

Migrating Express Applications To Oracle 9i – A Practical Guide

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Agenda

- Introduction
- A brief history of Oracle Express
- Oracle 9i OLAP
- Why migrate to Oracle 9i OLAP?
- Migration scenarios
- Oracle Migration tools
- Future product directions
- Summary & questions

Who Are Plus Consultancy

- OPN Certified Partner
- Previously known as Application Consulting Group
- Experts in Express since 1983
- Now Experts in **ALL** Oracle BIW Technology
- Located in Brighton, UK
- Offices in USA
- Visit our website at <http://www.plusconsultancy.co.uk>

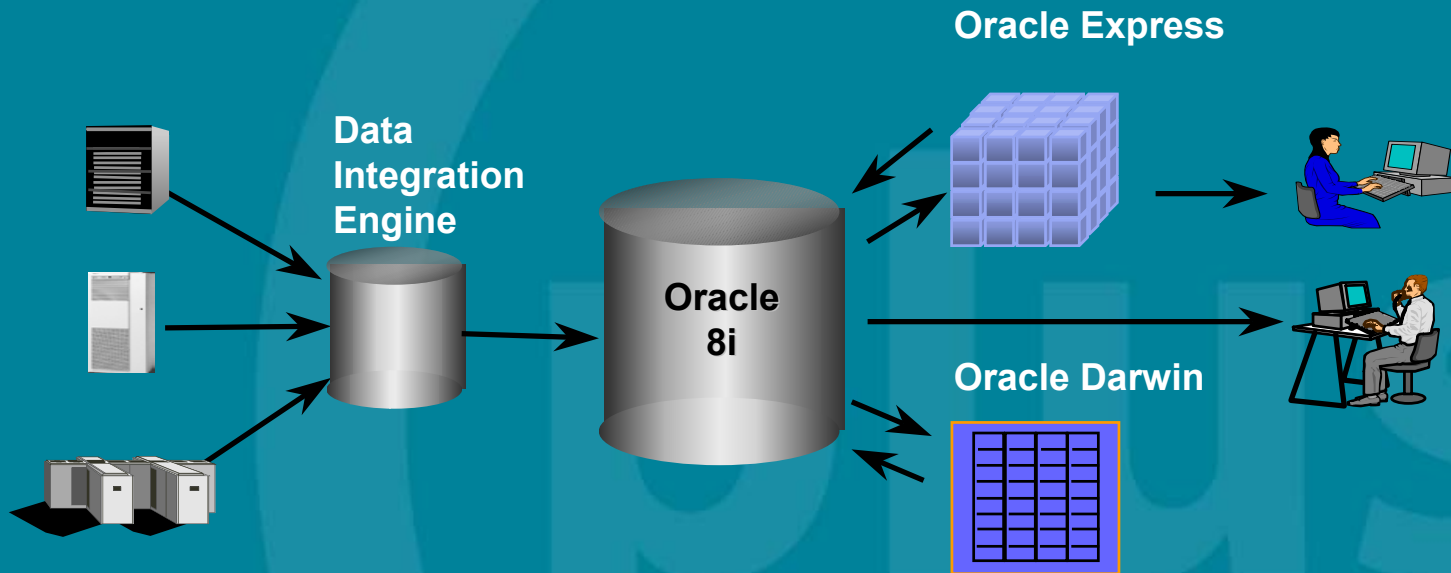


A Brief History Of Oracle Express

- Oracle's family of OLAP products
- Originally developed by MDS, sold to IRI
- Acquired by Oracle in 1995
- Server products
- Desktop version
- Development Tools
- Client-server & web-based query tools
- Many third-party implementers, such as Plus Consultancy (formerly ACG)

Express & The "Big Picture"

- Part of a larger BI & DW Architecture



Drivers Behind Oracle 9i OLAP

- Improve integration with Oracle Server
- Reduce load times
- Address Scalability & Availability issues
- Improve security
- Provide more open interfaces
- Reduce costs of ownership

Oracle9i OLAP

- OLAP processing engine
- Analytic Workspaces
- OLAP DML
- PL/SQL Table Functions
- OLAP API (Oracle's Java API for OLAP)
- OLAP Catalog (OLAP metadata repositories)
- Tools within Oracle Enterprise Manager

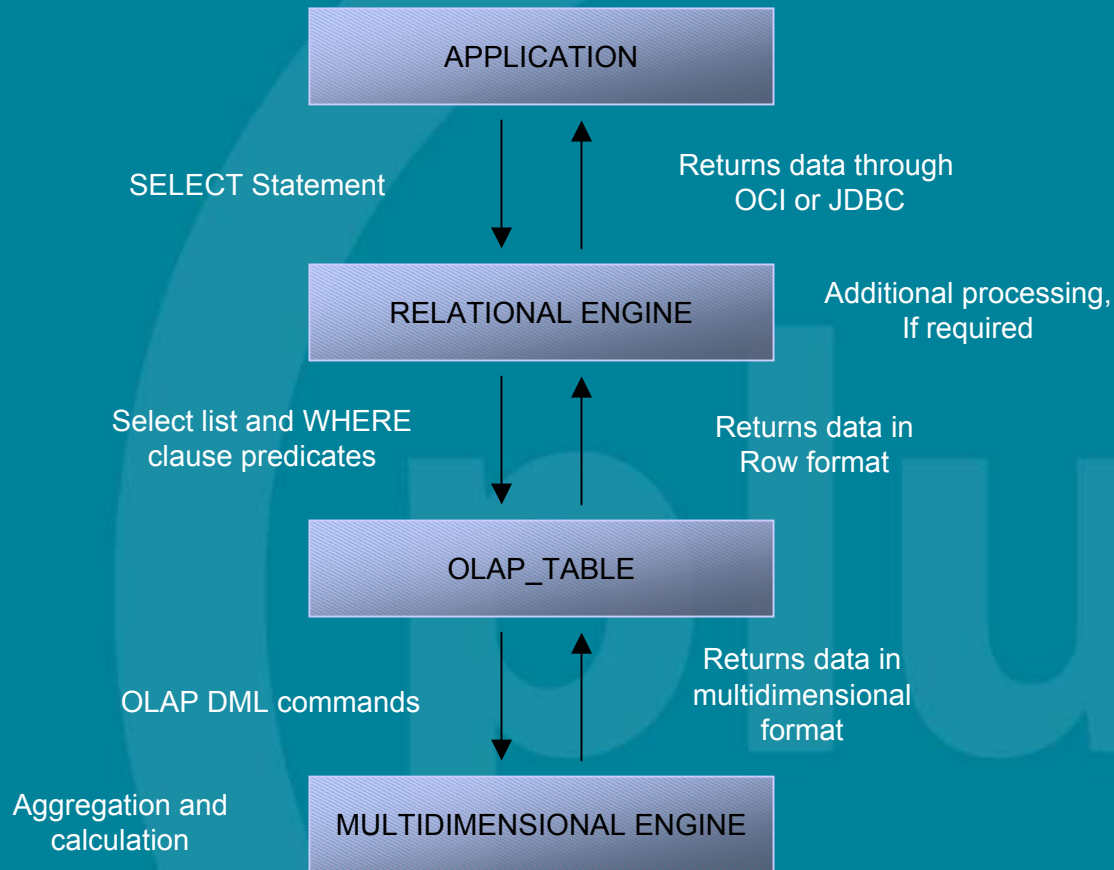
Oracle9i OLAP Architecture



Now Features SQL Access

- New 'table functions'
- Allows SQL tools to query Analytic Workspaces
- Connect via OCI or JDBC
- Allows Discoverer and Reports to work against MOLAP
- Access via SQL Views or direct using table functions

SQL Access Process



Why Migrate To Oracle 9i OLAP?

