

Esri Developer Summit

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esri.com/events/devsummit



Choosing a Mobile Solution

Tom Brenneman, Lloyd Heberlie



Agenda

- **Understanding options for mobile GIS**
- **What questions to ask when deciding on a mobile platform**
- **Native vs. web**
- **Native Apps vs. The Mobile Web vs. Web Apps**
- **Mobile Solution Scenarios**
- **Mobile Development Options**

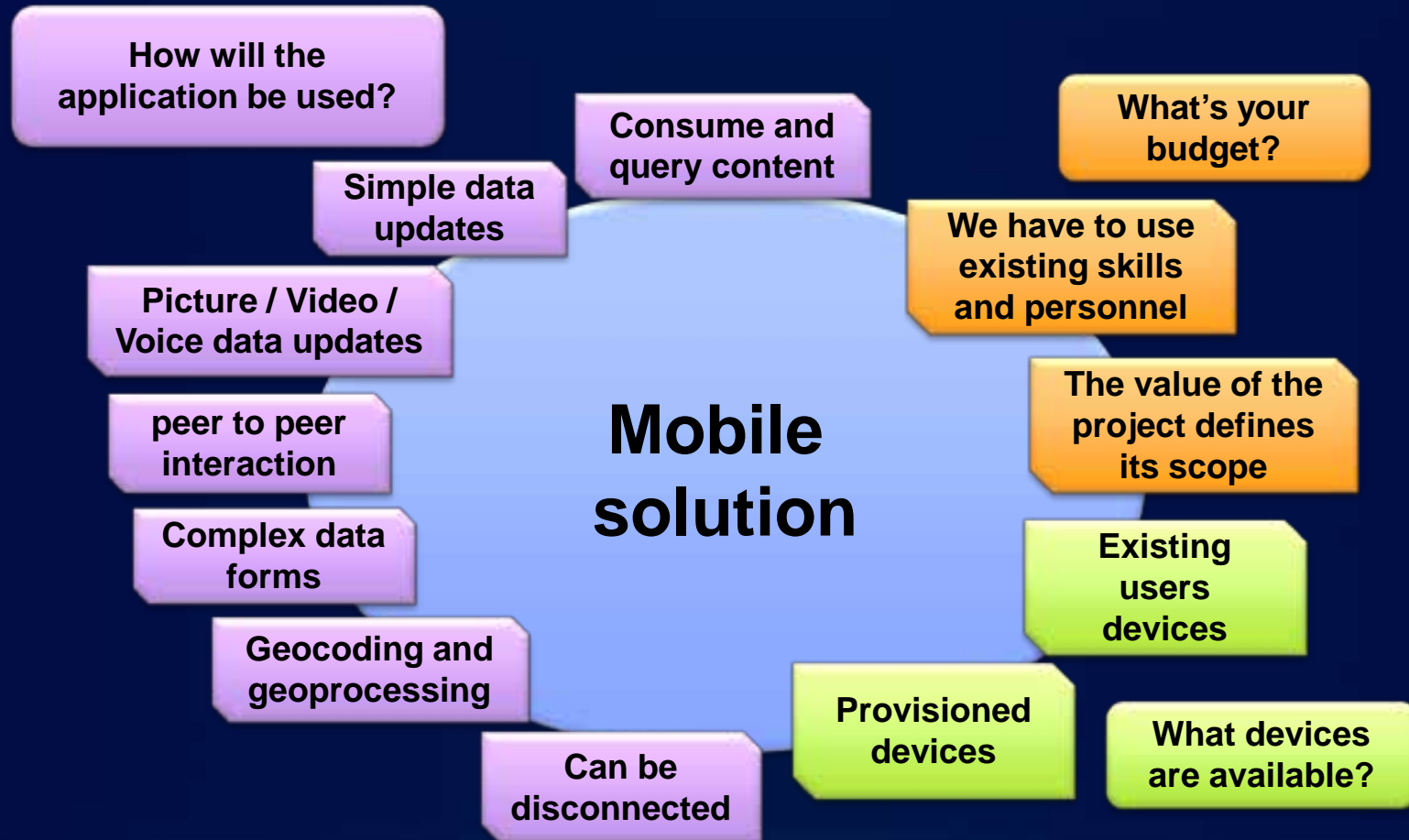
Why mobile?

