

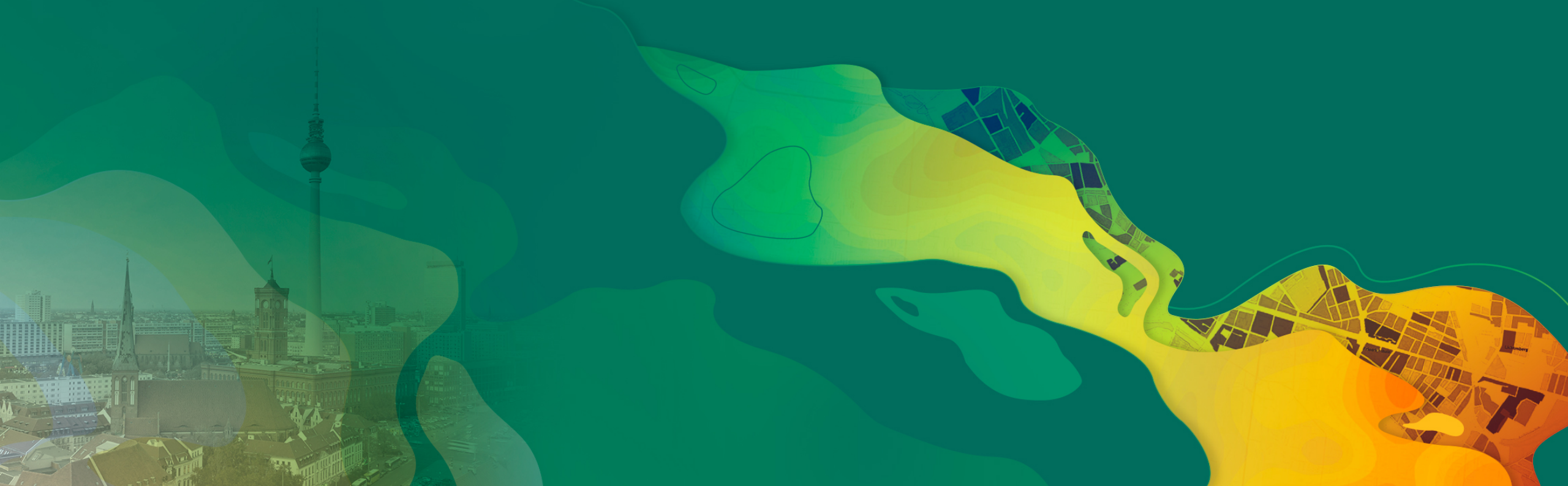


DEVELOPER
SUMMIT

EUROPE

ArcGIS Runtime SDK for .NET Building Apps

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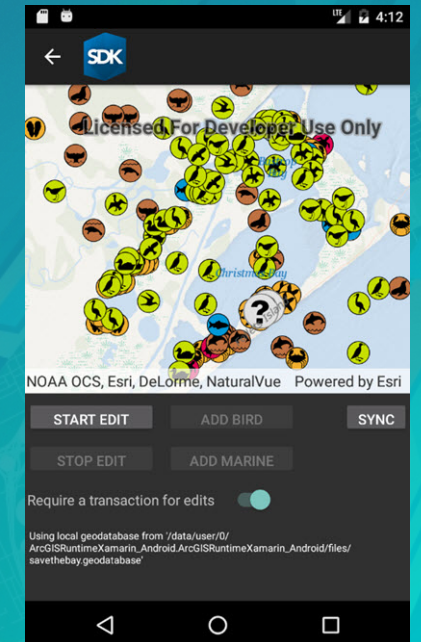
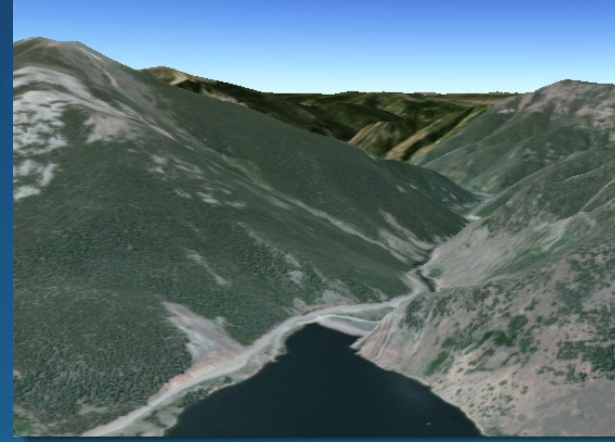
Agenda

- Overview of the ArcGIS Runtime SDK for .NET
 - Architecture, platforms, development environment
- Resources for developers
 - Documentation, samples, tutorials (DevLabs), example apps, demos
- Getting started
 - Common developer workflows: App templates, NuGet packages, Class library, Workbooks
- Working from a good design
 - Model-View-ViewModel (MVVM), separating business logic from UI
- Improve performance and interactivity
 - Visual Studio for Mac, Workbooks, Toolkit controls

