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**
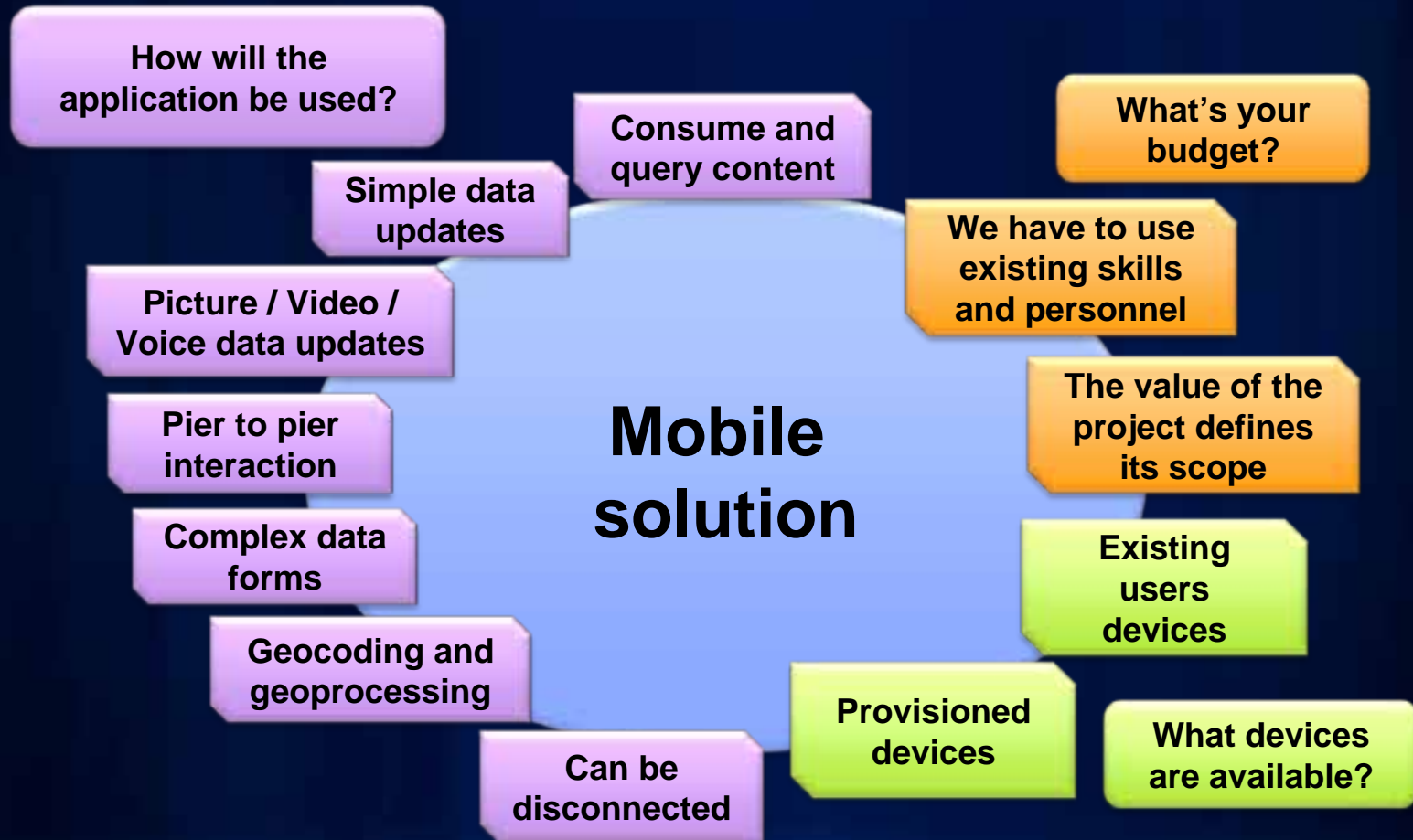
- **Mobile Development Options**

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

Mobile solution

- How will the application be used?
- Simple data updates
- Consume and query content
- What's your budget?
- We have to use existing skills and personnel
- Picture / Video / Voice data updates
- The value of the project defines its scope
- Pier to pier interaction
- Complex data forms
- Existing users devices
- Geocoding and geoprocessing
- Provisioned devices
- What devices are available?
- Can be disconnected

