App Strategies: Configuration, Customization or Development

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Agenda

- Overview of App Implementation Options
- Gathering Requirements
- Configurable Options
- Advanced Configuration
- Adding Custom Code
- Develop from Scratch

Configure

- Use COTS templates
- Fast time to market
- Great for rapid prototyping
- No developer experience needed

Customize

- Extend templates with custom code
- Higher starting point
- Great when COTS meets most of the req.
- Provides foundation for novice developers

Develop

- Code from scratch using the Esri APIs
- Unique/Branded UI/UX
- Great for orgs with access to developers
- Deep development experience required

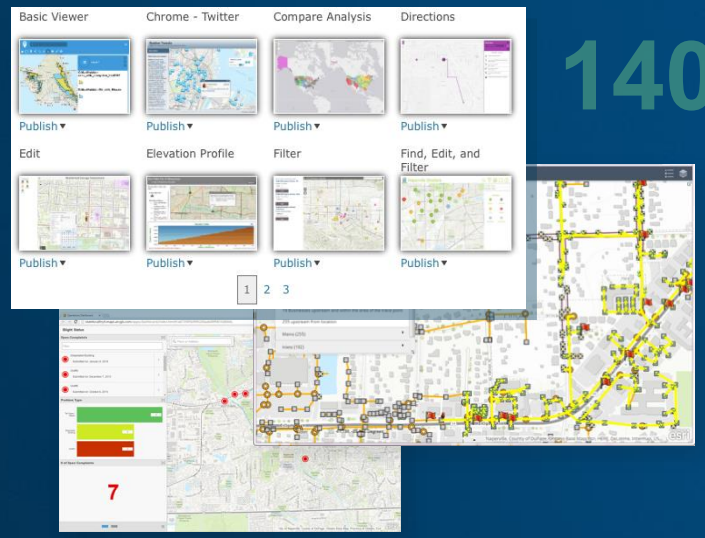
Configuration **Custom Development**

ArcGIS Apps

Focused, Powerful and Ready-to-Use

ArcGIS Apps

Configurable Templates



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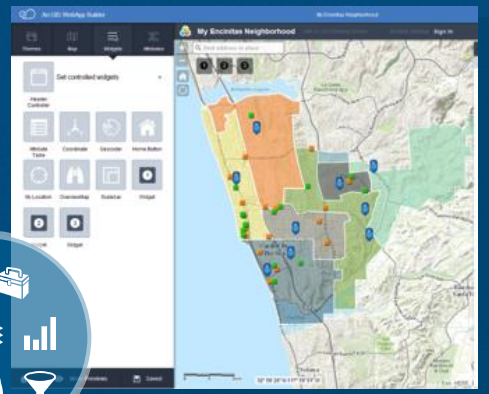
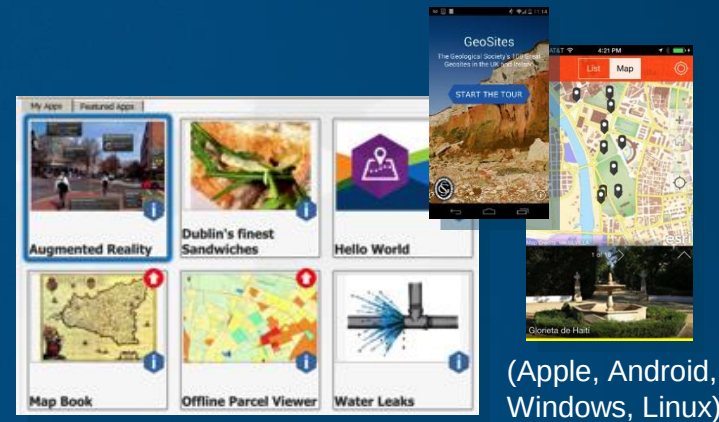
Web AppBuilder



Widgets

AppStudio



(Apple, Android, Windows, Linux)

