Migration to ArcGIS 9.2: The Cobb County Approach

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Cobb County GIS

Topics

- County Background
- Planning Phase
- Testing Phase
- Implementation Phase
- Lessons Learned
- Questions

Background

- Cobb County GIS
  - Initial 5-Year Enterprise GIS Plan Approved by the BOCC in 1999
  - Database Development
    - Digital Orthophoto Base Map (2000)
    - Tax Assessor Parcels (2003)
    - Enterprise Transportation Network (2004)
  - Application Development
    - Desktop & Web-Based Applications

Background

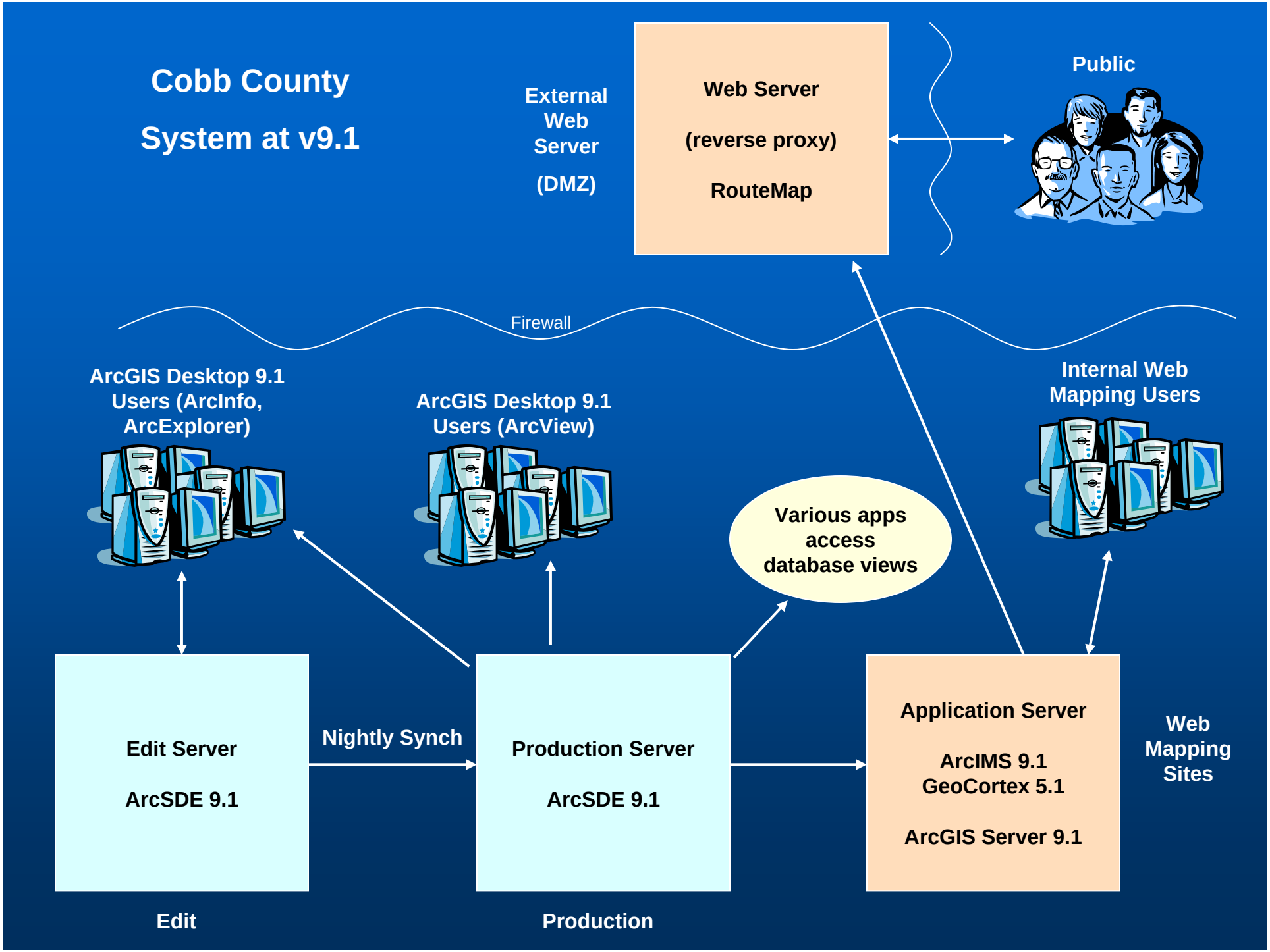
- ArcGIS 9.0
  - 28 Desktop licenses, 60-70 users
  - SDE Databases
    - Parcels
- ArcGIS 9.1
  - 42 Desktop licenses, 90-100 users
  - SDE Databases
    - Parcels, CobbETRANS

