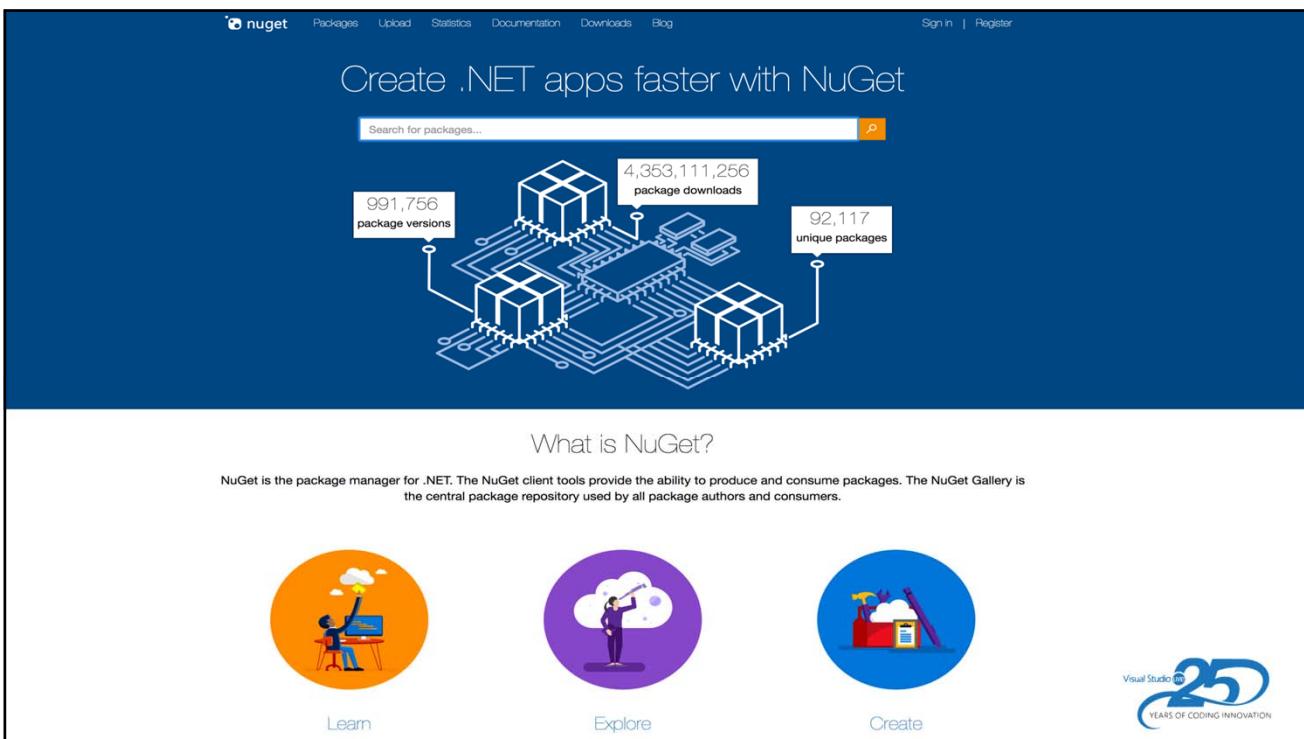
Build the future of apps
with Xamarin.

Xamarin SDK is now fully available under the MIT license.



App Building Blocks!

Visual Studio Live! San Diego 2018



Create .NET apps faster with NuGet

Search for packages...

991,756 package versions

4,353,111,256 package downloads

92,117 unique packages

What is NuGet?

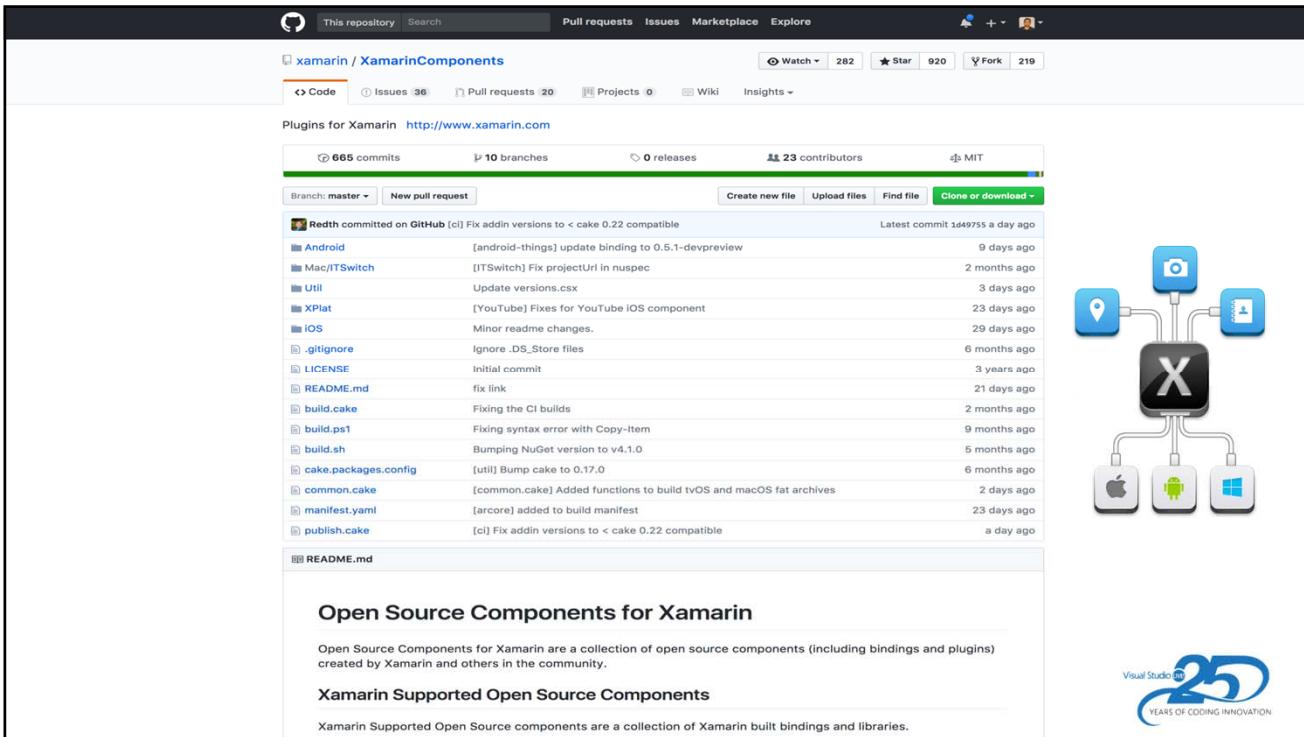
NuGet is the package manager for .NET. The NuGet client tools provide the ability to produce and consume packages. The NuGet Gallery is the central package repository used by all package authors and consumers.

Learn

Explore

Create

Visual Studio 25 YEARS OF CODING INNOVATION



This repository Search Pull requests Issues Marketplace Explore

xamarin / XamarinComponents

Code Issues 36 Pull requests 20 Projects 0 Wiki Insights

Watch 282 Star 920 Fork 219

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

665 commits 10 branches 0 releases 23 contributors MIT

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 1 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

Latest commit 1d449755 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.

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Docs / Xamarin / Xamarin.iOS / Xamarin.Essentials

Feedback Edit Share Dark

Xamarin.Essentials

05/04/2018 • 2 minutes to read • Contributors:

Xamarin.Essentials provides developers with cross-platform APIs for their mobile applications. Android, iOS, and UWP offer unique operating system and platform APIs that developers have access to all in C# leveraging Xamarin. Xamarin.Essentials provides a single cross-platform API that works with any Xamarin.Forms, Android, iOS, or UWP application that can be accessed from shared code no matter how the user interface is created.