HTML5/JavaScript

Native Apps

Providing Easy, Configurable, and Extensible Tools

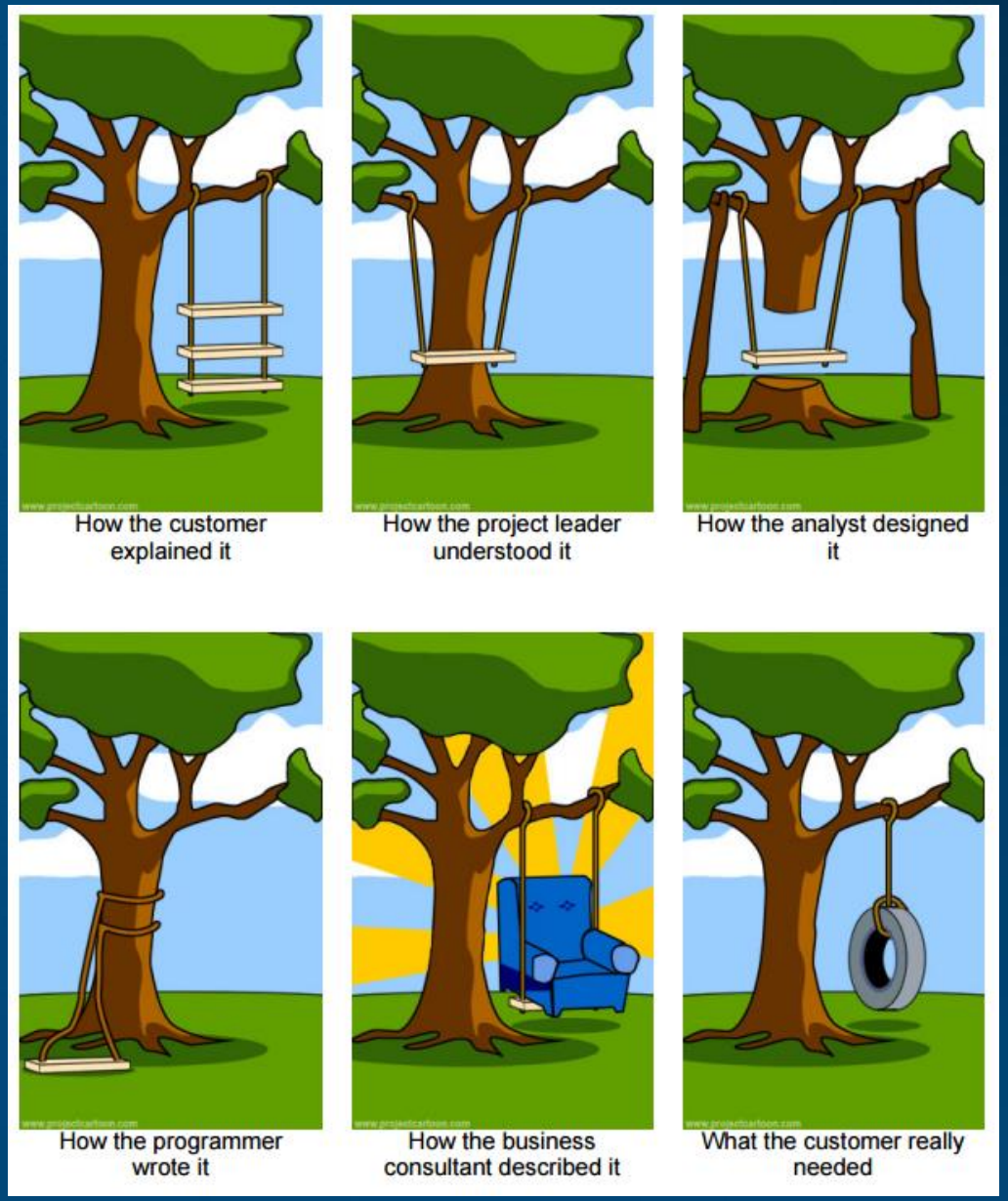
Where Do I Start?

