Cobb County GIS: Beyond the Map

Charles Fail
Tim Scharff
Cobb County GIS
Topics

- Cobb GIS Overview
- The Early Years
- Enterprise GIS Transition
- Putting It Together
- Looking Ahead
Mission

- create, operate, and maintain an efficient, cost-effective geographic information system through the use of specialized computer, mapping and digital aerial photography technologies in support of the Board of Commissioners, elected officials, and county departments.
Cobb GIS Overview

Enterprise GIS Plan
- Serves as the guiding document for the countywide GIS implementation
- Consists of 6 major program elements:
  - Databases, Hardware, Software, Applications, Personnel, and Program Mgmt
- Initial 5-Year GIS Implementation Plan approved by the BOCC in 1999
Cobb GIS Overview

Cobb County’s GIS Organization
The Virtual GIS Organization

Provides overall direction for GIS Program

Provides technical guidance, formulates recommended solutions

Develops dept GIS plan, ensures database standards, coordinates training

Shares knowledge, multi-departmental networking

GIS Sponsors Group

Departmental GIS Sponsor

GIS Manager/ Central Core Group

Departmental GIS Coordinator

Overall management of the Enterprise GIS

GIS Technical Advisory Team

County Departments, Agencies, and Offices User Community
The Early Years

- **Database Development**
  - Coverages, Shapefiles, and pGDB’s

- **Application Development**
  - ImagePicker Extension (ArcView 3.x)
  - Web Mapping Site (hosted externally)
The Early Years

- Hardware / Software
  - ArcGIS Desktop 8.x
  - ArcView 3.x
  - File Server

- Users
  - Year 4 projection: 100 users
  - Actual number: 200 users
Enterprise GIS Transition

Triggers

- Multi-User Editing Needs
- Multi-Department Approach To:
  - Data Models, Data Maintenance Workflows
- Replacement of business applications
- Updated Vision:
  - Make GIS a transparent technology that is used routinely to create, manage, and analyze data
Enterprise GIS Transition

Results

- Enterprise GDB Development & Migration
  - CobbETRANS (2004)
  - Parcel Geodatabase (2005)

- Accessibility & Ease of Use
  - Cobb GIS Data Access Tool
  - Web Mapping Sites

- Infrastructure Changes
  - Separate Edit & Production Environments
  - ArcIMS & ArcSDE Implementation
Putting It Together

- We had a lot of the ingredients, now what?
  - Automate eGDB synchronization
  - Facilitate use
  - Look for integration opportunities
  - “Make the cake”
GIS Edit Servers

- For data editing only
- Not visible to general GIS users
- Edit environment consists of:
  - One centralized server
  - Two department workgroup servers
GIS Production Server

- Contains read-only data
- Serves data for all Desktop- and Web-based clients
- Some data restricted to internal users
- Approximately 2 terabytes of data
  - 10GB of vector data
  - 200GB / year for orthophotos
GIS Production Server

Database / Service Configuration

- **GIS** Vector Data
  - 5151 sde_gis

- **GIS2** Vector Data
  - 5153 sde_gis2

- **Orthos** Raster Data
  - 5152 sde_orthos

- **Test**
  - 5199 sde_test
eGDB Synchronization

- GIS layer changes moved nightly from “Edit” servers to “Production” server
- Related data from other business systems
- Series of SDE Commands, SQL Sever Packages, VB Scripting
- Base Map Data (Contours, Orthos, etc) updated annually
Why Not Replication?

- Synchronization scripts developed prior to v9.2
- Replication can handle some cases:
  - Update single feature class
  - **Example:** Parcels
- But not others:
  - Event creation and SQL post-processing
  - **Example:** Roads
Recent Developments

- Databases
  - Zoning Geodatabase

- Applications
  - Data maintenance tools
  - StreetChecker
  - Expansion of Web mapping sites
  - Integration with critical business apps
Web Mapping Sites

- Set short-term goal to create 3 new sites per quarter
- 10 sites currently in production
  - 12 ArcIMS map services
  - 88 layers being published
- Sparked imagination
  - Can we make …?
  - Can you add … to the Web map?
Virtual Tours
Traffic Cameras
Web Mapping Statistics