Get Started with Xamarin.Essentials

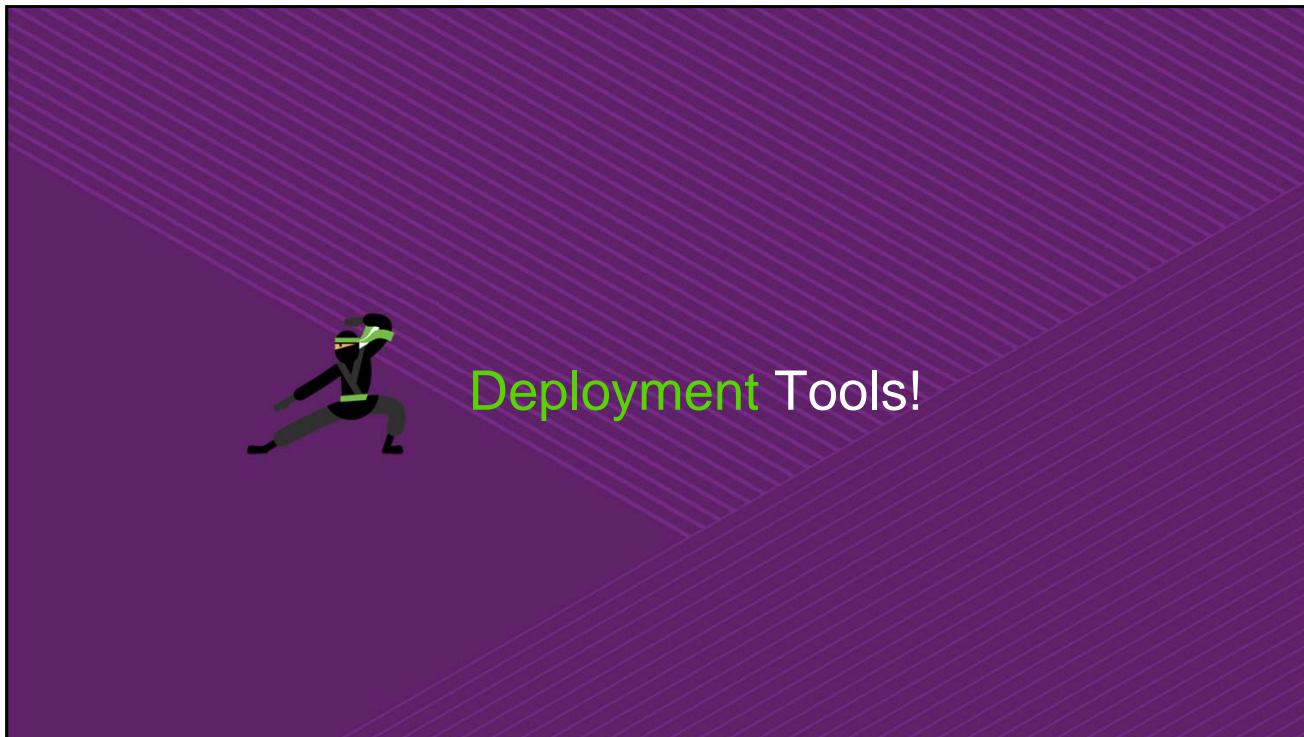
Follow the [getting.started.guide](#) to install the `Xamarin.Essentials` NuGet package into your existing or new Xamarin.Forms, Android, iOS, or UWP projects.

Feature Guides

Follow the guides to integrate these Xamarin.Essentials features into your applications:

- Accelerometer – Retrieve acceleration data of the device in three dimensional space.
- App Information – Find out information about the application.
- Battery – Easily detect battery level, source, and state.
- Clipboard – Quickly and easily set or read text on the clipboard.
- Compass – Monitor compass for changes.
- Connectivity – Check connectivity state and detect changes.
- Data Transfer – Send text and website urls to other apps.
- Device Display Information – Get the device's screen metrics and orientation.
- Device Information – Find out about the device with ease.
- Email – Easily send email messages.
- File System Helpers – Easily save files to app data.
- Flashlight – A simple way to turn the flashlight on/off.
- Geocoding – Geocode and reverse geocode addresses and coordinates.
- Geolocation – Retrieve the device's GPS location.
- Gyroscope – Track rotation around the device's three primary axes.
- Magnetometer – Detect device's orientation relative to Earth's magnetic field.
- MainThread – Run code on the application's main thread.
- Open Browser – Quickly and easily open a browser to a specific website.
- Orientation Sensor – Retrieve the orientation of the device in three dimensional space.
- Phone Dialer – Open the phone dialer.
- Power – Obtain the device's energy-saver status.

Download PDF



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 5 iOS 10.3.1
- iPhone 5 (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...

Options

Search Options (Ctrl+E)

Xamarin Mac Agent

No Mac connected

End Xamarin Mac Agent

Apple SDK

Xcode path (e.g. "/Applications/Xcode.app", blank to use default Xcode):

OK Cancel

4:48

BizJets

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

Visual Studio 25 YEARS OF CODING INNOVATION

Windows iOS Simulator

iPhone SE iOS 10.0

Carrier WiFi 10:42 AM

Rupert Monkey

Xamarin Mascot

Embarcadero San Francisco CA

855-XAMARIN

hello@xamarin.com

SAN FRANCISCO

Golden Gate Bridge

Golden Gate Park

The Presidio of San Francisco

101

280

35

1

Touch Mode: Shallow press

Scale to fit

Architecture Test Analyze Window Help

Quick Launch (Ctrl+Q)

Craig Dunn

Acquaint.NativeiOS

Exception Settings Immediate Window

Solution Explorer

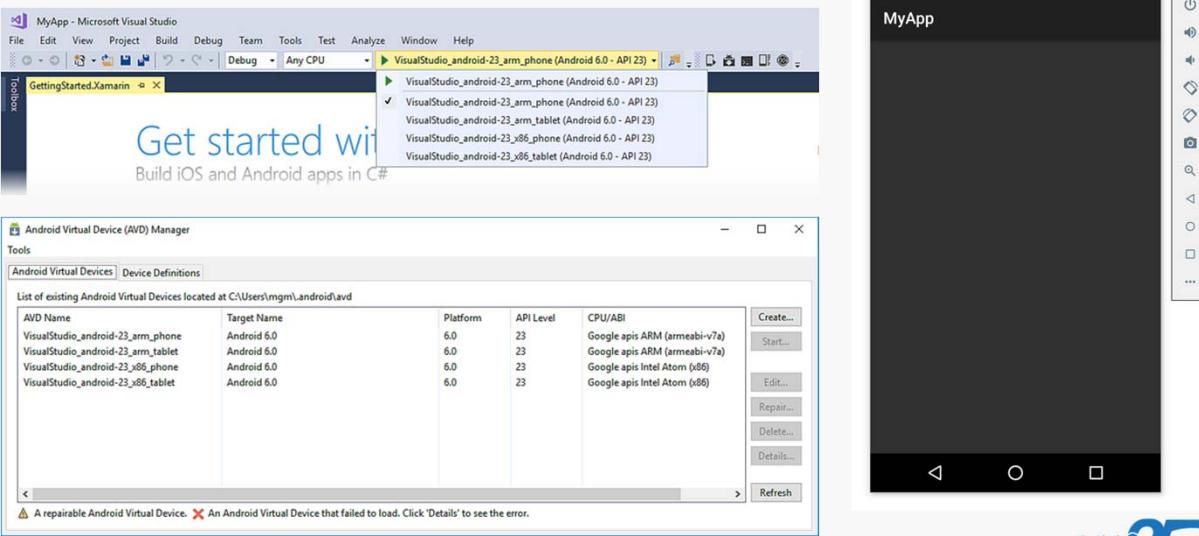
Search Solution Explorer (Ctrl+E)

Solution 'Acquaint.Native' (11 projects)

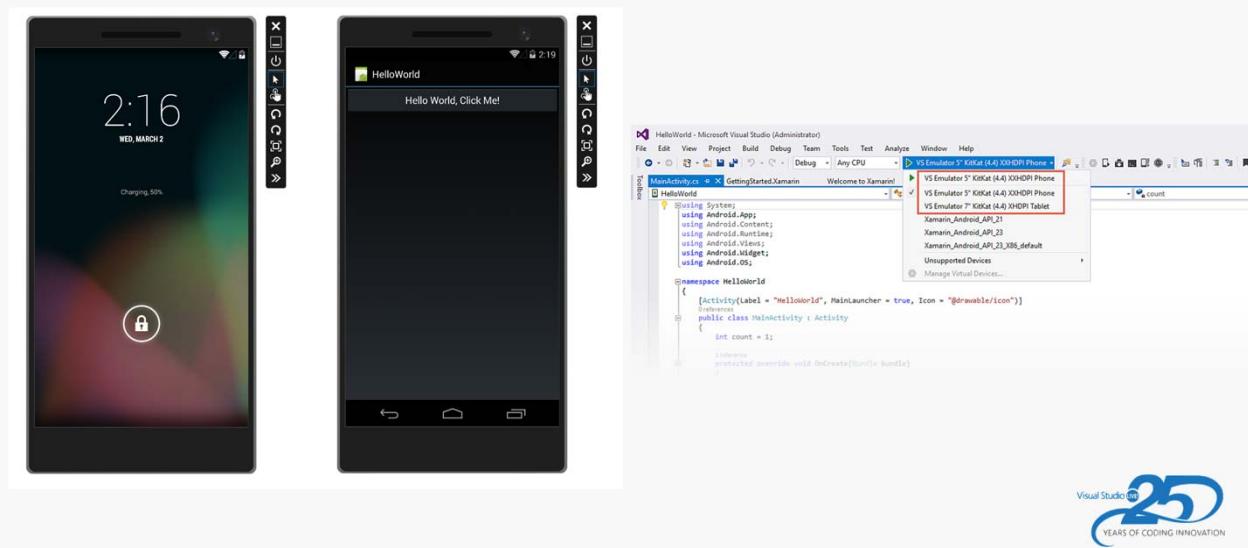
- Common
- Test
- ✓ Acquaint.Native.Droid
- ✓ Acquaint.Native.iOS
- Asset Catalogs
- Native References
- Components
- Helpers
- Resources
- AcquaintanceCell.cs
- AcquaintanceDetailViewController.cs
- AcquaintanceEditViewController.cs
- AcquaintanceTableViewController.cs
- AcquaintanceTableViewSource.cs
- app.config
- AppDelegate.cs
- Entitlements.plist
- Info.plist
- iTunesArtwork
- iTunesArtwork@2x
- Main.cs
- Storyboard
- MainViewController.cs
- packages.config
- SettingsViewController.cs
- SetupViewController.cs

