

ORACLE®

S P A T I A L

May 2011
Oracle Spatial User Conference



Oracle Spatial User Conference

May 19, 2011

Ronald Reagan Building and International Trade Center
Washington, DC USA



May 2011
Oracle Spatial User Conference

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Map Views In OBIEE11g

The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions.

The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.

Agenda

- When are map views useful
- Concepts and integration overview
- Demonstration
- Q&A

Business Data...



Interactive Visualizations

Year	Plant Location Country	Plant Location State	Spend Type	Spend	# of Suppliers	# of Buyers	Invoiced Quantity
2007	BE	Unspecified	ITEM	8,451,585	11	4	11,746
			TAX	288,325	8	4	
	BR	SP	ITEM	706,542	2	3	848
			TAX	36,058,468	10	8	51,139
	FR	Unspecified	ITEM	958,229	9	8	
			TAX	22,308,436	14	15	45,025
	GB	Unspecified	ITEM	464,114	9	4	
			TAX	8,406,679	11	4	14,435
	IT	Unspecified	ITEM	309,027	8	4	
			TAX	9,606	3	1	25
	JP	Unspecified	ITEM	28,937,424	10	4	44,364
			TAX	461,415	8	2	
	US	Unspecified	ITEM	136,853	2	1	18,904
			TAX	37,732,046	42	11	1,884,123
			ITEM	1,080	1	1	90
			TAX	17,771,255	9	4	74,600
			ITEM	88,411	11	3	59,332
			TAX	44,876	1	1	2,508
			ITEM	132,583	1	1	17,704
			TAX	68,870,319	6	1	472,984
			ITEM	31	3	2	545
			TAX	8,546,510	7	1	5,362
			ITEM	50,640,285	21	5	17,139,790
			TAX	29	2	2	
			ITEM	129,588	3	1	970
			TAX	84	2	1	28
			ITEM	38,843,715	6	1	575,742
			TAX	115,436,145	14	5	6,463,985
2008	BE	Unspecified	ITEM	13,333,269	11	4	22,325
			TAX	58,493	6	3	
	BR	SP	ITEM	870,357	2	3	1,061
			TAX	41,952,960	10	9	56,607
	FR	Unspecified	ITEM	136,779	4	7	
			TAX	22,465,922	14	15	43,092
	GB	Unspecified	ITEM	63,570	8	3	
			TAX	16,737,493	11	4	25,791
	IT	Unspecified	ITEM	47,759	6	4	
			TAX	33,260,624	10	1	50,108
	NL	Unspecified	ITEM	76,018	7	1	
			TAX	33,430	1	1	3,643
2009	US	Unspecified	ITEM	60,694,355	40	8	3,106,348
			TAX	25,200,385	10	2	1,485,760

Year
Plant Location Country
Plant Location State
Spending Type
Spend
Suppliers
Buyers
Invoiced Quantity

Corresponding Dashboard

Spend
Country

Buyers
Year

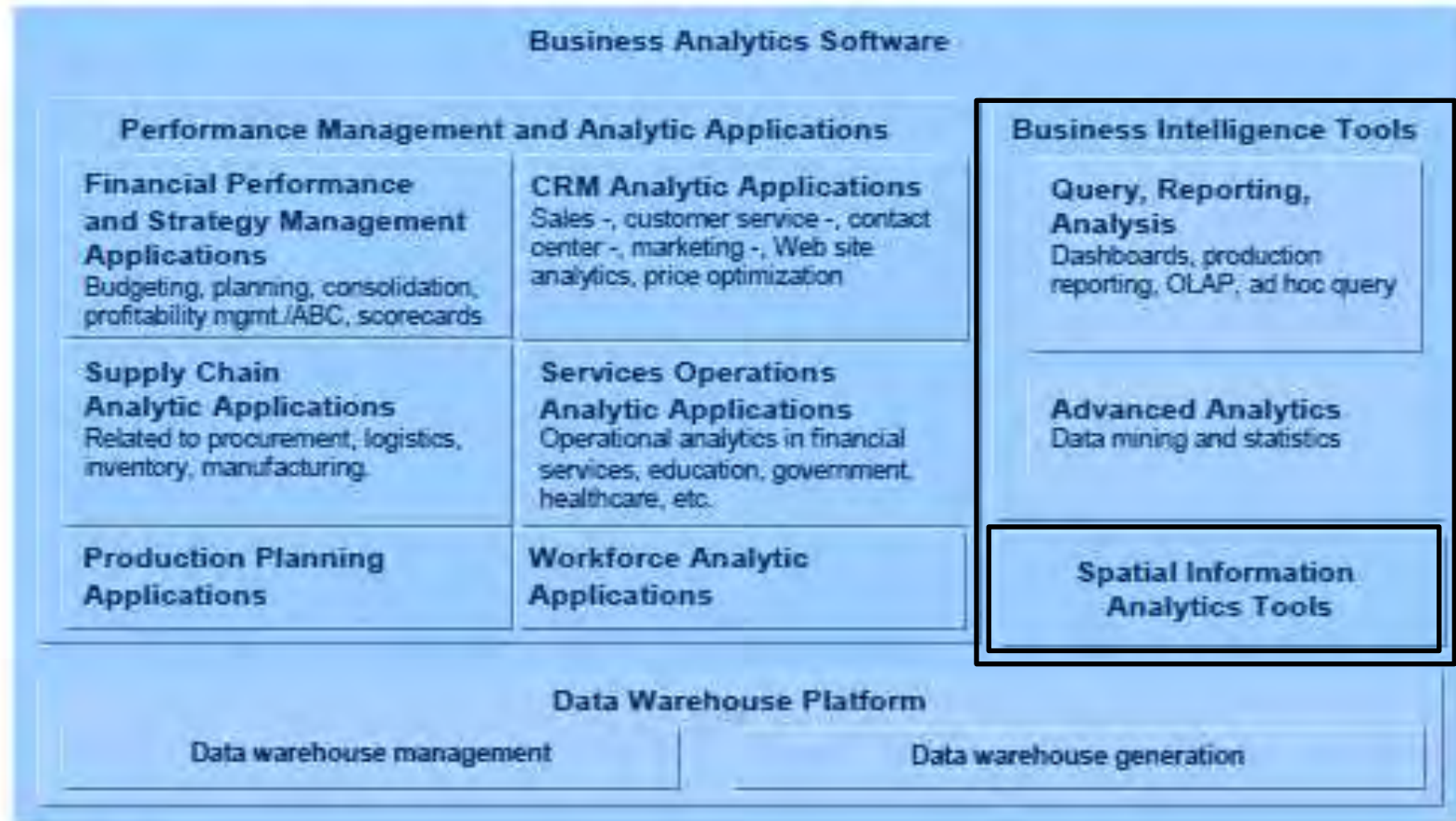
Interactive Visualizations



Spatial is a Natural BI Component

IDC recognized BI sector.

IDC's Business Analytics Software Taxonomy, 2009



Complete.

Oracle Business Intelligence 11g



Common Business Intelligence Foundation



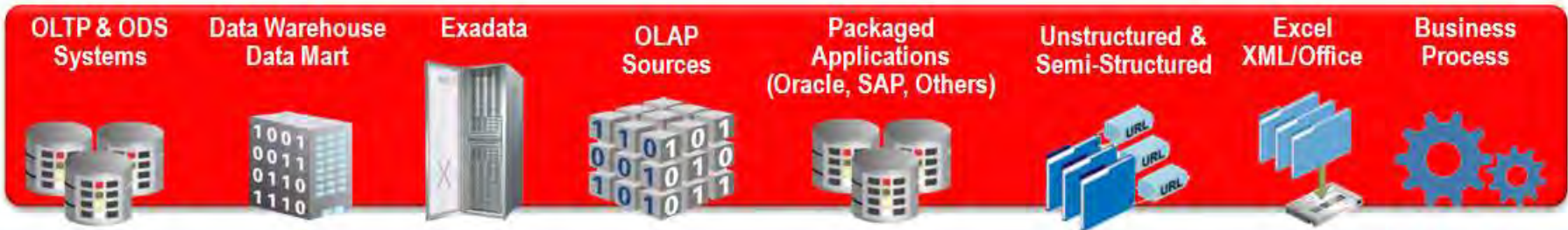
ORACLE

Open.

Oracle Business Intelligence 11g



Common Business Intelligence Foundation



ORACLE

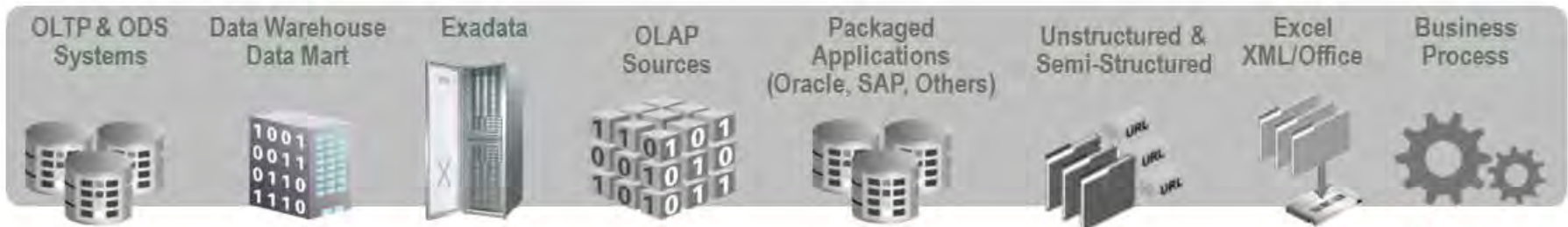
Integrated.