ArcGIS Runtime SDK overview

SDK Highlights

- High-performance 2D and 3D mapping
- Integration with Portal and ArcGIS Online
Load, edit, and save web maps
- Work offline with local data
Read mobile map packages (.mmpk)
Take web maps offline
Feature service editing and sync
Geocode and Routing



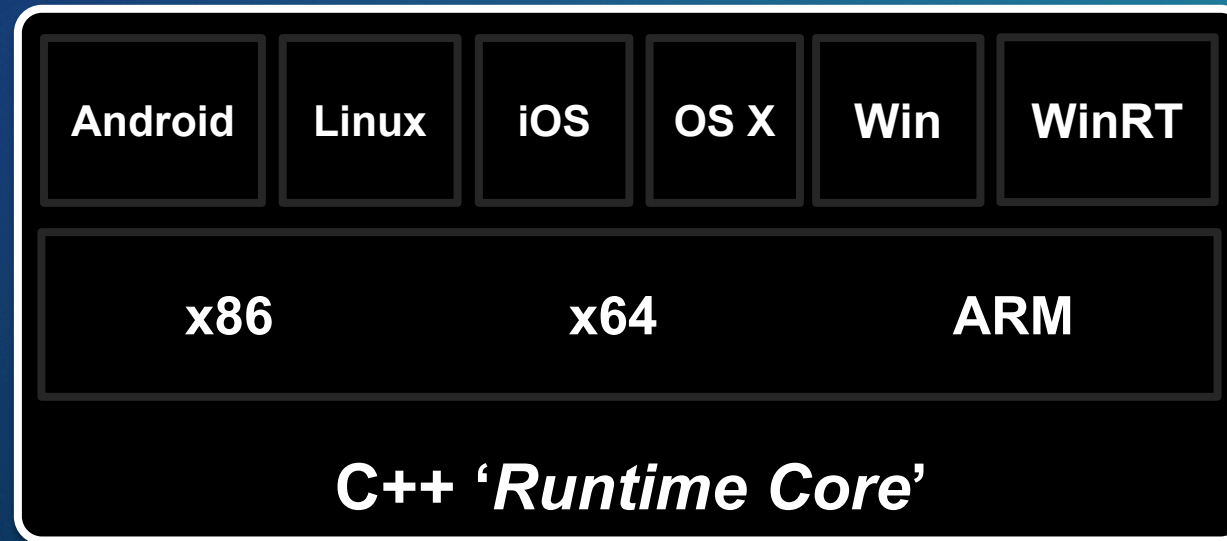
ArcGIS Runtime overview

- Runtime Core (C++)

Small footprint, high performance

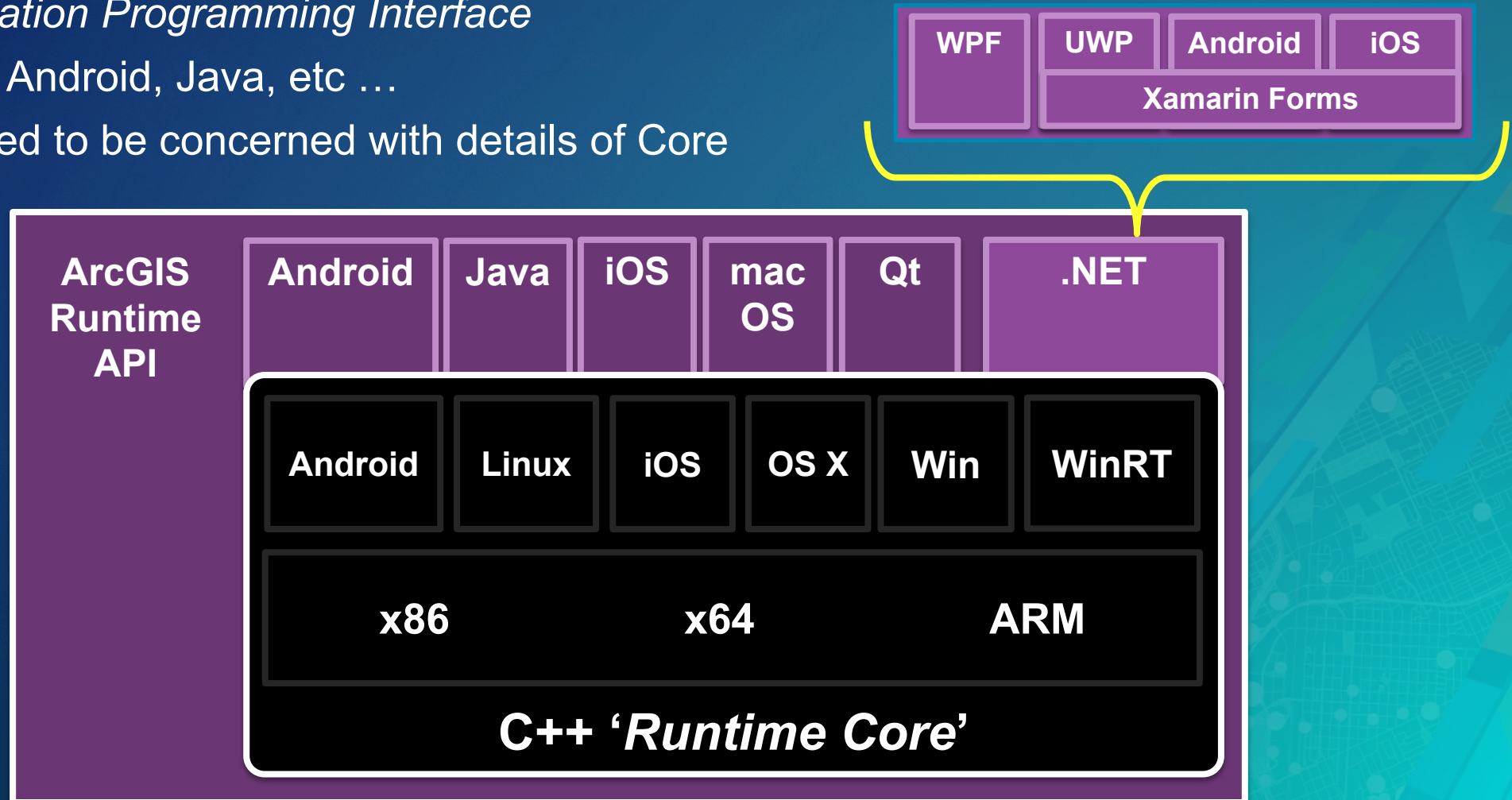
Core functionality: Display, geometry, data access, ...

