Visualizing Data Using Maps in OBI 11g

Collaborate 2011
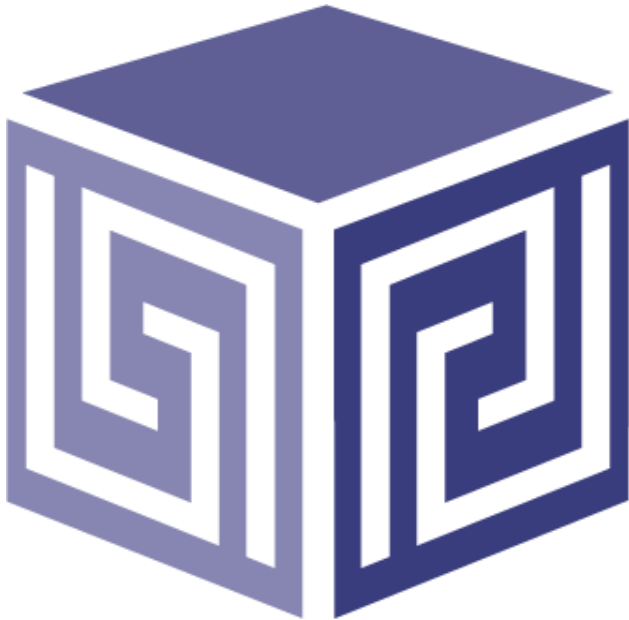
Tim Vlamis
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Vlamis Software Solutions, Inc.

- Founded in 1992 in Kansas City, Missouri
- Oracle Partner and reseller since 1995
- Developed more than 200 Oracle BI systems
- Specializes in ORACLE-based:
  - Data Warehousing
  - Business Intelligence
  - Data Transformation (ETL)
  - Web development and portals
- Delivers
  - Design and integrated BI and DW solutions
  - Training and mentoring
- Exclusive supplier world-wide for Windows-based Oracle BIC2G BI & EPM VMs
- Expert presenter at major Oracle conferences
- Authorized NAVTEQ reseller
- www.vlamis.com (blog, papers, newsletters, services)

Vlamis Collaborate Presentations

Presenter	Session	Time	Title
Chris Claterbos	ODTUG Soup to Nuts	Sun 1:00-6:00	Accelerate your Data Warehouse with Oracle OBIEE, OLAP, and Essbase
Chris Claterbos	BIWA Bootcamp	Mon 9:15-10:15	New Features of OBIEE11g – Using it in the Real World
Dan Vlamis	IOUG	Mon 1:15-2:15	Fast Complex Analysis with Oracle OLAP
Tim Vlamis	BIWA Bootcamp	Tues 10:30-11:30	Visualizing Data Using Maps in OBI 11g
Chris Claterbos	Hands On Lab	Wed 8:00-10:15	The New OBIEE 11g - A Quick Start Guide
Dan Vlamis	IOUG	Wed 9:15-10:15	Case Study on OBIEE 11g on JD Edwards Data
Cathye Pendley	IOUG	Wed 2:15-3:15	Working on Projects Remotely

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Tim Vlamis' Bio

- 20+ years experience in business modeling and valuation, forecasting, and scenario analyses
- Expert in principles and elements of design
- Expert in curriculum development and pedagogical theory
- Professional Certified Marketer (PCM) from AMA
- Active Member of NICO (Northwestern Institute on Complex Systems)
- MBA Kellogg School of Management (Northwestern)
- BA Economics Yale University

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Overview

- Why Maps are a Superior Visualization
- Quick Demo
- Maps are a Native View in OBIEE 11g
- Map Basics in OBIEE 11g
- Oracle MapViewer and OBIEE
- Oracle Locator and Oracle Spatial
- NAVTEQ Data
- Demo of Maps in OBIEE
- Review and Summary

