Introduction to Oracle Spatial 11g

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Agenda

• From GIS Analysis to Location Intelligence – Enterprise Geospatial Applications with Oracle

• Overview of Spatial Technologies
  • Oracle Spatial
  • Oracle Mapviewer
  • BI and Apps
  • Exadata

• Discussion
  • Questions
Every Business Application is Location-enabled, not Just GIS Applications

- Oracle BI EE
- Oracle Transportation Management
- Phase Forward
- Mobile CRM
- Primavera P6 Project Management
- Oracle Universal Content Management
- Oracle Communications UIM
Location-enabled Enterprise IT Architecture

Core IT Software Infrastructure

- Spatial Types
  - Vector
  - Raster
  - Networks
  - 3D
- Spatial Analysis
  - Network Trace
  - Buffer, etc.
- Standards
  - SQL, W3C, OGC

Fusion Middleware

- Integration Bus
- Orchestration & Workflow
- BPM
- Map rendering
- Web Services
- Caching & connection pooling

Business Apps & Services

- Business Intelligence
- Work & Asset Management
- CRM
- Outage Management
- Customer Billing
- Meter Reading

Oracle Spatial

Exec. Dashboards
Customer Care
Regulatory Compliance
Performance Monitoring
Mobile Delivery
Web Services
What’s the difference between what Oracle has and a GIS?

- Fusion Middleware
- MapViewer
- Oracle Database
- Oracle Spatial
  - Raster
  - Networks
  - 3D

- JDBC
- HTTP
- SOA

“A GIS is a unique kind of database of the world.”
“In repeated surveys, IDC has found that Oracle is used in 80-90% of medium-sized and large enterprise spatial information systems.”

“We expect Oracle to continue to expand its presence in both established and emerging SIM markets.”

Oracle Value Proposition

Enhance Oracle Database and Oracle Fusion Middleware Application Server with location analysis and mapping
  • Oracle Locator, Oracle Spatial, MapViewer
  • Mature technology – 15 years, 5 major releases

Enable enterprise business applications
  • CRM, business intelligence, Enterprise Resource Planning, Asset Management, Field Service, Supply Chain, etc.
  • Adopt location capabilities already in DBMS and app server

Commitment To Standards
  • Open Geospatial Consortium (OGC)

Partner With Leading Vendors
  • Integrators: Solutions implementation
  • Data suppliers: World wide map and imagery content
  • Geospatial software vendors: Specialized tools
Oracle Spatial in Mapping Organizations

- SLOVENIA
- ITALY
- NETHERLANDS
- INDONESIA
- RUSSIAN CADASTRE
- DENMARK
- UK
- SWEDEN
- CROATIA
- GERMANY
- SERBIA
- CHINA LAND MAPPING & PLANNING ACADEMY
- LUXEMBOURG

Oracle Spatial
## Oracle Spatial Partners

### Geospatial Tool Providers
- Autodesk
- Intergraph
- GE Energy
- Leica Geosystems
- PitneyBowes MapInfo
- eSpatial
- Safe Software
- Bentley Systems
- caris
- Dacon
- EXOR
- Skyline
- manifold.net
- Spatial
- STAR-APIC
- Snowflake Software
- PCI Geomatics

### Specialty Systems Integrators
- Baker
- Farallon Geographics Inc.
- Fichtner Consulting & IT
- Geodan
- Geomatic Technologies
- Johnston McLamb
- KOREM
- NAVIGATE
- RealWorld Systems
- Spatial Business Systems, Inc.

### Data Providers
- NAVTEQ
- DigitalGlobe
- Tele Atlas
Product Overview
Key Technologies

Data: Manage commercial and customer geospatial data (Oracle Database includes NAVTEQ boundary data for 60+ countries)

Geocode: Convert addresses into coordinates

Analyze: Find Proximity, Location, Containment

Display: Add Maps & Reports to your Application
Integrating Rich Data

Geo-spatial Data
- Road Networks
- Administration Boundaries
- Satellite Imagery
- Private, government, and open source data products
Managing All Your Geospatial Data

- "Points"
- "Lines"
- "Polygons"
- Web Services
- (OGC)
- Rasters
- Networks
- Topologies
- Geocoding
- Routing
- 3D
Geocode:

Generates latitude/longitude (points) from address
International addressing standardization
Formatted and unformatted addresses
Tolerance parameters support fuzzy matching
100% Java, open and scalable
Record-level and batch processes
Data provided by leading data vendors
Analyze: Geospatial Data

Find all competitors within 2 miles of Northport Branch

```
SELECT c.holding_company, c.location
FROM competitor c,
    bank b
WHERE b.site_id = 1604
AND SDO_WITHIN_DISTANCE(c.location, b.location, 'distance=2 unit=mile') = 'TRUE'
```
Display: Generate Powerful Maps
Oracle Spatial 11g
Priced Option of Oracle Database 11g Enterprise Edition

Linear Referencing

Spatial Web Services

3D, Point Clouds, and LIDAR

Geocoding & Routing

Planar Networks

Raster Imagery
Oracle Locator

Included in Oracle Database - ALL Editions
Support for all geometry types
• 2D data support
• All Spatial Operators
• Functions such as distance, buffer, validation
• Full Coordinate Systems support
• Spatial Aggregates
• Utility & tuning packages
• Long Transactions
• Parallel spatial query & index builds
• Table Partitioning
• Object Replication

Oracle Spatial 11g

Priced option for Oracle Database Enterprise Edition
• Includes all Locator features
• Additional Spatial Functions
  - union, intersection, difference, etc
• Linear Referencing Support
• GeoRaster Data Type
• Topology Data Model
• Network Data Model
• Geocoding Engine
• Routing Engine
• Spatial Analysis & Mining Functions
• 3D Support
• OGC Web Services
  - Web Feature Server
  - Web Catalog Server
LiDAR Imagery Example

- 716,800,000 points/sec
- Each point has attributes and can be visualized in 3D applications
Oracle Fusion Middleware MapViewer

- Feature of all FMW application server products (WLS, OAS, TopLink/ADF deployment option)
- Standards-based J2EE and Java Server Faces component
  - XML/HTTP, Java/AJAX
  - Runs in J2EE containers and Java IDEs
- Publish spatial data to the web
- Map and feature cache provides smooth scroll (pan, zoom)
- Rich Java, XML, JavaScript APIs provide client side interactivity
- Centrally managed map definitions, symbology, and styling rules
Spatial Analysis and Maps in Oracle Applications, Tools and BI

Oracle JDeveloper

Oracle BI EE

Oracle Utilities
Mobile Workforce Management
Oracle Exadata
Extreme Performance for Spatial Workloads

• Oracle Spatial is architected to exploit the processing power, bandwidth and parallelism of the Exadata Database Machine
• Spatial operations can be performed in up to 2 Terabytes of Database System Global Area memory per rack
• Exadata Hybrid Columnar Compression of point data sets reduces storage requirements
Summary

Oracle delivers location analysis and mapping to enterprise applications for better decision making and customer service

- Integrate location information with business data
- Enrich business information with map graphics
- Enhance business processes with location analysis
- Support multiple vendor tools/apps using single valid source of geospatial data and open standards
- Deploy a single IT architecture for your business applications and mapping solutions
- Leverage Oracle scalability, security, and reliability
- Reduce cost & risk, increase productivity & ROI
Oracle Spatial Resources

- oracle.com/technology/products/spatial
- oracle.com/goto/spatial
- Oracle Technology Network site
- White papers, downloads, docs, demos, case studies, partners, forum
- OTN Spatial → Quick Picks or amazon.com
- Oracle.com
  - Customer profiles, podcasts, webinars