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# Business Intelligence : Position in Analytics Landscape

- USE CASE 2 : LHC – POSTMORTEM SYSTEM
- USE CASE 4: SYSTEMS HEALTH CHECK
- USE CASE 5: PREDICTIVE MAINTENANCE ON CONTROL DEVICES
- USE CASE 7: POWER CUTS ANALYSIS
- USE CASE 8: ELECTRICAL CONSUMPTION
- USE CASE 9: BUDGET FOLLOW-UP

# Agenda

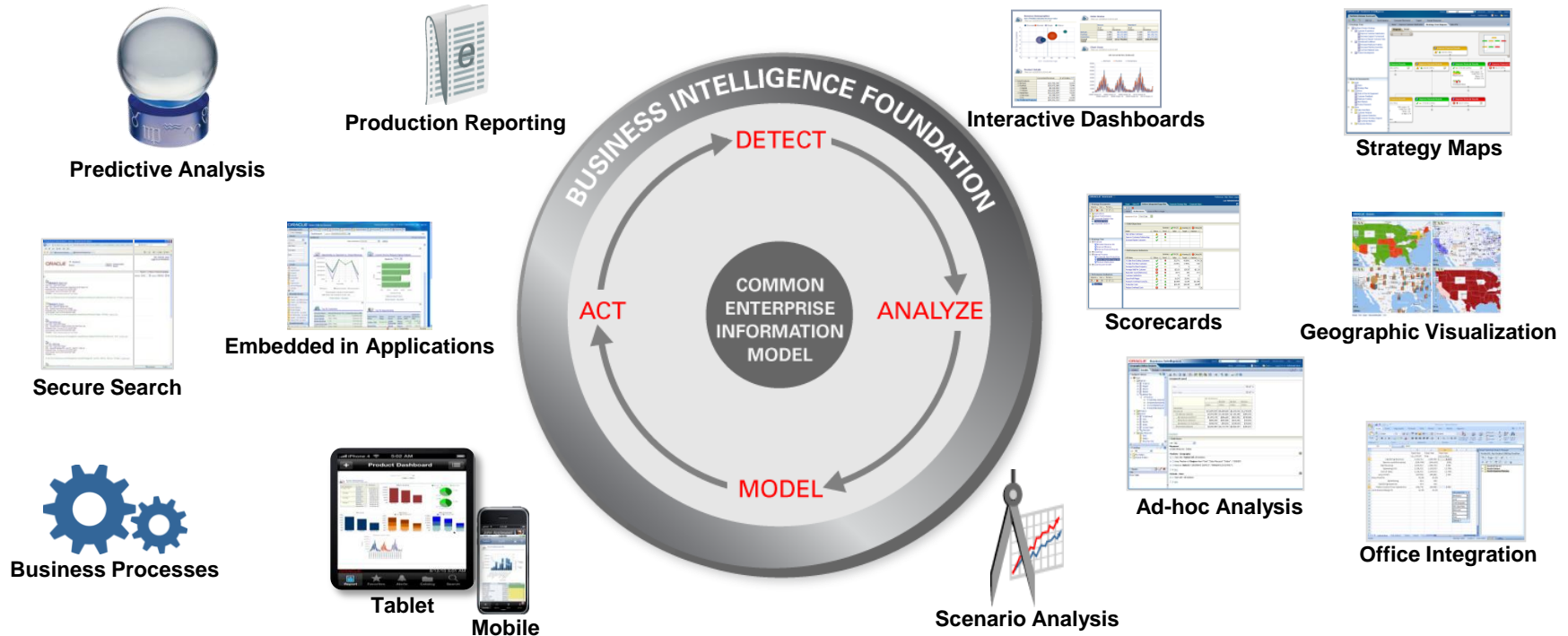
- Oracle BI Foundation Overview
  - Oracle BI Enterprise Edition
    - Demonstration
    - Architecture
    - Essbase
  - Oracle BI Publisher
    - Demonstration
    - Architecture
- Exalytics
  - Demonstration

