



Esri Best Practices: App Configuration, Customization, or Development

Jesse Smith, Sam Yirenkyi

ESRI USER CONFERENCE

GIS
INSPIRING
WHAT'S
NEXT

Agenda

- Overview of App Implementation Options
- Gathering Requirements
- Configurable Options
 - Demo: Publish via Pro
- Advanced Configuration
- Adding Custom Code
 - Extending source code
- When Configuration isn't enough
 - Deploy custom widget via Portal
- 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

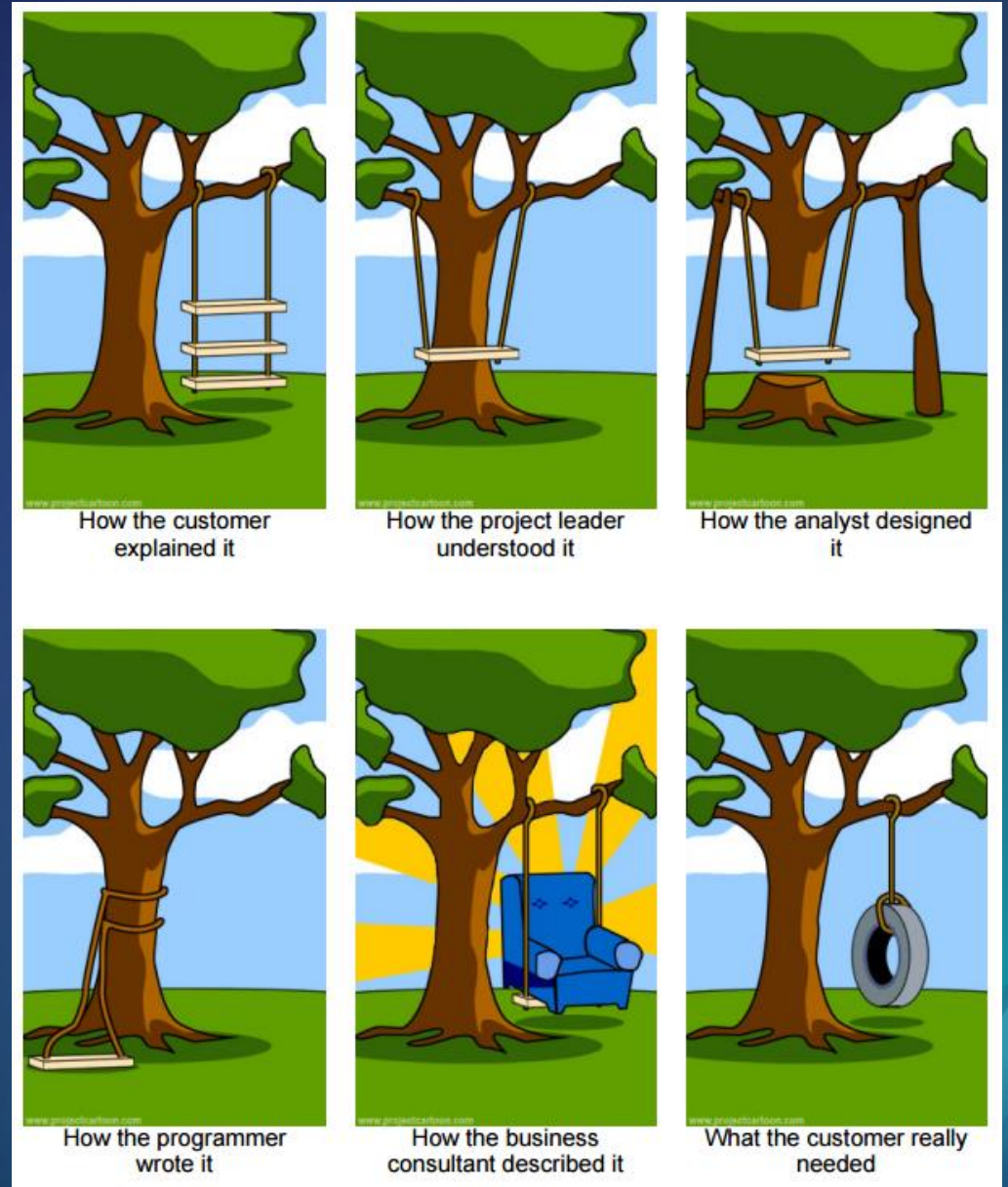
Where Do I Start?

