How to use a semantic layer to deliver actionable insights at scale

A conversation with

Dave Mariani
Founder & CTO
AtScale

Bill Inmon
"Father of the Data Warehouse"
Moderated by Mike Meriton
Co-Founder & COO, EDM Council

- Joined EDM Council full-time 2015 to lead Industry Engagement
- EDM Council Co-Founder & First Chairman (2005-2007)
- Former CEO GoldenSource (2002-2015)
- Former Executive for D&B Software and Oracle
- FinTech Innovation Lab – Executive Mentor (2011 – Present)
Today’s speakers

**Mike Meriton**
Co-Founder & COO
EDM Council

**Dave Mariani**
Founder & CTO
AtScale

**Bill Inmon**
Founder and Chairman
Forest Rim Technology
"Father of the Data Warehouse"
Poll #1:
What’s your level of familiarity with the term “semantic layer”?
A semantic layer is a **business representation of corporate data that helps end users access data autonomously using common business terms**. A semantic layer maps complex data into familiar business terms such as product, customer, or revenue to offer a unified, consolidated view of data across the organization.

https://en.wikipedia.org › wiki › Semantic_layer

**Semantic layer - Wikipedia**
A semantic layer provides the **agility, consistency, and control** needed to scale enterprise BI and AI.
Where does a semantic layer fit in the stack?
Poll #2: How important is standard data definitions to your analytics users? (1= Low and 5= High)
How is a semantic layer used?

CLOUD ANALYTICS OPTIMIZATION
Speed of thought analytics on live cloud data, agile data integration with minimal data movement.

ENTERPRISE METRICS STORE
Single source of governed enterprise metrics that can be self-served from any AI/BI tool.

BRIDGING AI AND BI
Common view of data assets and platform for publishing AI-generated insights to decision makers.

OLAP MODERNIZATION
Migrate legacy OLAP (e.g. SSAS) models to modern cloud-first infrastructure.
Poll #3:
How important is trust in data to your analytics users? (1= Low and 5= High)
How to Deploy a Semantic Layer
Live Audience Q&A
What does AtScale do?

The industry’s only universal semantic layer platform delivering fast, secure and governed data for BI and AI/ML teams.

- AtScale does not move data.
- AtScale leverages existing BI and cloud data infrastructure.
- AtScale integrates with existing data security infrastructure.
Where does a Semantic Layer fit in the data stack?

- **Data Consumption**
  - BI Tools
  - AI/ML Tools
  - Applications

- **Semantic Layer**

- **Data API Layer**
  - Cloud Data Warehouse
  - Data Lake Engines
  - SaaS APIs

- **Data Preparation**
  - Data Transformation Tools

- **Raw Data**
  - Data Lakes
  - SaaS Applications

**AT SCALE**
## TPC-DS 10TB Benchmark: Improvements with AtScale

<table>
<thead>
<tr>
<th>Test</th>
<th>BigQuery</th>
<th>Redshift</th>
<th>Snowflake</th>
<th>Synapse</th>
<th>Databricks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Query Performance(^1)</td>
<td>4x Faster</td>
<td>11x Faster</td>
<td>3x Faster</td>
<td>6x Faster</td>
<td>4x Faster</td>
</tr>
<tr>
<td>User Concurrency(^2)</td>
<td>11x Faster</td>
<td>31x Faster</td>
<td>12x Faster</td>
<td>11x Faster</td>
<td>15x faster</td>
</tr>
<tr>
<td>Improved ROI(^3)</td>
<td>3x Better</td>
<td>4x Better</td>
<td>16x Better</td>
<td>2x Better</td>
<td>6x Better</td>
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<tr>
<td>Complexity(^4)</td>
<td></td>
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<td>76% less complex SQL queries</td>
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</tbody>
</table>

1. Elapsed time for executing 1 query five times
2. Elapsed time executing 1 (x5), 5, 25, 50 queries
3. Compute costs for cluster time (Redshift, Snowflake) or bytes read (BigQuery) for user concurrency test
4. Complexity score for SQL queries for number of: functions, operations, tables, objects & subqueries (AtScale = 258, TPC-DS = 1,057)