# BI Enterprise Edition

*UC 2,4,5,7,8,9*

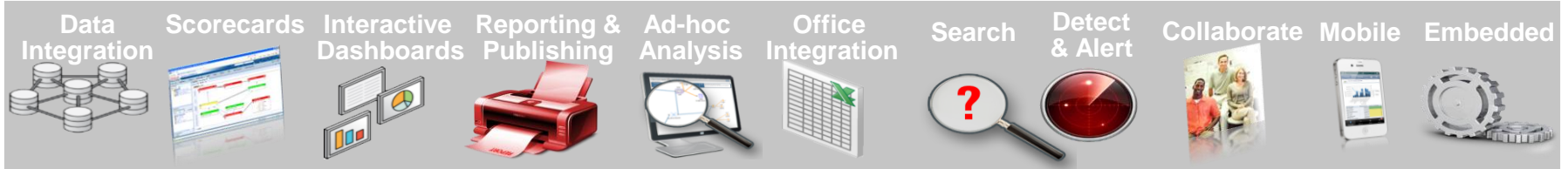
# Oracle BI Foundation

Integrated Suite of Tools Improves Decisions



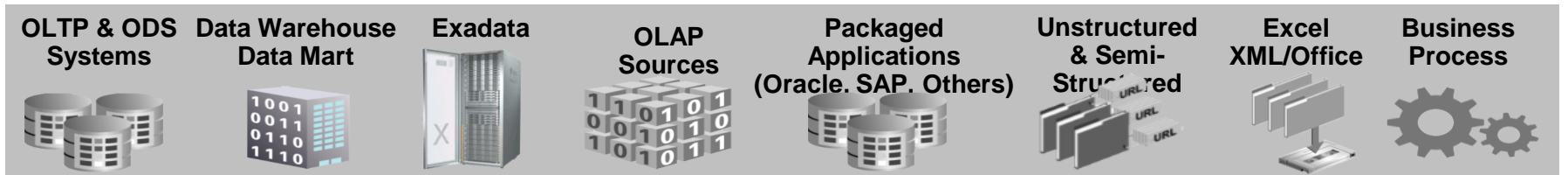
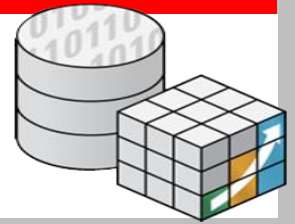
# Most Integrated.

## 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



# Demonstration :

- Administration (RPD)
- Dashboard Building



# Architecture

# Oracle BI Clustering Architecture

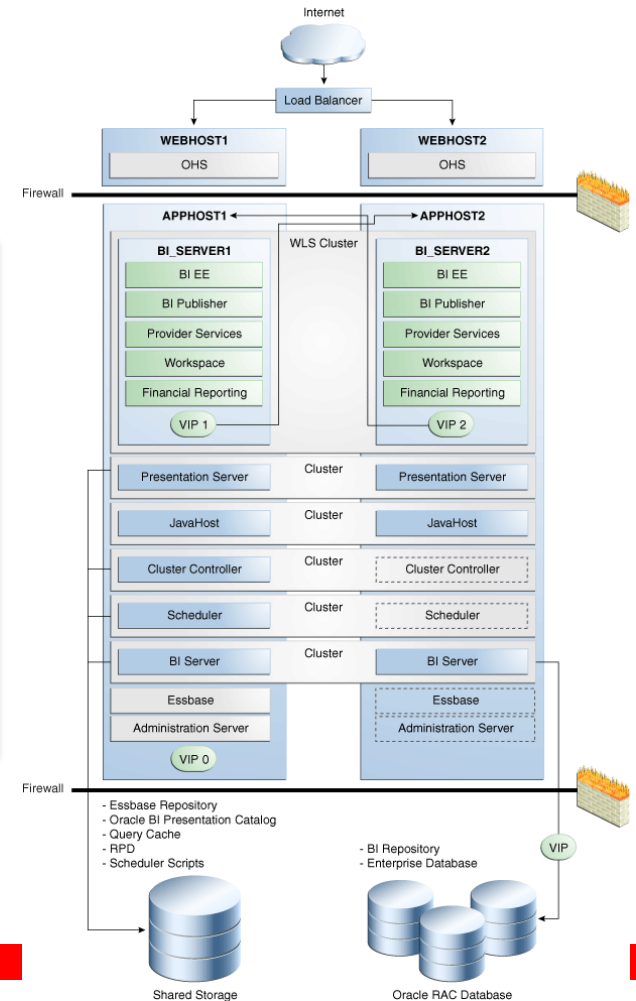
Oracle BI EE achieves high availability through a combination of process replication and highly available storage (database and shared file system).

To provide a highly available system, Oracle BI EE requires the following external services:

- A fault tolerant HTTP load balancer
- A highly available shared file system
- A highly available database for Oracle BI Scheduler and fact tables

The following system components must be replicated (have at least two instances):

- Presentation Services
- Cluster Controller
- Oracle BI Scheduler
- BI Server
- JavaHost



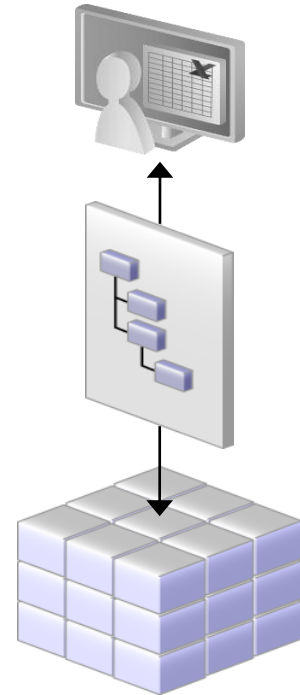
# Essbase

*UC 7,8,9*

# Best in Class OLAP Server

## Oracle Essbase

- Forward looking what-if analysis
- Model complex business scenarios
- Financial, time series & custom calculations
- Multi-user write-back
- Best OLAP Performance & Scalability
  - Flexible storage – Block, Aggregate & Hybrid
  - Optimized load performance, trickle feed
  - High-availability clustering
  - Sub-second response time: 20,000 concurrent users, 15 dimensions, 1 billion records
- Integrated with Oracle BI and Oracle EPM
  - Shared metadata, calcs, dimensions, security