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!



ArcGIS Apps

Templates and other COTS apps

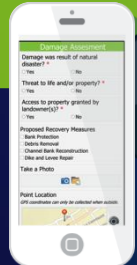
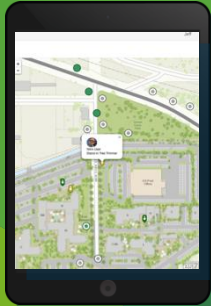
ArcGIS Apps

Field

Navigator



Workforce



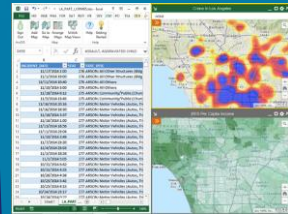
Survey123



Collector

Office

Maps for Office



Dashboard



ArcGIS Earth



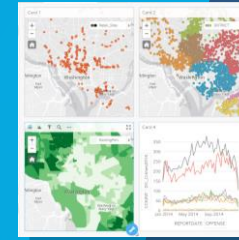
Drone2Map



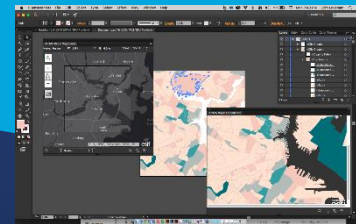
Explorer



Insights

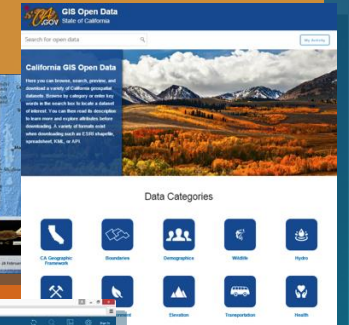


Adobe Creative Cloud

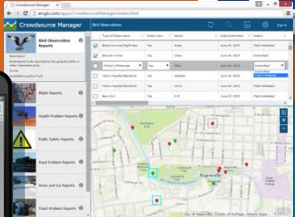


Community

Open Data



Story Maps



Crowdsourcing

Easy, Powerful, and Ready-to-Use

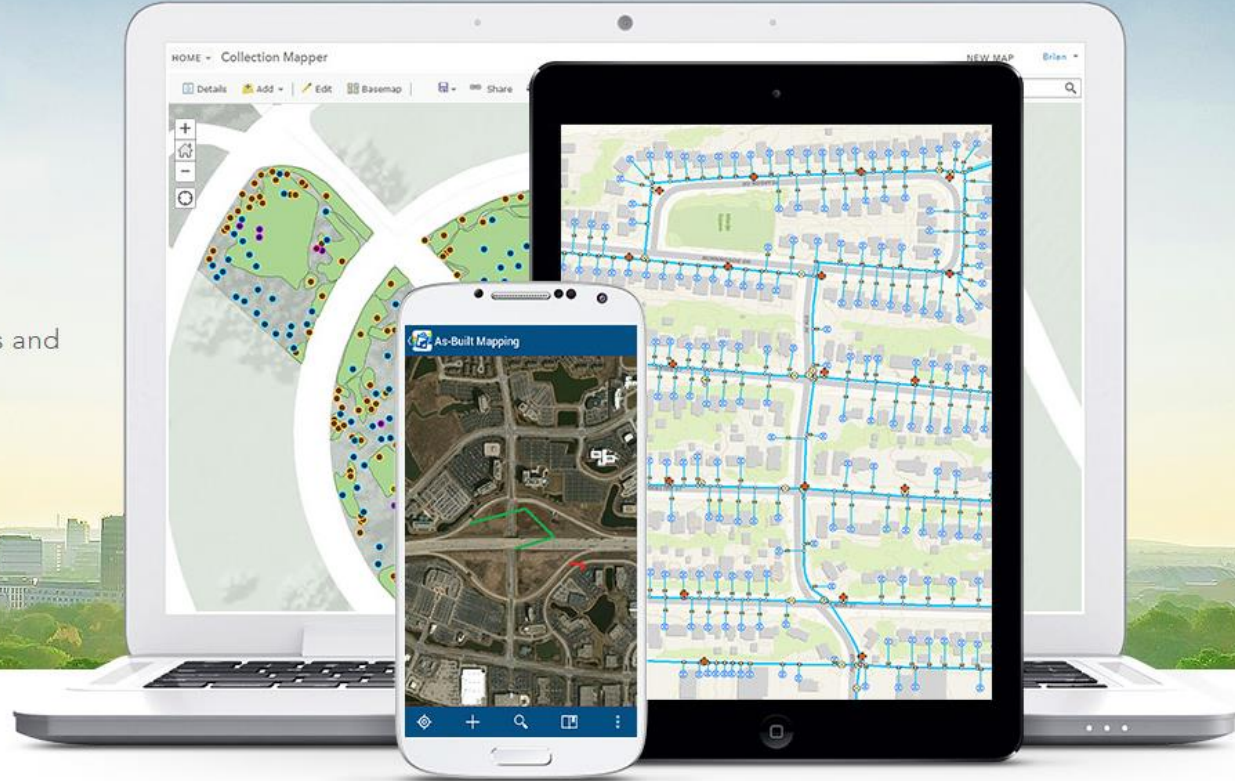
<https://www.arcgis.com/features/apps/index.html>