Oracle Business Intelligence 11g



Common Enterprise Information Model

- Common Metadata Foundation across all Data Sources
- Common Security, Access Control, Authorization, Auditing
- Common Request Generation and Optimized Data Access Services
- Common Clustering, Workload Management, & Deployment
- Common Systems & Operational Lifecycle Management

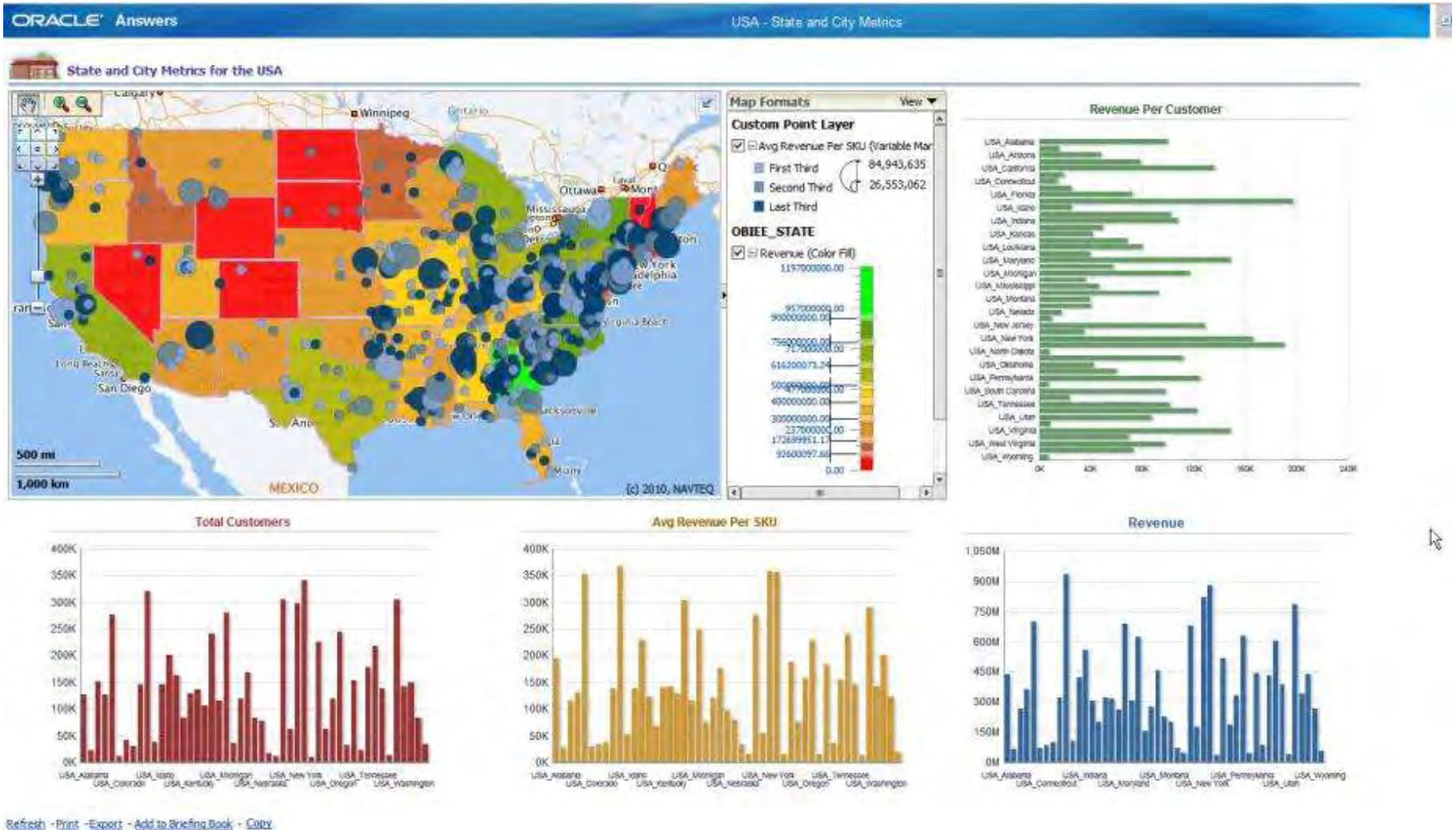


When are Map views useful

- Visualizing data related to geographic locations.
- Showing lots of data in a relatively small area.
- Showing or detecting spatial relationships and patterns.
- Drilling down from a (map) overview to a detailed report, chart, or graph.

Why Map Views?

The Original High-Density Visualization



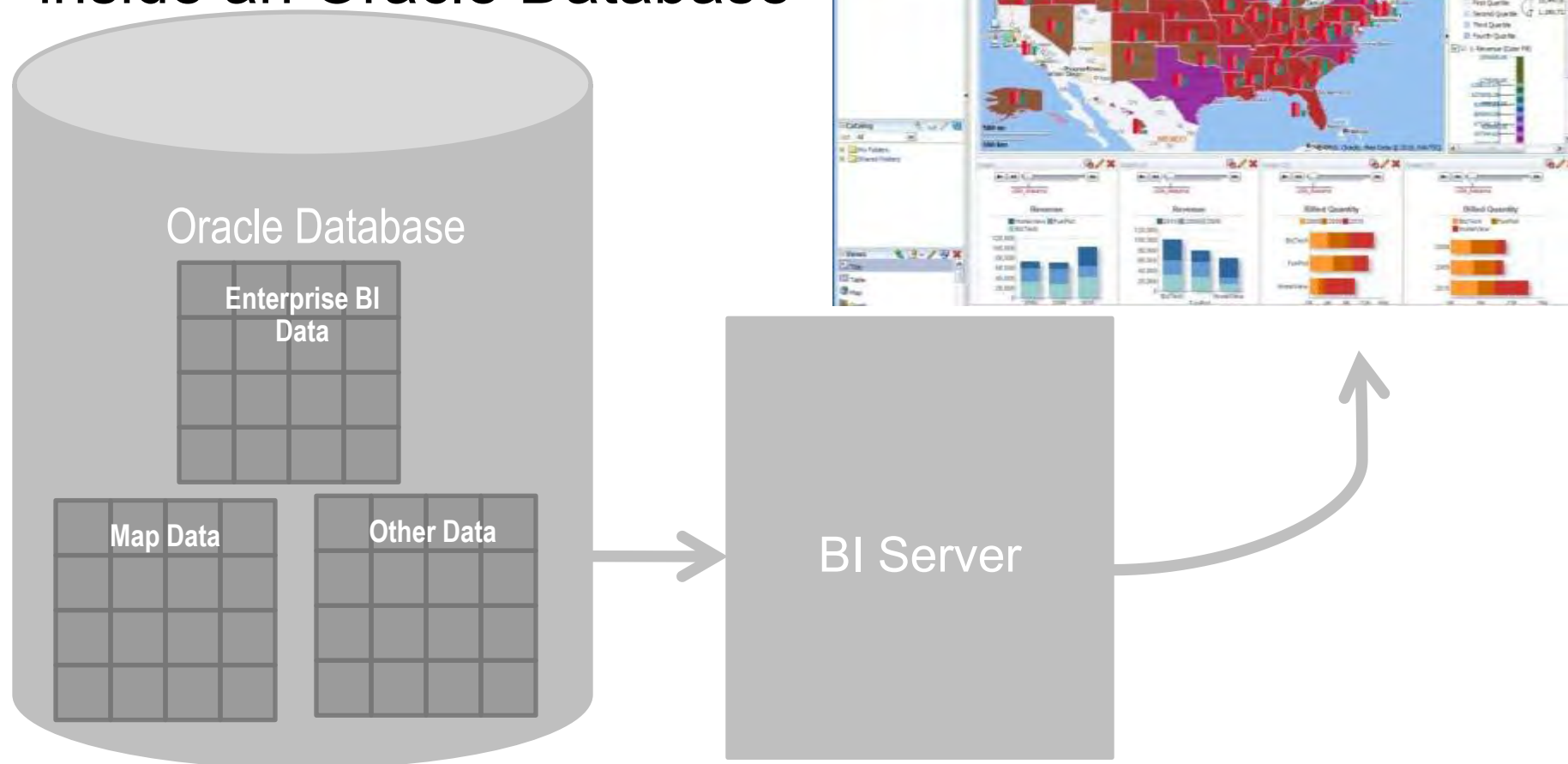
Master-Detail linking:

Country on the map, State details in charts.



Secure, Resident Data

- Spatial (and optionally BI) data is safely housed inside an Oracle Database





Concepts

Understanding Map Views

Data

R61 Geo Country Code	R52 Country Name	1- Revenue
AFG	Afghanistan	142,854
ARE	United Arab Emirates	451,993
ARG	Argentina	1,332,024
AUS	Australia	5,408,727
AUT	Austria	43,990
AZE	Azerbaijan	32,608
BEL	Belgium	38,814
BEN	Benin	51,447
BGD	Bangladesh	48,232
BGR	Bulgaria	55,091
BOL	Bolivia	12,870
BRA	Brazil	870,195
CAF	Central African Republic	42,664
CAN	Canada	1,179,357
CHE	Switzerland	61,818
CHL	Chile	19,909
CHN	China	649,899
CIV	Côte D Ivoire	40,290
CMR	Cameroon	36,877
COD	Congo, Democratic Republic Of The	30,575
COG	Congo	59,591
COL	Colombia	32,885
CRI	Costa Rica	37,078
CUB	Cuba	43,203
CZE	Czech Republic	36,663

The Table View – From the Data Warehouse

Understanding Map Views

Data

R61 Geo Country Code	R52 Country Name	1- Revenue
AFG	Afghanistan	142,854
ARE	United Arab Emirates	451,993
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COL	Colombia	32,885
CRI	Costa Rica	37,078
CUB	Cuba	43,203
CZE	Czech Republic	36,663

The Table View – From the Data Warehouse

Understanding Map Views

Map Definitions

ISO_COUNTRY_CODE	NAME_INIT	GEOMETRY
ABW	Aruba	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))
AFG	Afghanistan	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))
AGO	Angola	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))
AIA	Anguilla	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))
ALB	Albania	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))
AND	Andorra	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))
ANT	Netherlands Antilles	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))
ARE	United Arab Emirates	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1,765,2003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1,765,2003,1))
ARG	Argentina	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))
ARM	Armenia	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))
ASM	American Samoa	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))
ATA	Antarctica	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))
ATG	Antigua And Barbuda	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))
AUS	Australia	MDSYS.SDO_GEOMETRY(2004,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1,19,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1,19,1003,1))
AUT	Austria	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))
AZE	Azerbaijan	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))
BDI	Burundi	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))
BEL	Belgium	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))

The Spatial Table – Basemap & Shape Information

Understanding Map Views


Map Definitions

ISO_COUNTRY_CODE	NAME_INIT	GEOMETRY
ABW	Aruba	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))
AFG	Afghanistan	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))
AGO	Angola	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))
AIA	Anguilla	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))
ALB	Albania	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))
AND	Andorra	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))
ANT	Netherlands Antilles	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))
ARE	United Arab Emirates	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1,765,2003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1,765,2003,1))
ARG	Argentina	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))
ARM	Armenia	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))
ASM	American Samoa	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))
ATA	Antarctica	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))
ATG	Antigua And Barbuda	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))
AUS	Australia	MDSYS.SDO_GEOMETRY(2004,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1,19,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1,19,1003,1))
AUT	Austria	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))
AZE	Azerbaijan	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))
BDI	Burundi	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))
BEL	Belgium	MDSYS.SDO_GEOMETRY(2003,8307,null,MDSYS.SDO_ELEM_INFO_ARRAY(1,1003,1),MDSYS.SDO_ORDINATE_ARRAY(1,1003,1))

The Spatial Table – Basemap & Shape Information

Understanding Map Views

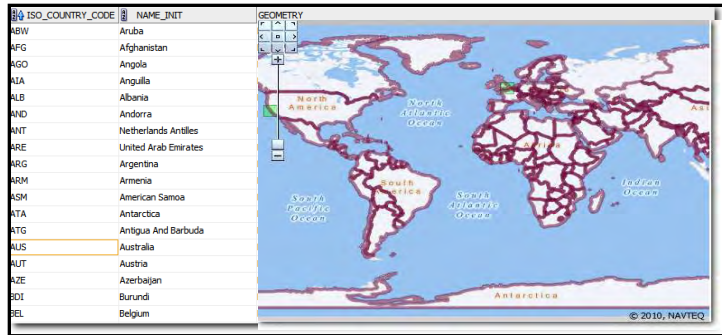
Map Definitions

ISO_COUNTRY_CODE	NAME_INIT	GEOMETRY
ABW	Aruba	
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AIA	Anguilla	
ALB	Albania	
AND	Andorra	
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ARE	United Arab Emirates	
ARG	Argentina	
ARM	Armenia	
ASM	American Samoa	
ATA	Antarctica	
ATG	Antigua And Barbuda	
AUS	Australia	
AUT	Austria	
AZE	Azerbaijan	
BDI	Burundi	
BEL	Belgium	