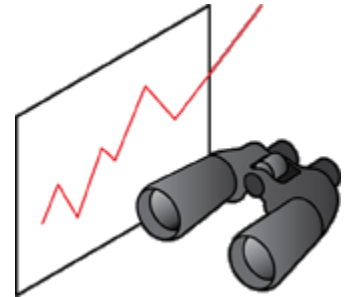


# Essbase is a Powerful Calculator

## Hundreds of Built-in Functions and Algorithms

<a href="#">@ABS</a>	<a href="#">@ICHILDREN</a>	<a href="#">@MAXRANGE</a>	<a href="#">@RELATIVE</a>
<a href="#">@ACCUM</a>	<a href="#">@IDESCENDANTS</a>	<a href="#">@MAXS</a>	<a href="#">@REMAINDER</a>
<a href="#">@ALLANCESTORS</a>	<a href="#">@ILSIBLINGS</a>	<a href="#">@MAXSRANGE</a>	<a href="#">@REMOVE</a>
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<a href="#">@CHILDREN</a>	<a href="#">@ISICCHILD</a>	<a href="#">@MODE</a>	<a href="#">@STDEVP</a>
<a href="#">@COMPOUND</a>	<a href="#">@ISIDESC</a>	<a href="#">@MOVAVG</a>	<a href="#">@STDEV RANGE</a>
<a href="#">@COMPOUNDGROWTH</a>	<a href="#">@ISIPARENT</a>	<a href="#">@MOVMAX</a>	<a href="#">@SUBSTRING</a>
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<a href="#">@CORRELATION</a>	<a href="#">@ISLEV</a>	<a href="#">@MOV MIN</a>	<a href="#">@SUMRANGE</a>
<a href="#">@COUNT</a>	<a href="#">@ISMBR</a>	<a href="#">@MOV SUM</a>	<a href="#">@SYD</a>
<a href="#">@CURGEN</a>	<a href="#">@ISPARENT</a>	<a href="#">@MOV SUM X</a>	<a href="#">@TODATE</a>
<a href="#">@CURLEV</a>	<a href="#">@ISSAMEGEN</a>	<a href="#">@NAME</a>	<a href="#">@TREND</a>
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<a href="#">@CURRMBRRANGE</a>	<a href="#">@ISSIBLING</a>	<a href="#">@NEXTS</a>	<a href="#">@UDA</a>
<a href="#">@DECLINE</a>	<a href="#">@ISUDA</a>	<a href="#">@NPV</a>	<a href="#">@VAR</a>
<a href="#">@DESCENDANTS</a>	<a href="#">@LEV</a>	<a href="#">@PARENT</a>	<a href="#">@VARPER</a>
<a href="#">@DISCOUNT</a>	<a href="#">@LEVMBRS</a>	<a href="#">@PARENTVAL</a>	<a href="#">@VARIANCE</a>
<a href="#">@EXP</a>	<a href="#">@LIST</a>	<a href="#">@POWER</a>	<a href="#">@VARIANCE</a>
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<a href="#">@GROWTH</a>	<a href="#">@LSIBLINGS</a>	<a href="#">@RANGE</a>	
<a href="#">@IALLANCESTORS</a>	<a href="#">@MATCH</a>	<a href="#">@RANK</a>	
<a href="#">@IANCESTORS</a>	<a href="#">@MAX</a>	<a href="#">@RDESCENDANTS</a>	

- Forecasting
- Trending
- What-if testing
- Scenario comparison
- Goal seeking
- Procedural calculations
- Custom Calculations



# Example : Essbase Trend & Forecasting Functions :

## @TREND

Calculates future values based on curve-fitting to historical values.

The @TREND procedure considers a number of observations; constructs a mathematical model of the process based on these observations (that is, fits a curve); and predicts values for a future observation. You can use weights to assign credibility coefficients to particular observations, report errors of the curve fitting, choose the forecasting method to be used (for example, linear regression), and specify certain data filters.

### Supported Algorithms :

- Linear Regression with Seasonal Adjustment (LRSA)
- Single Exponential Smoothing (SES)
- Double Exponential Smoothing (DES) Holt's Method
- Triple Exponential Smoothing (TES) Holt-Winters' Method

# Example : Essbase Trend & Forecasting Functions :

The screenshot displays the Oracle Essbase Administration Services interface. The top bar shows the user 'demoadmin' connected to 'demodrive:9000'. The main window is titled 'Calculation Script Editor [bidemo:1423.HOW.Demo.FC\_HOL]'. On the left, a tree view shows the hierarchy: Demo > Outline > Linked Reporting Objects > Calculation Scripts > FC\_HOL. The right pane contains a script with the following code:

```
Script
/MESS_LOCALE English_UnitedStates.Latin1@Binary
set updatecalc off;
SET CREATEBLOCKONEQ ON;

/* Jan bis Mar aus Actual übernehmen */
fix("Units","List Price","Discount %","COGS","Other Expenses""2010 Jan:"2011 Mar)
"Forecast" = "Actual";
endfix

/* Forecast berechnen für Gesamt */
FIX ("Market", "Product")
"Forecast" (
  @TREND (@RANGE("Actual", "2011 Jan:"2011 Mar),
    @RANGE("Actual", "2010 Jan:"2010 Mar),
    /*weightList*/,
    /*errorList*/,
    @RANGE("Actual", "2010 Apr:"2010 Dec"),
    @RANGE("Forecast", "2011 Apr:"2011 Dec"),
    DES, 0,1, 0,1);
);
endfix

/* dann verteilen */
FIX("Units", "2011 Apr:"2011 Dec)
"Forecast" = "Forecast" >> "Product" >> "Market" *
  (@PRIOR ("Actual", 12) @PRIOR ("Actual" >> "Product" >> "Market", 12));
ENDFIX;

/* Jetzt noch Listpreis und Discount% aus Mar übernehmen und aggregieren */
FIX("2011 Apr:"2011 Dec")
FIX("List Price","Discount %","COGS","Other Expenses")
"Forecast"="Actual" >> "2011 Mar";
ENDFIX;

1:48 - 1:43 - 2%
```

The bottom of the interface shows tabs for 'Enterprise View', 'BR Language', and 'BR Outline'.

