

Esri Developer Summit

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Getting Started with the ArcGIS Runtime

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Agenda

- **Example apps**
- **Why the runtime?**
- **ArcGIS Runtime functionality**
- **ArcGIS Runtime benefits**
- **Future developments**
- **Timeline**
- **What's missing?**
- **Developing solutions for multiple devices**
- **What about ArcGIS Engine?**



Example apps



Why The Runtime?



Traditional Desktop Development Options

Development Options

ArcReader



ArcGIS Explorer



MapObjects



ArcPad
ArcGIS Mobile



ArcGIS Engine



ArcGIS Desktop



ArcGIS Developer Challenges on the Windows Platform

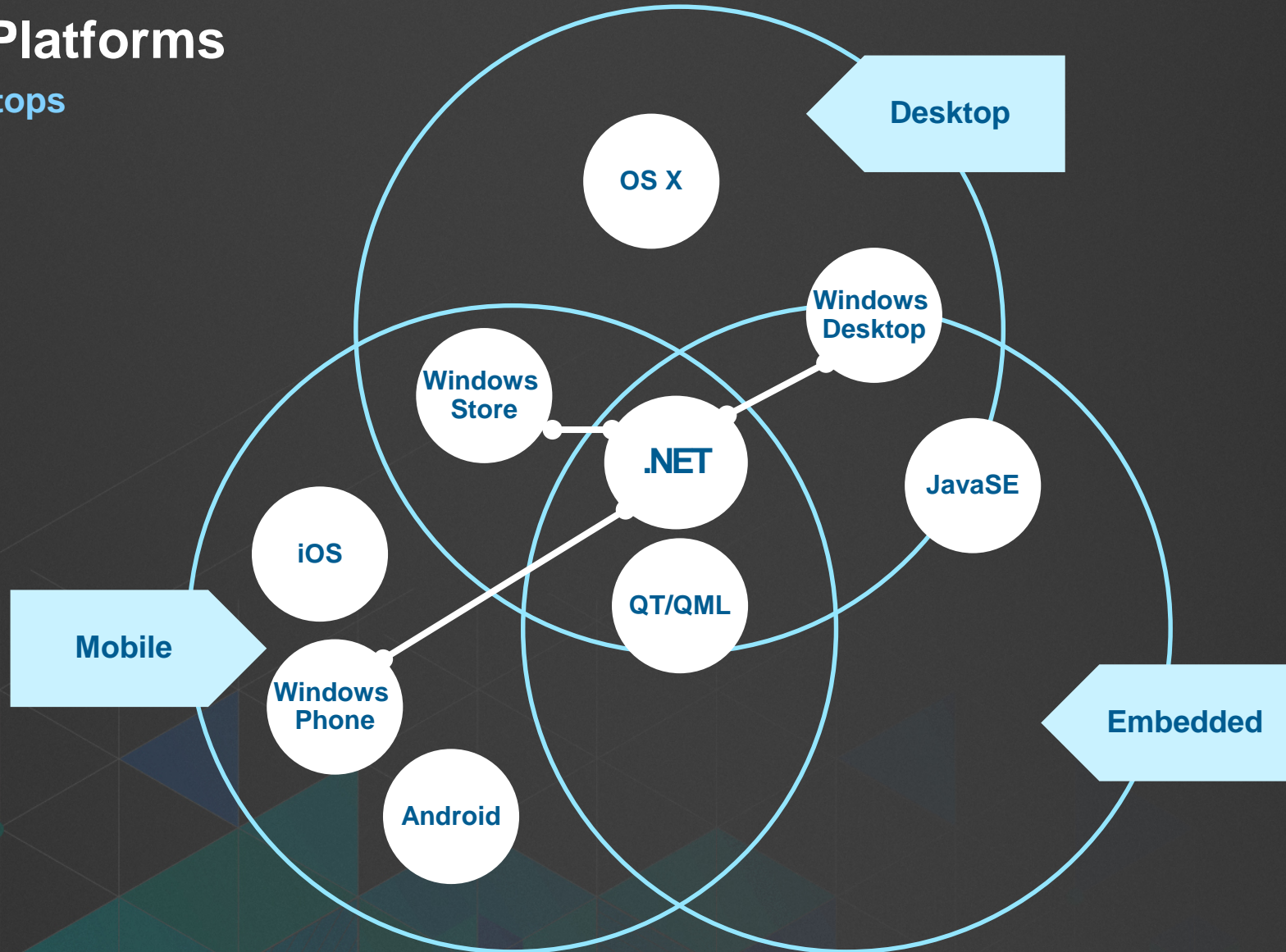
- **Deployment model forces architecture choice**
- **Complex object models**
- **Large memory and disk footprint**
- **32bit native code execution**
- **APIs have strong COM bias**
- **Display architecture not optimized for speed**
- **Deployments do not support SxS**
- **Different paradigms for desktop and online development**
- **Windows only – what about the emerging client technologies?**

An Evolution



Runtime Platforms

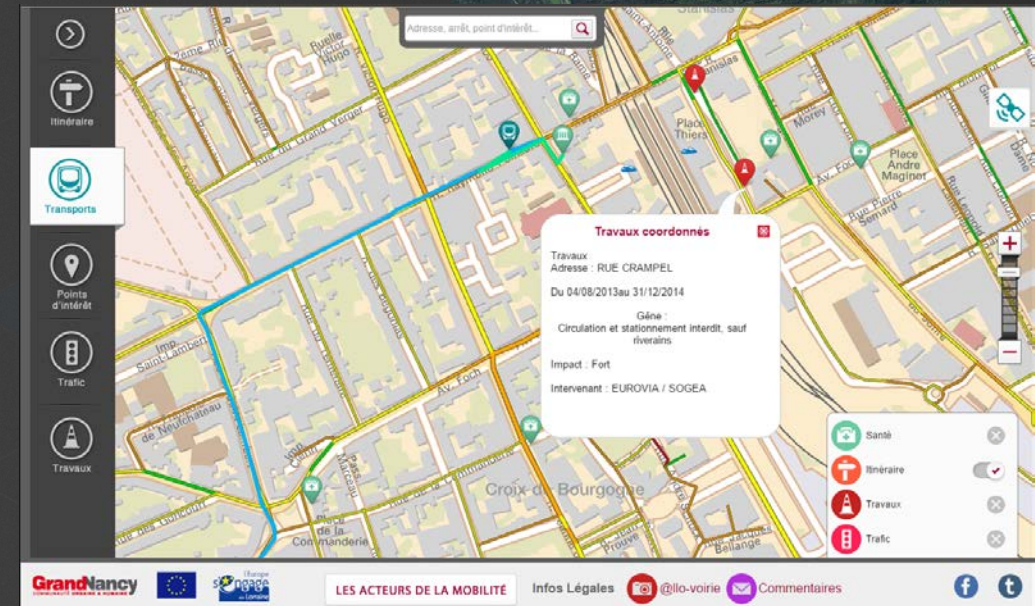
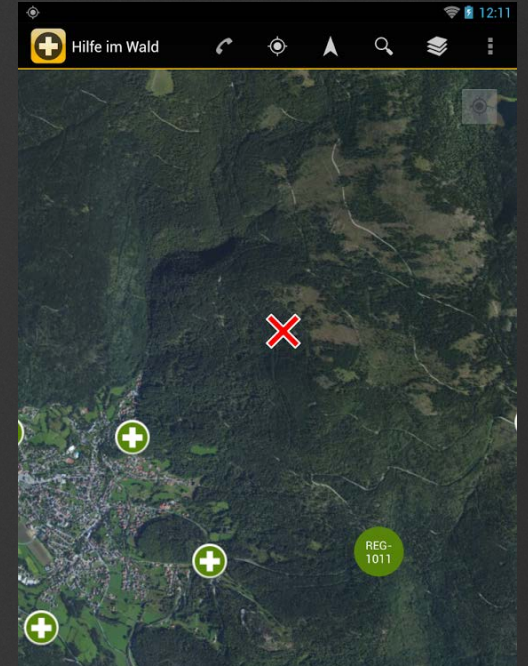
Not Just Desktops