- Performance Improvements
- Easier architecture to deploy and manage
- More open access
- New opportunities
 - Real Application Clusters
 - Change the approach to OLAP design

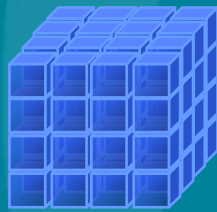
Migration Scenarios

1. Express Database, Web Agent Front-End
2. Oracle DB + Express MDB, Express Analyzer + Objects Front-End
3. An Express-Only Solution
4. OFA & OSA Applications

Scenario 1:

Express Database, Web Agent Front-End

- Data held in Express Server database
- Published through Web Agent



Express Server

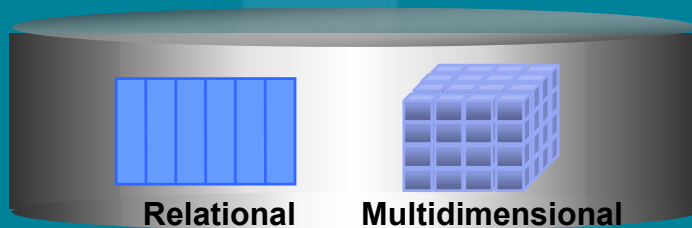


Month	Distributor	Sales	Profit
Jan	AP Distributor A	10000	2000
Jan	AP Distributor B	12000	2400
Jan	AP Distributor C	15000	3000
Jan	AP Distributor D	18000	3600
Jan	AP Distributor E	20000	4000
Jan	AP Distributor F	22000	4400
Jan	AP Distributor G	25000	5000
Jan	AP Distributor H	28000	5600
Jan	AP Distributor I	30000	6000
Jan	AP Distributor J	32000	6400
Jan	AP Distributor K	35000	7000
Jan	AP Distributor L	38000	7600
Jan	AP Distributor M	40000	8000
Jan	AP Distributor N	42000	8400
Jan	AP Distributor O	45000	9000
Jan	AP Distributor P	48000	9600
Jan	AP Distributor Q	50000	10000
Jan	AP Distributor R	52000	10400
Jan	AP Distributor S	55000	11000
Jan	AP Distributor T	58000	11600
Jan	AP Distributor U	60000	12000
Jan	AP Distributor V	62000	12400
Jan	AP Distributor W	65000	13000
Jan	AP Distributor X	68000	13600
Jan	AP Distributor Y	70000	14000
Jan	AP Distributor Z	72000	14400
Jan	AP Distributor AA	75000	15000
Jan	AP Distributor AB	78000	15600
Jan	AP Distributor AC	80000	16000
Jan	AP Distributor AD	82000	16400
Jan	AP Distributor AE	85000	17000
Jan	AP Distributor AF	88000	17600
Jan	AP Distributor AG	90000	18000
Jan	AP Distributor AH	92000	18400
Jan	AP Distributor AI	95000	19000
Jan	AP Distributor AJ	98000	19600
Jan	AP Distributor AK	100000	20000
Jan	AP Distributor AL	102000	20400
Jan	AP Distributor AM	105000	21000
Jan	AP Distributor AN	108000	21600
Jan	AP Distributor AO	110000	22000
Jan	AP Distributor AP	112000	22400
Jan	AP Distributor AQ	115000	23000
Jan	AP Distributor AR	118000	23600
Jan	AP Distributor AS	120000	24000
Jan	AP Distributor AT	122000	24400
Jan	AP Distributor AU	125000	25000
Jan	AP Distributor AV	128000	25600
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Jan	AP Distributor BO	175000	35000
Jan	AP Distributor BP	178000	35600
Jan	AP Distributor BQ	180000	36000
Jan	AP Distributor BR	182000	36400
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Jan	AP Distributor BX	198000	39600
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Jan	AP Distributor CD	212000	42400
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Jan	AP Distributor CR	248000	49600
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Jan	AP Distributor CT	252000	50400
Jan	AP Distributor CU	255000	51000
Jan	AP Distributor CV	258000	51600
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Jan	AP Distributor DG	285000	57000
Jan	AP Distributor DH	288000	57600
Jan	AP Distributor DI	290000	58000
Jan	AP Distributor DJ	292000	58400
Jan	AP Distributor DK	295000	59000
Jan	AP Distributor DL	298000	59600
Jan	AP Distributor DM	300000	60000
Jan	AP Distributor DN	302000	60400
Jan	AP Distributor DO	305000	61000
Jan	AP Distributor DP	308000	61600
Jan	AP Distributor DQ	310000	62000
Jan	AP Distributor DR	312000	62400
Jan	AP Distributor DS	315000	63000
Jan	AP Distributor DT	318000	63600
Jan	AP Distributor DU	320000	64000
Jan	AP Distributor DV	322000	64400
Jan	AP Distributor DW	325000	65000
Jan	AP Distributor DX	328000	65600
Jan	AP Distributor DY	330000	66000
Jan	AP Distributor DZ	332000	66400
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Jan	AP Distributor EB	338000	67600
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Jan	AP Distributor FE	410000	82000
Jan	AP Distributor FF	412000	82400
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Jan	AP Distributor FI	420000	84000
Jan	AP Distributor FJ	422000	84400
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Jan	AP Distributor FL	428000	85600
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Jan	AP Distributor FN	432000	86400
Jan	AP Distributor FO	435000	87000
Jan	AP Distributor FP	438000	87600
Jan	AP Distributor FQ	440000	88000
Jan	AP Distributor FR	442000	88400
Jan	AP Distributor FS	445000	89000
Jan	AP Distributor FT	448000	89600
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Jan	AP Distributor FV	452000	90400
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Jan	AP Distributor GC	470000	94000
Jan	AP Distributor GD	472000	94400
Jan	AP Distributor GE	475000	95000
Jan	AP Distributor GF	478000	95600
Jan	AP Distributor GG	480000	96000
Jan	AP Distributor GH	482000	96400
Jan	AP Distributor GI	485000	97000
Jan	AP Distributor GJ	488000	97600
Jan	AP Distributor GK	490000	98000
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Jan	AP Distributor GM	495000	99000
Jan	AP Distributor GN	498000	99600
Jan	AP Distributor GO	500000	100000
Jan	AP Distributor GP	502000	100400
Jan	AP Distributor GQ	505000	101000
Jan	AP Distributor GR	508000	101600
Jan	AP Distributor GS	510000	102000
Jan	AP Distributor GT	512000	102400
Jan	AP Distributor GU	515000	103000
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Jan	AP Distributor HC	535000	107000
Jan	AP Distributor HD	538000	107600
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Jan	AP Distributor HH	548000	109600
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Jan	AP Distributor HR	572000	114400
Jan	AP Distributor HS	575000	115000
Jan	AP Distributor HT	578000	115600
Jan	AP Distributor HU	580000	116000
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Jan	AP Distributor HW	585000	117000
Jan	AP Distributor HX	588000	117600
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Jan	AP Distributor HZ	592000	118400
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Jan	AP Distributor JG	675000	135000
Jan	AP Distributor JH	678000	135600
Jan	AP Distributor JI	680000	136000
Jan	AP Distributor JJ	682000	136400
Jan	AP Distributor JK	685000	137000
Jan	AP Distributor JL	688000	137600
Jan	AP Distributor JM	690000	138000
Jan	AP Distributor JN	692000	138400
Jan	AP Distributor JO	695000	139000
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Jan	AP Distributor JR	702000	140400
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Jan	AP Distributor JX	718000	143600
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Jan	AP Distributor JZ	722000	144400
Jan	AP Distributor KA	725000	145000
Jan	AP Distributor KB	728000	145600
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Jan	AP Distributor KD	732000	146400
Jan	AP Distributor KE	735000	147000
Jan	AP Distributor KF	738000	147600
Jan	AP Distributor KG	740000	148000
Jan	AP Distributor KH	742000	148400
Jan	AP Distributor KI	745000	149000
Jan	AP Distributor KJ	748000	149600
Jan	AP Distributor KK	75000	