The Spatial Table – Basemap & Shape Information

Understanding Map Views

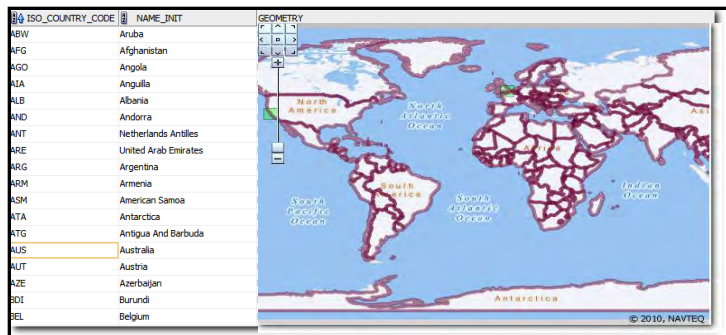
Joining The Two



R61 Geo Country Code	R52 Country Name	1-Revenue
AFG	Afghanistan	142,854
ARE	United Arab Emirates	451,993
ARG	Argentina	1,332,024
AUS	Australia	5,408,727
AUT	Austria	43,990
AZE	Azerbaijan	32,608
BEL	Belgium	38,814
BEN	Benin	51,447
BGD	Bangladesh	48,232
BGR	Bulgaria	55,091
BOL	Bolivia	12,870
BRA	Brazil	870,195
CAF	Central African Republic	42,664
CAN	Canada	1,179,357
CHE	Switzerland	61,818
CHL	Chile	19,909
CHN	China	649,899
CTV	Côte D'Ivoire	40,290
CMR	Cameroon	36,877
COD	Congo, Democratic Republic Of The	30,575
COG	Congo	59,591
COL	Colombia	32,885
CRI	Costa Rica	37,078
CUB	Cuba	43,203
CZE	Czech Republic	36,663

Understanding Map Views

Joining The Two



NSDP
(Non Spatial Data
Provider) Join

R61 Geo Country Code	R52 Country Name	1-Revenue
AFG	Afghanistan	142,854
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COG	Congo	59,591
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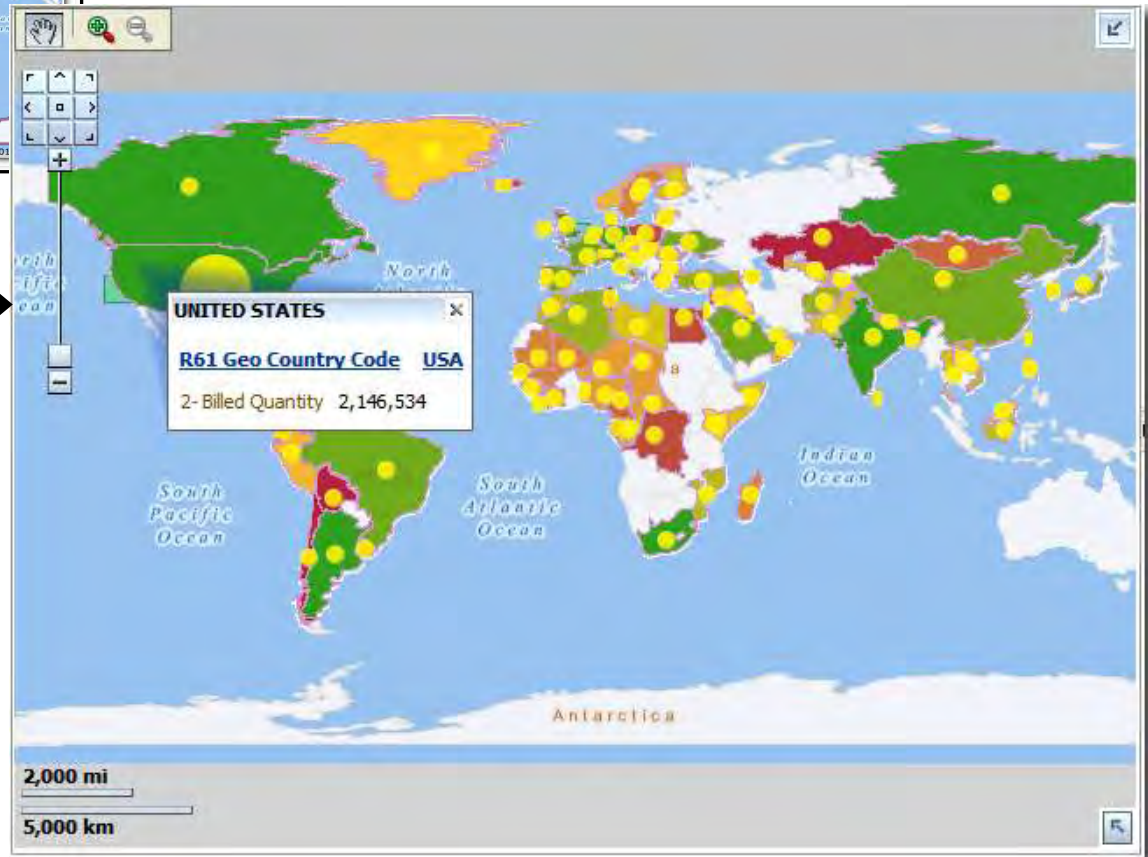
Understanding Map Views

Joining The Two

ISO_COUNTRY_CODE	NAME_INIT	GEOMETRY
ABW	Aruba	
AFG	Afghanistan	
AGO	Angola	
ALA	Anguilla	
ALB	Albania	
AND	Andorra	
ANT	Netherlands Antilles	
ARE	United Arab Emirates	
ARG	Argentina	
ARM	Armenia	
ASM	American Samoa	
ATA	Antarctica	
ATG	Antigua And Barbuda	
AUS	Australia	
AUT	Austria	
AZE	Azerbaijan	
BDI	Burundi	
BEL	Belgium	

NSDP
(Non Spatial Data
Provider) Join

R61 Geo Country Code	RS2 Country Name	1-Revenue
AFG	Afghanistan	142,854
ARE	United Arab Emirates	451,993
ARG	Argentina	1,332,024
AUS	Australia	5,408,727
AUT	Austria	43,990
AZE	Azerbaijan	32,608
BEL	Belgium	38,814
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COG	Congo	59,591
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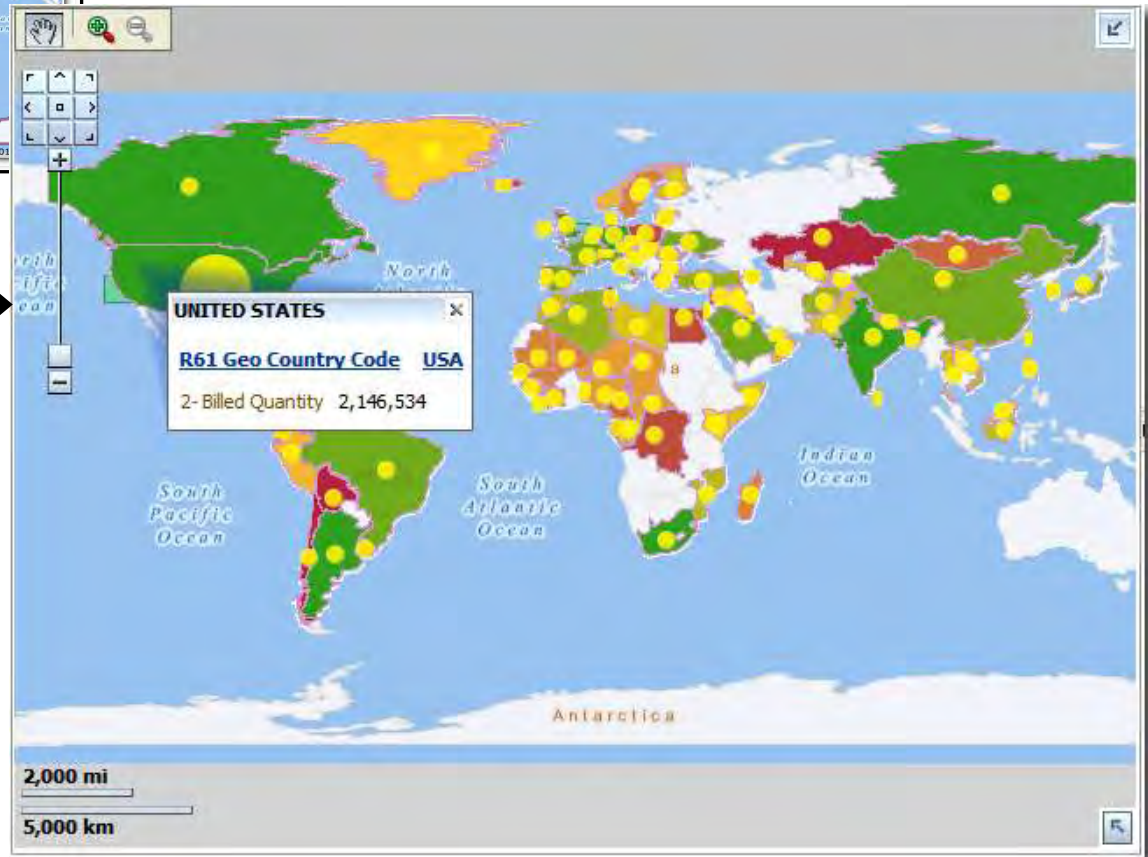
Understanding Map Views

Joining The Two

ISO_COUNTRY_CODE	NAME_INIT	GEOMETRY
ABW	Aruba	
AFG	Afghanistan	
AGO	Angola	
ALA	Anguilla	
ALB	Albania	
AND	Andorra	
ANT	Netherlands Antilles	
ARE	United Arab Emirates	
ARG	Argentina	
ARM	Armenia	
ASM	American Samoa	
ATA	Antarctica	
ATG	Antigua And Barbuda	
AUS	Australia	
AUT	Austria	
AZE	Azerbaijan	
BDI	Burundi	
BEL	Belgium	

NSDP
(Non Spatial Data
Provider) Join

R61 Geo Country Code	RS2 Country Name	1-Revenue
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BEL	Belgium	38,814
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COL	Colombia	32,885
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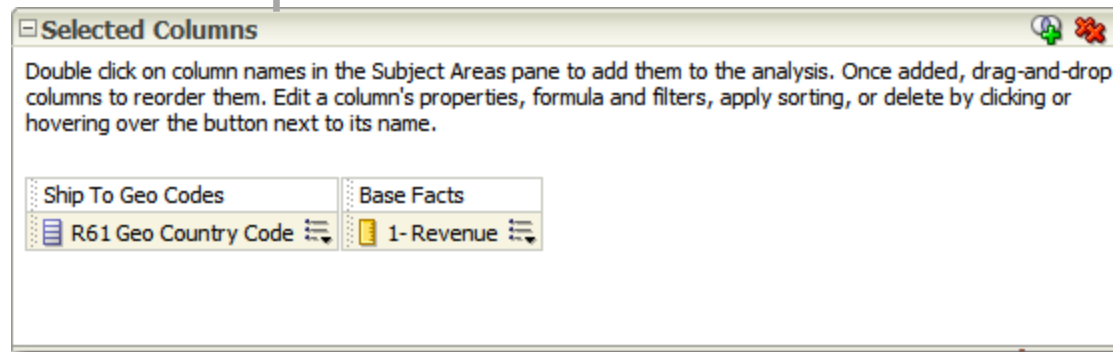
The Integration

