



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



Cobb GIS Overview

- **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.



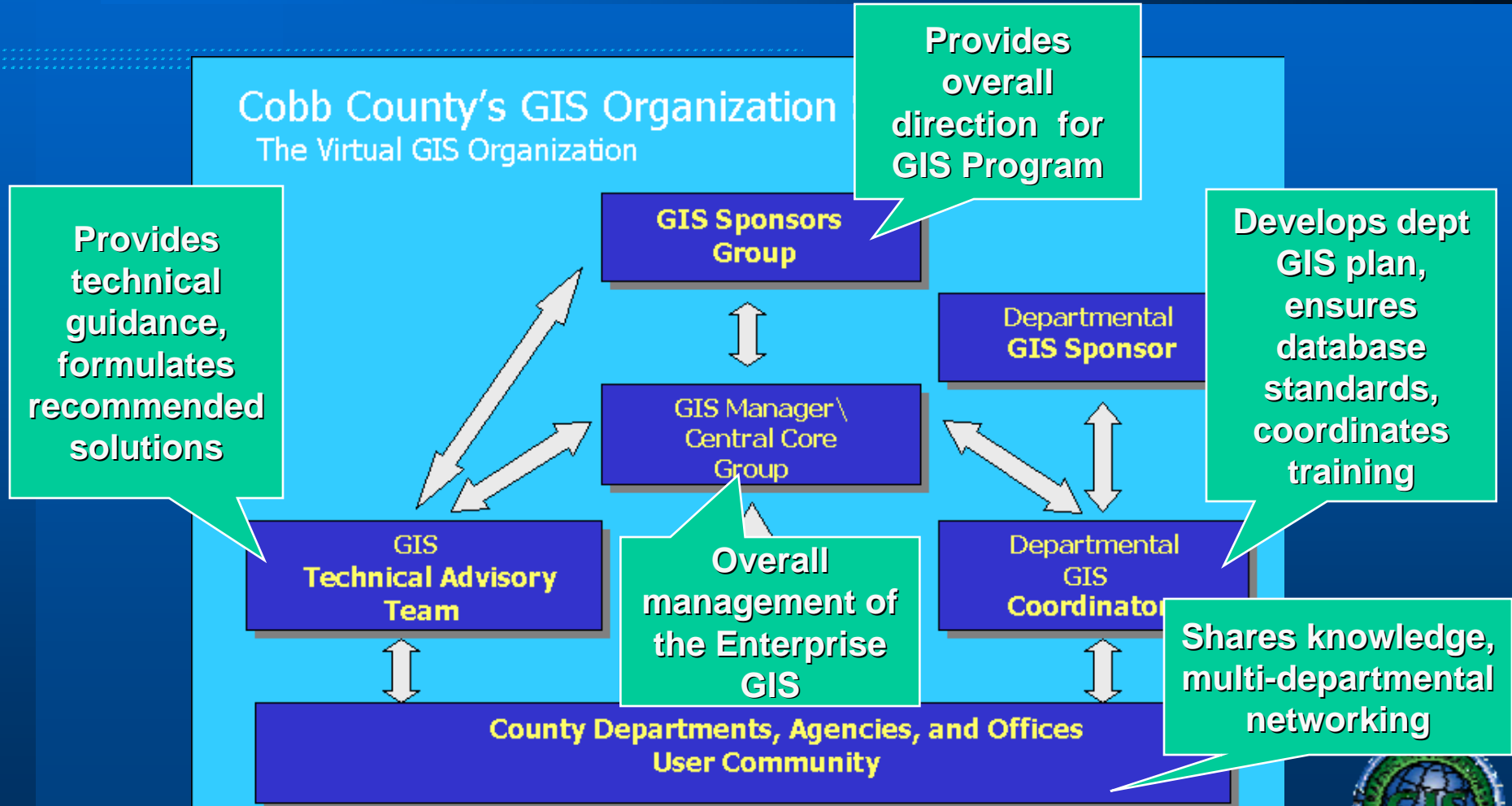
Cobb GIS Overview

- **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



The Early Years

- **Database Development**
 - Base Map (2000, 2003)
 - Tax Assessor Parcels (2003)
 - 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



Cobb County System at v9.1

External Web Server (DMZ)

Web Server (reverse proxy)
RouteMap

Public



Firewall

ArcGIS Desktop 9.1 Users (AI, AE)



ArcGIS Desktop 9.1 Users (AV)



