Oracle Database Analytic Views

Event: BIWA Summit 2016

Presenter: Dan Vlamis, Michael Caskey, George Lumpkin

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Vlamis Software Solutions

- Vlamis Software founded in 1992 in Kansas City, Missouri
- Developed 200+ Oracle BI and analytics systems
- Specializes in Oracle-based:
  - Enterprise Business Intelligence
  - Data Warehousing
  - Data Mining and Predictive Analytics
  - Data Visualization
- Multiple Oracle ACEs, consultants average 15+ years
- www.vlamis.com (blog, papers, newsletters, services)
- Co-authors of book "Data Visualization for OBI 11g"
- Co-author of book "Oracle Essbase & Oracle OLAP"
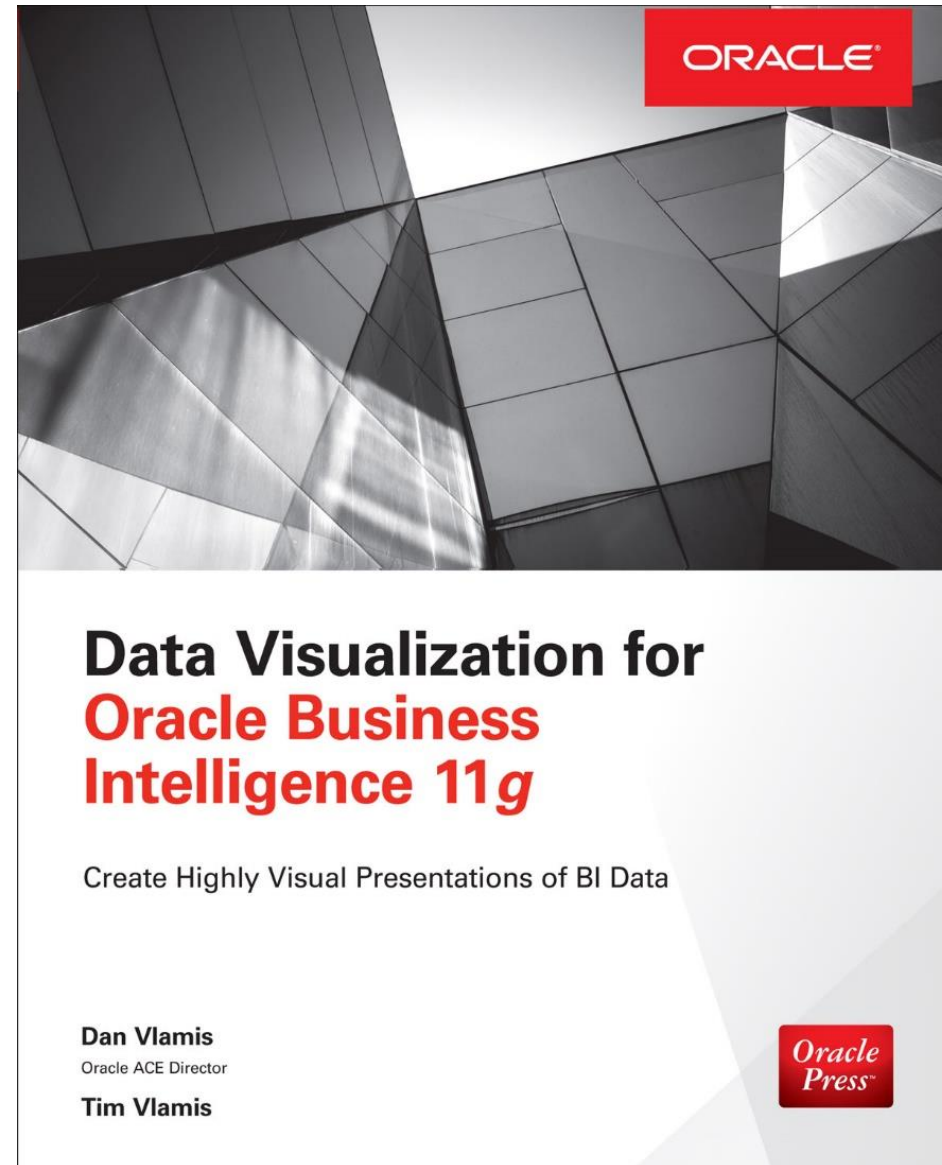- Oracle University Partner
- Oracle Gold Partner
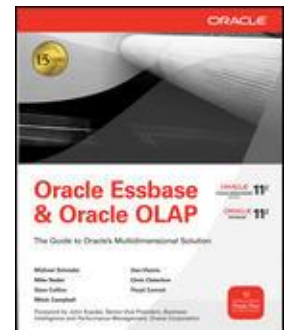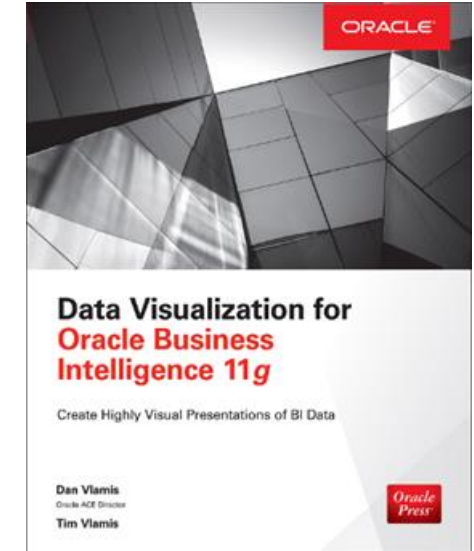
Presenter Background