Planning Phase

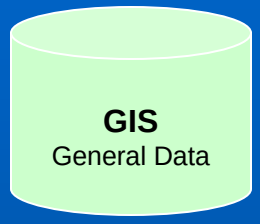
- Initial Information Gathering
- Impacts/Interdependencies
- Work Orders
- New Licensing
- Draft Migration Plans

Information Gathering

- Licenses
  - Desktop
    - 52 concurrent licenses
      - 10 ArcInfo, 17 ArcEditor, 25 ArcView
    - Over 120 users
  - Server
    - 2 ArcSDE
    - 2 ArcIMS
      - 9 Web sites, 11 Map services
      - 150,000 hits per month
    - 1 ArcGIS Server


Cobb County
System at v9.1
External Web Server
(DMZ)
Web Server
(reverse proxy)
RouteMap
Public
Firewall
ArcGIS Desktop 9.1 Users (ArcInfo, ArcExplorer)
ArcGIS Desktop 9.1 Users (ArcView)
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

Cobb County GIS Edit Server



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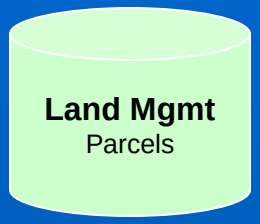

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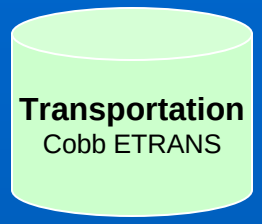

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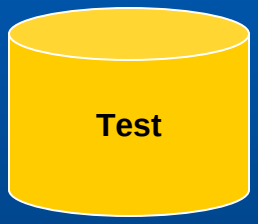
5154
dev_pubsafety



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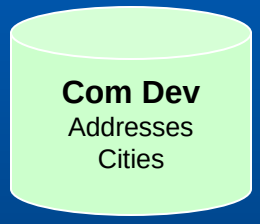
Database/Service Configuration



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5169
dev_e911trans

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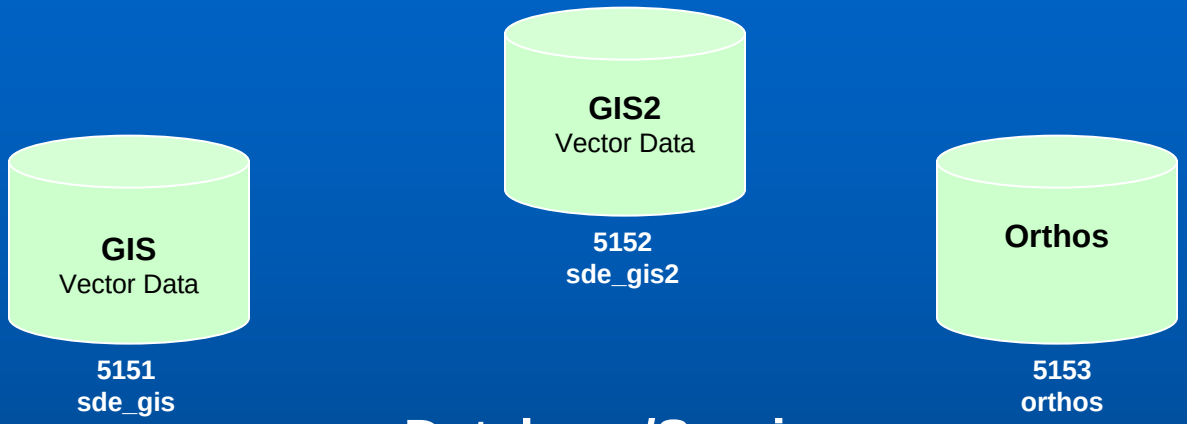
dev_ema