Internal Web Mapping Users



Various Apps access database views

Edit Server
ArcSDE 9.1

Nightly Synch

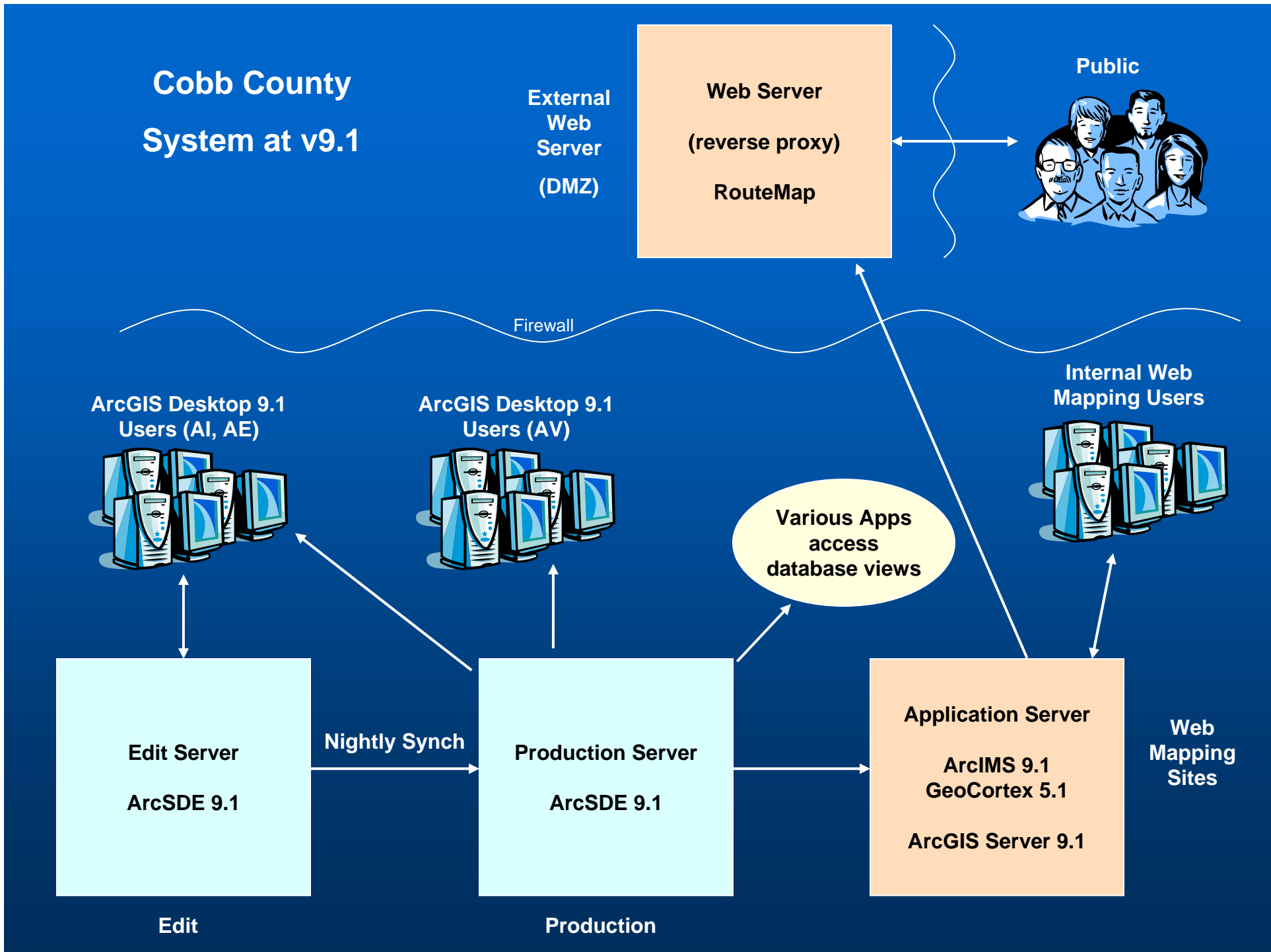
Production Server
ArcSDE 9.1

Application Server
ArcIMS 9.1
GeoCortex 5.1
ArcGIS Server 9.1

Web Mapping Sites

Edit

Production



Putting It Together

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



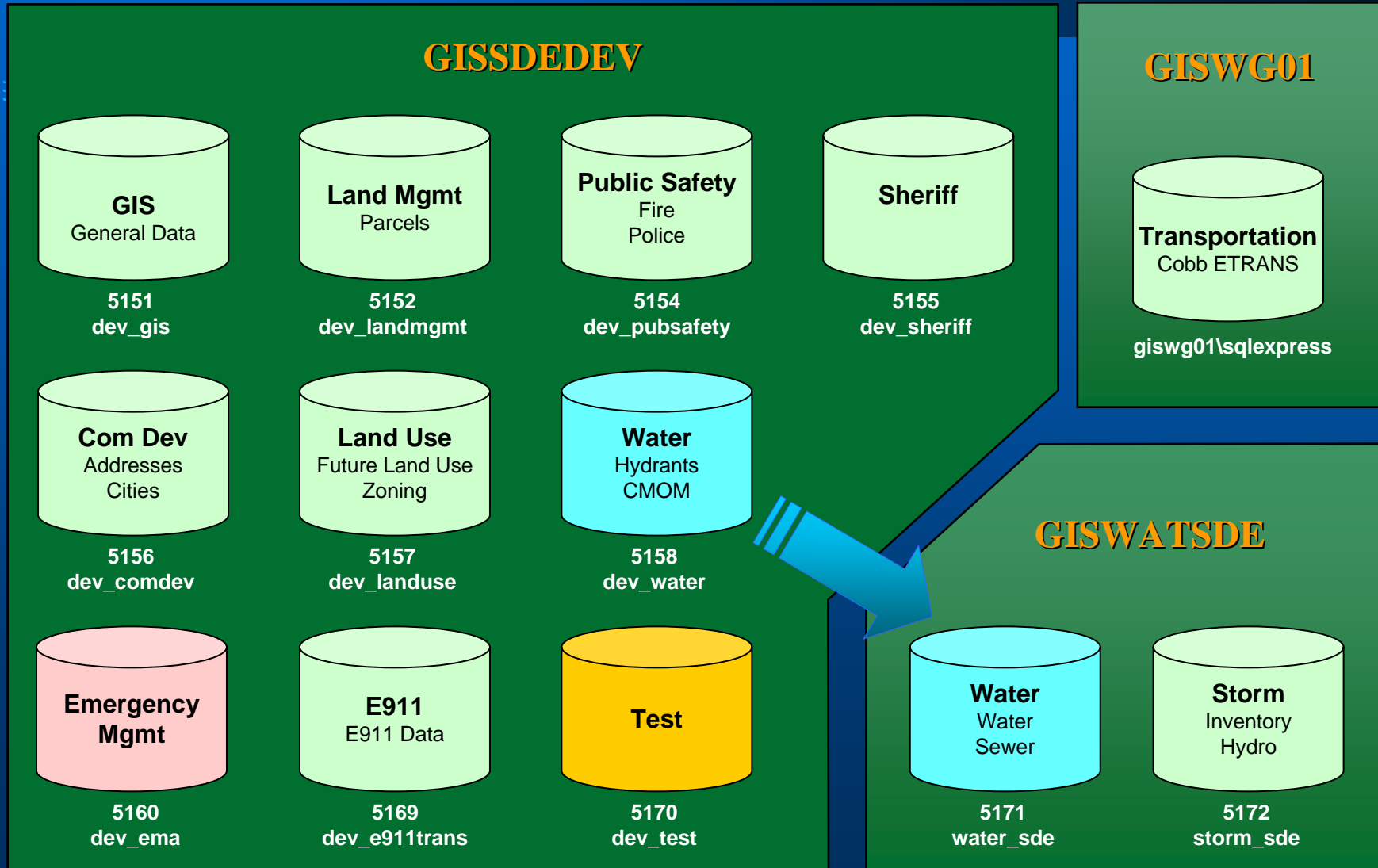
GIS Edit Servers

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



GIS Edit Servers

Database / Service Configuration



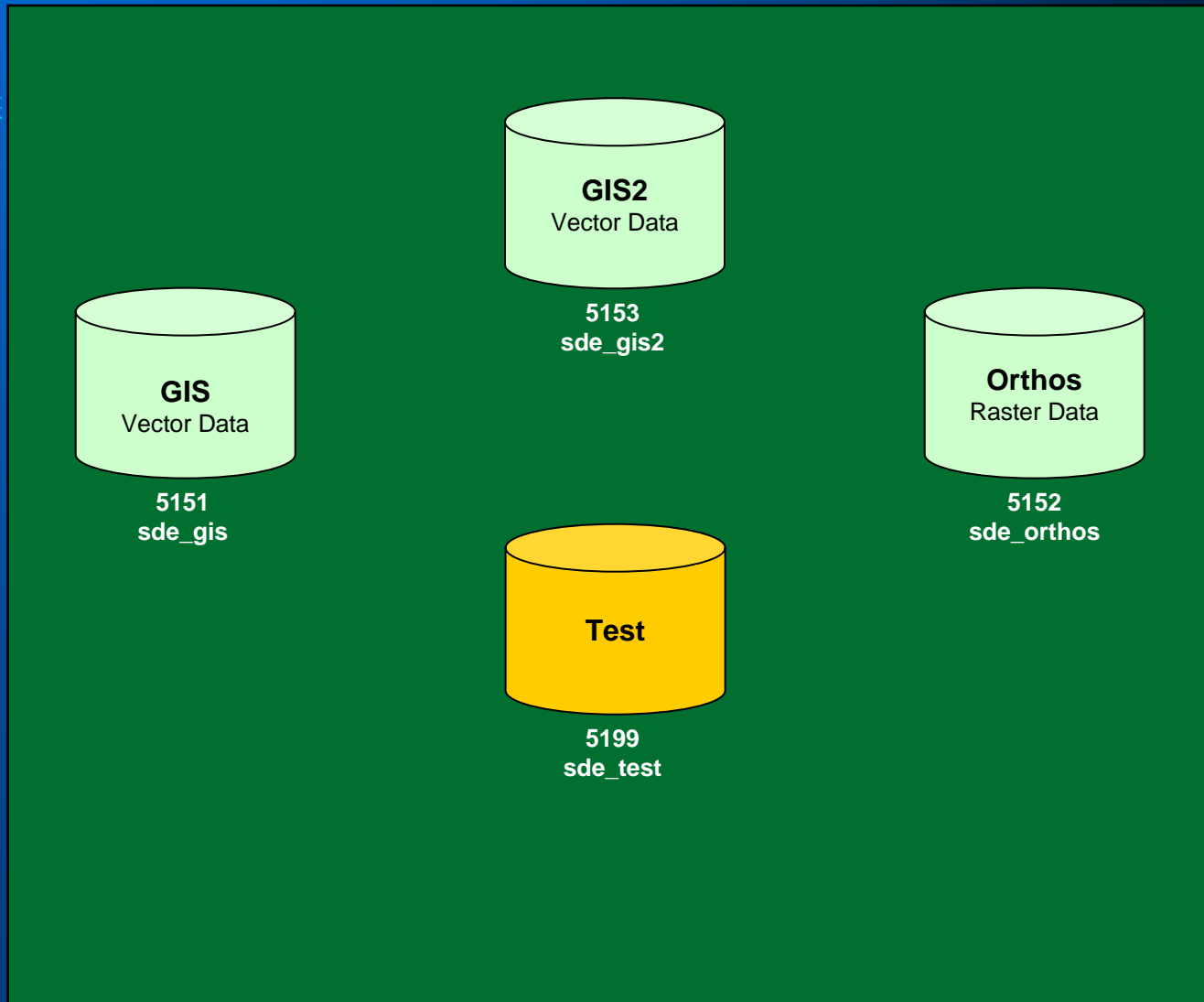
GIS Production Server

- 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



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



Zoning Geodatabase

The screenshot displays the ArcMap interface with a zoning geodatabase. The main map window shows a geographic area with several zoning districts highlighted in different colors: RM-12 (yellow), RM-8 (purple), CRC (red), and TS (green). Each district is labeled with a date and a status, such as 'RM-12 67/2006' and 'CRC Z-52/2007'. A road labeled 'Morrison Rd' is visible on the right side of the map.