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Why Maps are Powerful

Maps convey dense, multi-dimensional relationships in data faster and more intuitively than any other graphical display methodology.
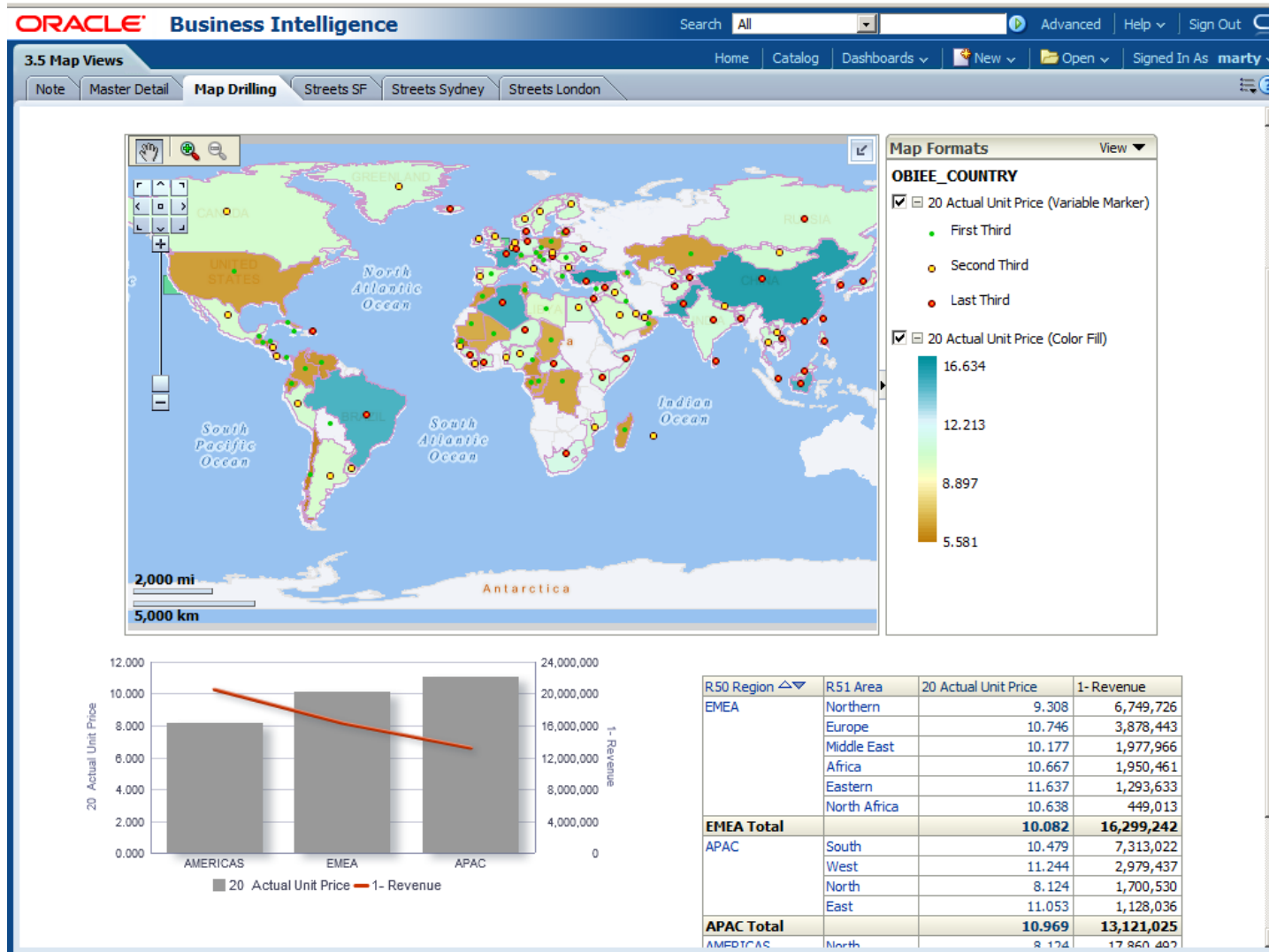
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What is Spatial Data?

- Business data that contains or describes location
    - Street and postal address (customers, stores, factory, etc.)
    - Sales data (sales territory, customer registration, etc.)
    - Assets (cell towers, pipe lines, electrical transformers, etc.)
    - Geographic features (roads, rivers, parks, etc.)
- Anything connected to a physical location

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Quick Demo of Oracle BI 11g Maps

"Clutter is not an attribute of information, clutter is a failure of design… fix the design rather than stripping all the detail out of the map."

Edward Tufte

The Visualization of Quantitative Information

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When Are Map Views Useful?

- Visualizing data related to geographic locations.

- Showing or detecting spatial relationships and patterns.

- Showing lots of data in a relatively small area.

- Drilling down from a (map) overview to a detailed report, chart, or graph.

- When is location important? Can the dimension be plotted on a map?

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Map View Tips

- Think about what scale to use. Different map scales will reveal different patterns and insights.

- Use Variable marker to display two measures on a map at a point – size and color.