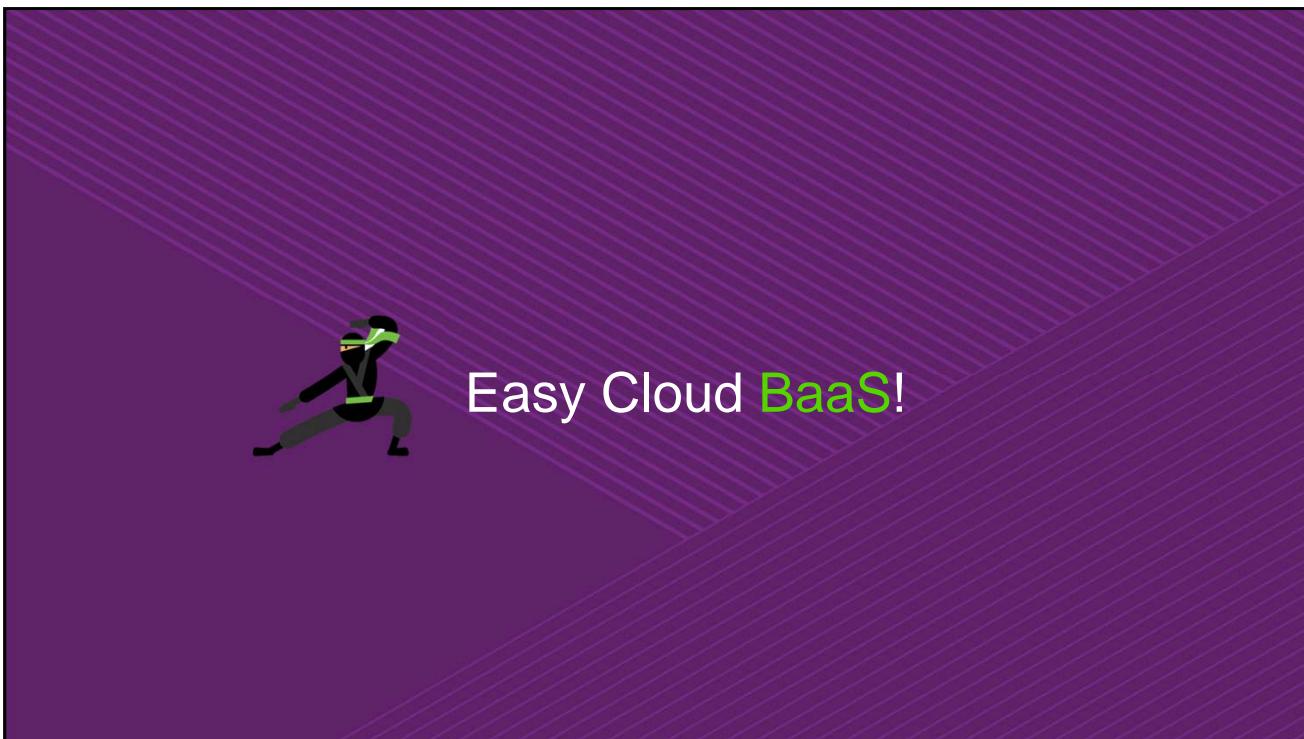
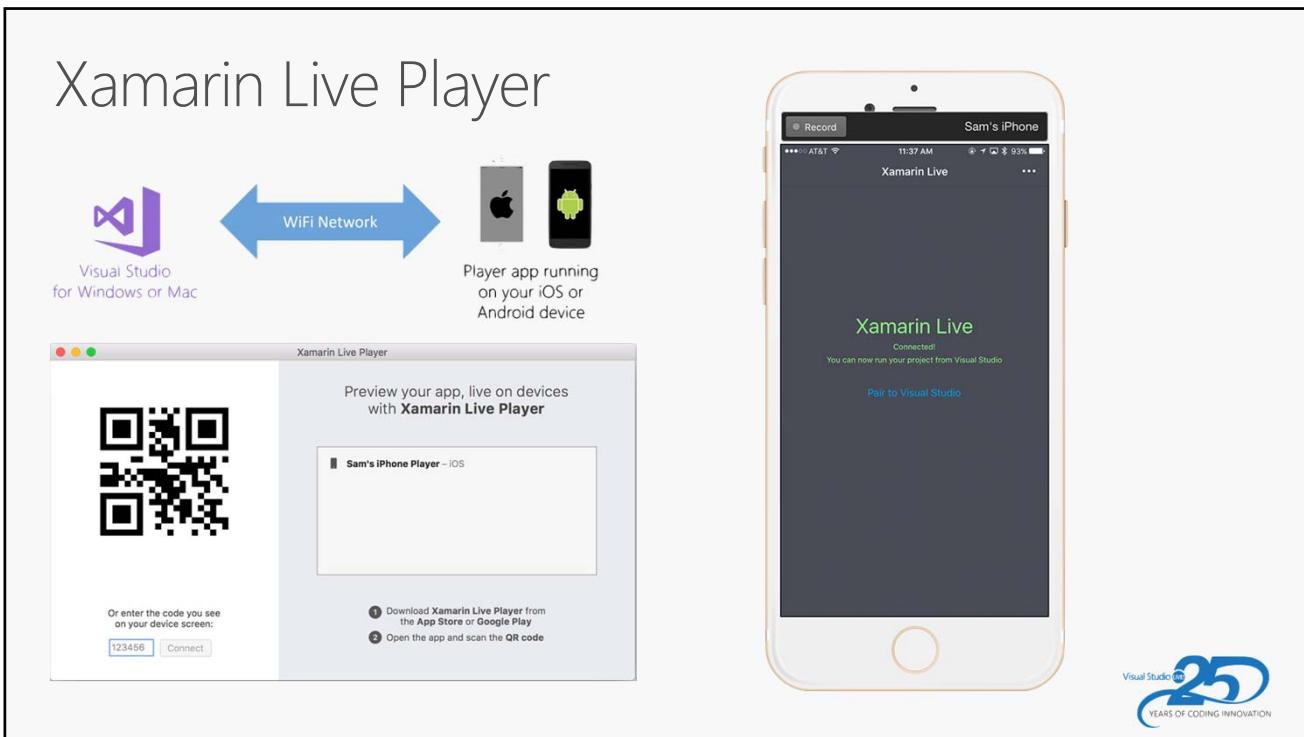
Visual Studio 25 YEARS OF CODING INNOVATION

