

WMATA Enterprise GIS Architecture

Ed Wells, WMATA, GIS Manager

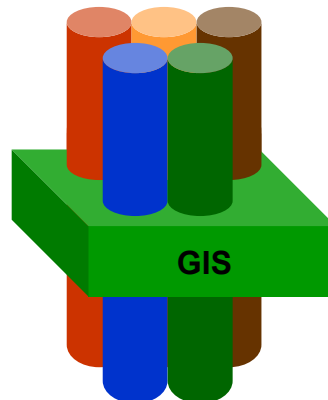
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Role of GIS

GIS is a service, not an application.

GIS owns few business processes and supports many, in four ways:

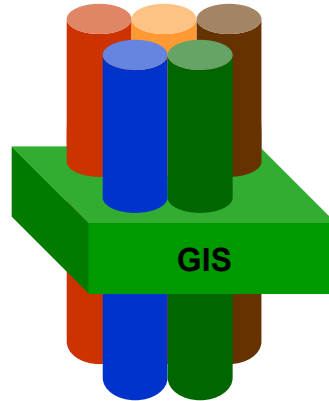
- Geographic data base display
- Geographic data capture
- Data integrity testing
- Data integration



Business Profile

Common processes (15 departments):

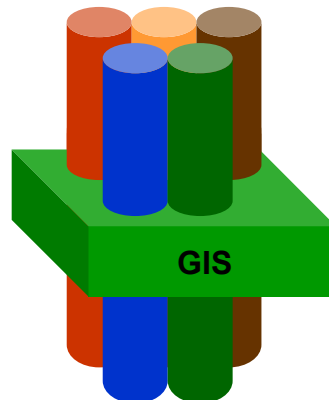
- **Land and fixed asset management**
- **Transit operations (rail, bus, van)**
- **Security**
- **Planning**
- **Public information**



Business Profile

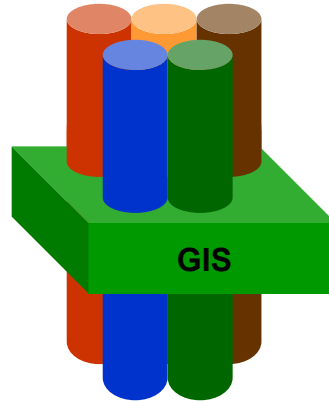
Common processes (15 departments):

- **Land and asset management**
 - ELES, EMIH, 3MS, PLNT, SAAM, SURV, TSSM
- **Transit operations (rail, bus, van)**
 - ACCS, BTRA, OPAS
- **Security**
 - MTPD
- **Planning**
 - BPPD, OPAS
- **Public information**
 - CSVC, IT-EWPG



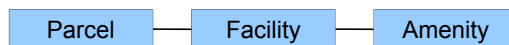
Key Business Application Interfaces

- **Asset Management**
 - Maximo, Optran, PeopleSoft,
 - AutoCAD, AutoCAD Map
- **Bus and rail operations and planning**
 - ROCS, AIMS, RPM
 - Trapeze, Orbital, Clever, Farebox, ATIS
 - ArcView, TransCAD
- **Security**
 - PSSI



Core GIS Data Architecture

Fixed Asset Inventory



Transit Operations



- Stops, time points, chain markers, waypoints
- Patterns, routes, lines
- Performance (vehicles, trips, blocks)

Areas and Events



External Data



Enterprise GIS Architecture: Business Considerations

- **Key Business Needs**
 - Serve available data
 - *CAD data, documents, GIS data*
 - *Add geographic value*
 - Make simple apps available
 - *Desktop software, web viewers, dashboards, reports*
 - Define and set standards/practice/key datasets
 - *Metadata, QA tests, common base layers, remove duplication*
 - Enable mobile architecture
 - *Hand-held devices, versioning*

