Developing a Comprehensive Local Government Web GIS Solution

The Knoxville, Knox County, Knoxville Utilities Board (KGIS) Experience
Presentation Topics

• Who is KGIS
• GIS community served
• Drivers for an ArcGIS Server web mapping solution
• Select components of the KGIS web mapping solution
• Lessons Learned
Who is KGIS?

- Knoxville, Knox County, Knoxville Utilities Board GIS (KGIS)

- Chartered in 1985

- Responsible for maintaining single, shared GIS infrastructure and basemap data

- Promotes GIS to support respective agency business needs
KGIS Serves a Large and Diverse GIS User Community

• Public interface
  – Data consumers through web mapping application
  – Data sales to private companies
  – Spatial analysis projects that support both public and private industries
  – Custom cartographic services

• Hundreds of agency GIS users rely on KGIS systems to access data vital to their workflows

• Over 50 GIS data editors across 10 departments in 4 agencies
M2E Project

• Objective: design, construct and implement an enterprise GIS solution to support the spatial information needs of KGIS member agencies & the public.

• Migrating GIS applications and data from Intergraph MGE GIS platform to ESRI ArcGIS platform.
Selected Web Platform

• DotNetNuke framework
  – Familiar with capabilities and administration
  – Established user community
  – Open Source

• Why ArcGIS Server?
  – Goal to maximize use of web mapping application
    • Reduce dependence on client-server applications
  – ArcGIS Server promised
    • Multiple map services
    • Caching
    • Editing over web
  – ArcGIS Server 9.2 had just been released
DNN for Content Management

Single Sign-on supported through integration with Active Directory across 4 trusted external domains
KGIS Web Portal
User Authentication

1. User visits KGIS Website
2. Portal Logon
   Authentication through Active Directory
   *Automatic if logged onto domain*
3. IIS Web Server
   - DotNetNuke Portal
   - IIS queries Active Directory for user credentials

- **KGIS Active Directory Servers**
- **Active Directory / Domain Trusts**
- **Trusted Domains**

**Notes:**
- User accounts are automatically created in portal during first visit if user is logged into a domain.
- Internet Explorer browser must have KGIS website added to "Local Intranet" zone. For example: http://*.kgis.net and http://*.kgis.org
- If user is NOT logged into domain they may still login to the portal by entering domain logon information via the "Login" link. Select the "Widows Logon" option and input account information using the domain/user logon format. User account must already exist in portal.

**User logged on to Portal**
- With access to site content, map features and capabilities based on role

**User NOT logged on to Portal**
- Has access only to Public content, map features and capabilities
.NET ADF Map Application
JavaScript Map Application

Kgis

CH2M HILL
Other Applications

### Online Reports

Enter an address, parcel id, or owner’s name in the form below and click the search button. Click on the report button to open Owner Card Report or a Property Map and Details Report. Information shown on this webpage is deemed reliable but not subject to the KGis Disclaimer.

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<th>Parcel ID</th>
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Map Theme Administration

- Map content is managed through DNN utilizing role based security.
Other Integration Points

• Web services
  – Authentication & Encryption
  – Profile Management (bookmarks & personal themes)
  – Spatial analysis tools and quick map generation

• Reporting
  – Reports are deployed as separate web applications allowing us to utilize them in multiple web applications and the desktop environment.

• Data Extraction
  – DNN module which utilizes ArcGIS Server to define and area of interest and standard web development tools to manage ordering and purchasing options.

• Layer Locator
  – Searches metadata and map themes to help users find which themes contain the data they need
Lessons Learned

• Single Sign-on is GREAT for users!
• SOA allows code reuse and streamlined administration
• Don’t drink the technology Kool-Aid
  – Leverage only a couple new things at one time
  – Early adopters be prepared for additional investment
• Thoughtful map services and caching strategy CRITICAL
  – Lots of considerations such as users, security, performance
Other KGIS Presentations

• Automated Change Notification Keeps Everyone in the Know!
  – Thursday July 16
  – 1:30PM - 2:45PM