The Many Faces of Enterprise GIS on Campus

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Overview

• University of Wyoming’s (UW) Enterprise GIS Architecture
  – Framework
  – Collaboration
  – GIS Technology
• Deployment and Current Users
  – GIS Analysts / Editors
  – Non GIS / Casual User
• Campus Basemap / ESRI’s Community Basemaps
Framework

• The Wyoming Geographic Information Science Center (WyGISC) has developed an enterprise GIS for the University of Wyoming’s (UW) administration:
  – Enables access to university wide spatial data
  – Serves as the backbone for web based applications
  – Increase efficiency and decreases data redundancy
  – Technology used: ArcGIS 10/10.1, ArcGIS for Server, ArcSDE, ArcGIS for AutoCAD and ArcGIS for Mobile
  – User types include: Editors, Viewers, Snapshot Users
Overview of UW’s Enterprise GIS Architecture

Core Development Team Members:
Wendy Berelson, Phil Polzer (WyGISC) and Zarifa Dushdurova (REO)
Current Methods of Sharing / Collaborating on GIS Maps and Data via the Enterprise?

• Direct access and editing of SDE versioned multiuser geodatabase via ArcGIS Desktop environment
  • WyGISC data servers at IT
  • ArcGIS for Server
• Secure GeoData Web Portal (applications.wygisc.org)
  • Web Applications
    • Access the enterprise databases data
• Mobile
  • ArcGIS Mobile, ArcPad
• Disconnected /Extracted
  • Snapshot of data for maps or analysis
Administrative groups using UW’s Enterprise GIS data and services:

- Wyoming Geographic Information Science Center
- Institutional Marketing
- UW Police Department
- Physical Plant (Utilities Management, Facilities Engineering)
- Transportation and Parking Services
- Facilities Planning
- Institutional Marketing
- Real Estate Operations
- Institutional Analysis
- Office of the President
- Space Management
- Environmental Health and Safety
- Information Technology
- Student Affairs
UW GIS

Wyoming Geographic Information Science Center (WyGISC)

Real Estate Operations

Information Technology

Facilities Planning

President's Office

Auxiliary Services

Institutional Analysis

UW Police Department

Environmental Health and Safety

Physical Plant

Facilities Engineering

Utilities Management

Plumbing Shop

Institutional Marketing

Industrial

Marketing

Institutional

Analysis

Wyoming Geographic

Information Science Center

(WyGISC)

Physical

Plant

Facilities

Engineering

Utilities

Management

Plumbing

Shop

Institutional

Marketing
Desktop Environment
Targeted Users: GIS Analysts

• ArcGIS Desktop and ArcSDE versioned geodatabase provide for viewing, editing and analyzing GIS data and non-spatial data
• Work primarily conducted by Real Estate Operations (REO)
  – WyGISC’s original enterprise partner
• Provides centralized data management
  – Geodatabase on SQL Server
Desktop Editors
Extensive Real Property Database
Web Based Secure Portal to Access GIS Applications, Targeted Users: Non-GIS Professionals

- Objectives: Data dissemination, ease of access and use, customized applications
- Technology used: ArcGIS Server, Adobe Flex & Flash, Web-browser, MojoPortal
Web Portal: Real Estate Viewer App
Web Portal: Campus Control Network App
Web Portal: Physical Plant – Campus Utilities Viewer
Web Portal: UWPD Application
Mobile Based GIS for Both GIS and Non-GIS Professionals

Focused applications for specific work flow, allows for data updates and maintenance

- Windows Mobile, Trimble GPS and ArcGIS Server

Mobile Project Center: Create project for Automated External Defibrillators maintenance (AED)
Additional Data Support and Mapping – Snapshot / Export of Data

• Administrative mapping: UW Administration Dashboard, student demographics and outreach activities
• Information Technologies' WyoMobile iOS App
• Institutional Marketing’s Campus Web Map
• Participating in ESRI’s Community Basemap/World Topographic Map
• Share maps via ArcGIS Online
Administration Uses Enterprise GIS for Strategic Goals/Planning

- Administrative mapping: UW Administration Dashboard, student demographics and outreach activities
- Institutional Analysis
- President’s Office
- Student Affairs
Campus Maps & Basemap Coordination