Android SDKs & Simulator

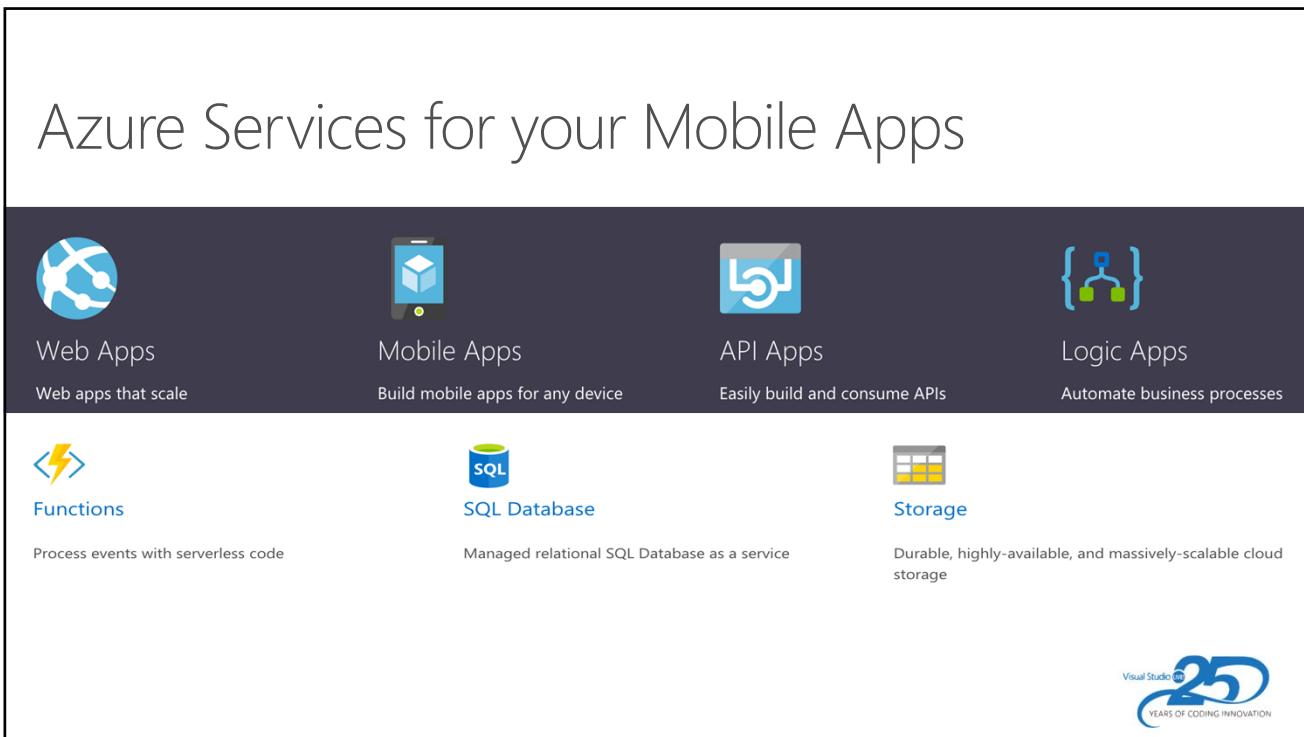


Visual Studio Android Simulator





Azure Services for your Mobile Apps

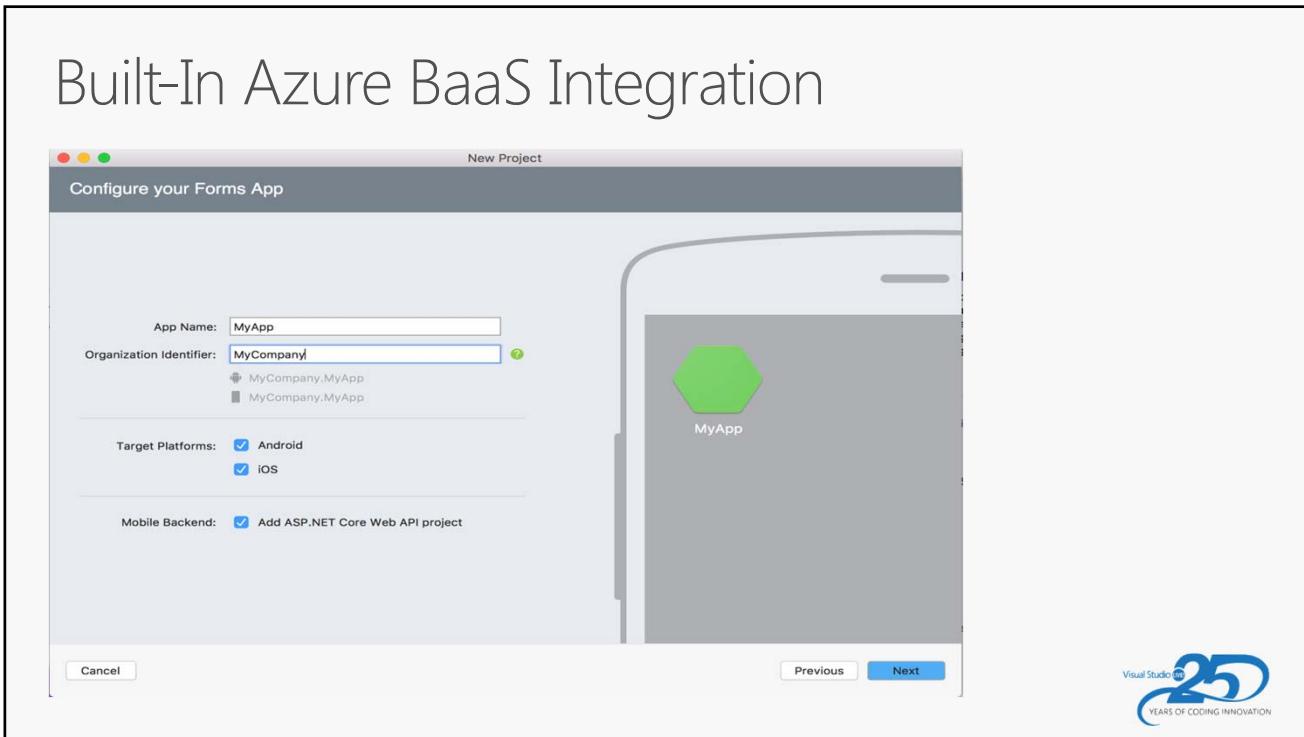


The slide displays various Azure services for mobile app development:

- 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.

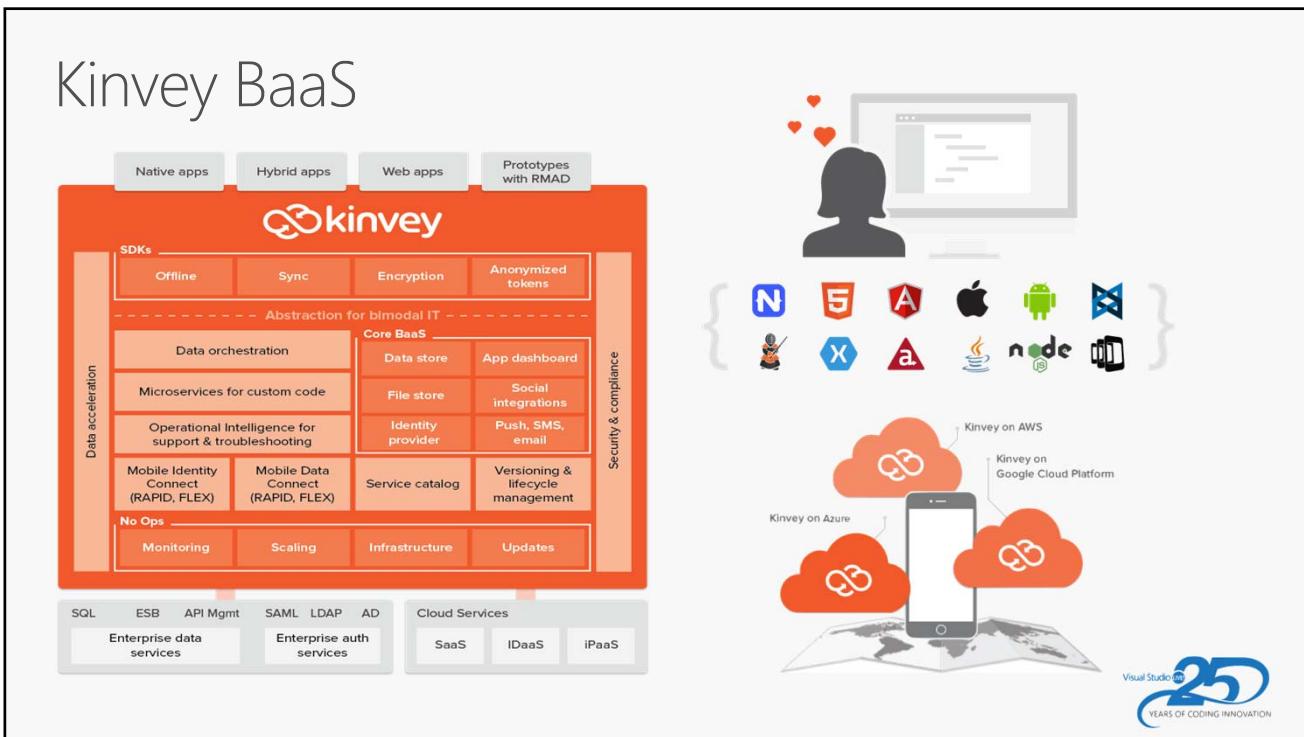
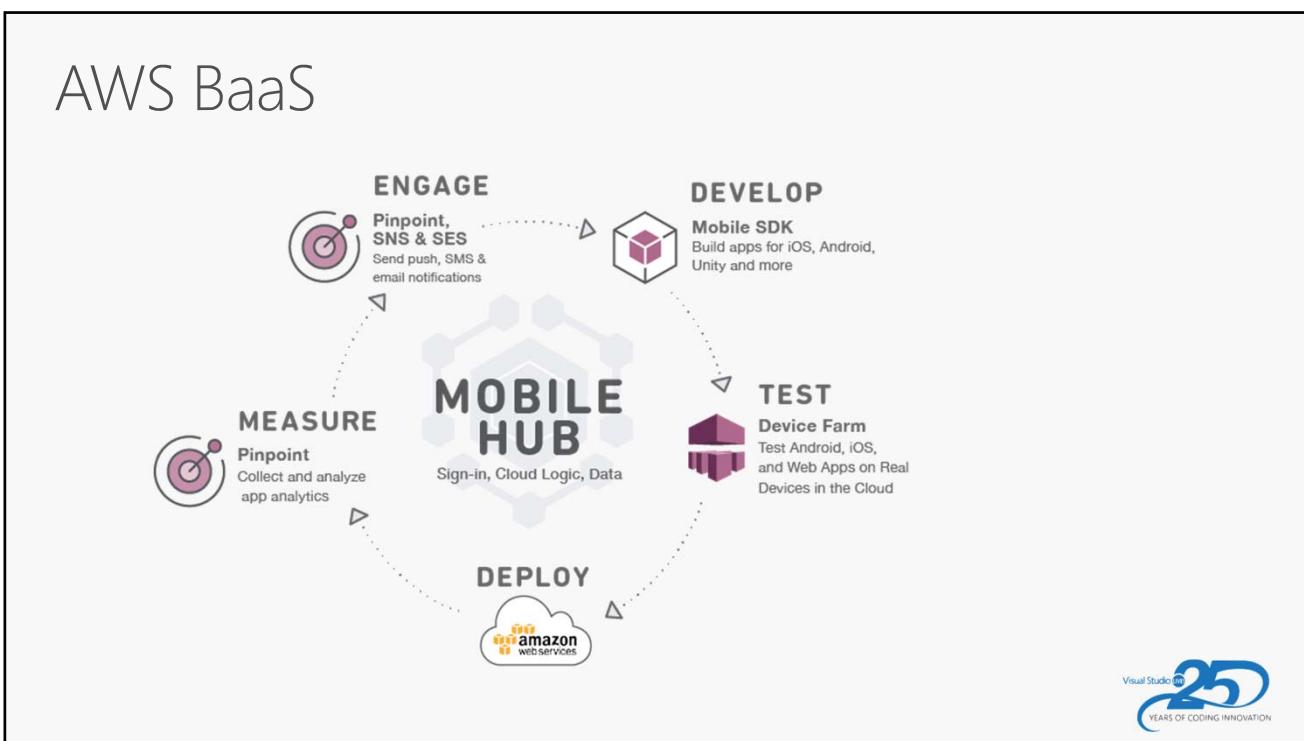
Visual Studio 2017 25th Anniversary logo is in the bottom right corner.