- **Mobile is where the market is going**
- **Mobile internet adoption outpaces desktop internet adoption by 8x ([Economy + Internet Trends](#))**
- **More smartphones than PCs will be sold in 2011**
 - [RBC analyst Mike Abramsky](#)
- **Within 5 years “More users will connect to the Internet over mobile devices than desktop PCs.”**
 - [Mary Meeker](#)

Mobile development options

- **Native platform**
 - **ArcGIS Runtime SDK for Windows Mobile**
 - **ArcGIS Runtime SDK for iOS**
 - **ArcGIS Runtime SDK for Windows Phone**
 - **ArcGIS Runtime SDK for Android**
 - **ArcGIS API for Flex**
 - **ArcPad Studio**
- **Web**
 - **ArcGIS API for JavaScript**

How do you decide on a mobile solution



Native vs. Web

```
esri.symbol.SimpleLineSymbol,
new dojo.Color([0,0,0]),
polySymbol,
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} else if(f == 1) {
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} else if(f == 2) {
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polyBlue.setOutline(polyBlue);
}
```

Native vs. Web

- **Native**
 - **Deployed application through app store / marketplace**
 - **Application deployed with the device**
- **Web**
 - **Web page accessed from the mobile device**

Native platform benefits vs. cost

- **Performance**
- **Functionality**
 - Full access to device capabilities*
 - Push notifications
- **Usability**
 - Native platforms are designed for the device
- **Market penetration**
 - App store / Marketplace is where many mobile users look first
- **Easier to monetize**
- **Higher development cost, staff compensation**

Web platform benefits vs. cost

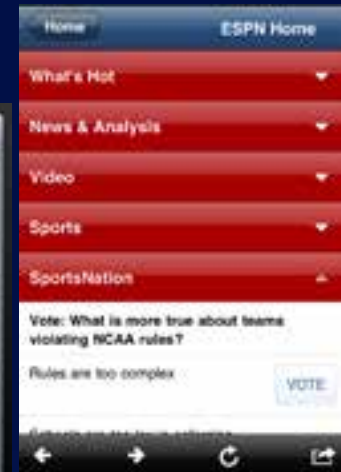
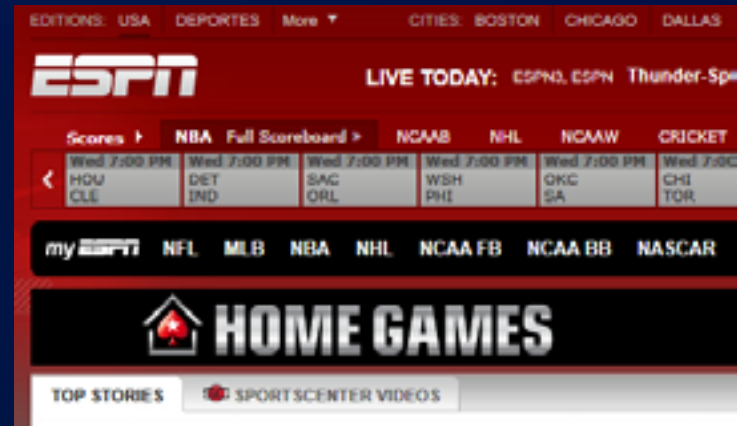
- **Code reuse / budget**
- **One development environment**
- **Targeting multiple devices**
 - **Modifications needed for each device but development environment is the same**
- **Limited device access**
- **Full control over deployment**
 - **No approval process**
- **Faster to production**
 - **No app store**
- **Development costs much lower**

Web Apps vs. The Mobile Web vs. Native Apps

- **Web application**
 - Application that run inside a device's browser
- **Full web application**
 - Full web application running in a browser
- **Mobile web application**
 - Modified web application optimized for mobile devices
- **Native application**
 - Designed to run specifically on a computer, smartphone, or tablet

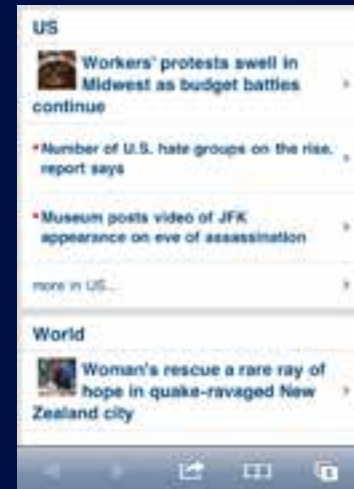
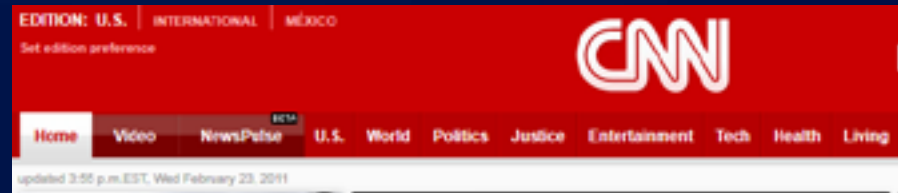
Case study: ESPN

- Full web application
 - Full content access
- Mobile web application
 - Focused content access
 - Main news stories
 - Vote for Sports nation
 - Simple data editing
 - Simple menus categorizing content
- Native application
 - Track scores for myTeams
 - Push updates for scores
 - Link to web content
- Native – many other options



Case Study: CNN

- Full web application
 - Full content – tabbed sections
- Mobile web application
 - Scrollable sections
- Native application
 - News by section
 - Location based news (My CNN)
 - iReport – data collection