Advanced Analytics

Welcome, John Coffee! Dashboards - Answers - More Products - Settings - Log Out

Financial Analysis Budget & Forecast What If Scenario Modeling

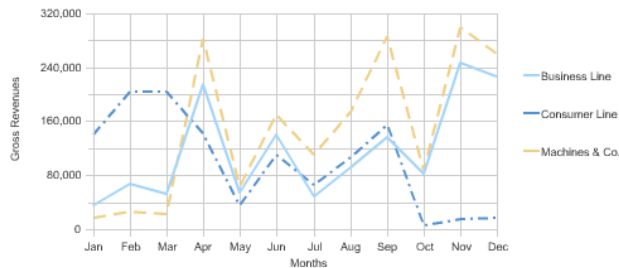
Page Options

Scenarios  
 Budget Go

Actual & Top-Down Budget Scenario

Gross Revenues Months

Product Lines	Gross Revenues											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Business Line	36,375	67,050	52,453	215,104	54,782	141,062	48,227	92,824	135,979	82,919	246,461	226,984
Consumer Line	140,085	203,759	203,206	142,252	35,622	110,464	64,725	107,309	156,051	5,232	14,584	16,710
Machines & Co.	16,569	26,535	21,586	282,086	63,784	169,956	110,936	174,383	285,679	87,885	299,615	260,986
<b>Grand Total</b>	<b>193,029</b>	<b>297,344</b>	<b>277,244</b>	<b>639,443</b>	<b>154,168</b>	<b>421,482</b>	<b>223,889</b>	<b>374,316</b>	<b>577,709</b>	<b>176,036</b>	<b>560,660</b>	<b>504,680</b>

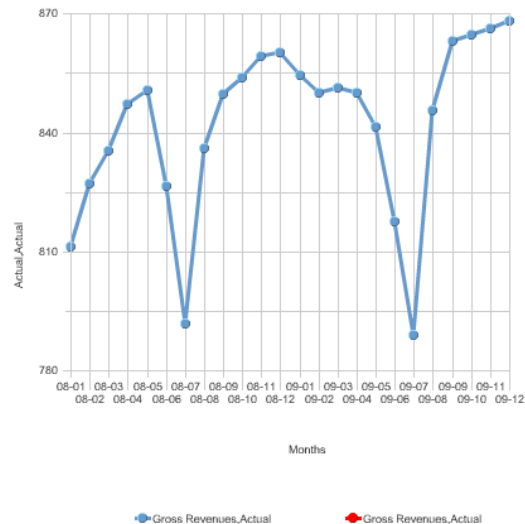


Modify - Refresh - Print - Download

Accounts Lines of Product Channels  
 Gross Revenues (All Choices) (All Choices) Go

3 Year Actual & Bottom-Up Forecast

Actual



Modify - Refresh - Print - Download



Advanced Analytics

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Financial Analysis Budget & Forecast What If Scenario Modeling

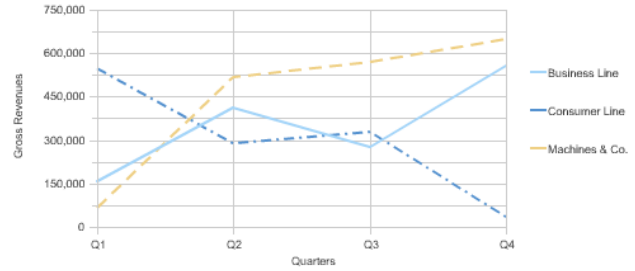
Page Options

Scenarios  
 Budget Go

Actual & Top-Down Budget Scenario

Gross Revenues Quarters

Product Lines	Gross Revenues			
	Q1	Q2	Q3	Q4
Business Line	155,878	410,928	278,830	556,364
Consumer Line	547,049	288,339	328,085	36,527
Machines & Co.	84,890	515,828	570,999	848,488
<b>Grand Total</b>	<b>767,617</b>	<b>1,215,093</b>	<b>1,175,914</b>	<b>1,241,377</b>

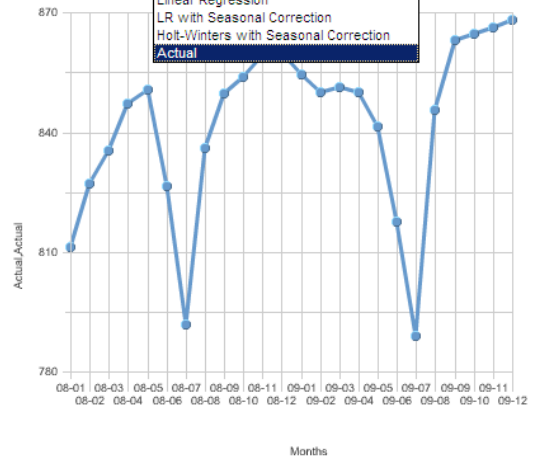


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Accounts Lines of Product Channels  
 Gross Revenues (All Choices) (All Choices) Go

3 Year Actual & Bottom-Up Forecast

Actual  
 Linear Regression  
 LR with Seasonal Correction  
 Holt-Winters with Seasonal Correction  
 Actual



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Advanced Analytics

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Financial Analysis Budget & Forecast What If Scenario Modeling