How to ask the right questions

Gathering Requirements

“Measure twice, cut once”

- **Work with sponsor, stakeholders, users, IT**
- Focus on the requirements not the solution
- Types of requirements
  - Business
    - High-level vision statements
  - Functional
    - What the application should do (from a user perspective)
  - Non-functional
    - How the application does it (usability, security, performance, etc.)
- Prioritize!



courtesy: www.projectcartoon.com

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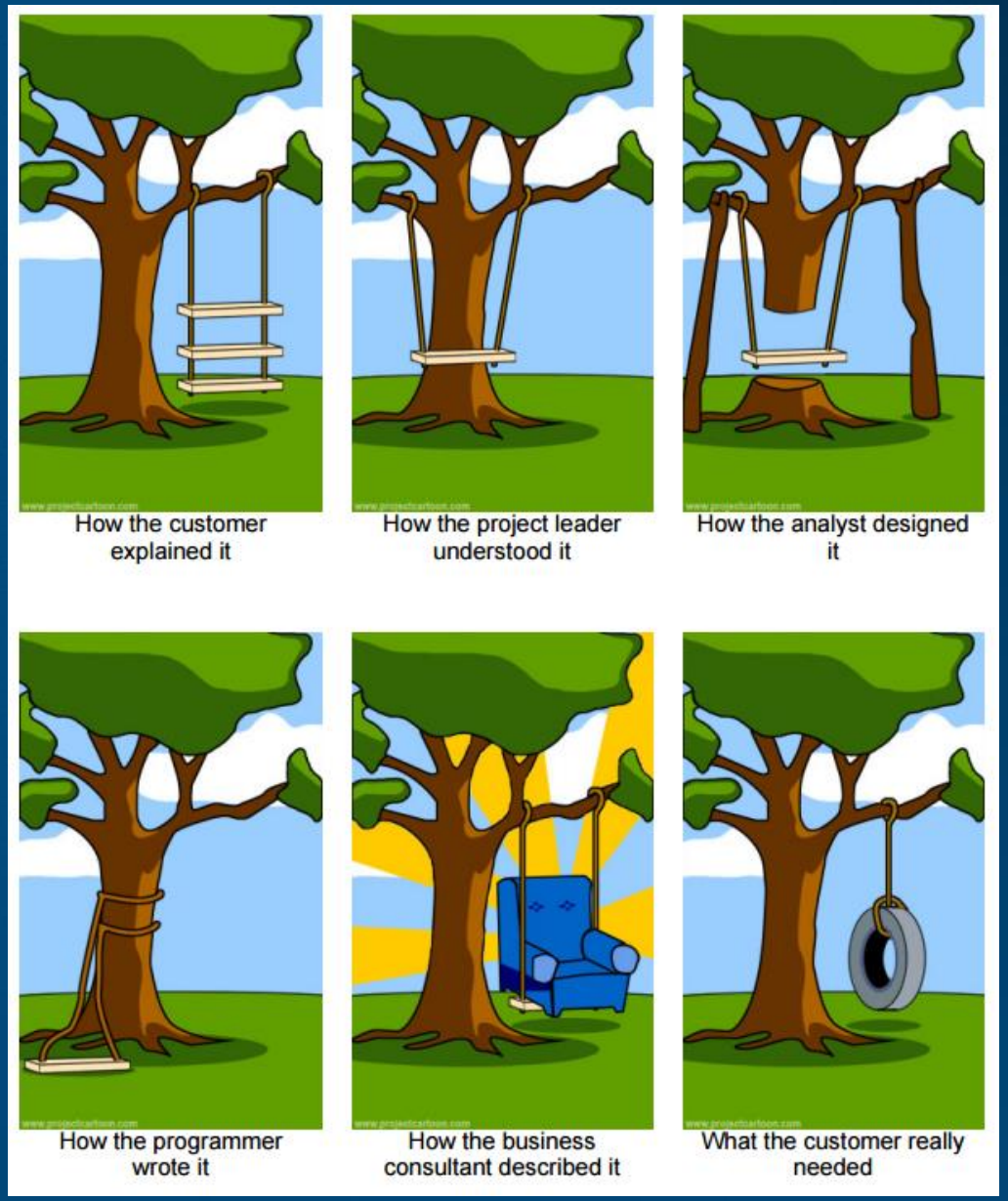

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Application Considerations

Considerations

- How will users access my app?
- Will I need to perform analyses?
- Will users be editing data?
- Do I need to display 3D data?
- Where will I host my app?
- Do I anticipate customization?

