

#mstrworld



Analyzing Multiple Data Sources with Multisource Data Federation and In-Memory Data Blending

Presented by: Trishla Maru

Agenda

- **Overview**
- **MultiSource Data Federation**
 - Use Cases
 - Design Considerations
- **Data Blending**
 - What is Data Blending
 - When to use Data Blending?
 - Benefits of Data Blending
- **Demo**
- **MultiSource Option Vs. Data Blending**
- **Performance Gain with New Dashboarding Engine**
- **Q&A**

MicroStrategy Analyzes Data from Corporate System of Record and Personal Data Files

1

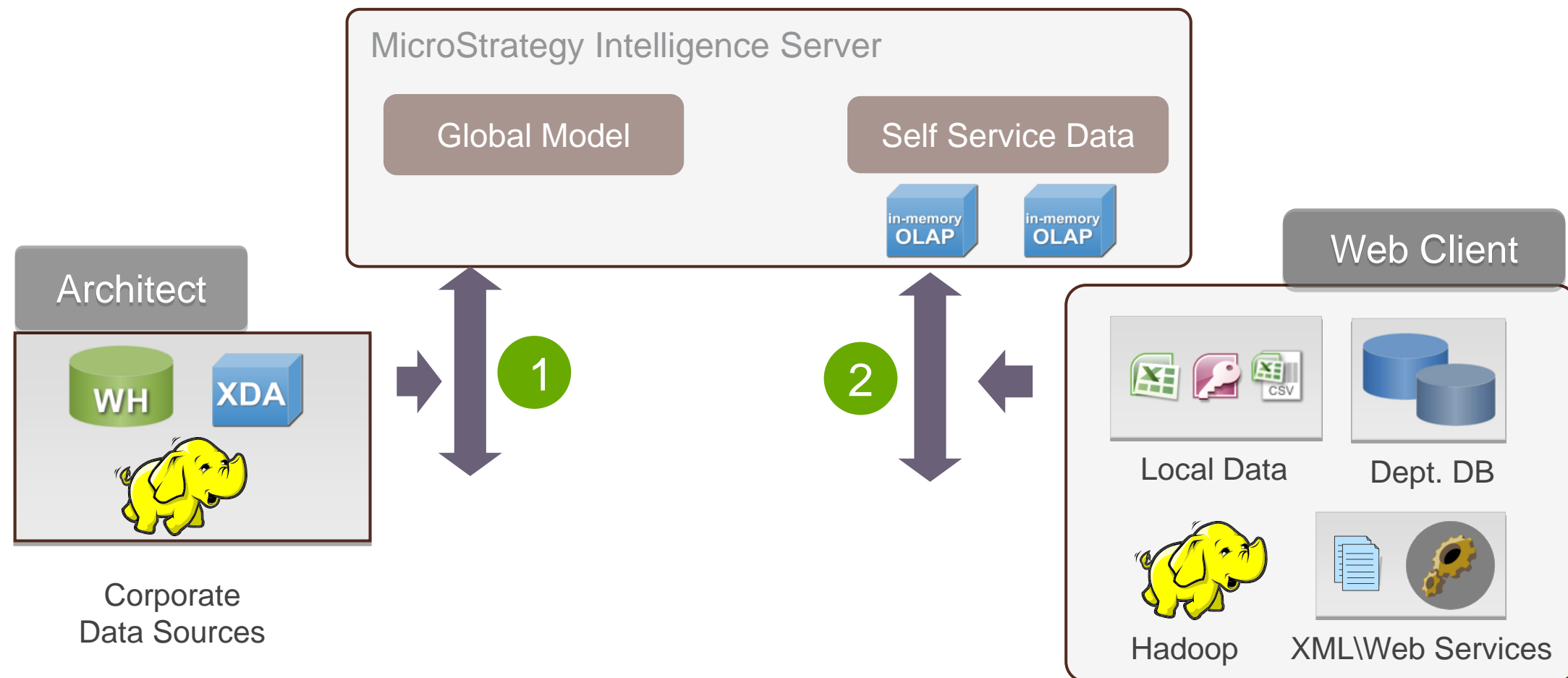
Modeled Data

- Modeled Data is performed through MicroStrategy Architect
- Designer architects global model which abstracts physical structure of data (tables and columns, aggregates etc.)

2

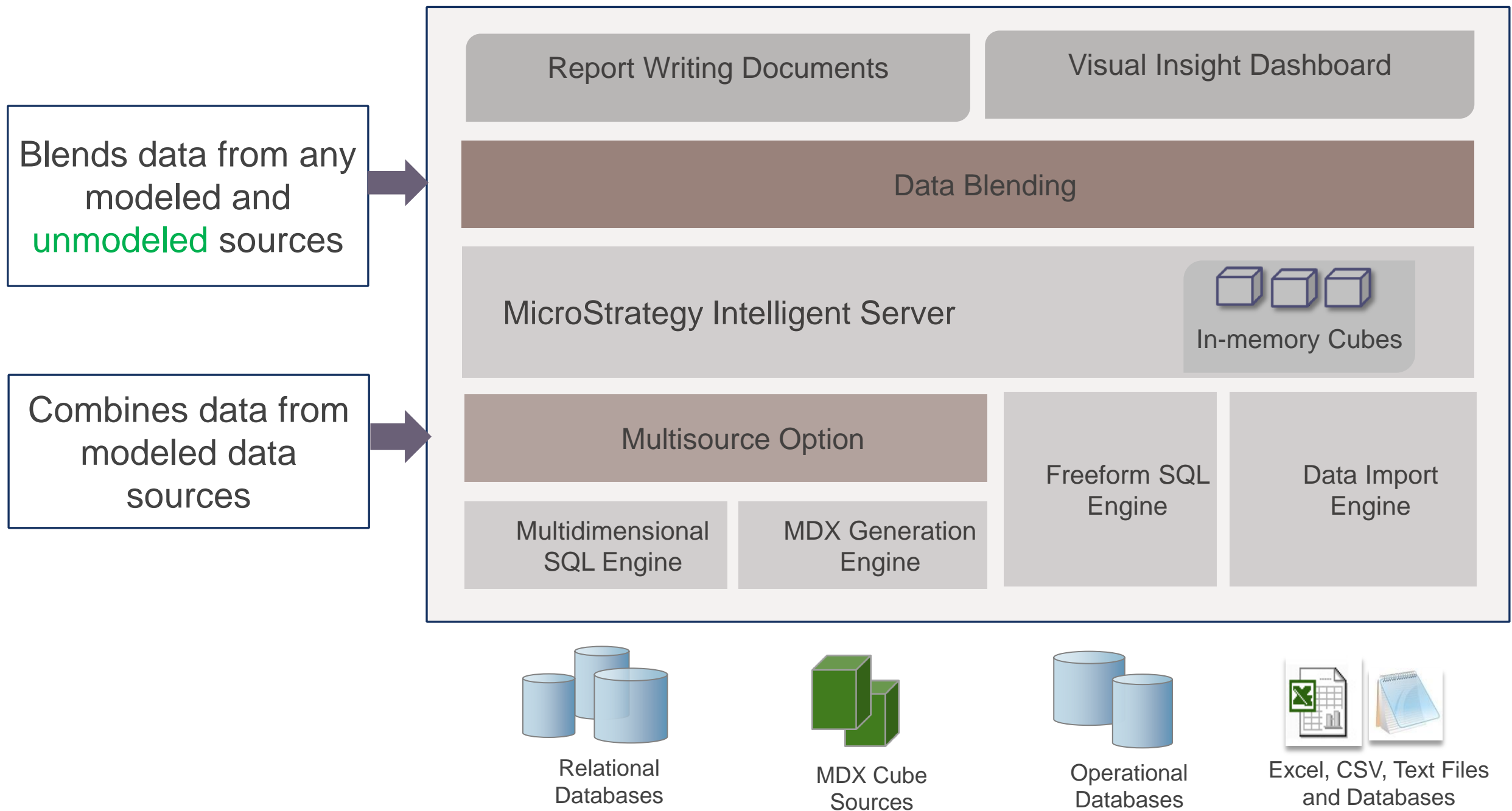
Self Service Data

- This self-service data is achieved via the “Import Data” feature
- User adds the data, and during the import process, supplies basic mapping of Attributes, Metric



High Level Overview

Multisource Option and Data Blending



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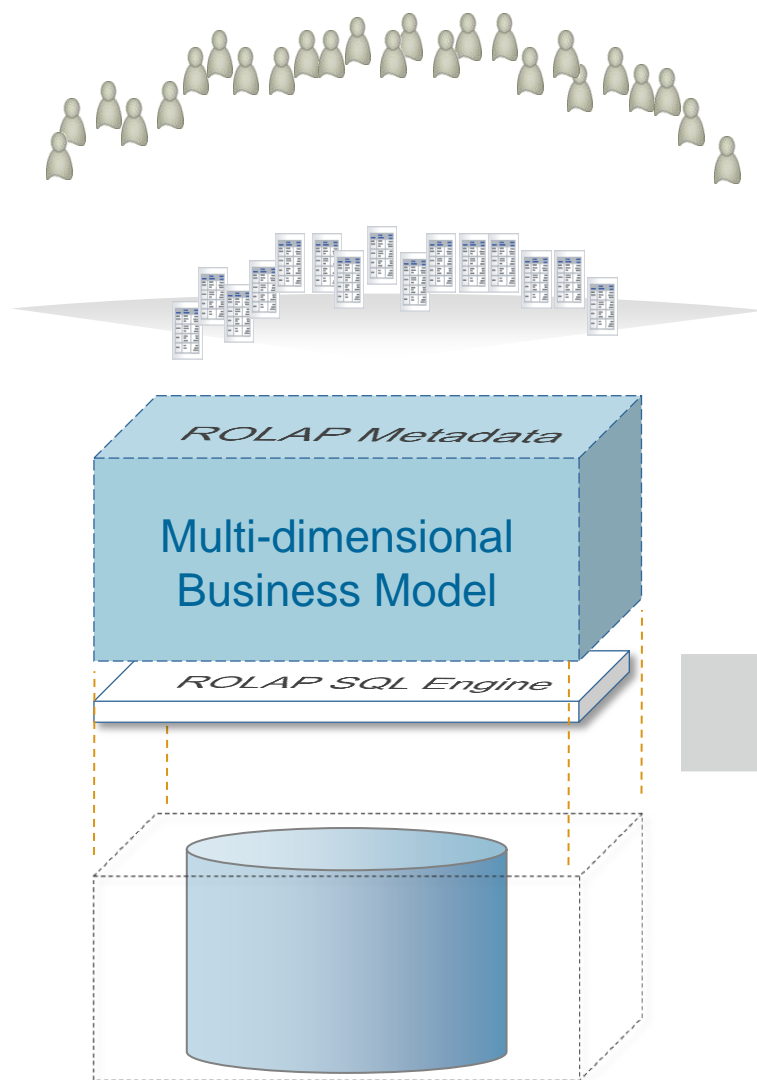
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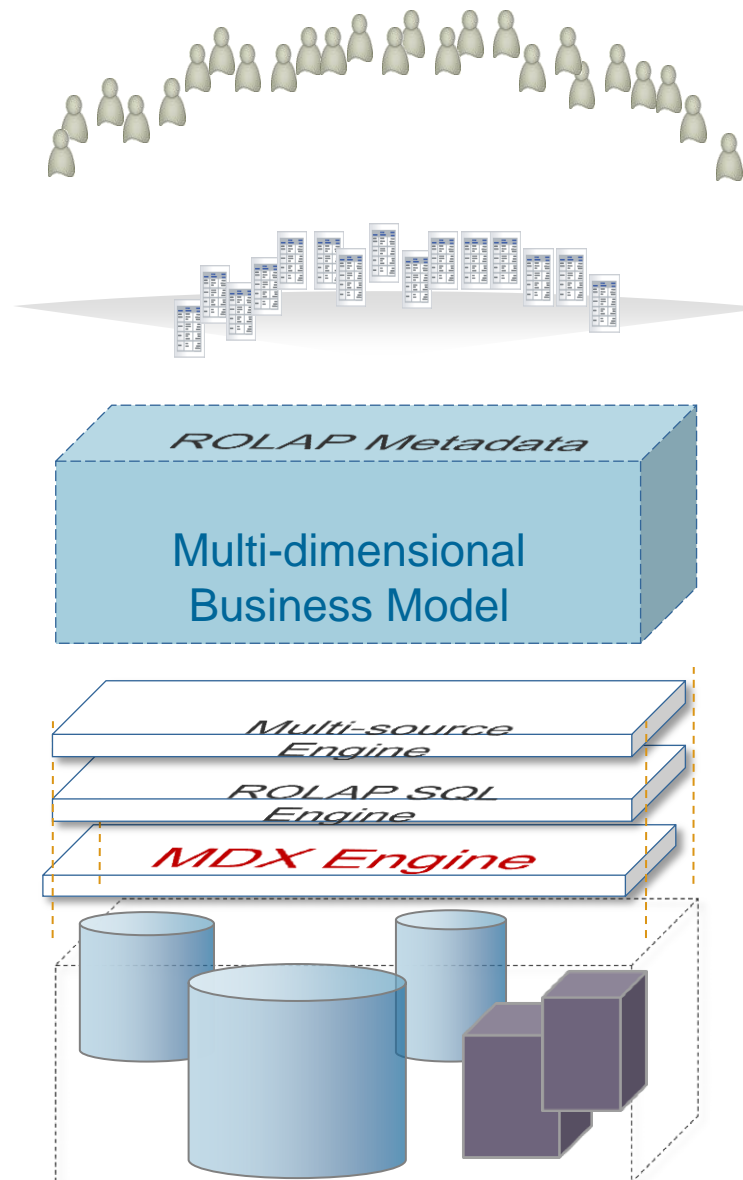
What is MultiSource?