Common themes from case studies

- **Full web application**
 - **Most content**
- **Mobile web application**
 - **Focused content (similar to desktop)**
 - **Simple feedback**
- **Native application**
 - **More complex data entry**
 - **Location based content**
 - **Push notifications**

Mobile Solution Scenarios

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```

Mobile Solution Scenarios

- **Initial damage assessment**
- **Building inspections**
- **Pipeline maintenance**
- **Voter information portal**
- **Tree inventory**

Scenario – Initial Damage Assessment

- **Following a natural disaster, I need to get my specialized field mobility teams deployed**
- **These individuals have the field knowledge / industry expertise and will be performing the field assessment**

Initial Damage Assessment - Key points

- **Ruggedized hardware**
- **Sometimes connected**
- **Non-GIS user**
- **Industry language**
- **Configure, not code**

Initial Damage Assessment - Implementation

- **Mobile solution to solve problem (Platforms)**
 - ArcGIS for Windows Mobile, ArcGIS Server
- **Related scenarios**
 - Search and Rescue, Forestry / Wildfire, other Natural Disasters
- **Supporting resources**
 - Public safety damage assessment template
<http://www.arcgis.com/home/item.html?id=8c175986354046cc801757d47372c3da>

Demo

Public Safety Damage Assessment

Why ArcGIS for Windows Mobile

- Professional GIS data collection
- Good GPS and data collection controls
- Easily configurable without code

Consume and query content

Picture /
Video / Voice
data updates

peer to peer
interaction

Complex data
forms

Provisioned
devices

Scenario – Building inspections

- **Building inspectors need an easy way to add inspection information in the field**

Building Inspections - Key points

- **Quick integration with the rest of the GIS**
- **Inspectors are not necessarily GIS professionals**
- **Simple / Familiar User interface**
- **Accuracy is not of high concern (get me close)**

Building Inspections - Implementation

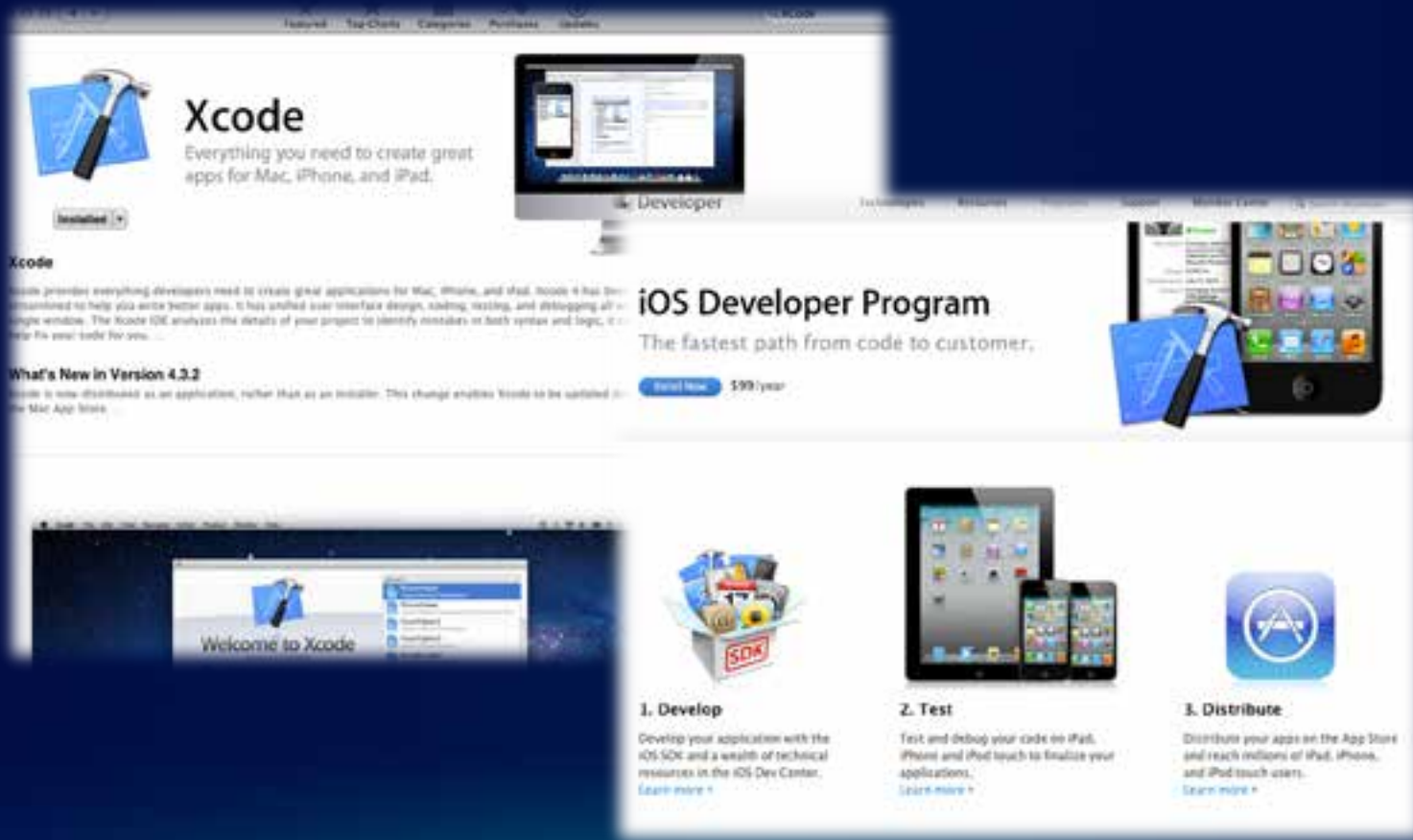
- **Mobile solution to solve problem (Platforms)**
 - ArcGIS Runtime SDK for iOS, ArcGIS Server
- **ArcGIS.com template selected**
 - [Code Violation for iPad](#)

