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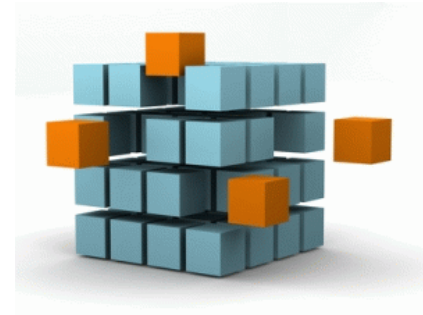
Introduction To IBM Cognos Dynamic Cubes



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Premier Business Partner

IBM

Authorized Software Value Plus

Business Analytics
Information Management
Lotus

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Join Today's Discussion!

- 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!

Upcoming Events

- **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/ for additional details and links to register!

Company Snapshot

Premier Business Partner

IBM

Business Analytics Experts

IBM Business Partner Award 2013 Business Analytics

Solutions for a Smarter World

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

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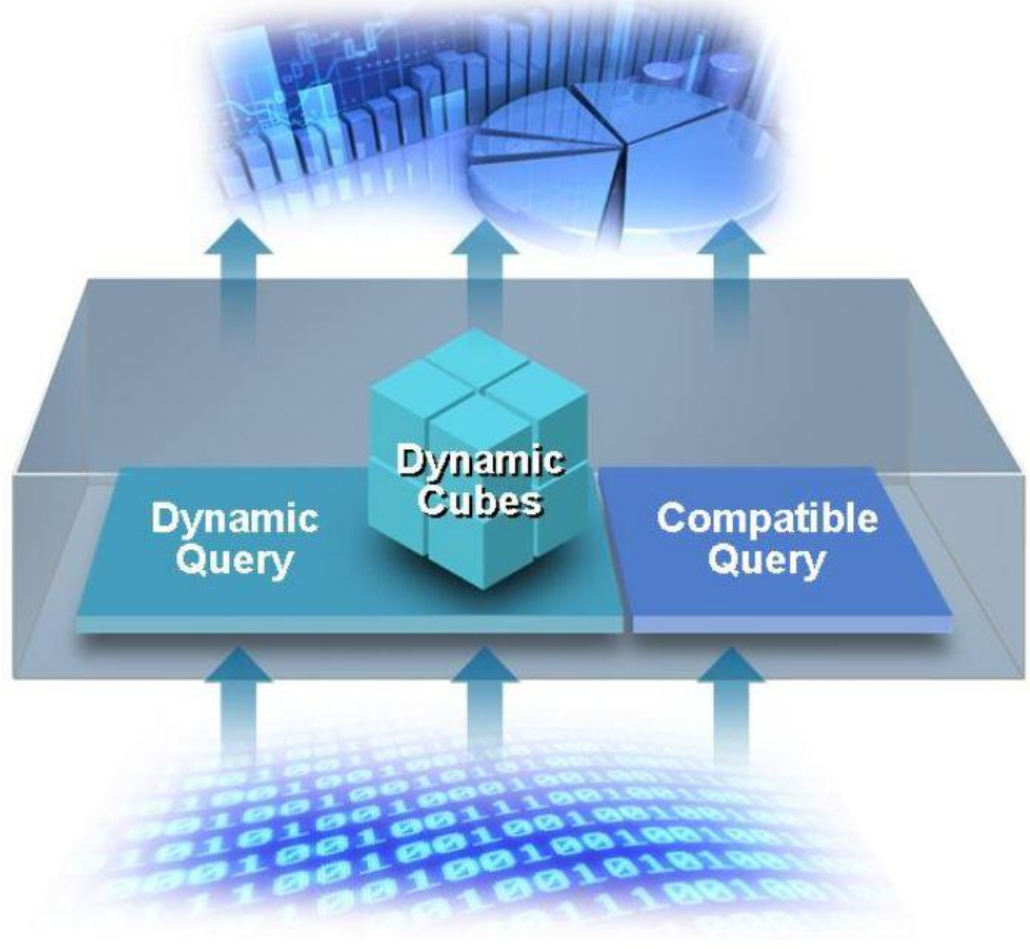
The Data Challenge

- 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.