Compiled for multiple platforms and architectures



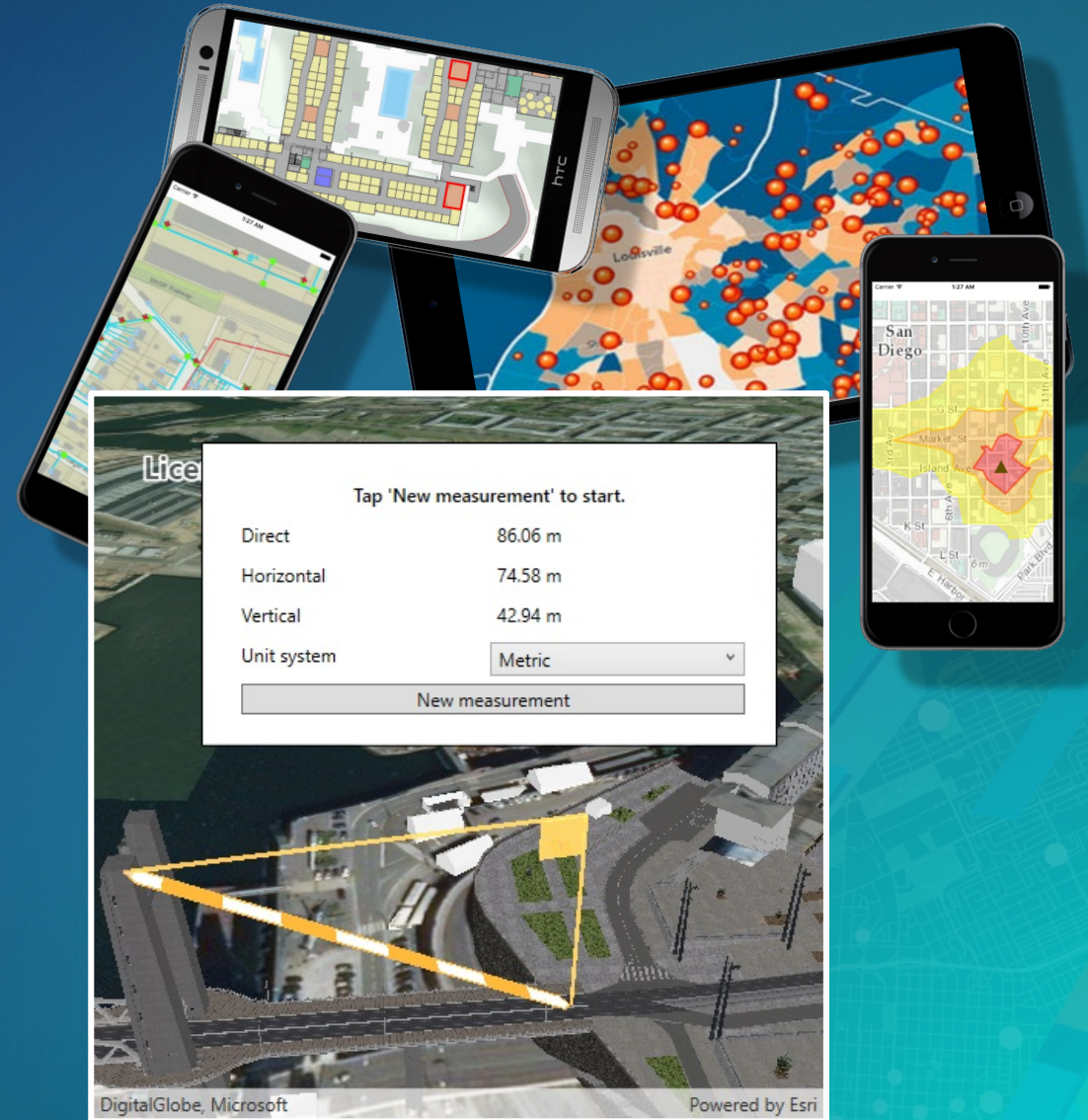
ArcGIS Runtime overview

- Access core functionality via a native API for each platform:
 - *Application Programming Interface*
 - .NET, Android, Java, etc ...
 - No need to be concerned with details of Core