- Avoid overlapping shapes too much.

- Be aware of spatial distortions E.g. Texas is larger than Connecticut.

- Look at color palette. www.colorbrewer2.org
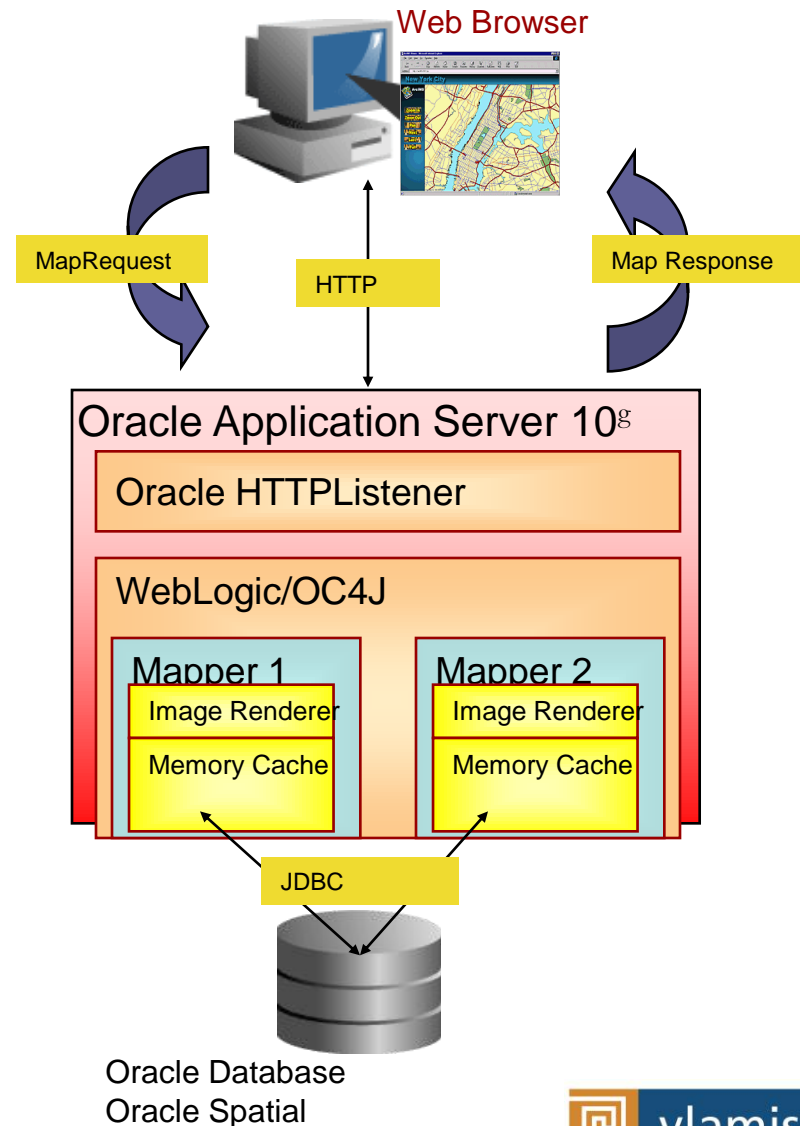
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Using Color Effectively

- Consciously choose a color palette.
- ColorBrewer2.org
  - Sequential schemes
    - Designed for ordered data that progresses from low to high.

  - Divergent schemes
    - Place equal emphasis on mid-range values and extremes at both ends of the data range.

  - Qualitative schemes
    - Used for nominal and categorical data where magnitude differences between classes should not be emphasized.

