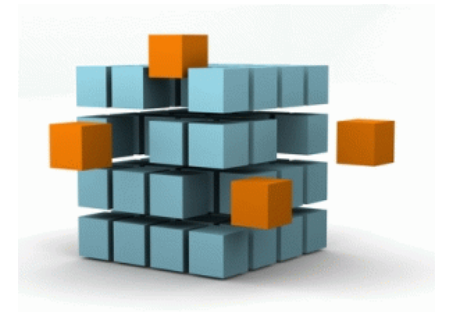


# Introduction To IBM Cognos Dynamic Cubes



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**Authorized  
Software Value Plus**  
Business Analytics  
Information Management  
Lotus



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- Enter all questions in the chat window of the webinar as we go
- Live on Twitter:
  - Follow @IronsideGroup and tweet us with any questions throughout or after
  - Be sure to use the hashtag **#DynamicCubes** to join the live discussion
- We will answer as many questions as possible at the end of this presentation – Thanks!



- **3/4/14** SPSS Data Mining Workshop, NYC
- **3/7/14** IBM Cognos User Group, Pittsburgh
- **3/11/14** IBM Business Analytics Workshop Series (TM1)  
Washington DC
- **3/18/14** Incentive Compensation & Sales Performance  
Management (Varicent) Webinar
- **4/8/14 IBM Cognos Dynamic Cubes Hands-On Workshop  
Atlanta, GA**

Visit our website, [ironsidegroup.com/events/](http://ironsidegroup.com/events/) for additional details and links to register!



## Business Analytics Experts

Solutions for a Smarter World



IBM Business  
Partner Award  
2013  
Business Analytics

### Core Services

- Information & Analytics Advisory
- Big Data & Analytics
- Business Intelligence
- Performance Management
- Data Warehousing & Integration
- Software Sales

### Industry Solutions

- Automotive
- Banking & Financial Services
- Healthcare
- Higher Education
- Insurance
- Retail & Consumer Products

### Functional Solutions

- Customer Service
- Finance
- Governance, Risk & Compliance
- Human Resources
- Sales & Marketing
- Supply Chain & Operations

### Technology Expertise

- Cognos BI
- Cognos TM1, CDM and ICM
- Varicent / SPM
- SPSS & R
- Netezza, Big Insights, Streams
- DataStage, InfoSphere

### Professional Training

- Cognos
- TM1
- SPSS

### Managed Services

- Business Analytics as a Service
- On-Premise or Cloud Hosted
- On-Shore Remote Development

