

ArcGIS for Android Tablet Solution Transforms Well Inspection for Bucks County Health

December 10, 2013

Presented by:

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Overview

- Mobile well inspection system for Bucks County Health and Human Services Department, Bucks County PA
- Short falls of current system
- Design considerations
- GIS Solution
 - Concepts can be applied to many cases



Who Are We?



County of Bucks, PA

Health Department

<http://www.buckscounty.org/government/HumanServices/HealthDepartment>

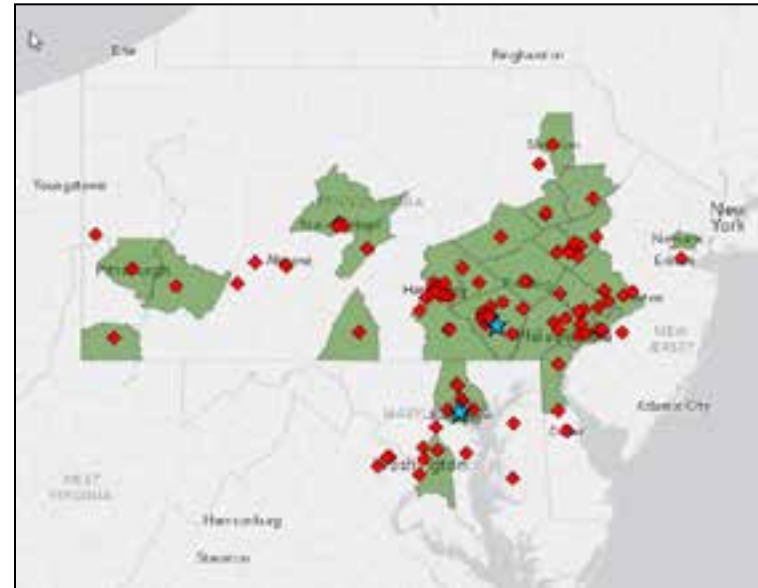
- Service Bucks County, Pennsylvania
 - Population 627,053
- Bucks County Health Department, Doylestown, PA
- 3 main branches, Environmental, Nursing, and Public Health Preparedness
- Environmental branch manages
 - On-lot sewage/well permitting,
 - Food facility/camps/pool/school inspections
 - West Nile virus spraying



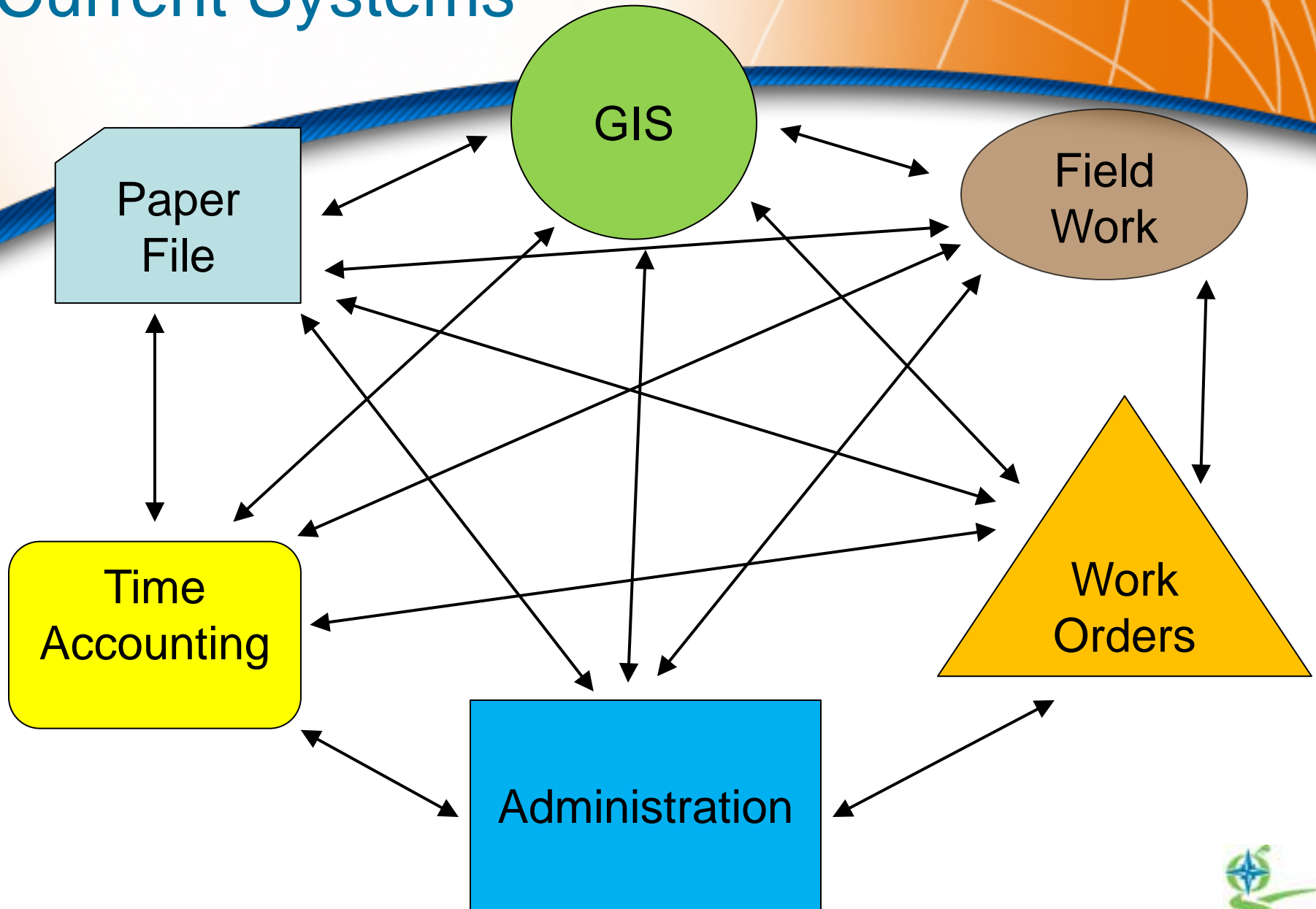
Who Are We?