Provides a Single Multi-dimensional View Across Multiple Data Sources

A Single Relational Source



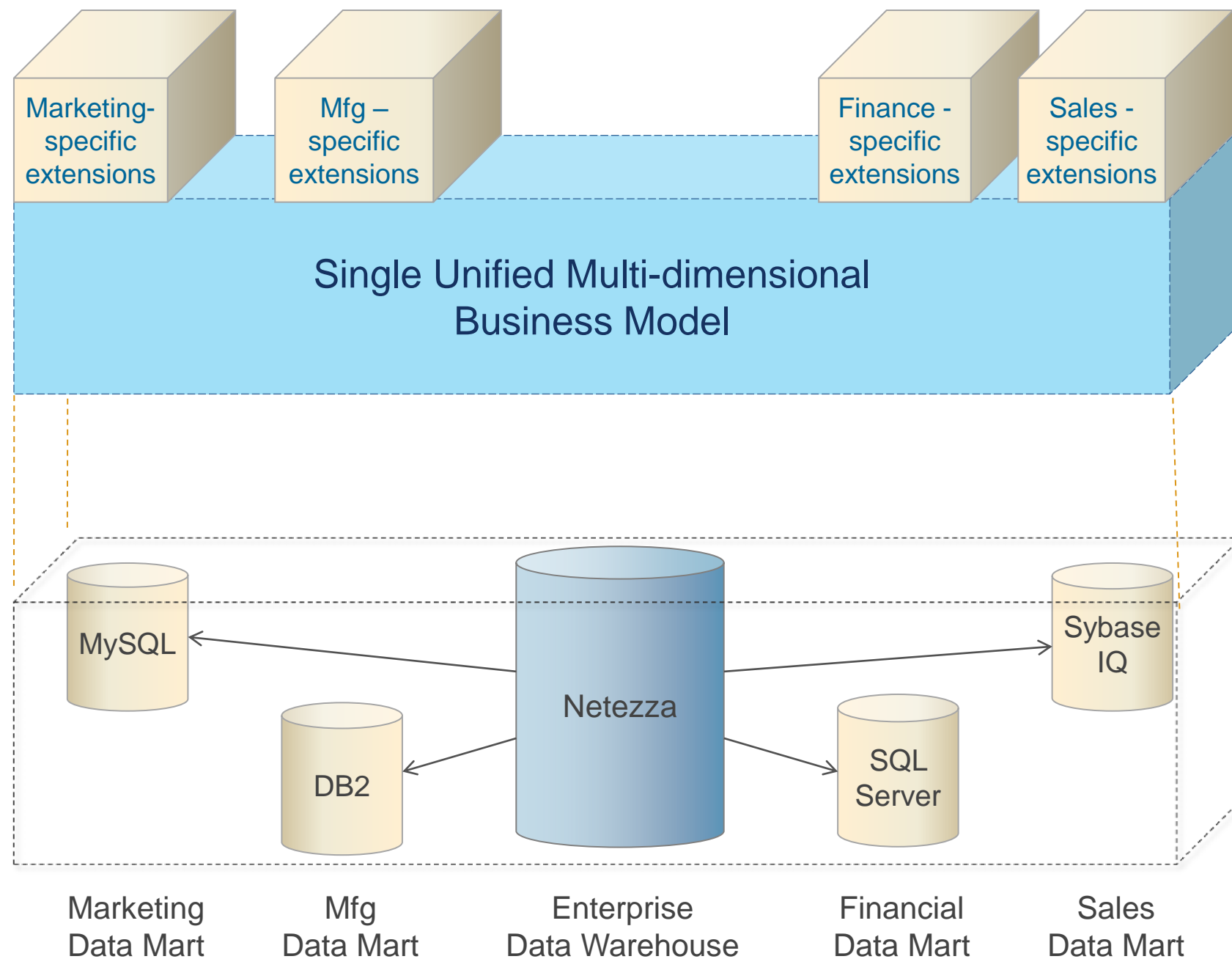
Relational and Multi-Dimensional Sources



- Capability to combine data from more than one relational or multidimensional sources.
- Merging data at the architect/report level, when business users only need to consume the data
- A multisource report can be added as a dataset to documents/dashboards.

MultiSource Option

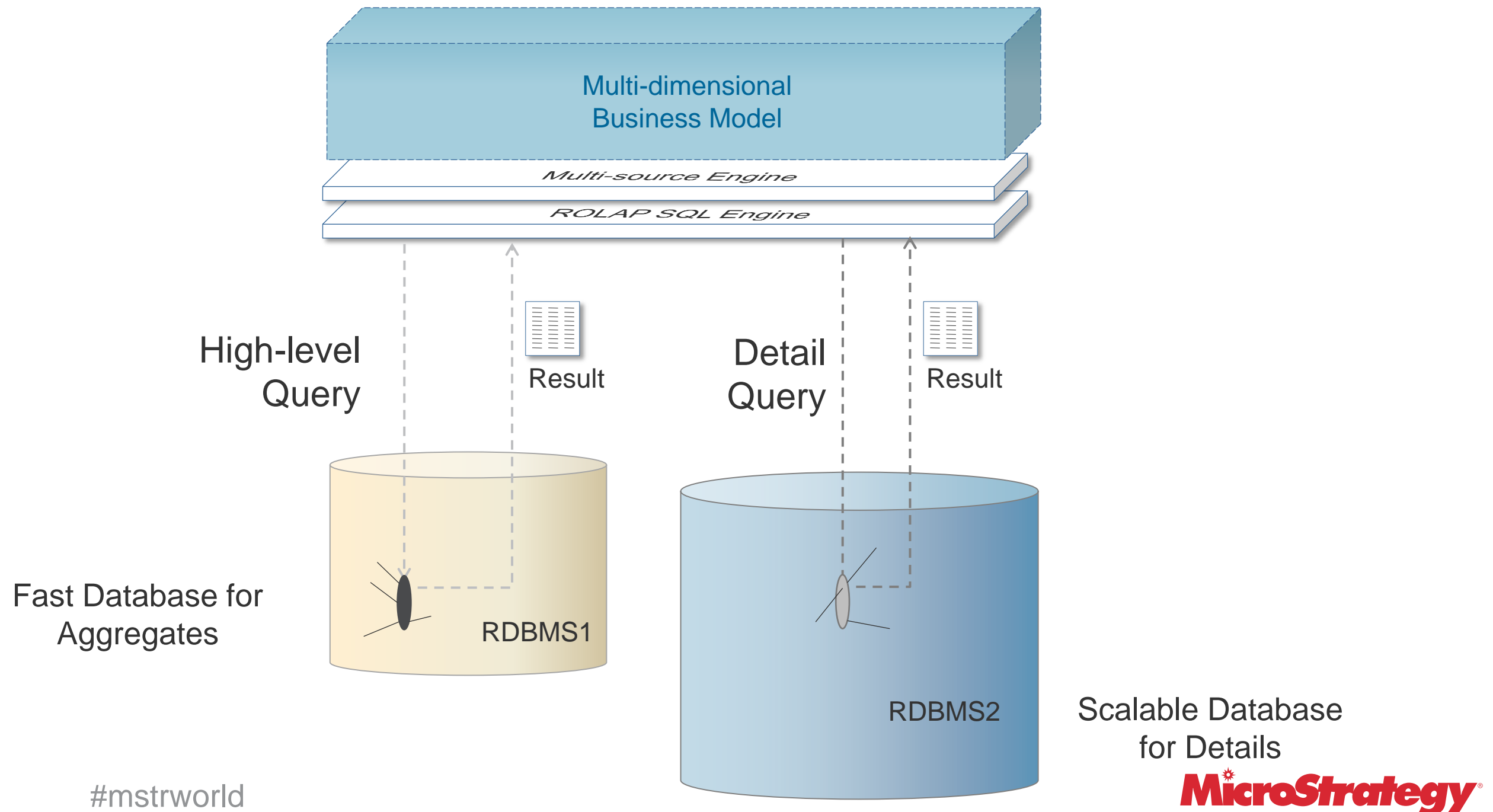
Use Case 1: Hub & Spoke Architecture with Conformed Dimensions