How Will Users Access My App?

Considerations

- Native vs. browser
- User experience - Responsive design
- Device compatibility
- Offline capabilities

Recommendations

- Most ArcGIS Online/Portal apps and Story Maps are responsive
- Think about using multiple apps (each intended for a specific device and use case) sourced from the same web map

Configure an ArcGIS Online App

Technical Demonstration

Do I Need to Display 3D Data?

Considerations

- Use case – viewer, compare, larger story
- What widgets are needed?

Recommendations

- Web AppBuilder
- Map Journal, Map Series, or Cascade Story Maps templates
- 3D Data Visualization, Compare Scenes, Simple Scene Viewer templates in ArcGIS Online/Portal

Will Users be Editing Data?

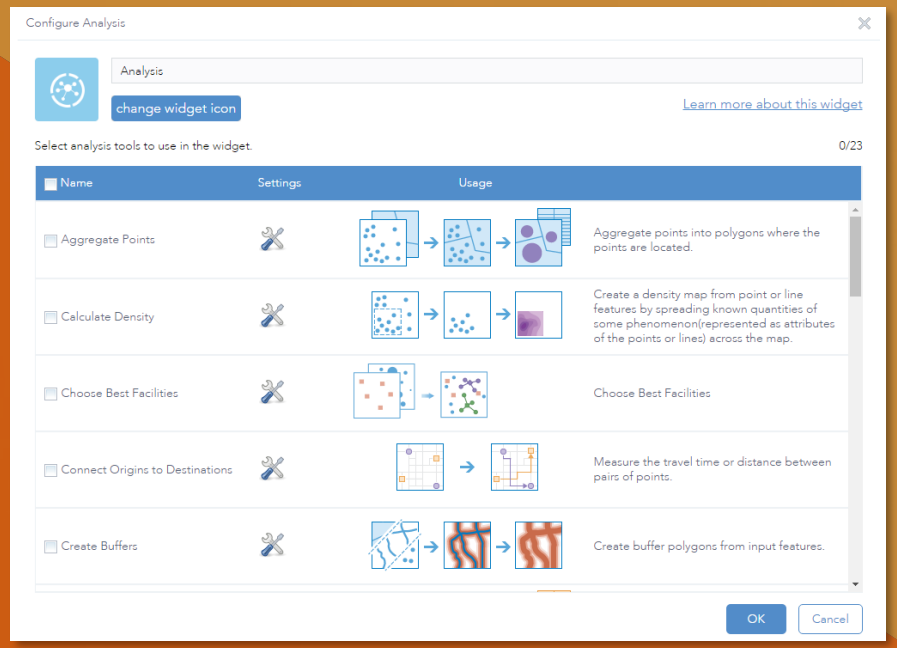
Considerations

- Map vs. form-centric data entry
- Offline capabilities
- Creating vs. updating data
- Related records support
- Is anonymous access required?
- Smart forms

Recommendations

- Collector for native, offline, editing of related records, map centric workflows
- GeoForm for browser based, form-centric workflows, anonymous access
- Survey123 for native, offline, form-centric collection

Will I Need to Perform Analyses?