5158
dev_water

5157
dev_landuse

Cobb County
GIS Production Server



Database/Service Configuration

Information Gathering (cont'd)

- System Requirements
  - Minimum system requirements
  - .NET 2.0 requirement
- Magnitude of Changes to Underlying Objects
- Training Needs
  - What's new in 9.2
  - Workgroup server training

User-Identified Issues

- Common ArcGIS Desktop complaints
  - Cannot install ArcGIS 9.2
  - Unable to install ArcGIS 9.2 Service Pack 1
  - Un-installation error – reverting back to 9.1
  - Python scripts (version 2.1) do not run in ArcGIS 9.2
  - ArcSDE Connection SLOW after Desktop 9.2 install
  - Raster not readable, not aligned properly
  - Partial display of some dialog windows
  - Unable to install due to damaged .NET 2.0 components
  - CAD drawings very slow in ArcMap
- Didn’t see any complaints about server software

Impacts/Interdependencies

- ArcGIS Desktop
  - Cobb GIS Data Access Tool
  - Address Manager
  - CobbETRANS tools (for DOT and E911)
  - Zoning Builder
  - Crime Analysis Tools
  - Map Book
  - Municipal Annexation Model
  - Sex Offender Mapping
- ArcGIS Server
  - Geocoding Web Service
  - Sex Offender Application

Impacts/Interdependencies (cont'd)

- ArcSDE
  - Synchronization Scripts
  - Tuning Scripts
  - Database Views (Fire RMS and Street Checker)
  - DOT CobbETRANS Move to Workgroup Server (ArcGIS Server Workgroup/Standard)
- ArcIMS/GeoCortex
  - Web Mapping Sites (9 sites)
- Other Applications
  - MapLibrary

Procure Work Orders

- Several custom applications
- Vendor assistance might be needed
- Long procurement time
  - Request rate quotes from vendors
  - Execute work orders in advance

New Licensing

- ArcGIS 9.2 represented a shift in how ESRI marketed and sold ArcSDE, ArcIMS and ArcGIS Server
- How do we translate our current licenses into ArcGIS Server licenses?
- Met with ESRI representatives 3 months in advance