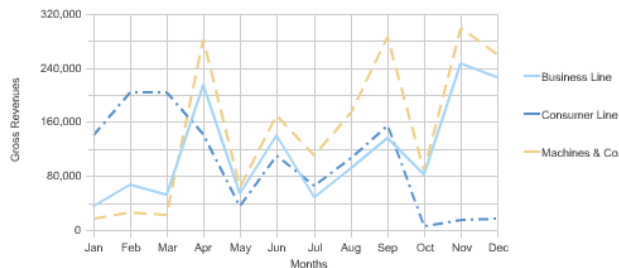
Page Options

Scenarios  
 Budget Go

Actual & Top-Down Budget Scenario

Gross Revenues Months

Product Lines	Gross Revenues											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Business Line	38,375	67,050	52,453	215,104	54,782	141,082	48,227	92,624	135,979	82,919	248,481	228,984
Consumer Line	140,085	203,759	203,206	142,252	35,622	110,464	64,725	107,309	168,051	5,232	14,584	16,710
Machines & Co.	18,589	28,535	21,588	282,088	63,784	169,958	110,938	174,383	285,679	87,885	299,615	260,988
<b>Grand Total</b>	<b>193,029</b>	<b>297,344</b>	<b>277,244</b>	<b>639,443</b>	<b>154,168</b>	<b>421,482</b>	<b>223,889</b>	<b>374,316</b>	<b>577,709</b>	<b>176,036</b>	<b>560,660</b>	<b>504,680</b>

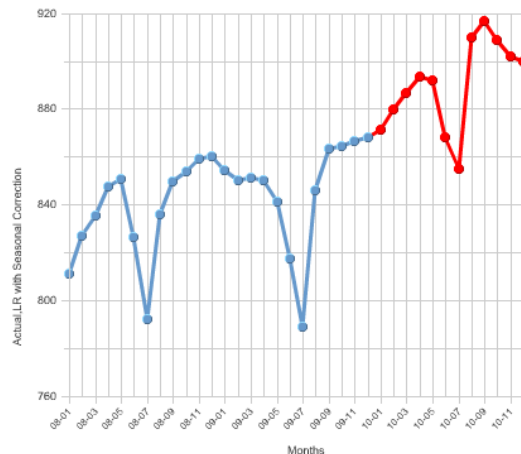


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3 Year Actual & Bottom-Up Forecast

Accounts Lines of Product Channels  
 Gross Revenues (All Choices) (All Choices) Go

LR with Seasonal Correction



Gross Revenues,Actual  
 Gross Revenues,LR with Seasonal Correction

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Advanced Analytics

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Financial Analysis **Budget & Forecast** What If Scenario Modeling

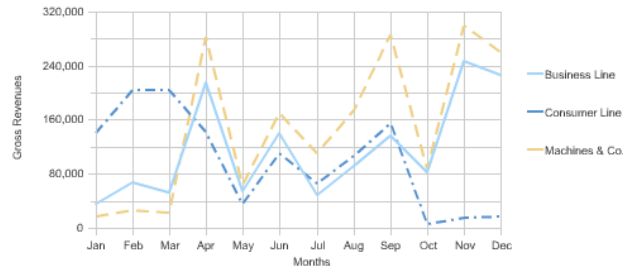
Page Options

Scenarios  
 Budget

Actual & Top-Down Budget Scenario

Gross Revenues

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Machines & Co.	16,569	28,635	21,588	282,088	83,784	189,958	110,938	174,383	285,679	87,885	299,615	280,988
<b>Grand Total</b>	<b>193,029</b>	<b>297,344</b>	<b>277,244</b>	<b>639,443</b>	<b>154,168</b>	<b>421,482</b>	<b>223,889</b>	<b>374,316</b>	<b>577,709</b>	<b>176,036</b>	<b>560,660</b>	<b>504,680</b>

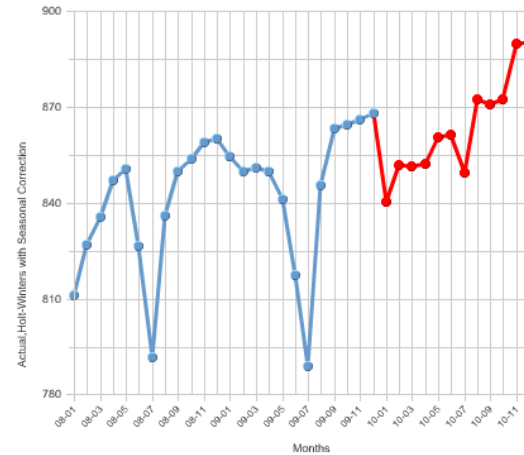


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3 Year Actual & Bottom-Up Forecast