Solution Offerings

ArcGIS Industry Specific Maps and Apps

ArcGIS Solutions deliver Ready-to-Use Maps and Apps to jumpstart your work

FIND YOURS ↓



Local Government



State Government



Emergency
Management



Water



Electric



Gas



Defense



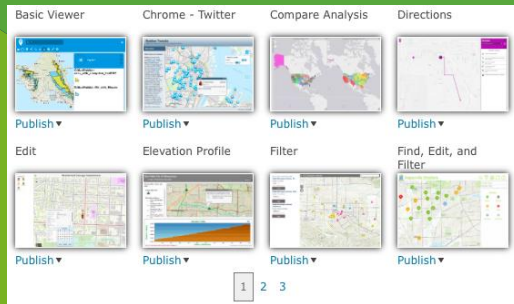
Telecommunications



Parks and Gardens

App Builders

Configurable Apps



20+

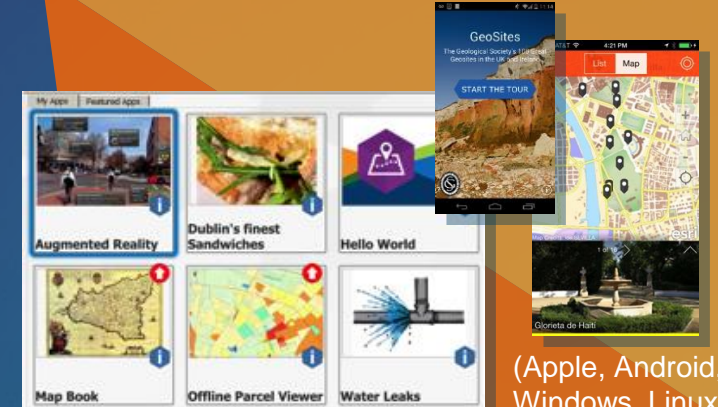