MultiSource Option

Use Case 2: Balance Workload Across Databases

MicroStrategy Analytics Platform Multisource ROLAP

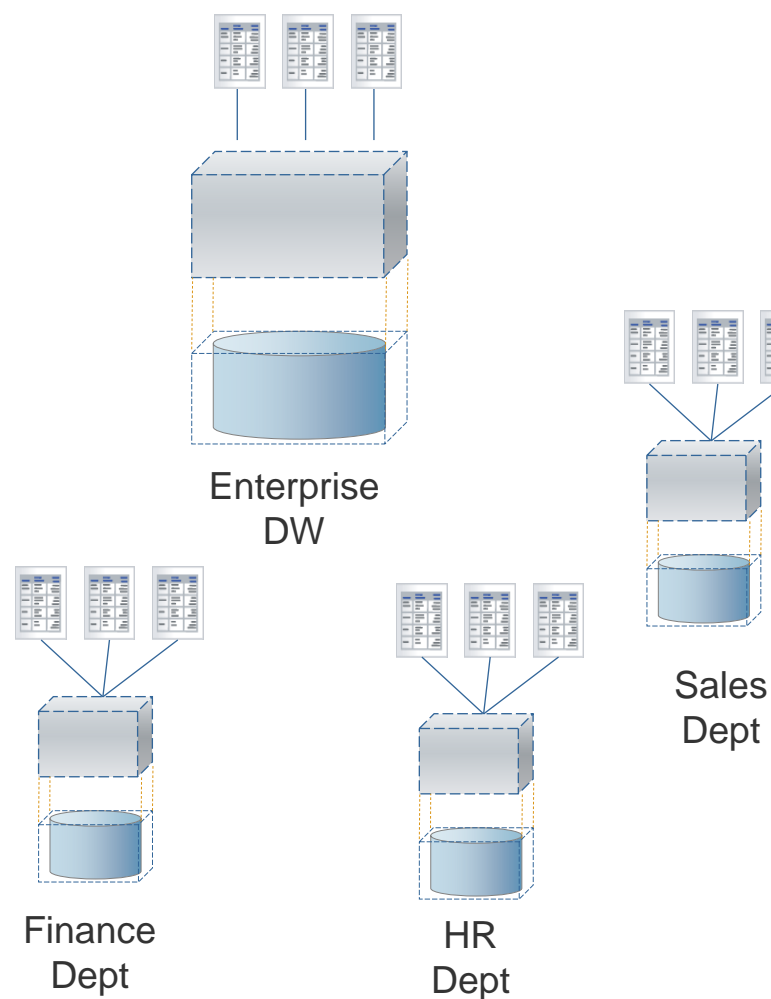


MultiSource Option

Use Case 3: Gradual Evolution from Islands of BI to Enterprise BI

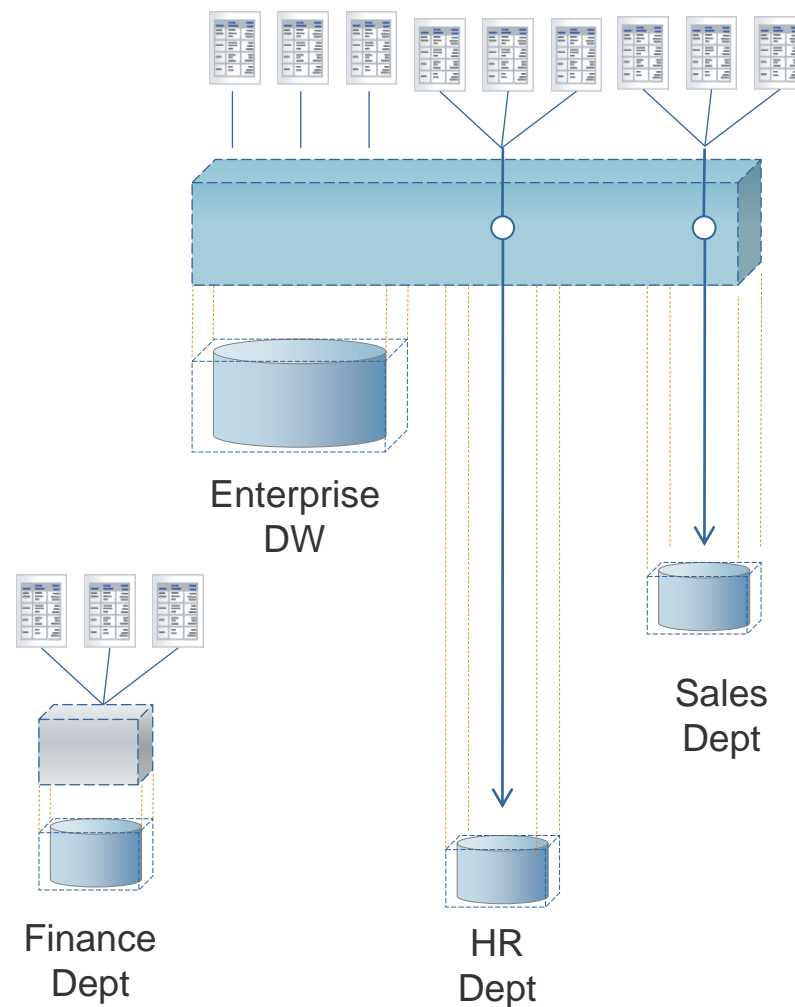
Stage 1

Disparate Islands of BI
All Running on MicroStrategy
BI



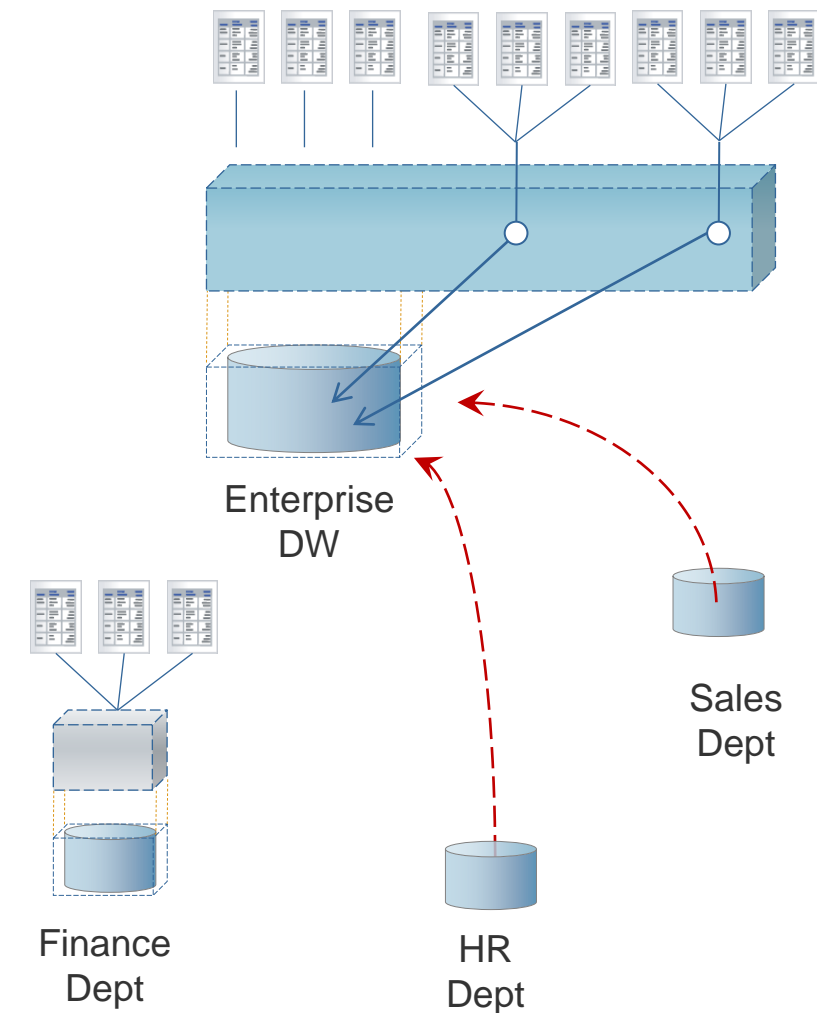
Stage 2

Merging Islands of BI
Using MicroStrategy Multisource



Stage 3

Consolidating Data
Re-pointing Metadata to the
EDW



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- Benefits of Data Blending

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- **MultiSource Option Vs. Data Blending**

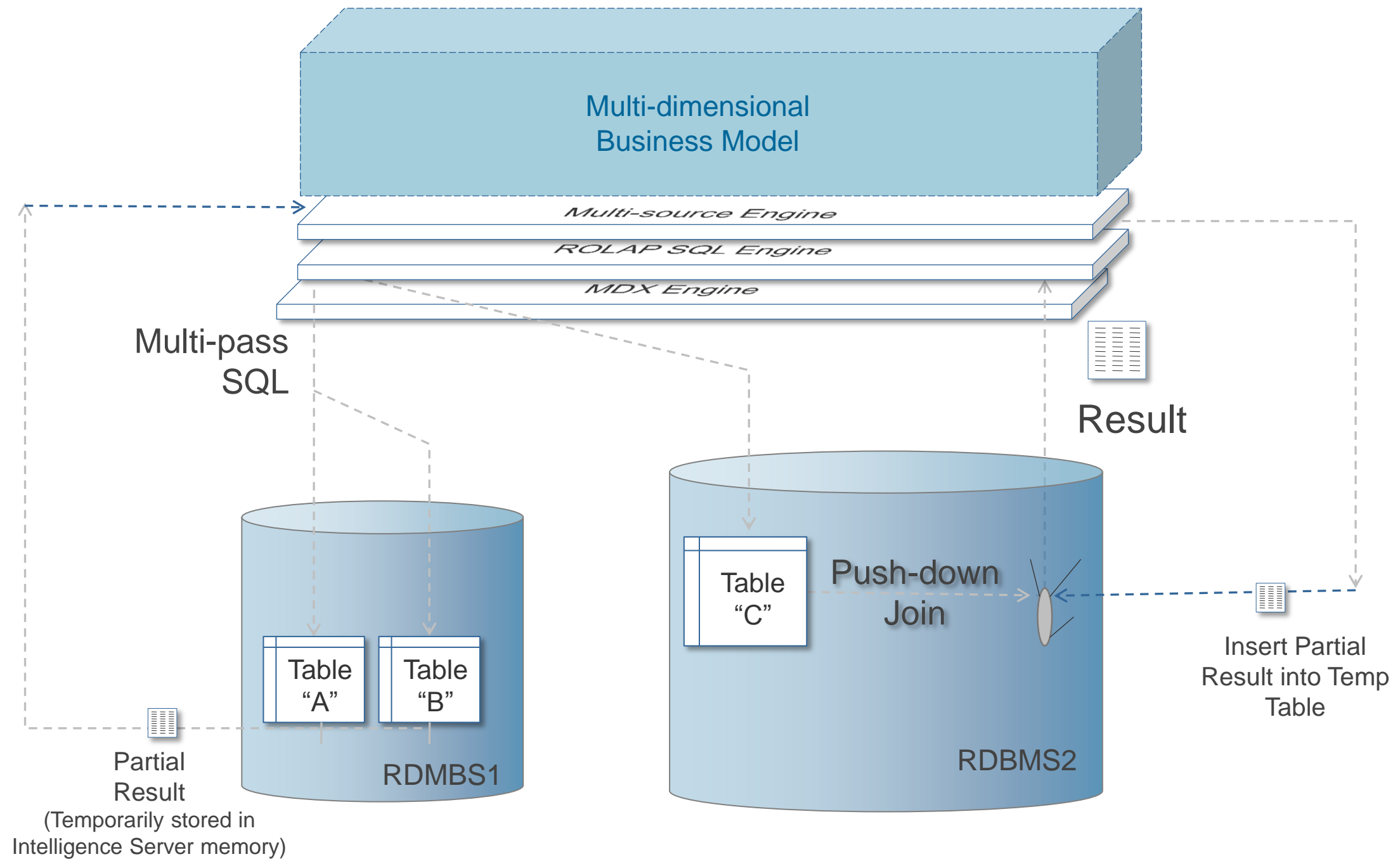
- **Performance Gain with New Dashboarding Engine**

