

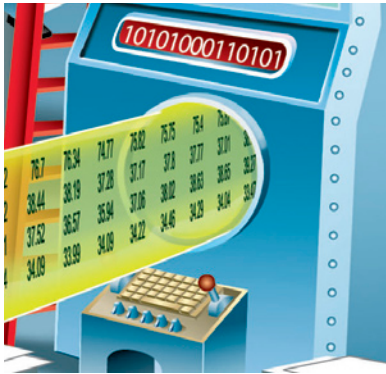
StreamCube™ Data Model

- In-Memory OLAP data model
- Supports multidimensional data
- Built for true high throughput real-time streaming data
- Supports static time series analysis (Time Cubes)
- Support for streaming time series analysis
- Handles aggregations & calculations
- Supports externally sourced aggregations
- Handles custom aggregation calculations
- Supports multiple in-memory independent cubes
- Supports Shadow Cubes that share common data dimensions

Information Visualizations Are Just the Tip of the Iceberg

When we first talk to customers, we show them our data visualizations and how these can support visual analysis and monitoring based on their business requirements. This isn't surprising, of course, since visualizations like our interactive, real-time Treemap are the most obvious part of our Visual Business Intelligence software. However, information visualizations actually account for a very small part of our technology – in fact they form less than a tenth of our total codebase in our platform.

Our unique StreamCube™ data model provides rich OLAP functionality that supports fast analysis through the visualizations. The data model can handle traditional multidimensional analysis for static data (like those specified by the MDX language) and also for dynamic data streams. In the case of dynamic data it lends itself to monitoring and analysis tasks across complex streaming problem sets both within the financial, utilities and corporate market places.



There are data models available from other companies that support multidimensional analytical OLAP functionality. However, most other data models are not optimized for real-time performance. The Panopticon StreamCube™ is specifically designed to make extremely fast calculations using continuously updated data. The StreamCube™ matches the requirements that live visual interactive displays pose to a data back-end. This involves being able to bind aspects of the data to multiple visuals and associated analysis controls. Most other data models either cannot handle streaming data, or their performance degrades significantly when presented with large streaming feeds of real-time data.

Panopticon's StreamCube™ data model conforms to the original rules defined by Dr Edgar "Ted" Codd for OLAP data models by offering support for multidimensional fast analysis. Specific features include:

- Multidimensional conceptual views capable of breaking down dimensions as required by interactive reports
- Supports intuitive data manipulation, such as interactive direct manipulation (filtering & screening, grouping, hierarchy building and so on)
- Can be used as a standalone middleware if required, or can be deployed in a full Visual Business Intelligence solution
- Can be used both for batch and interpretative use
- Provides transparency against data sources – provides live access to heterogeneous data sources and can be used to unify structured and unstructured data sources
- Supports the calculation of, and the specification of aggregates (OLAP results) separately from the source data
- Supports extraction and treatment of missing values — provides uniform reporting performance and does not degrade significantly in performance when number of dimensions are increased
- Support for static and streaming real time data across both snapshot and time series in memory cubes
- Support for the sharing of common data dimensions and subsequent common direct manipulation across multiple in memory cubes
- Support for data throttling both into the cubes and out to the subsequent visualizations

The StreamCube™ lets you add OLAP analytical capabilities to virtually any data source, including almost any relational database.

The StreamCube™ data model is at the heart of all of our products, including the Developer SDK and our Enterprise web-deployed product.

