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 Mobile SDK
  - ArcGIS API for iOS
  - ArcGIS API for Windows Phone
  - ArcGIS API for Android – Open Beta
  - ArcGIS API for Flex
  - ArcPad Studio

• Web
  - ArcGIS API for JavaScript
How do you decide on a mobile solution

- How will the application be used?
  - Simple data updates
  - Picture / Video / Voice data updates
  - Pier to pier interaction
  - Complex data forms
  - Geocoding and geoprocessing

- Consume and query content
  - Can be disconnected

- Provisioned devices
  - Provisioned devices

- Existing users devices
  - Existing users devices

- What’s your budget?
  - We have to use existing skills and personnel
  - The value of the project defines its scope

- What devices are available?
  - What devices are available?
Native vs. Web
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
Mobile Solution Scenarios

- Initial damage assessment
- Building inspections
- Pipeline maintenance
- Voter information portal
- Government open data
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 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
Why ArcGIS Mobile

- Professional GIS data collection
- Good GPS and data collection controls
- Easily configurable without code
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 for iOS, ArcGIS Server
- ArcGIS.com template selected
  - Code Violation for iPad
Demo
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 Mobile, ArcGIS Server
- Related scenarios
  - Utilities and Communications
- Supporting resources
  - Infrastructure Mobile Map Template for ArcGIS 9.3
Why ArcGIS Mobile

• Professional GIS data collection
• Good GPS and data collection controls
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- Consume and query content
- Picture / Video / Voice data updates
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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
Gaslamp Navigator
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 – Government open data

- Government agency wants to make more of their data accessible via mobile devices
- Improve government transparency and community engagement
Government open data - Key points

• Very little or no development budget / expertise
• Lots of data in different categories
• Its ok if users have to have network connectivity
• The more users the better but there is no requirement that all devices must be supported
Government open data - Implementation

• **Mobile solution to solve problem (Platforms)**
  - ArcGIS Native application, ArcGIS Server, ArcGIS.com
  - Web portal with links to native app
    - arcgis://www.arcgis.com/sharing/content/items/<webmapid>/data

• **Examples**
  - [KyGovMaps](#)
Why Native ArcGIS Application

• Fast deployment
  - All you need is a web map
  - Users will need instruction on the map to load

• Phase 1
  - Get user reaction to default app to hone requirements for phase 2

• Deployment to the GIS community

- Consume and query content
- Geocoding
- Picture / Video / Voice data updates
- Existing users devices
- We have to use existing skills and personnel
More Development Options
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 dijits
  - Limited modules
- Can use with variety of JavaScript toolkits
  - Dojox.mobile, jQuery mobile, jQtouch, Sencha Touch, etc.
- PhoneGap (Some access to phone capabilities)
  - Build native app from JavaScript
  - Development requirements vary by targeted platform
- No limitations on platform, developer platform or IDE
ArcGIS API for Flex

- Leverage existing skills
- Strong developer / design community
- Good support for device capabilities
  - Camera, Accelerometer, GPS
  - Adobe Flex SDK 4.5 + Adobe Flash Builder 4.5.1

- See: ArcGIS API for Flex – Advanced Topics
  - Thurs 8:30 – 9:45 AM Room 8

- See: Flex Appeal
  - Wed 12:00 PM – 1:00 PM Room 8
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
Where can I get more information?

- **Resource center**
  - [http://resources.arcgis.com/content/mobilegis/about](http://resources.arcgis.com/content/mobilegis/about)

- **ArcGIS.com groups**
  - [ArcGIS Mobile Code Samples](http://resources.arcgis.com/content/mobilegis/about)
  - [ArcGIS for iOS Developer Samples](http://resources.arcgis.com/content/mobilegis/about)

- **Training**
  - [Building Application Using the ArcGIS Mobile SDK](http://resources.arcgis.com/content/mobilegis/about)
  - [Building Web Applications Using the ArcGIS API for JavaScript](http://resources.arcgis.com/content/mobilegis/about)
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!)*
Resources at the conference

- See the Mobile GIS track in your agenda
- Mobile Product Island @ Esri Showcase
  - Meet the development team at the exhibit hall!
    Wednesday 9am – 6pm
    Thursday 9am – 1:30pm
- Try ArcGIS Mobile Live!
  - Wednesday (2:00pm – 4:00pm)
  - Thursday (10:00am – 12:00pm)
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