- **Q&A**

MultiSource Option is Designed for High Performance

1. Push Down ROLAP Joining Minimizing Data Movement

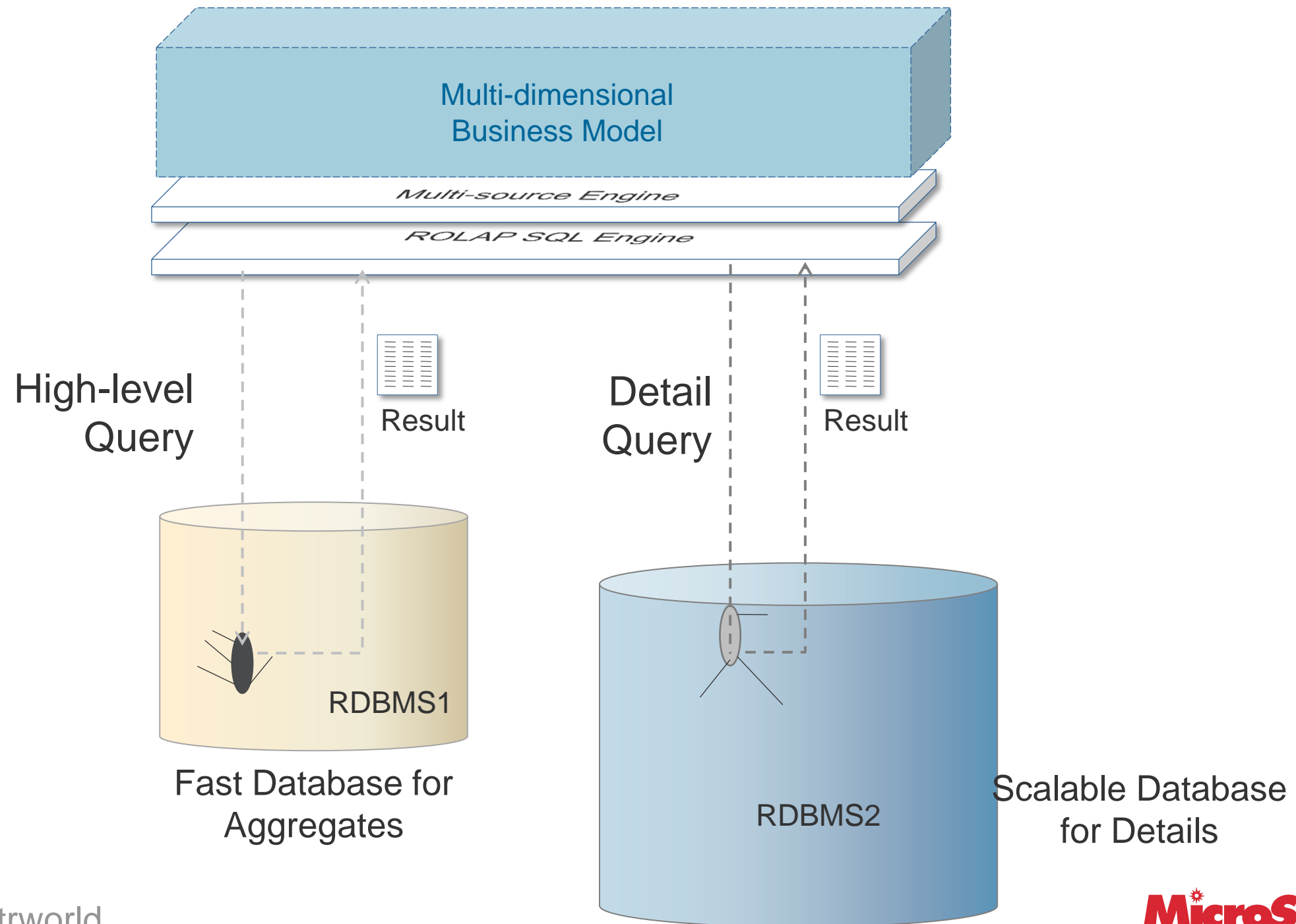
Multiple Relational and Multi-Dimensional Sources



MultiSource Option is Designed for High Performance

2. Optimized Source Selection Across Databases

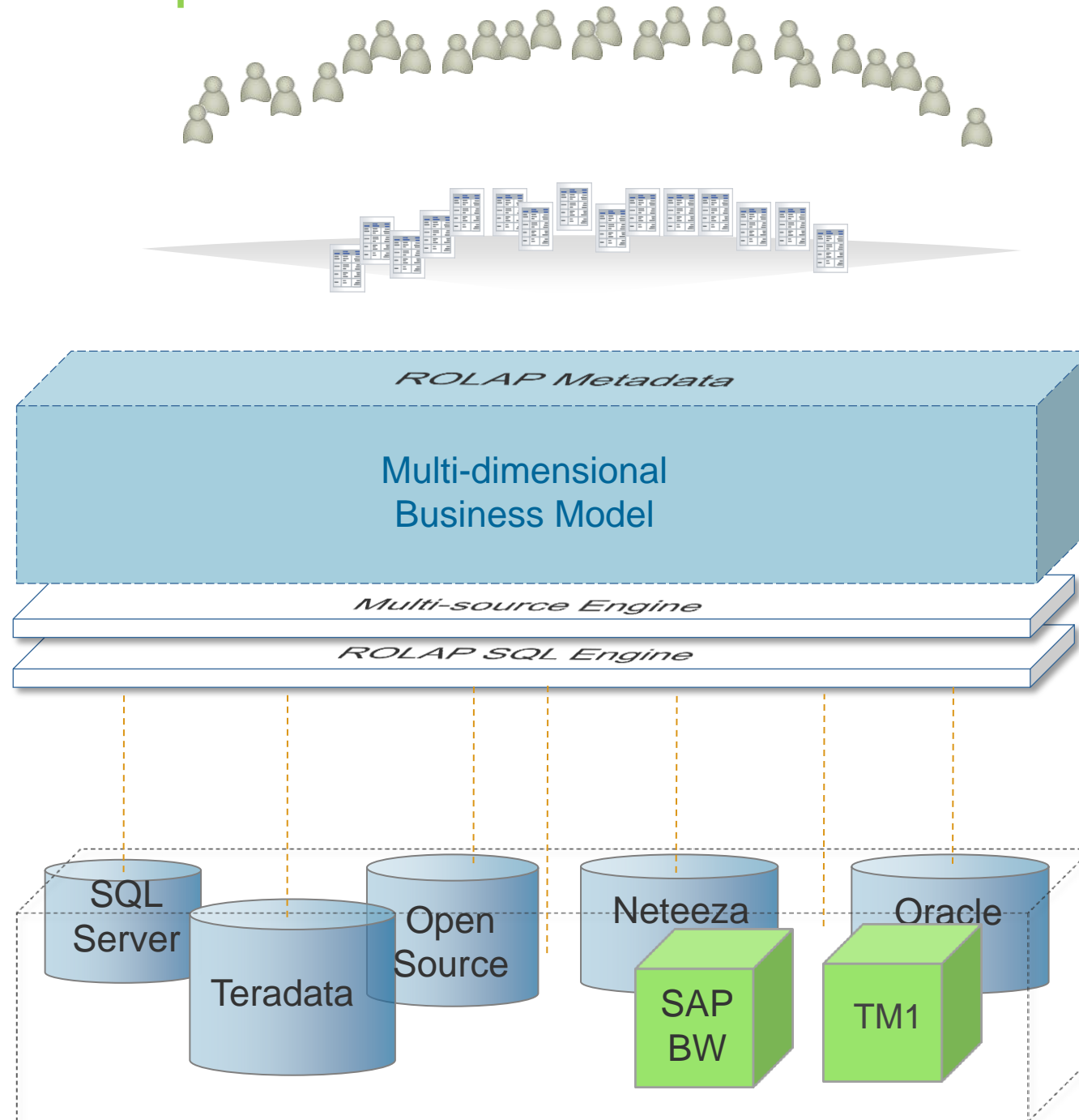
Multiple Relational and Multi-Dimensional Sources



MultiSource Option is Designed for High Performance

3. Optimized SQL and/or MDX for Each Data Source

Multiple Relational and Multi-Dimensional Sources



Tuneable VLDB Settings

Allows DBA's to Tailor the automatic SQL Generation for each Data source Technology to Deliver Maximum Performance

Optimized SQL or MDX

MicroStrategy ROLAP SQL Engine Creates Data source-specific SQL or MDX

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What is Data Blending?

Blend data from modeled and unmodeled sources on the fly in a dashboard

Personal Data Sources



Relational Databases



Multi-Dimensional Sources



Map Reduce Databases



Excel

Hadoop

SAP BW



Data Blending

Link Data from Different Sources with Right-Mouse-Click and Drag-and-Drop Actions

“School Name” Column from
‘Attendance’ data set is...

The screenshot shows the MicroStrategy Data Blending interface. On the left, the 'Dataset Objects' pane lists 'NCAA Attendance' and its fields: 'School Name', 'Home Games', 'Row Count', and 'Total Attendance'. The 'School Name' field is highlighted with a yellow cube icon. A right-click context menu is open over the 'Grid' pane, with the 'Link To' option selected. The 'Grid' pane shows the 'NCAA Men's Basketball' dataset with fields 'Name', 'Wins', and 'Lost'. The 'Name' field is also highlighted with a yellow cube icon. The main grid displays a table of basketball teams and their win/loss records.