Creating Map views

- (At Least) One Column related to location (e.g. country code, state name)
- (At Least) One Measure
- Default map format created
 - Provided...
- Edit Map View to add / edit / delete formats

Creating Map views

- (At Least) One Column related to location (e.g. country code, state name)
- (At Least) One Measure
- Default map format created
 - Provided...
- Edit Map View to add / edit / delete formats



Creating Map views

Compound Layout

Title	
Table	
R61 Geo Country Code	1- Revenue
AFG	142,854
ARE	451,993
ARG	1,332,024
AUS	5,408,727
AUT	43,990
AZE	32,608
BEL	38,814
BEN	51,447
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CAF	42,664
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CHE	61,818
CHL	19,909
CHN	
CIV	
CMR	
COD	
COG	
COL	
CRI	
CUB	
CZE	

the Column related to location
(code, state name)

the Measure

format created

how to add / edit / delete formats

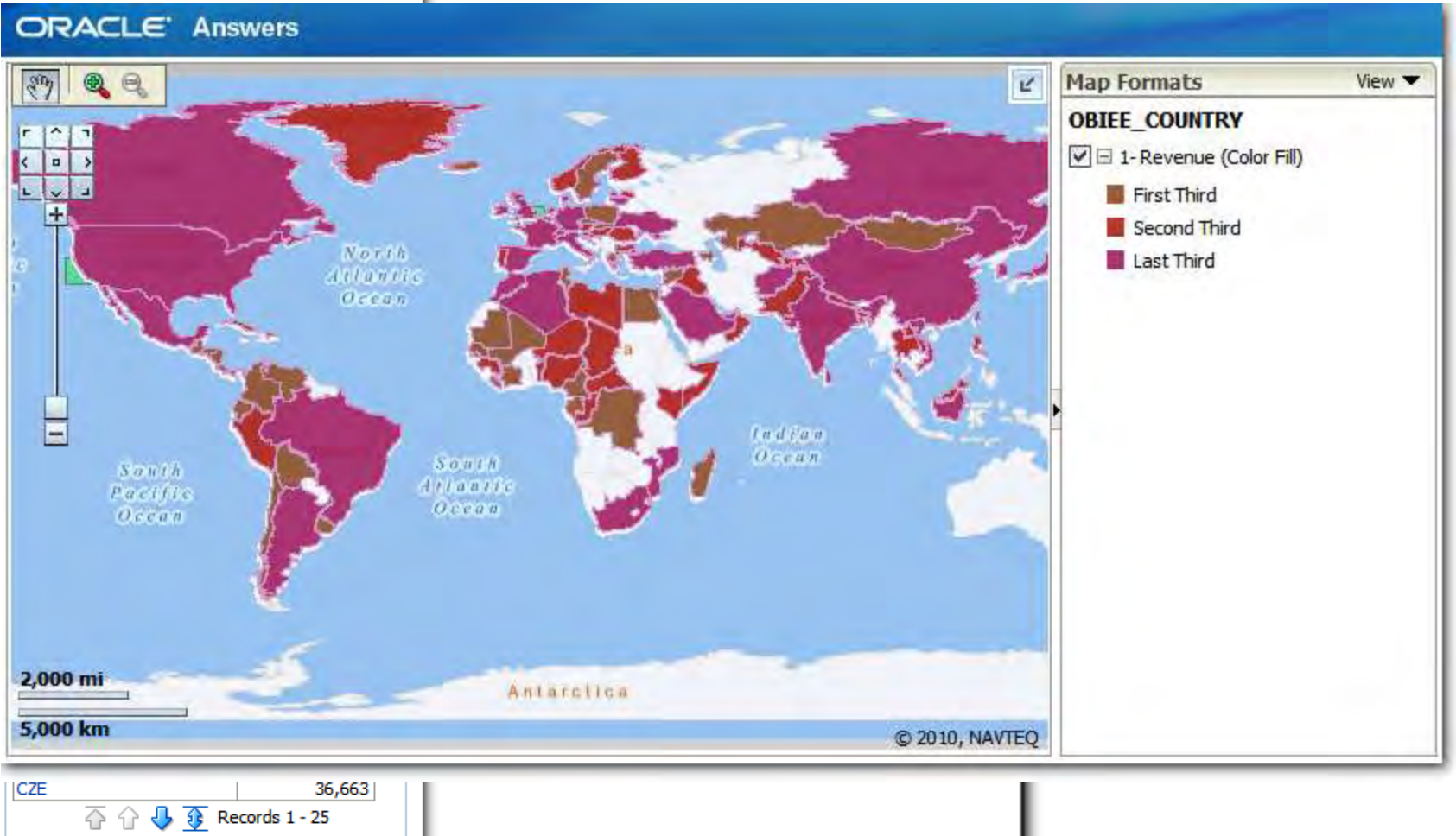
Selected Columns

Double click on column names in the Subject Areas pane to add them to the analysis. Once added, drag-and-drop columns to reorder them. Edit a column's properties, formula and filters, apply sorting, or delete by clicking or hovering over the button next to its name.

Ship To Geo Codes	Base Facts
R61 Geo Country Code	1- Revenue

Creating Map views

Compound Layout



MapViewer BI Integration Architecture



Mapbuilder: Basemaps/
themes/ styles manager
(thick client)

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

NSDP

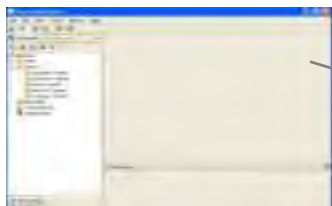
JSON/XML

Mapviewer

OBIEE

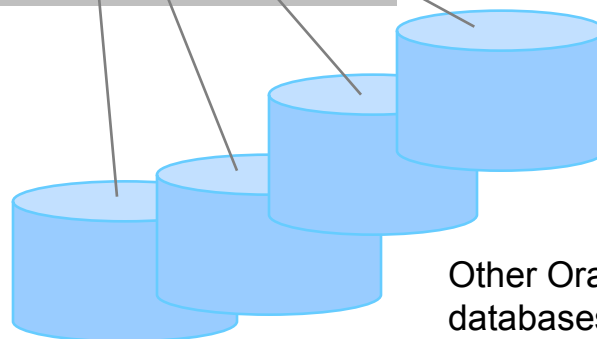
Oracle Fusion Middleware

Mapbuilder



ORACLE®
SPATIAL

Oracle Database



Other Oracle/non-Oracle
databases, data
warehouses ...