Demo

Code violation for iPad

Apple Developer Program

<https://developer.apple.com/programs/ios/>



The image shows a screenshot of the Apple Developer Program website. The main header features the Xcode logo (a hammer and pickaxe) and the text "Xcode Everything you need to create great apps for Mac, iPhone, and iPad." Below this, there is a section for the "iOS Developer Program" with the tagline "The fastest path from code to customer." and a "Get Now" button for "\$99/year".

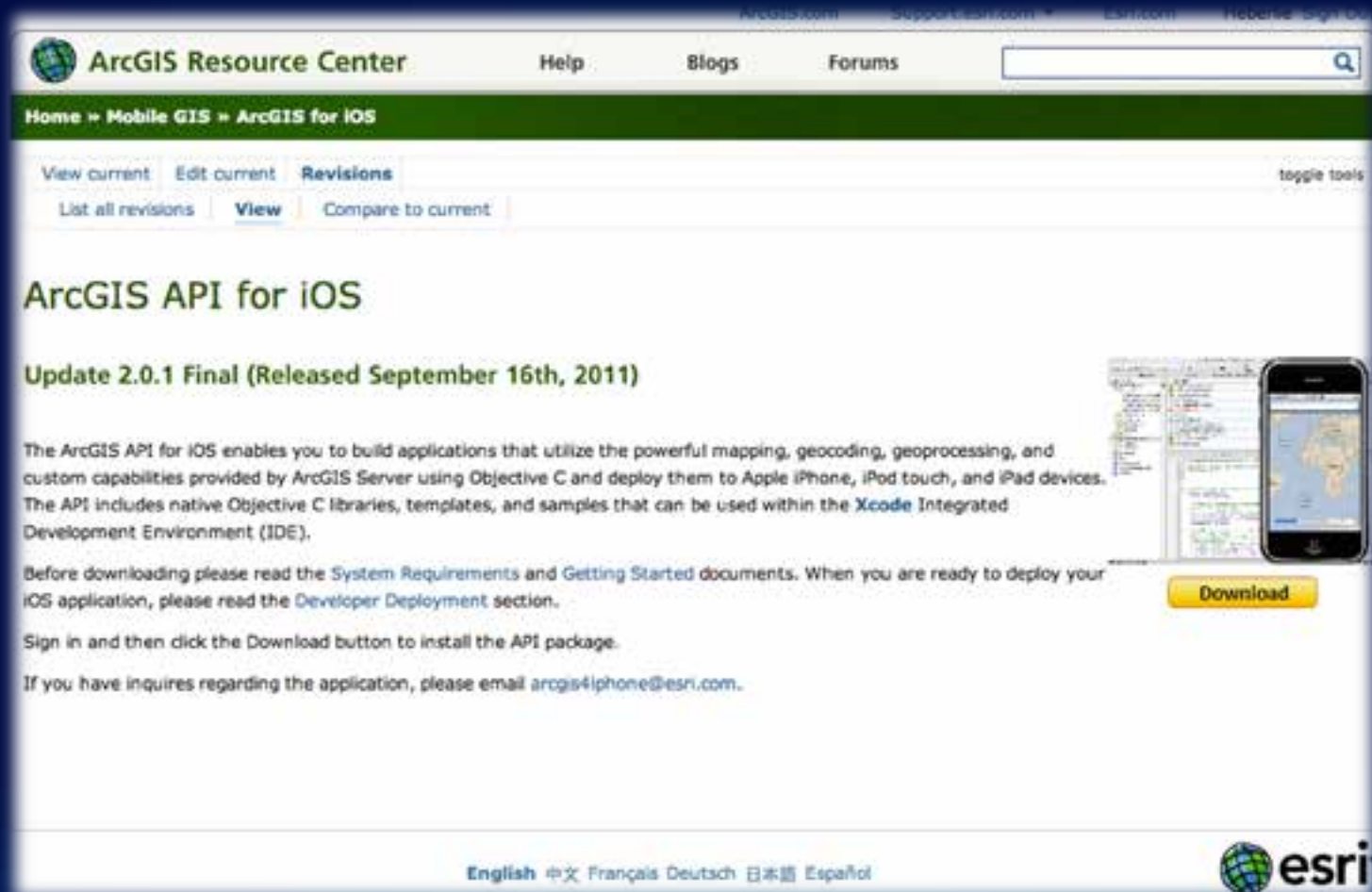
Below the main header, there are three columns of content:

- 1. Develop:** "Develop your application with the iOS SDK and a wealth of technical resources in the iOS Dev Center." with a "Learn more" link.
- 2. Test:** "Test and debug your code on iPad, iPhone and iPod touch to finalize your applications." with a "Learn more" link.
- 3. Distribute:** "Distribute your apps on the App Store and reach millions of iPad, iPhone, and iPod touch users." with a "Learn more" link.