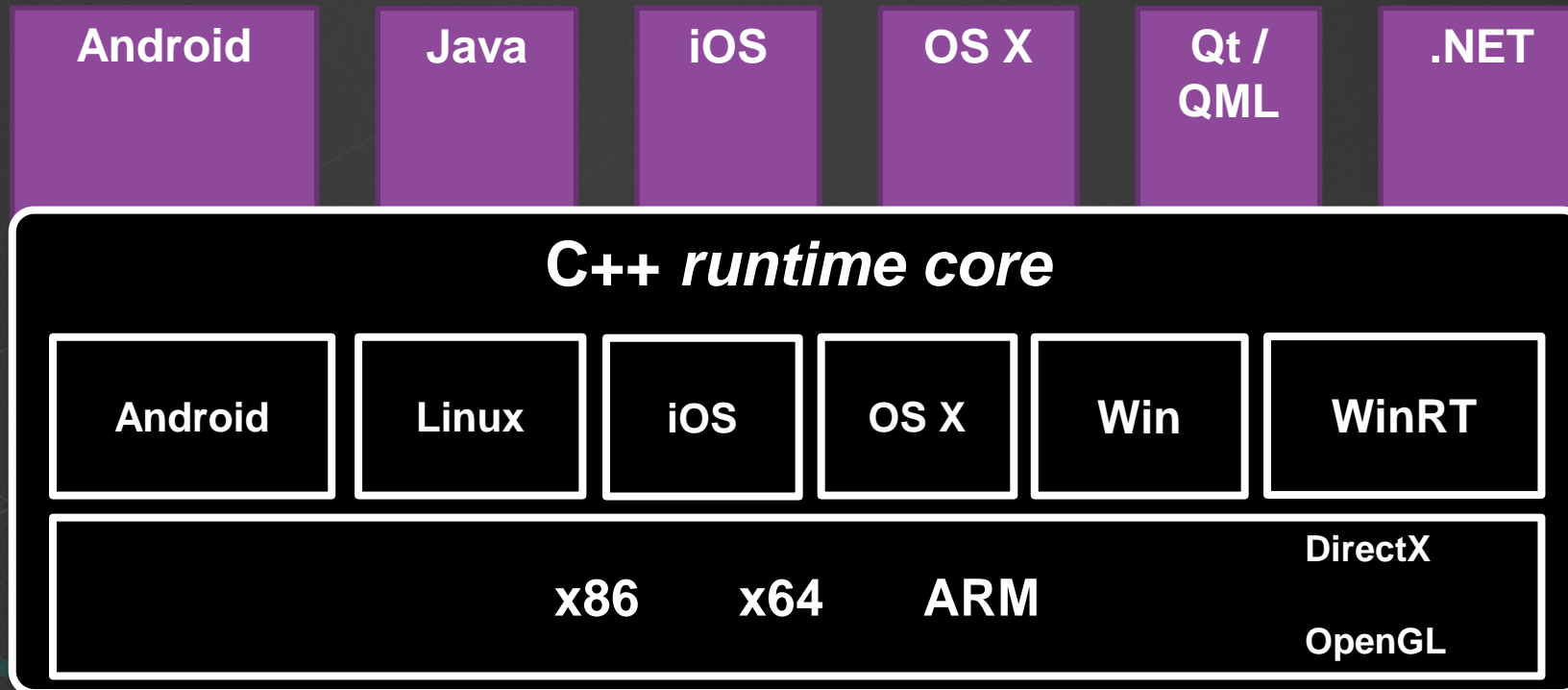
The ArcGIS Runtime

Supports Native Application Development

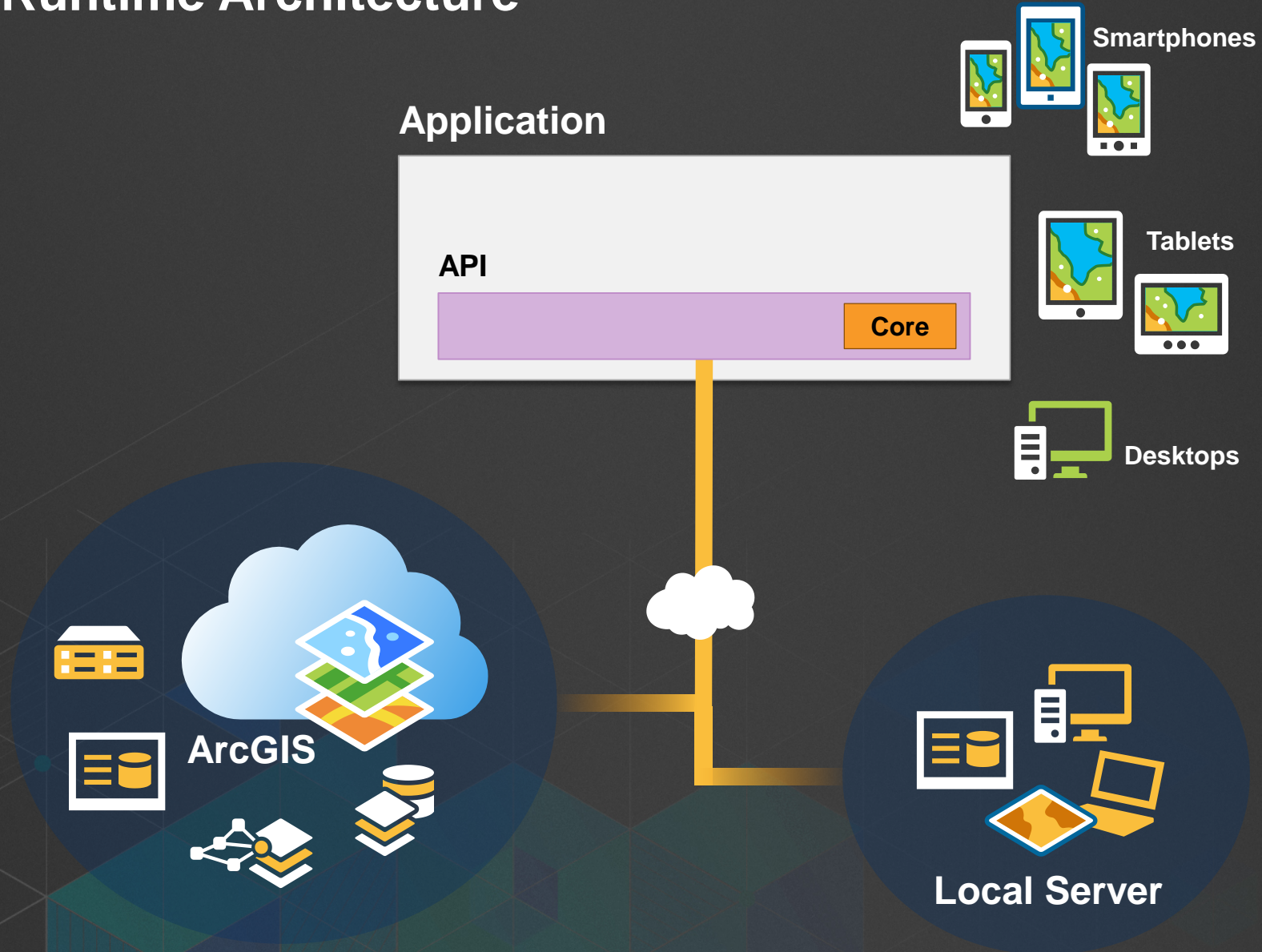
- Runtime Core
 - C++
 - Small
 - High performance
 - Exploits the Platform
- Client APIs Expose Functionality to Developers
 - DotNet
 - Java
 - Objective C
 - Qt/QML
- Common Conceptual Model



