Planning Enterprise Geodatabase Solutions

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What is an Enterprise Geodatabase Solution?

- GIS is central to business operations, often mission critical
- Follows mainstream IT processes and standards
  - Deployed and managed like other IT systems
- Integrated with other business systems
- Multi-user, multi-department user base
- Requires a higher level of planning, integration, testing and support
Topics to Consider

• Requirements Confirmation
• Geodatabase Design
• Geodatabase Development
• Geodatabase Quality Control
• Maintenance Approach
• Deployment
• Operations & Maintenance, Support
Requirements Confirmation

- Based on business requirements
- Content needed to support information products
- Involve stakeholders with interviews, questionnaires
- Geodatabase vs. services
- Data management strategy
- Integration with other business systems
- Database requirements drive overall system architecture
Data Management Strategy

- Geodatabase design is a part of overall data management strategy
  - Data management strategy is addressed as part of the system architecture design process
  - Requires analysis of requirements for data distribution, access, maintenance, versioning, and replication
  - Consider your organization’s standards and other applicable standards
  - Data maintenance and stewardship
Geodatabase Design

- Conceptual Design
  - Identify data layers, groups
  - Spatial reference

- Logical Design
  - Attribute definition
  - Domains, relationships
  - Topology rules

- Physical Design
  - Database instances
  - Schema creation
  - Versioning, replication
  - Symbology
Geodatabase Development

- Populating the database
- Data Conversion – digitization of new geospatial data
  - Hardcopy source
  - Extraction from imagery
- Data Migration – moving existing digital data from one format or platform to another
  - Extract, transform, and load (ETL)
- Data Collection – capture new data in field, other collection platforms
  - Field data collection with mobile devices
  - Remotely sensed data – imagery, LIDAR
### Geodatabase Development

#### ETL Approaches

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<th>ArcCatalog</th>
<th>ArcGIS Data Interoperability Extension</th>
<th>Production Mapping Data Loader</th>
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<td><strong>Easy to use</strong></td>
<td>• Out of the Box—No additional licenses needed</td>
<td>• Easy to use GUI</td>
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Geodatabase Quality Control

- Quality Control
  - Quality Assurance Plan
    - Defines overall quality control approach
  - Pilot database
    - Use a significant subset or complete set of data
  - Test Plan
    - Testing tools
    - Test cases – automated, visual inspection

*ArcGIS Data Reviewer*
Maintenance Approach

- Data maintenance strategy is essential to achieve consistent data quality
- Plan and manage geodatabase maintenance workflows built around business processes
- Quality control processes, tools
- Defining versioning specifications and workflows
- Workflow management systems for handling versions
  - ArcGIS Workflow Manager (JTX)
  - ArcFM and Network Engineer (utility industry)
Deployment

• Enterprise Geodatabase Deployment Challenges
  - Integration of components across multiple departments or locations
  - Components from multiple vendors
  - Variations in network connectivity
  - Potentially disparate user community with different GIS skill levels
  - Usually involves deployment in multiple environments
    - Test environment for UAT
    - Deployment to production environment
    - Regression testing

• Prepare and follow Deployment Plan
Support, Operations & Maintenance

- User support
  - COTS training
  - Custom training
  - On-the-job support

- Geodatabase tuning and optimization
  - Initial tuning
  - Performance monitoring
  - System maintenance (HW, SW)

- Periodic reviews
  - Clear versions
  - Tuning
  - Review workflows