Considerations

- Review COTS widgets first
- MOST configurable apps cannot ingest custom GP services

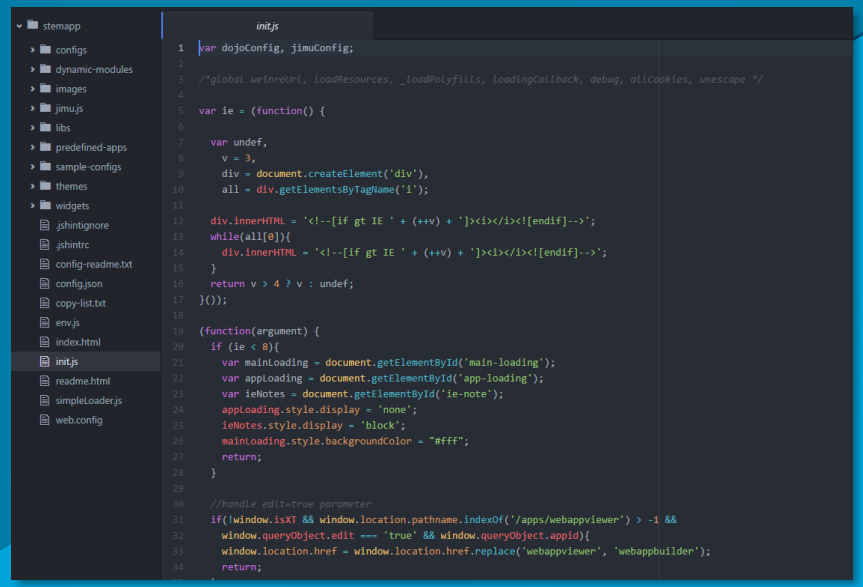
Recommendations

- Web AppBuilder
  - Exposes analysis capabilities found in ArcGIS Online/Portal
  - Includes a GP widget that takes a GP service REST URL as a parameter

Adding Custom Code

Technical Demonstration

Do I Anticipate Customization?



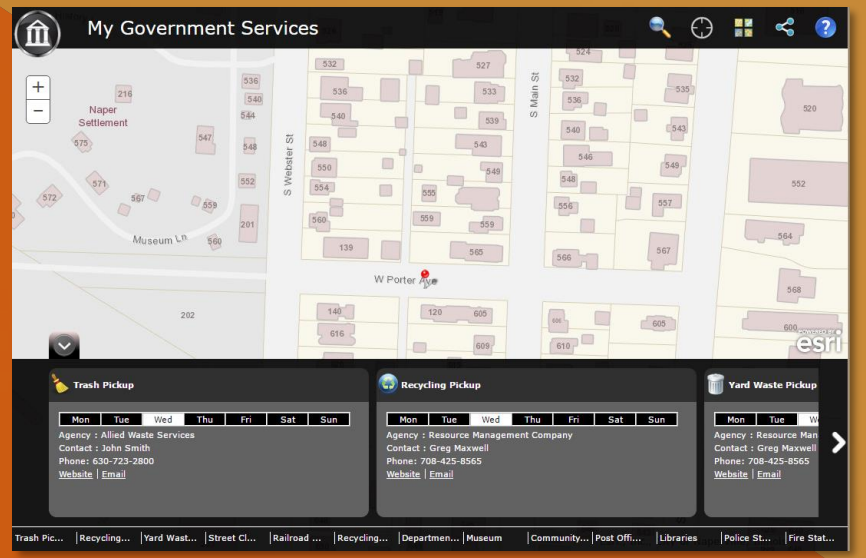
Considerations

- Select apps whose source code is accessible
- Ensure access to a hosting web server

Recommendations

- Developer Editions of Web AppBuilder or AppStudio
- All ArcGIS Online/Portal apps, Story Maps, and Survey123
- Download source code BEFORE configuring

Where Will I Host My App?



Considerations

- Web apps require a web server
  - ArcGIS Online vs. local
- Native apps will live on devices

Recommendations

- All ArcGIS Online/Portal templates can be hosted in your org subscription
- Most LGIM-based app templates require a local web server
- Any customizations to app code will require a local web server

Customization and Development

What if I need more?

