



Oracle Business Intelligence Masterclass

New Features with Oracle Essbase, and Integration with OBIEE 11g

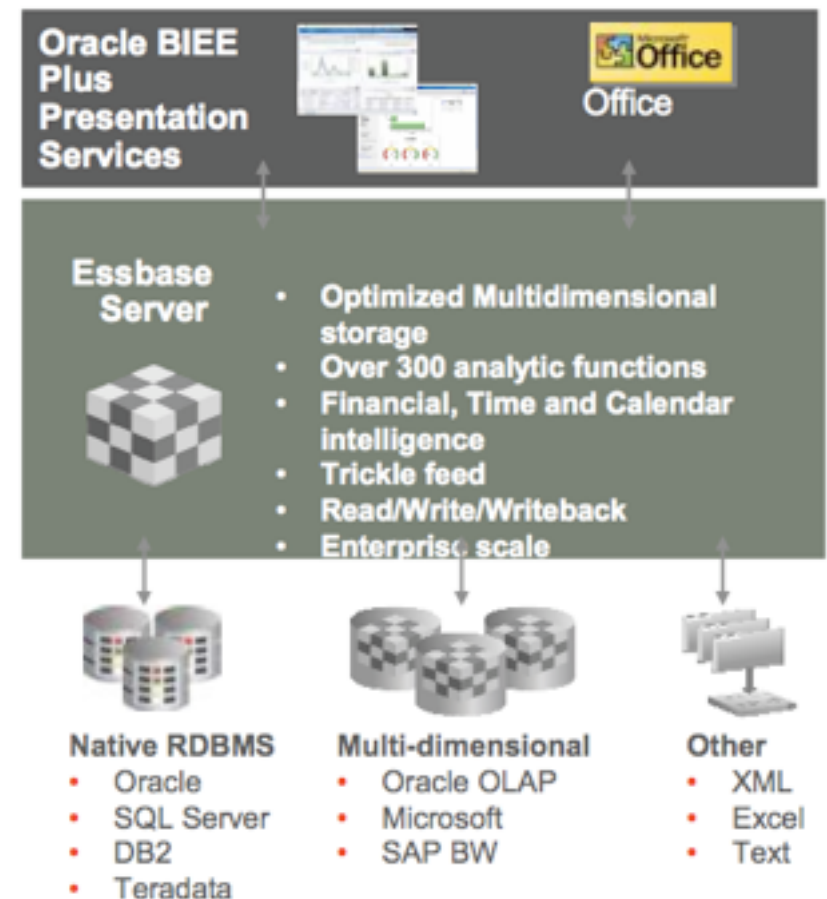
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Agenda

- Introduction to Essbase
- Essbase Server within OBIEE 11g Architecture
- Packaging and Licensing
- Essbase Integration Points with OBIEE
- OBIEE 11g Essbase Enhancements - Metadata and Cube Import
- Importing an Essbase 11.1.2 Cube into OBIEE 11g
- OBIEE 11g Essbase Enhancements - Reporting and Analysis
- Gotchas: MDX Generation, Hierarchical Columns, Patchsets
- Summary

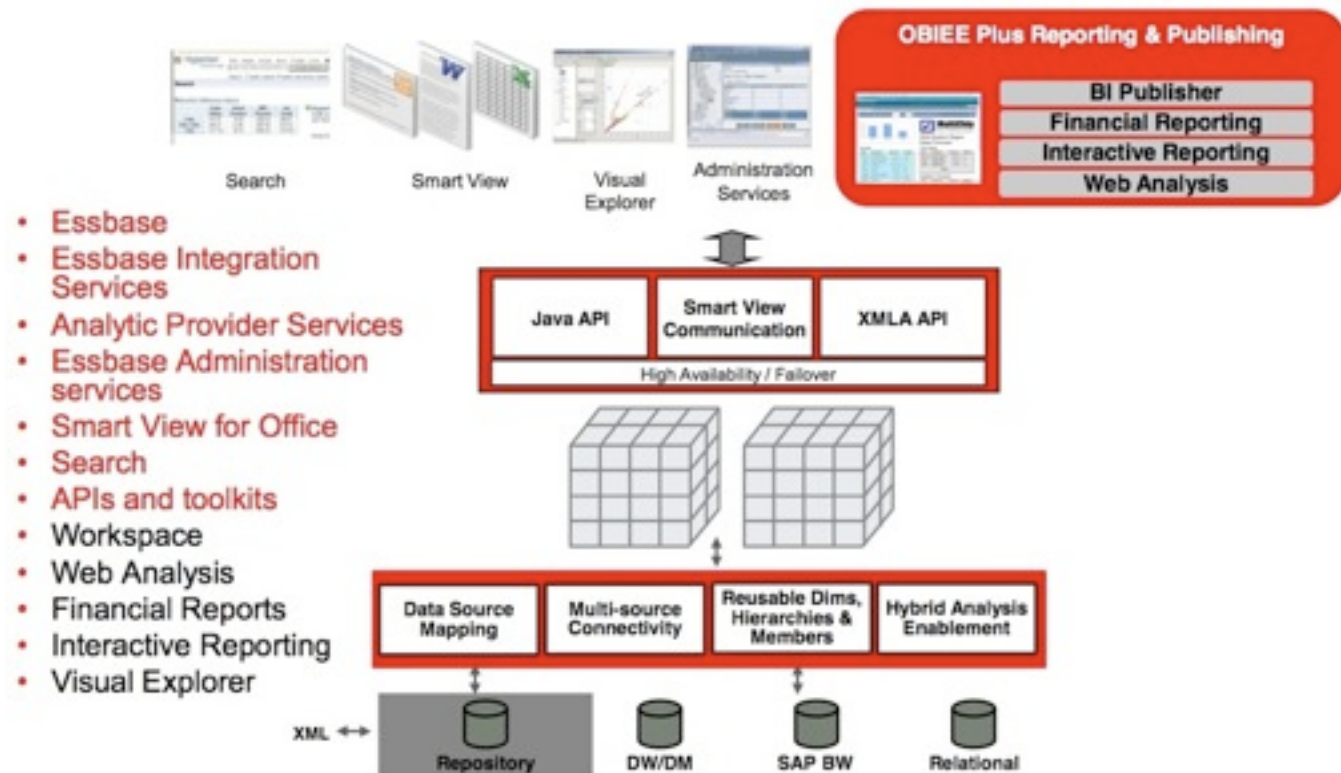
Oracle Essbase

- Standalone OLAP server now owned by Oracle
 - ▶ Acquired as part of the Hyperion Acquisition
- Adds a fully-featured OLAP server, separate to the database, as part of the Fusion Middleware family of products
- End-User focused, very popular with business users
- Used to power many of the Hyperion performance management applications
- Similar capabilities to Oracle OLAP
- Supports MDX and XML/A rather than SQL access



Essbase Architecture

- ODBC connectivity to all major RDBMSs, plus SAP B/W
- Multi-dimensional OLAP engine
- Java and XML/A mid-tier
- Essbase query tools or OBIEE+



Essbase Analytic Capabilities

- Like Oracle OLAP, it has full OLAP capabilities
- Drill, pivot, select, compare, rank, sort, filter, group, stack, calculate, annotate, write-back....
- Reporting tools enabled by database “outline”
- Very easy to add financial-style calculations, forecasts, allocations etc
- Slightly more emphasis on the business/finance user, rather than the DBA (as with Oracle OLAP)