AUSTIN / ATLANTA / BOSTON / DETROIT / NEW YORK / PHILADELPHIA

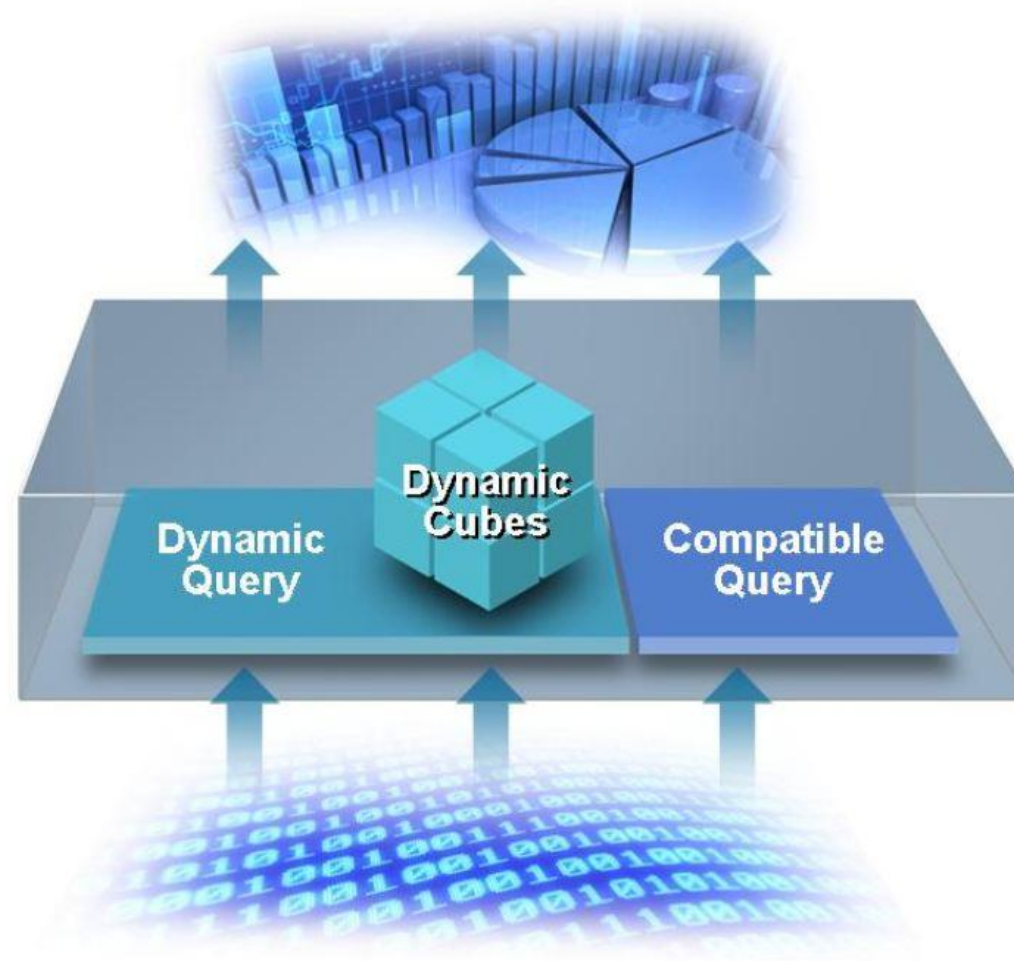


- Data Warehouses are growing.
- User expect 'google-like' fast response time.
- Interfaces are **empowering** end-users and changing the game.
- Data is more complex and segmented.





- High performance analytics over large data volumes
- Extend Dynamic Query with in-memory caching of members, data, expressions, results, and aggregates
- Aggregate awareness, aggregate optimization



Open Data Access

**In-memory  
Acceleration**

**Aggregate  
awareness**

Compatible mode to  
ensure ongoing  
customer success

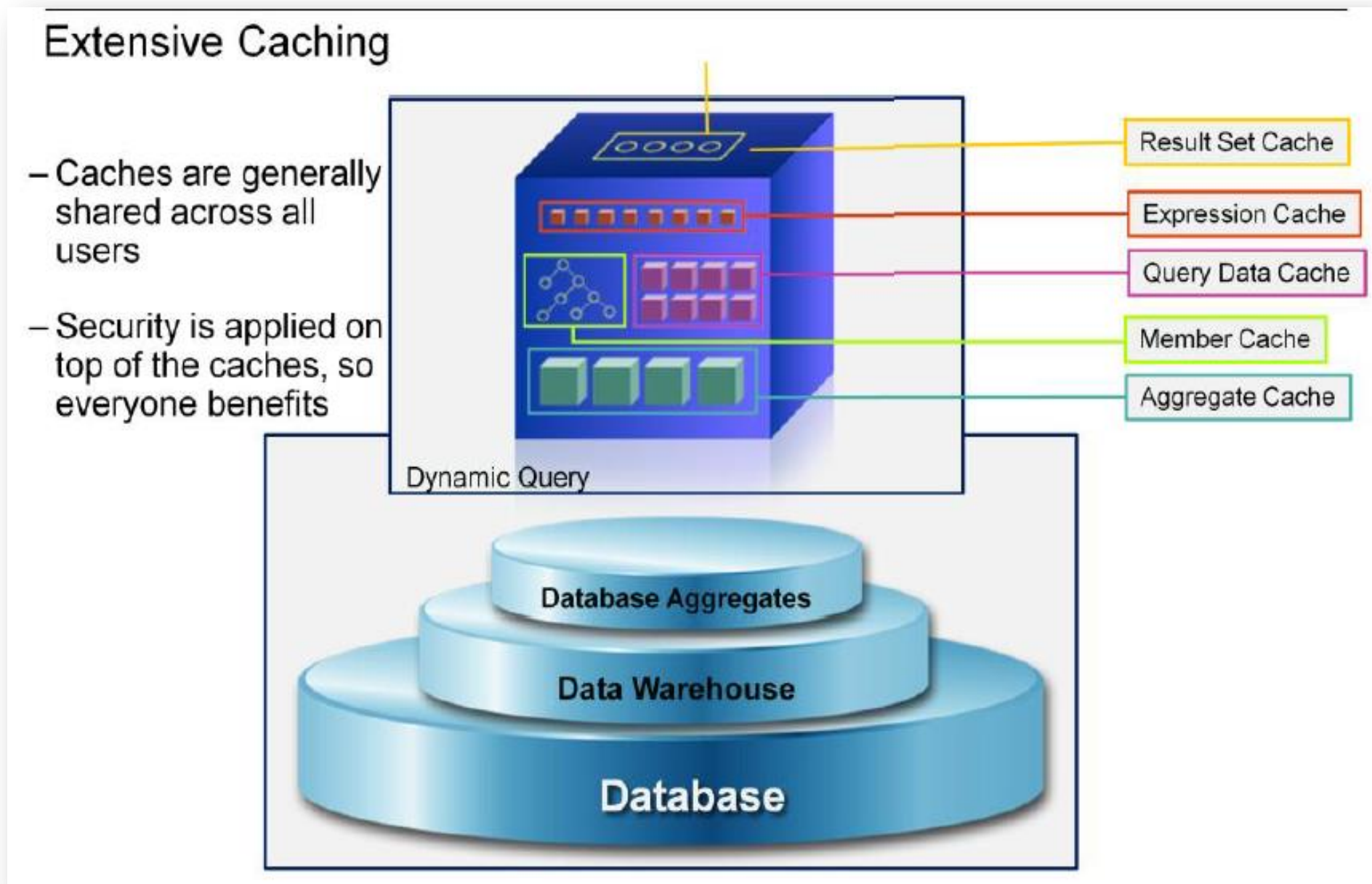
Extensible Query  
Engine

- Achieves high performance on **high volume data** in a relational source. Uses a combination of :
  - caching
  - optimized pre-aggregates (in-memory and in-database)
  - optimized SQL
- Star or Snowflake data warehouse schemas are required.
- Powerful in-memory OLAP cubes over terabytes of warehouse data.
- Dynamic Cubes are utilized as data sources for OLAP Analysis and **Dynamic Query Mode** is required.
- You'll need increase memory and horsepower to take full advantage of this new technology.