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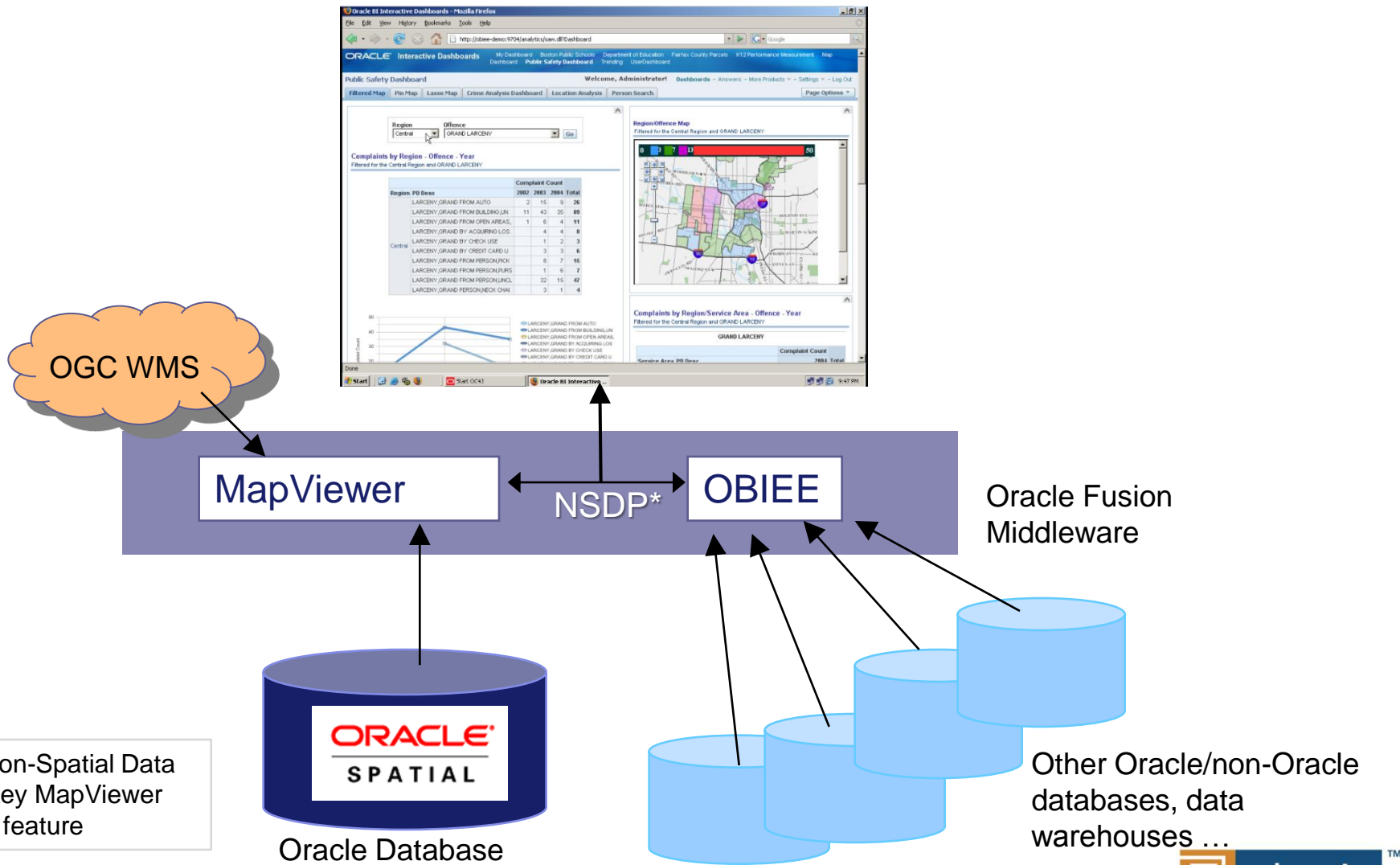
Oracle Application Server MapViewer

- A map rendering engine that helps easily publish data stored in SDO_GEOMETRY columns to the web
- Supports vector and raster data
- Centralized managed symbology, annotation and map definition rules
- J2EE compliant Java servlet
- Provides an **XML** API, **Java** API, **JSP** Tag library and OGC WMS interface

Web Browser

MapRequest

HTTP

Map Response

Oracle Application Server 10^g

Oracle HTTPListener

WebLogic/OC4J

Mapper 1
Image Renderer
Memory Cache

Mapper 2
Image Renderer
Memory Cache

JDBC

Oracle Database
Oracle Spatial

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Integration Framework

OBI EE and MapViewer

OGC WMS

MapViewer ←NSDP*→ OBIEE

Oracle Fusion Middleware

ORACLE
SPATIAL

Oracle Database

Other Oracle/non-Oracle databases, data warehouses …

* NSDP (Non-Spatial Data Provider) key MapViewer integration feature

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Map Definitions

- FEATURE
  - Provide a spatial context: cities, highways, rivers, etc…
  - Features of Interest: store location, postal boundaries, pipelines, etc…
- STYLE
  - Define rendering properties for features
  - Can control fill color, border color, line thickness, line style and more
- THEME
  - Collection of features
  - Typically associated with a spatial geometry layer
  - County/state boundaries, major highways, etc…
- BASEMAP
  - A grouping of themes to create a map
  - Maps can share themes
  - When associating a theme with a map, can specify min scale and max scale (sometimes known as zoom control)
- MAP
  - Basemap with additional themes overlain