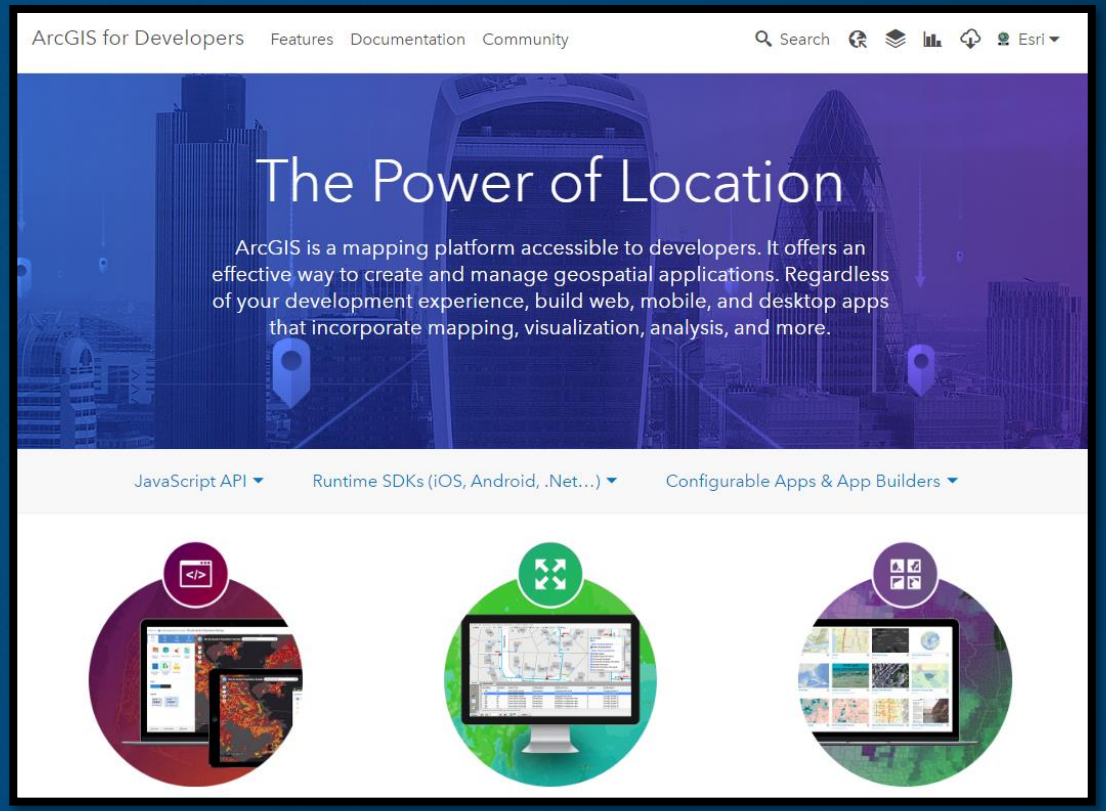
When Configuration Isn't Enough

Extend ArcGIS Apps with custom code

- Source code for many apps available for download from GitHub and ArcGIS Online
- Developer's site provides documentation and sample code
- GeoNet a good resource for custom widgets and other components
- **NEW** ArcGIS Code Sharing