ORACLE®

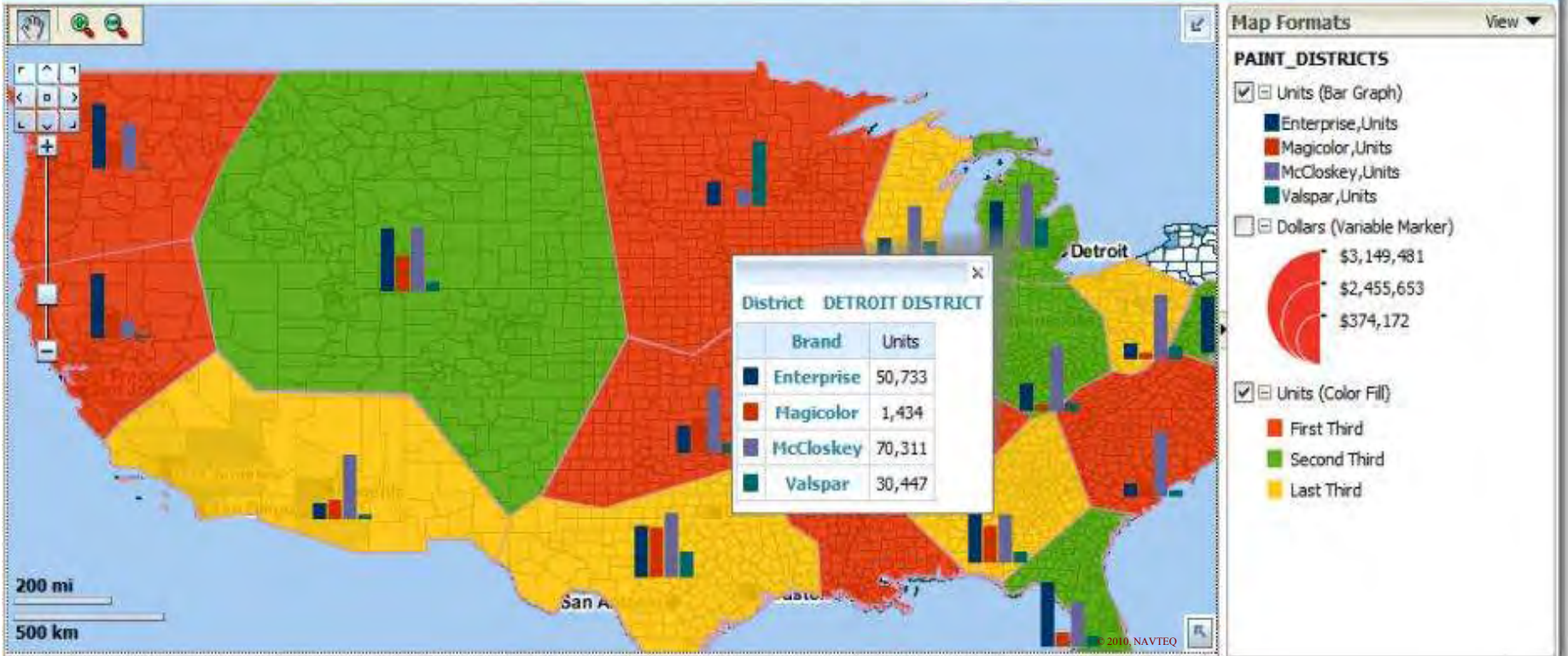
S P A T I A L

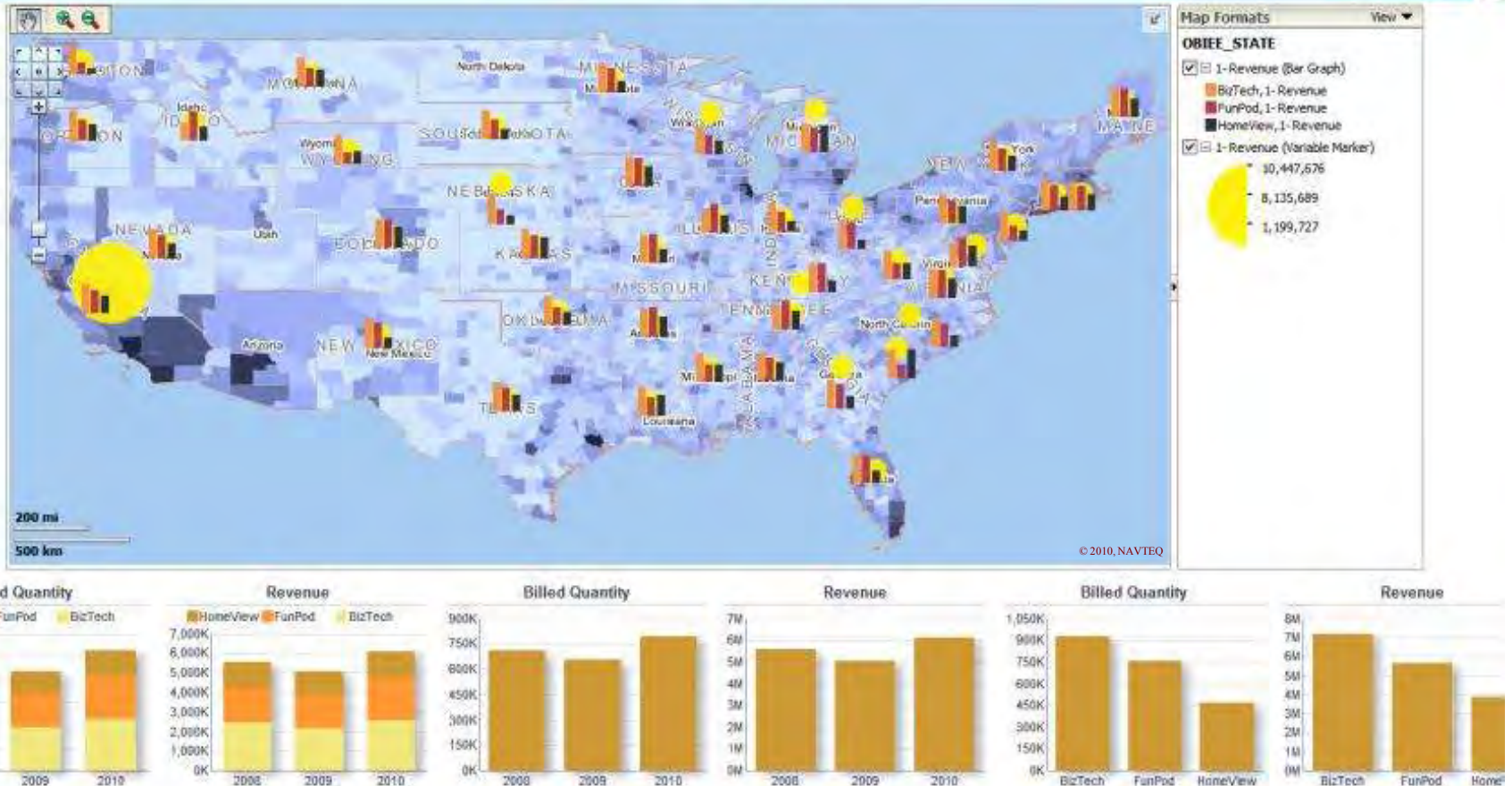
May 2011

Oracle Spatial User Conference

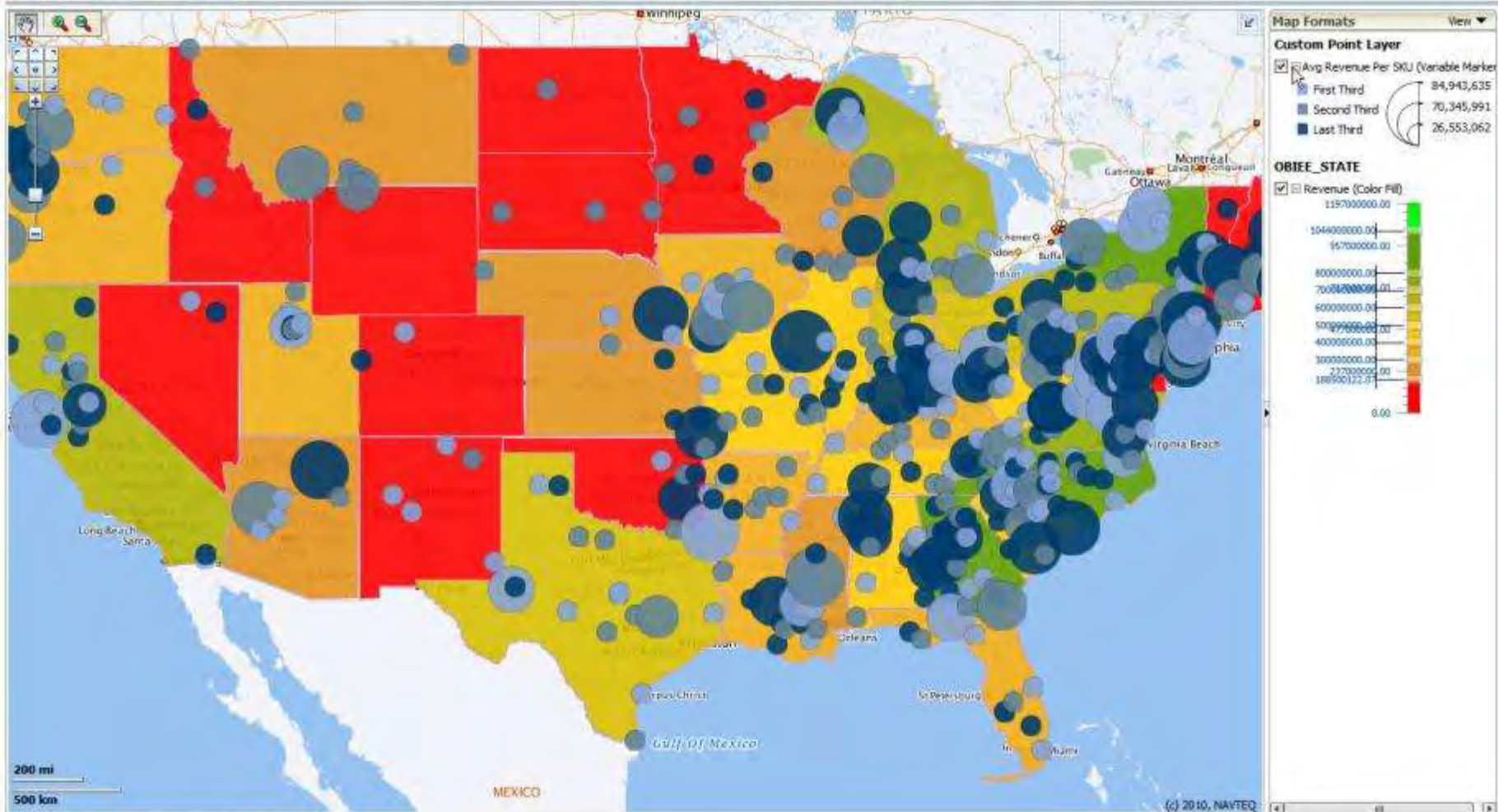
Sample Screenshots

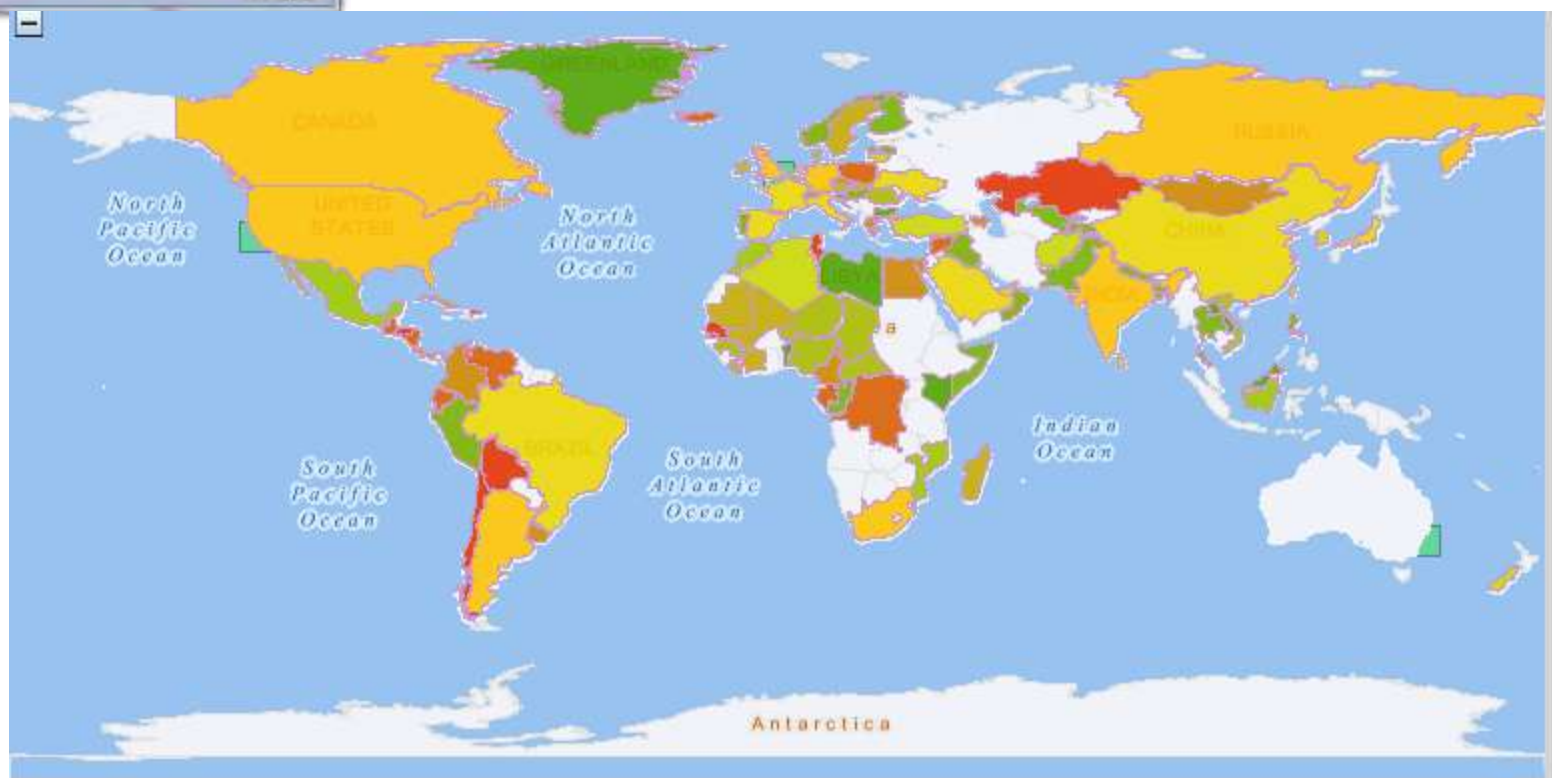
Map Views in OBIEE 11g





State and City Metrics for the USA





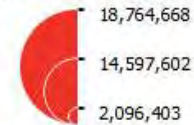


2,000 mi
5,000 km

Map Formats View

OBIEE_COUNTRY

☒ 1- Revenue (Variable Marker)