Accounts: Gross Revenues 

Holt-Winters with Seasonal Correction



Gross Revenues, Actual  
 Gross Revenues, Holt-Winters with Seasonal Correction

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# Agenda

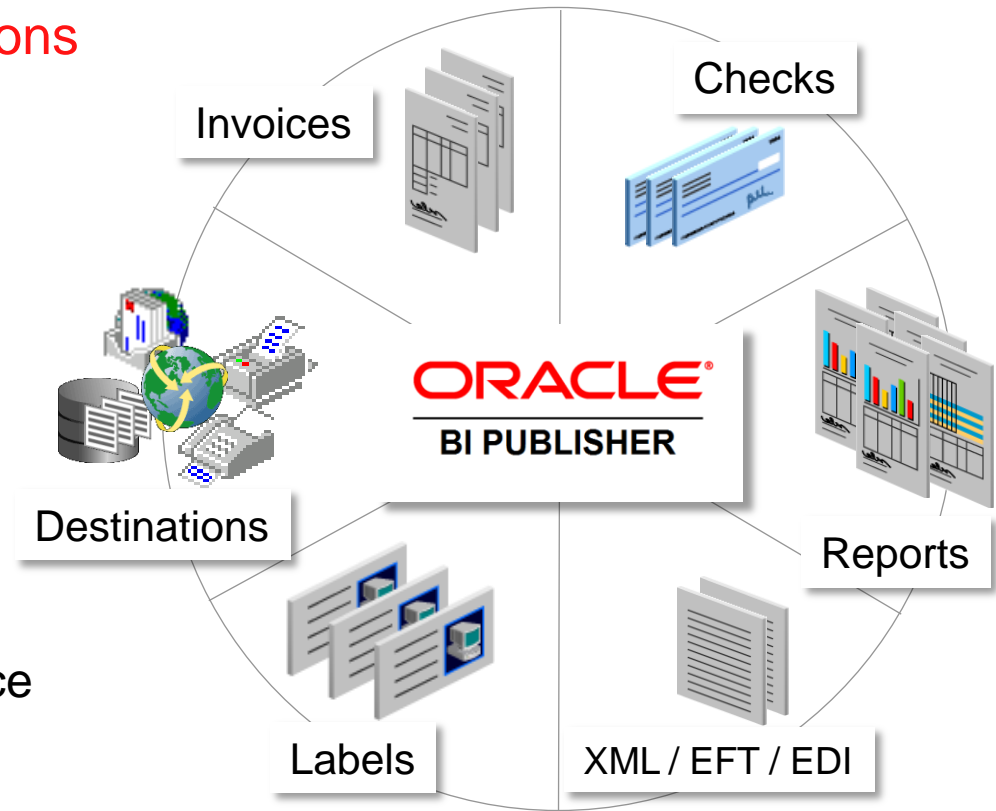
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# BI Publisher

# Oracle BI Publisher Enterprise

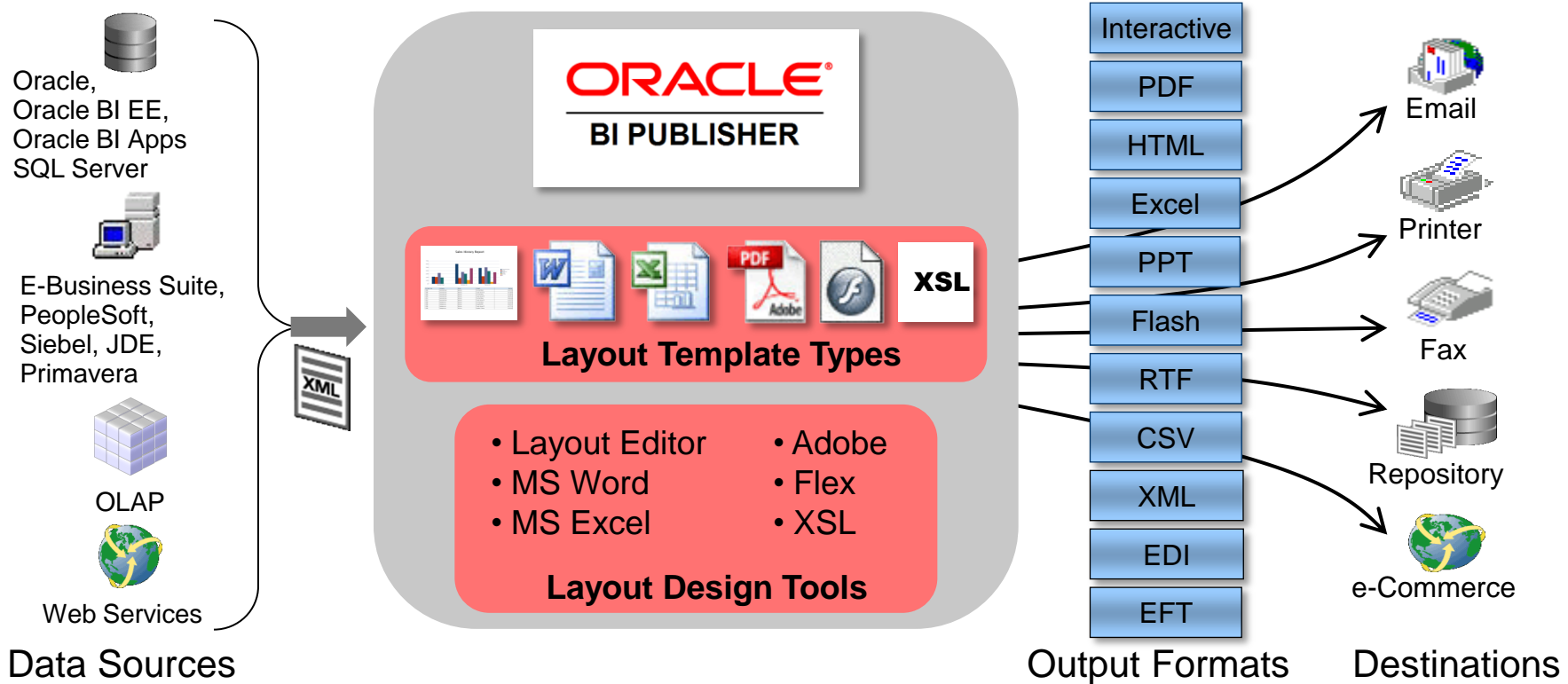
Eliminate Multiple-point Solutions

- One Environment
  - Author
  - Generate
  - Deliver
- Benefits
  - Eliminate complexity
  - Simplify report development & maintenance
  - Reduce costs