- A pioneering GIS services firm in Pennsylvania
- Primarily serving the four state mid-Atlantic region
- Offices located in Lancaster, PA and Baltimore, MD
- www.geographIT.com
- Market Sectors
 - State and Local Government
 - Utilities
 - Transportation
 - Energy
 - Public Safety



Current Systems



Problems

- Existing System is entirely paper based Inspection system
- No mapping component for analysis, easy access or administrative view
- Difficulty locating well site at property and measuring distances at well site
- Well locations are visited 4 or more times throughout development
- No coordination of inspector territories

Well GPS Data

BCDH Serial # _____

Well Owner: _____

Site Address: _____
Street _____

Post Office _____ State _____ Zip _____

Subdivision Name _____ Lot # _____

Municipality _____

Tax Parcel # _____

Well Driller Company: _____
License # _____

Type of Well Construction	Conventional Wells	Method of Storage Disposal
<input type="checkbox"/> New Well	<input type="checkbox"/> Open Loop	<input type="checkbox"/> Public <input type="checkbox"/> On Site
<input type="checkbox"/> Deepen Existing Well	<input type="checkbox"/> Closed Loop	<input type="checkbox"/> On-site Storage Permit # _____
<input type="checkbox"/> Hydrofracturing	<input type="checkbox"/> Fall Water	<input type="checkbox"/> Date Sealed _____
<input type="checkbox"/> Abandoned	<input type="checkbox"/> Monitoring Well	<input type="checkbox"/> Date Plugged _____
<input type="checkbox"/> Other (specify): _____	<input type="checkbox"/> Fall Water	

Depth of well _____

Depth of well casing _____

Well Location

Latitude _____

Longitude _____

Upload Picture: _____



Requirements

- Map centric tablet application
- Central database for field, office and administrators to access
- Fully integrated with GIS
- Field Media (Pictures, Video, Documents)
- Secured
- Offline and online editing/viewing
- Simple to use



Considerations

- Windows – Android – iPad?
- Connectivity to mobile broadband throughout county?
- How do we support offline editing?
- Availability of map data for entire county on mobile device?
- Solution will not just be application but will change core workflows of the users



Solution

Highlights

- Custom Android Tablet application built using ESRI Android SDK
 - Samsung Galaxy Note 10.1 with 64 GB external card
- Supports full online/offline functionality dynamically
- Fully integrated in GIS platform
 - Configuration - Services - Security - Data
- Synchronization/Editing done through ArcGIS Server feature services