☐ 1- Revenue (Pie Graph)

- ☒ 2008,1- Revenue
- ☒ 2009,1- Revenue
- ☒ 2010,1- Revenue

☐ 1- Revenue (Bar Graph)

- ☒ 2008,1- Revenue
- ☒ 2009,1- Revenue
- ☒ 2010,1- Revenue

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S P A T I A L

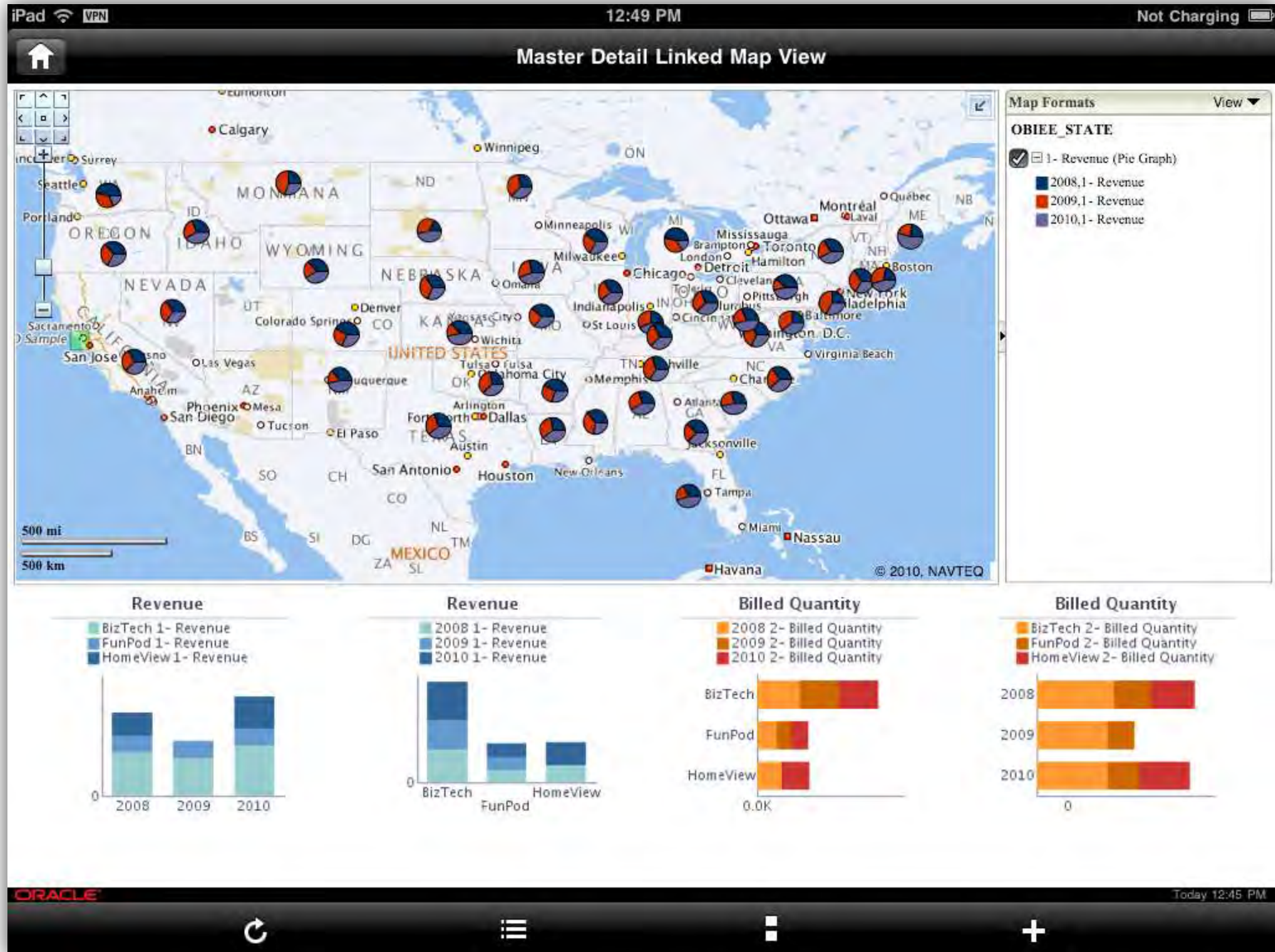
May 2011

Oracle Spatial User Conference

S C R E E N S H O T S

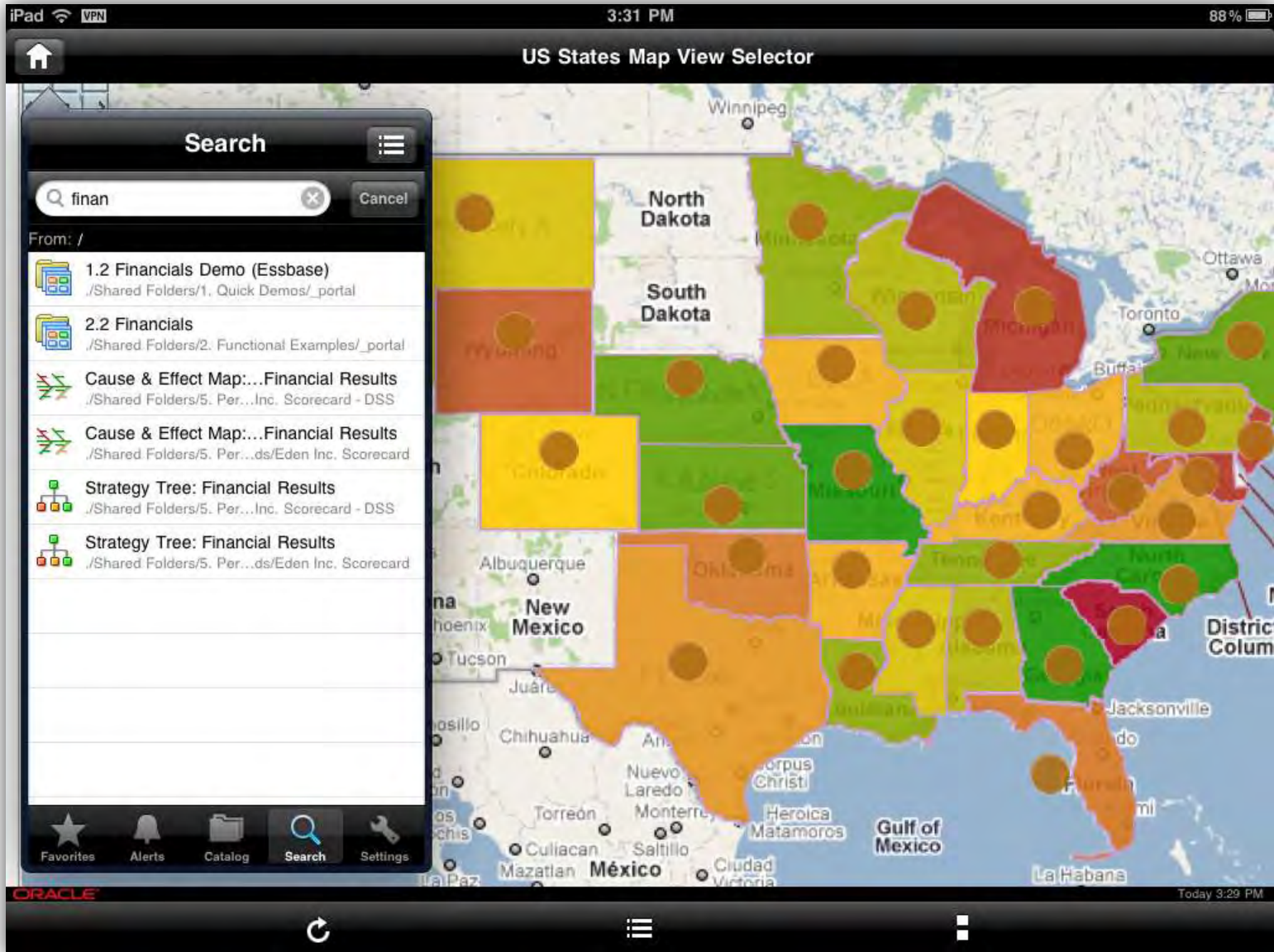
OBIEE11g Mobile

Dashboard - Maps

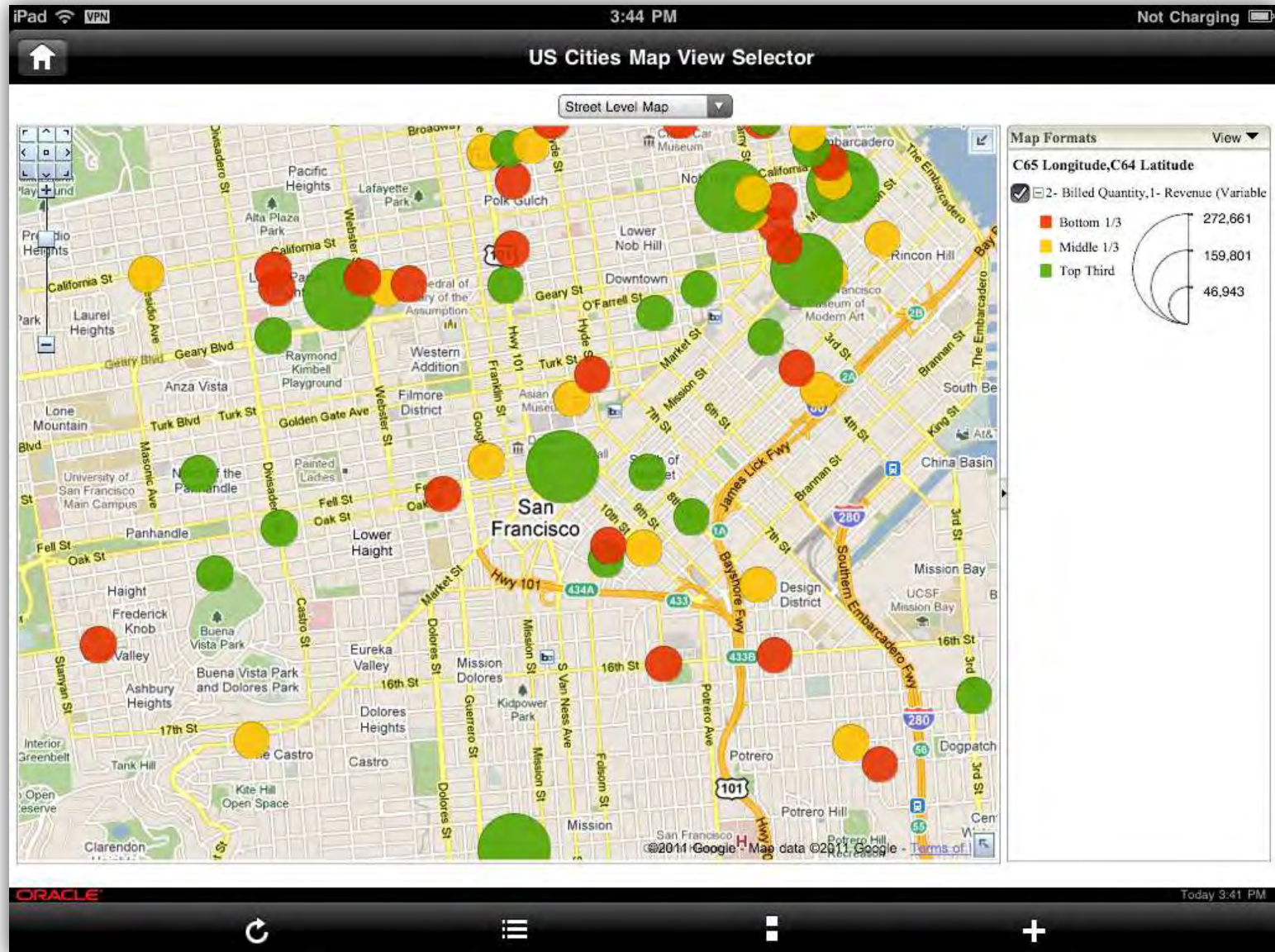


Map View – Multiple Formats with Formatted Tooltip





Map View – Zoomed-In Street Map



The preceding is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions.