Scenario 1 solution:

Express Database, Web Agent Front-End

- Migrates to 9i OLAP + 9i Web Agent
- Some small SPL code changes, application ports 'as is'
- Tomcat vs. IIS issue



The screenshot shows a web application interface with a table titled "AP Distributor By Month". The table has columns for "Month", "Market Area", "Type", and "Sales". The data is presented in a grid format with alternating row colors. A sidebar on the left contains a "Main Menu | Sales" section with a list of items and a "Click Sales" button.

Month	Market Area	Type	Sales
APR 04	APR 04	APR 04	APR 04
MAY 04	MAY 04	MAY 04	MAY 04
JUN 04	JUN 04	JUN 04	JUN 04
JUL 04	JUL 04	JUL 04	JUL 04
AUG 04	AUG 04	AUG 04	AUG 04
SEP 04	SEP 04	SEP 04	SEP 04
OCT 04	OCT 04	OCT 04	OCT 04
NOV 04	NOV 04	NOV 04	NOV 04
DEC 04	DEC 04	DEC 04	DEC 04
JAN 05	JAN 05	JAN 05	JAN 05
FEB 05	FEB 05	FEB 05	FEB 05
MAR 05	MAR 05	MAR 05	MAR 05
APR 05	APR 05	APR 05	APR 05
MAY 05	MAY 05	MAY 05	MAY 05
JUN 05	JUN 05	JUN 05	JUN 05
JUL 05	JUL 05	JUL 05	JUL 05
AUG 05	AUG 05	AUG 05	AUG 05
SEP 05	SEP 05	SEP 05	SEP 05
OCT 05	OCT 05	OCT 05	OCT 05
NOV 05	NOV 05	NOV 05	NOV 05
DEC 05	DEC 05	DEC 05	DEC 05
JAN 06	JAN 06	JAN 06	JAN 06
FEB 06	FEB 06	FEB 06	FEB 06
MAR 06	MAR 06	MAR 06	MAR 06
APR 06	APR 06	APR 06	APR 06
MAY 06	MAY 06	MAY 06	MAY 06
JUN 06	JUN 06	JUN 06	JUN 06
JUL 06	JUL 06	JUL 06	JUL 06
AUG 06	AUG 06	AUG 06	AUG 06
SEP 06	SEP 06	SEP 06	SEP 06
OCT 06	OCT 06	OCT 06	OCT 06
NOV 06	NOV 06	NOV 06	NOV 06
DEC 06	DEC 06	DEC 06	DEC 06
JAN 07	JAN 07	JAN 07	JAN 07
FEB 07	FEB 07	FEB 07	FEB 07
MAR 07	MAR 07	MAR 07	MAR 07
APR 07	APR 07	APR 07	APR 07
MAY 07	MAY 07	MAY 07	MAY 07
JUN 07	JUN 07	JUN 07	JUN 07
JUL 07	JUL 07	JUL 07	JUL 07
AUG 07	AUG 07	AUG 07	AUG 07
SEP 07	SEP 07	SEP 07	SEP 07
OCT 07	OCT 07	OCT 07	OCT 07
NOV 07	NOV 07	NOV 07	NOV 07
DEC 07	DEC 07	DEC 07	DEC 07
JAN 08	JAN 08	JAN 08	JAN 08
FEB 08	FEB 08	FEB 08	FEB 08
MAR 08	MAR 08	MAR 08	MAR 08
APR 08	APR 08	APR 08	APR 08
MAY 08	MAY 08	MAY 08	MAY 08
JUN 08	JUN 08	JUN 08	JUN 08
JUL 08	JUL 08	JUL 08	JUL 08
AUG 08	AUG 08	AUG 08	AUG 08
SEP 08	SEP 08	SEP 08	SEP 08
OCT 08	OCT 08	OCT 08	OCT 08
NOV 08	NOV 08	NOV 08	NOV 08
DEC 08	DEC 08	DEC 08	DEC 08
JAN 09	JAN 09	JAN 09	JAN 09
FEB 09	FEB 09	FEB 09	FEB 09
MAR 09	MAR 09	MAR 09	MAR 09
APR 09	APR 09	APR 09	APR 09
MAY 09	MAY 09	MAY 09	MAY 09
JUN 09	JUN 09	JUN 09	JUN 09
JUL 09	JUL 09	JUL 09	JUL 09
AUG 09	AUG 09	AUG 09	AUG 09
SEP 09	SEP 09	SEP 09	SEP 09
OCT 09	OCT 09	OCT 09	OCT 09
NOV 09	NOV 09	NOV 09	NOV 09
DEC 09	DEC 09	DEC 09	DEC 09
JAN 10	JAN 10	JAN 10	JAN 10
FEB 10	FEB 10	FEB 10	FEB 10
MAR 10	MAR 10	MAR 10	MAR 10
APR 10	APR 10	APR 10	APR 10
MAY 10	MAY 10	MAY 10	MAY 10
JUN 10	JUN 10	JUN 10	JUN 10
JUL 10	JUL 10	JUL 10	JUL 10
AUG 10	AUG 10	AUG 10	AUG 10
SEP 10	SEP 10	SEP 10	SEP 10
OCT 10	OCT 10	OCT 10	OCT 10
NOV 10	NOV 10	NOV 10	NOV 10
DEC 10	DEC 10	DEC 10	DEC 10
JAN 11	JAN 11	JAN 11	JAN 11
FEB 11	FEB 11	FEB 11	FEB 11
MAR 11	MAR 11	MAR 11	MAR 11
APR 11	APR 11	APR 11	APR 11
MAY 11	MAY 11	MAY 11	MAY 11
JUN 11	JUN 11	JUN 11	JUN 11
JUL 11	JUL 11	JUL 11	JUL 11
AUG 11	AUG 11	AUG 11	AUG 11
SEP 11	SEP 11	SEP 11	SEP 11
OCT 11	OCT 11	OCT 11	OCT 11
NOV 11	NOV 11	NOV 11	NOV 11
DEC 11	DEC 11	DEC 11	DEC 11
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FEB 12	FEB 12	FEB 12	FEB 12
MAR 12	MAR 12	MAR 12	MAR 12
APR 12	APR 12	APR 12	APR 12
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FEB 13	FEB 13	FEB 13	FEB 13
MAR 13	MAR 13	MAR 13	MAR 13
APR 13	APR 13	APR 13	APR 13
MAY 13	MAY 13	MAY 13	MAY 13
JUN 13	JUN 13	JUN 13	JUN 13
JUL 13	JUL 13	JUL 13	JUL 13
AUG 13	AUG 13	AUG 13	AUG 13
SEP 13	SEP 13	SEP 13	SEP 13
OCT 13	OCT 13	OCT 13	OCT 13
NOV 13	NOV 13	NOV 13	NOV 13
DEC 13	DEC 13	DEC 13	DEC 13
JAN 14	JAN 14	JAN 14	JAN 14
FEB 14	FEB 14	FEB 14	FEB 14
MAR 14	MAR 14	MAR 14	MAR 14
APR 14	APR 14	APR 14	APR 14
MAY 14	MAY 14	MAY 14	MAY 14
JUN 14	JUN 14	JUN 14	JUN 14
JUL 14	JUL 14	JUL 14	JUL 14
AUG 14	AUG 14	AUG 14	AUG 14
SEP 14	SEP 14	SEP 14	SEP 14
OCT 14	OCT 14	OCT 14	OCT 14
NOV 14	NOV 14	NOV 14	NOV 14
DEC 14	DEC 14	DEC 14	DEC 14
JAN 15	JAN 15	JAN 15	JAN 15
FEB 15	FEB 15	FEB 15	FEB 15
MAR 15	MAR 15	MAR 15	MAR 15
APR 15	APR 15	APR 15	APR 15
MAY 15	MAY 15	MAY 15	MAY 15
JUN 15	JUN 15	JUN 15	JUN 15
JUL 15	JUL 15	JUL 15	JUL 15
AUG 15	AUG 15	AUG 15	AUG 15
SEP 15	SEP 15	SEP 15	SEP 15
OCT 15	OCT 15	OCT 15	OCT 15
NOV 15	NOV 15	NOV 15	NOV 15
DEC 15	DEC 15	DEC 15	DEC 15
JAN 16	JAN 16	JAN 16	JAN 16
FEB 16	FEB 16	FEB 16	FEB 16
MAR 16	MAR 16	MAR 16	MAR 16
APR 16	APR 16	APR 16	APR 16
MAY 16	MAY 16	MAY 16	MAY 16
JUN 16	JUN 16	JUN 16	JUN 16
JUL 16	JUL 16	JUL 16	JUL 16
AUG 16	AUG 16	AUG 16	AUG 16
SEP 16	SEP 16	SEP 16	SEP 16
OCT 16	OCT 16	OCT 16	OCT 16
NOV 16	NOV 16	NOV 16	NOV 16
DEC 16	DEC 16	DEC 16	DEC 16
JAN 17	JAN 17	JAN 17	JAN 17
FEB 17	FEB 17	FEB 17	FEB 17
MAR 17	MAR 17	MAR 17	MAR 17
APR 17	APR 17	APR 17	APR 17
MAY 17	MAY 17	MAY 17	MAY 17
JUN 17	JUN 17	JUN 17	JUN 17
JUL 17	JUL 17	JUL 17	JUL 17
AUG 17	AUG 17	AUG 17	AUG 17
SEP 17	SEP 17	SEP 17	SEP 17
OCT 17	OCT 17	OCT 17	OCT 17
NOV 17	NOV 17	NOV 17	NOV 17
DEC 17	DEC 17	DEC 17	DEC 17
JAN 18	JAN 18	JAN 18	JAN 18
FEB 18	FEB 18	FEB 18	FEB 18
MAR 18	MAR 18	MAR 18	MAR 18
APR 18	APR 18	APR 18	APR 18
MAY 18	MAY 18	MAY 18	MAY 18
JUN 18	JUN 18	JUN 18	JUN 18
JUL 18	JUL 18	JUL 18	JUL 18
AUG 18	AUG 18	AUG 18	AUG 18
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NOV 18	NOV 18	NOV 18	NOV 18
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JAN 19	JAN 19	JAN 19	JAN 19
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APR 19	APR 19	APR 19	APR 19
MAY 19	MAY 19	MAY 19	MAY 19
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APR 28	APR 28	APR 28	APR 28
MAY 28	MAY 28	MAY 28	MAY 28
JUN 28	JUN 28		