Name	Wins	Lost
A&M-Corpus Christi	6	23
Air Force	17	13
Akron	26	6
Alabama	21	12
Alabama A&M	11	20
Alcorn	10	24
American	10	
Appalachian St.	15	
Arizona	25	
Arizona St.	21	
Ark.-Pine Bluff	16	
Arkansas	19	13
Arkansas St.	19	12
Army	16	15
Auburn	9	23
Austin Peay	8	23
Ball St.	15	15

... **mapped** to “Name”
column from ‘Ranking’
dataset

Data Blending Among Two Modeled Datasets

1 Modeled Dataset 1: Revenue

Dataset Objects

Dataset2

Country

Forecast

Row Count

Grid

Rows

Country

Columns

Metric Names

Metrics

Revenue

Forecast

Country	Revenue	Forecast
Australia	120	150
India	450	550
Mexico	90	90
USA	300	320

Common 'Schema Attribute' Country

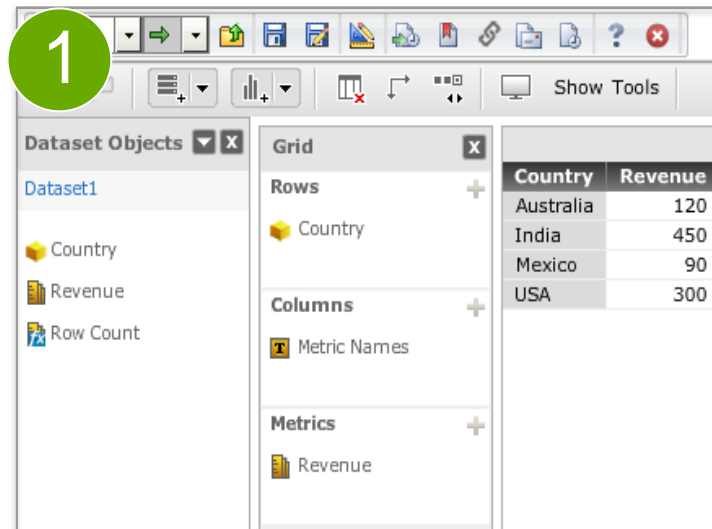
2 Modeled Dataset 2: Forecast

- The new Dashboarding Engine automatically links 'common' attributes using the modeled schema
- No 'Manual Linking' is allowed between different modeled attributes
- If users need to manually link different attributes, this can be accomplished using Architect

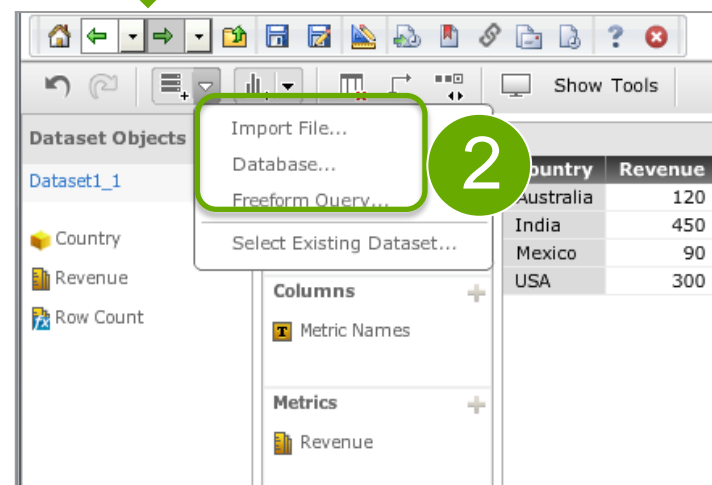
Join Behavior

- Relationship Found = Full Outer Join
- No Relationship Found = Cross Join

Data Blending Among Modeled and Unmodeled Data



More Than One Dataset
in one VI Analysis



Auto-Linking

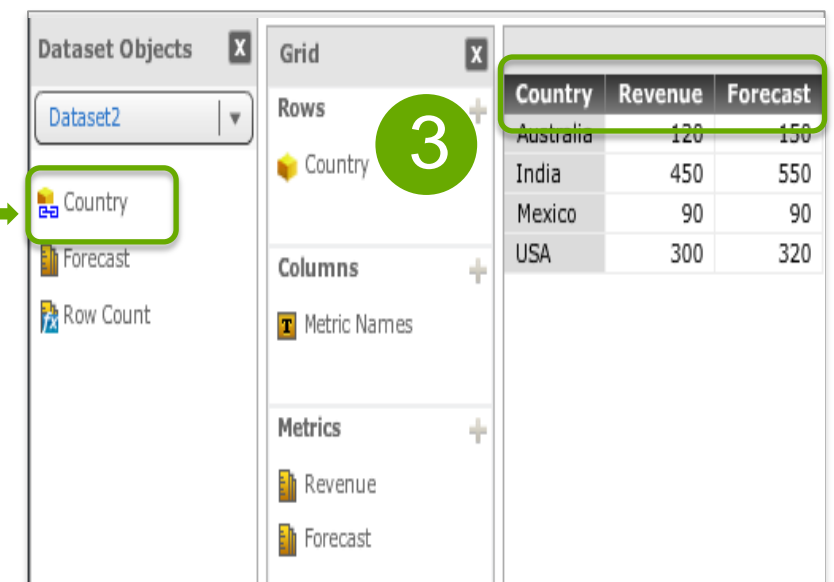
- RWD Engine tries to identify a link between columns using 'Header Name' and 'Data Type'
- Users have the flexibility to Unlink the auto-link

OR

Manual-Linking

- Users can manually link imported/unmodeled attributes to other imported/modeled attributes

Data Blended from
Two Datasets



Join Behavior

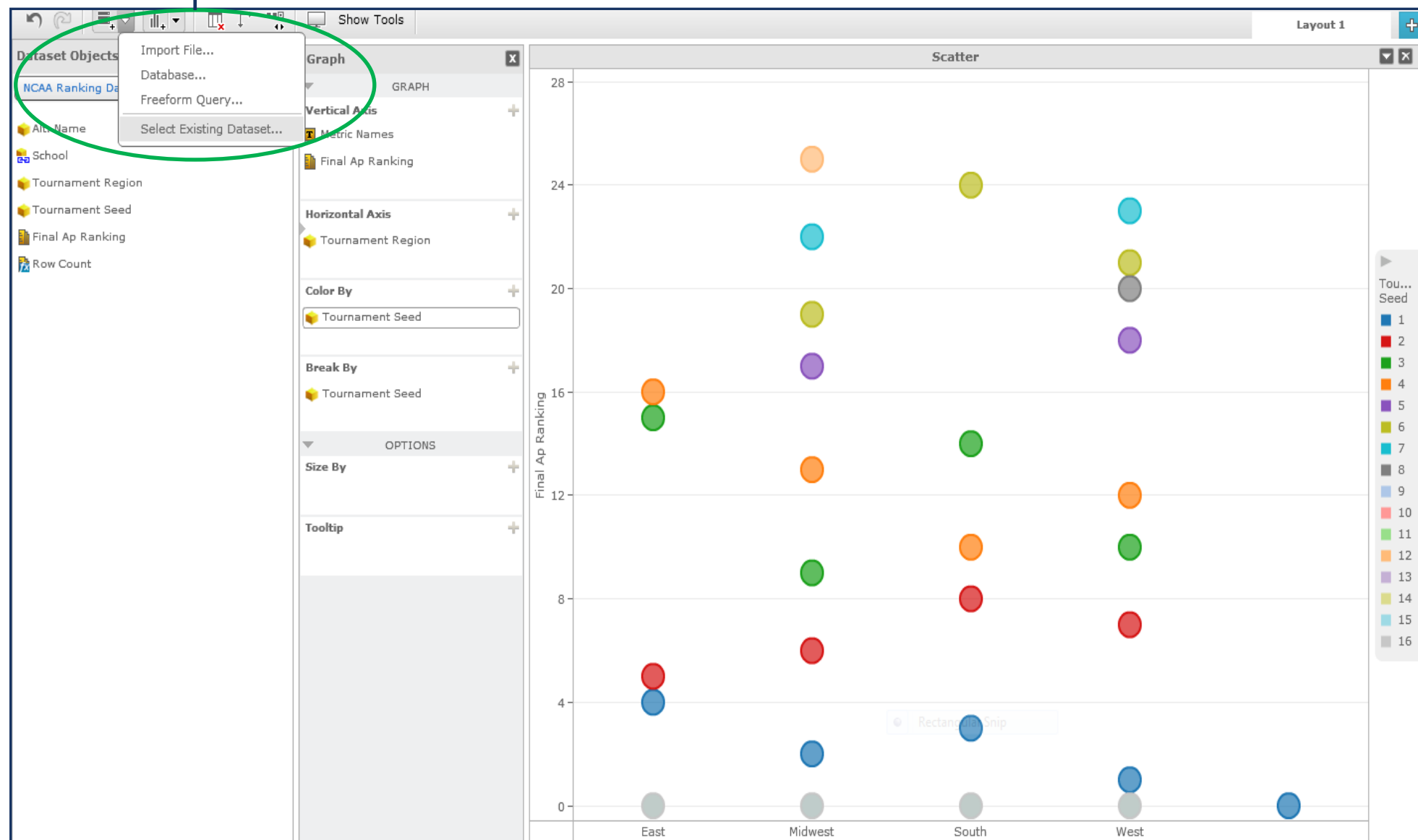
- Relationship Found = Full Outer Join
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When to use Data Blending?

On the fly Blend data in a Dashboard or Document

Blend data from any number of sources with simple drag and drop actions!

Add any number of datasets to
your analysis!



When to use Data Blending?

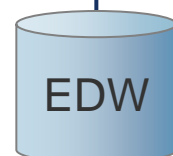
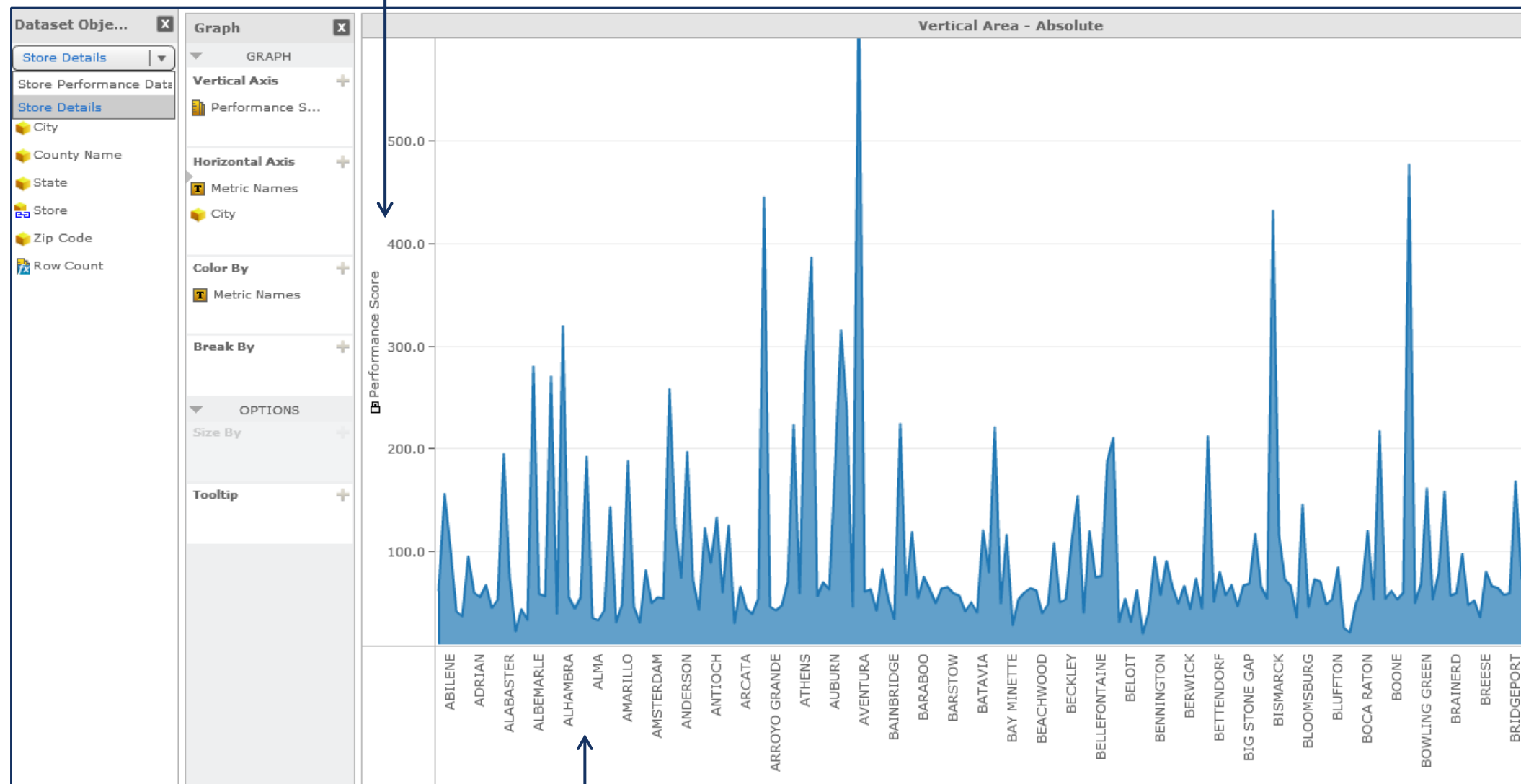
Blend Modeled data with Unmodeled data in a Single Visualization