Overlaid on the map is a PDF document titled '2007-05/Z-052-2007.pdf'. The document contains the following text:

MINUTES OF ZONING BOARD
COBB COUNTY BOARD OF COMMISSIONERS
OCTOBER 16, 2007
PAGE 2

CURRENT AGENDA:

5-01 ASPEN HILLS REDEVELOPMENT, LLC (Aspen Hills Apartments, LLC, President Ready N. LLC, Senior Member, and 110000 Workers Association, Inc., owners) requesting Rezoning from RM-01, TS and GC to GC' and GC' for the purpose of Residential to Land Use 702, 703, 704 and 701 of the 17th District. Located on the south side of Church Road, east of South Cobb Drive, on the east side of South Cobb Drive, south of Church Road and on the western side of 1181, south of South Cobb Drive.

MOTION: Motion by Eric, second by Charles, as part of the Current Agenda, to delay Rezoning to the CRC zoning district subject to:

- zoning board upon the plan submitted October 15, 2007 and to consider "site plan specific" and is subject to all conditions and representations as shown on the submitted plans and drawings (attached and made a part of these minutes)
- letter of agreeable conditions from Mr. John Moore dated October 1, 2007 with the following changes (attached and made a part of these minutes):
 - Page 5, Item No. 7 - Add to read: "and in general conformity to submitted plan."
 - Page 6, Item No. 14 - Add to read: "Landscaping of alternative areas to be approved by Staff during the Plan Review process."
 - Page 8, Item No. 21 - Remove this paragraph in its entirety.
 - Page 10, Item No. 9 - Add to read: "Any extension, modification will be substantially in conformance as detailed in 'all' submitted drawings."
 - Page 10, Item No. 7 - Add to read: "subject to District Commission approval."
- letter of agreeable conditions from Mr. John Moore dated October 15, 2007

The PDF also includes a site plan diagram and a circular seal with the text 'COBB COUNTY BOARD OF COMMISSIONERS' and 'OCTOBER 16, 2007'. Below the site plan, it says 'CONTINUED BY STAFF FOR A D.R.I.'

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

The screenshot displays a web application interface for virtual tours. The main window is titled "Cobb County Intranet Mapping - Microsoft Internet Explorer". The address bar shows the URL: <http://gisappdev/imf/imfIdentifyDefault.jsp?loid=320...>. The interface includes a menu bar with "File", "Edit", "View", "Favorites", "Tools", and "Help".

An "Identify Results" window is open, displaying the following information:

- Coordinate Position**
- Geographic (Lat/Lon): 33° 56' 31.8" N, 84° 41' 29.1" W
- State Plane Georgia West: 2137435, 1434433
- Parks Virtual Tour**
- Park Name: LOST MOUNTAIN PARK
- URL: [More data](#)

The main map area shows an aerial view of a park area with yellow boundary lines. A red square marker is placed on the map, and a label "Lost Mountain Park" is visible. A toolbar above the map includes "Locate", "Selection", "Create PDF", "Help", and "Exit".

A "Map Layers" panel is located on the right side of the map, listing various layers with checkboxes:

- County Information
- Economic Development
- Natural Features
- Parcels
- Land Use
 - Rezoning Petitions
 - Future Land Use
- Parks
 - Parks with Amenities
 - Parks Virtual Tour
 - Impervious Area
- Transportation
- Boundary Information
- Imagery

Below the layers list, there is a checkbox for "Automatically Refresh Map" which is checked.

A "Notes" section at the bottom right provides instructions:

Notes:
Please refer to the following for descriptions of the functions of the controls in the layer list above.

- Click folder to show or hide contents.
- Click to turn on all layers in the associated folder.
- Click to turn off all layers in the associated folder.
- Click the check box to turn layer on and

A "Powered by" logo for "PC1007B" is visible at the bottom right of the map area.

A separate window titled "http://gisappdev/Parks/Virtual_Tour/MP_0007.htm" is open, showing a photograph of a baseball field. The title of the window is "Lost Mountain Park Baseball Fields". The photo shows a baseball field with a dirt infield, green grass outfield, and a tall stadium light pole in the foreground.

The status bar at the bottom of the browser window shows "Local intranet" and "Powered by PC1007B".

Traffic Cameras

The screenshot displays a web mapping application interface. The main window is titled "Cobb County Intranet Mapping - Microsoft Internet Explorer" and shows a map of Cobb County, Georgia. The URL in the address bar is <http://gisappdev/imf/imf.jsp?site=cobb>. The page header includes "Cobb County Georgia Online Mapping" and navigation links like "About", "Layers", "Legend", "Key Map", "Bookmarks", "Locals", "Selection", "Create PDF", "Help", and "Exit".

Overlaid on the map are three smaller windows:

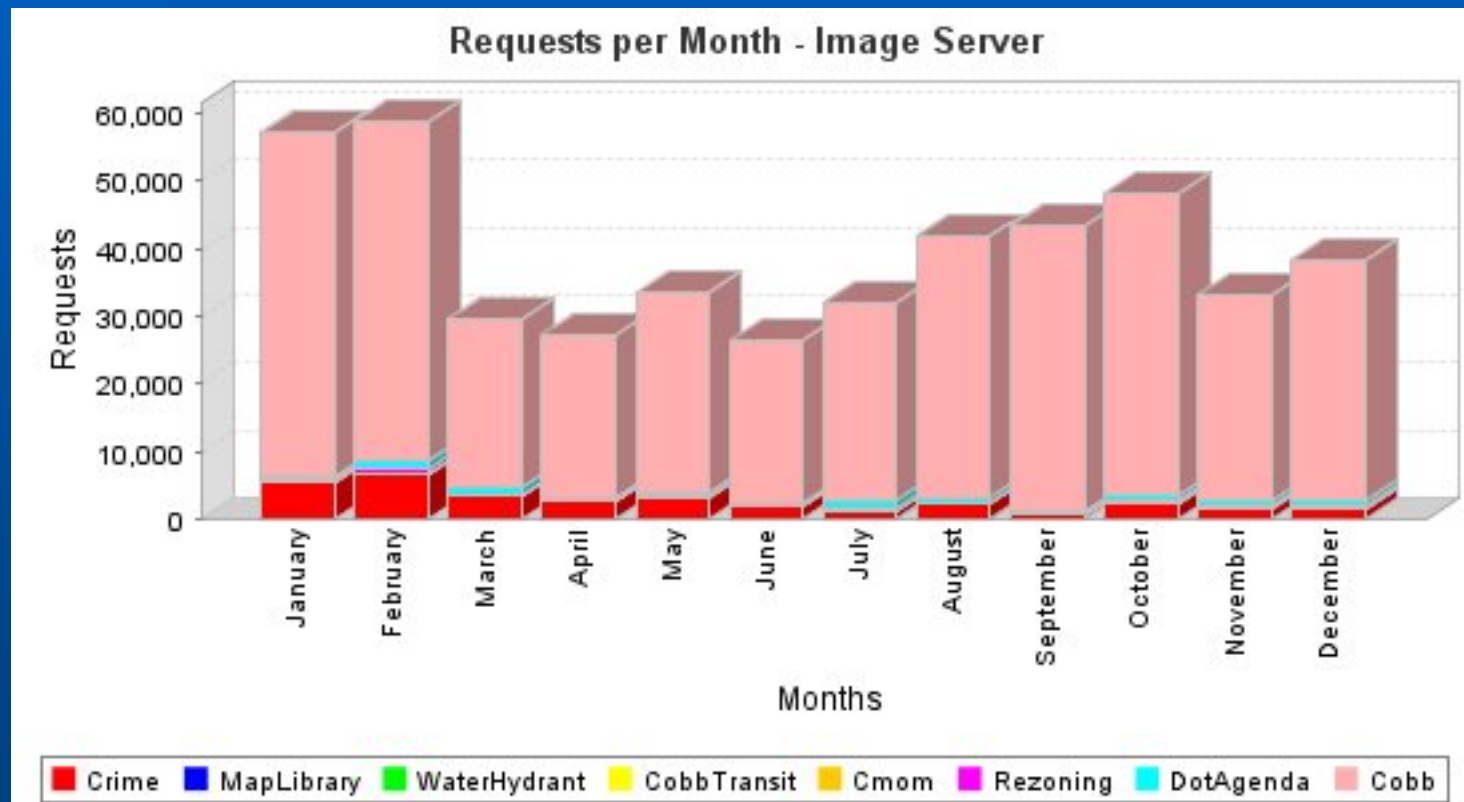
- Identify Results:** Shows "Coordinate Position" (Geographic (Lat/Lon): 33° 58' 33.00" N, 84° 22' 17.40" W) and "Traffic Cameras" (Camera ID: CAM104, See Camera Image: [More data](#)).
- Georgia Navigator:** Displays a live video feed from "COBB CAM 104" at the intersection of Johnson Road and Roswell Road. The timestamp is "7-Feb 2:06 PM" and the copyright is "©2008 GDOT - http://GeorgiaNavigator.com".
- Map Layers:** A list of map layers including "County Information", "Economic Development", "Natural Features", "Parcels", "Land Use", "Transportation", "Roads", "Railroads", "SPLOST Bridges, Intersections, School", "SPLOST Thoroughfares", "Traffic Cameras", "Traffic Counts", "Trails", "Boundary Information", and "Imagery". The "Traffic Cameras" layer is checked.

The bottom status bar shows "Scale: 1:51,000", "Map Tool: Identify", and "Active Layer: Traffic Cameras". A "Local Intranet" icon is visible in the bottom right corner.



Web Mapping Statistics

Internal Map Services - 2007



Web Mapping Statistics

Public Map Service - 2007



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



CarteGraph CALLdirector

Enter work request and determine jurisdiction and maintenance district from map

Request

Caller	
First Name	Nancy Smith
Last Name	
Phone Number	
Phone Extension	
Email Address	namth@yahoo.net
Citizen Address Number	
Citizen Route	
Apartment Number	
Citizen Zip Code	
Is FEMA	<input type="checkbox"/>
Is Internal	<input type="checkbox"/>
Requestor	
TypeClient	
HowReceived	

Issue	
Issue	Pot Hole Issue
Details	
Activity	Repair
Division	Operations/Maintenance
Assigned To	
Observed Date/Time	
Address Number	384
Route	BATTLEFIELD CREEK DR
Intersecting Route	
District	
City	

Timer: 02:00
Calls: 0

Save Clear Print on save E-mail request on save

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

External Web Server (DMZ)

GISAPPS
(reverse proxy)



Firewall

Various Apps access database views

GISSDEDEV
ArcSDE 9.2
(AGS Ent/Bas)

GISSDE
ArcSDE 9.2
(AGS Ent/Bas)

Web / Server Based Sites

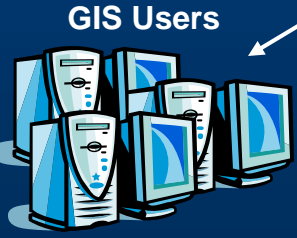
GISAPPDEV
ArcIMS 9.2
GeoCortex 5.1
RouteServer

Multiple Work Group Servers

Work Group Server
(AGS Wkg/Std)