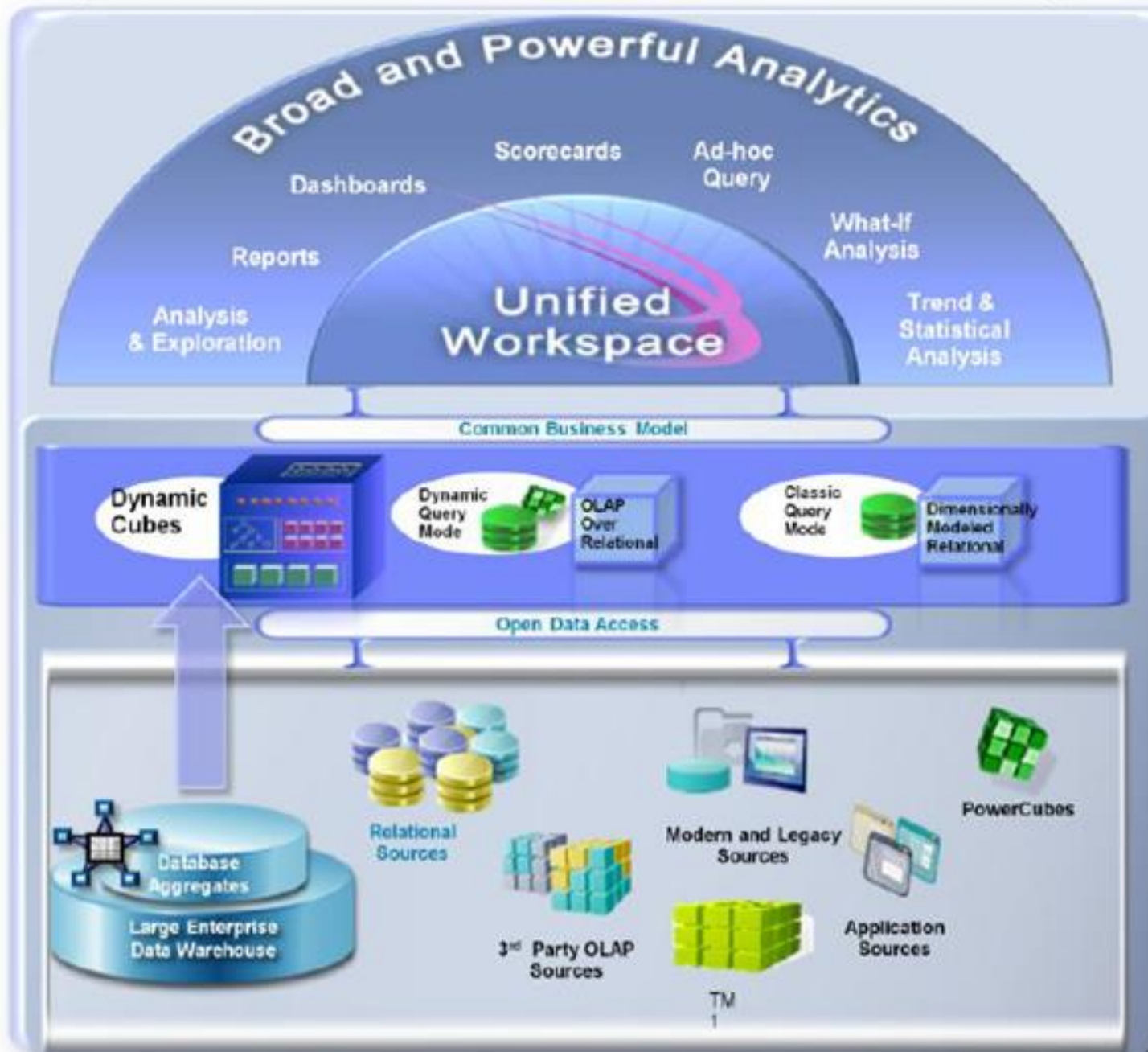


# Dynamic Cubes Extend the Use of Dynamic Query Mode

- Extends DQM caching to provide in-memory caching of data, expressions, members and aggregates.