There is also a "What's New in Version 4.3.2" section on the left side of the page, which mentions that Xcode is now distributed as an application rather than an installer.

ArcGIS Runtime SDK for iOS

<http://resources.arcgis.com/node/484/revisions/21412/view>



The screenshot shows the ArcGIS Resource Center website. The page title is "ArcGIS API for iOS" and the update is "Update 2.0.1 Final (Released September 16th, 2011)". The page includes a "Download" button and a description of the API's capabilities. The website header includes "ArcGIS Resource Center", "Help", "Blogs", "Forums", and a search bar. The breadcrumb trail is "Home > Mobile GIS > ArcGIS for iOS". The page also features navigation links for "View current", "Edit current", "Revisions", "List all revisions", "View", and "Compare to current".

ArcGIS Resource Center Help Blogs Forums

Home > Mobile GIS > ArcGIS for iOS

View current Edit current Revisions toggle tools

List all revisions View Compare to current

ArcGIS API for iOS

Update 2.0.1 Final (Released September 16th, 2011)


The ArcGIS API for iOS enables you to build applications that utilize the powerful mapping, geocoding, geoprocessing, and custom capabilities provided by ArcGIS Server using Objective C and deploy them to Apple iPhone, iPod touch, and iPad devices. The API includes native Objective C libraries, templates, and samples that can be used within the Xcode Integrated Development Environment (IDE).

Before downloading please read the System Requirements and Getting Started documents. When you are ready to deploy your iOS application, please read the Developer Deployment section.

Sign in and then click the Download button to install the API package.

If you have inquires regarding the application, please email arcgis4iphone@esri.com.

Download

English 中文 Français Deutsch 日本語 Español 

Code Violation for iPad

Resource Center Show: All Content Help Sign In

ArcGIS GALLERY MAP GROUPS MY CONTENT Find maps, applications and more...

Code Violation for iPad (ArcGIS 10)



Code Violation for iPad allows code enforcement officers, building officials, and zoning administrators to collect violation and related inspection information in the field.

Mobile Application by ArcGISTeamLocalGov
Last Modified: May 18, 2011

★★★★☆ (1 rating, 1951 views, 448 downloads)

Sign in to rate this item.

Facebook Twitter

Open

Click on the Attachment below to download Code Violation for iPad

Release Notes:
10/6/11 - Update adds support for Xcode 4.0 and ArcGIS API for iOS
5/18/11 - First release of the Code Violation for iPad Template.