# Oracle BI Publisher Enterprise

From Data to Document to Delivery



# Demonstration

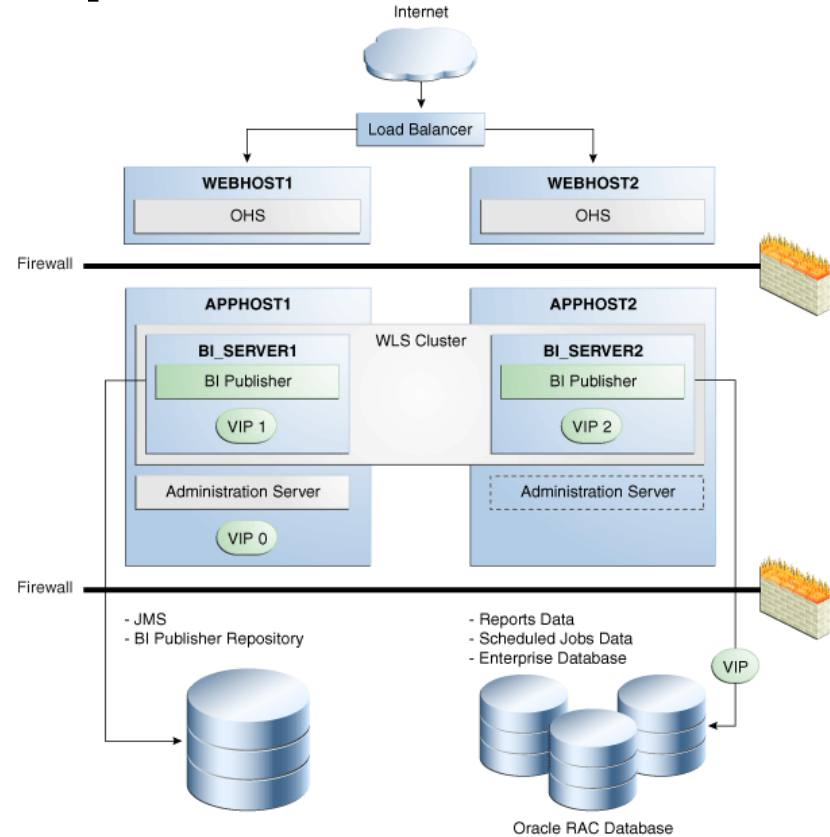
- Data Model
- Template builder Web



# Enterprise Deployment Options

## Oracle BI Publisher 11g

Oracle BI Publisher supports an active-active high availability configuration. Each node acts as an independent server that shares a common repository and the scheduler database with the other Oracle BI Publisher nodes.



# Agenda

- Oracle BI Foundation Overview
  - Oracle BI Enterprise Edition
    - Demonstration
    - Architecture
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    - Demonstration
    - Architecture
- Exalytics
  - Demonstration

# Exalytics

*UC 1,2,3,4,5,7,8,9*

# Oracle Exalytics In-Memory Machine

**Oracle Exalytics** is the industry's first in-memory machine that delivers the fastest performance for business intelligence and planning applications



## Benefits

- Speed-of-Thought Interactive Visual Analysis
- Faster Planning Cycles with Richer Models
- Quick to Deploy, Supports More Users

## Unique Features

- In-memory Analytics
- Accelerates BI, Essbase and EPM Apps
- Fits with existing data sources, infrastructure
- Full-stack optimizations – hardware & software
- Optimized with Exadata – InfiniBand

# Oracle Exalytics Hardware



## Memory

1 TB RAM

## Compute

4 Intel® Xeon® E7-4870, 40 cores total

## Networking

40 Gbps InfiniBand – 2 ports

10 Gbps Ethernet – 2 ports

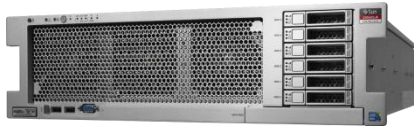
1 Gbps Ethernet – 4 ports

8 Gbps FibreChannel – 2 ports

## Storage

3.6 TB HDD Capacity

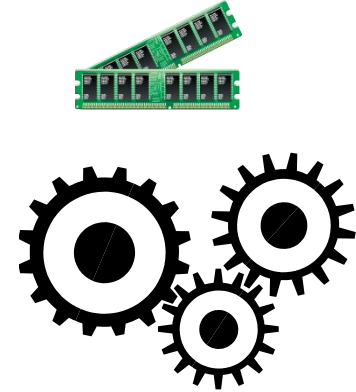
# Exalytics Components



Memory Optimized  
Hardware  
(1TB RAM, 40 cores)



BI Foundation Suite  
Software  
(OS, middleware, BI)

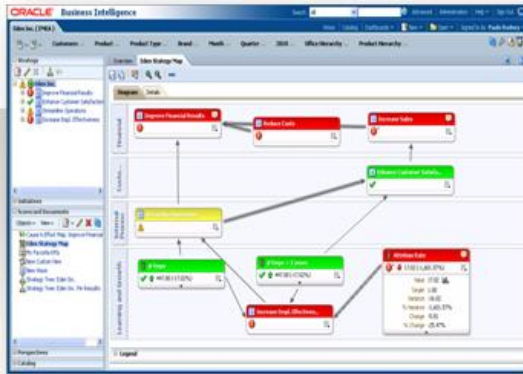


In-Memory Software  
(TimesTen for Exalytics and  
Optimized Essbase)