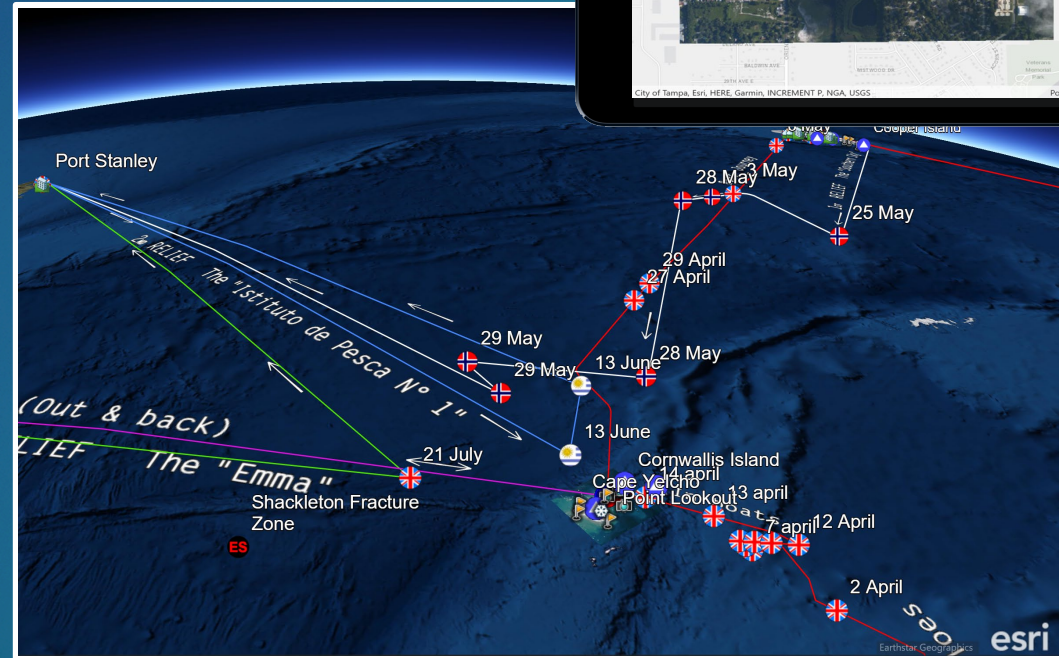
New with 100.3.0

- Support for .NET standard 2.0
- Web scenes
 - Open scenes saved in ArcGIS Online
 - Content, symbology, popups are honored
- Scene analysis
 - Interactive distance measurement
 - Enhanced viewshed analysis (360 degrees)
- Layer enhancements
 - Query support for map image layer
 - Identify scene layers
 - Styling and time support for WMS



New with 100.4.0

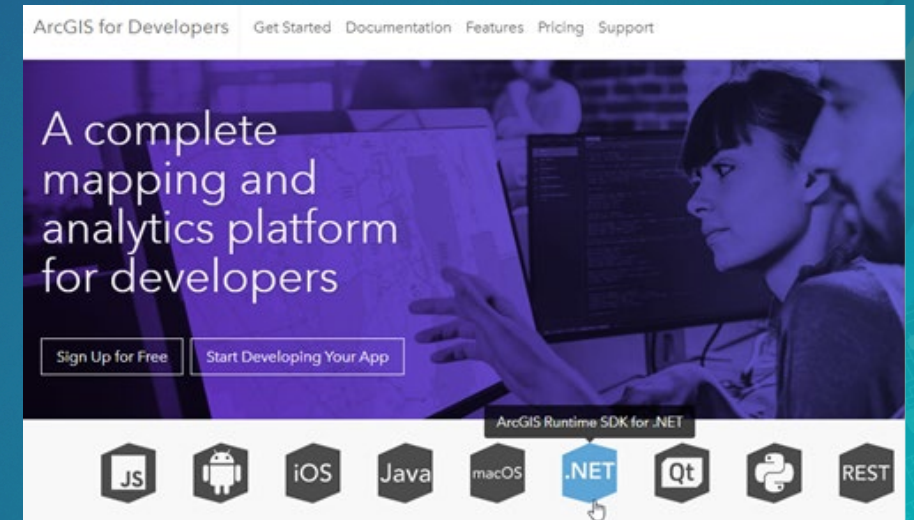
- KML
 - Display and interact
- MrSid
- Enhance options for on-demand workflows
 - Filter to skip unused rows in related tables
 - Specify area of interest or scale range
 - Override default parameters
- Unified selection experience
 - Features and graphics
 - Dynamic and static
 - 2D and 3D