The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.

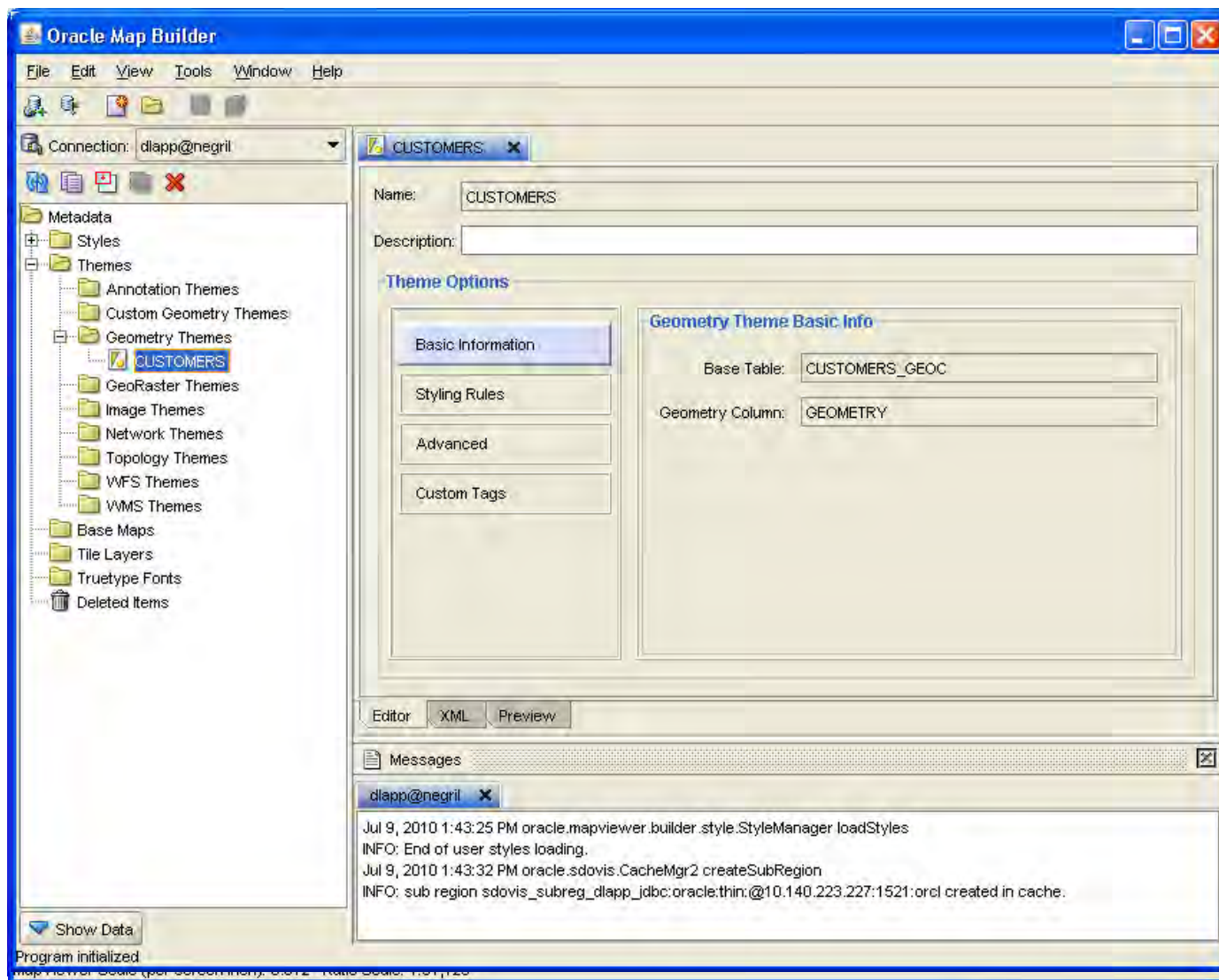
Q & A

ORACLE®

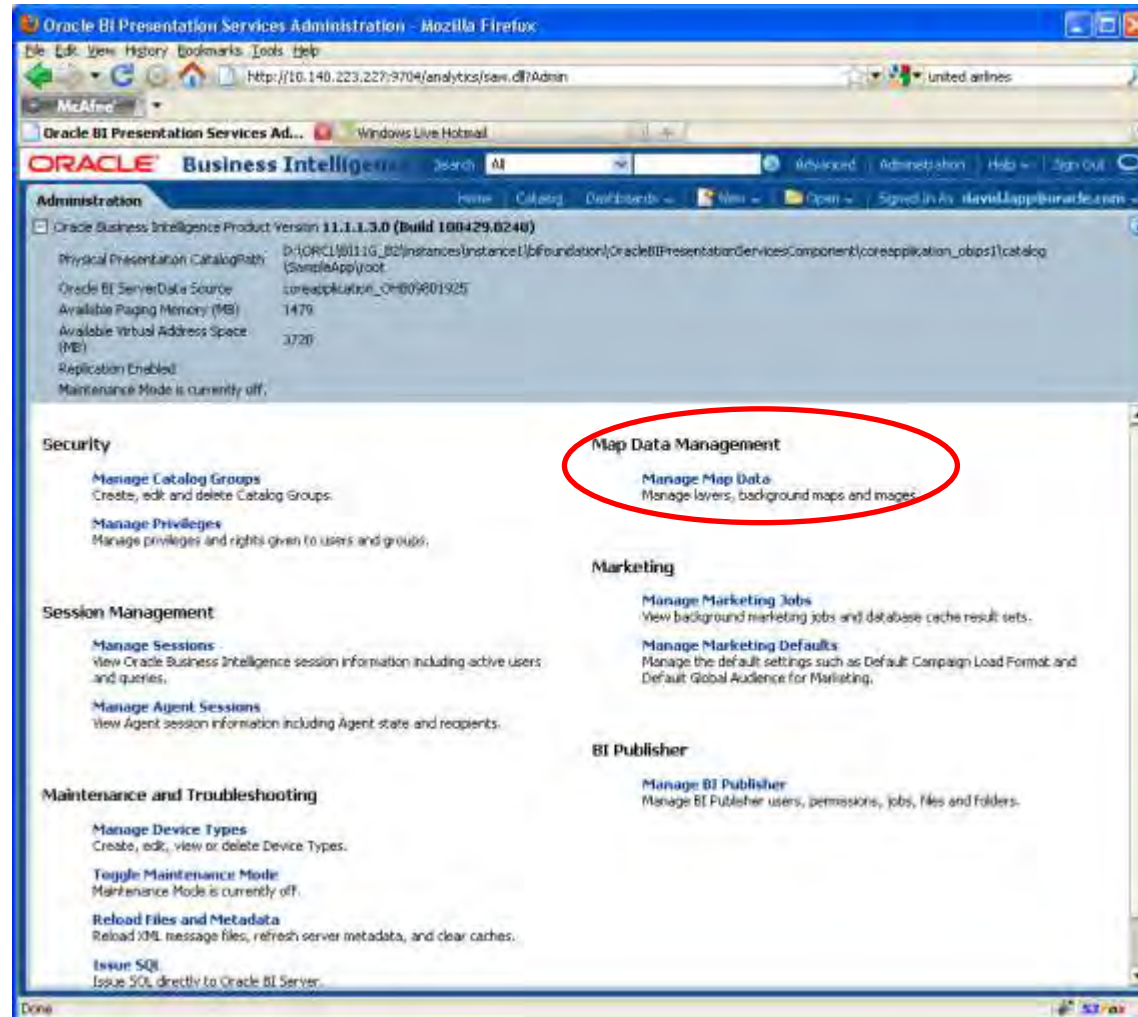
S P A T I A L

Define custom map layers

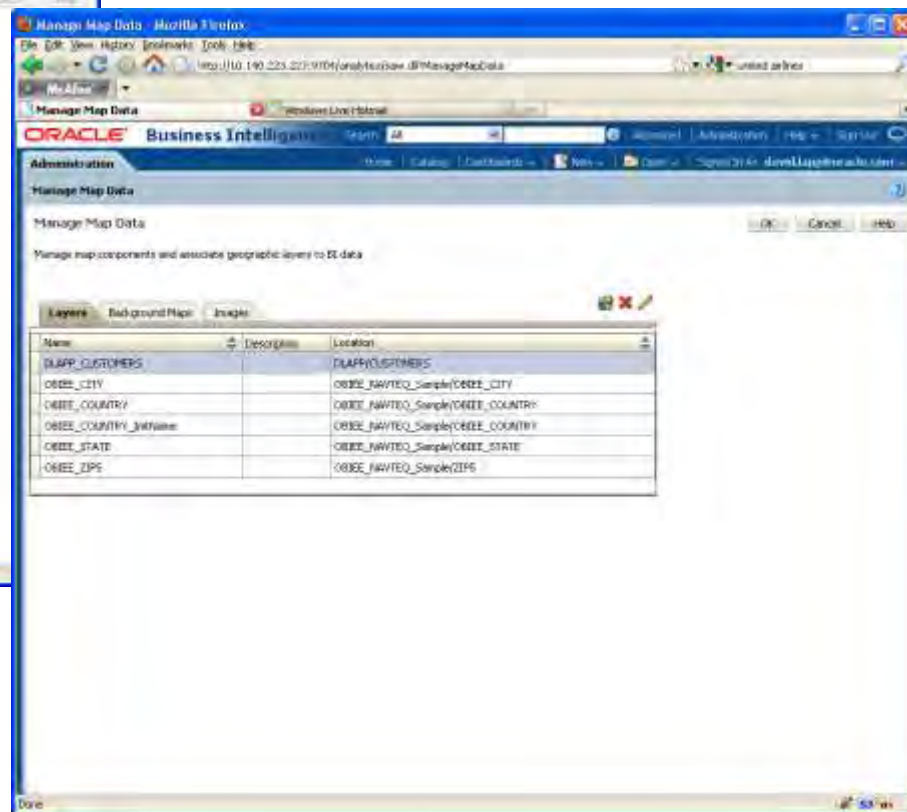
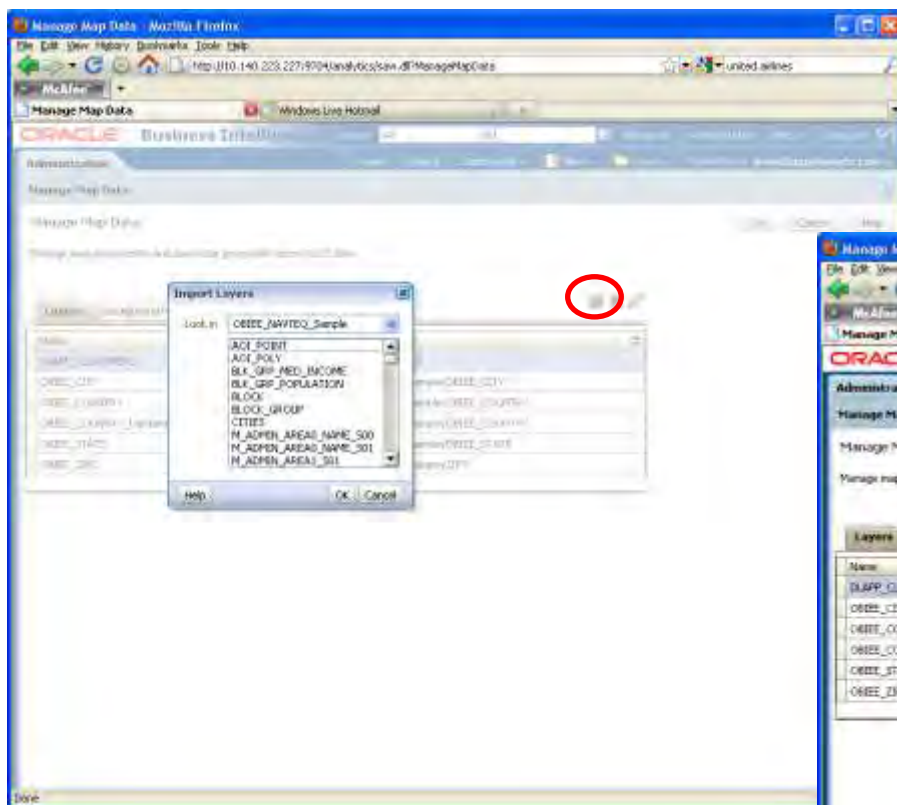
e.g. customers reporting regions, facilities