Map Interactivity in OBIEE 11g

- Display BI data on top of maps
  - Color fill
  - FOI point display
- Interact with other Dashboard Elements
  - Drive map content with dashboard prompts
  - Drive map content through drilling and navigation
  - Drive other dashboard elements through map interactions
- Reveal additional information on maps through mouseovers
- Drill to map detail

Oracle Locator and Oracle Spatial

- Oracle Locator is a **feature** of both Oracle Standard and Enterprise Database Editions.
- Oracle Locator provides basic location functionality.
  - Point, line, and polygon spatial locations (SDO_GEOMETRY)
  - Spatial indexing
  - Spatial operators that use the spatial index for performing spatial inquiries.

- Oracle Spatial is an **option** for Oracle Database Enterprise Edition
  - Provides extensive support for advanced spatial processing and analytics including routing, vector and raster data, topology and network models, and more.

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Map View Formats

- Color Fill (choropleth)
  - Percentile, Value, Continuous binning
  - Dashboard user run-time slider
- Graphs – Bar, Pie
  - Adjustable graph size
  - Series by second dimension
- Bubble (variable sized)
  - Min-Max size specification
  - Color specification

- Variable Shape
  - Circle, Triangle, Diamond
  - Customizable
- Image
  - Imported via MapViewer
  - More can be added from MapBuilder
- Custom Point Layer
 - Uses Lat / Long
  - Does not require a Layer Def

NAVTEQ Data

- NAVTEQ is the leading global provider of digital map, traffic and location data that enables navigation and location-based platforms around the world.

- NAVTEQ data is licensed direct or through a reseller.

- Licenses are use specific.

- NAVTEQ data resides inside your own Oracle Database.

- NAVTEQ publishes an ODF (Oracle Data Format) version of its data designed specifically for use in an Oracle Database instance.