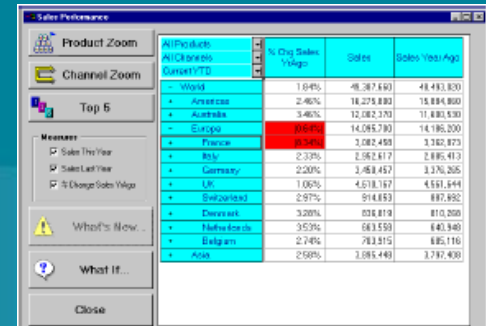
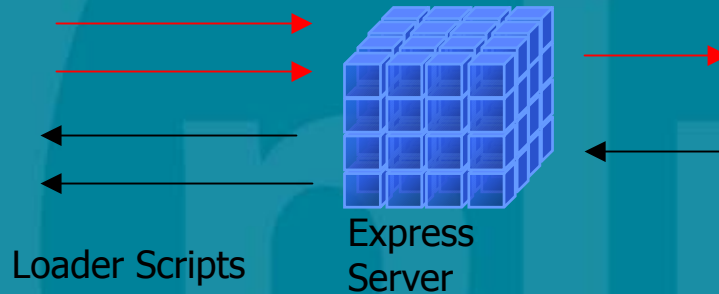
Express MDB Migration

- Importing Express data
 - In Express, export to Express EIF file
 - In 9i OLAP, import Express EIF file
 - Express data files become 9i OLAP analytic workspaces
- Express SPL code runs in 9i OLAP
 - Minor adjustments for re-hosting, e.g.,
 - Change DATABASE command to AW command
 - SQL CONNECT not needed

Scenario 2:

Oracle DB + Express MDB, Express Analyzer + Objects Front-End

- Base-level data held in Oracle, Aggregates and models in Express



Sales Performance

Product Zoom

Channel Zoom

Top 5

Measures

What's Now

What If...