Keep in mind…

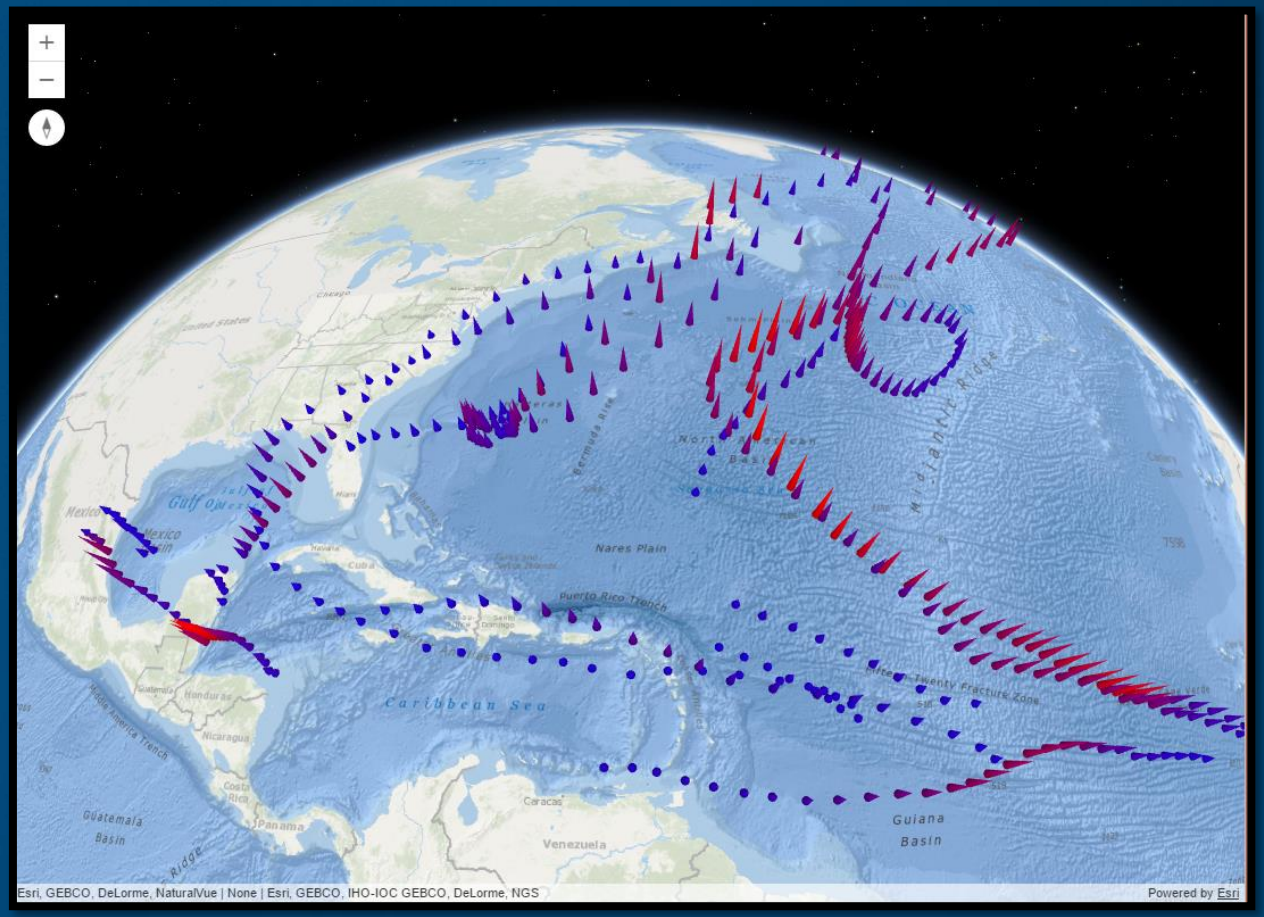
- A web server will be required
- You will need someone who is comfortable in reading/developing code



Developing from Scratch

Benefits to building an app from the ground up

- Choose the programming language that works for you
- Full control over UI/UX
  - Great for branding purposes
- No need to work in someone else's code
- Build only the features that you need
  - Full control over implementing specific workflows/capabilities
- More interesting for developers!



Developing from Scratch

Web APIs

JavaScript API

Build compelling web mapping apps that run across any device using the ArcGIS API for JavaScript.

Native SDKs

Android SDK

Develop native mapping apps for Android devices with ArcGIS Runtime SDK for Android.

iOS SDK

Make mapping apps for Apple iPhone, iPod touch, and iPad devices with ArcGIS Runtime SDK for iOS.

.NET SDK

Deploy apps to Windows desktops, Windows Phone, and Windows Store with ArcGIS Runtime SDK for .NET.

Java SDK

Build on and deploy to Windows and Linux platforms with ArcGIS Runtime SDK for Java.

Qt SDK

Write once and deploy to Windows, Linux, Android, and iOS with ArcGIS Runtime SDK for Qt.

OS X SDK

Build Cocoa mapping apps for Macs using ArcGIS Runtime SDK for OS X.

Xamarin

Write once and deploy to Android and iOS with ArcGIS Runtime SDK for Xamarin.