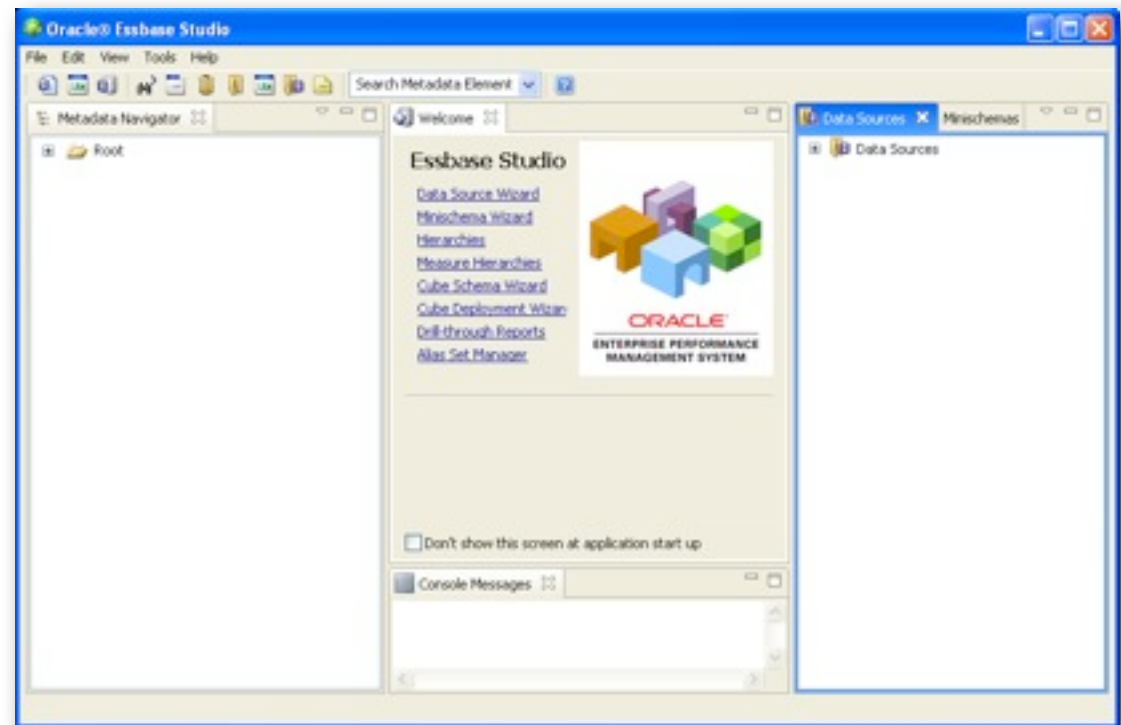
Cubes Accessed using MDX and XML/A

- Unlike Oracle OLAP, the primary query language for Essbase is MDX
- XML/A used for web-based access (very easy integration with OBIEE)
- MDX is supported by Microsoft, SAP, Hyperion, the “standard” for OLAP access
 - ▶ Pros : exposes full capabilities of the OLAP model
 - ▶ Cons : a new language to use, SQL-based tools are incompatible

```
With
  set [CUSTOMER_DIM3] as '[CUSTOMER_DIM].Levels(2).members'
  set [PRODUCT_DIM3] as '[PRODUCT_DIM].Levels(2).members'
  set [TIME_DIM3] as '[TIME_DIM].Levels(2).members'
  set [Q] as 'crossjoin ({[CUSTOMER_DIM3]},crossjoin ({[PRODUCT_DIM3]}, {[TIME_DIM3]}))'
  select
    { [Accounts].[SALES]
    } on columns,
    NON EMPTY {[Q]} properties ANCESTOR_NAMES on rows
  from
    [global.Global]
```

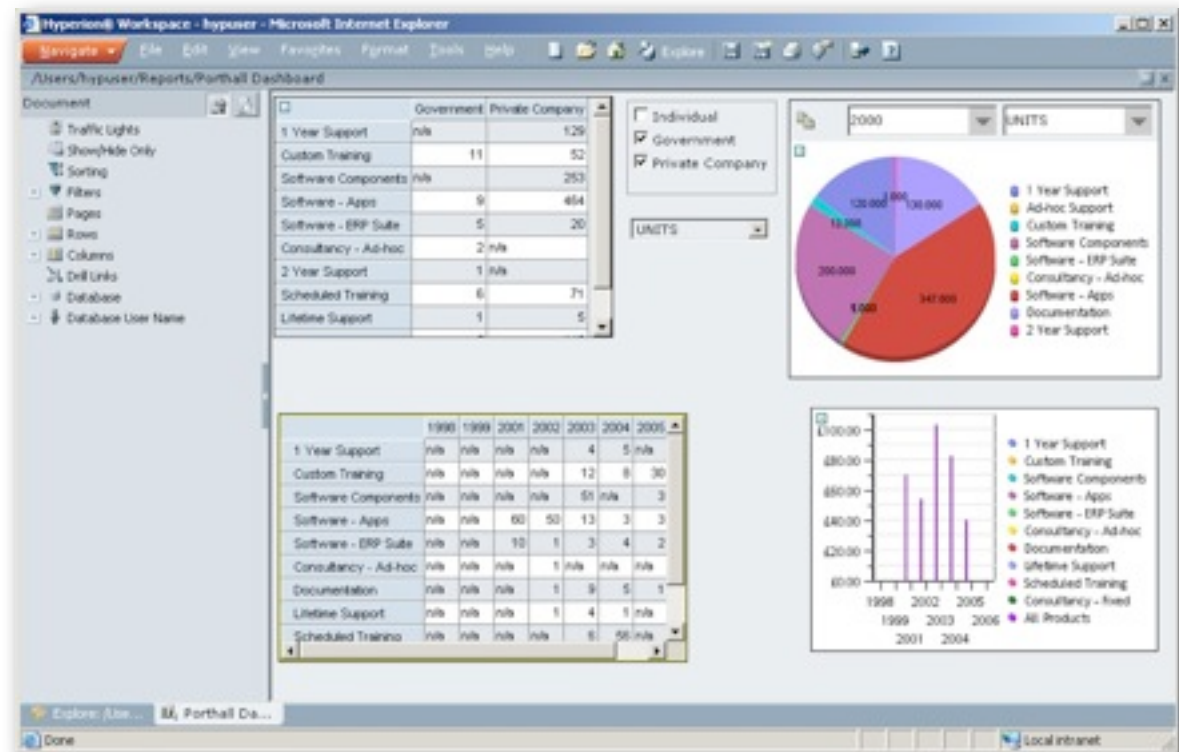
Essbase Development & Support Tools

- Essbase Administration Services
- Essbase Integration Services
- Essbase Studio (11.1+)
- Analytic Provider Services
- Hyperion Shared Services



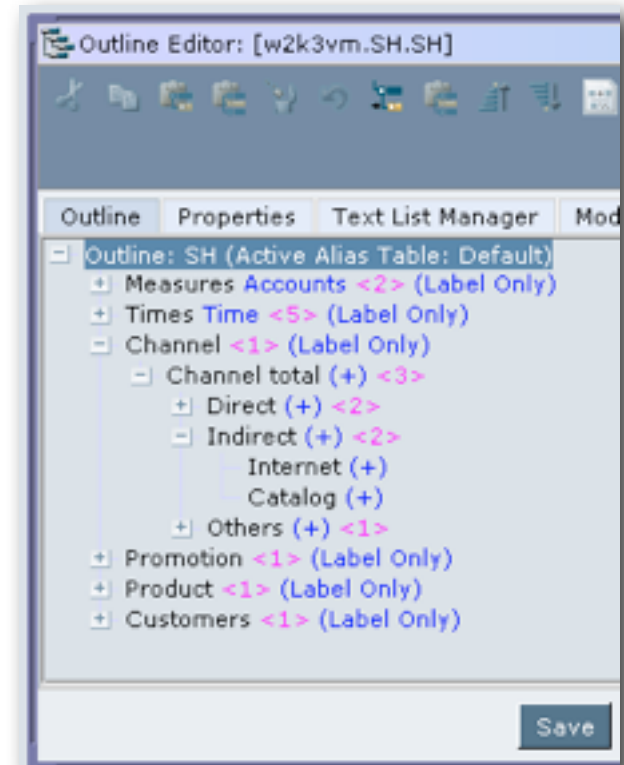
Accessing Essbase Data Pre-OBIEE 11g

- MDX is a common standard and most OLAP query tools support it
- Essbase comes with a set of query and development tools that are fully OLAP-capable
 - ▶ Web Analysis
 - ▶ Workspace
 - ▶ Excel Add-in
 - ▶ Financial Reporting
 - ▶ Interactive Reporting
- Many of Hyperions EPM tools use Essbase as the OLAP engine
- OBIEE can connect to, and report against Essbase data automatically