Developer resources

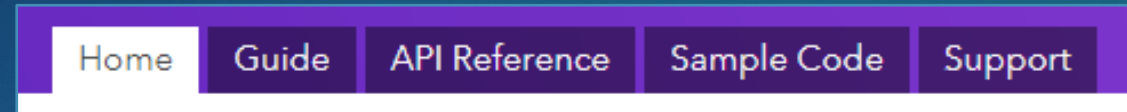
ArcGIS for Developers - developers.arcgis.com

- Your starting point for finding ArcGIS Runtime SDK resources
 - Sign up to receive credits for developing and testing your apps!
- Downloads
 - ArcGIS Runtime SDKs for all platforms
- Documentation
 - Developers guide, API reference, Samples documentation
- Samples
 - Focused samples to illustrate API functionality
 - Full example apps
- Tutorials
 - DevLabs: *Data, Design, and Develop*



Documentation

- Developers guide – developers.arcgis.com/documentation/
 - Conceptual documentation with focused examples (snippets)
 - High-level documentation that applies to all ArcGIS Runtime SDKs
 - .NET-specific documentation
- API reference - developers.arcgis.com/net/latest/wpf/api-reference/
 - Documentation for each class and member in the API
- Sample documentation
developers.arcgis.com/net/latest/wpf/sample-code/
 - Brief description and screenshot of the sample
 - Relevant code (text)



Guide

Viewing: **WPF** | UWP | Android | iOS | Forms

[WPF API Reference](#)

[UWP API Reference](#)

[Android API Reference](#)

[iOS API Reference](#)

Sample Code

Viewing: **WPF** | UWP | Android | iOS | Forms

[Get the Code from GitHub](#)

Code

XAML

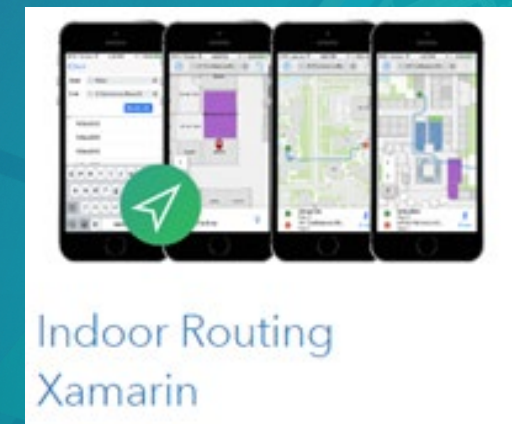
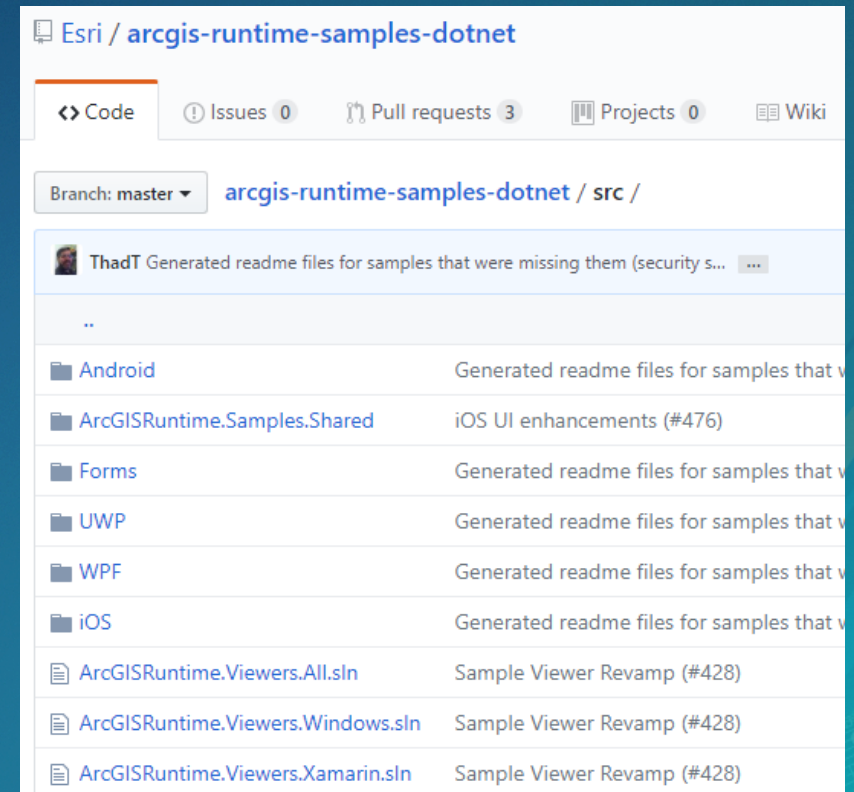
C#

```
<UserControl
```

```
  x:Class="ArcGISRuntime.WPF.Samples.DisplayScene.DisplayScene"
```