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

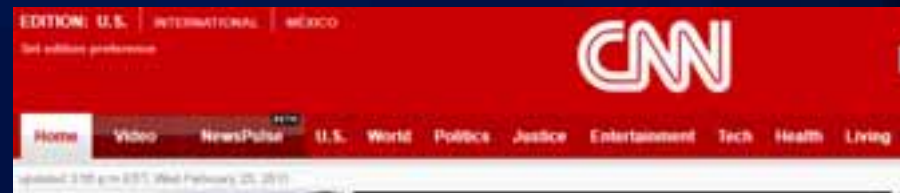- **Full web application**
  - **Full content access**
- **Mobile web application**
  - **Focused content access**
    - **Main news stories**
    - **Vote for Sports nation**
      - **Simple data editing**
    - **Simple menus categorizing content**
- **Native application**
  - **Track scores for myTeams**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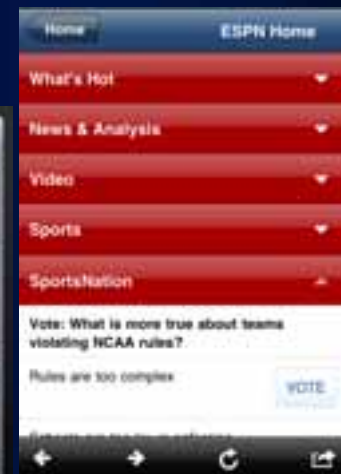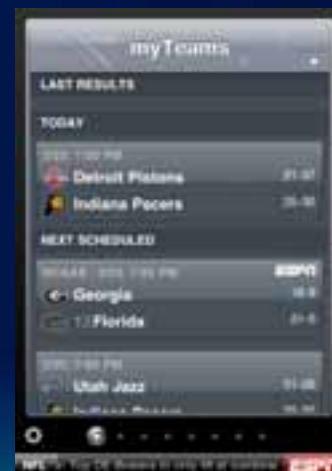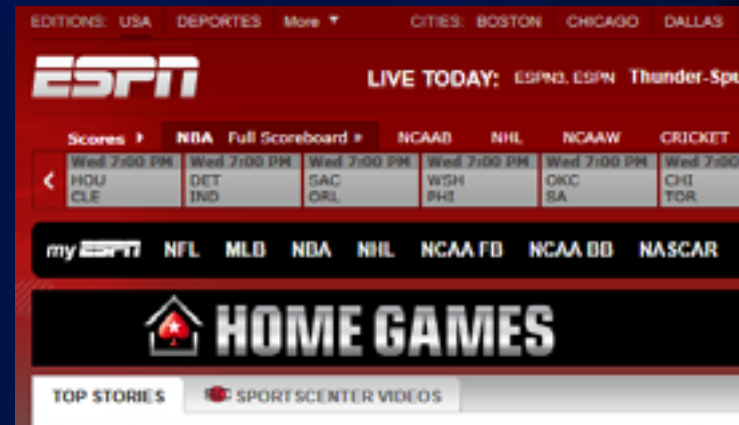
Case Study: CNN

- **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**
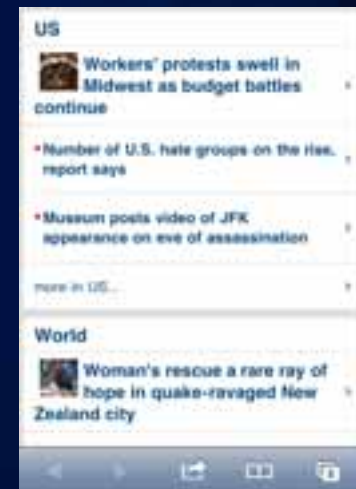
Common themes from case studies

- **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**

Demo

Public Safety Damage Assessment

Why ArcGIS Mobile

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

Consume and query content

Picture / Video / Voice data updates

Pier to pier 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 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**
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Consume and query content

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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**

Demo

Building a Fishing map for ArcGIS for iOS

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**

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**

MonoTouch Map Viewer for iPhone 4

C# MonoTouch iPhone Application.
Mobile Application by alpascual37 (last
★★★★☆ (1 rating, 43 downloads)
Facebook   Twitter

Getting more information

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!)

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