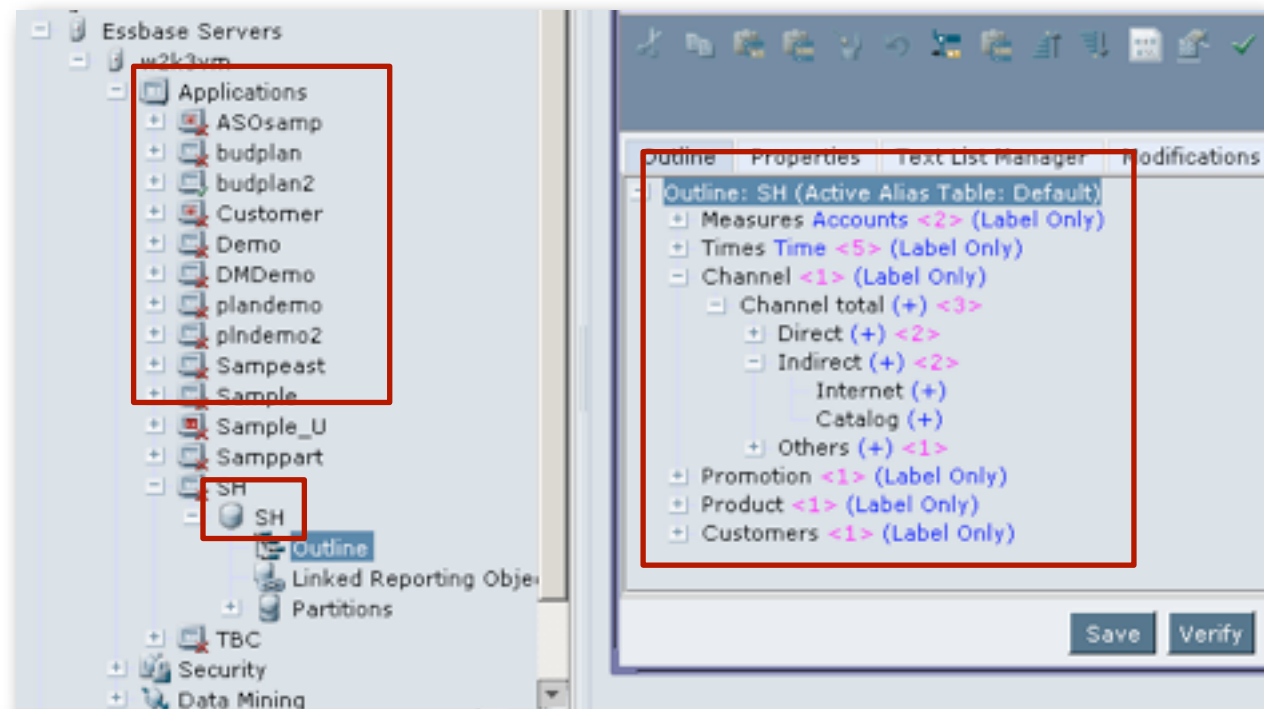
Essbase Concepts : The Outline

- The dimensional model for the Essbase database
- Contains all of the dimensions, hierarchies, members
- Calculation and aggregation settings
- The most important bit of metadata for your Essbase Database
- Stored as a .otl file in the filesystem



Essbase Concepts : Dimensions, Cubes and Applications

- An Essbase Server has one or more applications
- Applications can contain one or more databases (BSO) or one database (ASO)
- Databases contain dimensions (including Account (measure) dimension)
- All accounts linked to all dimensions (“hypercube”)



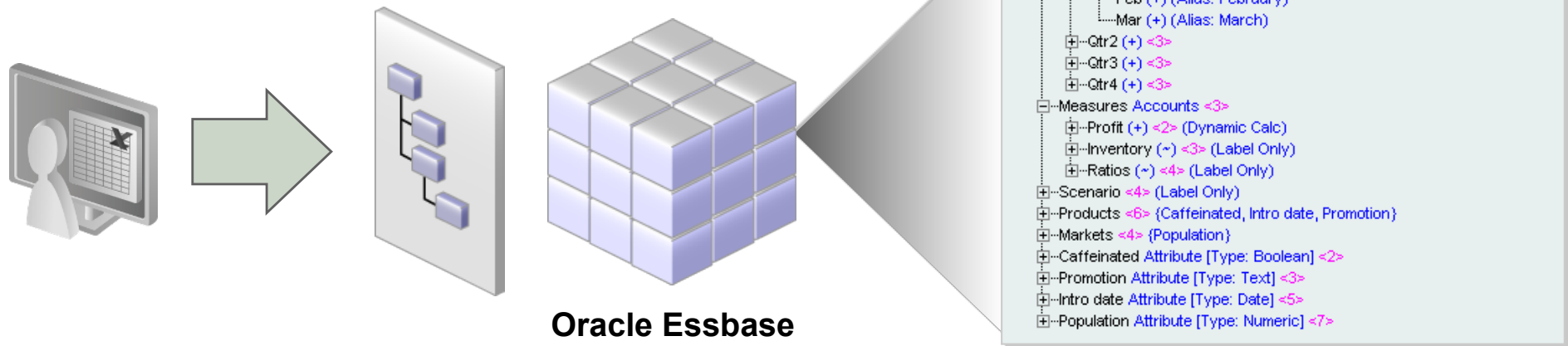
Essbase Concepts : Members, Hierarchies Levels & Generations

- Essbase outlines list out the dimension members in hierarchies
 - ▶ Outlines with lots of members can get big
- Hierarchies can be balances, unbalanced or ragged
- Outline changes can have significant effect on databases (and currently on OBIEE)
- Hierarchies can be parent-child or level-based
 - ▶ Level-based works best with OBIEE
- Generations and Levels define the steps in the hierarchies
 - ▶ Generations is top-down
 - ▶ Levels are bottom-up



New in Essbase 11.1.2

- Focus on manageability, scalability
- Industry-leading analytics engine with built-in financial intelligence
- New in Release 11.1.2: Fusion Middleware Integration for enterprise-class manageability
 - ▶ Oracle Enterprise Manager
 - ▶ Oracle Single Sign-on and Security integration
 - ▶ Oracle Diagnostic Logging
 - ▶ Oracle OPMN Failover





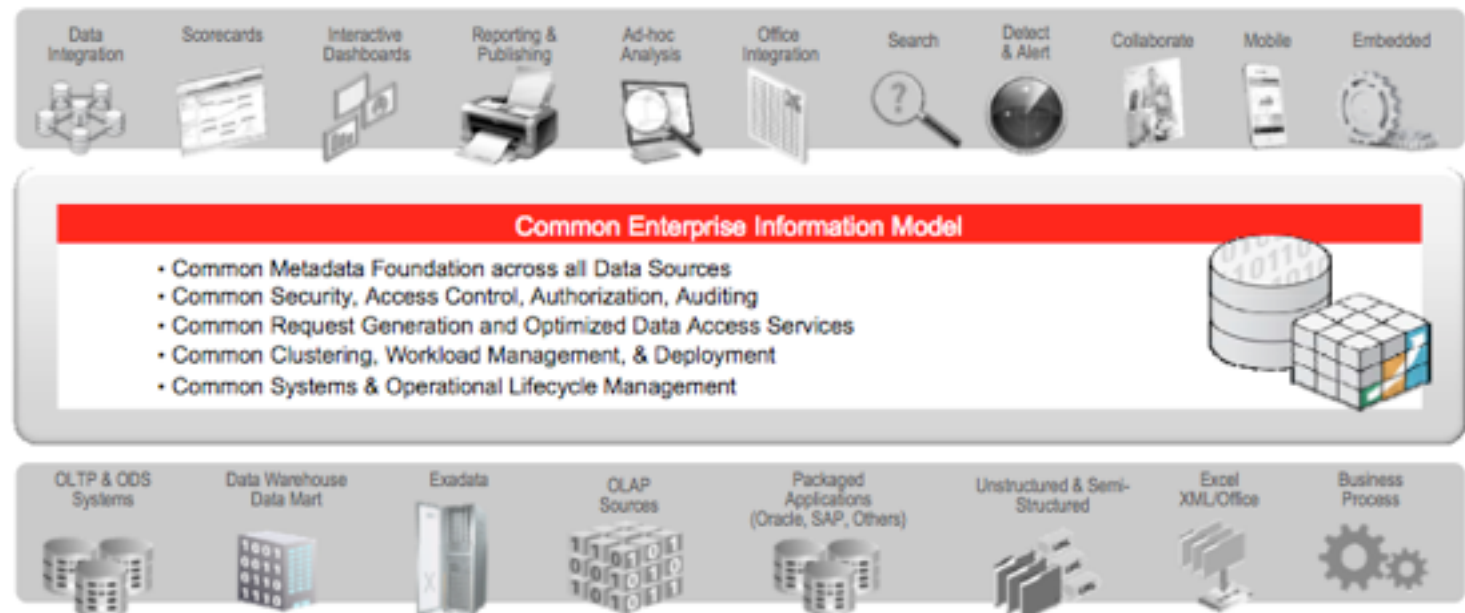
Demonstration

Oracle Essbase 11.1.2

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Oracle Business Intelligence 11g