Enterprise GIS Architecture: Operational Considerations

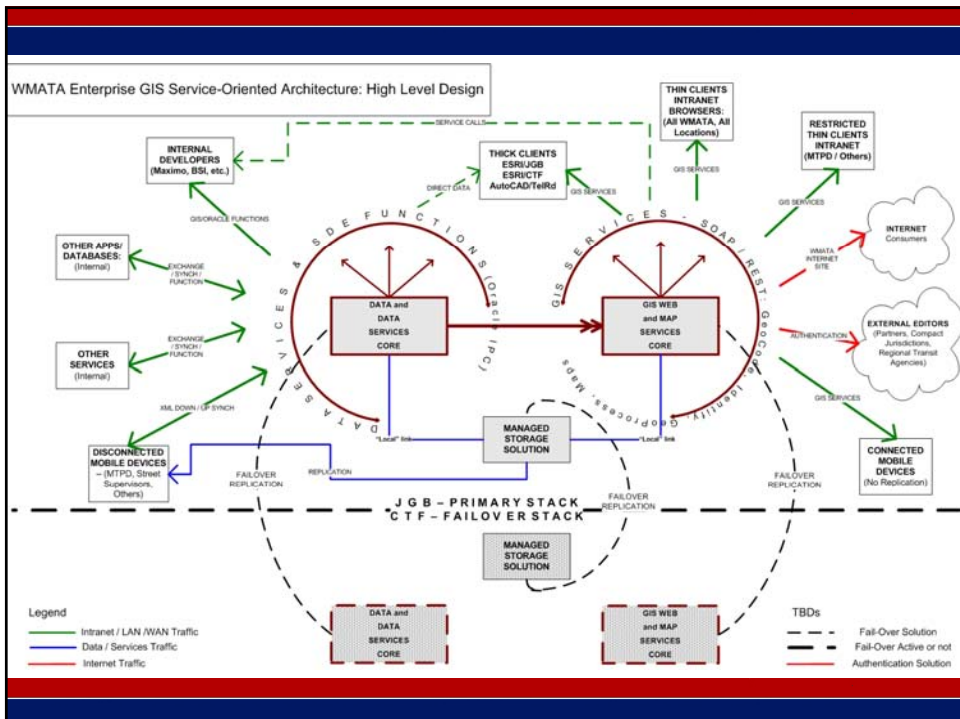
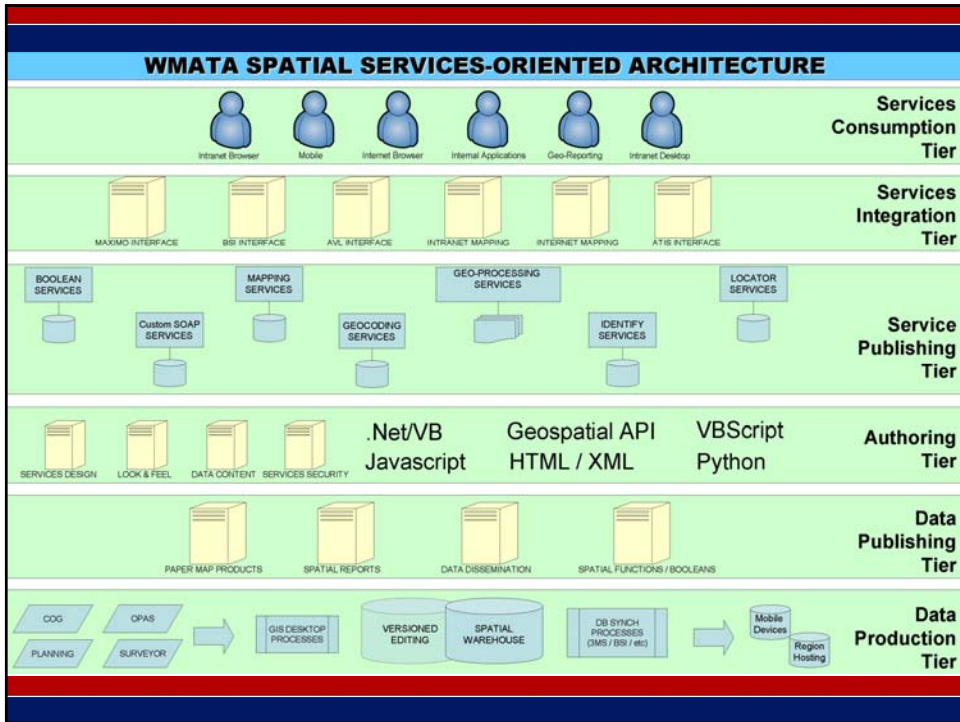
- **Key Enterprise Needs**
 - Low level integration
 - *Calls from Oracle-based apps: SQL functions*
 - High level integration
 - *Interface to interface: Web map call to Maximo service*
 - Systems/Data integration
 - *Data exchange, maintenance, overnight updates, Oracle jobs: AVL, Asset Mgmt.; Document repository*
 - Enterprise environment
 - *Automated deployments, patch management, license management*
 - Nimble application development
 - *Architecture, development/staging/training environments*