HTML5/JavaScript

Web AppBuilder



Widgets

AppStudio

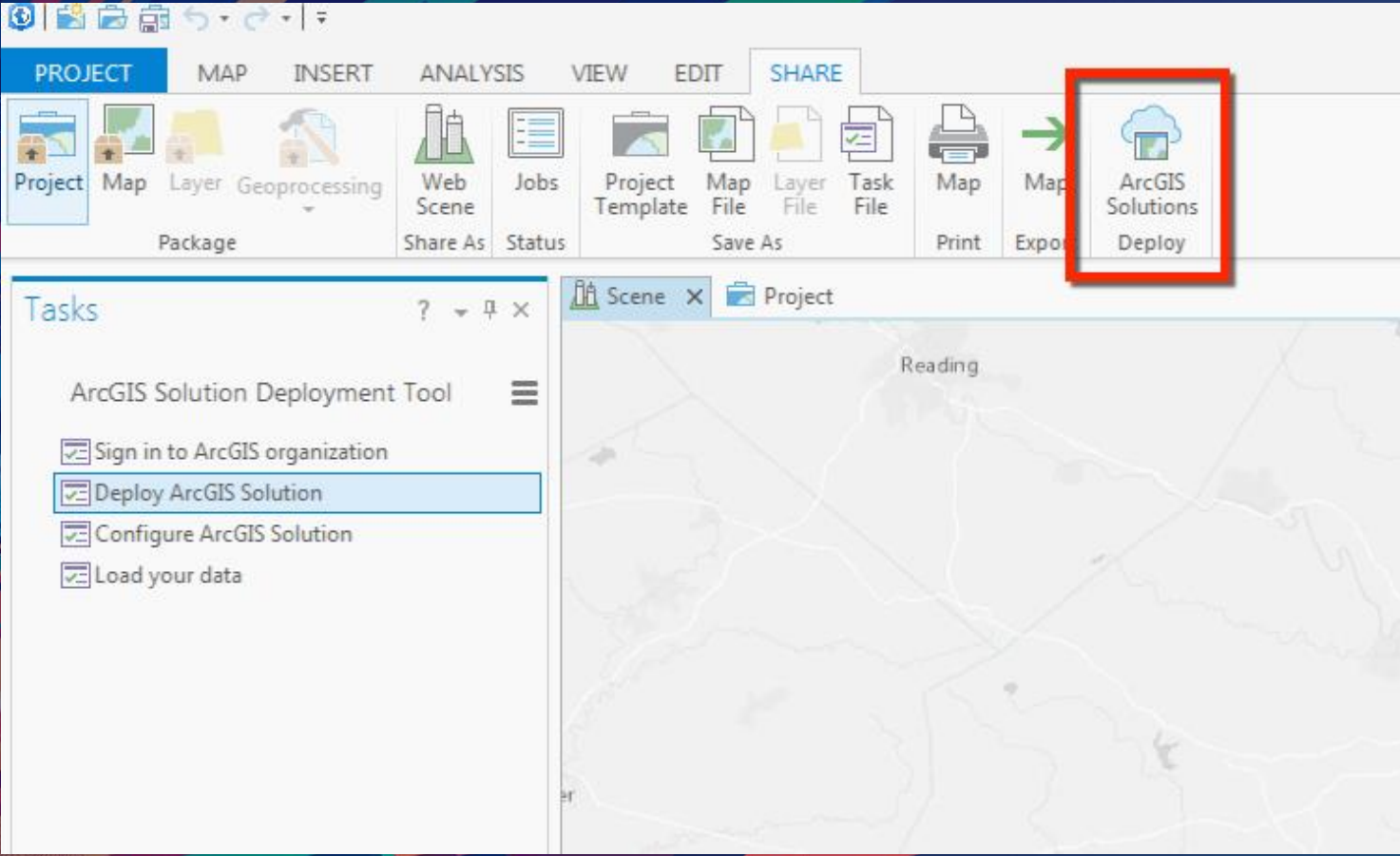


(Apple, Android, Windows, Linux)

Native Apps

Providing Easy, Configurable, and Extensible Tools

<https://www.arcgis.com/features/apps/index.html>



Deploy via Pro

Additional Considerations

Tips and tricks for selecting the right ArcGIS App

Advanced Configuration

Taking it to the next level...