## Dynamic Cubes Embrace and Extend the Dynamic Query story

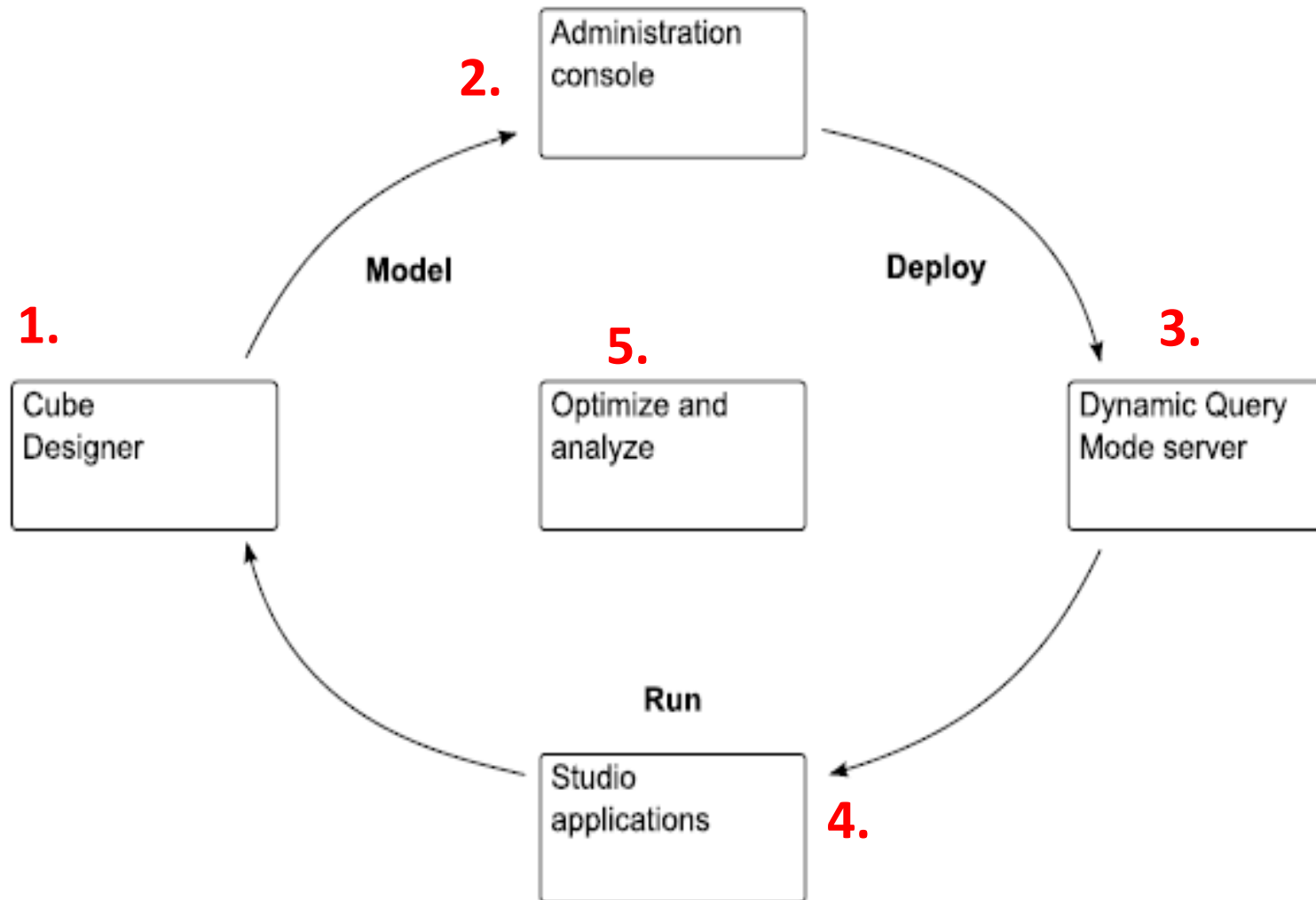


### Dynamic Cubes

- **Aggregate aware**
- **Powerful in-memory capabilities**
- **High performance with large data volumes**
- **Easily optimized aggregates**
- **All IBM Cognos Interfaces**
- **Part of the BI query stack (no additional cost)**