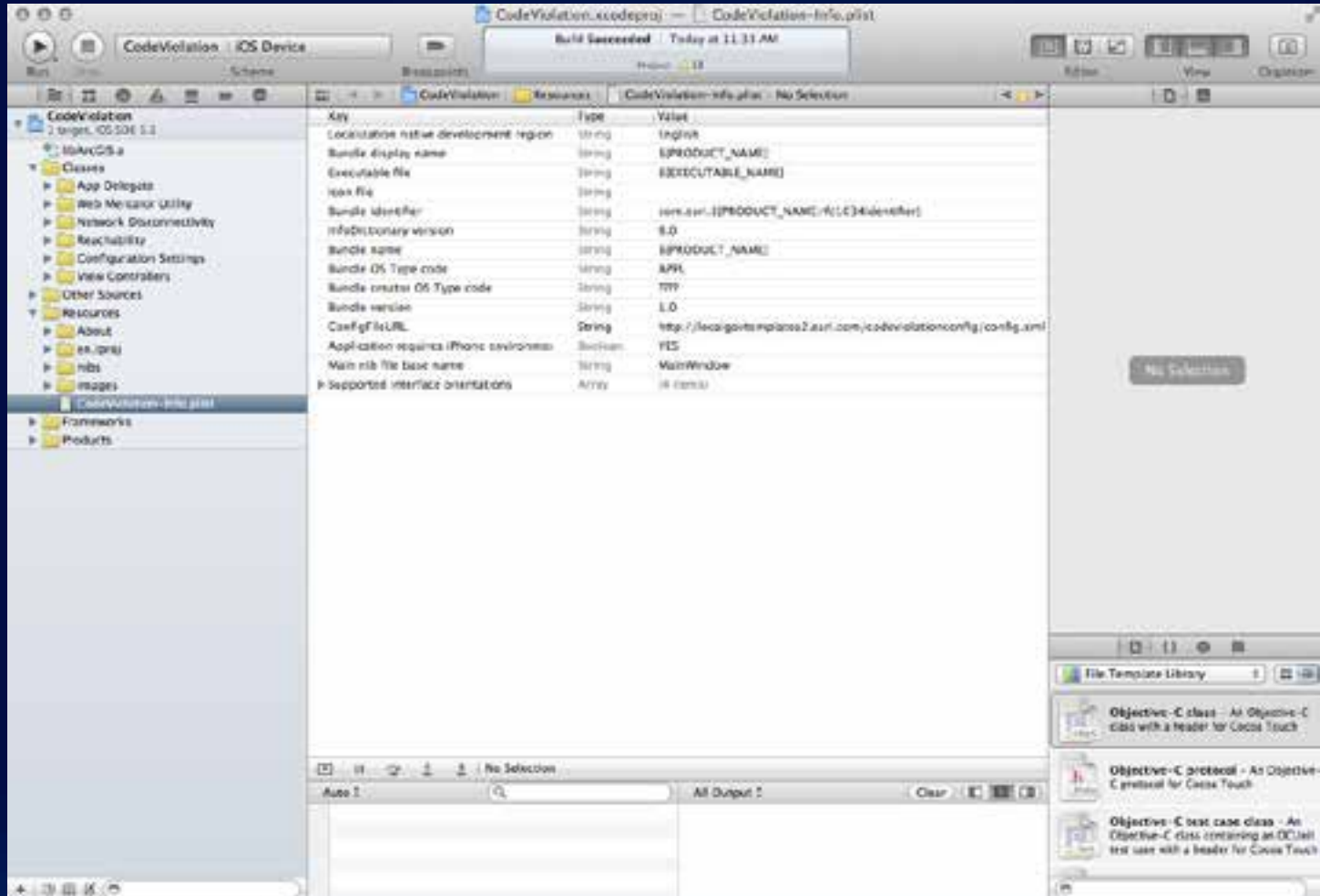
Software Requirements:
ArcGIS Server 10 w/ SP 1 for the Microsoft .Net Framework - Standalone
ArcGIS Desktop 10 w/ SP 1 and Maplex Labeling Extension
Apple iOS SDK 4.0 or higher
Xcode 4.0 or higher
ArcGIS API for iOS 2.0.1

Access and Use Constraints
Sample data governed by the data permissions granted by the City of Naperville



Name	Date Modified
Application	Today 1:34 PM
CodeViolation	Oct 6, 2011 3:29 PM
CodeViolationConfig	May 15, 2011 5:32 AM
Documentation	Today 10:03 AM
Data Dictionary.htm	Sep 25, 2011 8:08 AM
LandUseViolations.html	May 3, 2011 9:52 AM
ParcelPublicAccess.html	Mar 16, 2011 1:12 PM
Getting Started with...for iPad Template.pdf	Oct 6, 2011 3:33 PM
MapsandGeodatabase	Today 10:03 AM
LandUseViolations.mxd	May 17, 2011 10:10 AM
LocalGovernment.gdb	May 17, 2011 10:10 AM
ParcelPublicAccess.mxd	Mar 15, 2011 4:12 PM
ParcelPublicAccess.mxd	Mar 16, 2011 1:00 PM

Xcode project: Code Violation for iPad



Why native solution

- **Internal Enterprise deployment**
 - **Non-gis users**
- **ArcGIS.com template available**
- **UI and hardware meet requirements for detailed assessment**

Consume and query content

**Picture /
Video / Voice
data updates**

**Geocoding and
geoprocessing**

**Existing
users
devices**

**The value of the
project defines
its scope**

Scenario – Pipeline maintenance

- **Gas leak detection / leak survey safety reporting mapped during pipeline inspection**

Pipeline maintenance - Key points

- **Precise correlation of leak surveys to mains & services**
- **Eliminates wear and tear on the survey books**
- **Data must be easily integrated with the enterprise GIS**
- **Accuracy is key, base station / satellite integration**
- **Ruggedized Hardware**
- **Forms based data collection**

Pipeline maintenance - Implementation

- **Mobile solution to solve problem (Platforms)**
 - ArcGIS for Windows Mobile, ArcGIS Server
- **Related scenarios**
 - Utilities and Communications
- **Supporting resources**
 - [Infrastructure Mobile Map Template for ArcGIS 9.3](#)

Why ArcGIS for Windows Mobile

- **Professional GIS data collection**
- **Good GPS and data collection controls**
- **Easily configurable without code**

Consume and query content

**Picture /
Video / Voice
data updates**

**peer to peer
interaction**

**Complex data
forms**

**Provisioned
devices**

Scenario – Voter Information Portal

- **I need a solution that disseminates voter information to the public through a public facing website as well as mobile devices**

Voter Information Portal - Key points

- **Voter information must be easily accessible**
- **Desktop and mobile**
- **Overlapping content between both experiences**
- **Simple mobile location based user interaction**