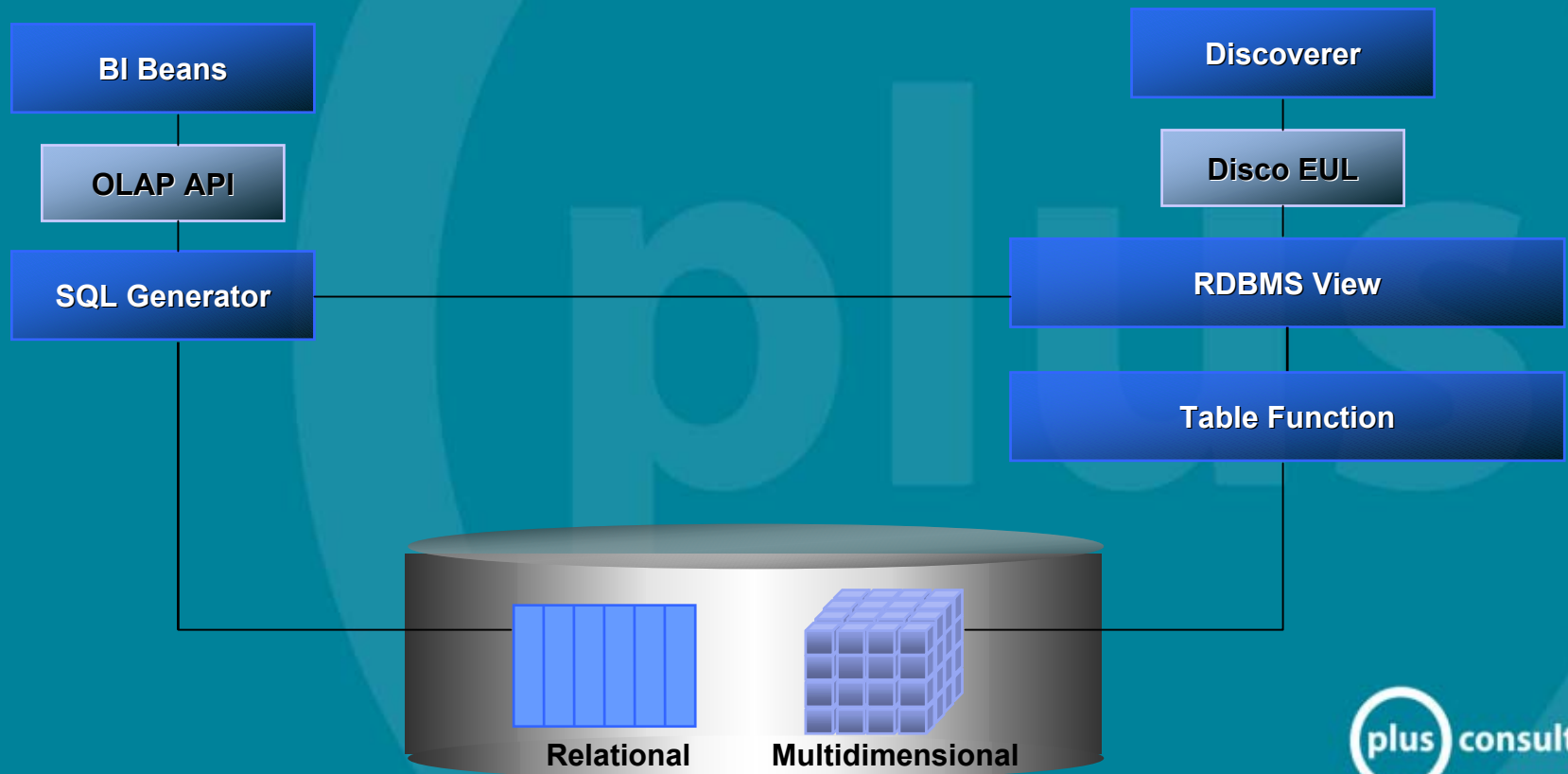
Close

All Products	% Chg Sales Ytd	Sales	Sales Ytd Ago
World	1.6%	48,307,640	48,493,830
Americas	2.46%	18,275,890	18,094,800
Australia	3.46%	12,082,370	11,600,530
Europe	2.64%	14,085,700	14,195,200
France	2.46%	3,082,400	3,102,870
Italy	2.33%	2,582,617	2,606,413
Germany	2.20%	3,468,457	3,376,265
UK	1.05%	4,518,167	4,661,444
Switzerland	2.97%	914,653	897,952
Denmark	3.28%	638,419	616,269
Netherlands	3.52%	663,559	640,340
Belgium	2.74%	783,515	805,116
Asia	2.58%	3,985,449	3,797,408

Scenario 2 Solution:

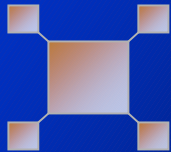
Oracle DB + Express MDB, Express Analyzer + Objects Front-End

- Migrates to Oracle 9i + Oracle 9i OLAP, with BI Beans, Discoverer. OLAP Catalog metadata + SQL Views needs to be created



BI Beans and The OLAP Catalog

Oracle9i OLAP



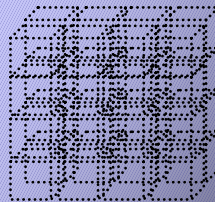
Relational Data

- Tables
- Columns

**Multi-dimensional Data
(Analytic Workspace)**

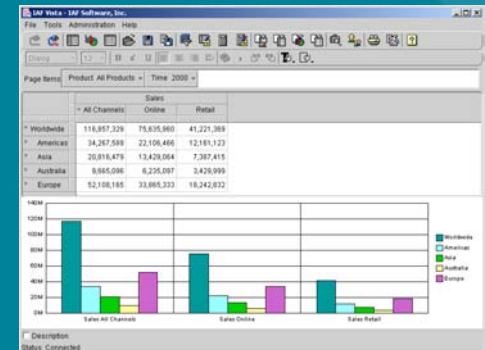


Physical models
(Source data)



- Cubes
- Measures
- Dimensions
- Hierarchies
- Levels
- Attributes

Logical models
(OLAP Catalog)



BI Application
(OLAP API)

Creating OLAP Catalog Metadata

- Metadata designed specifically for use with Oracle OLAP
- Meta data tables owned by OLAPSYS
 - ALL_OLAP2_XXX
- Two methods for creating OLAP metadata
 - Oracle Enterprise manager
 - OLAP Catalog Metadata API (CWM2 packages)
- OLAP 1 Catalog (CWM1) and OLAP 2 Catalog (CWM2)