Our thoughts at this junction…

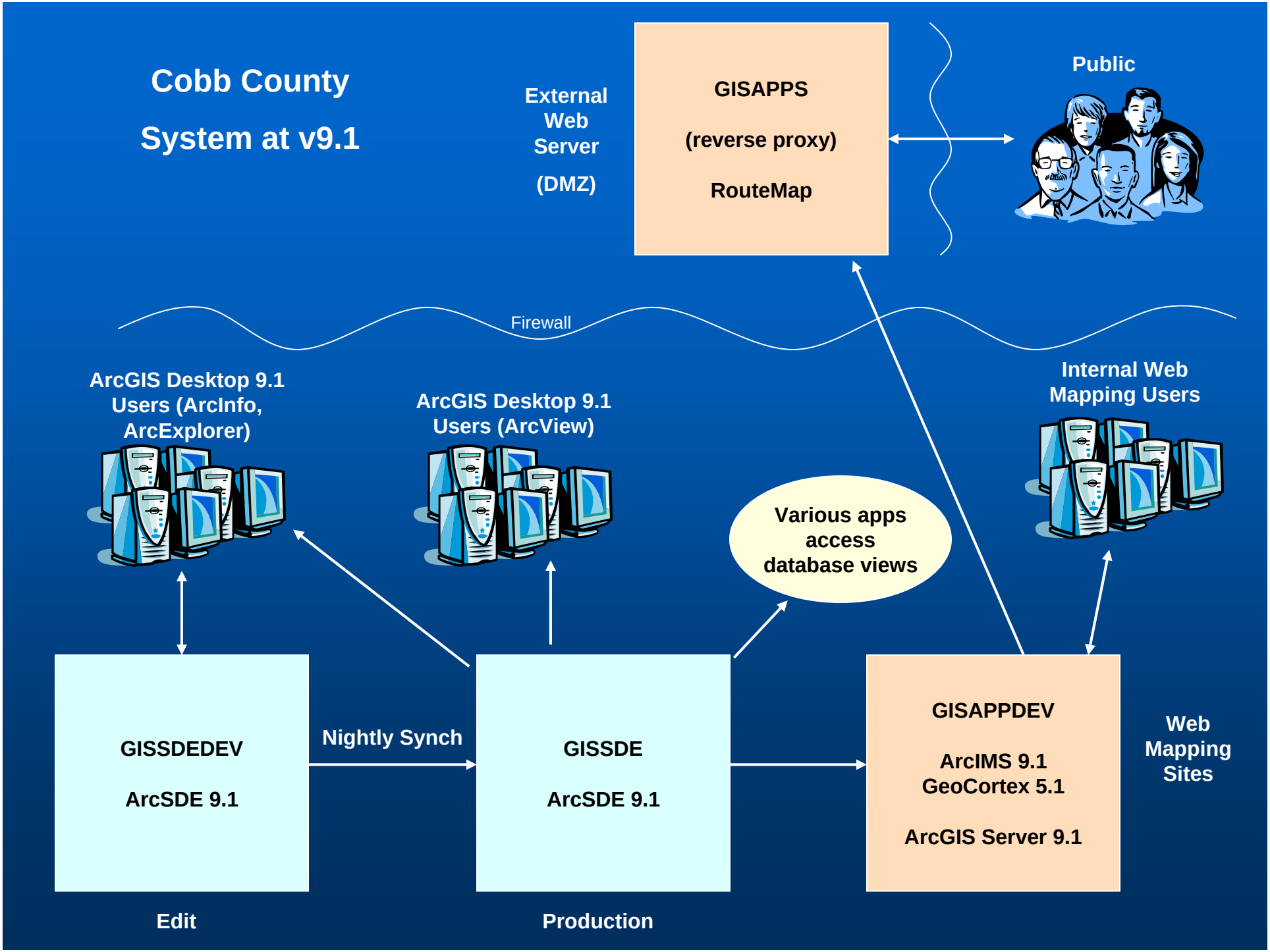
- Desktop Upgrade
  - Changes to ArcObjects appeared to be additions rather than changes to core
  - PCs provided biggest unknown (what else is installed?)
- Server Upgrade
  - Expected few changes with ArcIMS
  - For SDE, some concern over new topology, but otherwise okay
  - Unsure about changes to ArcGIS Server, but not many applications in production

Draft Migration Plans

- Desktop
  - Purchase test PCs
  - Create uninstall/install procedures
  - Set up test environment
  - Provide error reporting mechanism
  - Evaluate test results
  - Fine tune procedures
  - Upgrade software
  - Redeploy test PCs to departments
  - Monitor any issues

Draft Migration Plans (cont'd)

- Server
  - Set up test environment
  - Perform dry run of all conversion programs
  - Evaluate test results
  - Fine tune procedures
  - Upgrade software
  - Monitor any issues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GISSDE
ArcSDE 9.1
GISAPPDEV
ArcIMS 9.1
GeoCortex 5.1
ArcGIS Server 9.1
Web Mapping Sites
Edit
Production

Cobb County

Vision for v9.2

External Web Server (DMZ)

GISAPPS (reverse proxy)

Public

Firewall

Various apps access database views

GISSDEDEV

ArcSDE 9.2

(AGS Ent/Bas)

Edit

Nightly Synch

GISSDE

ArcSDE 9.2

(AGS Ent/Bas)

Production

Web/Server Based Sites

GISAPPDEV

ArcIMS 9.2
GeoCortex 5.1

RouteServer

Multiple Work Group Servers

Nightly Synch

Work Group Server (ArcGIS Server Wkg/Std)