ArcGIS Server
(AGS Ent/Adv)

ArcGIS Server
(AGS Ent/Std)



Nightly Synch

Nightly Synch

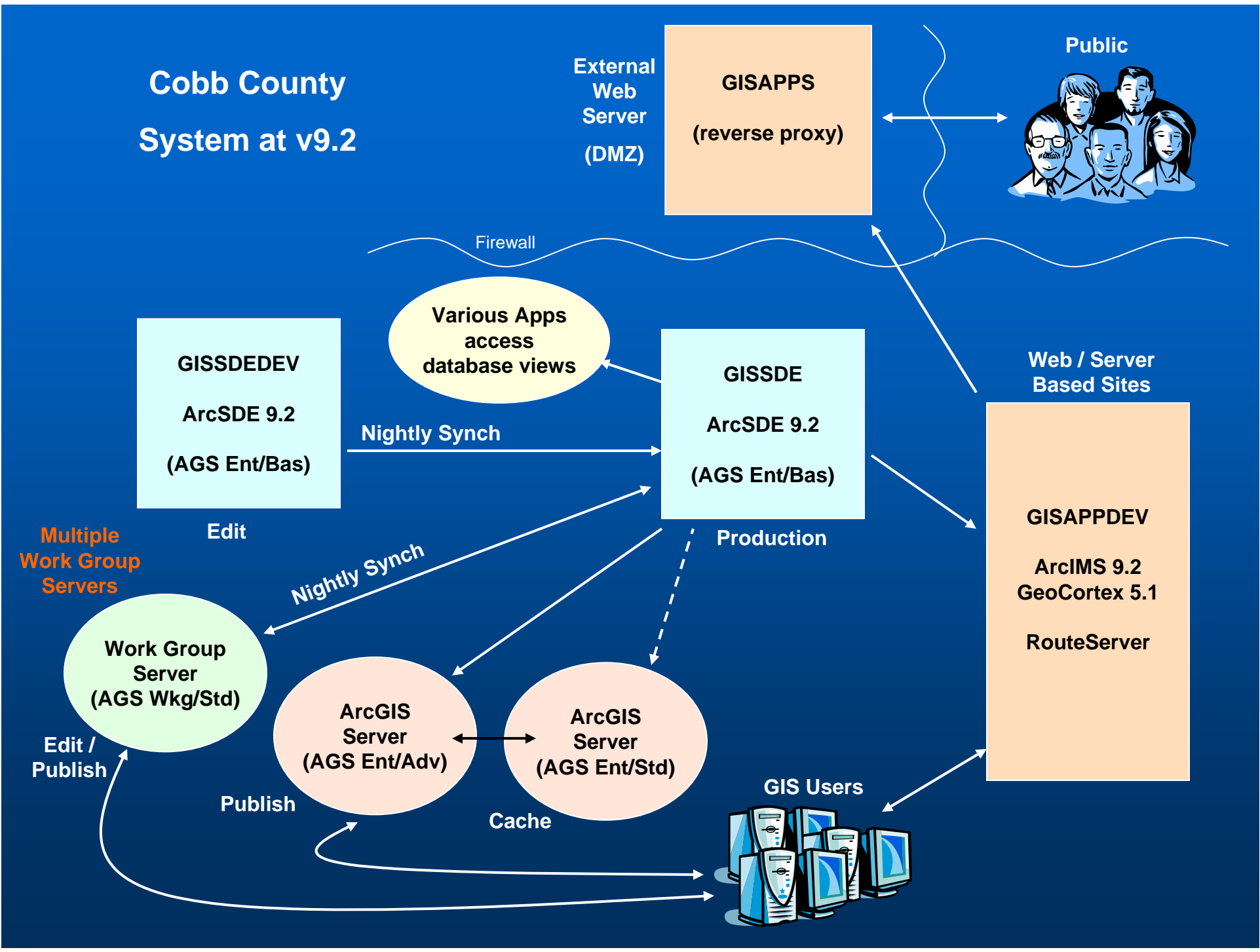
Production

Edit

Edit / Publish

Publish

Cache



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