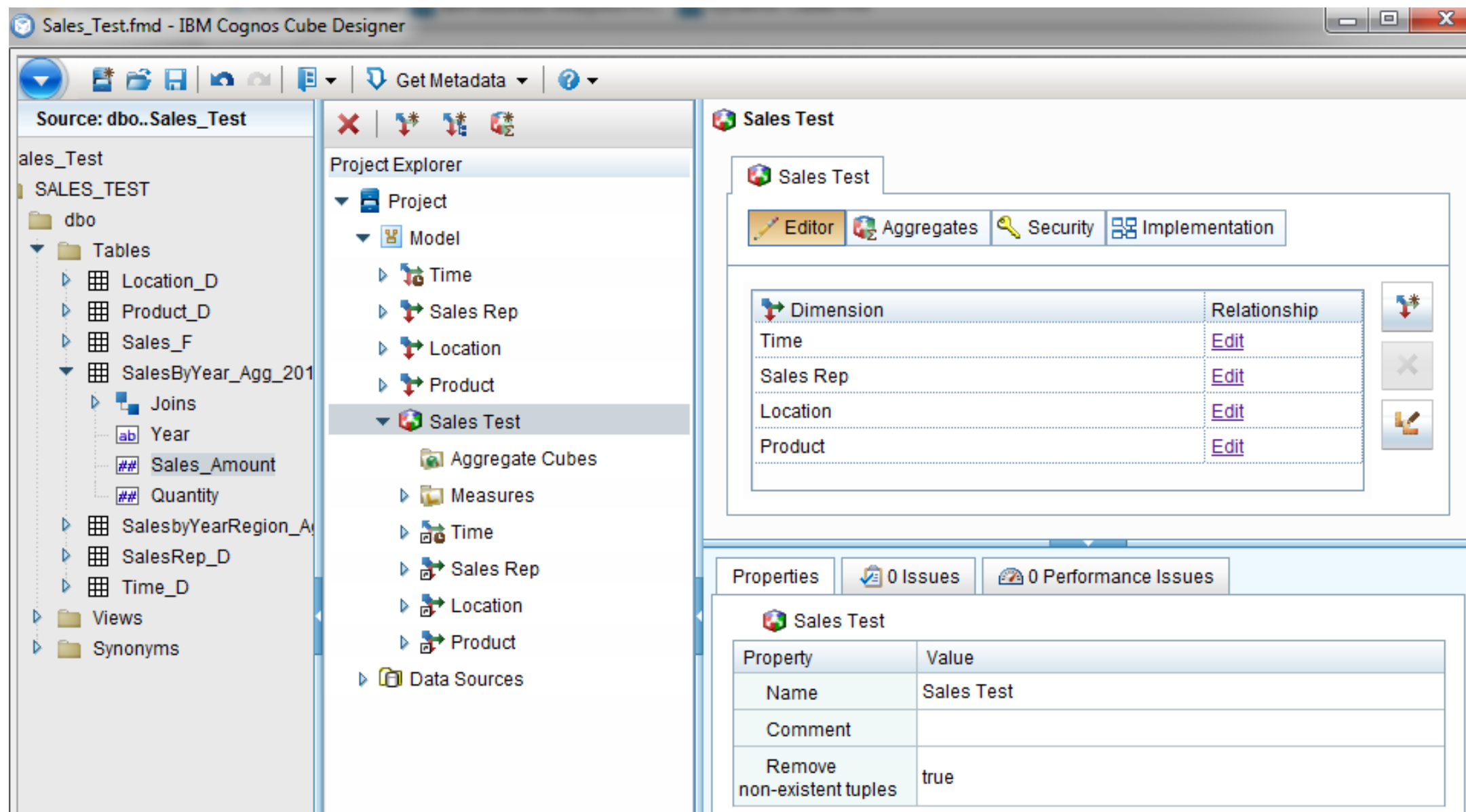
- Uses existing Cognos Studios (Workspace Advance, Report Studio, Analysis Studio, etc)
- Looks and feel just like any other cube
- 64 bit – Only limited by RAM on the server
- No limit to the level of detail
  - Example: SKU, Policy #, UPC, etc.
- Defining the cache using **Aggregate Advisor** is the key!

## Workflow





➤ **Dynamic Cube Designer (Client Tool)**