Edit/Publish

ArcGIS Server (ArcGIS Server Ent/Adv)

Publish

ArcGIS Server (ArcGIS Server Ent/Std)

Cache

GIS Users

Testing Phase

- Set Up Test Environment
- Test Desktop/Server Software
- Evaluate Results

Set Up Test Environment

- Ensure existing system not interrupted/disrupted
- Desktop
  - Utilized new PCs
  - Obtained temporary ArcGIS Desktop licenses
  - Issues:
    - Crystal Reports issue
    - CD vs DVD

Set Up Test Environment (cont'd)

- Server
  - New servers
  - SQL Server 2005
  - Upgraded production databases on the new server
  - Issues
    - CD vs DVD
    - ArcSDE upgrade bug

Testing

- Test group consisted of departments that edit data
- Key areas
  - ArcGIS 9.2 in general
  - Custom desktop applications
  - Database synchronization scripts
  - Web mapping sites

Evaluation Results – Desktop

- Some critical issues were identified, but no show stoppers
  - Relative to severity of problem, discovery of suitable work around, and demand
- Some applications needed to be tweaked, while others required significant re-writes
  - Names of built-in modules changed – had to be renamed to new names/UID
  - CobbETRANS tools had to be rewritten
  - ArcGIS Server application had to be redeveloped
- Some geoprocessing functions still not working in 9.2. (haven't applied/tested SP2 yet)

Evaluation Results – Desktop

- ArcGIS Desktop
  - Cobb GIS Data Access Tool
  - Address Manager
  - CobbETRANS tools (for DOT and E911)
  - Zoning Builder
  - Crime Analysis Tools
  - Map Book
  - Municipal Annexation Model
  - Sex Offender Mapping
- ArcGIS Server
  - Geocoding Web Service
  - Sex Offender Application

Little or no changes required

Minimal changes required

Significant changes required

Evaluation Results - Server

- Once test environment set up, no issues were identified
- We have since run into the ArcSDE compression bug

Implementation Phase

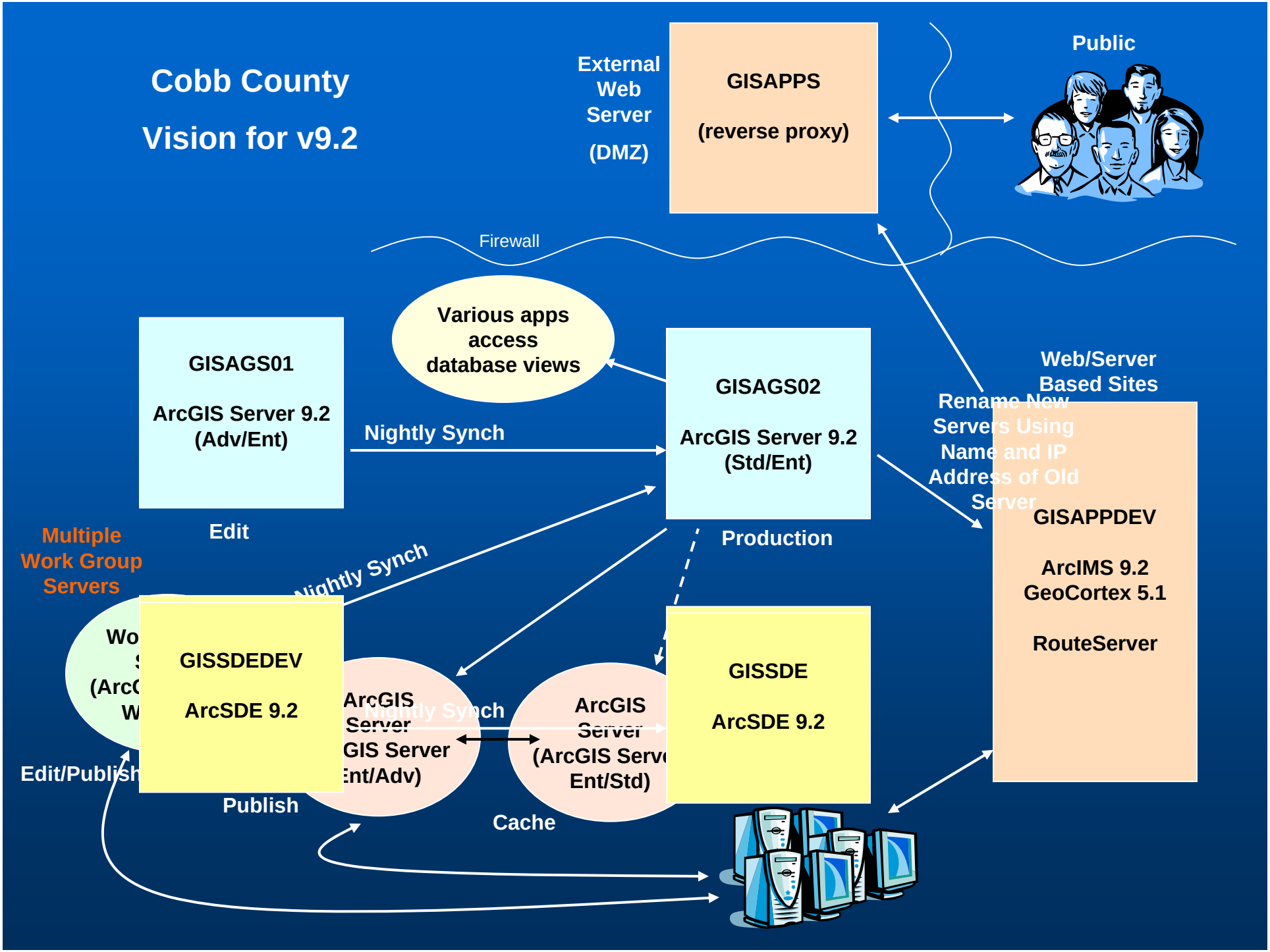
- Cross-Training Support Staff
- Software Upgrade
- System Monitoring
- Problem Resolution