Built-In Azure BaaS Integration



The slide shows the "Configure your Forms App" dialog from the Visual Studio New Project wizard. It includes fields for App Name (MyApp), Organization Identifier (MyCompany), Target Platforms (Android, iOS checked), and Mobile Backend (Add ASP.NET Core Web API project checked). To the right is a smartphone icon showing the MyApp logo. Navigation buttons Previous and Next are at the bottom.

Visual Studio 2017 25th Anniversary logo is in the bottom right corner.





Xamarin + Cloud AI



Microsoft AI Platform

AI services

Accelerate the development of your AI solutions with high-level services. Use your preferred approach, adapted to your targeted scenario, and achieve maximum productivity and reliability.



Cognitive Services

Use AI to solve business problems. Infuse your apps, websites, and bots with intelligent algorithms to see, hear, speak, and understand natural methods of communication.



Azure Bot Service

Accelerate development for conversational AI. Integrate seamlessly with Cortana, Office 365, Slack, Facebook Messenger, and more.



Machine Learning Services

Model AI algorithms and experiment with ease. Customize based on your requirements.

AI tools

Equip your team with comprehensive and productive tooling for AI coding and management.



Machine Learning Studio

Easily build, deploy, and manage predictive analytics solutions



Azure Machine Learning Workbench

Drive visual AI-powered data wrangling, experimentation, and lifecycle management.



Visual Studio Tools for AI

Build, test, and deploy deep learning and AI solutions.



Azure Notebooks

Organize your datasets and Jupyter Notebooks in a centralized library for data science and analysis.



Other popular open source tools

Get support for Jupyter Notebooks, PyCharm, and more.



AI Toolkit for Azure IoT Edge

Deploy deep learning models and AI to run locally on IoT devices through pre-built models.

Cognitive Services



Vision

Image-processing algorithms to smartly identify, caption and moderate your pictures.



Knowledge

Map complex information and data in order to solve tasks such as intelligent recommendations and semantic search.



Language

Allow your apps to process natural language with pre-built scripts, evaluate sentiment and learn how to recognize what users want.



Speech

Convert spoken audio into text, use voice for verification, or add speaker recognition to your app.



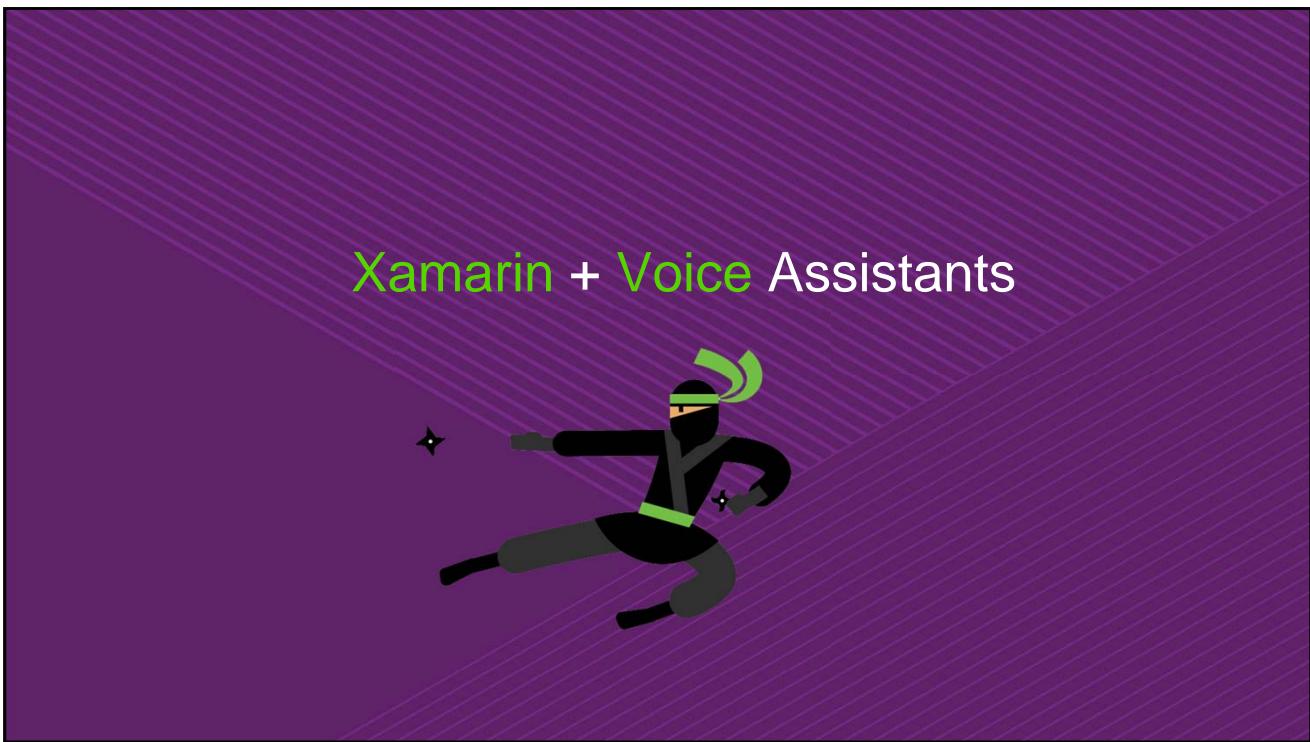
Search

Add Bing Search APIs to your apps and harness the ability to comb billions of webpages, images, videos, and news with a single API call.