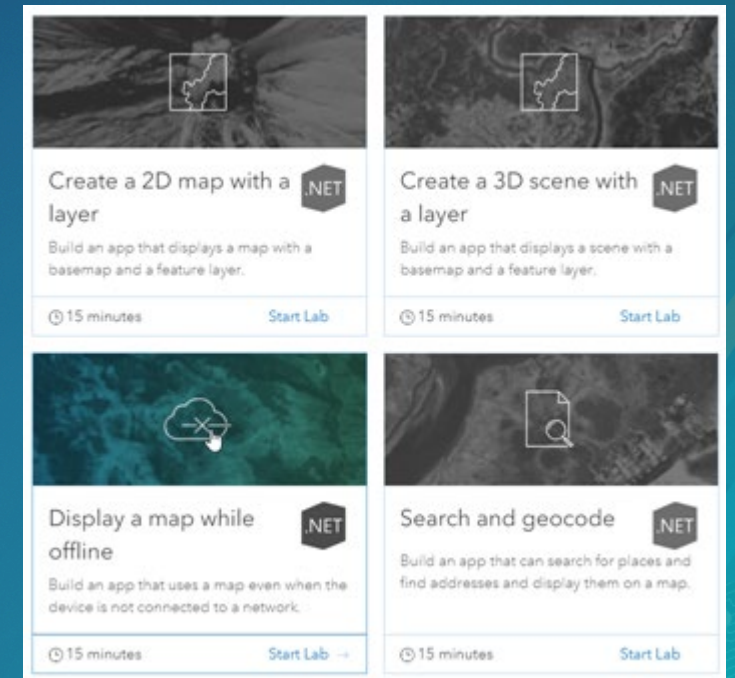

Sample code

- Sample viewer projects
github.com/esri/arcgis-runtime-samples-dotnet
 - Contains all source code for over 130 samples on all platforms
 - Small examples of focused API functionality
 - Add layers, create symbols, run a geoprocessing tool
- Demos - github.com/Esri/arcgis-runtime-demos-dotnet
 - Larger samples that illustrate some common workflows
 - Portal item browser, turn-by-turn routing, external GPS
- Example apps - developers.arcgis.com/example-apps/
 - Focused functional apps: indoor routing, map viewer, data collection
 - All source code (github.com/esri/)
 - Well documented and configurable



