Oracle Spatial and Graph
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Agenda

- Oracle Spatial and Graph
- Graph Capabilities
- Q&A
Oracle Spatial and Graph

Complete
Open
Integrated
Most Widely Used
Open and Interoperable

Oracle Spatial and Graph
Oracle’s Spatial Capabilities
Oracle Spatial and Graph option

Spatial Features

- Spatial Data Types and Models
- Spatial Indexes and Analysis
Native Spatial Analyses

Acquiring rights-of-way for a proposed road widening project

SELECT a.owner_name, a.acquisition_status
FROM properties a, projects b
WHERE sdo_within_distance (a.property_geom, b.project_geom, 'distance = .1 unit = mile') = 'TRUE' and b.project_id=189498;
Graph Database Capabilities
Oracle Spatial and Graph
Mature, Proven Graph Database Capabilities

Graph Features

- Network Data Model graph
- W3C RDF Semantic graph
Network Data Model Graph

Use Cases

- Transportation, Road and Multimodal Networks
- Drive Time Polygon Analysis
- Trade Area Management
- Service Delivery Optimization
- Water, Gas, Electric Utility, Network Applications
Network Data Model Graph

Features

- A storage model to represent graphs and networks
- Graph tables consist of links and nodes
- Explicitly stores and maintains connectivity of the network graph
- Attributes at link and node level
- Logical or spatial graphs
- Can logically partition the network graph

- Java API to perform Analysis in memory
- Loads and retains only the partitions needed
- Dynamic costs with real time input
- Shortest path, within cost, nearest neighbors
- Traveling salesman, spanning tree, ...
- Multiple Cost Support in Path/Subpath Analysis
Network Data Model Graph
Large Scale Drive Time/Distance Analysis

- Millions of customers, find closest store within a specified drive time
- Single database query to find closest store and drive time/distance for each customer
- Customers geocode as based on graph segment
- Network Buffer generates all possible paths
Multi-Modal Routing

- Each mode (car, bus, rail, bike, etc) modeled as a separate network
- Single logical network represents all modes of transportation
- Transition nodes where networks meet
- NDM APIs can specify the modes
- Out of the box support for transit data published by transit authorities

- [Link to Oracle Multi-Modal Routing documentation](http://docs.oracle.com/cd/E16655_01/appdev.121/e17897/toc.htm)
Benefits on Oracle Exadata Database Machine
Extreme Performance for Spatial Workloads

- Exploits Exadata’s processing power, bandwidth, parallelism, security, compression, partitioning services
- Breaks new boundaries for ingesting spatial data
- Data warehouse performance 100x faster
- Box and distance queries up to 25x faster
- Extreme compression for point data sets with EHCC
- Deployments in government, national cadastres, energy, retail, transportation, communications, social fitness apps
Oracle Spatial and Graph

Proven, industry-leading technology

Dramatically improved performance

Simpler, more scalable applications

Engineered for Exadata