The screenshot displays the IBM Cognos Cube Designer interface for a cube named 'Sales Test'. The interface is divided into several panes:

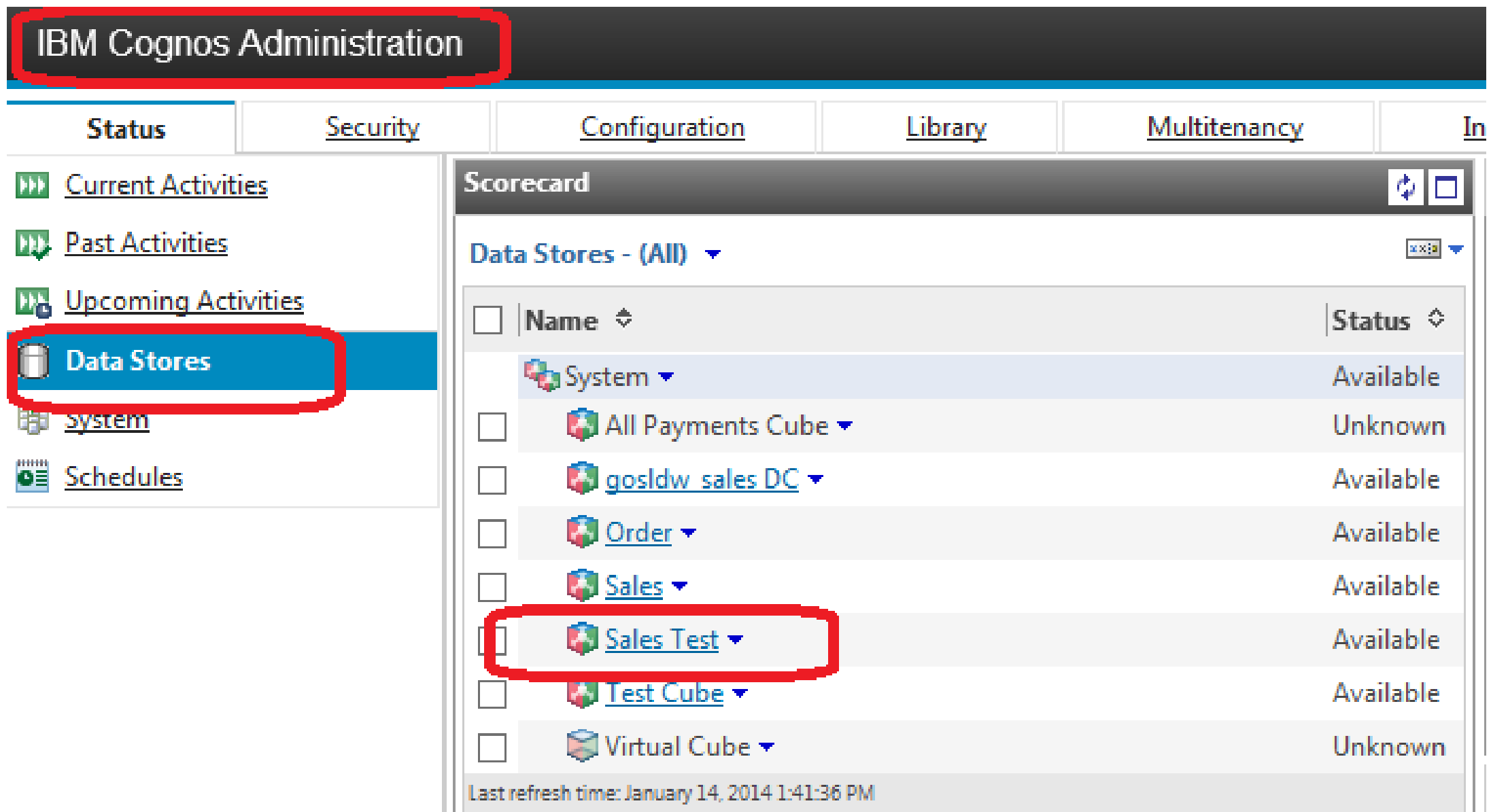
- Source:** dbo..Sales\_Test
- Project Explorer:** Shows the project structure with 'Sales Test' selected under the 'Model' folder.
- Dimensions:** A table lists the dimensions and their relationships for the 'Sales Test' cube.
 