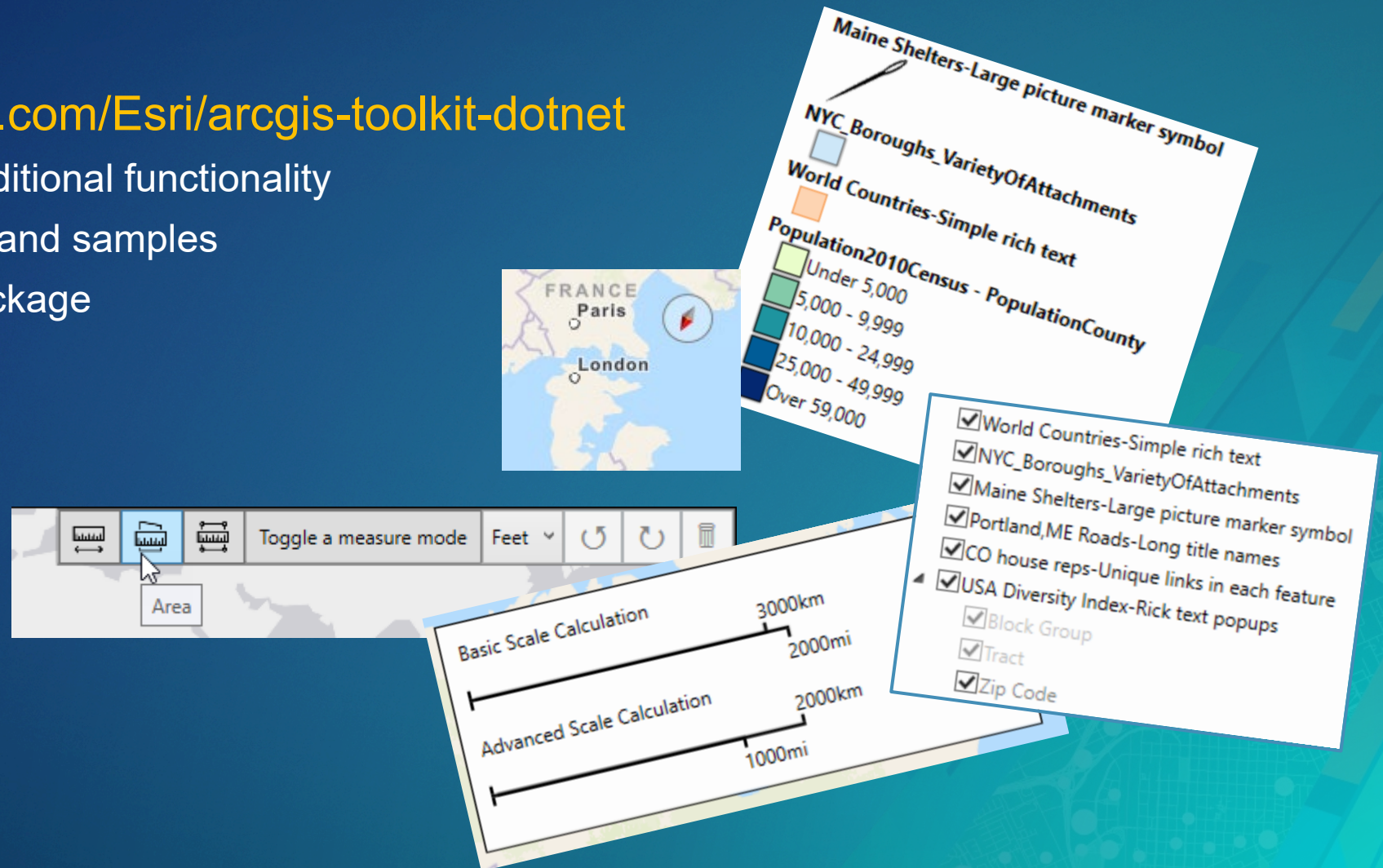
Tutorials and support

- DevLabs – developers.arcgis.com/labs/
 - Short focused tutorials
 - Most will take 15 minutes or less to complete
 - Guides you through all aspects of creating a custom map app
 - **Data** – Import data, create a new dataset, share your content
 - **Design** – Style a web map, configure pop-ups
 - **Develop** – Search and geocode, display a map, access private layers
 - Includes solution code (or data)
- GeoNet – ArcGIS Runtime SDK for .NET
community.esri.com/community/developers/native-app-developers/arcgis-runtime-sdk-for-net/
 - Public forum for questions, discussion, blogs, etc.



Additional controls and utilities (toolkit)

- Toolkit project – github.com/Esri/arcgis-toolkit-dotnet
 - UI controls to provide additional functionality
 - Includes all source code and samples
 - Available as a NuGet package
 - Compass
 - Layer legend
 - Scale line
 - Symbol display
 - Time slider
 - and more ...





Demo: Developer resources

Getting started

Xamarin development options

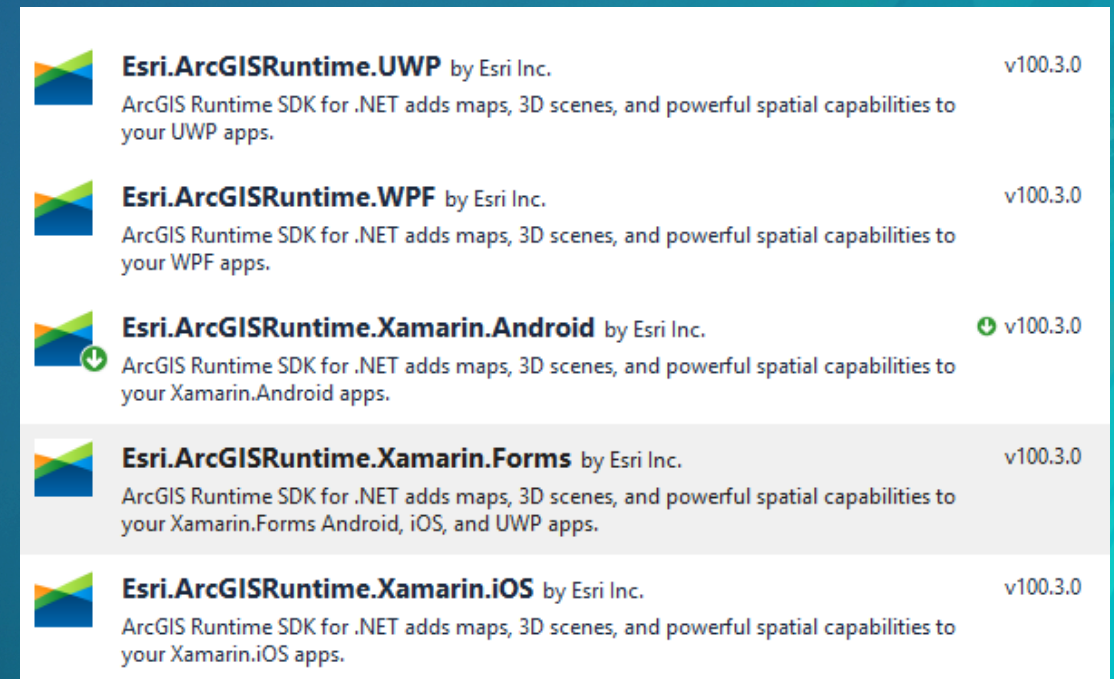
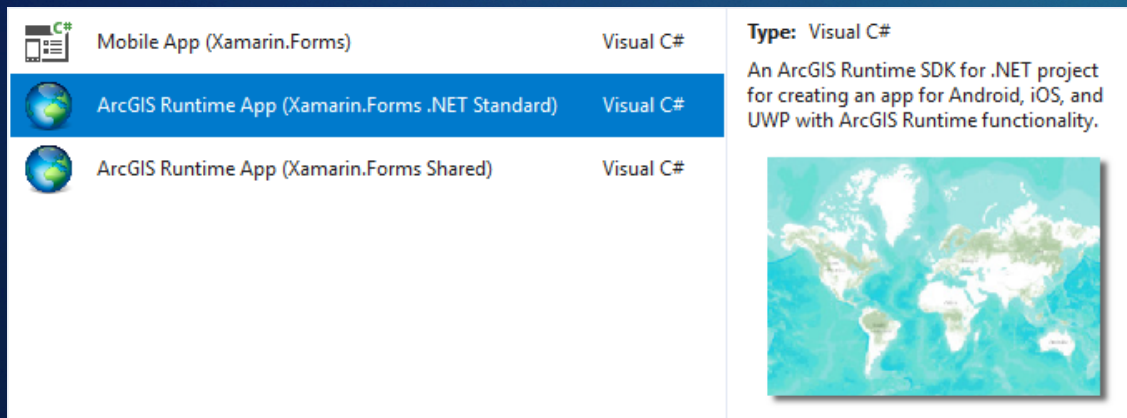
Windows or Mac