NAVTEQ Content for OBI

- Geocoding
- Points of Interest
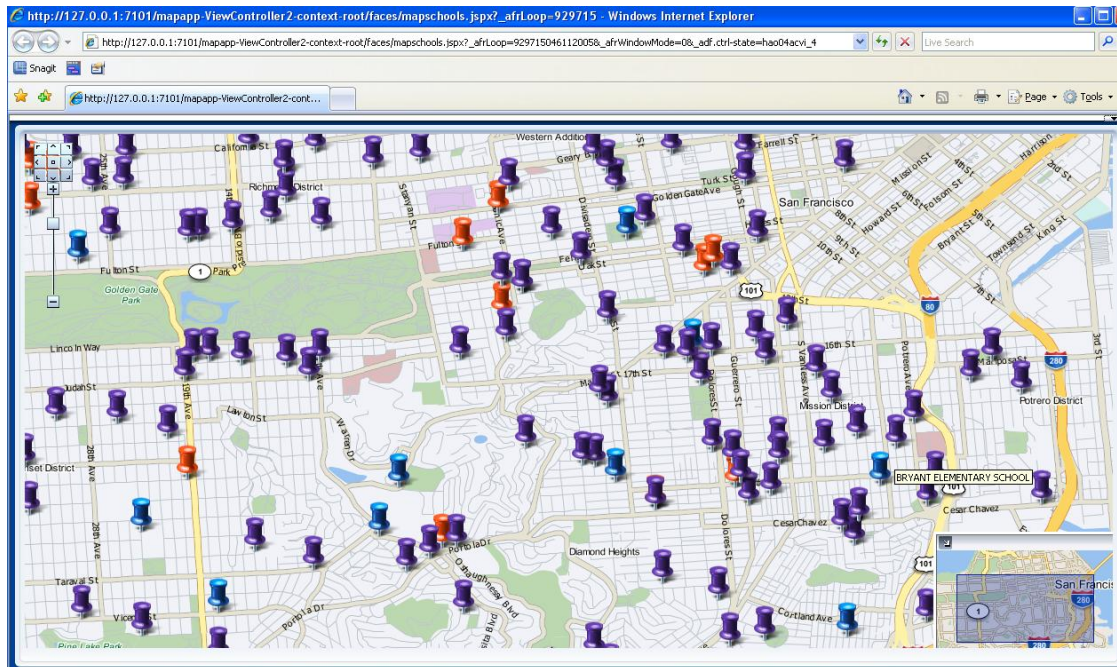
AIRPORT
ALTERNATE FUEL STATION
AMUSEMENT PARK
ATM
ATTORNEY
AUTO DEALERSHIP-USED CARS
AUTO DEALERSHIPS
AUTO PARTS
AUTO SERVICE AND MAINTENANCE
AUTOMOBILE CLUB
BANK
BANQUET HALL
BAR OR PUB
BOATING
BOOKSTORE
BORDER CROSSING
BOWLING ALLEY
BOWLING CENTRE
BUS STATION
BUS STOP
BUSINESS FACILITY
BUSINESS SERVICE
CAMPING
CAR WASH/DETAILING
CARGO CENTRE
CASINO
CEMETERY
CHECK CASHING SERVICE
CHURCH
CINEMA
CITY HALL
CIVIC/COMMUNITY CENTRE
CLEANING AND LAUNDRY
CLOTHING STORE
COCKTAIL LOUNGE
COFFEE SHOP
COMMUTER RAIL STATION
COMPUTER AND SOFTWARE
CONSUMER ELECTRONICS STORE
CONVENIENCE STORE
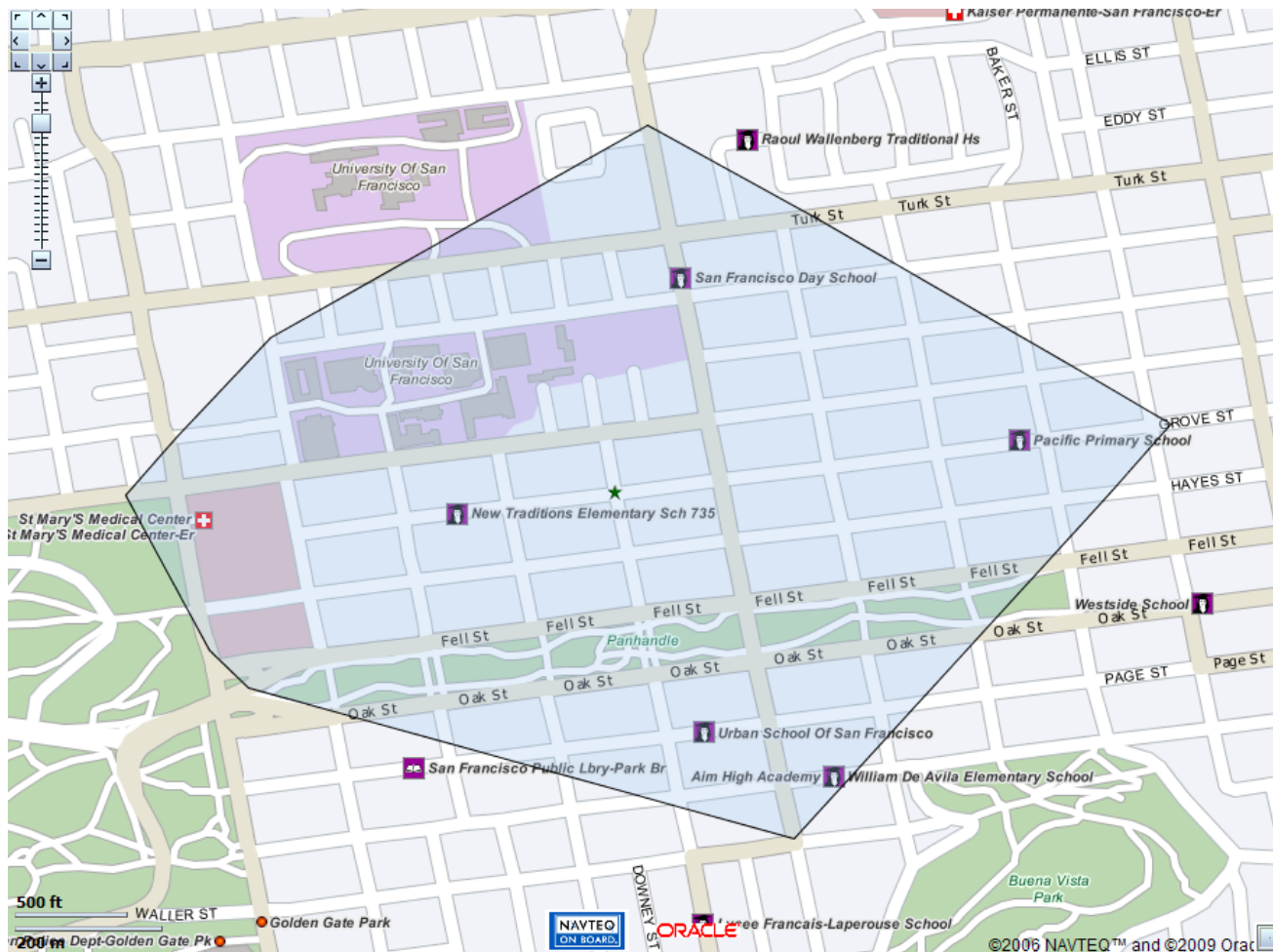CONVENTION/EXHIBITION CENTRE