Consider combining several configured web apps into one app

The screenshot displays a web application interface. At the top, the title "Sea Level Rise and Storm Surge Effects on Energy Assets" is visible. Below the title is a navigation menu with tabs for various Metropolitan Statistical Areas (MSAs): Introduction, Baltimore MSA, Boston MSA (highlighted), Houston MSA, Los Angeles MSA, Miami MSA, Mobile MSA, New Orleans MSA, New York MSA, Norfolk MSA, Philadelphia MSA, and Bibliography. The main content area on the left contains the following text:

Sea Level Rise and Storm Surge Effects on Energy Assets: Boston

An analysis was conducted by the Energy Infrastructure and Modeling and Analysis Division (EIMA) of the [U.S. Department of Energy's \(DOE\) Office of Electricity Delivery and Energy Reliability \(OE\)](#) assessing the potential sea level rise (SLR) and storm surge risks to energy assets in the Metropolitan Statistical Area (MSA) surrounding Boston, Massachusetts.

The analysis examines the National Climate Assessment's (NCA) Intermediate-High SLR scenario (which projects 1 foot of SLR in the Boston area by around 2050, and 4 feet of SLR by around 2100), and storm surge levels of Categories 1 and 4 hurricanes.

This analysis of the Boston MSA determines which large energy assets are threatened by SLR and storm surge. The Boston MSA is made up of seven counties:

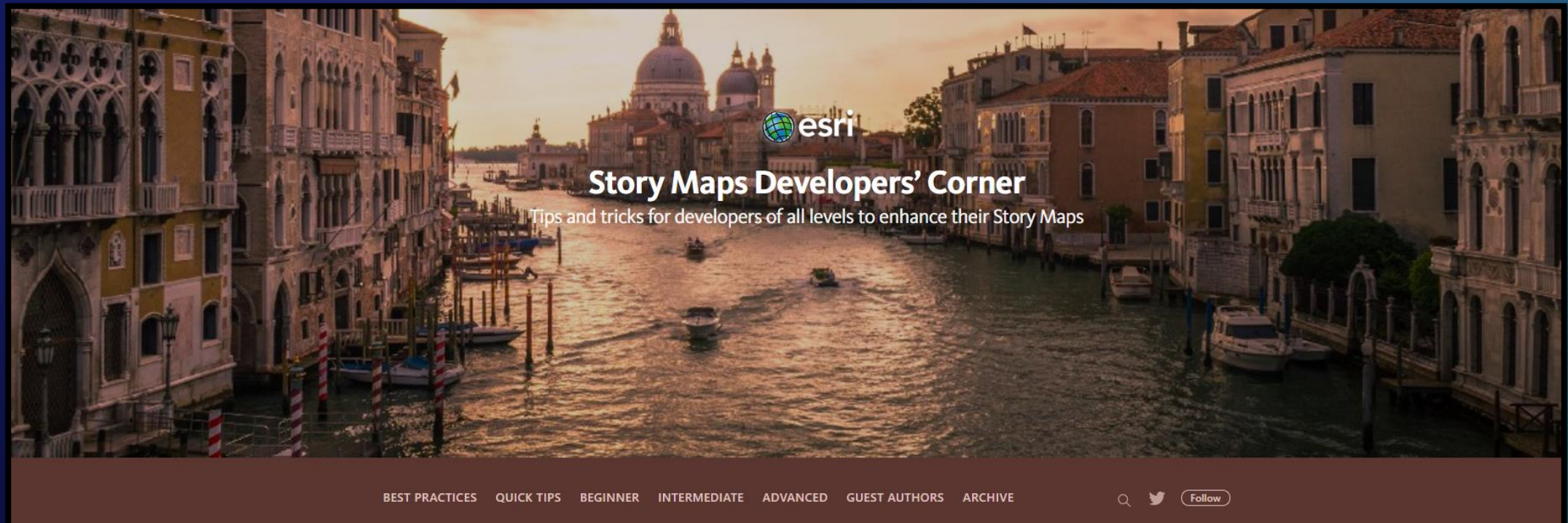
- Essex, MA
- Middlesex, MA
- Norfolk, MA
- Plymouth, MA

The right side of the main content area features a large image of the Boston skyline across the water.