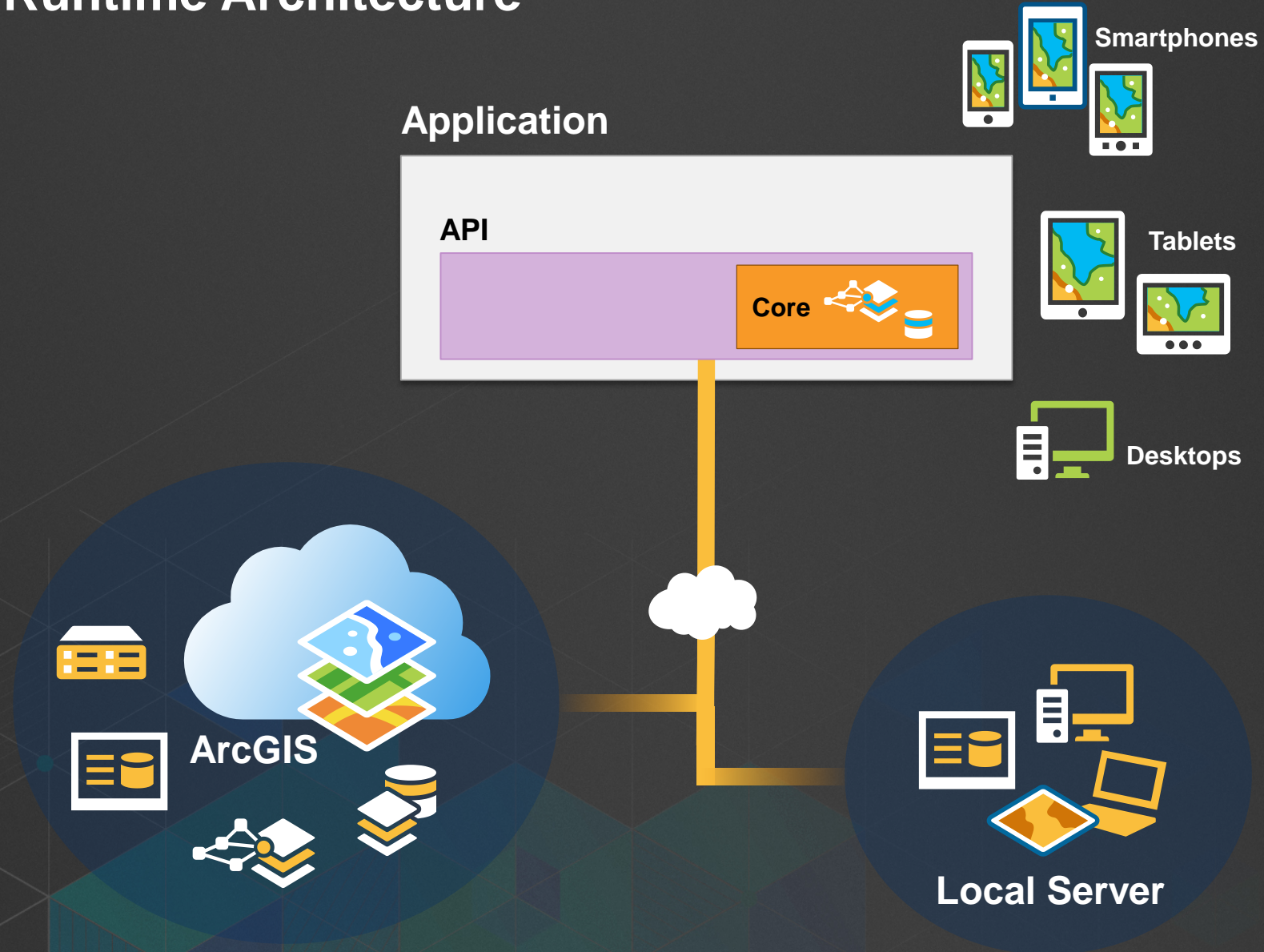
Runtime Architecture



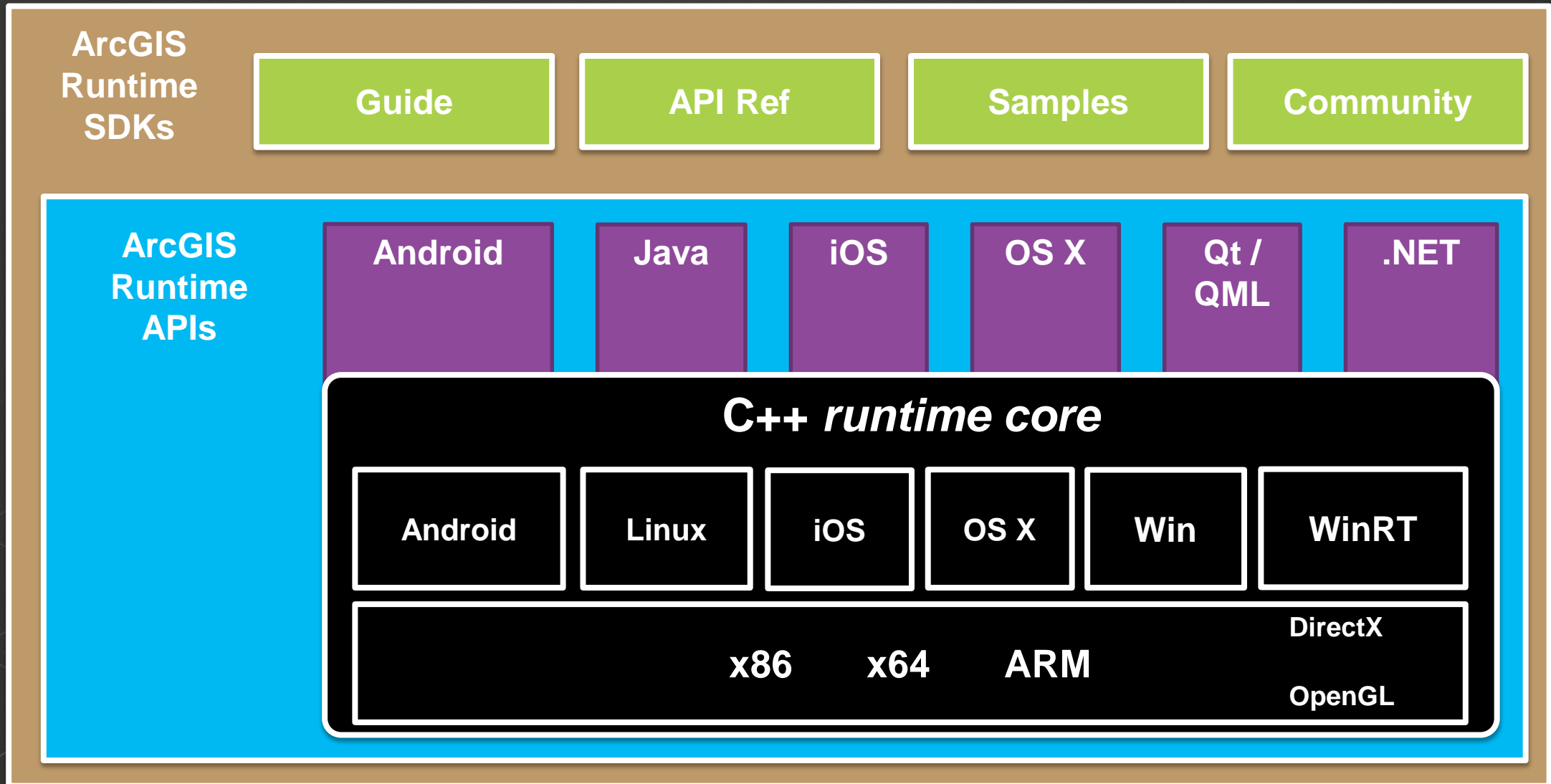
ArcGIS Runtime Architecture



ArcGIS Runtime Architecture



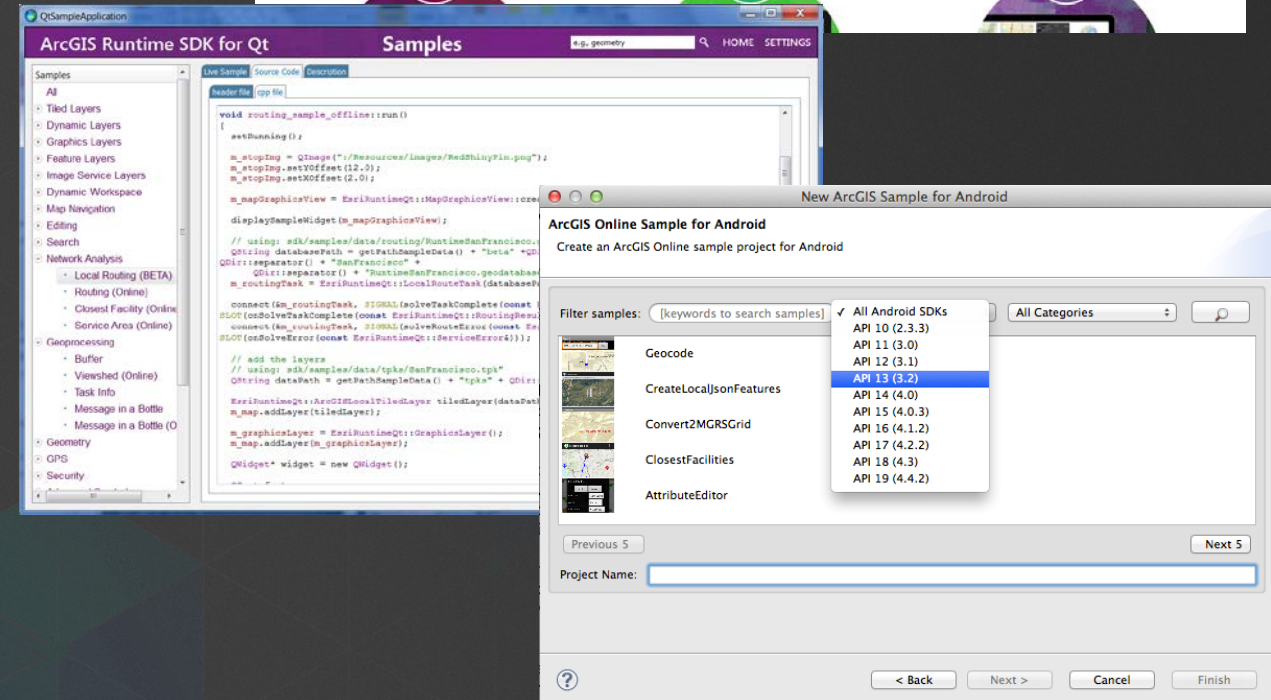
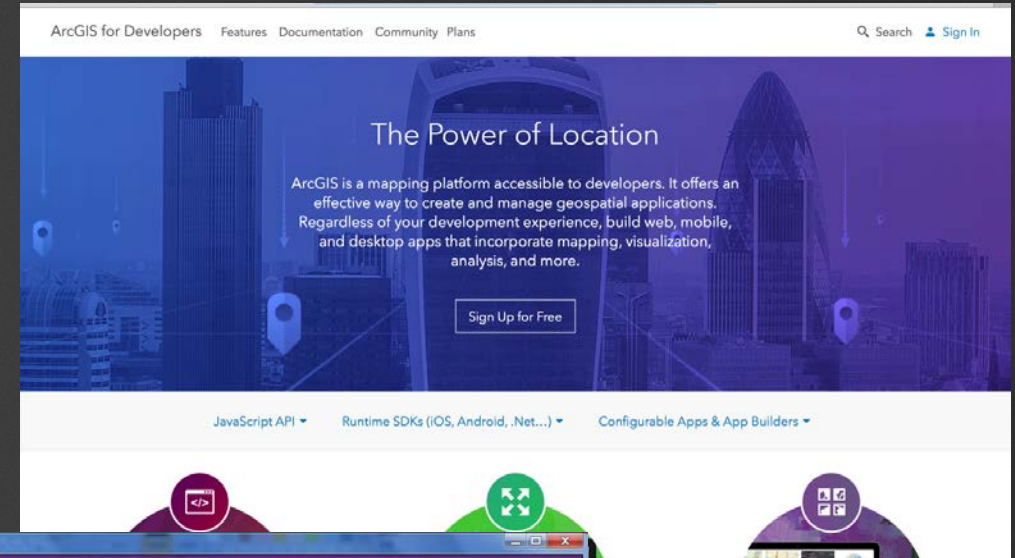