Voter Information Portal - Implementation

- **Mobile solution to solve problem (Platforms)**
 - ArcGIS API for JavaScript, ArcGIS Server
- **Related scenarios**
- **Supporting resources**
 - **Desktop web**
 - [Election Polling Places Template](#)
 - [Election Results Viewer Template](#)
 - **Mobile Web**
 - [Find Nearby developer sample](#)

Demo

JavaScript Sample

Why JavaScript

- All the “why web platform”
- More easily deploy across platforms
- Leverage web developers skill set

Consume and query content

Geocoding and geoprocessing

Simple data updates

Existing users devices

We have to use existing skills and personnel

Scenario – Tree Inventory

- **Keep Indianapolis Beautiful needs to keep track of all the trees they plant**

Tree Inventory - Key points

- **Very little or no development budget / expertise**
- **Its ok if users have to have network connectivity**
- **Want to leverage existing phones for collecting data**
- **Need an application that students can use**
- **Avoid hosting infrastructure to support the application**

Tree Inventory - Implementation

- **ArcGIS Online + Mobile solution to solve problem**
- **ArcGIS Native application, ArcGIS Server, ArcGIS.com**
- **Editor tracking through ArcGIS Online for Organizations**

Demo

Palm Springs What to Do (Crowd Sourced)

Why Native ArcGIS Application

- **Fast deployment**
 - All you need is a web map
 - Users will need instruction on the map to load
- **Easy updates of GIS data**
- **ArcGIS Online provides easy hosting**

Consume and query content

Geocoding

Picture /
Video / Voice
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Existing
users
devices