Dynamic Cubes Mission

- 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

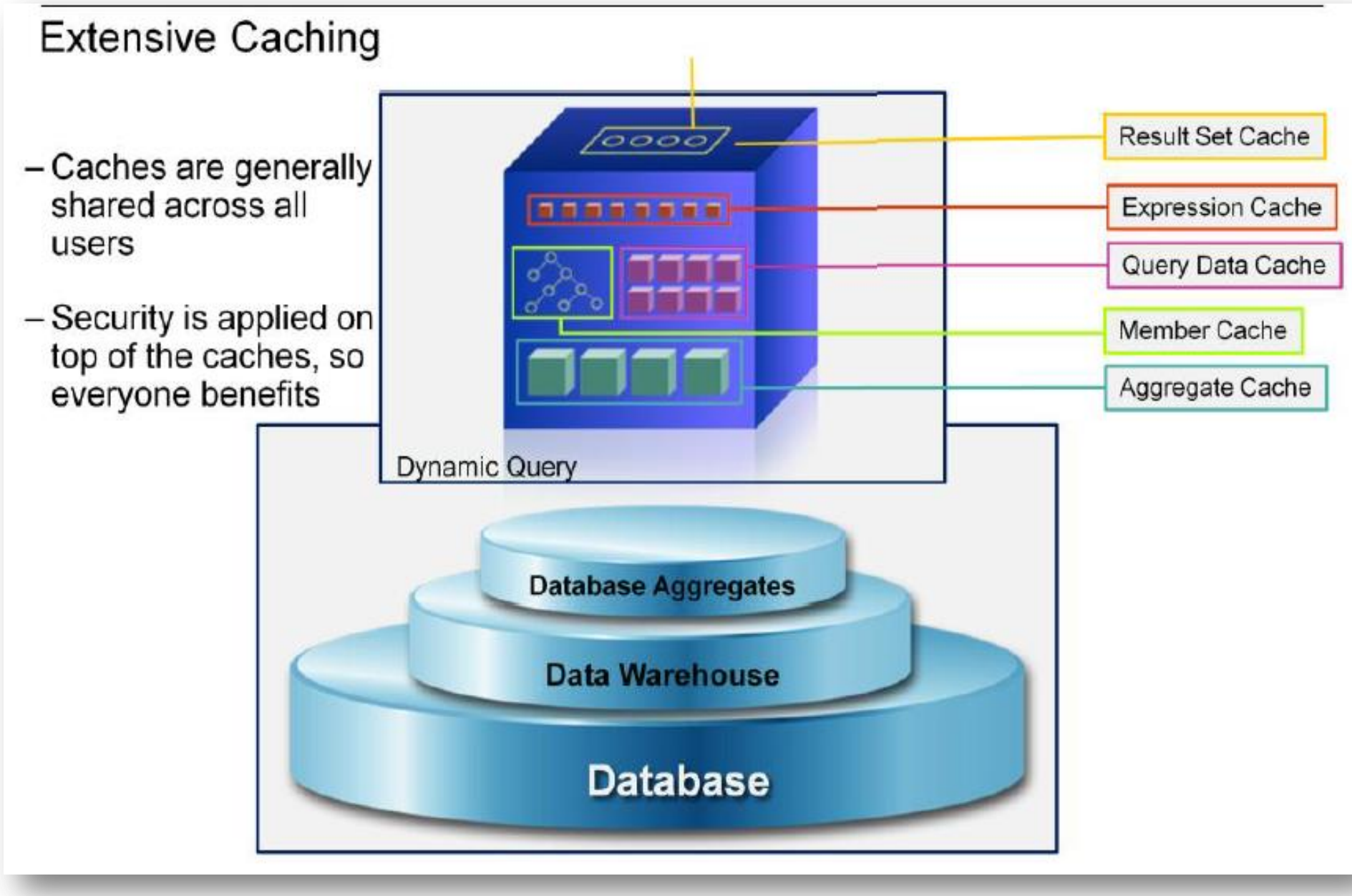
Extensible Query Engine

Dynamic Cube Overview

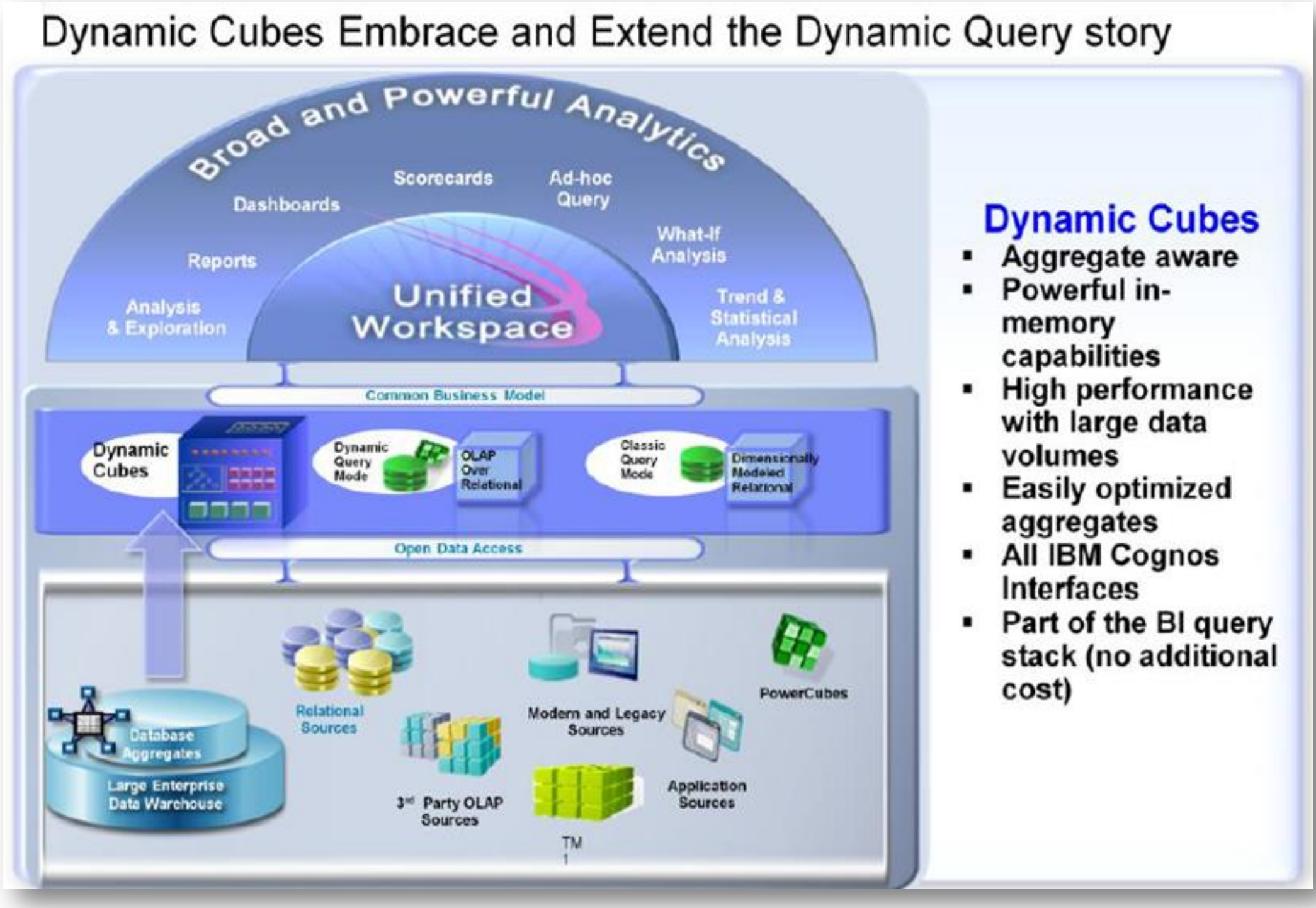
- Achieves high performance on **high volume data** in a relational source. Uses a combination of :
  - caching
  - optimized pre-aggregates (in-memory and in-database)
  - optimized SQL
- Star or Snowflake data warehouse schemas are required.
- Powerful in-memory OLAP cubes over terabytes of warehouse 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.