ArcGIS Runtime SDKs



Demo

Developer Resources

<http://developers.arcgis.com>



Runtime Functionality



What can you do with the Runtime SDKs?

Maps, Scenes and layers

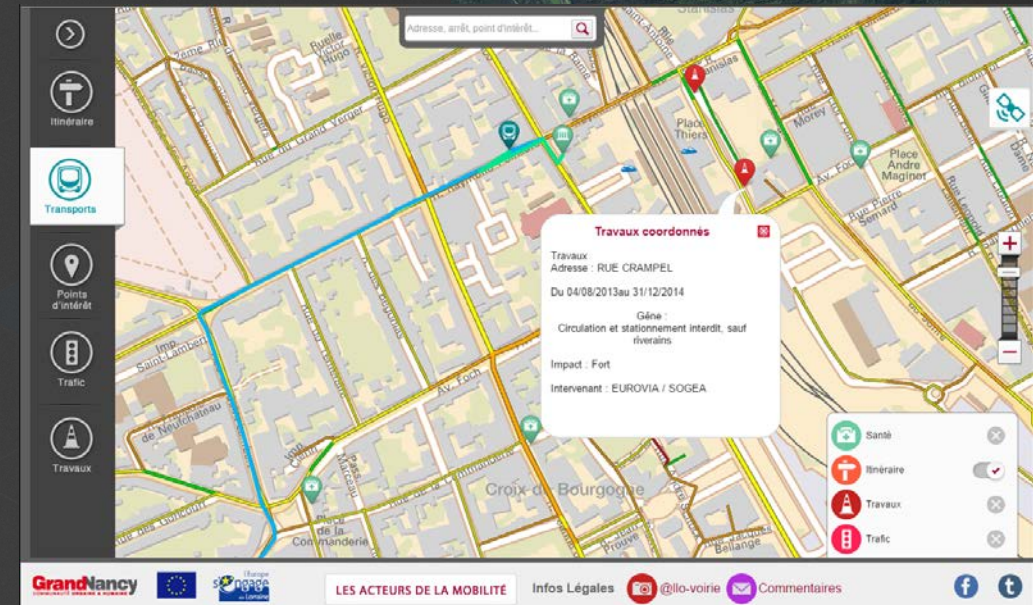
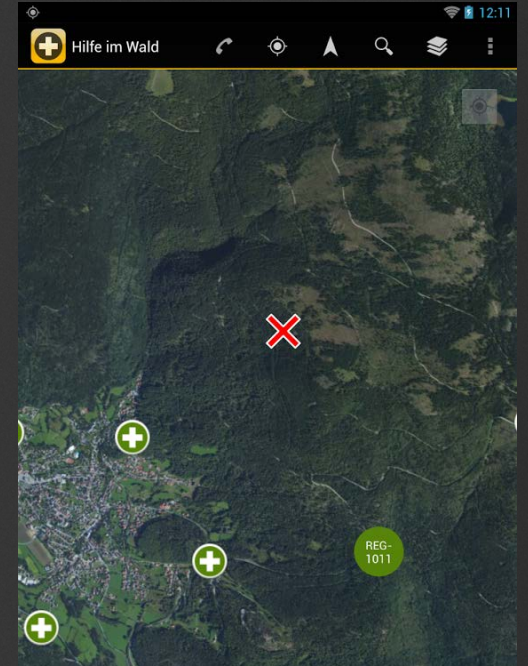
Layers

