The Oracle Enterprise Geodatabase (EGDB)

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Todays Goals

- Enterprise geodatabase defined
- Roles Oracle can play in EGDB
  - Robust container/repository
  - Spatially intelligent application
- Case studies
- Reasons you might choose Oracle
Farallon Geographics

- Strategic and implementation planning
- Enterprise-class GIS implementers
- Data centric
- EGDB expertise
  - ArcSDE
  - Oracle/Oracle Spatial
  - SQL Server
- Application development
Oracle Partner

“Farallon helps us understand real-world deployment issues, and we keep Farallon at the forefront of Oracle's direction in location technology. Farallon has been a top participant in our 9i and 10g beta testing programs.”

-Jim Farley, Principal Product Manager, Spatial and Location Technologies, Oracle Corporation
"Farallon has developed a very successful track record of ESRI implementations working with ArcSDE, ArcGIS, ArcView, and ArcIMS. We are very impressed with Farallon’s proficient implementation methods and understanding of ESRI products."

-Lee Johnston, ESRI Regional Manager CA/HI/NV
The “Legacy Approach”

- File based spatial data (ie, shp, dgn, mdb)
- Geographic tiling
- Data sharing = data copies
- Security?
- Concurrent usage?
- Productivity limitations
- Data integrity limitations
The “Legacy Approach”

Potential duplication of data and effort.

Data transferred between departments/organizations may require conversion.
What is an Enterprise Geodatabase (EGDB)?

**Enterprise:**
- Multi-department/multi-user
- Secure, scalable
- High availability

**Geodatabase:**
- Any database management system with geographic data capabilities
- Spatial indexing
EGDB is also...

- Data model
- Data
- Spatial business rules/topology
- Maintenance workflows
- Metadata
- Standards
- Applications / portals
The EGDB Approach

Centralized Data Repository

Financial Data  Spatial Data  Other Data

Business Data

INTRANET OR INTERNET  CLIENT

SERVER

Assessor  Finance  Engineering  Planning
Oracle Capability Overview

- Traditional Oracle advantages for data (performance, security, indexing, replication, availability...)
- Concurrent multi-user transactions
- Scalability (Gb to Tb), grid computing
- Flexible architecture
- Oracle Application Server functionality (ie, financials, HR, CRM, portal...)
- Long transactions
- Performant database-level joins and views
Oracle Spatial

- Native Oracle geometry types – SDO, GeoRaster
- Store and index vector and raster in the database
- Combine spatial data and attribute data
- Standard SQL access to spatial data/operations
- Direct interoperability across GIS products
- LRS, geocoding, networks, topology
- Buffer generation, centroids, area and length calculations, aggregate functions
Roles Oracle Can Play in EGDB

- Robust container/repository
  - “Best of Breed” GIS

- Spatially intelligent application
  - Spatially aware business management system
2- and 3-Tier Architecture

- **Read**
- **Write**
- **Long Transactions**

**ArcGIS**

**Non-GIS App**

**MapInfo**

**ArcSDE/ArcServer**

**ArcIMS**

**EGDB**

**Direct Read**

**Internet Browser**
Role 1: Robust Repository

- “Best of Breed” GIS (ie, ArcSDE and Oracle)
  - Control in the client and application tier
  - Common API for all ESRI products
  - RDBMS independent (portability)
- RDBMS as container (ie, SDE Blob or SDO)
- GIS application-tier control (ie, ArcSDE or ArcServer)
  - Business rules, topology, versioning
- Leverage power of RDBMS
  - Transactions, security, scalability
Role 2: Spatially Intelligent Application

- Data-centric philosophy
  - Spatially aware business management system
  - Multiple input and access points
  - Data outlives GIS apps
  - Centralized constraints and control
- RDBMS as active spatial data system
  - Store geometry and raster data in SDO geometry
  - Application functionality (LRS, geocode, networks)
- Database-tier control
  - Business rules, topology, versioning
- Fully leverage power of RDBMS
  - Transactions, security, scalability, SDO
Case Study – Federal Agency

Business Objective
- Best of breed GIS system to support capable GIS team to meet mapping and output goals

Configuration
- Single enterprise-wide ArcSDE repository
- Data maintained once in a central repository on Oracle
- ArcGIS for rich client functionality and map production
- ArcIMS for dissemination to wider audience

Benefits
- High quality output
- Consistent GIS environment
- Increased performance to ESRI apps
- Support for geodatabase object models
- Common API for all ESRI products
Case Study: Water Utility

- **Business Objective**
  - Best of breed GIS and the need to integrate, or spatially enable, multiple existing systems. Client standards: Oracle and ESRI

- **Configuration**
  - Geometry in ArcSDE using Oracle Spatial data types
  - Attributes stored in distributed Oracle databases
  - Access geometry and attributes using DB Links, Views, Materialized Views and creative SQL queries

- **Benefits**
  - Flexibility
  - Multi-user concurrency
  - Multi-vendor access to spatial data
  - Spatially enable non-GIS applications
  - Leverage existing knowledge base
Case Study – Environmental Management

Business Objective
- Need multiple users, departments, and organizations to be able to enter, manage, and review current spatial and business information from non-GIS applications and interfaces

Configuration
- Oracle spatial data types
- Spatial business rules in DB
- Dynamic spatial data management
- Multiple input interfaces, most not GIS

Benefits
- Multi-user concurrency
- Efficient data capture and analysis
- Data integrity and currency
When to choose Oracle

- Existing Oracle investment (systems/expertise)
- Scalability (> 500MB)
- Non-MS Windows environment
- High usage or transaction volume
- Business need to support multiple GIS vendor software
- Integration with non-GIS systems (esp. Oracle-based applications)
Thank you for attending!

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