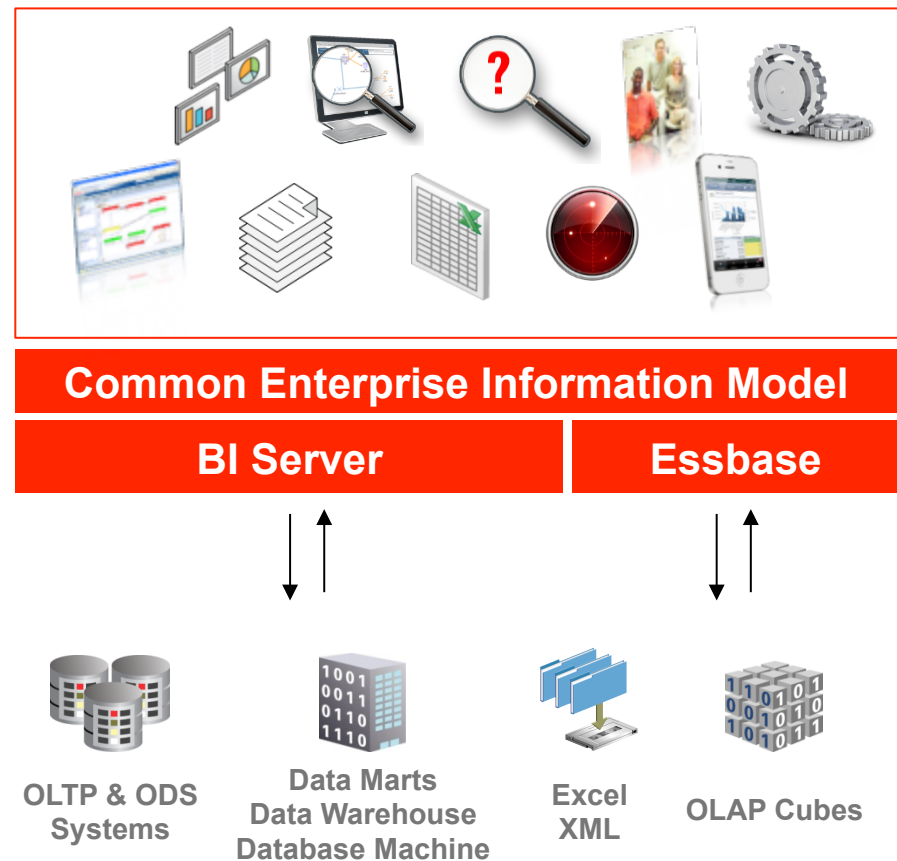
- The latest release of OBIEE (Oracle BI Enterprise Edition)
- Major changes to front-end, integration, architecture
- Objective is to make it more “enterprise-ready”
- Closely integrated with Oracle Fusion Middleware 11g



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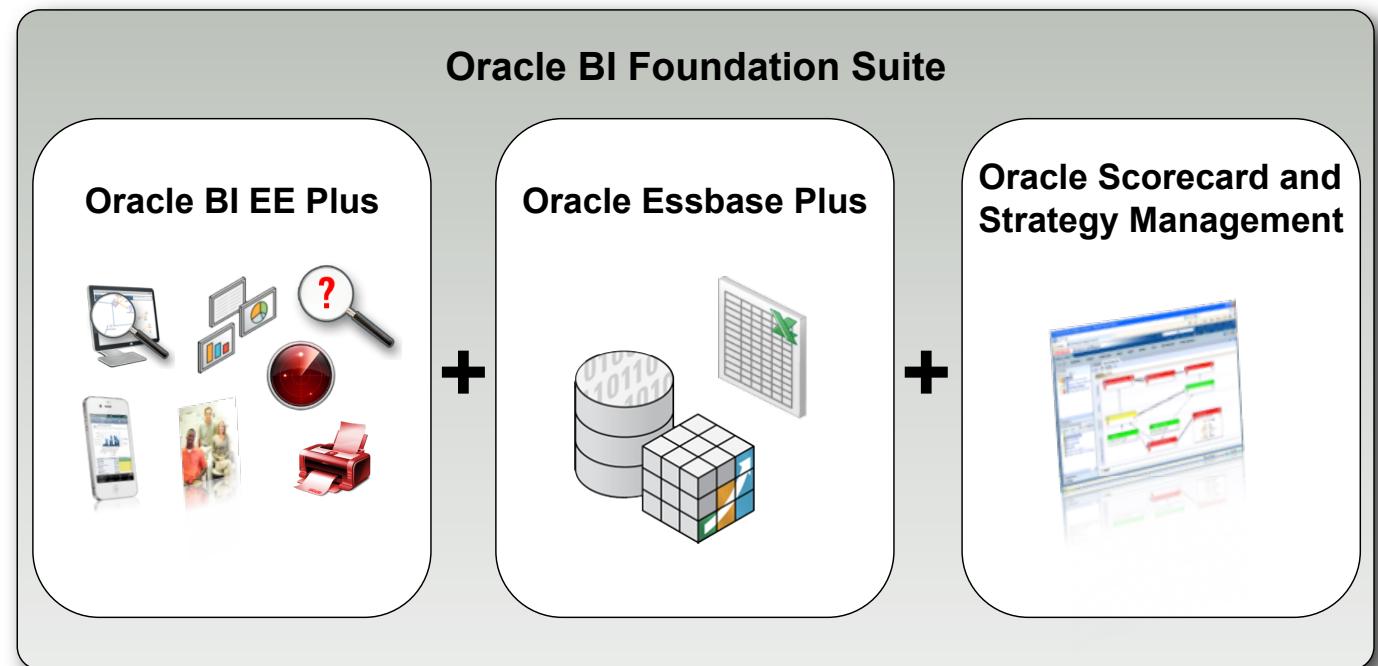
Oracle BI Foundation

- Presentation Layer
 - ▶ Role-based interactive dashboards
 - ▶ Proactive alerts
 - ▶ MS Office and Excel integration
- Business Logic Layer
 - ▶ Semantic Model
 - ▶ Powerful query processing, modeling, planning, what-if analysis
- Data Layer
 - ▶ Federated enterprise data sources



Oracle BI Foundation Suite

- New marketing package combining OBIEE 11g Plus, Oracle Essbase Plus and Oracle Scorecard and Strategy Management
- Complete technology foundation for Oracle BI & EPM



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Essbase Integration with OBIEE

- OBIEE can connect to multidimensional as well as relational sources
 - ▶ Microsoft Analysis Services, SAP B/W, Essbase
- Import process converts the multidimensional view into a relational view
- Essbase cubes, dimensions, hierarchies converted to a logical relational star schema
- Essbase data can then be combined with data from sources
- OBIEE 11g introduces new OLAP query capabilities making Answers a first-class ad-hoc query tool for Essbase cubes
- Other use case is to bring in budget, forecast data etc from Essbase and use to enhance relational data

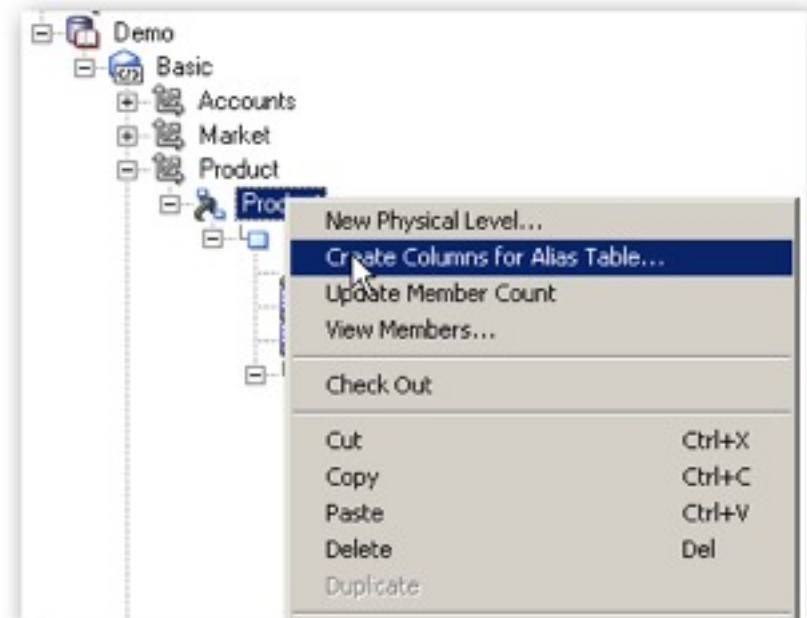
The screenshot shows the Oracle Business Intelligence (OBIEE) interface. The main window displays a Pivot Table query result. The table has two columns: 'Accounts' and 'Basic - measure'. The data is as follows:

Accounts	Basic - measure
Accounts	133980.00
Margin_ %	58.94
Profit	133980.00
Margin	358286.00
Cost_of_Goods_Sold	249616.00
Sales	607902.00
Total_Expenses	224306.00
Profit_ %	22.04

The interface also shows a 'Subject Areas' pane on the left with a tree view of 'Accounts' and 'Profit' dimensions. The 'Catalog' pane at the bottom shows 'My Folders' and 'Shared Folders'.