Advanced Configuration

Taking it to the next level...

Add HTML, JavaScript, or other components during configuration



<https://developerscorner.storymaps.arcgis.com/>

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



<https://developers.arcgis.com>

Extend the Template

Custom Attribute Display

Use the area below to define, format, and lay out the information you want to display.

Rich text editor toolbar with options for Bold (B), Italic (I), Underline (U), Text Color (A), Background Color, Bulleted List, Numbered List, Decrease Indent, Increase Indent, Link, Unlink, Image, Table, Undo, and Redo.

Font: [] Size: []

```
<table style="background-color:#2E746D; color:#FFFFFF; text-align:center; width:50%">
  <tbody>
    <tr>
      <th style="color:#2E746D">_<br /></th>
      <td style="color:#2E746D">_<br /></td>
      <td style="color:#2E746D">_<br /></td>
      <td style="color:#2E746D">_<br /></td>
      <td style="color:#2E746D">_<br /></td>
    </tr>
  </tbody>
</table>
```

OK CANCEL

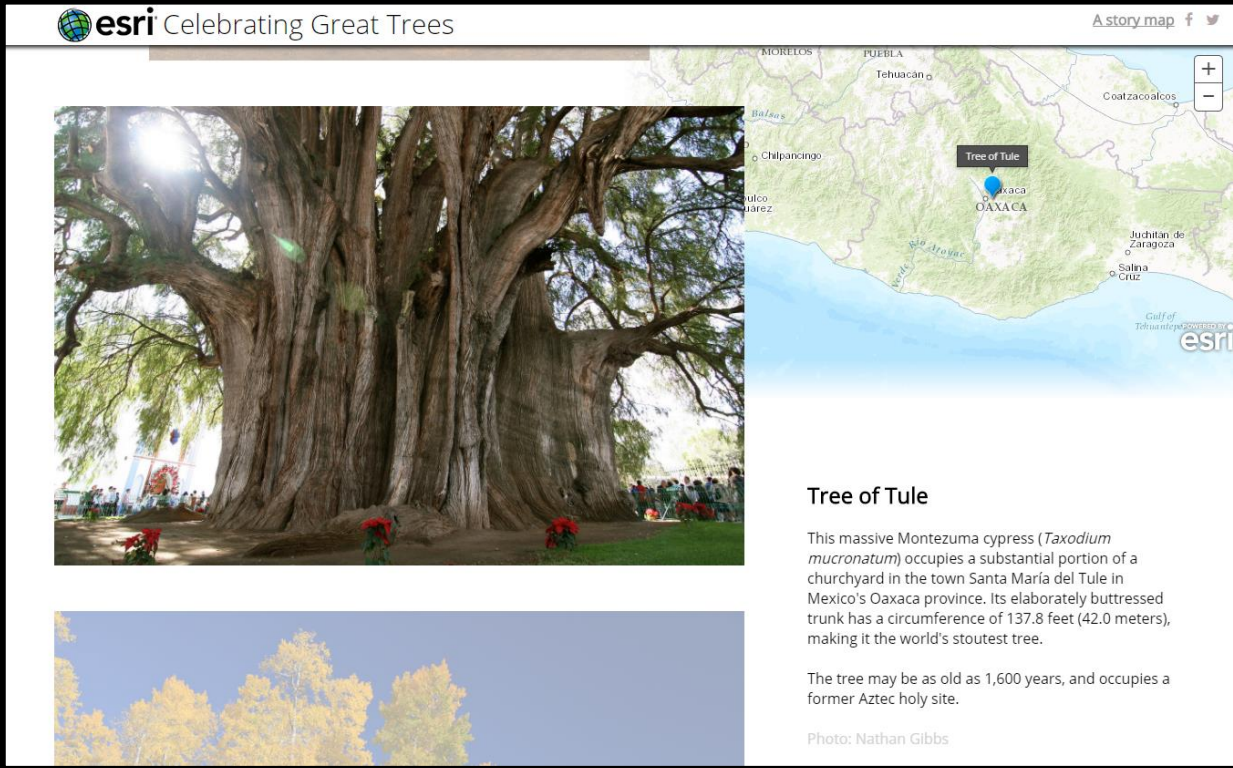
Customization or Development

What if I need more?

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!



The screenshot shows an Esri Story Map titled "Celebrating Great Trees". The map is centered on the location of the Tree of Tule in Oaxaca, Mexico. The map includes labels for various states and cities: MORELOS, PUEBLA, Tehuacan, Coatzacoalcos, Chilpancingo, Oaxaca, OAXACA, Juchitan de Zaragoza, Salina Cruz, and the Gulf of Tehuantepec. A blue pin marks the location of the Tree of Tule. Below the map is a large photograph of the Tree of Tule, a massive Montezuma cypress tree with a thick, buttressed trunk. To the right of the photograph is a text box with the following content:

Tree of Tule