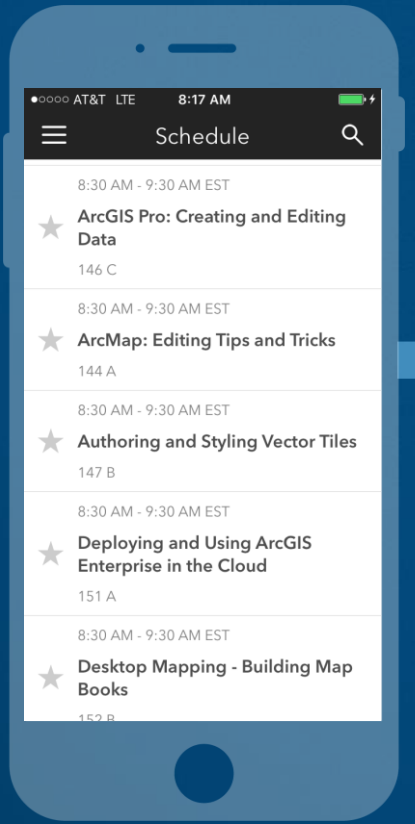
Develop from Scratch

Technical Demonstration

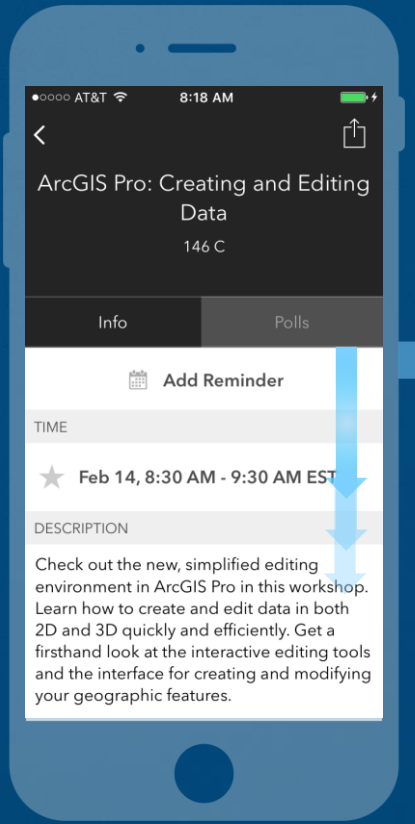
Please Take Our Survey on the **Esri Events App!**

Download the Esri Events app and find your event

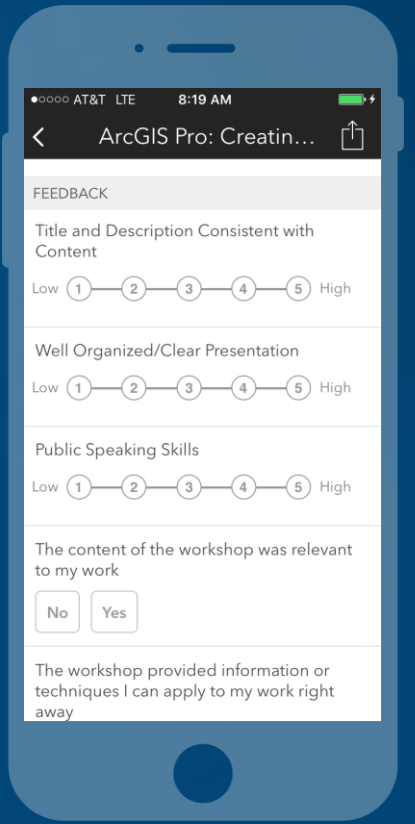
Select the session you attended



Scroll down to find the survey



Complete Answers and Select “Submit”



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12:30 PM – 6:30 PM

GIS Solutions Expo,
Hall B

5:15 PM – 6:30 PM

Expo Social,
Hall B

Tuesday

10:45 AM – 5:15 PM

GIS Solutions Expo,
Hall B

6:30 PM – 9:30 PM

Networking Reception,
Smithsonian National Air and Space Museum

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