- Tiled layers
 - ArcGIS Map Services, Bing, OSM, WMTS, custom, local
- Map image layers
 - ArcGIS Map Services, ArcGIS ImageServer, WMS
- Graphics Layer
- Feature layers
 - Feature tables
 - FeatureService, Shapefile, Geopackage

Scene layers

Web maps

- Feature Collections
- Pop-ups



What can you do with the Runtime SDKs?

Display information

Graphics

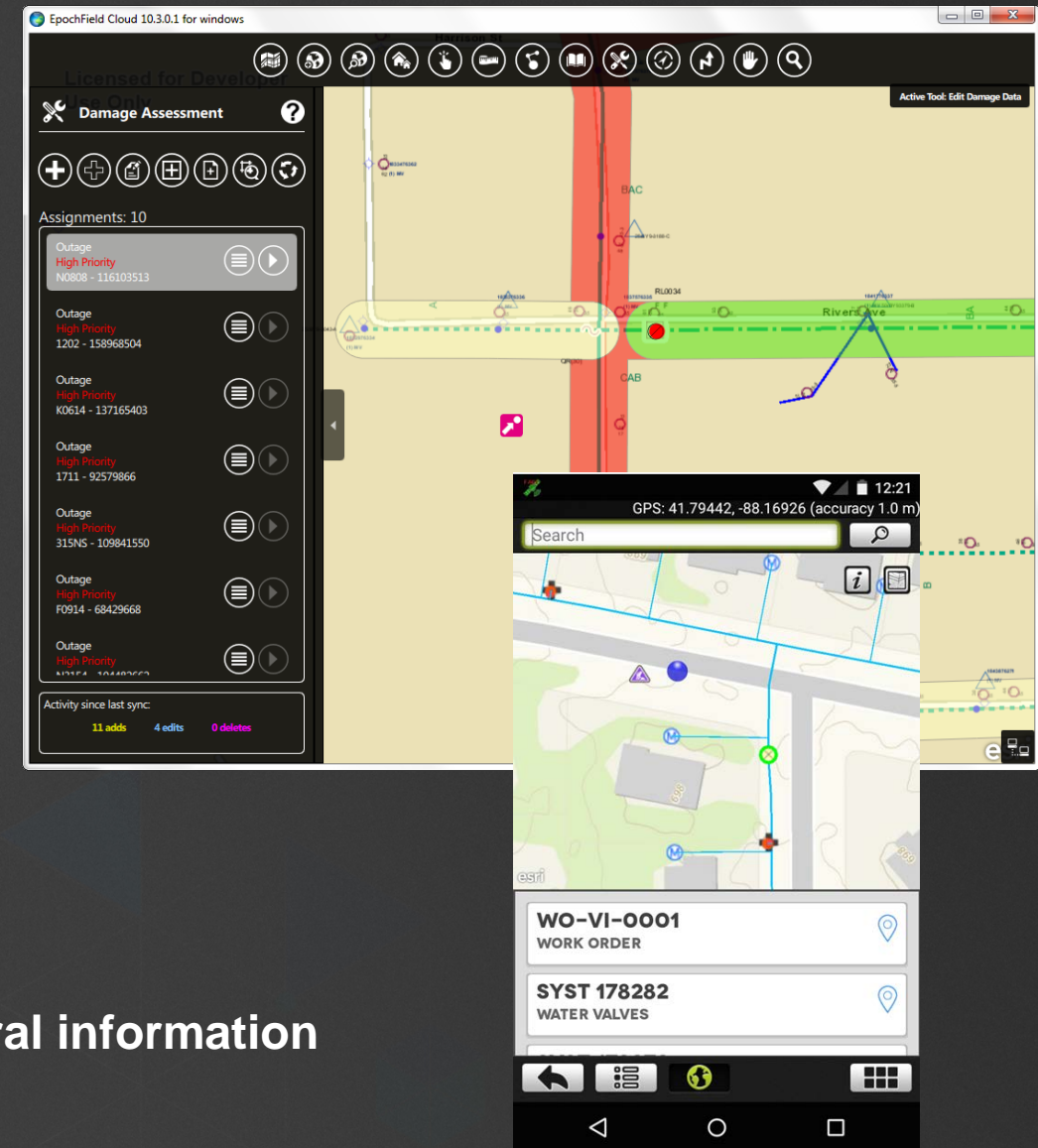
- Arbitrary objects added to a Graphics Layer
 - Point, Lines, Polygon, Text
 - Geometry + Symbol + Attributes
 - Used for: Sketching, query results

Callouts

- Anchored view on the map to fill with content
 - Used for: Map tips, show details on click

Popups

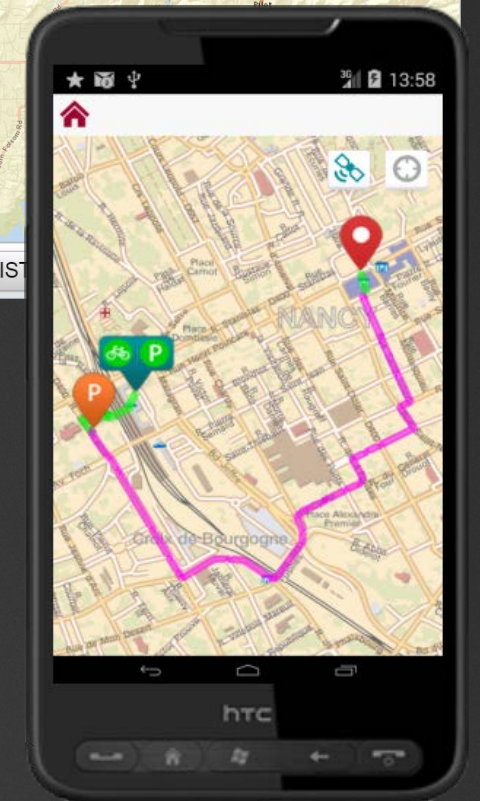
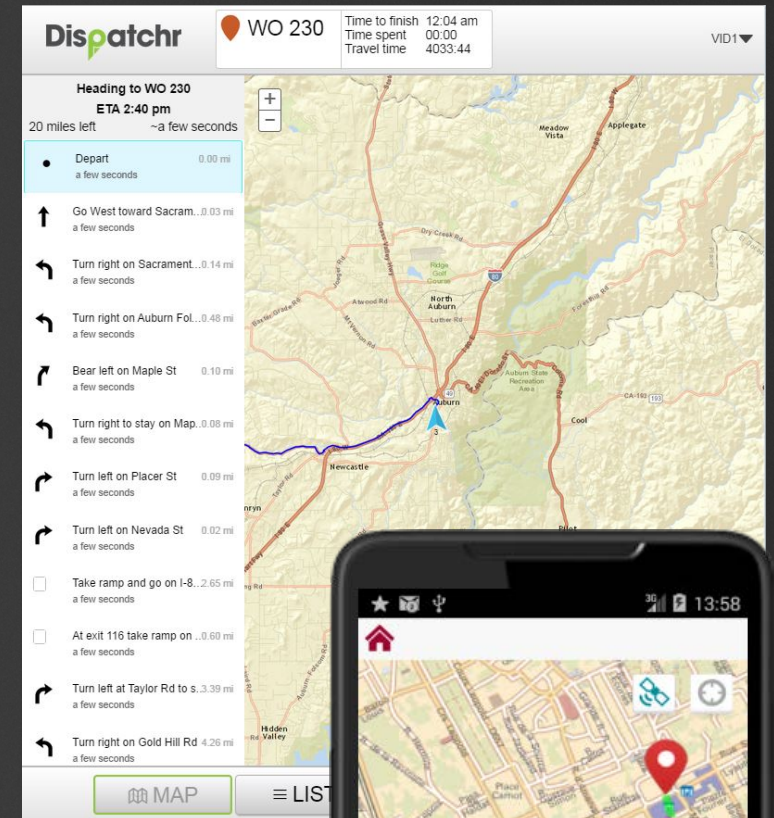
- Data display configuration
 - Data model & UI Views for display
 - Configure attributes, media, attachments and general information
 - Used for: converting data into information