Internal Map Services - 2007

Requests per Month - Image Server

- Crime
- MapLibrary
- WaterHydrant
- CobbTransit
- Cmom
- Rezoning
- DotAgenda
- Cobb
Web Mapping Statistics

Public Map Service - 2007

Requests per Month - Image Server

<table>
<thead>
<tr>
<th>Months</th>
<th>Requests</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>100,000</td>
</tr>
<tr>
<td>February</td>
<td>110,000</td>
</tr>
<tr>
<td>March</td>
<td>90,000</td>
</tr>
<tr>
<td>April</td>
<td>80,000</td>
</tr>
<tr>
<td>May</td>
<td>85,000</td>
</tr>
<tr>
<td>June</td>
<td>80,000</td>
</tr>
<tr>
<td>July</td>
<td>85,000</td>
</tr>
<tr>
<td>August</td>
<td>90,000</td>
</tr>
<tr>
<td>September</td>
<td>100,000</td>
</tr>
<tr>
<td>October</td>
<td>105,000</td>
</tr>
<tr>
<td>November</td>
<td>95,000</td>
</tr>
<tr>
<td>December</td>
<td>85,000</td>
</tr>
</tbody>
</table>
GIS Integration

- DOT – CarteGraph
  - Work orders, pavement mgmt, etc.
  - Maps, link to Cobb ETRANS

- Countywide Imaging – OnBase
  - Search docs by clicking feature on map
  - When viewing docs, click to show map
Enter work request and determine jurisdiction and maintenance district from map.
Present Day System

- **Databases**
  - 15 databases

- **Applications**
  - Focus on Web-based applications

- **Software**
  - ArcGIS Desktop: 62 licenses
  - 3 ArcSDE, 1 ArcIMS, 2 ArcGIS Server

- **Users**
  - ArcGIS Desktop: over 160 users
  - Web Mapping: 150,000 maps / month
Cobb County System at v9.2

GISDEDEV
ArcSDE 9.2 (AGS Ent/Bas)

Various Apps access database views

GISDE
ArcSDE 9.2 (AGS Ent/Bas)

GISAPPS
(reverse proxy)

GISAPPDEV
ArcIMS 9.2 GeoCortex 5.1 RouteServer

Nightly Synch

Public

Web / Server Based Sites

GIS Users

Public

Nightly Synch

Edit

Edit / Publish

Multiple Work Group Servers

Publish

Cache

Production

Public

ArcGIS Server (AGS Wkg/Std)

ArcGIS Server (AGS Ent/Adv)

ArcGIS Server (AGS Ent/Std)

GISAPPS

GIS Users

Public

Various Apps access database views

Nightly Synch

Edit

Nightly Synch

Edit / Publish

Multiple Work Group Servers

Publish

Cache

Production

Public
Looking Ahead

- Increased integration with critical business applications
- Additional eGDB development
- Increased leverage of ArcGIS Server
GIS Integration

- Community Development -- Accela
  - Suite of applications for:
    - Permitting, Business License, etc.
  - Maps and proximity alerts

- Water System -- Maximo
  - Asset management, work orders
    - Water, sewer and storm water
  - Maps
eGDB Development

- Countywide Addressing Repository
  - Single source for county addresses
  - Based on proposed FGDC standard
  - Interfaces to business applications

- Water System Geodatabase
  - Migration from MicroStation / Intergraph
  - Geometric networks
  - Linear referencing
Leveraging ArcGIS Server

- Migrate current ArcIMS sites
- Develop new applications and Web services
  - MyCobbCounty website
  - Dashboards for department managers
  - Geoprocessing models
Enter address and get information -- such as commissioner district, elected officials and nearest park or library.
Ortho Cache Issue
The application of GIS technology is limited only by the imagination of those who use it.

-- Jack Dangermond

Charles Fail
GIS Programmer/Analyst II
770-528-8717
cfail@cobbcounty.org

Tim Scharff
GIS Manager
770-528-8703
tscharff@cobbcounty.org