telerik.com/conversational-ui





Voice is Everywhere

amazon alexa

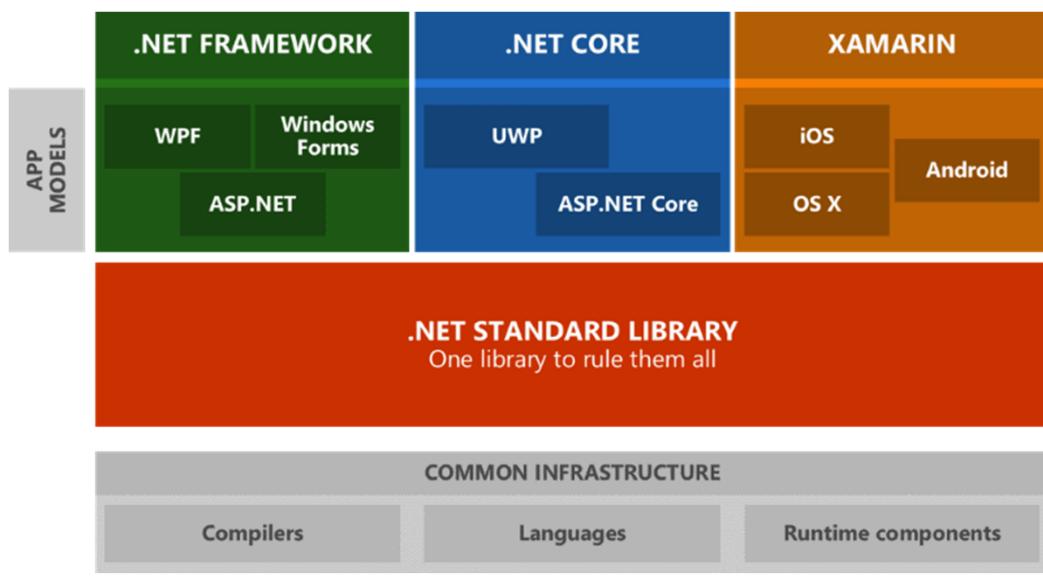
Google Home

Cortana

Visual Studio 25
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.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>
```

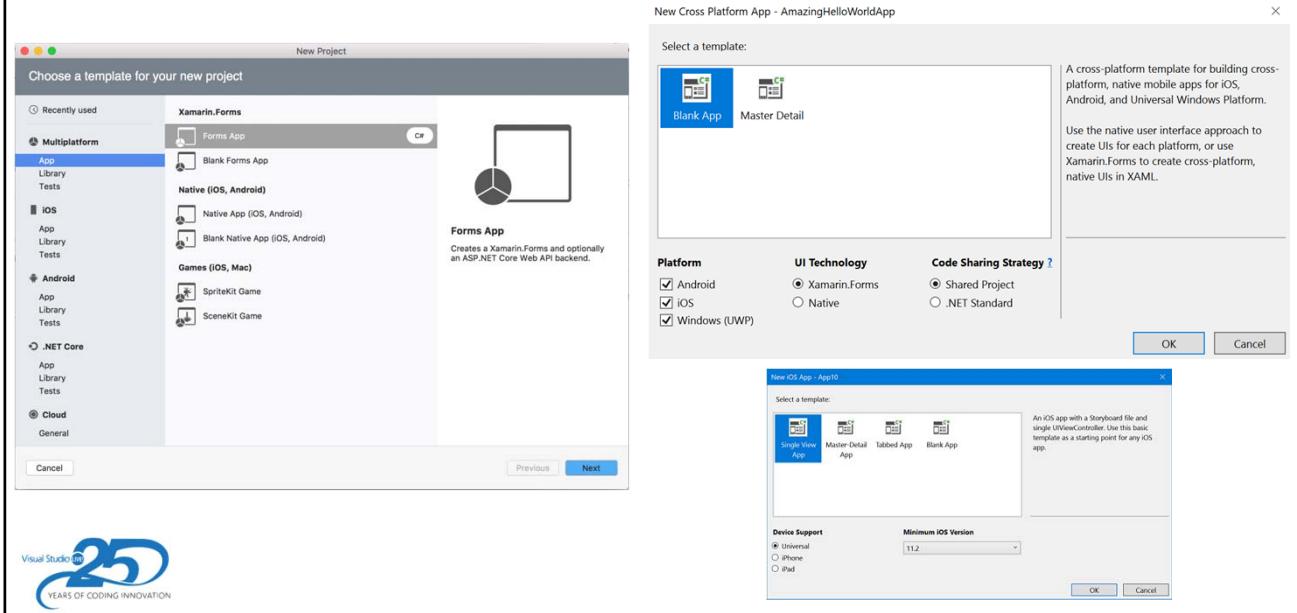
```
<!-- UWP XAML -->
<UserControl>
    <StackPanel Orientation="Horizontal">
        <TextBlock Text="Work Order #"
            VerticalAlignment="Center" />
        <TextBox PlaceholderText="Enter your work order"
            Text="{Binding WONumber, Mode=TwoWay}" />
        <Button Content="Save"
            Foreground="White"
            Background="#77D065"
            Command="{Binding SaveCommand}" />
    </StackPanel>
</UserControl>
```

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

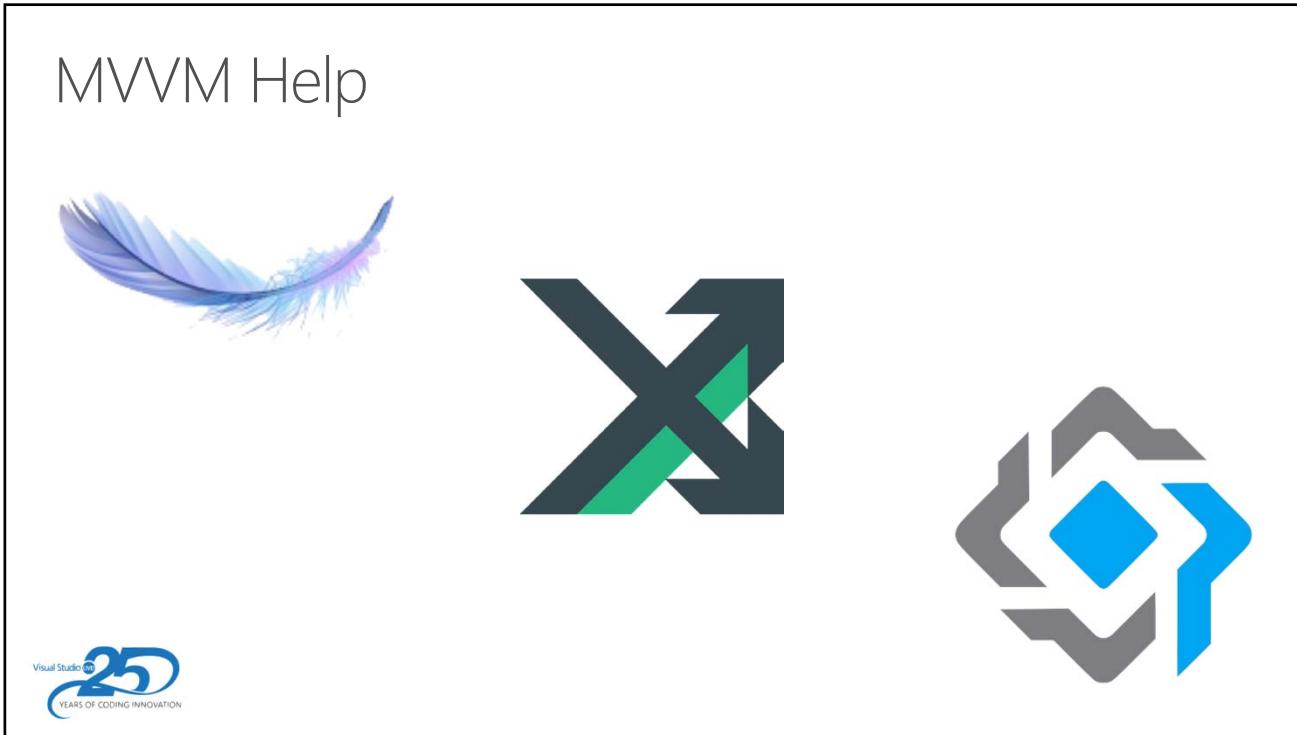


Great App **T**emplates!

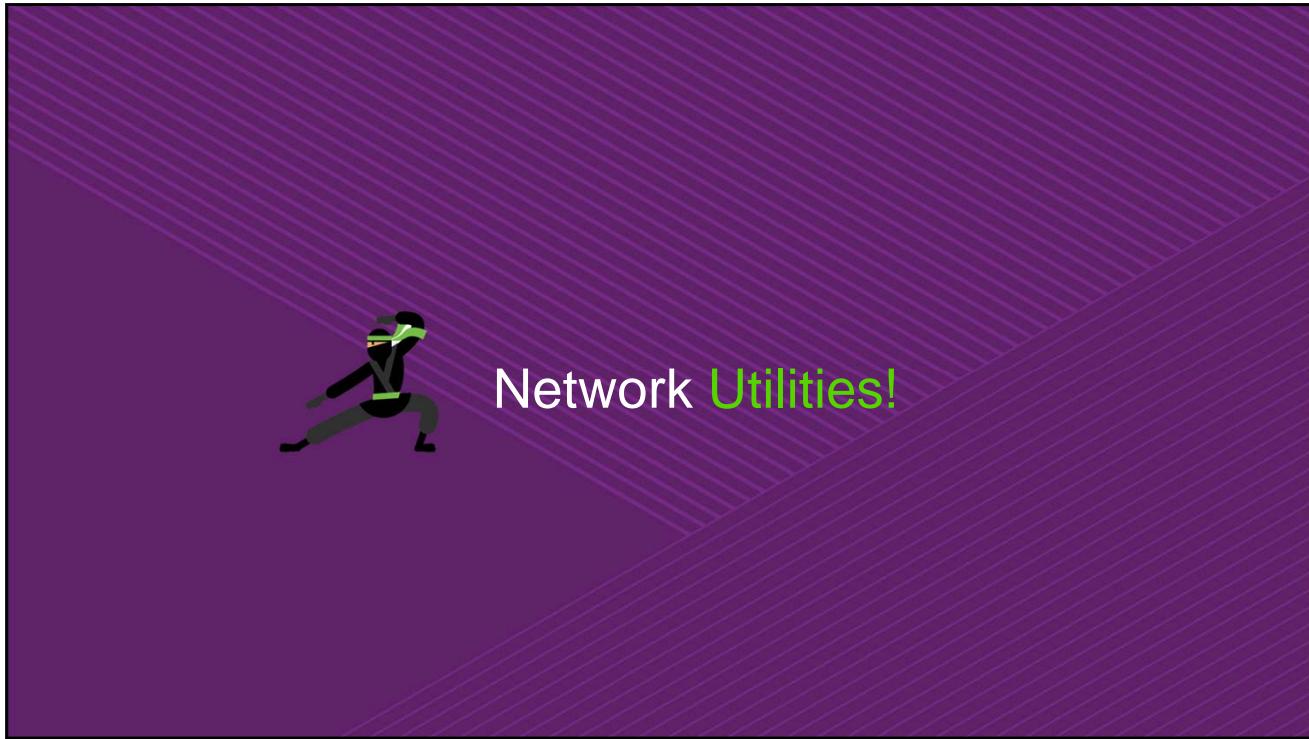
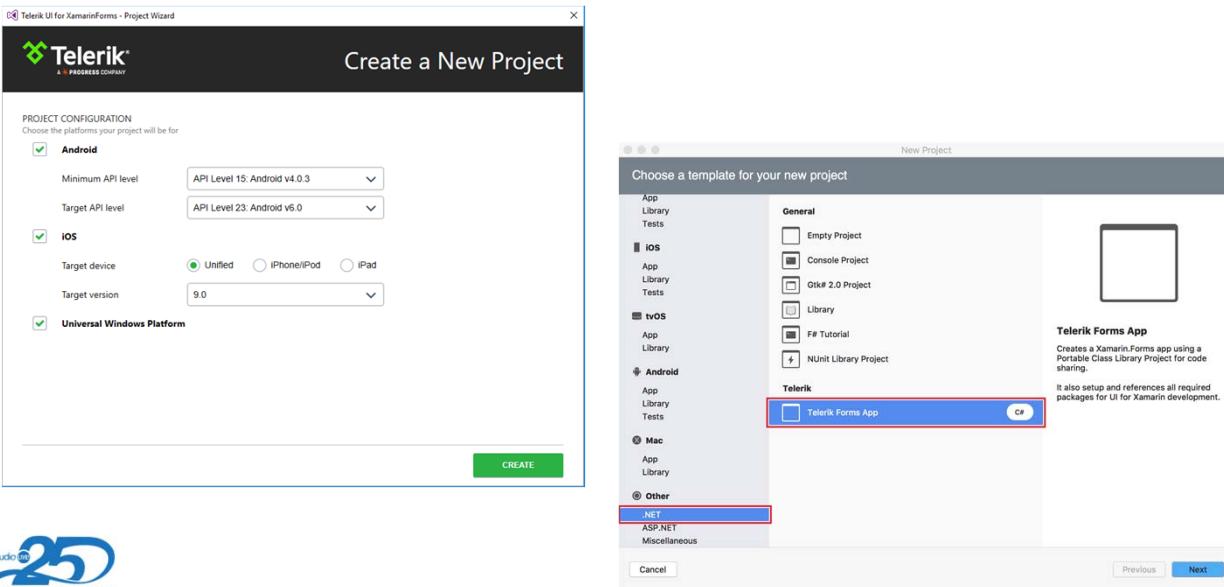
Getting Started Templates



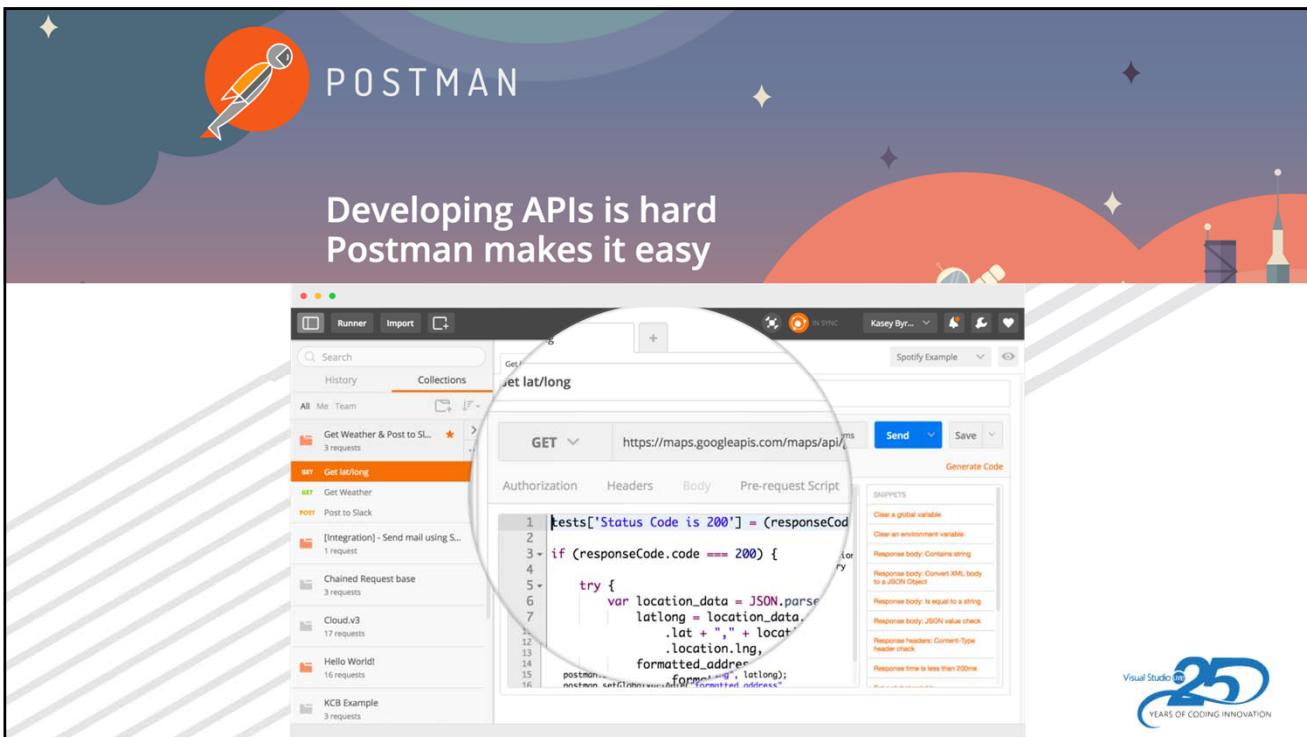
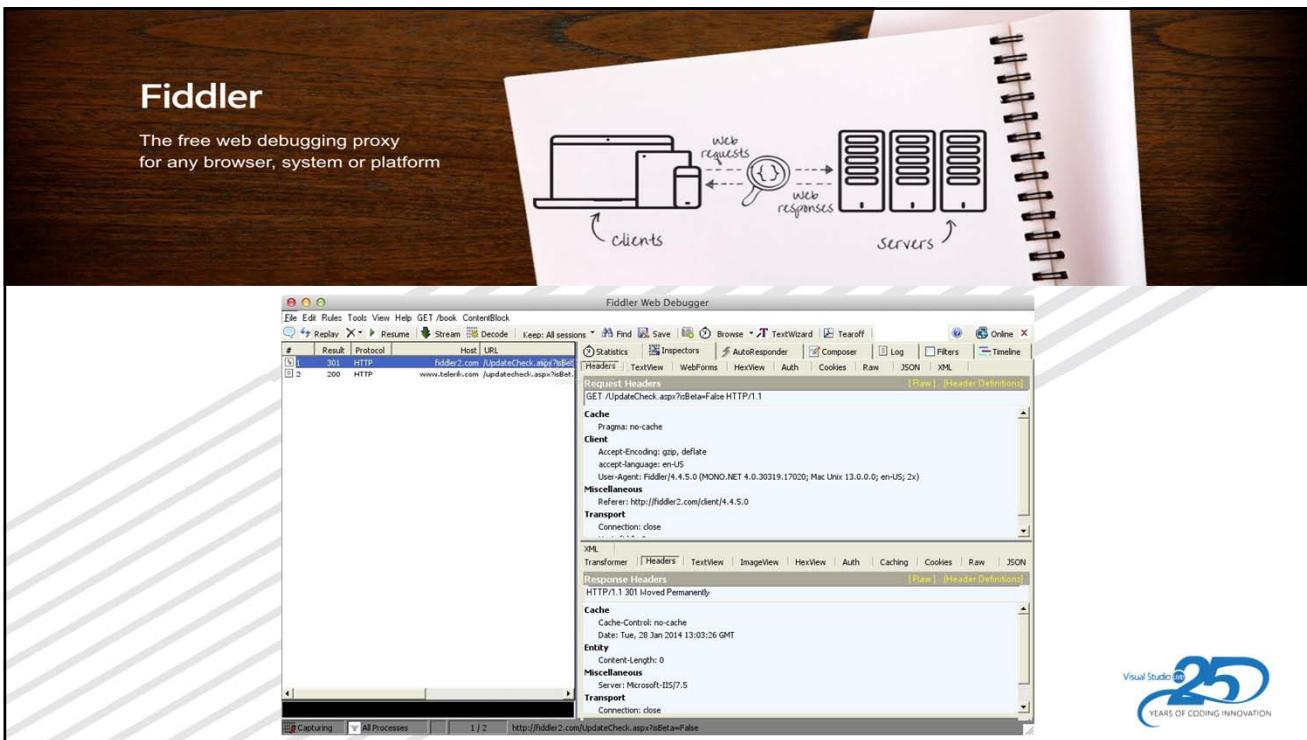
MVVM Help



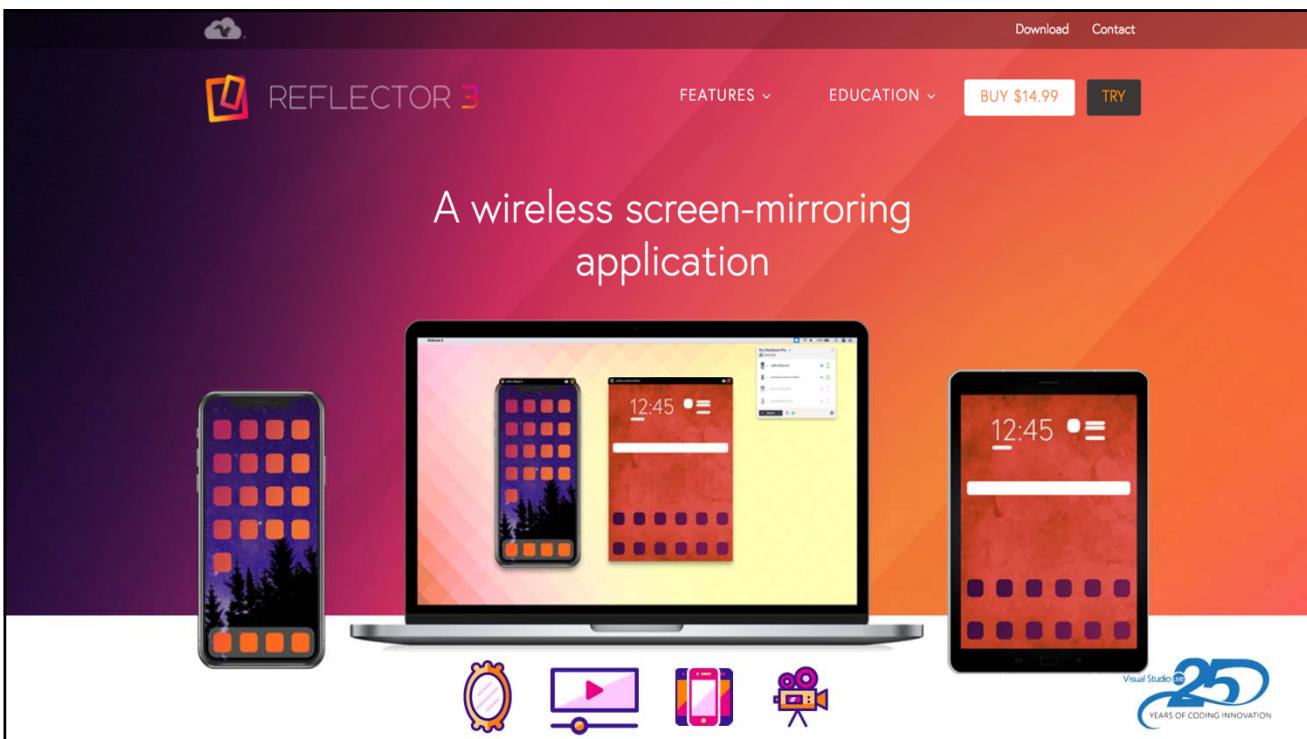
UI App Templates



Visual Studio Live! San Diego 2018



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Microsoft's complete mobile DevOps solution



Develop



Test



Build



Distribute



Monitor



Crash Reporting



Test



Build



Analytics



Distribute



Live Update



Storage



Push Notifications



Tables



Identity



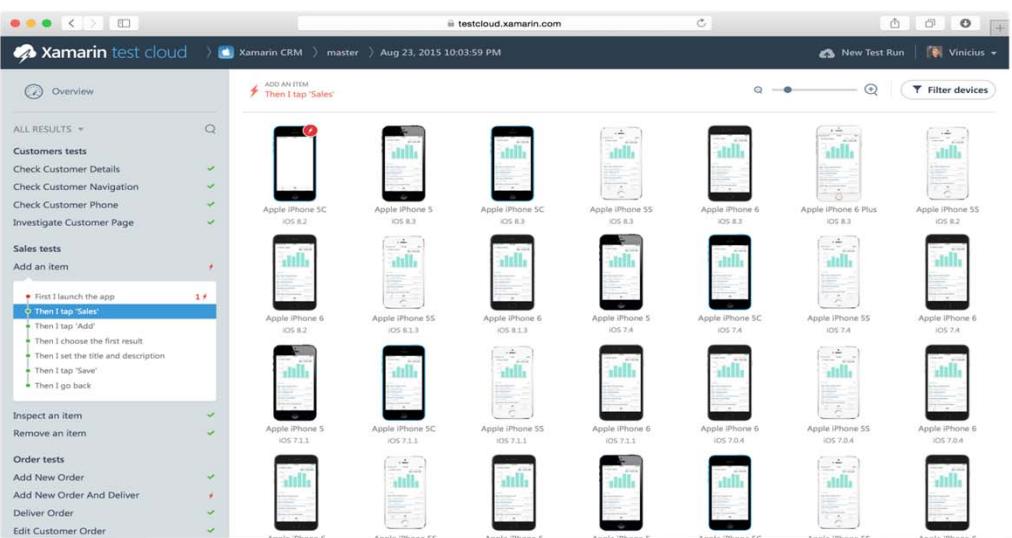
Remote Config.

Visual Studio App Center