- Dan (OLAP expert and career IT guy)
- 25+ Years in business intelligence/executive information systems
- Led development team at IRI
- Founded Vlamis Software Solutions 20+ years ago in 1993
- Author, speaker, Oracle ACE Director
- BA Computer Science Brown University

- Mike (IT Architect and hands-on expert)
- 20+ years in data warehousing, software engineer and OLAP
- 10+ years of this time in Healthcare BI as co-founder and lead architect of a software company, developing 6 product solutions
- Expert in multiple Enterprise Data Warehouse design and implementations across industries

- Special Guest George Lumpkin (Oracle VP, DW Product Management)
- Been with Oracle since 1991

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Drawing for Free Book

Add business card to basket
or fill out card

Data Visualization for
Oracle Business
Intelligence 11g

Create Highly Visual Presentations of BI Data

Dan Vlamis
Oracle ACE Director

Tim Vlamis

Disclaimer

The information we are about to discuss was discovered and analyzed from an Oracle Open World 2015 presentation. The Oracle Database 12.2 is still in Beta and scheduled for release later this year.

Some slides have been created from audience pictures taken during this presentation.

Agenda

- Current approach to BI

- Coming Soon – Analytic Views

- Demonstration (Beta DB 12.2 Analytic Views)

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Today's Approach to BI

Simple Tables and Complex Queries

BI Tools and Applications
Business Model and Calculations
Complex Query Generator

Database
Data and Query Processing

- Metadata and calculations are defined in the application layer
  - Lack of re-use / repetitive work
  - Potential for inconsistent results
- Requires complex query generators
  - Makes custom application development very difficult
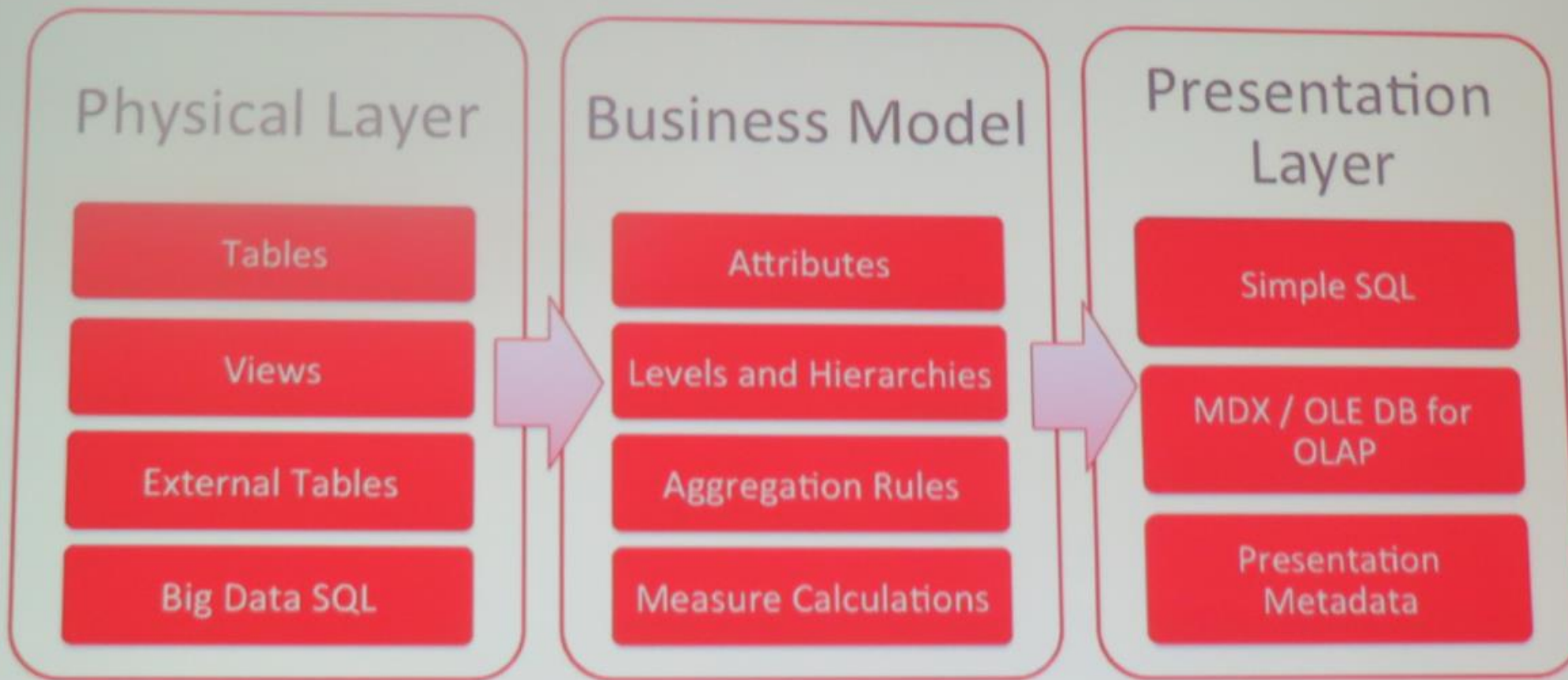
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Analytic Views