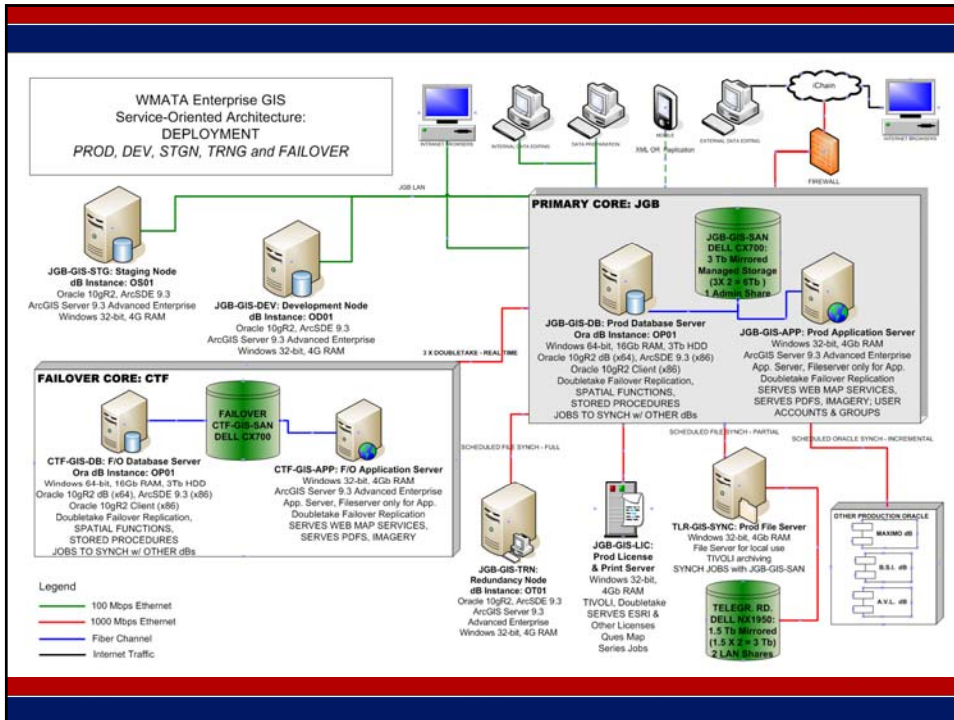
Five Components of Enterprise Architecture Design

- **Architecture Strategy and Design**
 - *What are the information flows and standards*
- **Infrastructure and Systems Architecture**
 - *How will physical realization occur, how will users interact*
- **Data Architecture**
 - *What data will be stored, reported*
- **Process Architecture**
 - *How will data be maintained and standards enforced*
- **Applications Architecture**
 - *How will information be used, how will value addition occur*

WMATA GIS Enterprise Architecture

- **Service Tier Diagram**
 - *Service production and use*
- **Design Diagram**
 - *Data flows*
- **Deployment Diagram**
 - *Physical System*





Questions and Discussion

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