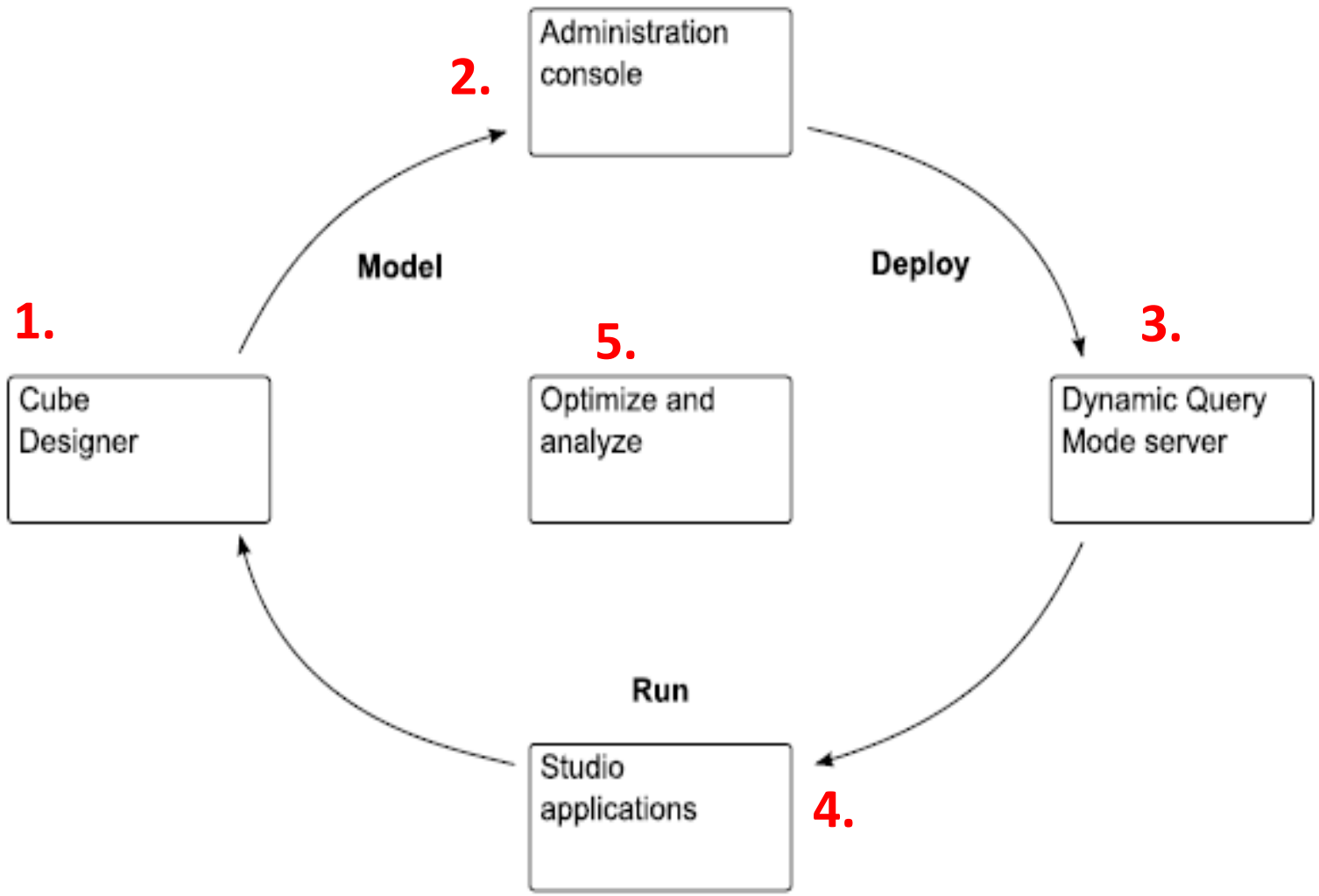
High-level Architecture Diagram



Introduction to Dynamic Cubes

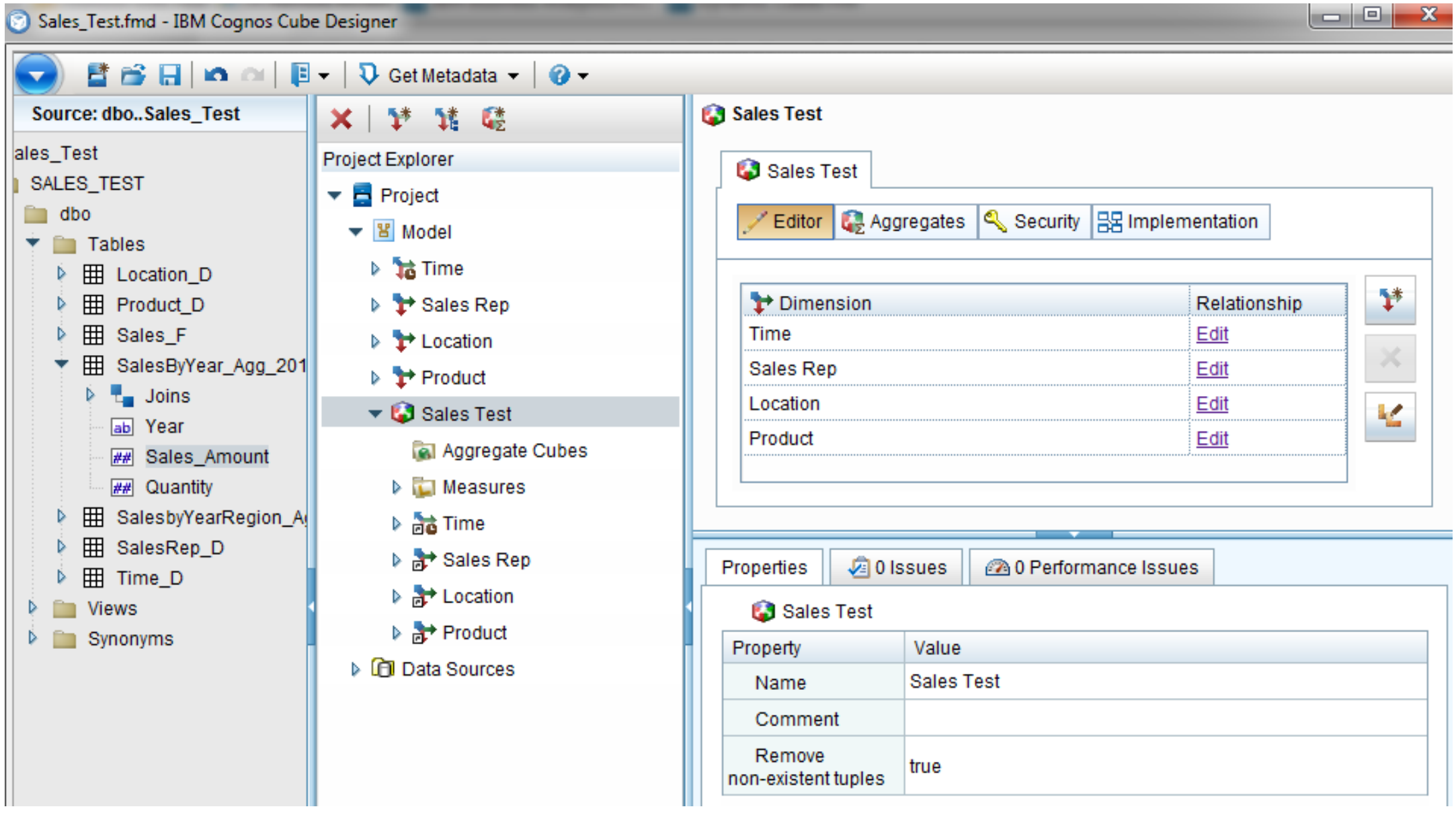
- Uses existing Cognos Studios (Workspace Advance, Report Studio, Analysis Studio, etc)
- Looks and feel just like any other cube
- 64 bit – Only limited by RAM on the server
- No limit to the level of detail
  - Example: SKU, Policy #, UPC, etc.
- Defining the cache using **Aggregate Advisor** is the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

Workflow


Administration console
2.
Model
Deploy
1.
5.
3.
Cube Designer
Optimize and analyze
Dynamic Query Mode server
Run
Studio applications
4.