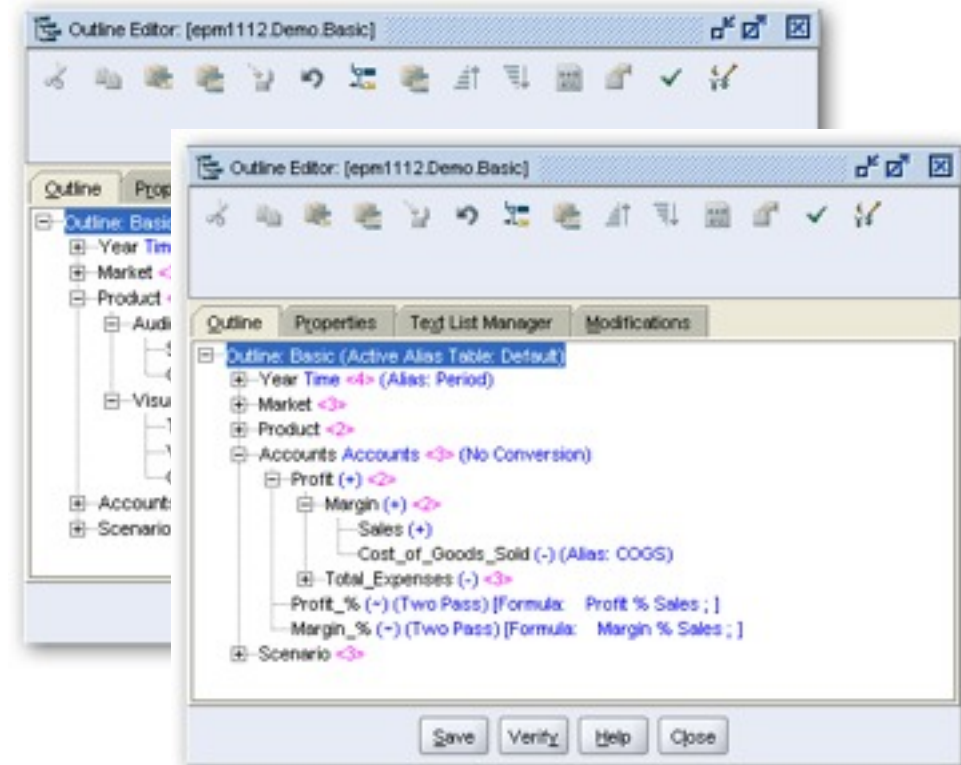
New Essbase Cube and Metadata Features in OBIEE 11gR1

- Essbase outlines are still imported in and converted to relational stars
- However outlines are now handled better
 - ▶ Accounts dimensions keep their hierarchy
 - ▶ Parent-child (value-based) hierarchies are supported
 - ▶ Alias tables supported
 - ▶ UDAs supported
- No longer any need to recreate as outline evolves (additional generations, members)
- Makes OBIEE a more practical reporting environment for financial-style Essbase cubes



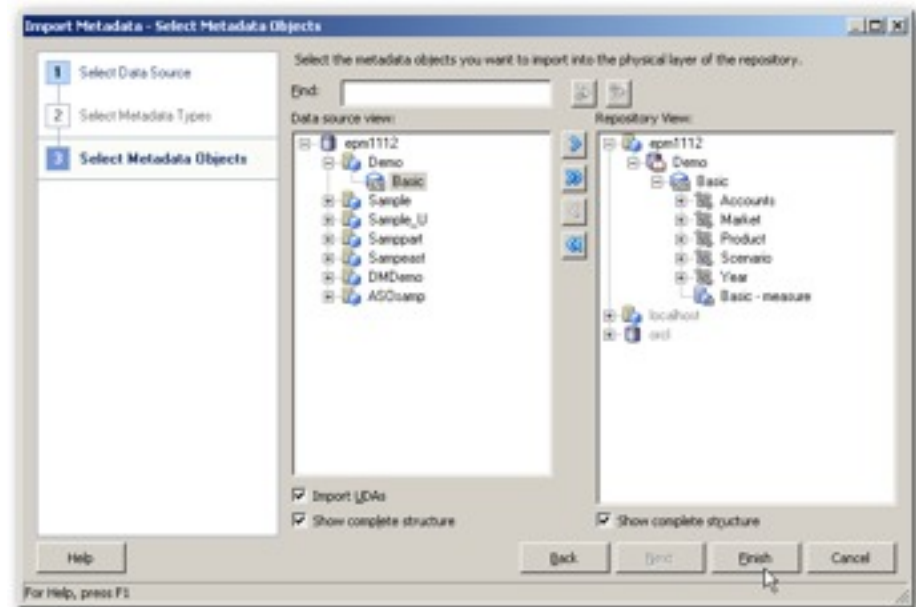
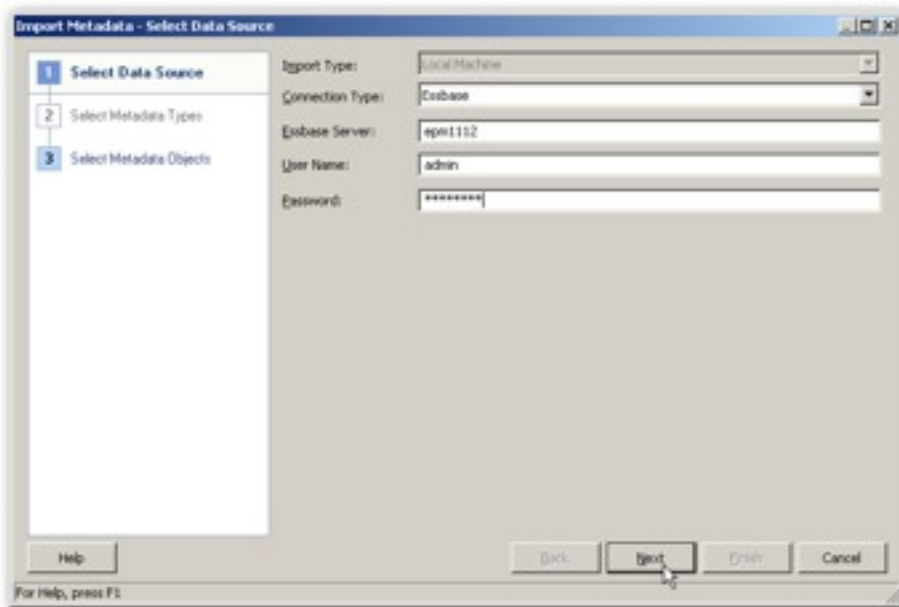
Importing an Essbase Cube Step 1 : Review Essbase Outline

- Review the Essbase outline using Essbase Administration Services
- Be aware of the number and type of dimensions
- Check usage of alias tables, UDAs etc
- Note : Only Essbase 11.1.2, and Essbase 9.3.3 are supported current
 - ▶ (9.3.3. requires patch XXXXX)