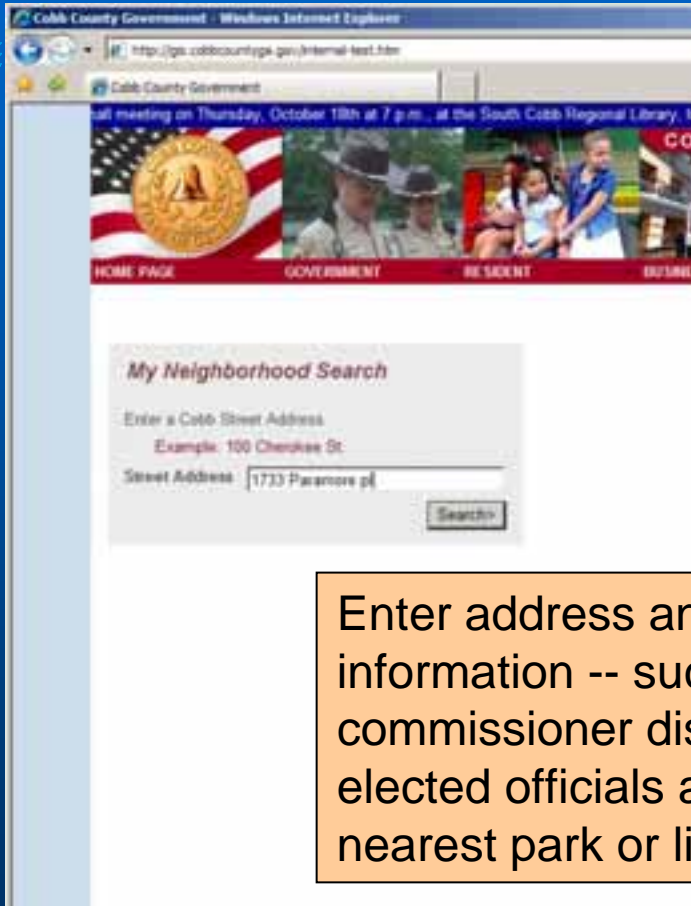


Leveraging ArcGIS Server

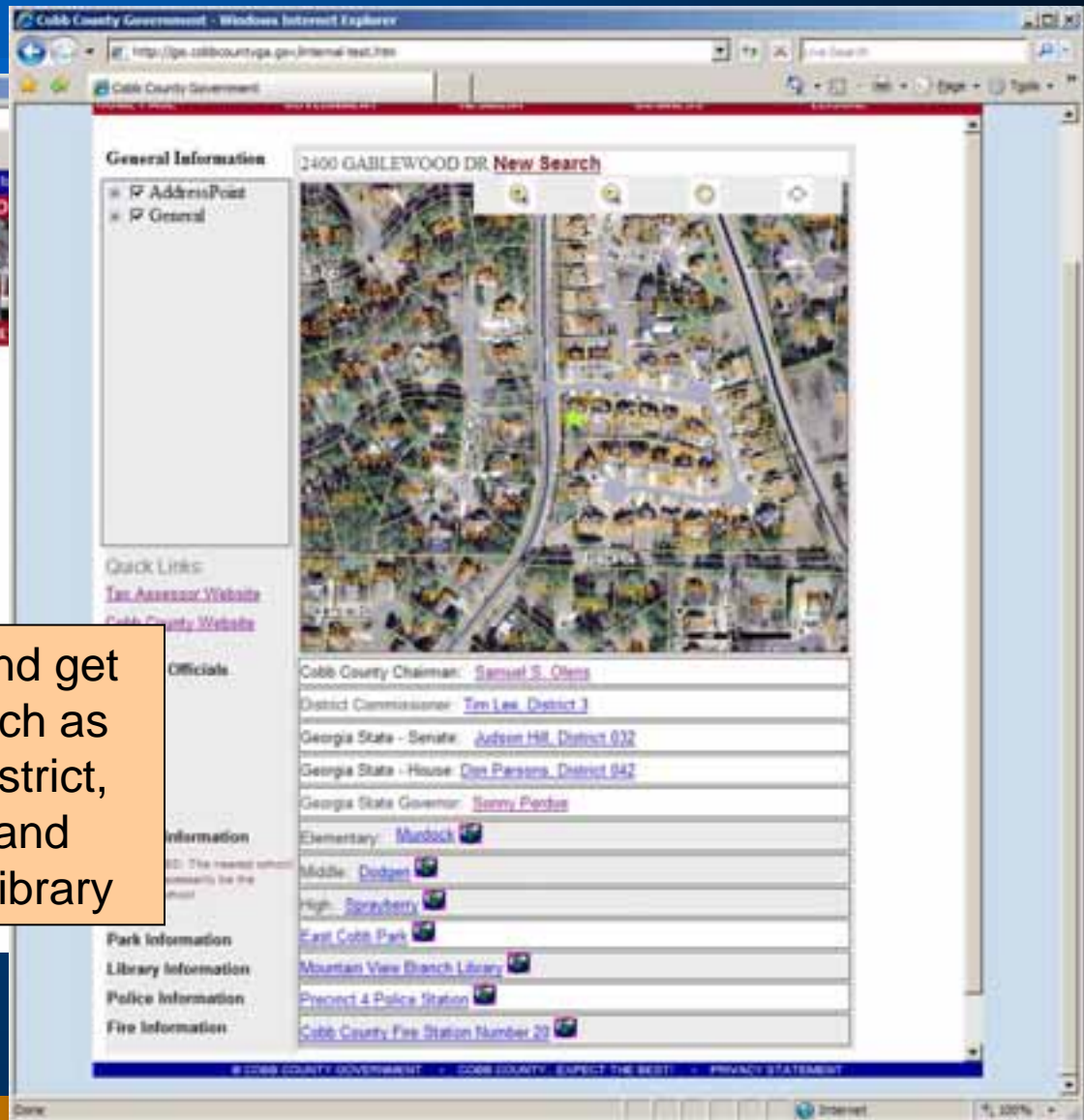
- Migrate current ArcIMS sites
- Develop new applications and Web services
 - MyCobbCounty website
 - Dashboards for department managers
 - Geoprocessing models