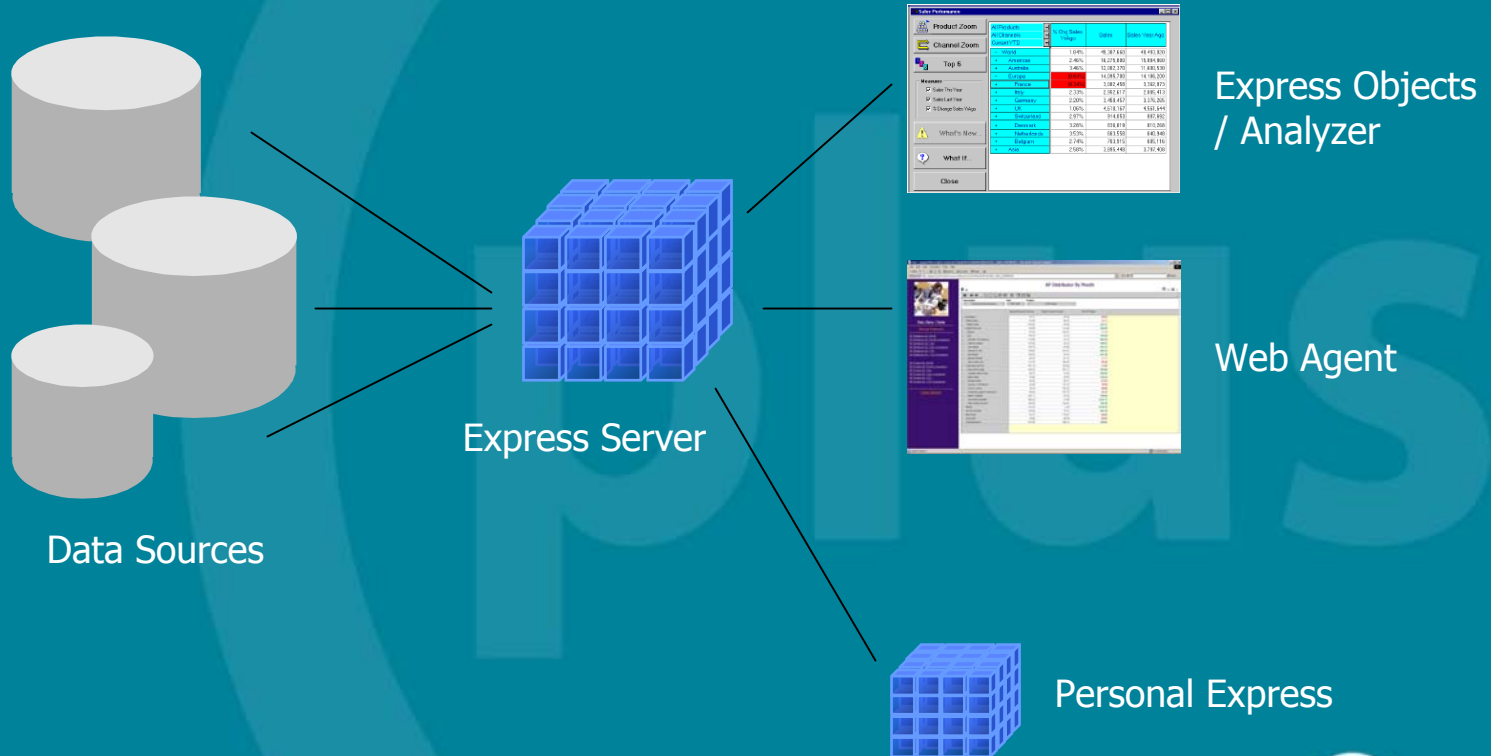
BI Beans as a Query Tool

The screenshot illustrates the BI Beans application interface, showing multiple overlapping windows. The primary window is the BI Beans Application, which includes a menu bar (File, Tools, View) and a toolbar. A 'Query Builder' window is open, displaying 'Items' and 'Dimensions' tabs, and a 'Choose' dialog box. A 'Calculation Wizard, Step 2 of 4: Name and Type' window is also visible. The Netscape browser window displays the Oracle Business Intelligence Beans report titled 'Product Sales vs Quota'. The report features a bar chart comparing Sales and Quota for VCR, DVD, and MP3 products. The Y-axis ranges from 0 to 350. The legend indicates VCR (blue), DVD (green), and MP3 (magenta).

Product	Sales	Quota
VCR	100	120
DVD	200	180
MP3	300	200

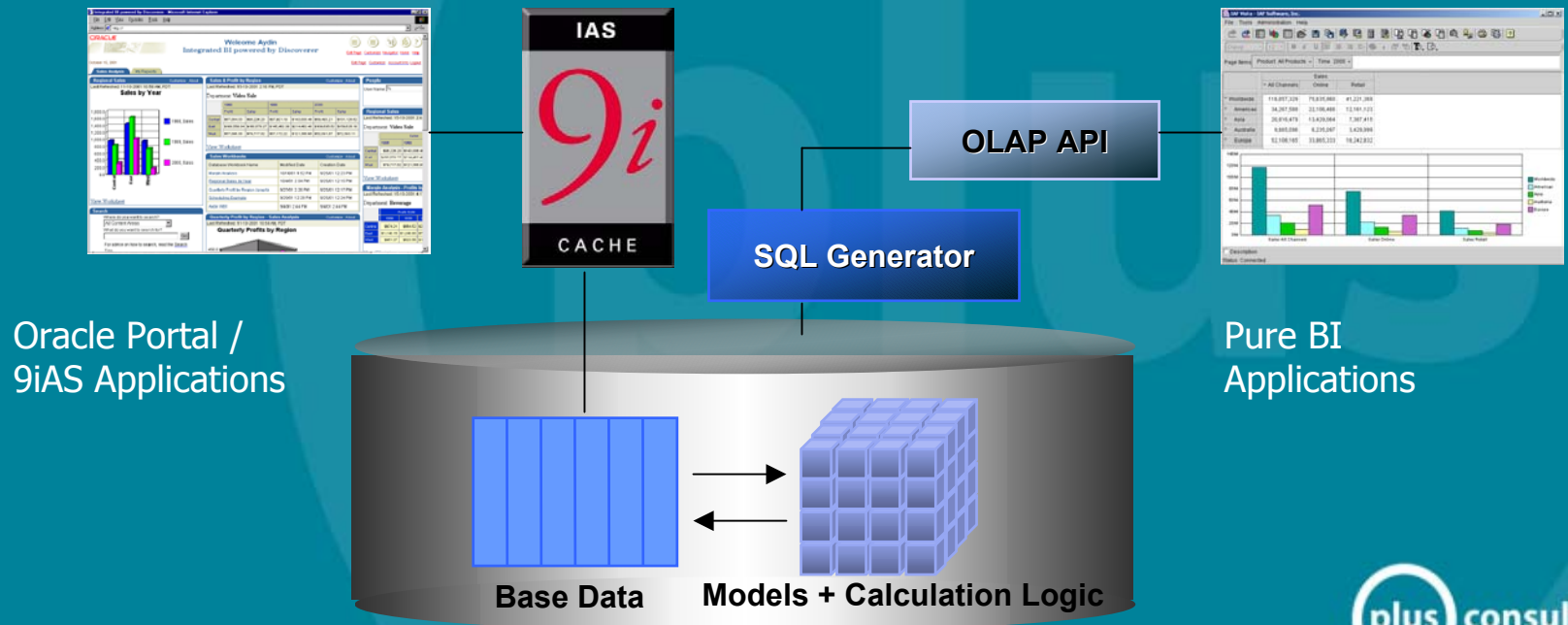
Scenario 3: An Express-Only System

- All aspects of system handled by Express product family



Scenario 3 Solution: An Express-Only System

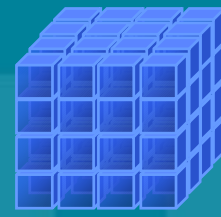
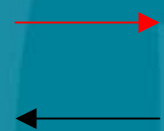
- Use 9i OLAP only for calculations and forecasts
- Store program logic and base data in 9i and 9ias
- Limited role for Java OLAP API
- 9i OLAP now called as a service, rather than being the centre of the application



Scenario 4: OFA & OSA Applications



Data Sources



Express Server
With OFA
metadata



Oracle Financial Analyzer - Web - Microsoft Internet Explorer

Address: http://mc3.mpsnet.com/1564/ovm/ONEglr4/NO0000000A08AZL_INQ_F0MRP0CTARCT+0FACE_INQ_IL0PWDE+1&M