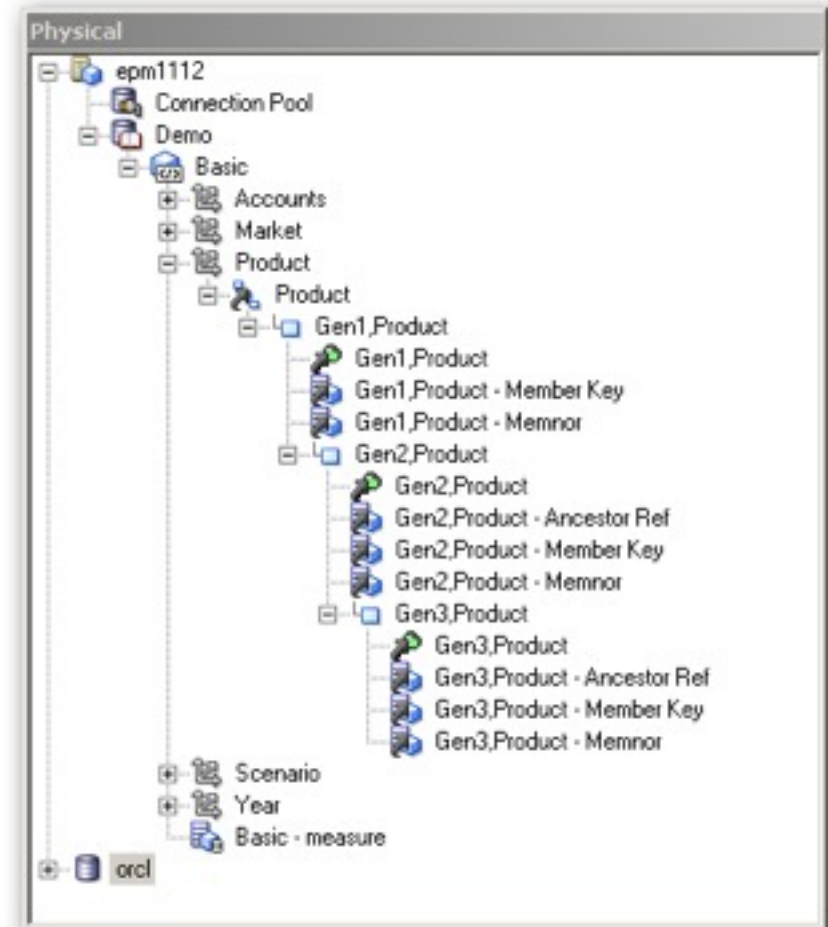
Importing an Essbase Cube Step 2 : Select Metadata Import

- Using BI Administration tool, select **File > Import Metadata**
- Enter connection details for Essbase Server (requires Essbase Client to be installed on server and desktop)
- Select cube for import, check **Import UDAs** if UDAs are present in cube



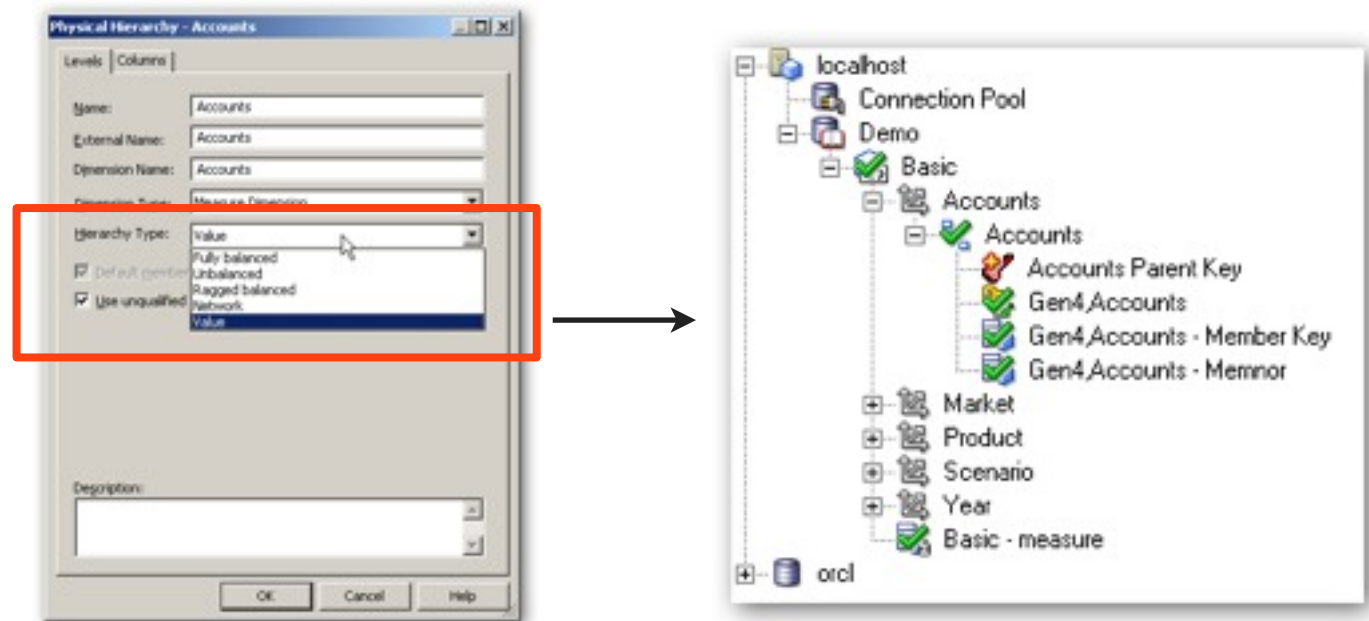
Importing an Essbase Cube Step 3 : Review Import

- Review imported cube metadata
 - ▶ Accounts dimension is now a hierarchy
 - ▶ Single measure dimensioned by all dimensions
 - ▶ Columns still based on outline dimension generations



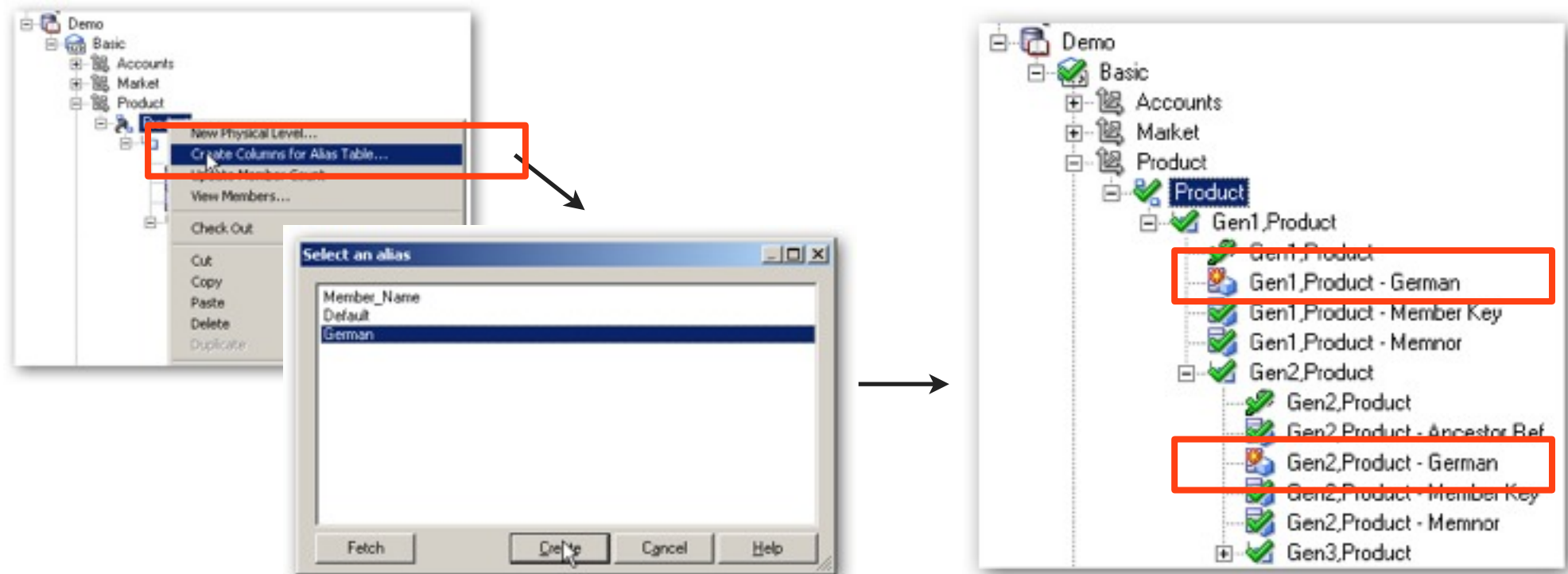
Importing an Essbase Cube Step 4 : Convert To Parent-Child

- Imported level-based hierarchies can be converted to value-based
 - Protects against outline evolution, new levels (generations) being added
- Right-click on dimension, select **Properties > Levels**, then change **Hierarchy Type** to **Value**