Instantly merge data from modeled and unmodeled data sources.

Blend and analyze without any IT dependency



Performance Score comes from an Excel file



City Data comes from EDW

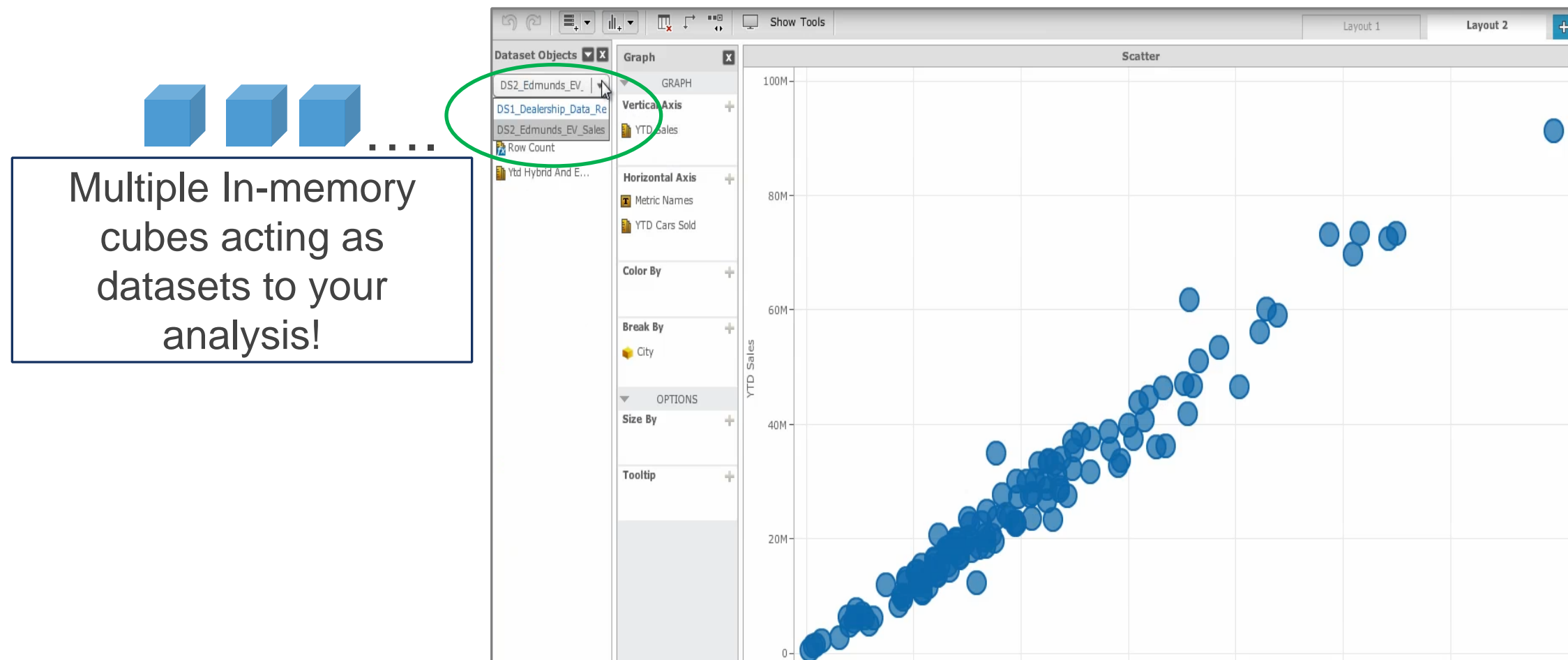
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MicroStrategy

When to use Data Blending?

Blend data from Multiple In-Memory Cubes in a Dashboard

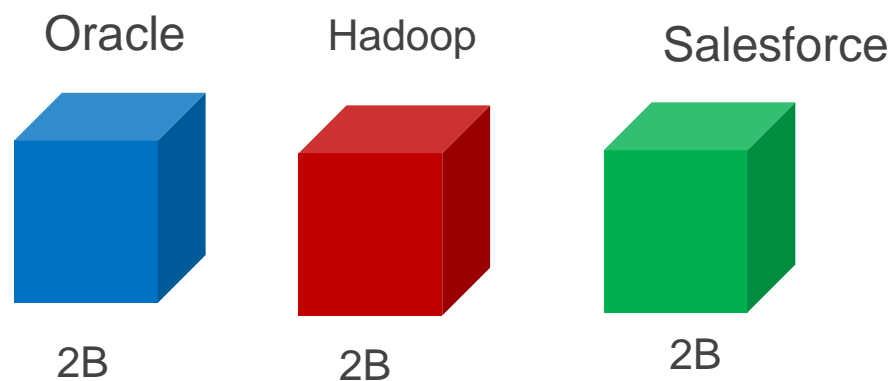
- Blend data from multiple In-memory cubes from one or more source.
- **In-Memory Cubes as datasets speeds up the dashboard execution by 60%**, tested in real customer cases.
- Dynamic Selections afterwards (filtering, grouping etc.) speed up by 70%.



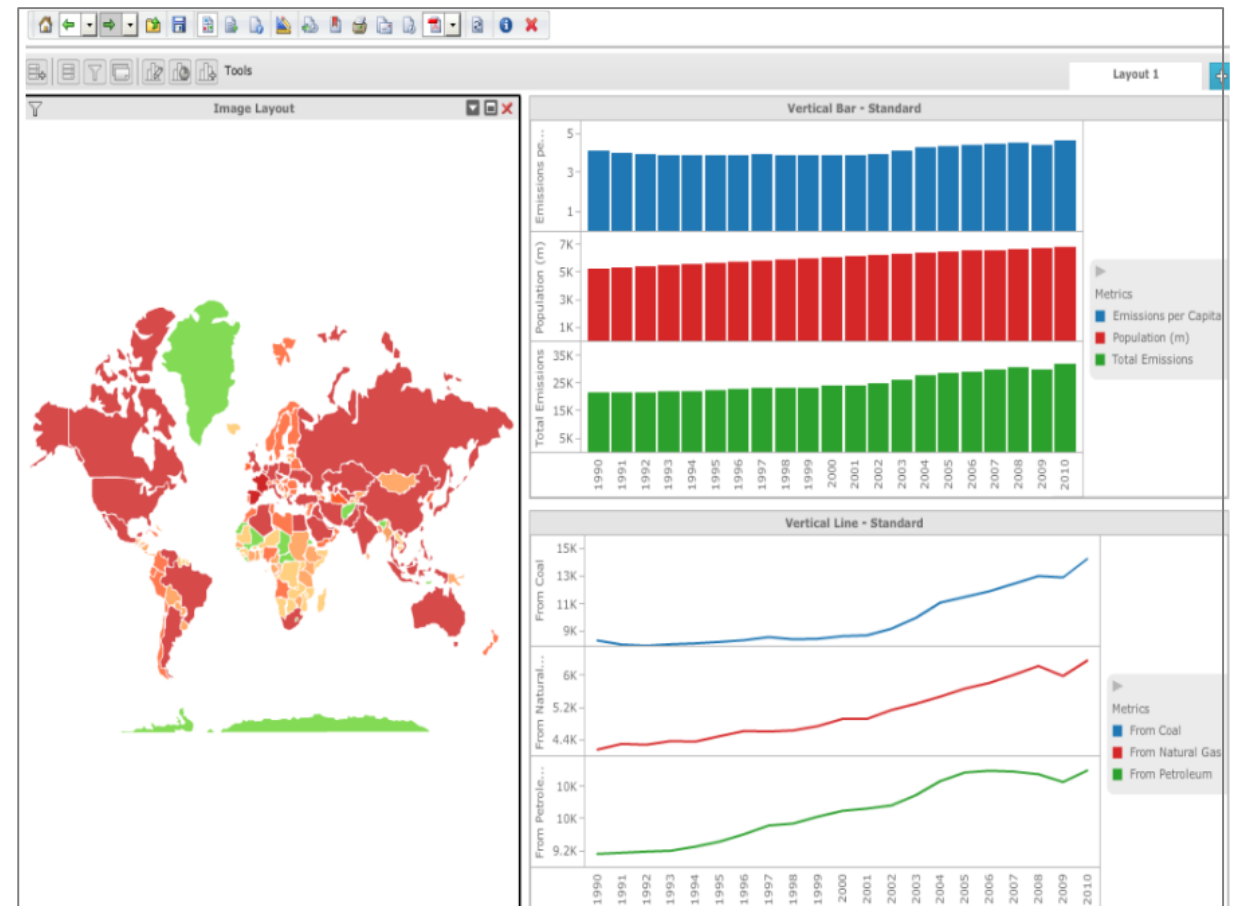
Benefits of Data Blending

High Scalability

- **Add and Blend Data** from as many number of cubes and sources in your VI analysis
- **Analyze over two billion rows limitation** by dividing a single cube into multiple smaller cubes and blend them with data blending
- **Multiple cubes and Multiple sources** in one visualization!



Blend data from as many number of cubes with negligible overhead!