ORACLE Financial Analyzer

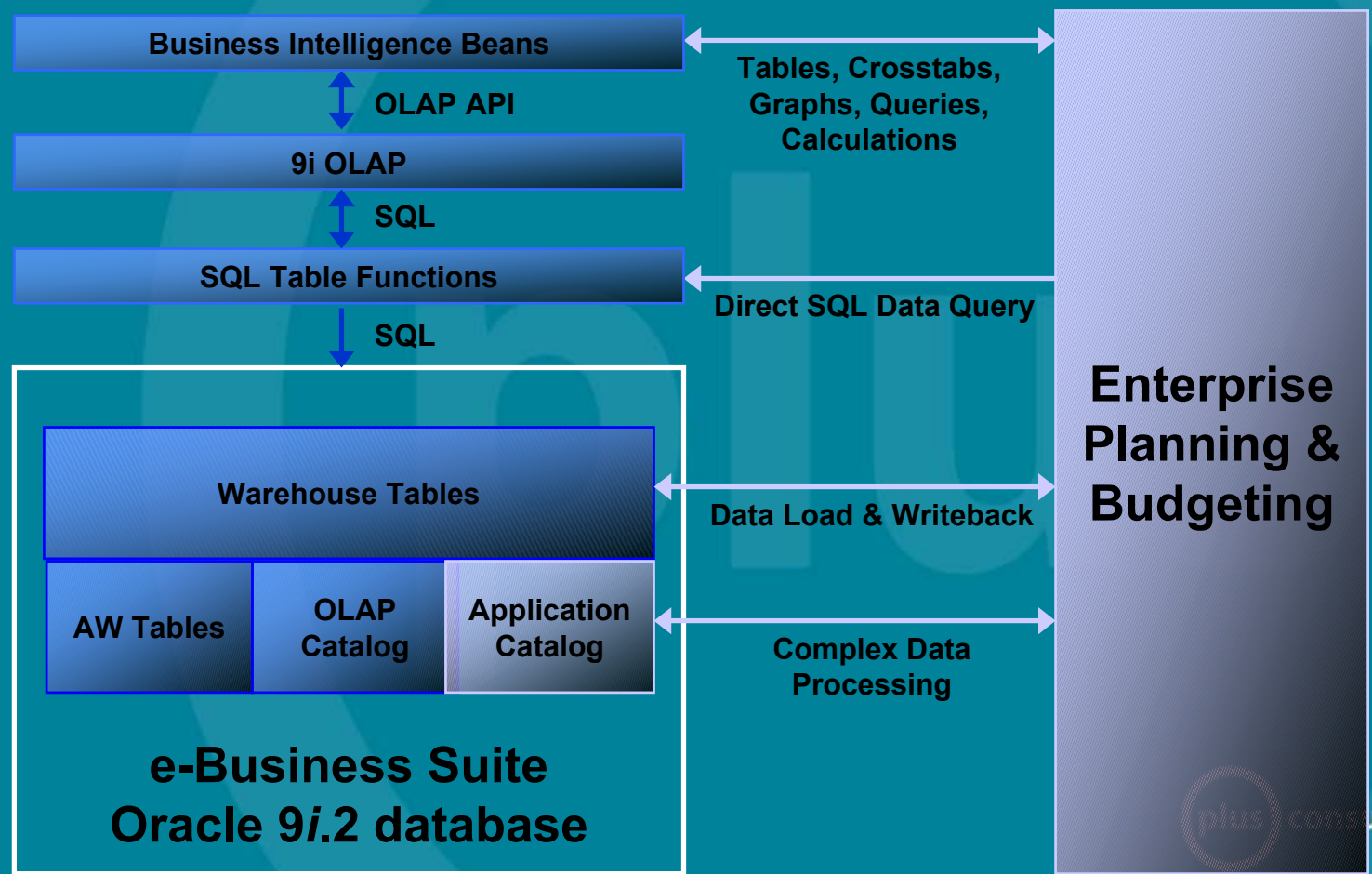
Rolling Monthly Income Statement

Financial Data

	BALANCING ENTITY		ORIGROW		PRODUCT	
	00 ALL BALANCING E		TOTAL ALL ORIGROW		00 ALL PRODUCT	
	Actual					
		JAN-99	FEB-99	MAR-99	Q1 1999	APR-99
8100 FP INTEREST INC	81,449.33	82,489.04	112,763.72	298,403.09	114,579.83	
4110 ACCR FP INTEREST	-7,456.00	5,856.00	5,672.00	3,974.00	-4,403.00	
4120 FLOAT INTEREST	0.00	0.00	11.98	11.98	104,169.79	
4001 FP FEE INCOME	127,870.00	124,230.00	157,435.00	408,535.00	165,320.00	
4010 ACCR FP FEE INC	120.00	8,143.00	14,726.00	24,009.00	-8,696.00	
4200 TOTAL OTHER FEE	2,845.44	-34.83	-2,148.00	294.76	-14.00	
4999 TOTAL REVENUE	214,126.77	221,704.41	288,387.65	724,225.83	369,967.34	
5000 TOTAL INTEREST	33,900.00	32,308.00	40,927.00	107,335.00	510,087.00	
5000 BACKDEBT EXPENSE	44,972.00	46,567.00	60,587.00	153,126.00	78,405.00	
5001 BAD DEBT EXPENS	0.00	0.00	0.00	0.00	0.00	
5010 WRITE OFF ADJUS	57,075.00	-11,201.00	-67,811.00	-21,337.00	-65,787.00	
5000 TOTAL DIRECT EX	135,947.00	67,674.00	34,500.00	298,124.00	622,695.00	
Total Interest Income After Losses	79,159.77	154,030.41	253,906.65	408,101.83	-152,717.66	
% of Revenue	36.51	69.48	88.04	67.12	41.20	
4999 TOTAL DIRECT INC	111.30	4,006.31	3,004.35	8,443.00	8,383.00	

Scenario 4 Solution: OFA & OSA Applications

- Migrate OFA and OSA to Oracle EPB



Potential EPB Migration Issues

- Data loaders –
 - MOLAP - rewrite using SQL Data Loader or OWB
- Data entry – no longer necessary – supported in EPB
- Data processing – no longer necessary – supported in EPB
 - Allocation
 - Dynamic aggregation
- Task automation – no longer necessary – use Workflow
- Reporting view formula – no longer necessary – supported in EPB

EPB Roadmap

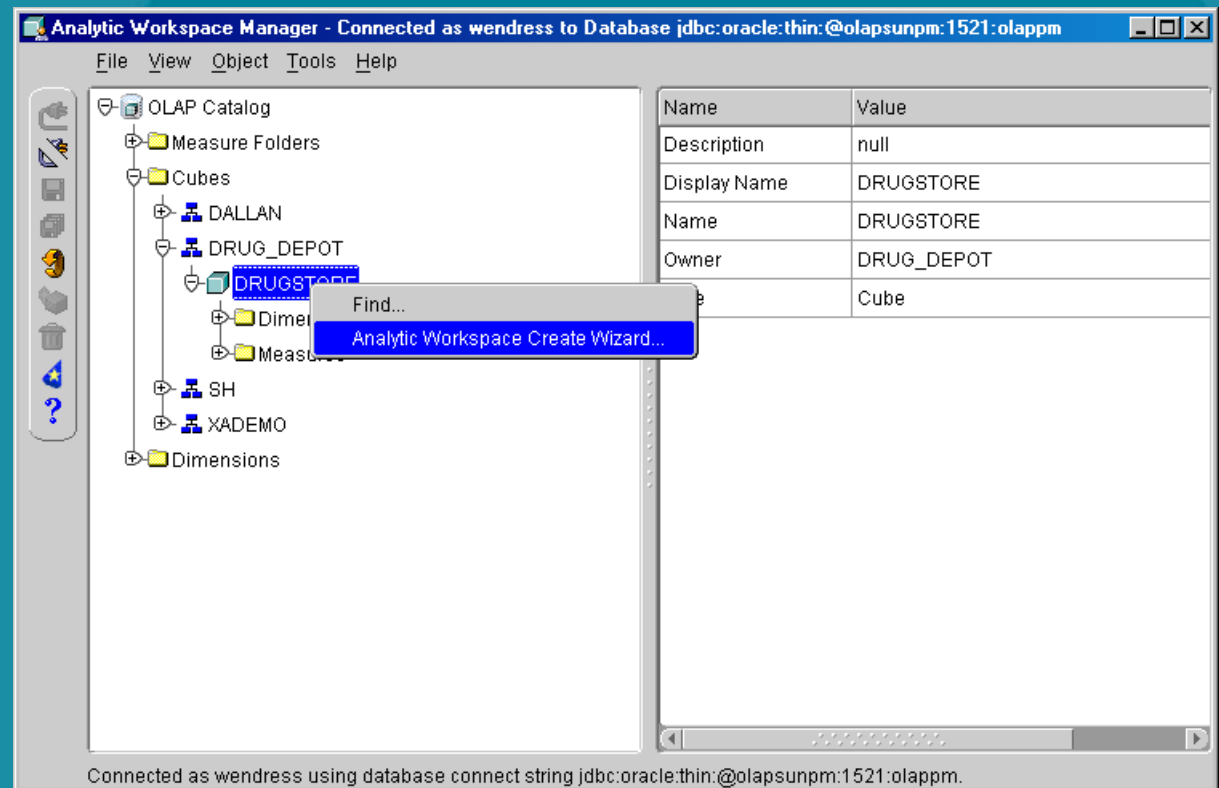
- EPB Version 1
 - Technology milestone
 - Reporting, analysis, business flow, authorizations
 - No data entry
 - No migration tools from OFA & OSA
- EPB Version 2
 - Data entry
 - Migration tools from OFA & OSA
 - More calculation templates and custom calc syntax
 - Industry templates