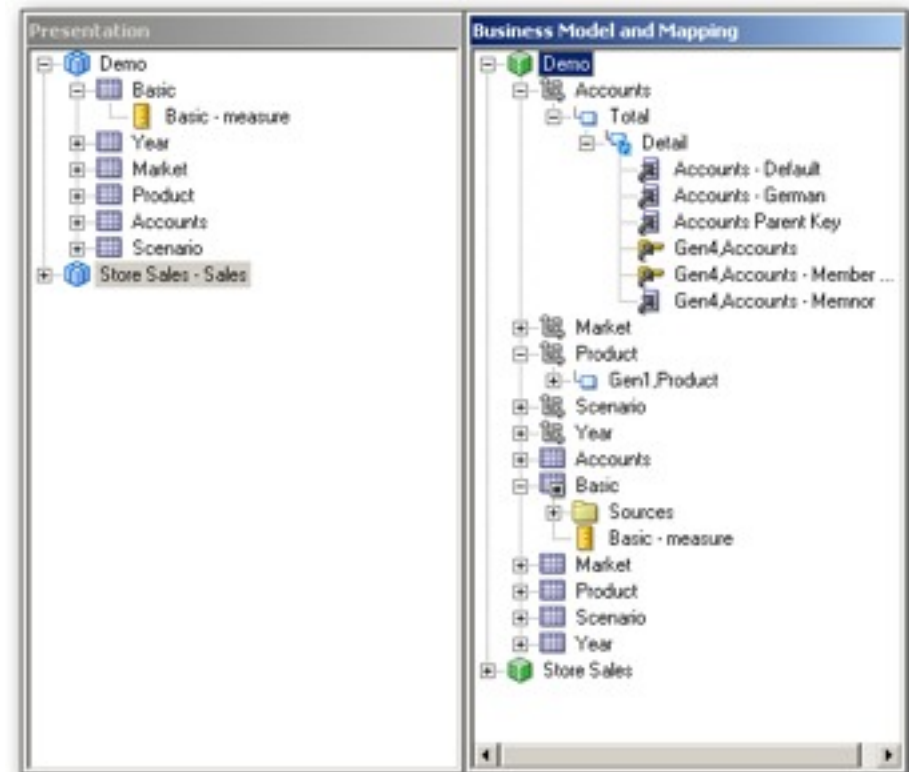
Importing an Essbase Cube Step 5 : Add Alias Columns

- Where aliases are present in the outline, these can be brought through to OBIEE
- Right-click on dimension, select **Create Columns for Alias Table**
- Select alias to create column for; alias then appears in physical database



Importing an Essbase Cube Step 6 : Create Remainder of Model

- Once physical model is created, drag and drop over to business model and mapping layer, and then presentation layer
- Essbase data is then ready for reporting on using Answers





Demonstration

Importing an Oracle Essbase 11.1.2 Database

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New Essbase Reporting Features in OBIEE 11g

- OBIEE 11g comes with a number of improvements for reporting against Essbase
 - ▶ Again requires 11.1.2, or 9.3.3 with patchset
- Hierarchical column provide OLAP-style drilling against Essbase cubes
- Selection steps and hierarchical prompts provided member-based selections
- UDAs can be used in filters
- Value-based hierarchies remove need to query specific levels to select members for analysis

The screenshot shows the 'Compound Layout' window in OBIEE 11g. It contains a 'Pivot Table' and a 'Selection Steps' section.

Pivot Table:

	Basic - measure
Accounts	
Margin_ %	58.94
(E) Profit	133980.00
Profit_ %	22.04
(E) Margin	358286.00
(E) Total_Expenses	224306.00
Cost_of_Goods_Sold	249616.00
Sales	607902.00
Payroll	175656.00

Selection Steps:

List: ALL

Measures

- Basic - Basic - measure

Accounts - Accounts

1. Start with all members
2. Then, Keep Children of 'Total_Expenses'
3. Then, Keep only members of Accounts where 'Demo', 'Basic', 'Basic - measure' is greater than 100000
4. Then, New Step...

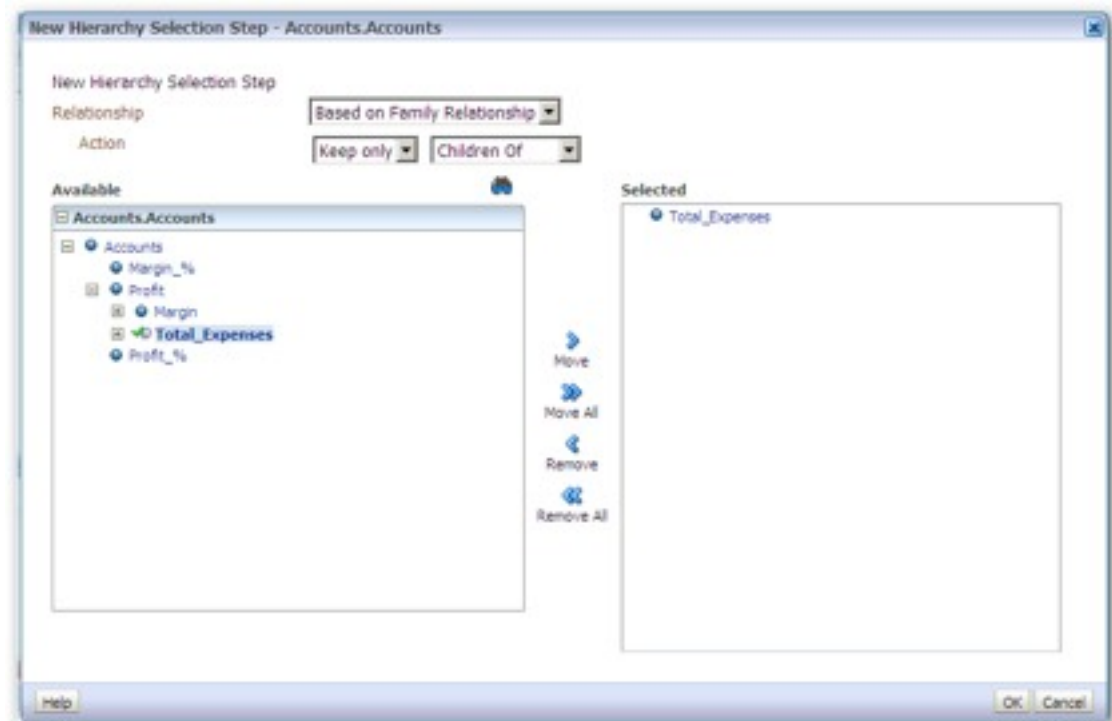
Essbase and Hierarchical Columns

- Essbase cubes now use Hierarchical Columns by default
- Full drill into detail (symmetric / asymmetric drilling)
- Combine with regular attribute columns
- Works across both relational and OLAP sources
 - ▶ MOLAP and ROLAP analysis combined

Title				
Pivot Table				
		Product	Audio	Visual
		Basic - measure	Basic - measure	Basic - measure
Accounts	Market			
Margin_ %	Market	58.94	53.20	61.41
Profit	Market	133980.00	35926.00	98054.00
Profit_ %	Market	22.04	19.60	23.09
Margin	Market	358286.00	97520.00	260766.00
Total_ Expenses	Market	224306.00	61594.00	162712.00
Cost_of_Goods_Sold	Market	249616.00	85774.00	163842.00
Sales	Market	607902.00	183294.00	424608.00
Profit	East	46576.00	13438.00	33138.00
	West	62839.00	22488.00	40351.00
	South	24565.00	0.00	24565.00
Payroll	Market	175656.00	50640.00	125016.00

Selection Steps and Essbase

- The OBIEE 11g Selection Steps feature can be used to select members based on a hierarchy
- Select individual members, drill into hierarchy
- Select members based on position in a hierarchy
 - ▶ Select Children Of
 - ▶ Select Ancestors of
 - ▶ Keep/Remove members



Conditional Selection Steps

- Selection steps can be added conditionally
- Select condition type, action, measure, operator and value
- Allows you to add/remove/keep members based on measure values

New Condition Step - Accounts

Condition Type:

Action: Of "Demo"."Accounts"."Accounts"

WHERE

Measure:

☒ For

Operator:

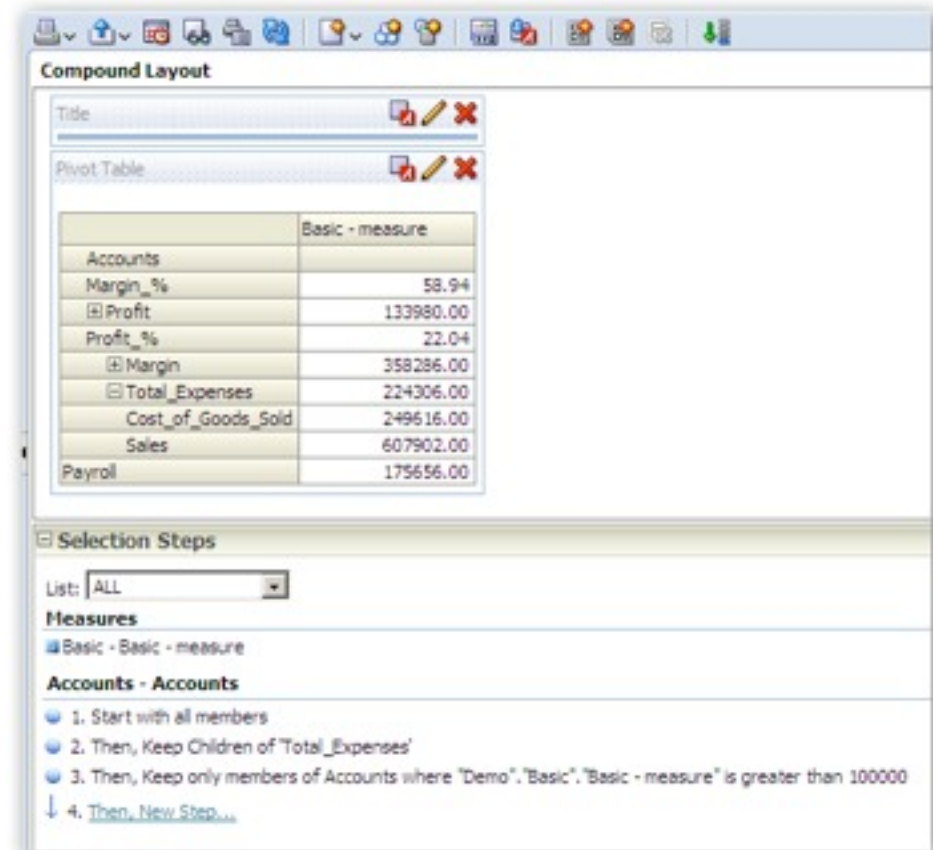
Value:

☐ Override with

Help OK Cancel

Review Selection Steps

- Selection Steps can be reviewed using the Results tab > Selection Steps
- Shows steps applied sequentially to the dataset
- Can be used in conjunction with regular criteria column filters



The screenshot shows a software interface with a 'Compound Layout' window. It contains a 'Pivot Table' and a 'Selection Steps' section.

Pivot Table:

	Basic - measure
Accounts	
Margin_ %	58.94
Profit	133980.00
Profit_ %	22.04
Margin	358286.00
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Selection Steps:

List: ALL

Measures

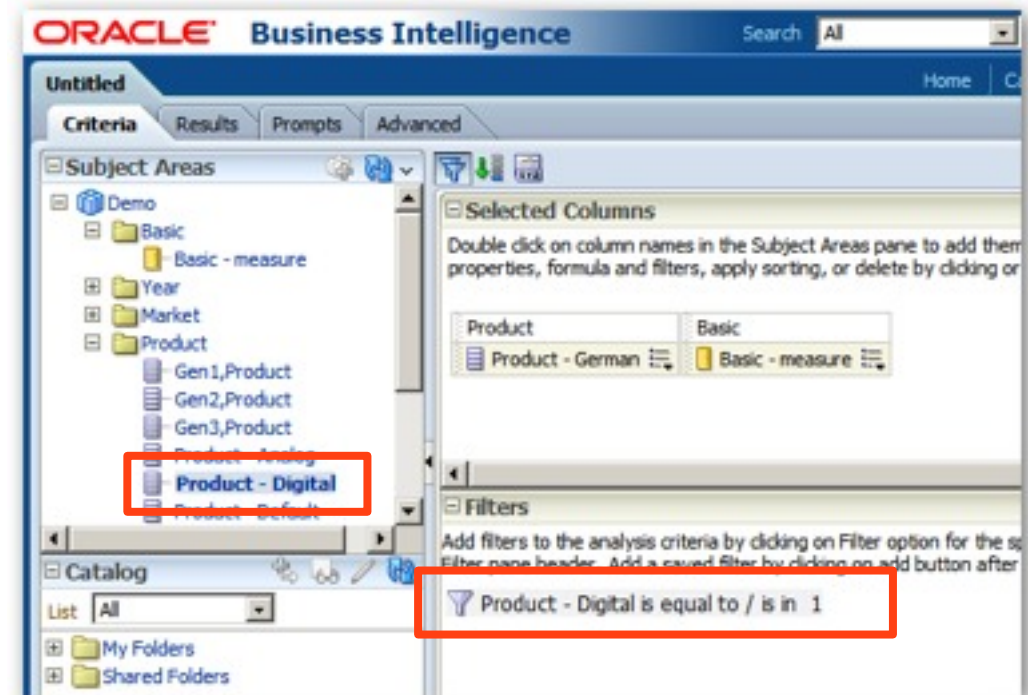
- Basic - Basic - measure

Accounts - Accounts

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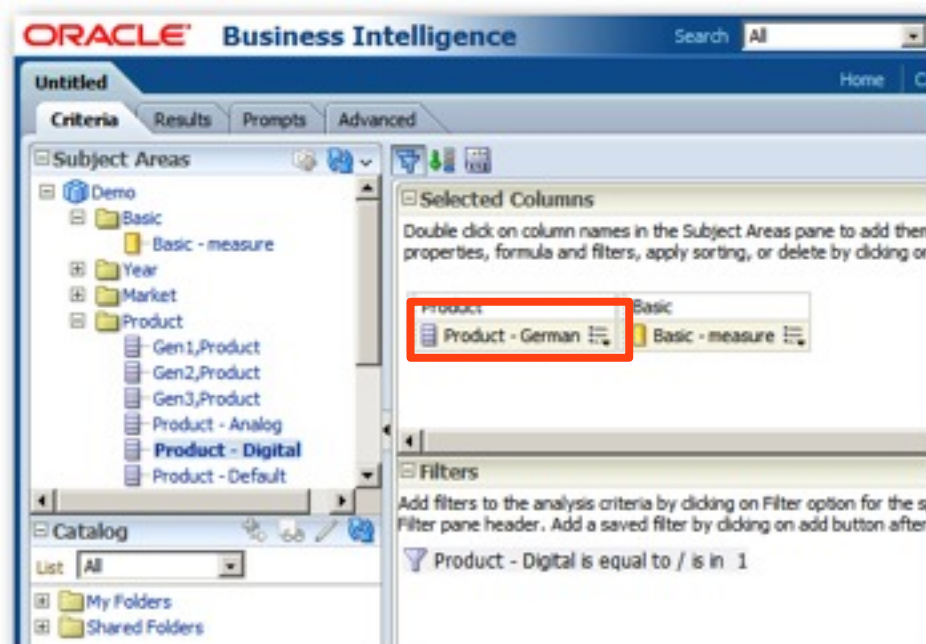
Filtering against UDAs

- User-Defined Attributes can be accessed via filters
 - UDAs are not displayable like columns, they instead act as filters
- Add filter based on UDA = 1 (true) or false (0)



Displaying Aliases

- Aliases appear in the subject area just like other columns
 - ▶ Have to be imported into the RPD, see previous steps
- Can be used just as any other column



Title	
Table	
Product - German	Basic - measure
Das Audio	35926.00
Das Kamera	20971.00
Das Stereokumf	746.00
Das Televisionkempfun	27877.00
Das Visuel	98054.00
Der Kompact Disken	35180.00
Die Vedioen	49206.00
Product	133980.00



Demonstration

Reporting Against Essbase using OBIEE 11gR1

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11.1.1.3 Considerations

- Only Essbase 11.1.2 is supported out-of-the-box; Essbase 9.3.3 is compatible with patch XXXXX; 11.1.1.3.x will gain support later in 2011
- Hierarchical columns generate MDX queries for each level of indentation, rather than one MDX for the whole query
- Many OBIEE functions are not function-shipped down to Essbase (same as OBIEE 10g)
- Adding new dimensions to an outline will still require full re-import into RPD
- No supported/documented way to install OBIEE 11g and Essbase 11.1.2 into the same WebLogic domain (has memory usage implications for laptop installs)
- Value-based hierarchies may not be easy to federate with level-based relational hierarchies



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