This massive Montezuma cypress (*Taxodium mucronatum*) occupies a substantial portion of a churchyard in the town Santa María del Tule in Mexico's Oaxaca province. Its elaborately buttressed trunk has a circumference of 137.8 feet (42.0 meters), making it the world's stoutest tree.

The tree may be as old as 1,600 years, and occupies a former Aztec holy site.

Photo: Nathan Gibbs

Developing from Scratch

Web APIs

[ArcGIS Web API](#) / [JavaScript API](#) / 4.7

ArcGIS API for JavaScript



<https://developers.arcgis.com/javascript>

Developing from Scratch

Runtime SDKs

Android

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

- [Get Started](#)
- [Guide](#)

iOS

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

- [Get Started](#)
- [Guide](#)

Java

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

- [Get Started](#)
- [Guide](#)

macOS

Build Cocoa mapping apps for Macs using ArcGIS Runtime SDK for macOS.

- [Get Started](#)
- [Guide](#)

.NET

Deploy apps to Windows, Android, and iOS with ArcGIS Runtime SDK for .NET.

- [Get Started](#)
- [Guide](#)

Qt

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

- [Get Started](#)
- [Guide](#)

```
margin: 0;
height: 100%;
width: 100%;
background-color: black;
}
</style>
<script>
var dojoConfig = {
  has: {
    "esri-featurelayer-webgl": 1
  }
};
</script>
<script src="https://js.arcgis.com/4.7/"></script>
<script>
require([
  "esri/WebMap",
  "esri/layers/CSVLayr",
  "esri/views/MapView",
  "esri/config",
  "esri/widgets/Legend",
  "esri/widgets/Expand",
  "dojo/domReady!"
], function(
  WebMap, CSVLayer, MapView,
  esriConfig, Legend, Expand
) {
  // If CSV files are not on the same domain as your website, a CORS enabled server
  // or a proxy is required.
```

