ArcGIS Server: Introduction to the Mobile ADF

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Agenda

- Overview
- Positioning ArcGIS Mobile
- Mobile Architecture
- ArcGIS Mobile Workflow
- Best Practices
- What’s New About 9.3
ArcGIS Mobile Positioning
ArcGIS Mobile SDK at 9.2

- .NET “Mobile ADF” ships with ArcGIS Server Advanced Enterprise Edition

- A Suite of .NET Components for developing custom server-centric lightweight mobile applications
ArcGIS Mobile SDK at 9.2

- An ArcGIS Server solution for developing mobile applications
- Synchronization of Geographic information to and from the field – optimized for wireless networks
- Display rich mobile maps and cache Geographic edits locally when working offline
- Easy to use and standardized developer environment
  - .NET SDK
ArcGIS Mobile Architecture
ArcGIS Mobile SDK : Features Overview

- Support multiple connectivity scenarios
- Full Support of Geodatabase Transaction Model
- Leverage Visual Studio 2005/2008 WinForms
- Small footprint and high performance
- Comprehensive developer help
  - Visual Studio integration
  - Walkthrough, Samples
  - Online documentation
ArcGIS Mobile SDK: Seamless Microsoft Visual Studio Integration

Win Forms

Net Forms

Data Sync Components

UI Controls

Data Components

GPS Components

Device Data Store


Microsoft Visual Studio 2005/2008
ArcGIS Mobile SDK: Core Components

ArcGIS Server

GeoData Service

Network Analysis Service

Geoprocessing Service

Mobile Service

Map

MapAction

Feature Layer

Annotation Layer

Raster Layer

Mobile Service / Cache

URL
ArcGIS Mobile SDK: Target Platforms

- Microsoft .NET/.NET Compact Framework 2.0
- Windows Mobile 5.0/6.0
  - PocketPC/Professional
  - SmartPhone/Standard
- Windows Mobile for Pocket PC 2003, 2003 SE
- Windows CE 5.0
- Windows XP/XP Tablet/Vista
ArcGIS Mobile SDK: Prerequisites

- Visual Studio 2005 Standard and up, or Visual Studio 2008 Professional and up
  - C# or VB.NET
- Familiarity with
  - .NET Framework 2.0/.NET Compact Framework 2.0
  - ADO.Net concepts
- Windows Mobile 5.0/6.0 SDKs (Pocket PC/Smartphone)
- Active Sync 4.1 or higher installed on XP or WMDC on Vista
- Access to mobile devices to test deployment
- Access to GPS devices
- Familiarity with ArcGIS Server
.NET Compact Framework considerations

• It’s a subset of .Net Framework
  – 30% of the classes/methods of the full .Net Framework
  – 4 MB minimum footprint vs. 40 MB on full .Net Framework
• Optimized for Smart Devices
• Not everything works the same
• Read the documentation
ArcGIS Mobile Workflow
ArcGIS Mobile Workflow

- **Build Mobile Geodatabase**
  - Information and Transaction Model considerations
- **Author Mobile Map (*)**
  - Design for environment and form factor
- **Publish Map Service**
  - With Mobile Data Access Capabilities
- **Design Mobile Application (*)**
  - For Form Factor and Environment
- **Build Data Deployment Packages (*)**
  - Operational and base map dataset
- **Deploy Mobile Solution (*)**
  - Application and Data
- **Synchronize Mobile GIS solution**
  - Consider bandwidth and battery life
Author Mobile Map

• Mobile Map Design Considerations:
  – Design for purpose
    • Remove unnecessary layers of information
    • Set scale dependency based on scales of work (walk, drive, etc)
    • Render editable layers to define feature types
  – Design for the environment
    • Establish contrast, choose meaningful symbology
  – Design for device form factor
    • Set scale dependency based on device resolution
    • Set symbol width based upon device resolution

• Determine Base Map Data vs. Operational Data
  – Compress Base Map Data using Create Mobile Base Map GP Tool
  – Build Operational Mobile Cache using Generate Mobile Service Cache
Design Mobile Application

- Mobile SDK installed as part of ArcGIS Server
- Use Visual Studio 2005/2008:
  - Windows Mobile 5.0 for Pocket PC
  - Windows Mobile 6.0 Professional
  - Pocket PC 2003
  - Windows Mobile 5.0 for Smartphone
  - Windows Mobile 6.0 Standard
  - Tablets and Notebooks (XP/Vista)
- IDE Integration
- Build Simple and focused user interfaces
- Develop for function and form factor
Deploy Mobile Solution

- Use Standard Deployment Technology
  - ActiveSync, Windows Mobile Device Center
  - Microsoft SMS
  - SOTI MobiControl

- Secure server and client data
Synchronize Mobile GIS Solution

**Application:**
- Takes responsibility for managing the sync process
- Pushes and pulls new and updated features
- Leverages spatial and attribute queries to optimize feature pull from the Server
General UI Design Guidelines

• Mapping device screens to device forms
  • Screen layout/orientation awareness
  • Form navigation

• Handling input appropriately to boost productivity
  • Taps
  • Hardware key/keyboard

• Menu vs. Tool considerations
  • Screen space
Mobile Demo
What’s New about 9.3

- Mobile Map Architecture
  - MapGraphicLayers
  - MapLabelClasses
  - MapLayers
- Mobile Services Cache and DataSources
- ArcGIS Desktop GP Tools
  - Create Mobile Base Map Tool
  - Generate Mobile Service Cache Tool
What’s New about 9.3 (cont)

- Support for Large Base Map datasets
  - SDC integration as custom MapLayer
- Improved Editing and Sketching API
- Improved GPS API
- Improved Projection support
ArcGIS Mobile Application

- Task-driven user experience
- Configurable using Server Manager
- Targets:
  - Simple GIS Feature Editing
  - Map Viewing
- Target Platforms:
  - Windows Mobile 5 Pocket PC
  - Windows Mobile 6 Professional
ArcGIS Server Manager

- Create and manage mobile web services
- Create and manage mobile projects
- Deploy mobile projects and applications to devices
Questions?
Additional Resources

• ESRI Resource Center
  – http://resources.esri.com/

• ESRI Developers Network (EDN) website
  – http://edn.esri.com

• ESRI Support Center
  – http://support.esri.com/