What can you do with the Runtime SDKs?

Analysis

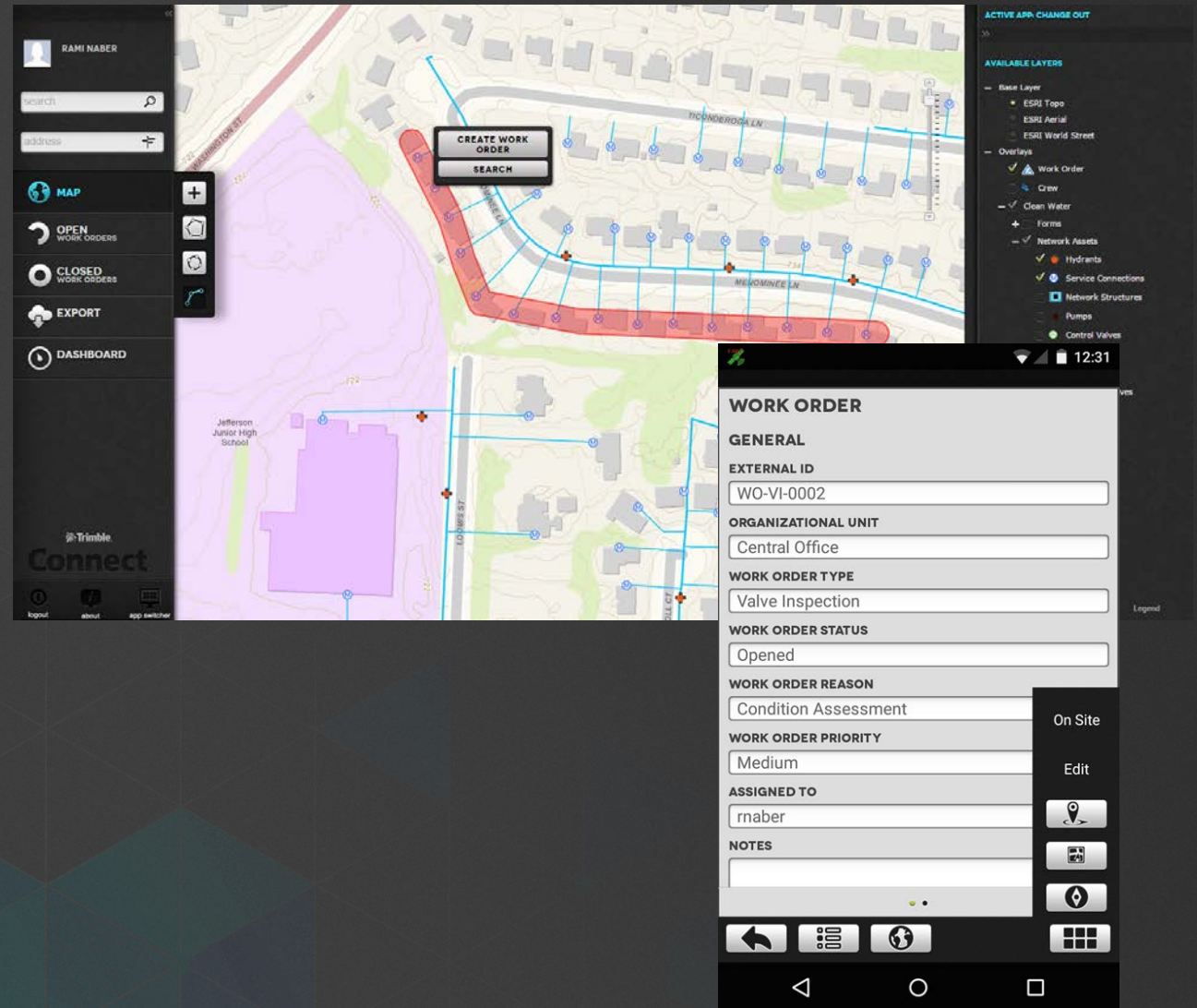
- Query, Identify, Find features
- Locate/Geocode addresses
 - Reverse geocode
- Routing
 - Point to point and multi-stop with restrictions
- Geometry Engine
 - Geometry operations on the device (Cut, Union, Buffer, etc.)
- Visual analysis (in beta for android only @ 10.2.5)
- Geoprocessing Tasks



What can you do with the Runtime SDKs?

Data Collection

- **Connected Editing**
 - Against a Feature Service
- **Disconnected Editing**
 - Against a geodatabase
- Add, update, delete
- Attachments
- Related tables



What can you do with the Runtime SDKs?