The Visual Studio App Center landing page features a central illustration of a developer at a desk with a computer, surrounded by icons for checkmarks, uploads, play, and alerts. To the right, hands hold a smartphone displaying a game. Below this, a circular graphic shows four diverse people using various devices. At the bottom, logos for Visual Studio 25th anniversary, Android, iOS, React Native, UWP, Xamarin, macOS, and Cordova are displayed.

Device Test Cloud



The screenshot shows the Xamarin Device Test Cloud interface. On the left, a sidebar lists test categories like Customers tests, Sales tests, and Order tests, each with a list of specific test cases and their status (green checkmark or red error). The main area displays a grid of 24 smartphone icons, each representing a different device model and iOS version. A search bar and filter options are at the top of the grid. The Visual Studio 25th anniversary logo is in the bottom right corner.

App Analytics

The screenshot shows the Xamarin Test Cloud interface. On the left, there's a sidebar with a tree view of test results. A specific test step, "Then I tap 'Sales'", is highlighted. The main area displays a bar chart titled "6-Week Sales" with a weekly average of \$2,126.06. To the right, detailed information about the device is shown, including the OS version (iOS 8.2), model (iPhone 7,2), and release date (September 2014). Below that, performance metrics are displayed, such as memory usage (78.62 MB) and CPU usage (22%).

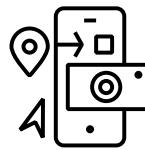
Progress®

Progress® Telerik®

Complete Rich .NET Toolbox
Any App | Any Platform