	Mac OS X	Windows
	Visual Studio for Mac	Visual Studio
Xamarin Native		
iOS		Requires Mac build host
Android		
macOS *		
Xamarin Forms		
iOS		Requires Mac build host
Android		
UWP		

* Not available for ArcGIS Runtime for .NET apps
Create apps for Mac with ArcGIS Runtime for macOS

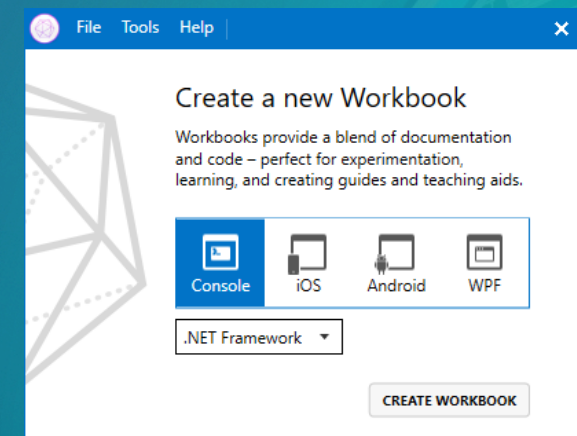
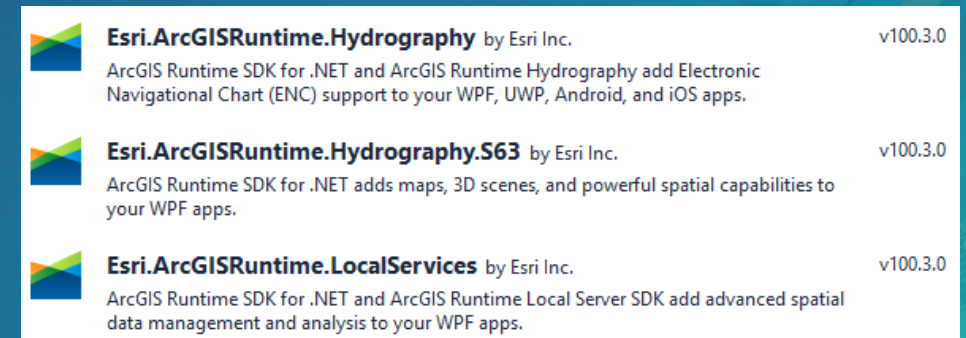
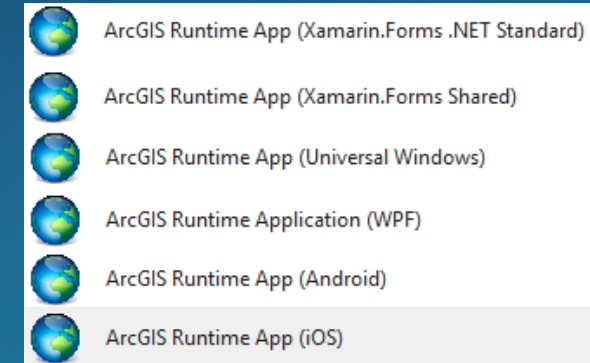
Installing ArcGIS Runtime SDK for .NET

- NuGet packages
 - WPF, UWP, Xamarin.Android, Xamarin.iOS, Xamarin.Forms (Android, iOS, UWP)
- Visual Studio installation (VSIX) – **Windows only**
developers.arcgis.com/downloads
 - Project templates for each supported platform
 - Local NuGet package source



What kind of things can you create?

- Apps from a template
 - Map-centric
 - Single platform
 - Cross-platform: Shared project or .NET Standard
- Add ArcGIS Runtime from a NuGet package
 - Existing projects
 - Non map-centric
- Class libraries - encapsulate functionality for reuse
- Workbooks
 - Quickly explore the API
 - Troubleshoot



Road Ahead

- Today, 15:00-16:00: Road Ahead Session in room C 01
- Update 5 – March 2019
 - Read mobile scene packages
 - Edit KML
 - Read WFS
 - Group, Point Cloud and Point scene layers
 - Enhance symbology – Layers API, Arcade, Visual Variables
 - Augmented reality experiences for mobile platforms
 - Honor reference scale for text and symbols
 - Support connected and offline annotation layers
- Prototypes
 - .NET Core
 - Xamarin Forms with WPF



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