Desktop Upgrade

- Put together a migration team
- Make/Distribute copies of software media
- Copy media onto the server (for machines without DVD drives)
- Established uninstall procedure for 9.1
- Established installation procedure for 9.2
  - Installation folder - based on past experience
- Establish migration order
  - Viewers first, editors last

Server Upgrade

- Upgrade ArcIMS server early
- ArcSDE production server
  - Databases already in place
  - Changed server name
  - Ran synch scripts after edit server upgraded
- ArcSDE Edit server
  - Ran backups on old server
  - Changed server name
  - Restored backups to new server
  - Ran 9.2 upgrade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ArcGIS Server 9.2 (Adv/Ent)
Nightly Synch
GISAGS02
ArcGIS Server 9.2 (Std/Ent)
Web/Server Based Sites
Rename New Servers Using Name and IP Address of Old Server
GISAPPDEV
ArcIMS 9.2
GeoCortex 5.1
RouteServer
Multiple Work Group Servers
Edit
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Nightly Synch
GISSDEDEV
ArcSDE 9.2
Edit/Publish
Publish
ArcGIS Server (ArcGIS Server Ent/Adv)
Nightly Synch
ArcGIS Server (ArcGIS Server Ent/Std)
Cache
GISSDE
ArcSDE 9.2

Monitoring & Problem Resolution

- Communicate errors/issues to project manager
  - Screenshots highly desirable
  - Problem resolution
- Project manager communicates daily with all team members

Post-Rollout Results

- Relatively painless
- Clean install worked better in some cases
  - But nowhere near as bad as perception from user forums
- Database upgrade turned out to be more difficult than desktop
- Production database upgrade turned out to be more difficult than development databases

Lessons Learned

- Planning pays off
  - Keep inventory of applications
- Fortunate to set up parallel test environment
- Be sure to remove ArcMap add-ons
- Don’t have to rollout everything at once; spread over week
- Be careful trying to change too much
  - New hardware, ArcGIS 9.2, SQL Server 2005
- Don’t jump too soon…
  - …On pessimist bandwagon

Questions

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