- Working with various groups on campus
  - Database of both campus based and campus base layers
- Deployed to
  - WyoMobile
  - UW’s Website
- Community Basemaps
  - National basemap program, UW is a partner
  - Localgov.gdb model helping us get our basemaps up and running – not reinvent the wheel
Campus Map Data: WyoMobile Snapshot / Exported Data

- IT’s WyoMobile
Working with Institutional Marketing: UW Website Campus Maps

- Webmap using Arc for Server services
- They requested First version server KML files using Server
- Moving toward data stored / edited in SDE
UW’s Basemap / Community Basemap

- REO’s basedata (e.g. buildings) and features from Localgov.gdb
- Facilities Planning CAD data conversion (e.g. sidewalks, ADA accessibility)
Additional Enterprise Related Efforts by REO and WyGISC

• Automate CAD Floorplan Data
  – ESRI’s Campus Editing Model
• ArcGIS for AutoCad being used by Physical Plant
• Physical Plant Utilities Mobile Updates
• Monuments and donations database
• UWPD Lights Out
Moving UW’s Enterprise GIS Forward

• Additional buy in from UW’s Administration
• Formalize efforts, but need to keep coordinating now
• Request formation of a committee to prioritize Enterprise GIS efforts
  • Jeff Hamerlinck, WyGISC Director and Josh Decker, Manager REO
• Divisions assigns people to said standing committee for Enterprise GIS Coordination Committee
  – Might have smaller Campus Mapping group (e.g. public, private)
• Tomlinson’s Steps, Thinking about GIS
  – Information products
  – Master data needs/list
Thanks! Questions?

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Enterprise GIS Long Term Planning Steps

(1) Defining the strategic purpose - what information products are needed by the University of Wyoming
(2) Plan for planning
(3) Conducting a campus technology seminar to show what we have done to date and how others might benefit
(4) Describing the information products needed within each department
(5) Defining the system scope within the various departments
(6) Creating a campus wide data design which builds on the current design
(7) Choosing appropriate data models that draw on existing models where possible
(8) Determining additional system requirements beyond those currently deployed
(9) Looking at and considering benefit-cost analysis for implementation, migration strategy, and risks associated with the implementation strategy
(10) Making an implementation plan

(Tomlinson, 2003)
Session Title: Creating a collaborative enterprise GIS architecture Overview
UW’s Campus Enterprise GIS Overview

- **Enterprise GIS**
  - Allows for multiple editors and users
  - Multiple versions
  - Updates are pushed out to applications in near real time
- **Robust GIS database**
  - Improvements (buildings, parking)
  - Utilities
  - Emergency related data
  - Others (see database to right)
- **Groups we work with on campus**
  - Real Estate Operations
  - Physical Plant
  - Information Technology
  - Institutional Analysis
  - Facilities Planning
  - Student Affairs
  - President’s Office
  - Institutional Marketing
  - UW Police Department
Enterprise GIS is a platform for delivering organization-wide geospatial capabilities while improving access to geographic information and extending geospatial capabilities to nontraditional users of GIS.

Enterprise architecture strategies are changing as operations look for ways to improve access and data sharing with other organizations and to integrate GIS with other centrally managed business operations.
• WyGISC’s Enterprise GIS allows access to data via ArcServer services
• ArcServer services can be consumed by web services, ArcMap, mobile devices, AutoCAD
Web Services

ArcGIS Server allows you to share your spatial data and functionality through the use of web services. Web services make it easy to share the use of resources across client applications, including ArcGIS Desktop, ArcGIS Explorer, web mapping applications, and mobile devices.

What Are GIS Web Services?

GIS web services are used to share resources over a local network or the Internet. ArcGIS Server web services conform to web standards (Representational State Transfer [REST]); industry standards (Simple Object Access Protocol ([SOAP]); and Open Geospatial Consortium, Inc.® (OGC®), standards.
Examples of WyGISC’s Web Portal Applications

http://applications.wygisc.org/

• Real Estate Viewer (REV)

• Building and Parking Map
  http://resources.wygisc.org/campusmap/#