Solution

Technology Stack

Applications

Custom ESRI Android SDK Mobile App

- Online/Offline Editing
- Field Pictures
- GPS Locations

ESRI Flex Viewer

- Office Users
- Web Editing
- Viewing
- Searching

Services

ArcGIS Server

- Feature Services
- Tiled Services
- Tile Packages
- Token Services/Security

Mobile Web Map

- Customized JSON Objects
- JSON map configuration
 - Layers
 - popups

Data

ArcSDE Geodatabase

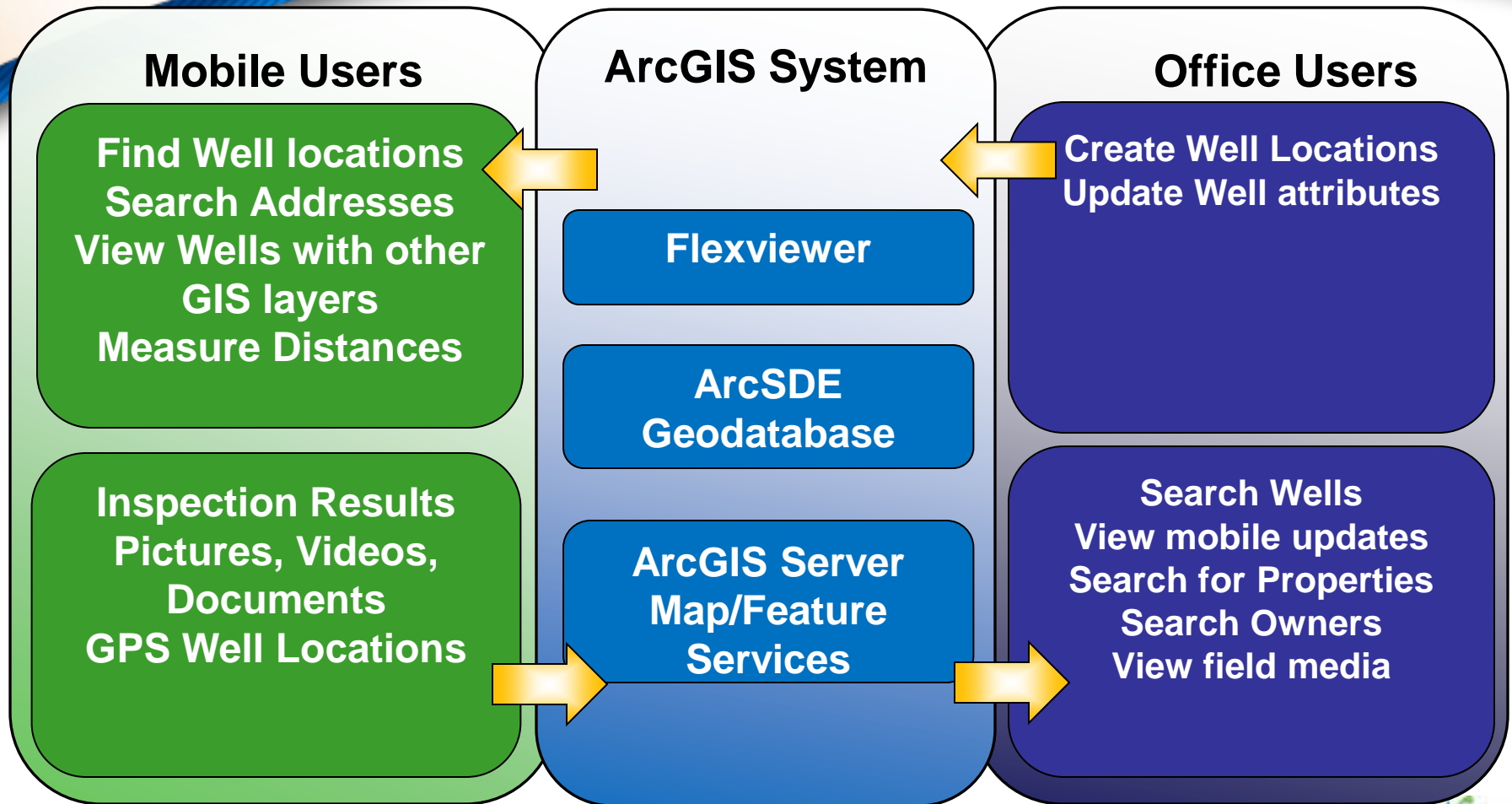
- Well feature classes and tables
- Media Attachments