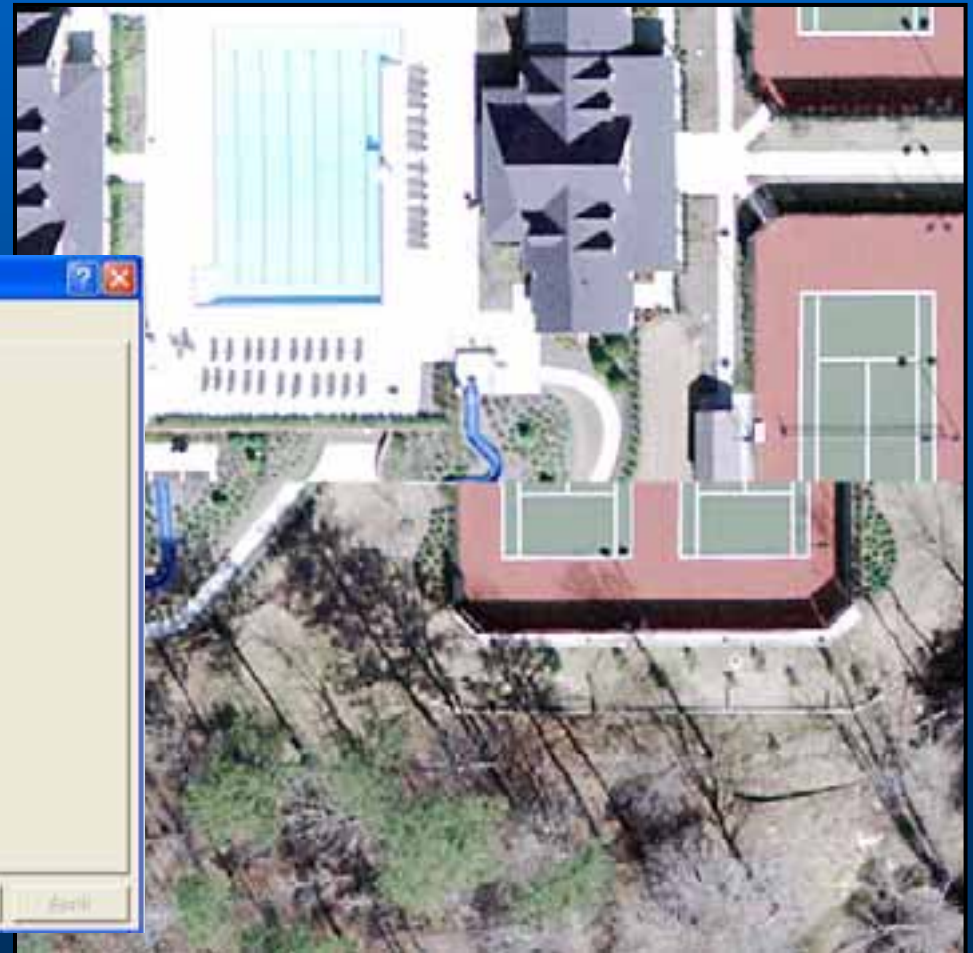
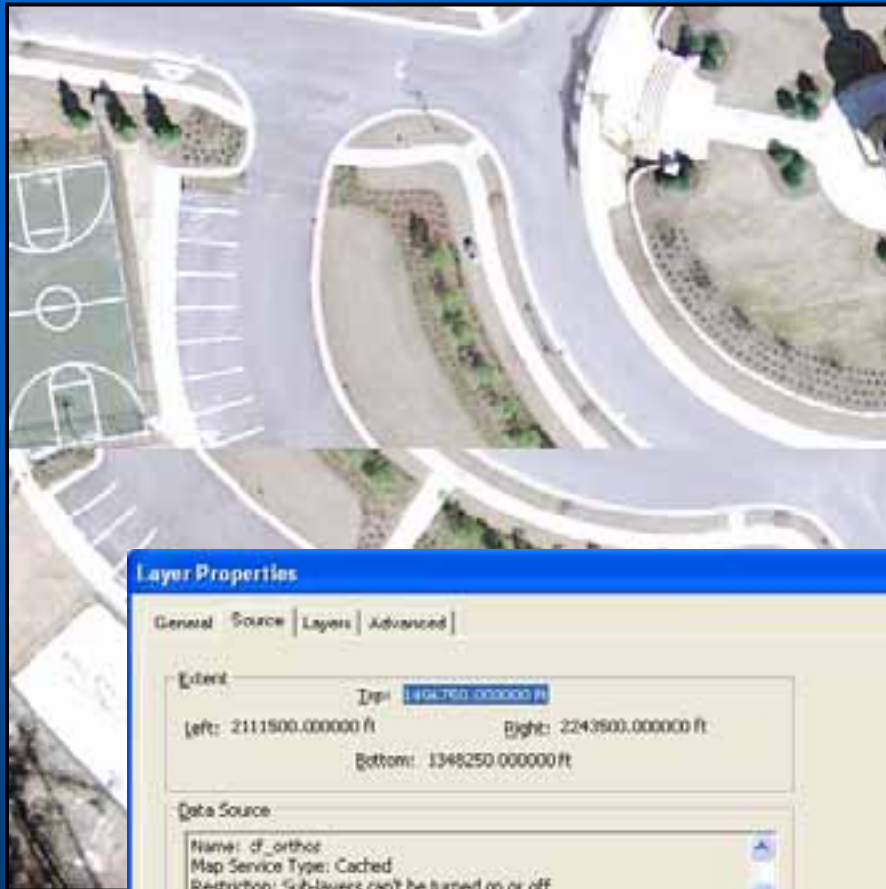
MyCobbCounty



Enter address and get information -- such as commissioner district, elected officials and nearest park or library



Ortho Cache Issue



Layer Properties

General | Source | Layers | Advanced

Extent

Top: 1492760.000000 ft

Left: 2111500.000000 ft Right: 2243500.000000 ft

Bottom: 1348250.000000 ft

Data Source

Name: cf_ortho
Map Service Type: Cached
Restriction: Sub-layers can't be turned on or off
Cache Scales:

- 1:600 (1 pixel = 0.520655 ft)
- 1:1,200 (1 pixel = 1.041311 ft)
- 1:2,400 (1 pixel = 2.082622 ft)
- 1:6,000 (1 pixel = 5.206556 ft)
- 1:12,000 (1 pixel = 10.413111 ft)
- 1:24,000 (1 pixel = 20.826222 ft)
- 1:50,000 (1 pixel = 43.402770 ft)
- 1:100,000 (1 pixel = 86.805540 ft)
- 1:200,000 (1 pixel = 173.611111 ft)

OK Cancel

Questions

*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