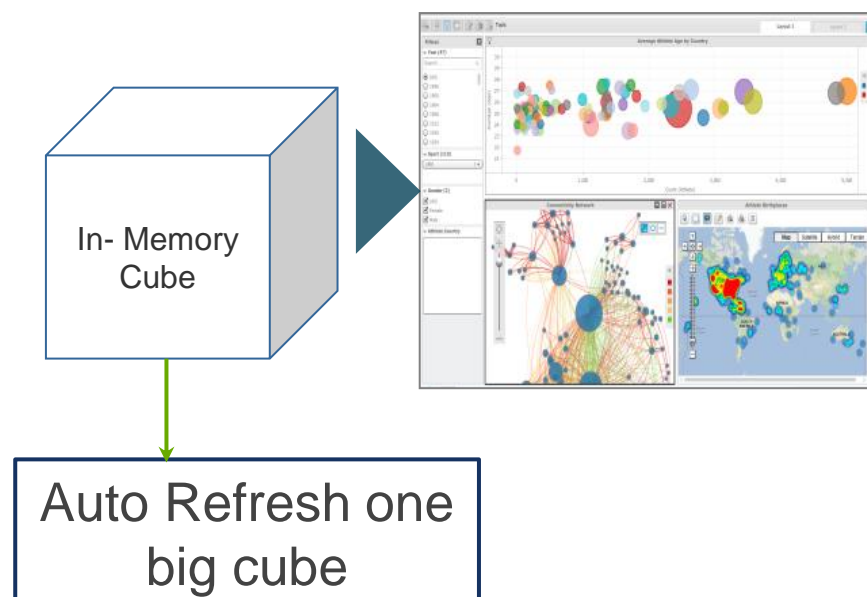
Benefits of Data Blending

Faster Cube Load and Refresh

- Quicker load and refresh of the data with multiple Intelligent cubes.
- Improve the **dashboard execution times by 60%**

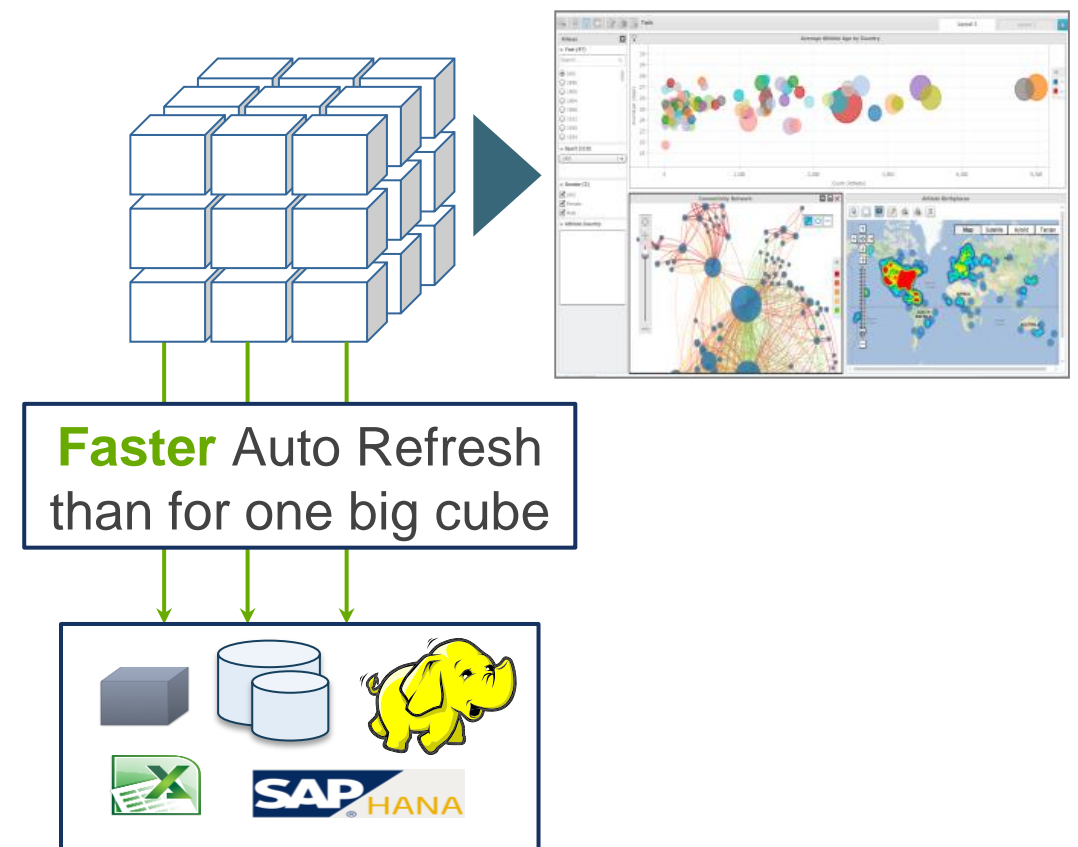
MicroStrategy 9.3.1

One big cube feeding the dashboard



MicroStrategy Analytics Platform

Multiple cubes feeding the dashboard



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Demo

Blend Data Instantaneously!

Analyze FIFA World Cup data from various files and blending the data together instantly!



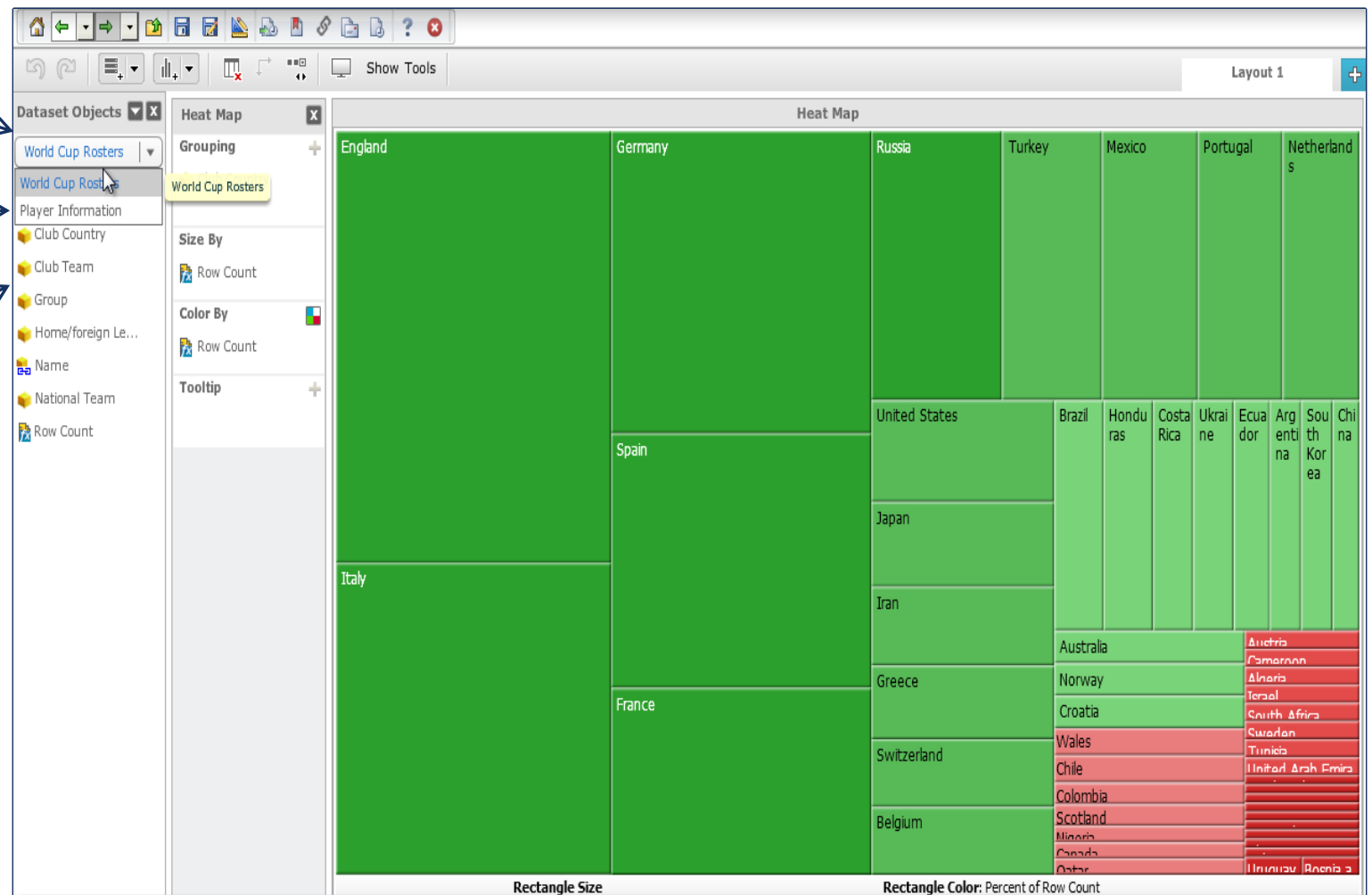
FIFA World Cup Roster Data



Player Information



FIFA World Cup Winners Data



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Multisource Option Vs. Data Blending

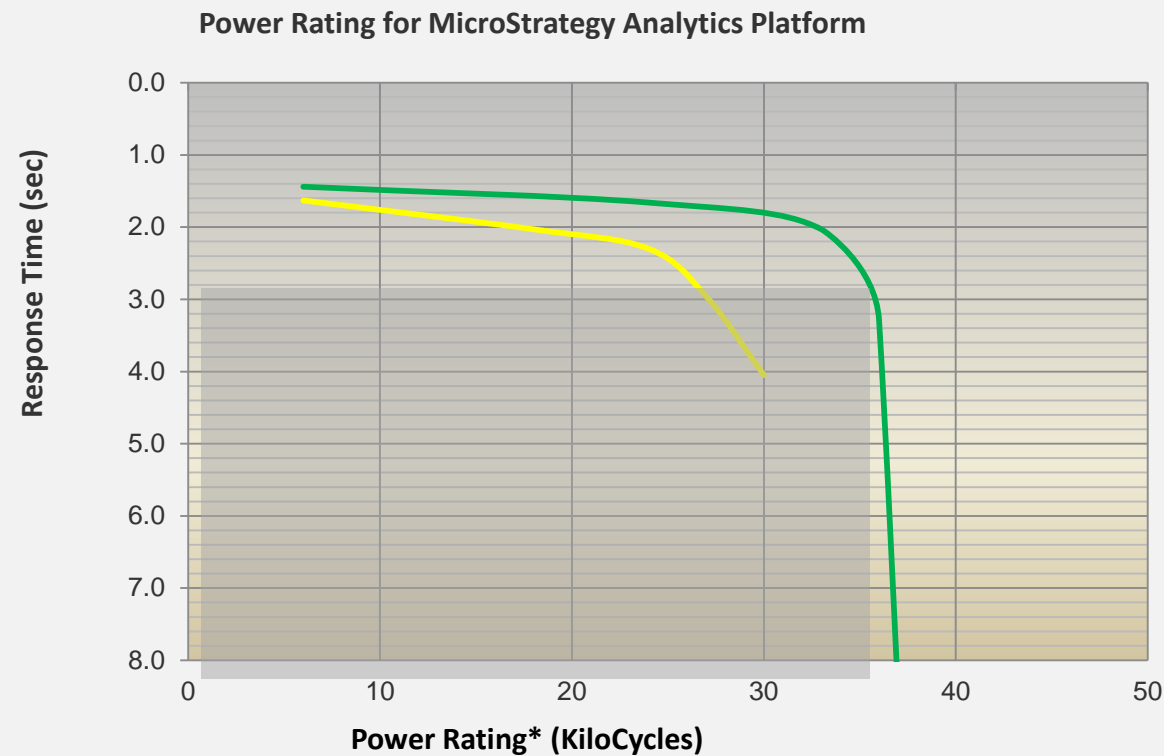
Multisource Option	Data Blending
Modeled approach to join data	On the fly blending data
Join data from various modeled sources at the schema/report level	Join data from various modeled and unmodeled sources at the dashboard/document level
Join is pushed to the underlying database	Join occurs in MicroStrategy's Intelligent Server
Developed for Architects	Developed for Business Users
Allows the user to have more than one modeled schemas in a single project	Removes the limitation of one cube per VI analysis