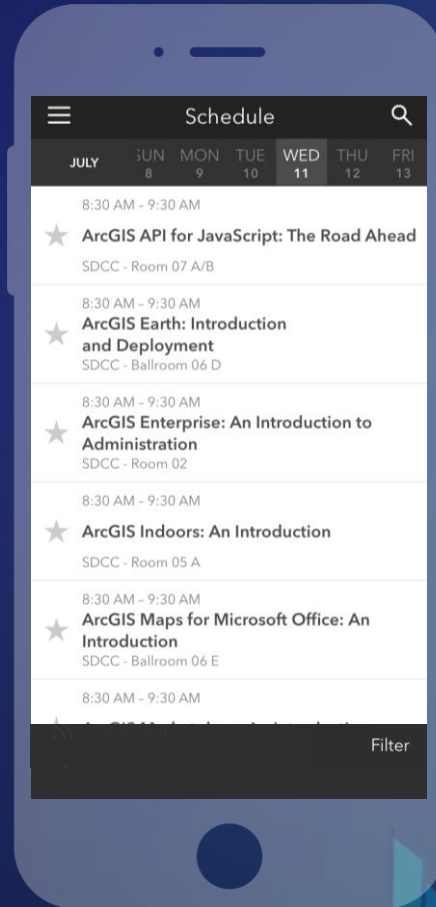
Deploy Custom Widget

Please Take Our Survey on the App

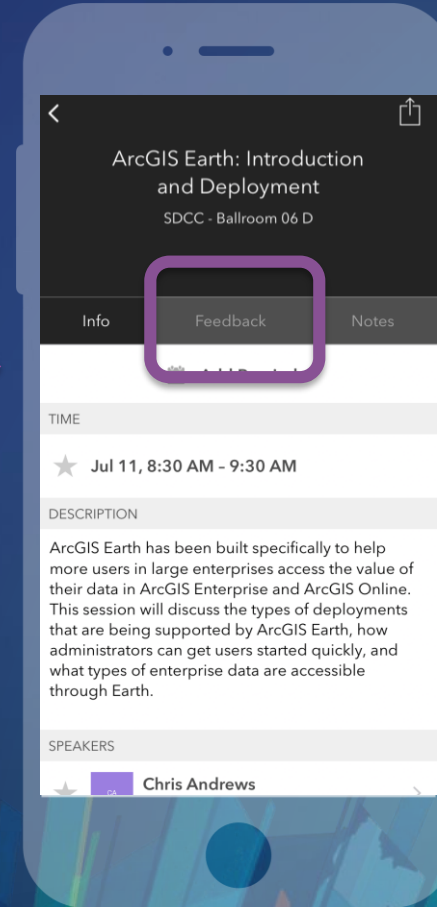
Download the Esri Events app and find your event



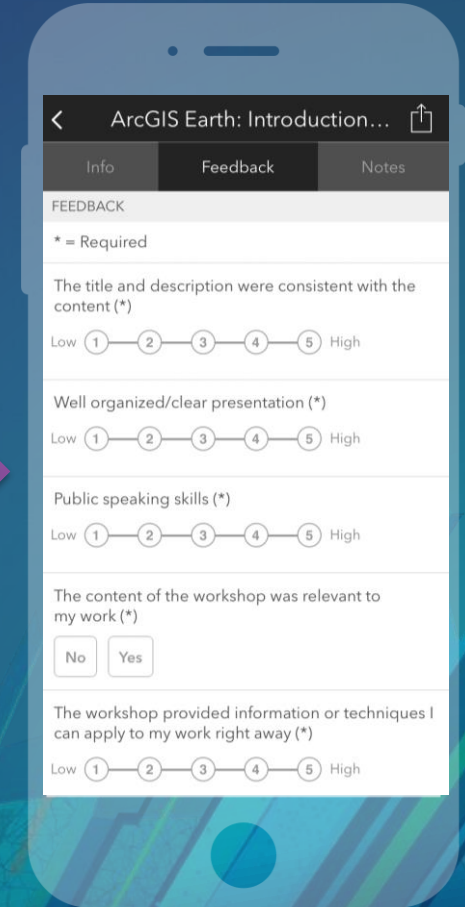
Select the session you attended



Scroll down to find the feedback section



Complete answers and select "Submit"



See Us Here

WORKSHOP	LOCATION	TIME FRAME
<ul style="list-style-type: none">• Esri Best Practices: Collect and Manage Requirements for Successful GIS Projects	<ul style="list-style-type: none">• SDCC – Room 10	<ul style="list-style-type: none">• Thursday 10:00 – 11:00



esri

**THE
SCIENCE
OF
WHERE**