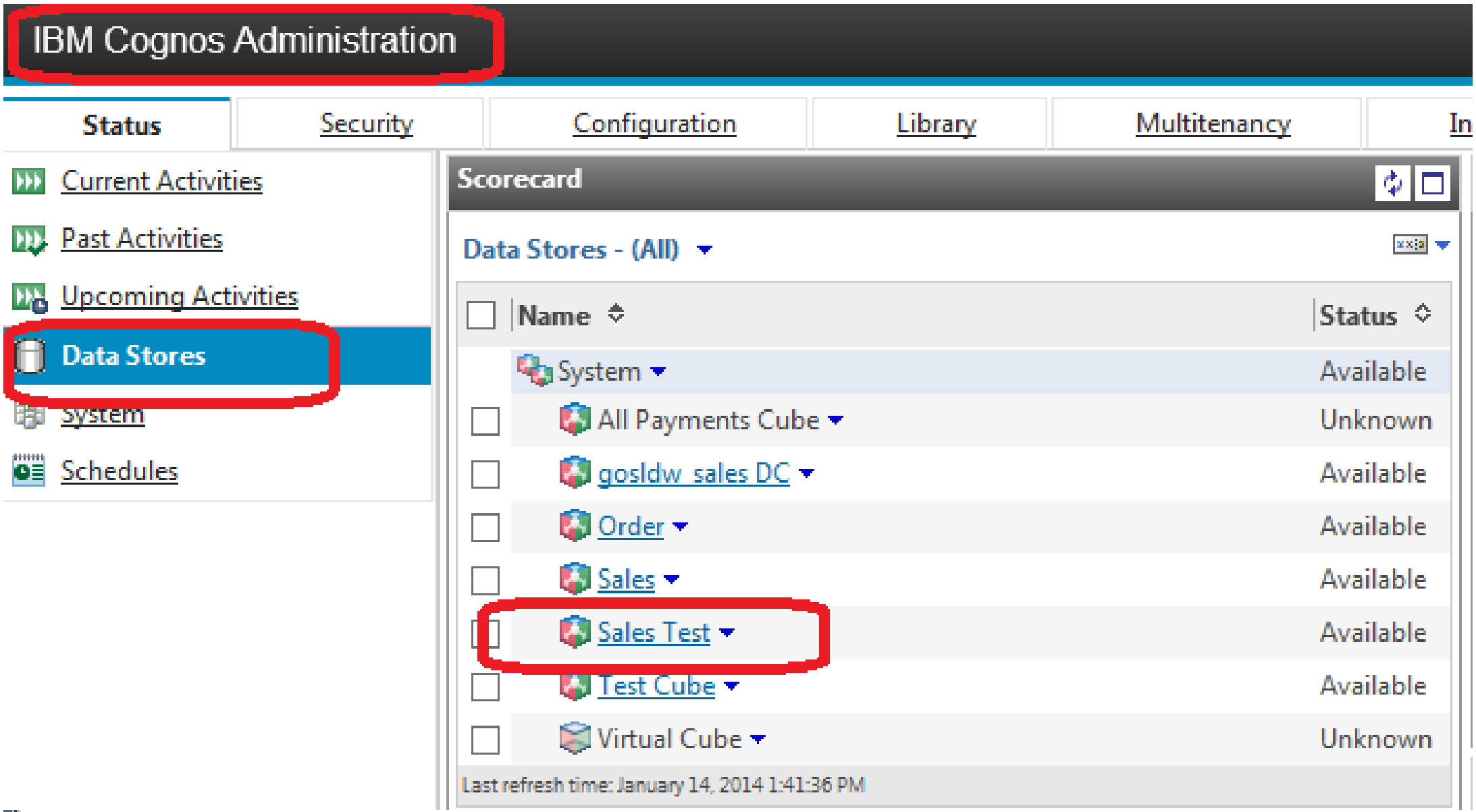
Components of Dynamic Cube

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



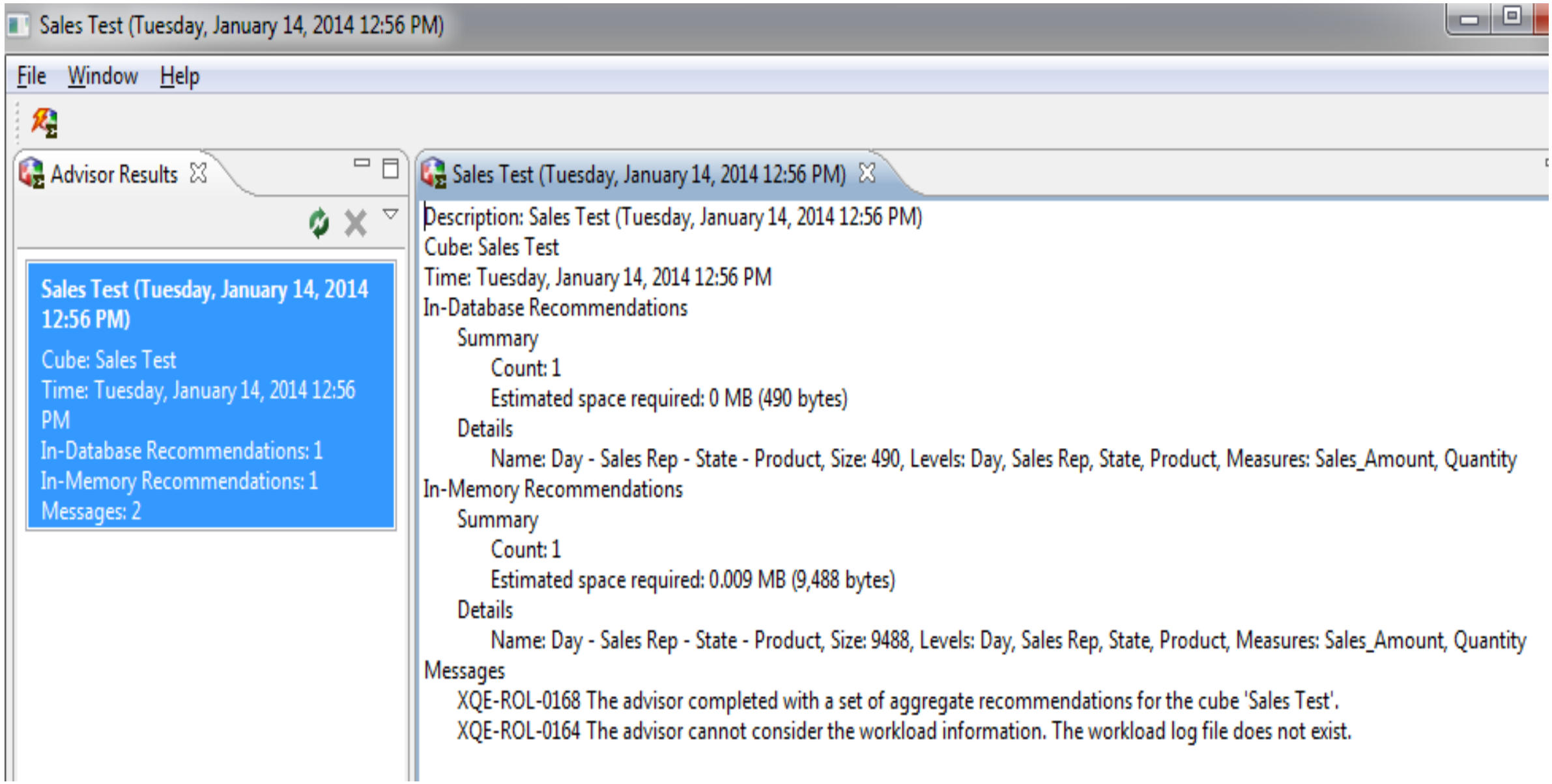
Components of Dynamic Cube

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

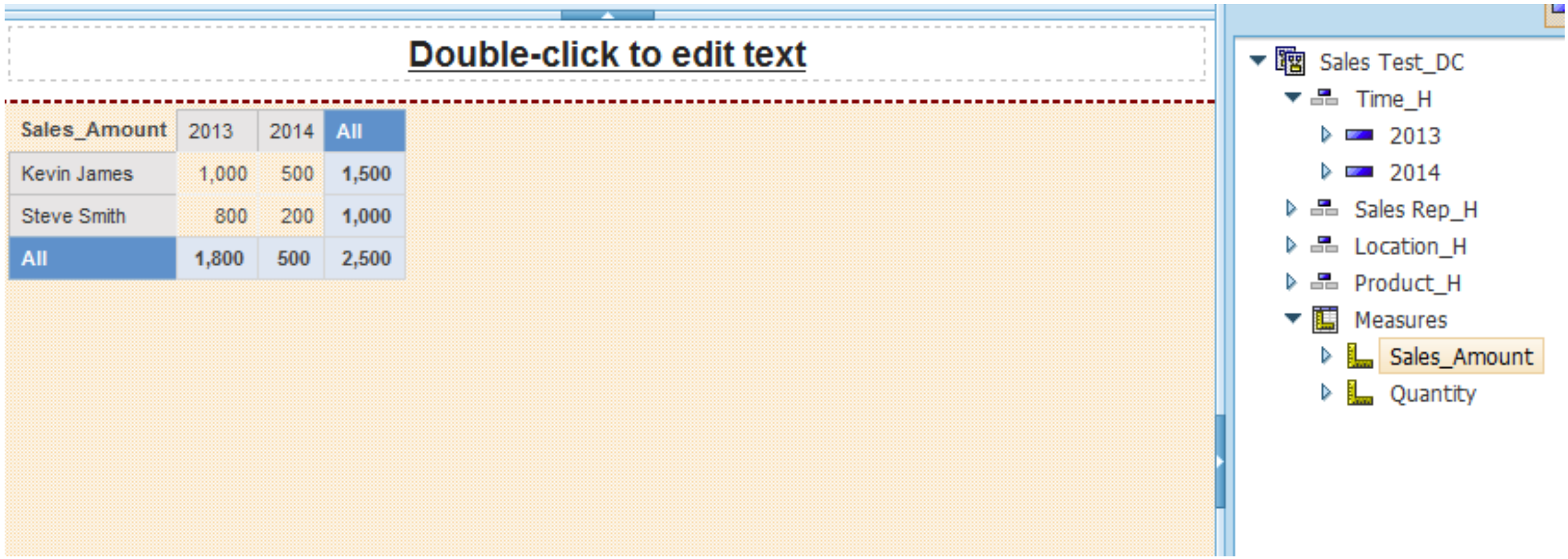


Components of Dynamic Cube

- **Dynamic Query Analyzer –> <u>Aggregate Advisor</u> (Client tool)**



Dynamic Cube Demo



Things to Consider

- 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.

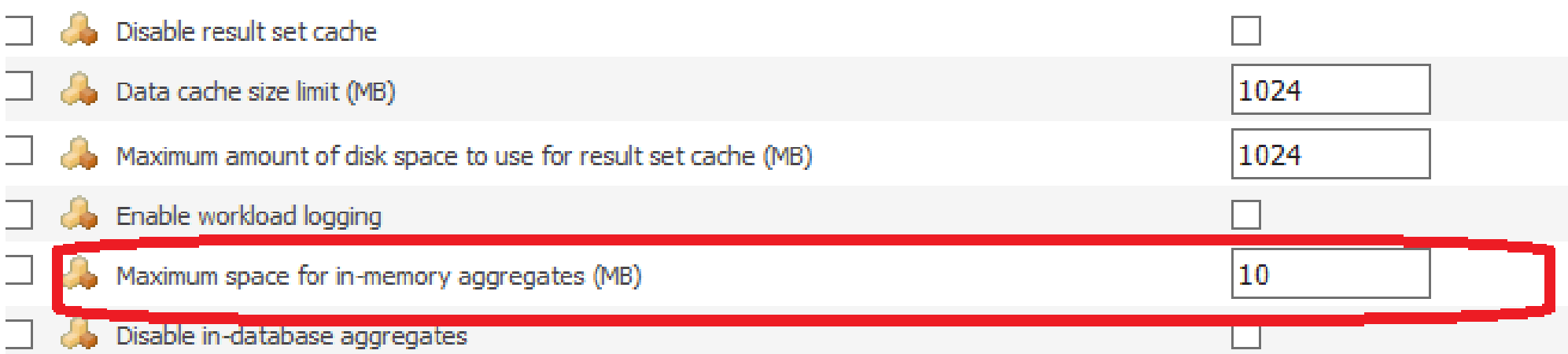
Easy Optimization of Dynamic Cubes

- **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.

Load In-Memory aggregations (DQA)

- 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



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/

Cube Technology Comparison

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 **Note**: 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 **Note**: Star or snowflake schema is the *optimal* 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 **Note**: 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 **Note**: Processing associated with operational/transactional systems impacts performance

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MD Technology Guidance by Application

Application objective	Preferred technology
• reporting on leaf-level records • static reports (no interactivity) • simple list reports	Pure relational
• users writing back to the same data source being analyzed • what-if analysis • volatile data because of planning and budgeting applications	TM1
• self-service interactive analysis • high-performance on large and growing data volumes • data warehouse structured in a star or snowflake schema	Dynamic Cubes
• interactive analysis on operational/transactional data • tight control over latency (caching) • tight control over security	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 an 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

Function: Any

Solution Architect: Greg Bonnette

Projected Duration: 1-3 Months

Pre-Sales: Greg Bonnette

Projected Cost: $28k-$84k

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Questions?