The advertisement features a large graphic on the left composed of many green diagonal lines forming a perspective grid. To the right, the Progress logo (a green stylized 'P') is followed by the word "Progress". Below it, the Progress Telerik logo is shown, consisting of the same "P" icon followed by "Telerik". The text "Complete Rich .NET Toolbox" and "Any App | Any Platform" is displayed in a green and blue color scheme.

Telerik 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!



 Progress®

Telerik UI for Xamarin

Sharp Performant Polished UI .. For all your Xamarin Apps!

The collage displays a variety of Xamarin applications built using Telerik UI controls:

- A dashboard application showing a pie chart and line graphs.
- A food recipe application displaying various dishes and their ingredients.
- A restaurant reservations application showing tables and guest counts.
- A gauge control panel with various circular and linear gauges.
- A mobile navigation application with a map and route information.
- A calendar application showing events and dates.
- A grid view application displaying a list of items with details.
- A search interface with filters and results.
- A menu application with categories and sub-options.
- Animations section showing various UI transitions.



Xamarin University

Free self-guided courses

Take free self-guided courses that cover the core Xamarin concepts and count towards certification.

Register at:

university.xamarin.com/self-guided

Get a full subscription for live classes, advanced topics, and to complete certification.

Sign up at:

xamarin.com/university

Visual Studio **LIVE!** | San Diego

Essential Tools for Xamarin Dev



Thank You!

Let's keep chatting | [@samidip](https://twitter.com/samidip)