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Performance Gain with New Dashboarding Engine

40% Higher Throughput for Dashboards



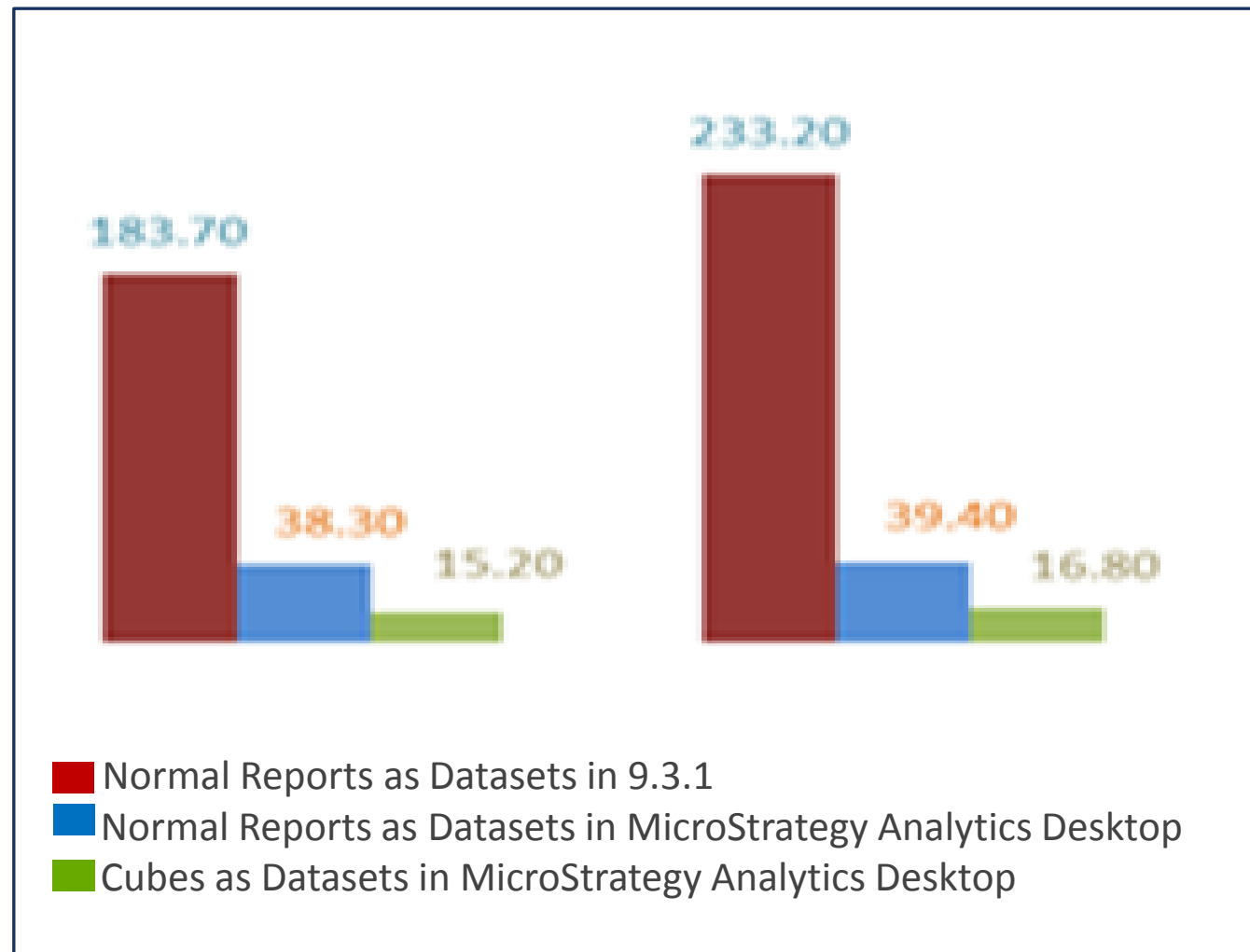
— 9.3.1 — MicroStrategy Analytics Platform

- **Kilocycle improvements** of at least **40%** for dashboards
- **Dashboards faster by at least 70%** with no modeling or design changes.
- **Simple Upgrade to MicroStrategy Analytics Platform** and leverage these performance improvements

*Kilocycle is 1000 user request per hour. A commonly used unit for job throughput is requests per minute (rpm)

Performance Gain with New Dashboarding Engine

Dashboards Faster by more than 50%



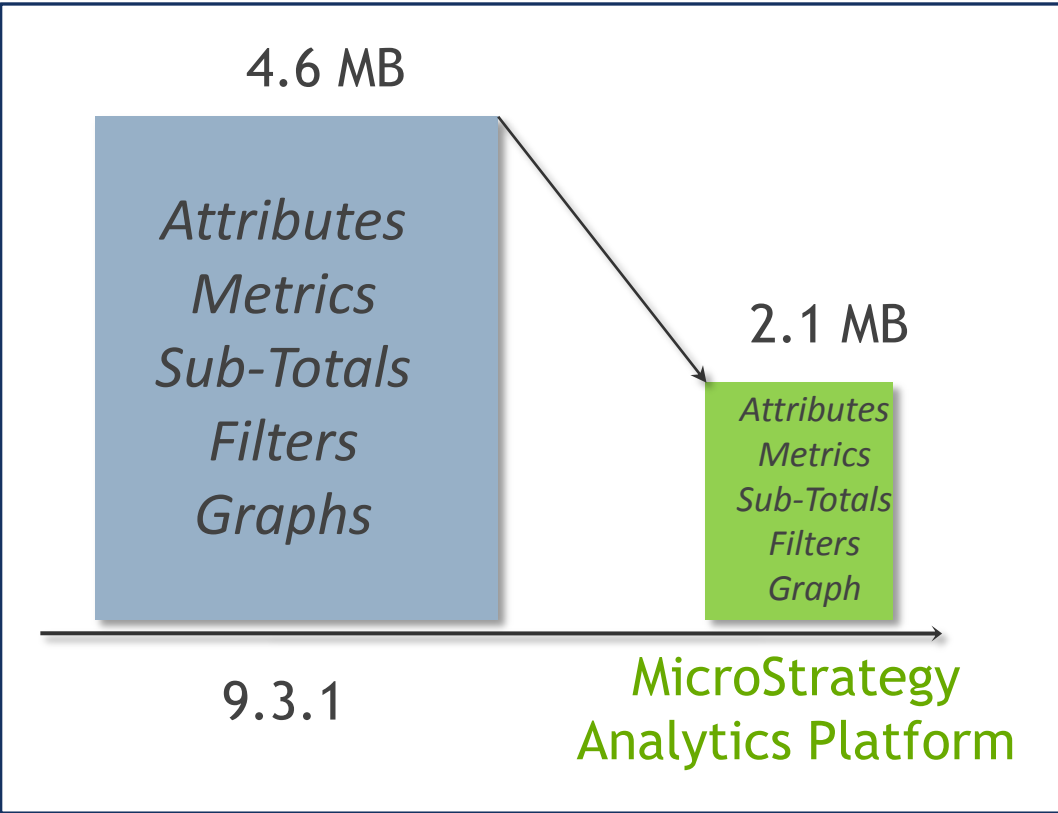
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Performance Gain with New Dashboarding Engine

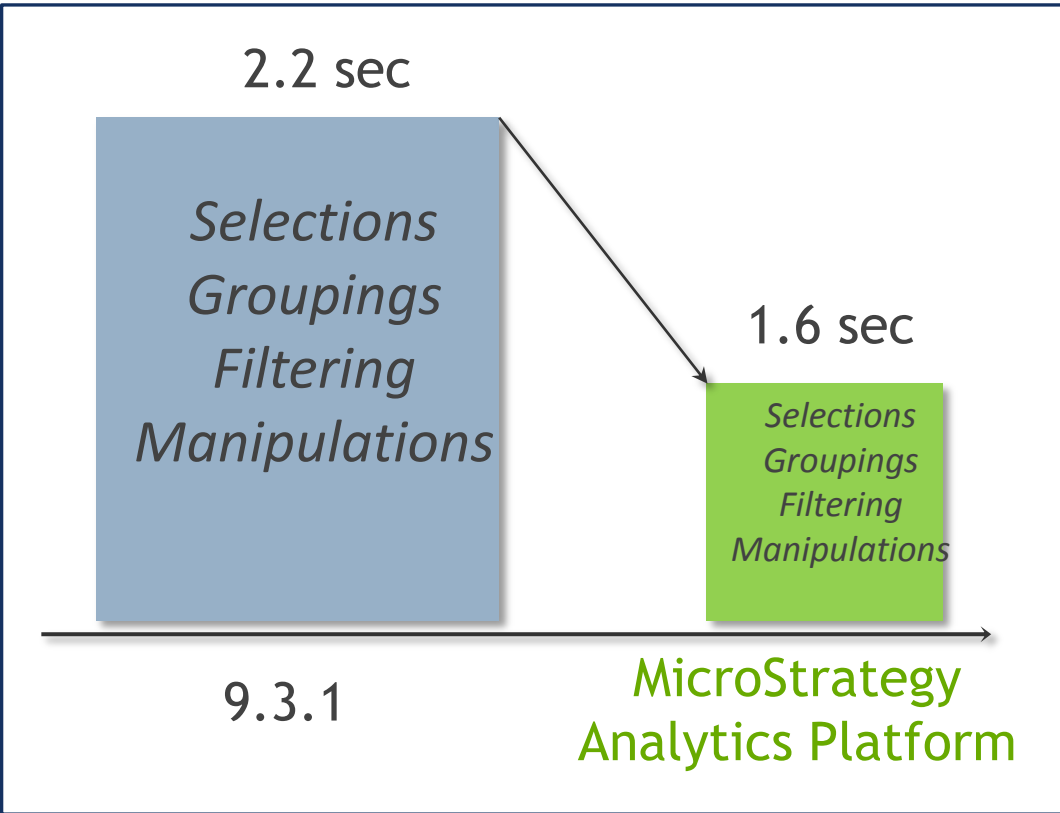
Lower Memory Footprint

- New storage format reduces the data size of the dashboards by 50%
- 40% faster selections observed on customer dashboards
- Get it all with an easy upgrade to MicroStrategy Analytics Platform!

Lower Memory Footprint



Faster Selections



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Questions?