Migration Tools

- Oracle tools
 - Analytic Workspace Manager
 - Oracle Enterprise Manager
 - Oracle Warehouse Builder

Analytic Workspace Manager

- Available May 2003; requires the upcoming OLAP 9.2.0.3.0x patch for the CWM2 Metadata



Oracle Enterprise Manager

Oracle Enterprise Manager Console, Standalone

File Navigator Object Tools Configuration Help

ORACLE EnterpriseManager

Network

- Databases
 - MARKR91 - SYS AS SYSDBA
 - Instance
 - Schema
 - Security
 - Storage
 - Distributed
 - Warehouse
 - OLAP
 - Measure Folders
 - Cubes
 - SH
 - COST_CUBE
 - SALES_CUBE
 - Dimensions
 - Summary Management
 - Workspace
 - XML Database
 - OEMREP

OLAP Management

To perform analytical processing, the data warehouse must be preconfigured with OLAP metadata objects, which include:

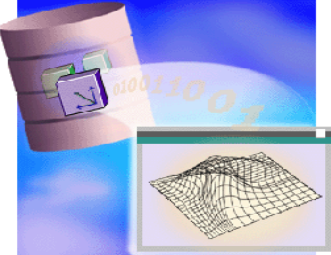
- ▶ **Dimension** organize data warehouse dimension tables into levels, attributes, and hierarchies.
- ▶ **Cubes** are logical representations of multi-dimensional data, and must include at least one dimension.
- ▶ **Measure Folders** organize measures into manageable groups.

To create materialized views for optimizing the data warehouse, use following application:

- ▶ Right-mouse-click on a cube node and launch **OLAP Summary Advisor** wizard recommends materialized views that optimize performance of OLAP client applications that access data defined by a cube. This wizard is available for Oracle version 9.2 and above.

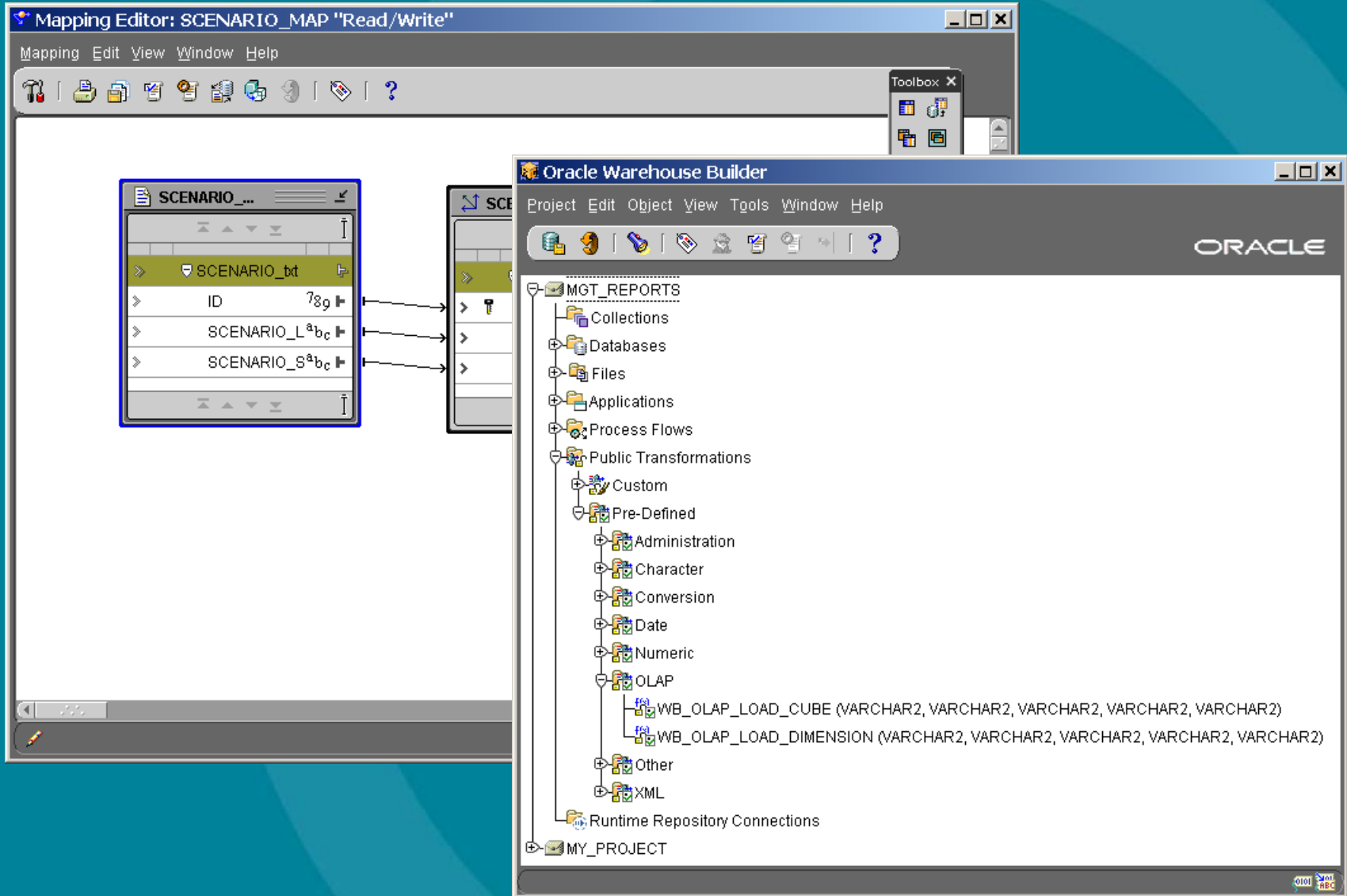
Two additional applications are available for OLAP management.

- ▶ Right-mouse-click on a cube node and launch **Cube Viewer** to display the multi-dimensional data represented by the cube
- ▶ Right-mouse-click on OLAP folder to launch **OLAP Worksheet** which is used for coding and editing OLAP 4GL code. This application is available for



Help

Oracle Warehouse Builder



Summary

- Express is now embedded in Oracle 9i
- The same MOLAP functionality
- Benefits from Oracle scalability & availability
- New Opportunities such as SQL Access and RAC
- Several Migration Approaches
- Express No Longer Needs To Be The Central Application
- New Migration Tools Due in 2003

Further Information

- “Oracle9iR2 Data Warehousing ”
 - Lilian Hobbs, Susan Hillson, Shilpa Lawande
- Any Oracle Presentations written by
 - Bud Endress (9i OLAP),
 - Morgan Russell (BI Beans)
 - Igor Machin / Jean-Pierre Djicks (OWB)
- Speak To The Experts at Plus Consultancy
 - <http://www.plusconsultancy.co.uk>
- OTN Documentation & Discussion Groups
 - <http://www.oracle.com/forums/forum.jsp?forum=16>