Custom Mobile Database

- Store offline data



New Workflow



Demo

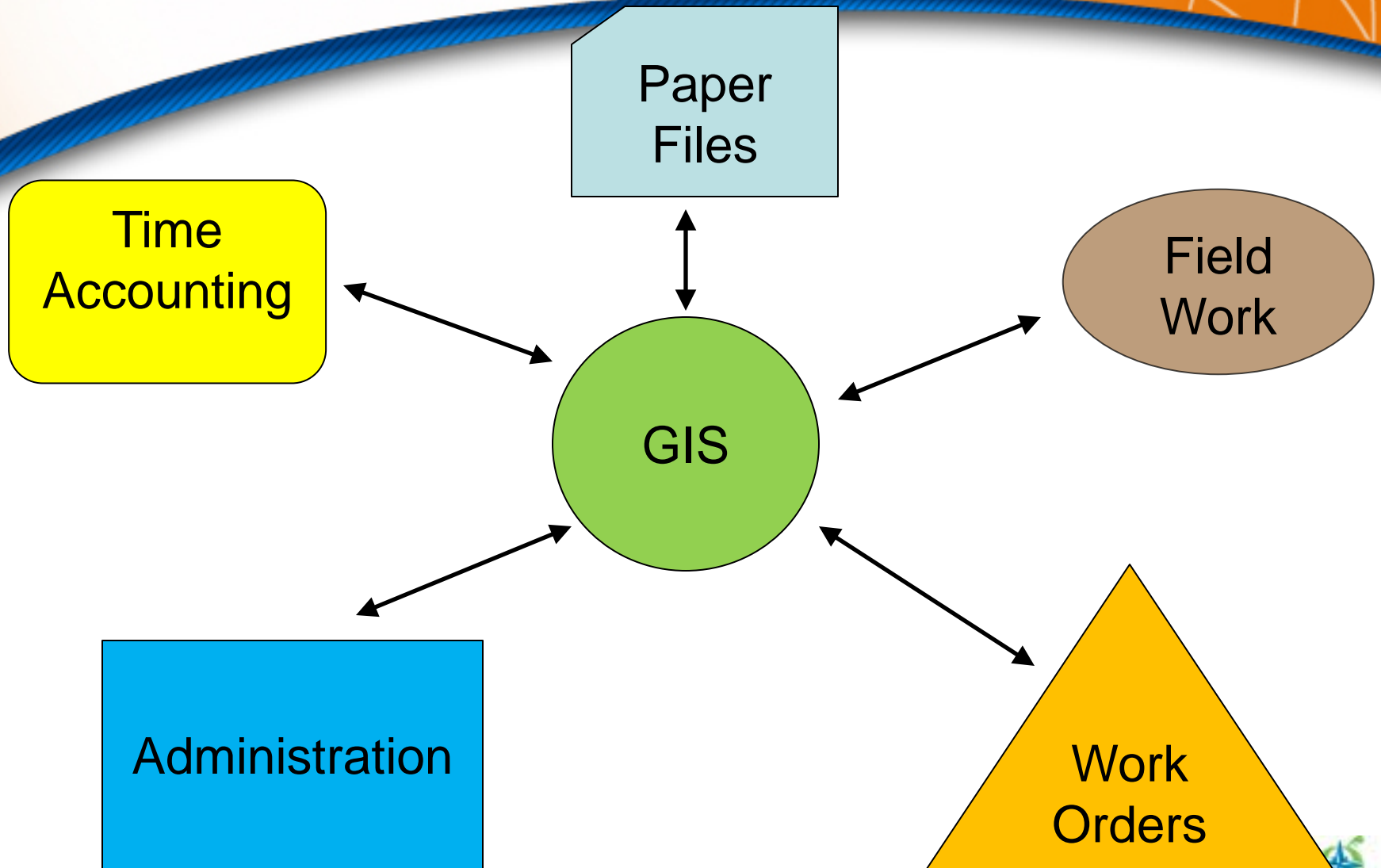


Benefits

- GIS Based System
- Immediate availability of data
- Process from application to finalized inspection is simple, efficient, cohesive
- Location is now visible!
 - Wells, Activity, Media, etc.
- Other un-anticipated benefits



New System



Lessons Learned

- Choose Device with good native capacities
- Don't reinvent the wheel, make use of native android capabilities and apps
- Implementing a mobile application can change entire structure.... For the better



Questions?





Thank You!

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