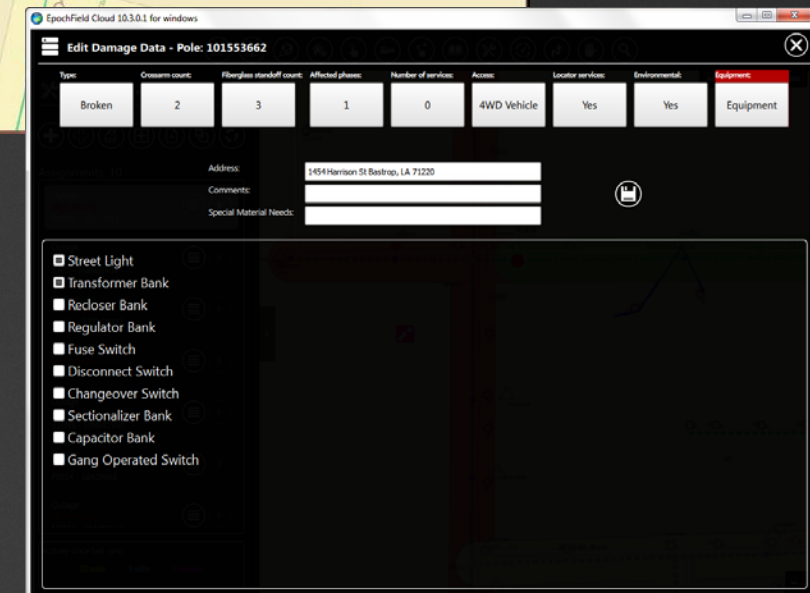
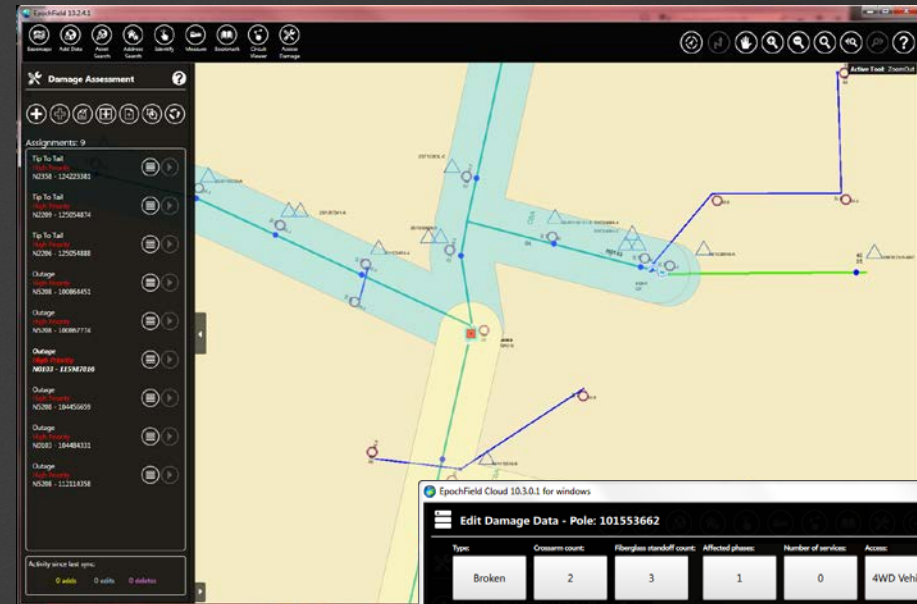
Offline use...

All SDKs

- Offline basemaps
 - Tile Package (.tpk)
- Offline operational layers
 - Local layers (feature tables, rasters)
 - Editing and sync
- Offline tasks
 - Routing, Geocoding

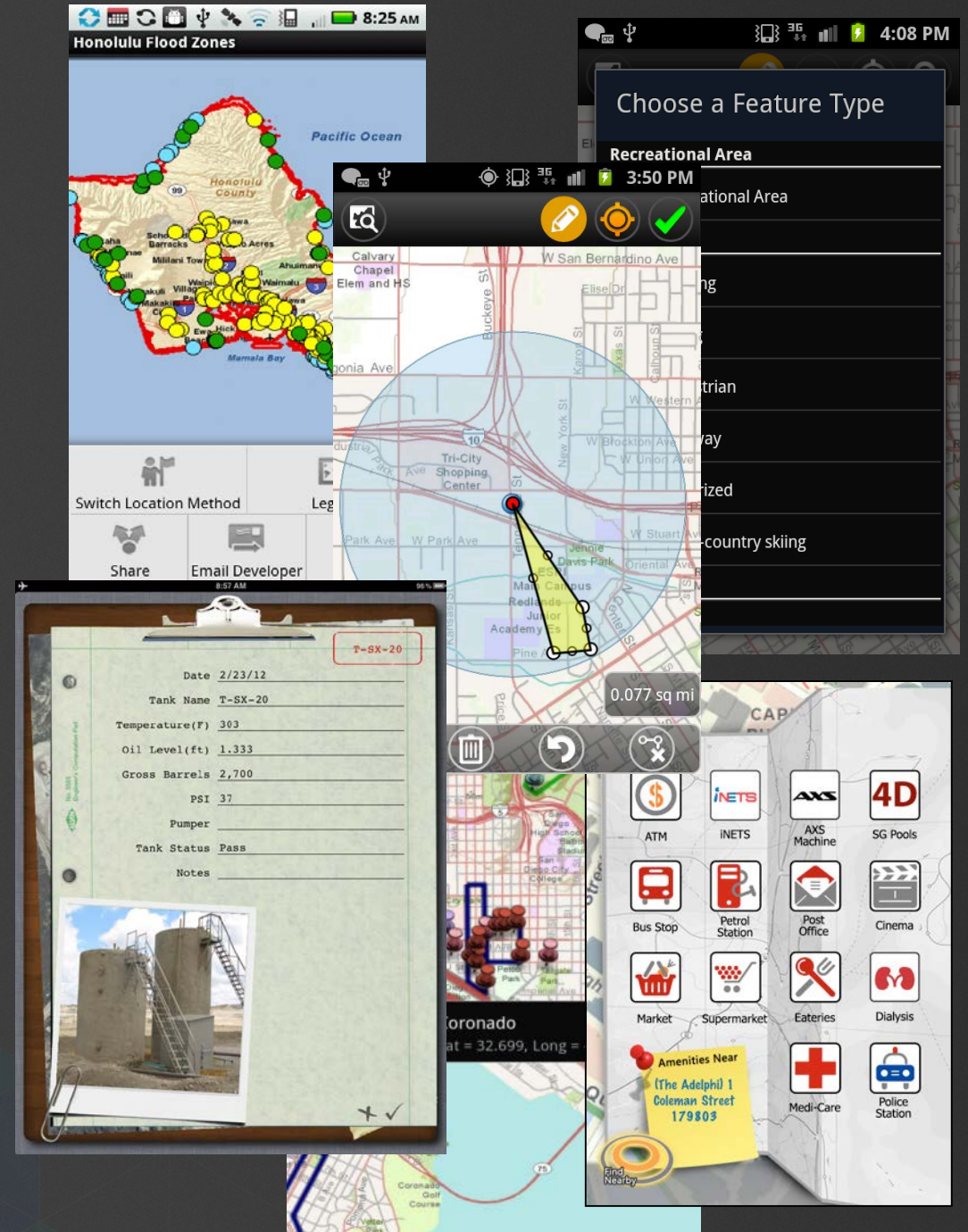
.Net, Java, Qt

- Map packages – open with local server
- GP packages



Demo

Functionality



ArcGIS Runtime Business Model

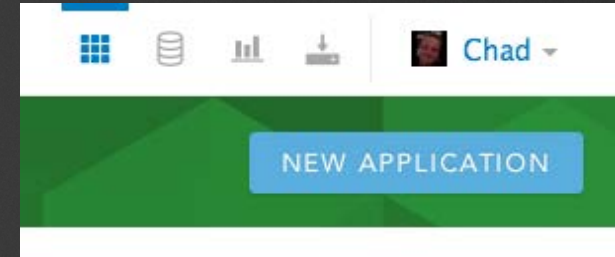
- **Goals**
 - Low cost entry for developers
 - Promote platform adoption
- **Developers get everything with a developer subscription**
- **Deployments of runtime need to be licensed**