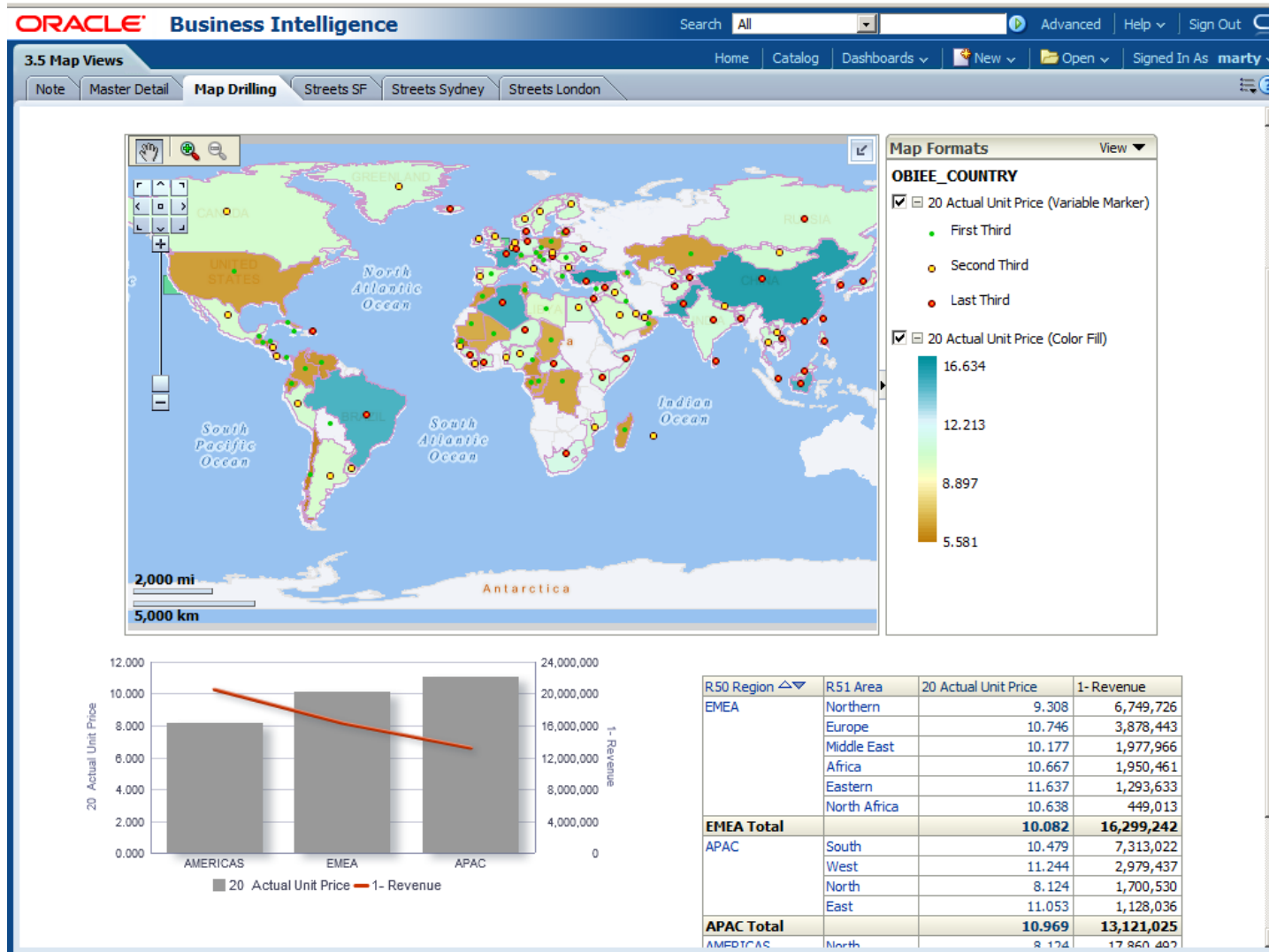# NAVTEQ Content for OBI

- Postal Codes
- Census Boundaries
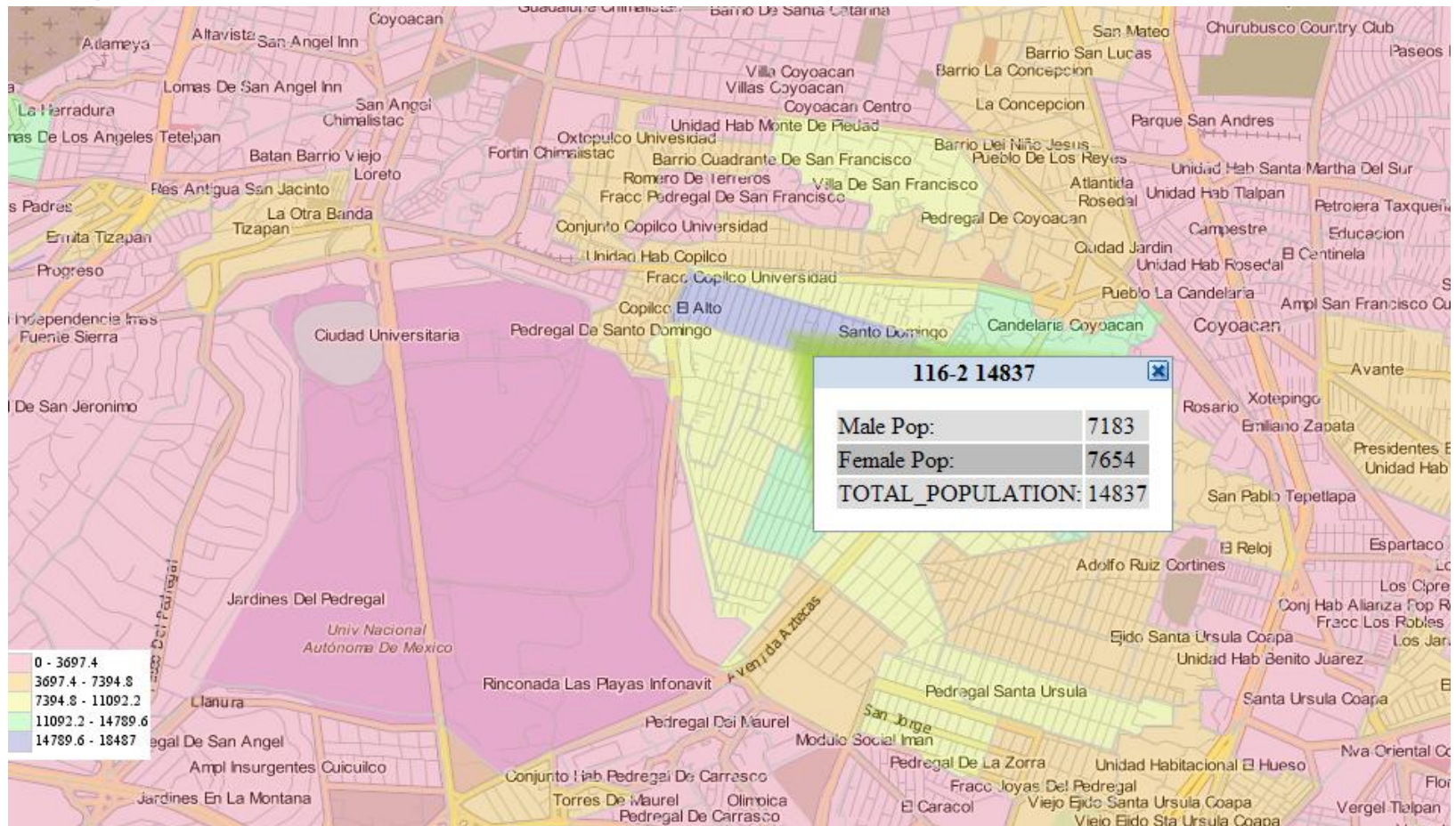
- Routing data for drive time/drive distance polygons

Demo of Oracle BI 11g Maps

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