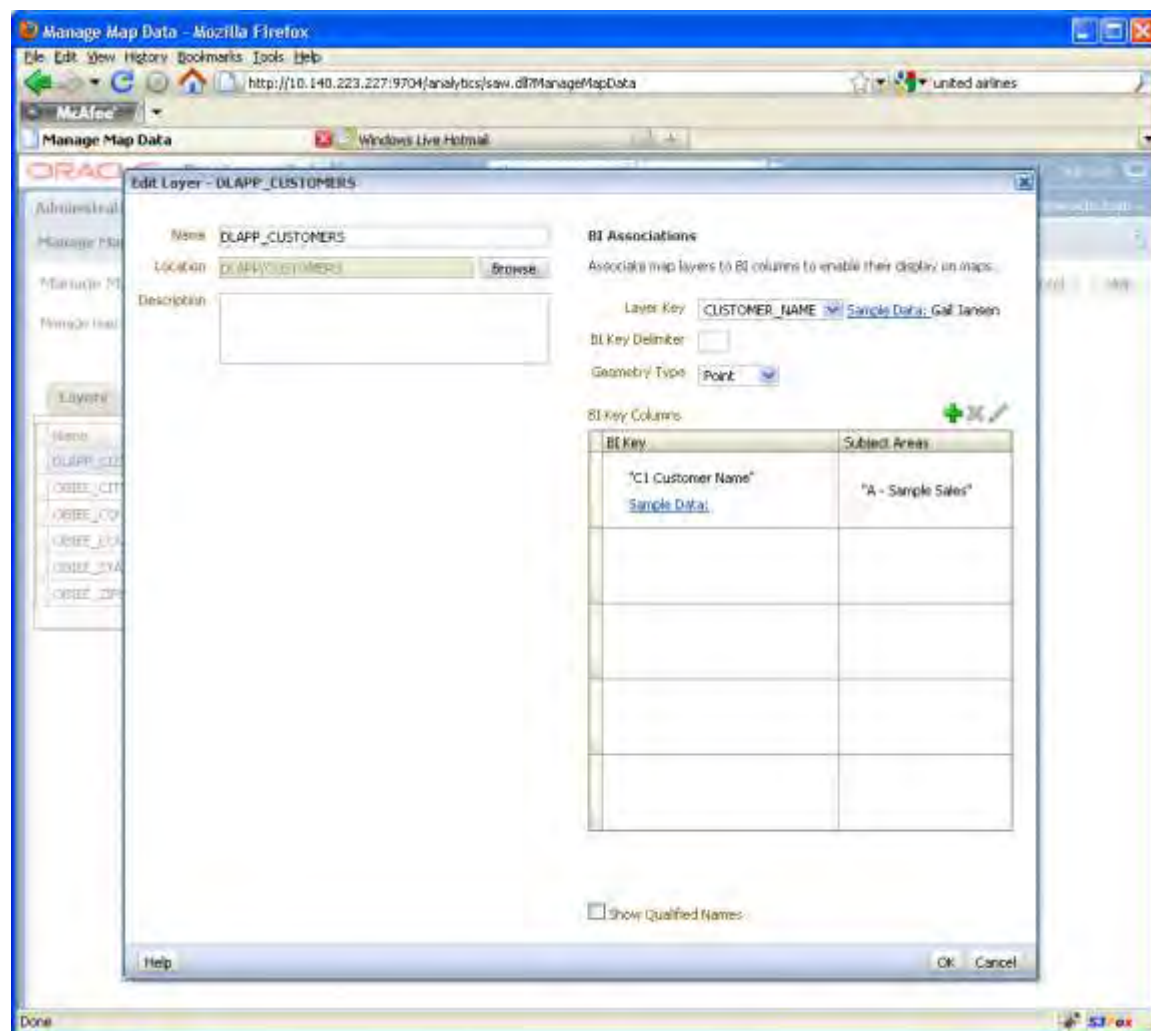
Configure new map layers for a Map View



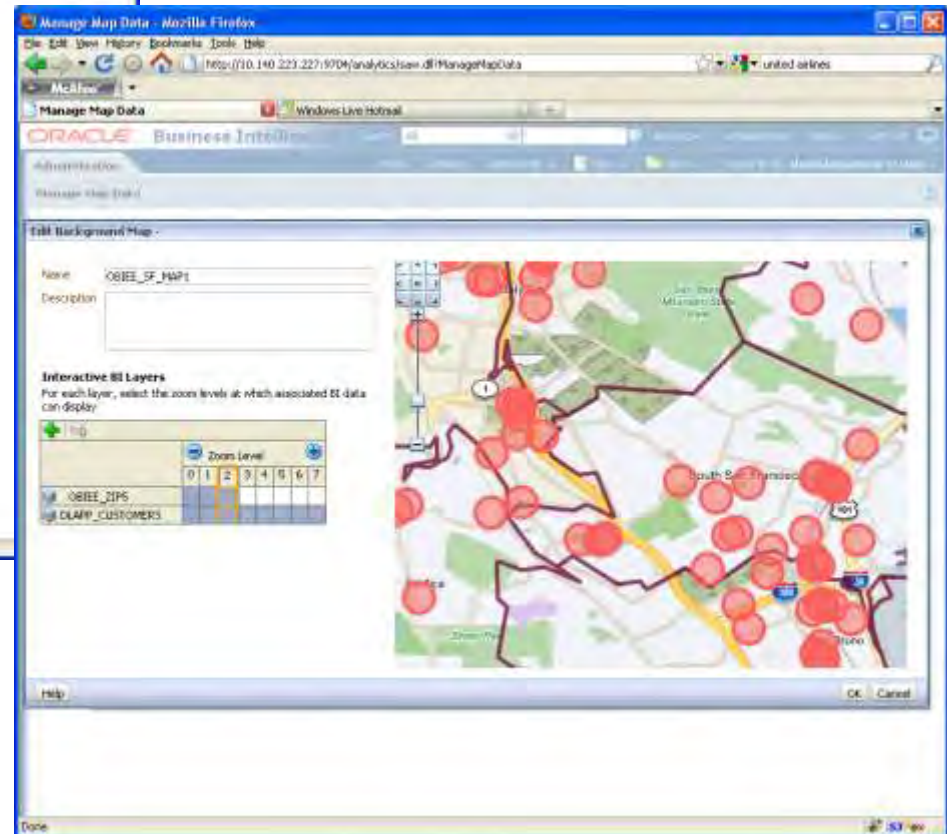
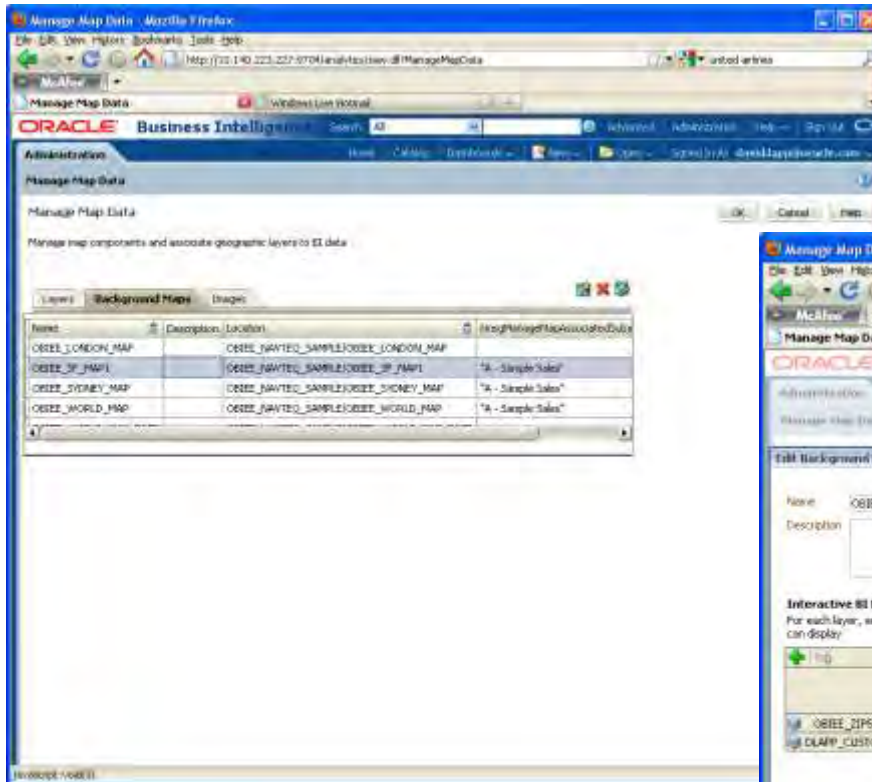
Import Layer



Define join to presentation column



Define associated background map



The handshake

Analysis is simply Customer Name, Revenue
We've already told OBIEE how to join Customer Name to map data