We have to use
existing skills
and personnel

More Development Options

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new dojo.Color([0,0,0,0.5]), 1));
feature.setSymbol(polyBlue);
}
```

Write once – deploy multiple (sort of)

- **Never seamless between platforms**
 - **Tweaks are always necessary: iOS to Android to Windows Phone**
 - **Tablets may warrant their own interface**
- **JavaScript compact build**
 - **Style appropriately for platform**
 - **Dojox.mobile likely easiest approach**
- **ArcGIS API for Flex**

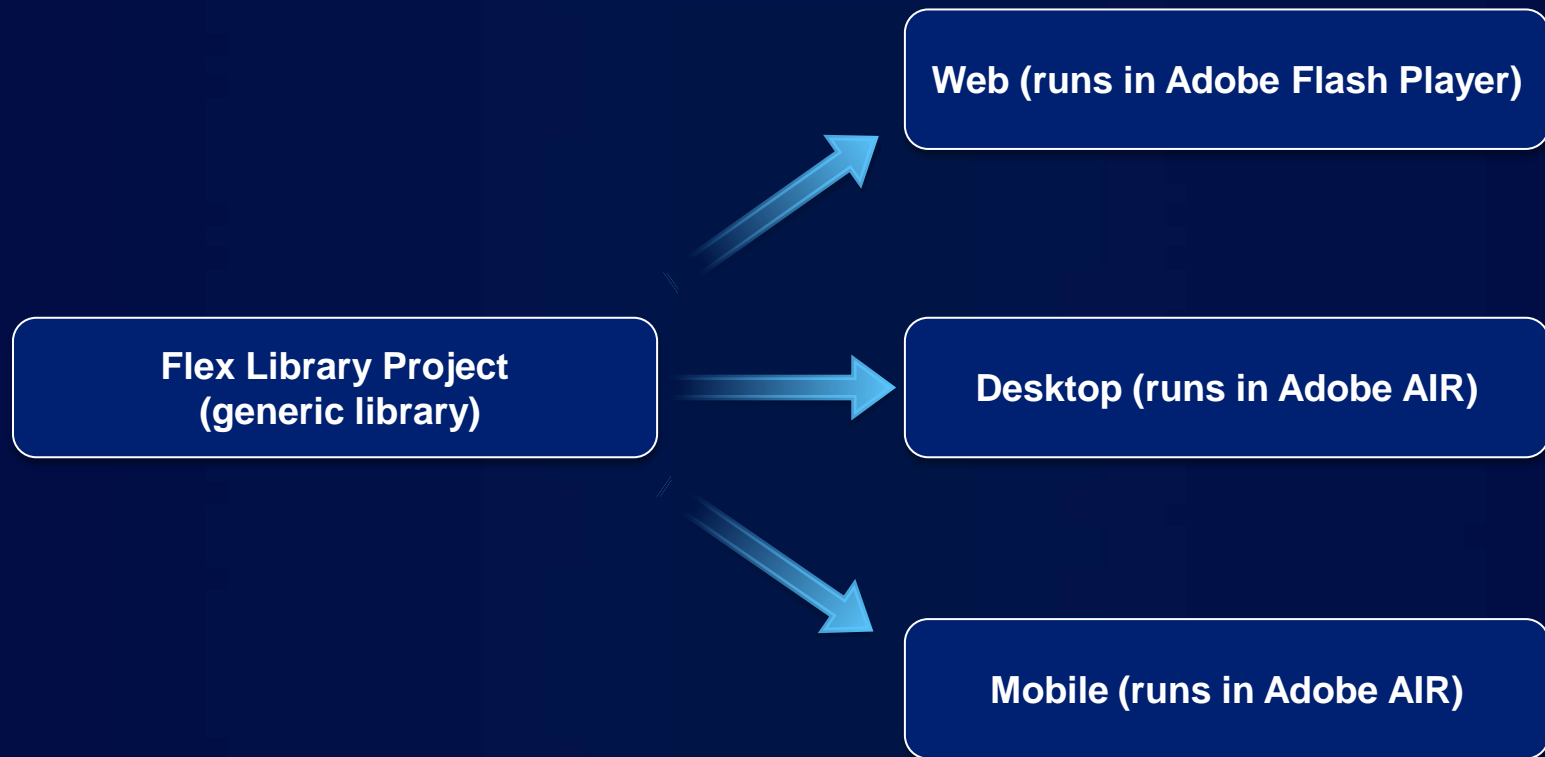
JavaScript compact build

- JavaScript API with smaller footprint (~30KB)
 - No dijit
 - Limited modules
- Can use with variety of JavaScript toolkits
 - [Dojox.mobile](#), [jQuery mobile](#), [jQtouch](#), [Sencha Touch](#), etc.
- [PhoneGap](#)
 - Build native app from JavaScript
 - Development requirements vary by targeted platform
- No limitations on platform, developer platform or IDE

Demo

Desktop (AIR), Desktop Browser (Flash Player), Mobile (AIR)

Sharing code across platforms



Flex Library Projects

- **Repository for reusable code**
 - Share code between apps
- **ActionScript Documentation**
 - ASDoc
- **ANT**
 - Automate tasks

Desktop applications (AIR)

- **Adobe Integrated Runtime**
- **Desktop apps**
 - **Application Builder**
 - **TweetDeck**
- **WindowedApplication**
- **More access to local resources**
 - **Filesystem**
 - **SQLite**

Desktop browsers (FlashPlayer)

- Targeting web browsers on the desktop
- FlashPlayer

Mobile (AIR)

- **Adobe Flex SDK 4.6**
- **Adobe Flash Builder 4.6**
- **Flex Mobile Project**
 - iOS, Android, Blackberry
 - AIR Native Extensions (ANE)
- **Testing during debug**
- **Export, cross compile into / with AIR Captive Runtime**
- **http://help.adobe.com/en_US/flex/mobileapps/WS8b1c39bd7e9fc364185d7f9f12ed9b9f7ec-8000.html**

ArcGIS API for Flex

- **Leverage existing skills**
- **Good support for device capabilities**
 - Camera, Accelerometer, GPS
- **Adv Development with ArcGIS API for Flex**
 - Wed 2:45 – 4:00 PM Primrose A (PSCC)
- **Killer Apps: HTML5 and Flex**
 - Wed 4:30 – 5:45 PM Catalina/Madera (RH)
- **Flex the World**
 - Wed 10:30 – 11:00 AM Demo Theater 2 – Oasis (PSCC)

Consume and query content

Geocoding and geoprocessing

Picture / Video / Voice data updates

Existing users devices

We have to use existing skills and personnel

iOS using C# - MonoTouch from Novell

- Platform
 - iOS
- Development platform
 - Mac
- Development environment
 - Apple's iPhone SDK
 - ArcGIS API for iOS
 - MonoDevelop
- [MonoTouch Map Viewer for iPhone 4](#) on ArcGIS.com
 - Bound assembly to ArcGIS API for iOS native library
- The end result is a true native iOS application



Getting more information

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}
```

Where can I get more information?

- **Resource center**
 - <http://resources.arcgis.com/content/mobilegis/about>
- **ArcGIS.com groups**
 - [ArcGIS Mobile Code Samples](#)
 - [ArcGIS for iOS Developer Samples](#)
- **Training**
 - [Building Application Using the ArcGIS Mobile SDK](#)
 - [Building Web Applications Using the ArcGIS API for JavaScript](#)

Esri Training for Mobile GIS Developers

<http://www.esri.com/training>



- **Instructor-Led Course**
 - [Authoring and Serving ArcGIS Mobile Projects](#)
- **Web Courses**
 - [Mobile GIS: Creating Web Maps for Lightweight Mobile Apps](#)
 - [Mobile GIS: Getting Started with the ArcGIS API for iOS](#)
 - [Mobile GIS: Using the ArcGIS for iOS Application](#)
- [Online Training Seminars](#) (free, many available!)

Summary

- **What is your business problem?**
- **What are your requirements?**
- **What is your budget?**
- **What is negotiable?**

Questions / Answers

Please fill out the session survey.... Thank you



```
esri.symbol.SimpleLineSymbol({color:[0,0,0],width:2});
new dojo.Color([0,0,0]);
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esri