Dimension	Relationship
Time	<a href="#">Edit</a>
Sales Rep	<a href="#">Edit</a>
Location	<a href="#">Edit</a>
Product	<a href="#">Edit</a>
- Properties:** A table shows the properties of the 'Sales Test' cube.
 

Property	Value
Name	Sales Test
Comment	
Remove non-existent tuples	true



➤ **Cognos BI – Administration and Data Stores (Cognos BI Portal)**

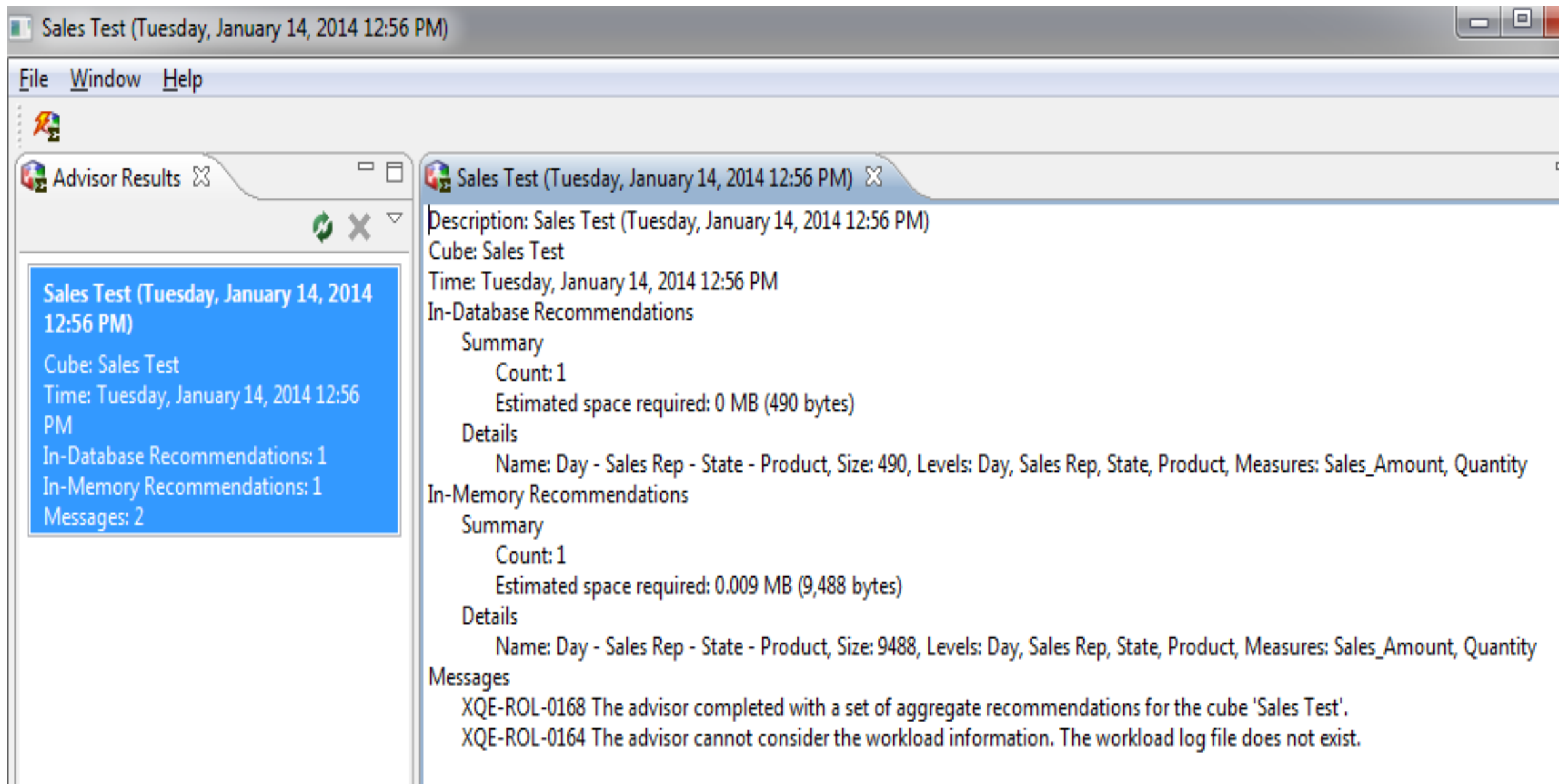


The screenshot displays the IBM Cognos Administration interface. The top navigation bar includes tabs for Status, Security, Configuration, Library, Multitenancy, and In. The left sidebar contains a menu with options: Current Activities, Past Activities, Upcoming Activities, **Data Stores** (highlighted with a red box), System, and Schedules. The main content area shows a 'Scorecard' section for 'Data Stores - (All)'. A table lists various data stores with their names and statuses. The 'Sales Test' entry is highlighted with a red box.

<input type="checkbox"/>	Name	Status
<input type="checkbox"/>	System	Available
<input type="checkbox"/>	All Payments Cube	Unknown
<input type="checkbox"/>	gosldw sales DC	Available
<input type="checkbox"/>	Order	Available
<input type="checkbox"/>	Sales	Available
<input type="checkbox"/>	<b>Sales Test</b>	Available
<input type="checkbox"/>	Test Cube	Available
<input type="checkbox"/>	Virtual Cube	Unknown

Last refresh time: January 14, 2014 1:41:36 PM

➤ **Dynamic Query Analyzer → Aggregate Advisor (Client tool)**



The screenshot displays the Aggregate Advisor client tool interface. The main window title is "Sales Test (Tuesday, January 14, 2014 12:56 PM)". The interface includes a menu bar (File, Window, Help) and a toolbar. A left-hand pane titled "Advisor Results" shows a list of results for the selected query, including the cube name, time, and counts for in-database, in-memory, and message recommendations. The main right-hand pane provides a detailed view of the selected result, showing its description, cube, time, and specific recommendations with their respective summaries and details.

**Advisor Results**

- Sales Test (Tuesday, January 14, 2014 12:56 PM)
- Cube: Sales Test
- Time: Tuesday, January 14, 2014 12:56 PM
- In-Database Recommendations: 1
- In-Memory Recommendations: 1
- Messages: 2

**Sales Test (Tuesday, January 14, 2014 12:56 PM)**

Description: Sales Test (Tuesday, January 14, 2014 12:56 PM)  
Cube: Sales Test  
Time: Tuesday, January 14, 2014 12:56 PM

**In-Database Recommendations**

Summary  
Count: 1  
Estimated space required: 0 MB (490 bytes)

Details  
Name: Day - Sales Rep - State - Product, Size: 490, Levels: Day, Sales Rep, State, Product, Measures: Sales\_Amount, Quantity

**In-Memory Recommendations**

Summary  
Count: 1  
Estimated space required: 0.009 MB (9,488 bytes)

Details  
Name: Day - Sales Rep - State - Product, Size: 9488, Levels: Day, Sales Rep, State, Product, Measures: Sales\_Amount, Quantity

**Messages**

- XQE-ROL-0168 The advisor completed with a set of aggregate recommendations for the cube 'Sales Test'.
- XQE-ROL-0164 The advisor cannot consider the workload information. The workload log file does not exist.

**Double-click to edit text**

Sales_Amount	2013	2014	All
Kevin James	1,000	500	1,500
Steve Smith	800	200	1,000
All	1,800	500	2,500

Sales Test\_DC







- Time\_H
  - 2013
  - 2014
- Sales Rep\_H
- Location\_H
- Product\_H
- Measures
  - Sales\_Amount
  - Quantity

- Dynamic Cubes are modeled using IBM Cognos Cube Designer.
- Similar to Framework Manager, Cube Designer is a client tool that publishes definitions back to Cognos BI portal
- Does not leverage any existing metadata in Cognos. You must model the cube from scratch.
- Must have a good data mart as the source. The designer is not an ETL tool.

- **Aggregate Advisor** - analyze the model and/or usage patterns and recommends aggregates that will make reports and analysis run even faster.
- The Aggregate Advisor will give you recommendations for database aggregate tables and in-memory aggregates:
  - It will generate the SQL for aggregate table recommendations, which can be provided to the DBA.
  - It also creates in-memory aggregates which are automatically loaded whenever the cube is started.