License levels and functionality

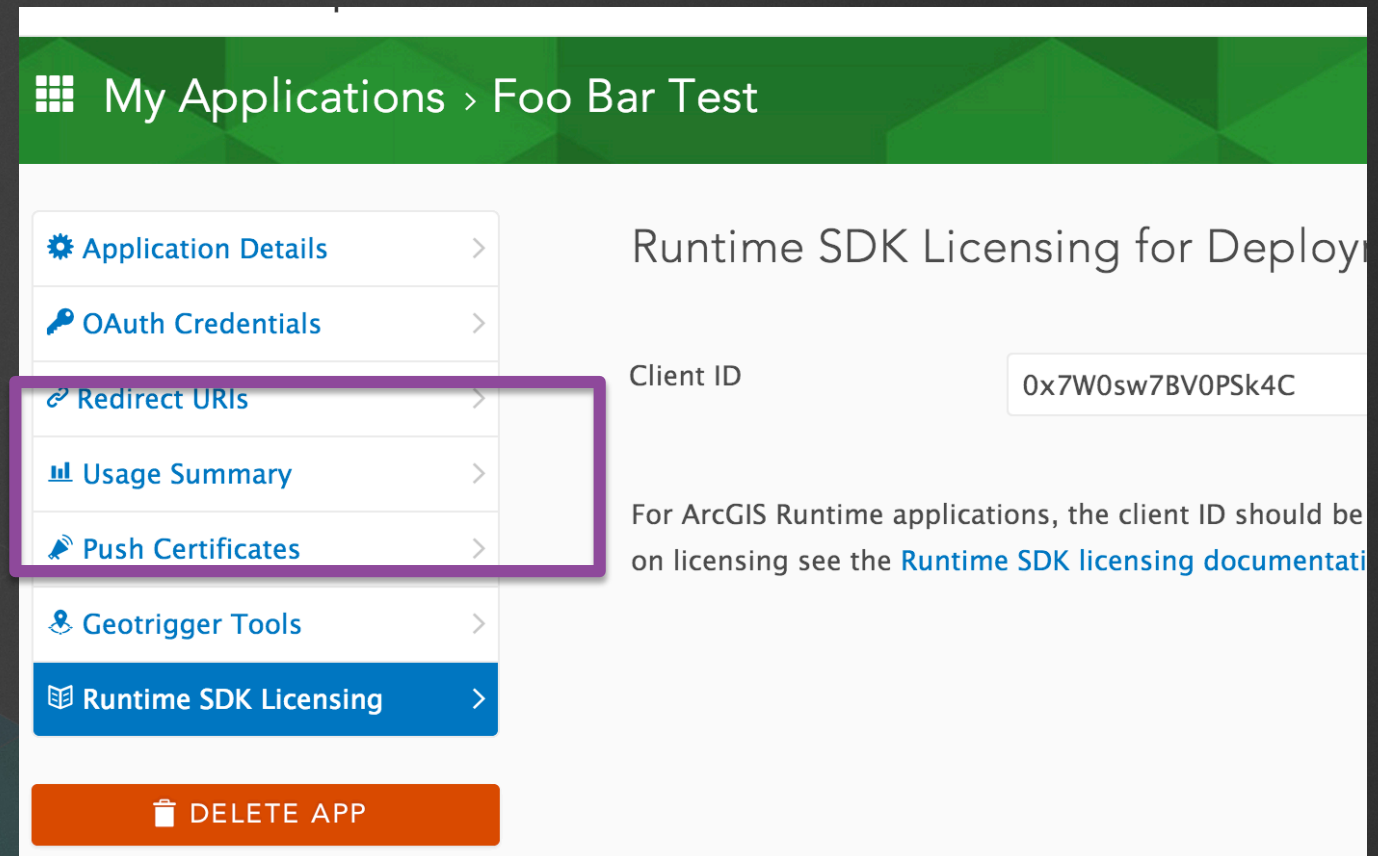
License Level	Available functionality
Developer (development and testing only)	All functionality (watermarks and debug messages will be generated, nag screens with local server*)
Basic	Connected - all functionality Offline - map viewing only
Standard	Connected and offline - all functionality, includes: <ul style="list-style-type: none">• Local locators (geocoding)• Local routing• Local geodatabase editing• Local geodatabase sync operations• Local server*

* For those SDKs that support it

How to License Your App at the Basic Level



- <http://developers.arcgis.com>
- Under Application section, create a New Application (or select existing)
- Click on Runtime SDK Licensing
- Copy the Client ID and use it to set your clientID



How to License Your App at the Standard Level

- You have 2 options:
 1. Use an organization account (ArcGIS Online or Portal for ArcGIS)
 - Requires users of your app to log in with their account
 2. Use a license string obtained from Customer Service or your international distributor
 - License burnt into the app
 - Extensions can also be added with this option

Today's Native Development Options

Development Options

ArcReader

ArcGIS Explorer

MapObjects

ArcPad

ArcGIS Mobile

ArcGIS Runtime

ArcGIS Engine

ArcGIS Runtime

ArcGIS Desktop

Welcome to Quartz

The next generation of ArcGIS Runtime



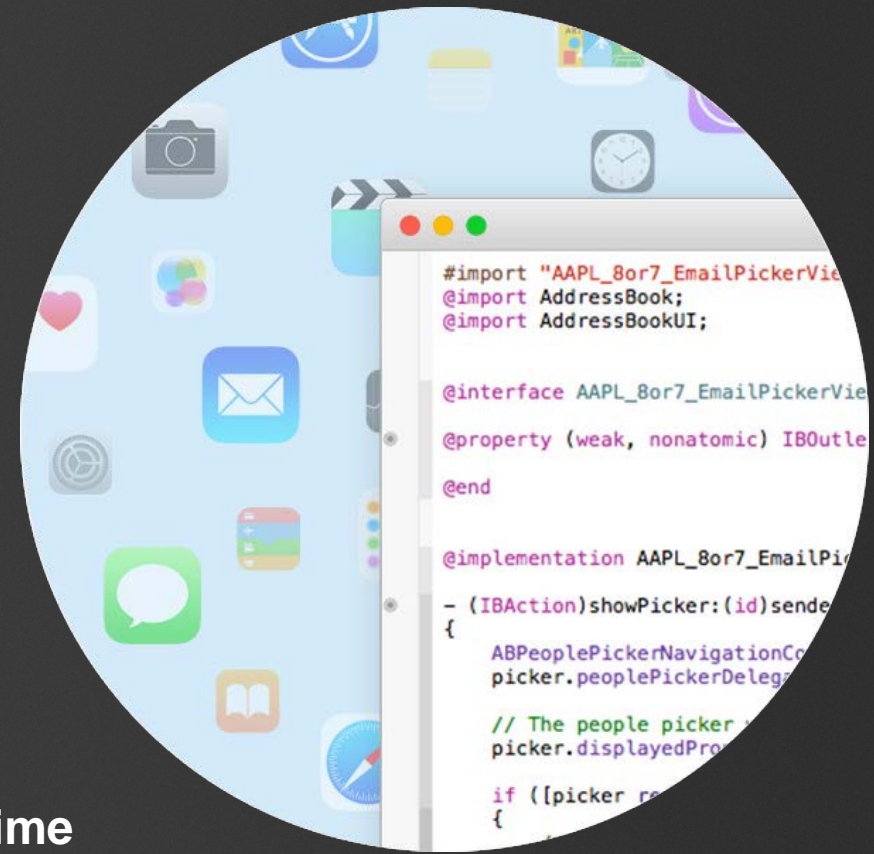
Quartz

- **Major release**

- Many new capabilities
- New and changed APIs
- Improved internal architecture

- **Goals**

- Support the ArcGIS Platform
- Support ArcGIS Engine developers moving to ArcGIS Runtime
- Synchronize APIs across all ArcGIS Runtime platforms
- Support specific user workflows



What does Quartz include?



- **Working with maps**
 - Create, edit and share maps across the ArcGIS Platform (Online, Portal, Pro)
 - Offline maps
- **Working with Portals**
 - Find, upload, share and configure
 - Authentication made easy
- **Working with scenes for 3D**
- **Working with layers**
 - New layers
 - Richer symbology – Renderers & symbols
 - Analysis



ArcGIS Runtime Benefits

- **Integrated into the ArcGIS Platform**
 - Works with services and local content
- **Runs natively on modern devices**
 - Performance
 - Exploits device capabilities
- **Intuitive APIs make it accessible to all developers**
 - Integration with existing application architectures
- **SDKs make developers productive**

Questions?