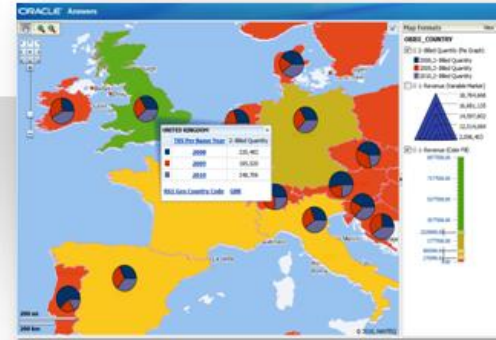
# Rich Data Visualisations



Region	Area	Revenue	Revenue Trend	Units Sold
AMERICAS	Central	113,653		13,259
	North America	5,386,804		687,859
	South America	720,568		66,138
APAC	East	341,964		29,906
	North	478,203		38,544
	South	2,181,809		209,478
	West	939,264		81,798
EMEA	Africa	619,162		58,162
	Eastern	382,858		35,786
	Europe	1,143,521		107,970
	Middle East	557,283		55,322
	North Africa	177,151		16,348
	Northern	1,957,759		211,902

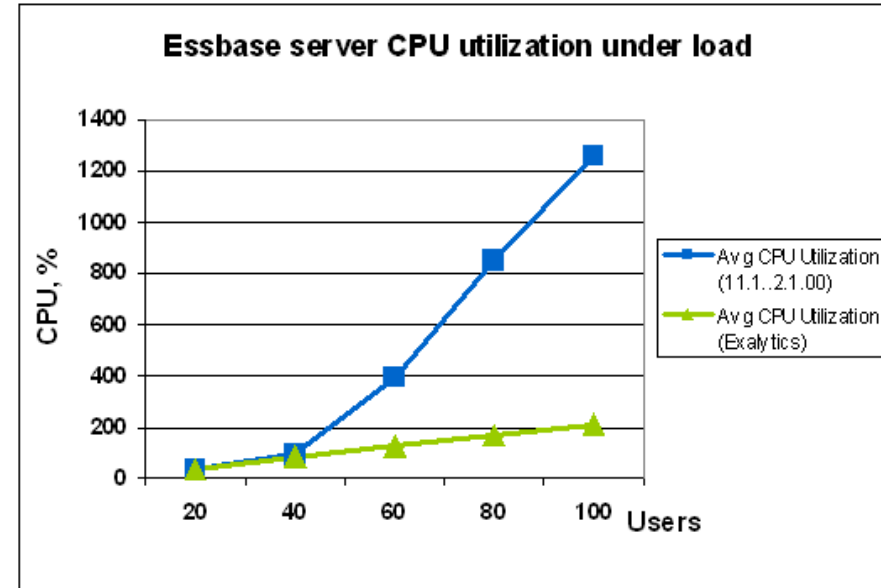
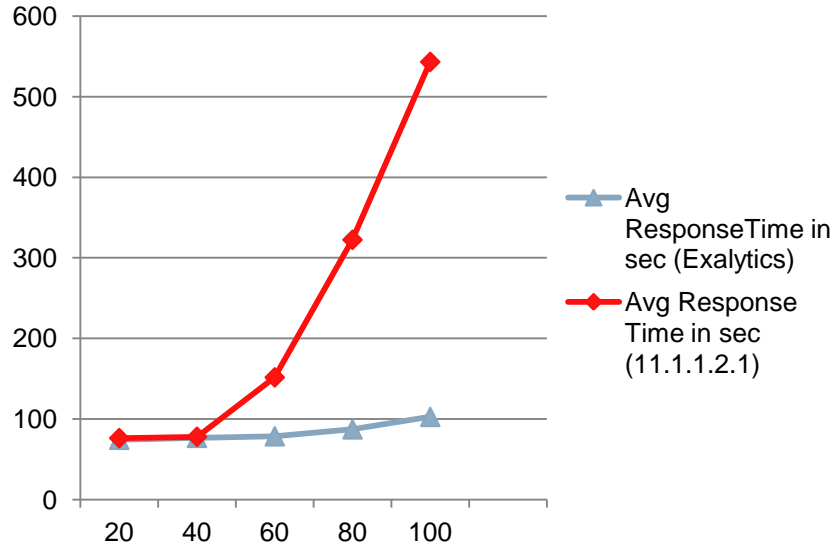


- Micro charts
- Step charts
- Radar charts
- Bubble charts
- Trellis diagrams
- Scatter diagrams
- Strategy maps
- Geospatial visualization



# Exalytics – Some Performance Datapoints

## Response Time improvement for end-to-end scenario for Planning PSB usecase with Essbase



- About 5x response time improvement under load
- 7x improvement in CPU Utilization by Essbase



# Demonstration

# Lowering Cost of Ownership

- Better Cost-performance
  - 3X more users compared to similar hardware
  - Less DW tuning needed
- Lower operational costs
  - Unified patching
  - Consolidate servers
- Risk Reduction
  - Pre-tested configurations
  - Large community of users
  - Unified single vendor support



# Hardware and Software

ORACLE®

# Engineered to Work Together

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**ORACLE®**