- It is highly recommended that you run Dynamic Query Analyzer against your Dynamic Cube after you publish it.
- DQA will recommend in-memory aggregation that can be loaded when the cube starts.
- The in-memory aggregations will take up large amounts of memory. You must configure the maximum size of the in-memory aggregation space prior to publishing the DQA recommendations
- **Remember** by default only the dimension members are cached, not the measure data

<input type="checkbox"/>  Disable result set cache	<input type="checkbox"/>
<input type="checkbox"/>  Data cache size limit (MB)	<input type="text" value="1024"/>
<input type="checkbox"/>  Maximum amount of disk space to use for result set cache (MB)	<input type="text" value="1024"/>
<input type="checkbox"/>  Enable workload logging	<input type="checkbox"/>
<input type="checkbox"/>  Maximum space for in-memory aggregates (MB)	<input type="text" value="10"/>
<input type="checkbox"/>  Disable in-database aggregates	<input type="checkbox"/>

# Why would I use Dynamic Cubes vs. Existing Technology?

- Dynamic Cubes does NOT indicate that other cube technologies are going away.
- You cannot solve all business problems with one cube technology.
- Supplement to existing Cognos BI Solutions
- Scalability limitations are unavoidable with Powercubes and TM1.
- **TM1 and Powercubes are not going away!**
- No additional Licensing Requirements
- <http://www.ironsidegroup.com/2013/06/04/ibm-cognos-10-dynamic-cubes-overview/>

Application Objective Key Question	If yes	Notes / Considerations
Write-back, what-if analysis, planning/budgeting, or other specialized applications?	TM1	Medium data volumes High volatility / Write-back <b>Note:</b> no pre-aggregation (aggregation happens on the fly) can impact performance at high data & high user volumes
Can the source be a data warehouse that is structured in a star/snowflake schema?	Dynamic Cubes	High data volumes Low latency / Fast performance Optimized aggregates / aggregate-aware <b>Note:</b> Star or snowflake schema is the <i>optimal</i> structure for reporting – Highly recommended to maximize performance.
Must the application source be one or several operational/transactional systems, and is a consistent interactive analysis experience a top priority for your users?	PowerCubes	Low / medium data volumes Data movement into cube structure <b>Note:</b> Data latency is inherent to cube build times Data volume per cube must be managed
Must the application source be one or several operational/transactional systems, and is there a need to control latency (ie, some queries hitting the cache / some queries hitting latest data)?	OLAP Over Relational (OOR)	Low / medium data volumes Caching for performance (Dynamic Query) Leverages existing Framework Manager model <b>Note:</b> Processing associated with operational/transactional systems impacts performance

Application objective	Preferred technology
<ul style="list-style-type: none"> <li>reporting on leaf-level records</li> <li>static reports (no interactivity)</li> <li>simple list reports</li> </ul>	Pure relational
<ul style="list-style-type: none"> <li>users writing back to the same data source being analyzed</li> <li>what-if analysis</li> <li>volatile data because of planning and budgeting applications</li> </ul>	TM1
<ul style="list-style-type: none"> <li>self-service interactive analysis</li> <li>high-performance on large and growing data volumes</li> <li>data warehouse structured in a star or snowflake schema</li> </ul>	Dynamic Cubes
<ul style="list-style-type: none"> <li>interactive analysis on operational/transactional data</li> <li>tight control over latency (caching)</li> <li>tight control over security</li> </ul>	DMR

# Self Service Jump Start - Dynamic Cubes

## Overview

Ironside has perfected self-service business intelligence on the IBM Cognos platform. Proven methodology that incorporates decades of research and experience attacks all of the key reasons for self-service failure in the enterprise. This solution combines requirements gathering, business analysis, training and development into a series of agile sprints that yields simple and straightforward self service query models that are designed to optimize the user experience. Includes data management health check, training and mentoring, integrated SharePoint business glossary framework, and metadata modeling

## Business Problems

Slow running self-service queries. Mass confusion among users around how to use self-service model. Slow performance. Low adoption. Inaccurate or incorrect answers. Double counting, incorrect aggregation of numbers. Inconsistent naming standards. No data governance. Users do not know how to use self service tools.

## Solution Highlights

Rapid and iterative approach. Top down design to support business use cases. Addresses all common reasons for self-service failure. Drives adoption of new tools and platforms, ensures accurate and timely information. Improves analyst staff effectiveness. Genesis for larger data governance initiatives. Dramatically improved query performance. Simplified models. Well crafted end to end user experience.

## Solution Assets

Requirements gathering, Design and build, or redesign and build of a complete self service metadata model. Includes maximum of 4 design iterations. Limited to 100 database fields. Includes custom workshop training and development of actual business reports with the core reporting team. Includes recommendations for OLAP and DW redesign, with optional implementation from Ironside's IM specialists. Includes automated generation of data dictionary template in SharePoint and direct linkage to Cognos BI for an inline living business glossary / data dictionary.

## Reference Customers

SAC Capital – Fund Accounting, Bain Capital – Private Equity, SSgA - Finance

**Industry:** All

**Solution Architect:** Greg Bonnette

**Pre-Sales:** Greg Bonnette

**Function:** Any

**Projected Duration:** 1-3 Months

**Projected Cost:** \$28k-\$84k



# Questions?