- New type of view in the Oracle Database

  - Business model and calculation rules are embedded within the Analytic View

  - Purely relational concept – no instantiation of the data

- Analytic Views as easily queried with simple SQL and MDX

  - With a smart Analytic view, SQL generation is easy

  - MDX provider (OLE for OLAP), supports Excel PivotTable connections

- Access data from tables, views, external tables and Big Data SQL

  - Use Analytic Views to organize and present a wide variety of data

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Access, Model and Present

Analytic Views: Access, Model and Present

Physical Layer	Business Model	Presentation Layer
Tables	Attributes	Simple SQL
Views	Levels and Hierarchies	MDX / OLE DB for OLAP
External Tables	Aggregation Rules	Presentation Metadata
Big Data SQL	Measure Calculations	

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Three New Database Objects

- Attribute Dimensions
  - Map to data objects with attribute data
  - Identify the roles and columns
- Hierarchies
  - Organizes levels in aggregation and drill paths
  - A new type of view that can be queried with SQL
- Analytic Views
  - Maps to data objects with fact measure data
  - New type of view that can be queried with SQL and MDX

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Selecting from an Analytic View

Joined, Aggregated and Calculated

- Joins all hierarchies and fact data into a single view (de-normalized)
  - No Joins required in query
- Returns rows for all aggregate data
  - GROUP BY not required in query
- Presents calculated measures as a single Column
  - Just select the column name
- Query transformation engine accesses and calculates data
  - No pre-calculation is required
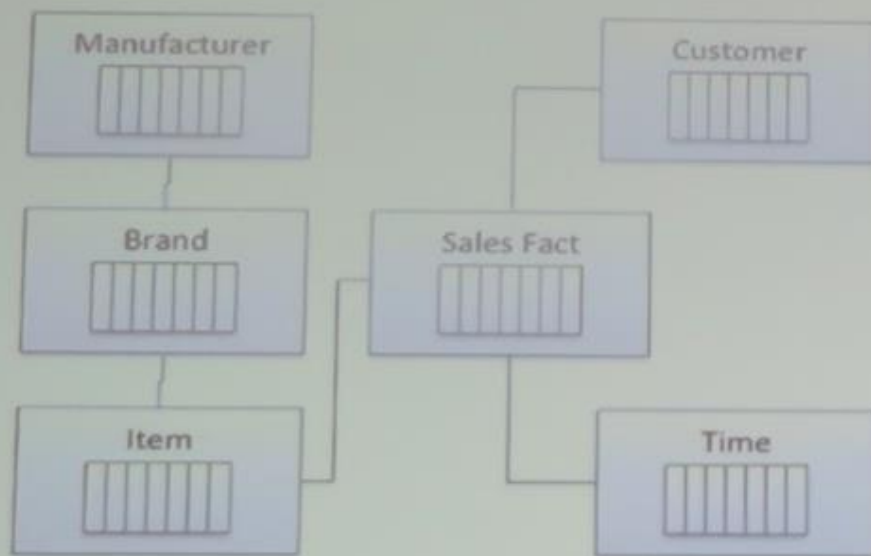
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Smart Views and Simple Queries

```
SELECT
  time_hierarchy.member_name       AS TIME,
  product_hierarchy.member_name    AS product,
  geography_hierarchy.member_name AS geography,
  sales,
  sales_year_ago,
  sales_chg_year_ago,
  sales_pctchg_year_ago
FROM
  sales_av hierarchies (time_hierarchy, product_hierarchy, geography_hierarchy)
WHERE
  time_hierarchy.level_name        = 'YEAR'
AND product_hierarchy.level_name   = 'DEPARTMENT'
AND geography_hierarchy.level_name = 'REGION';
```

Demonstration