

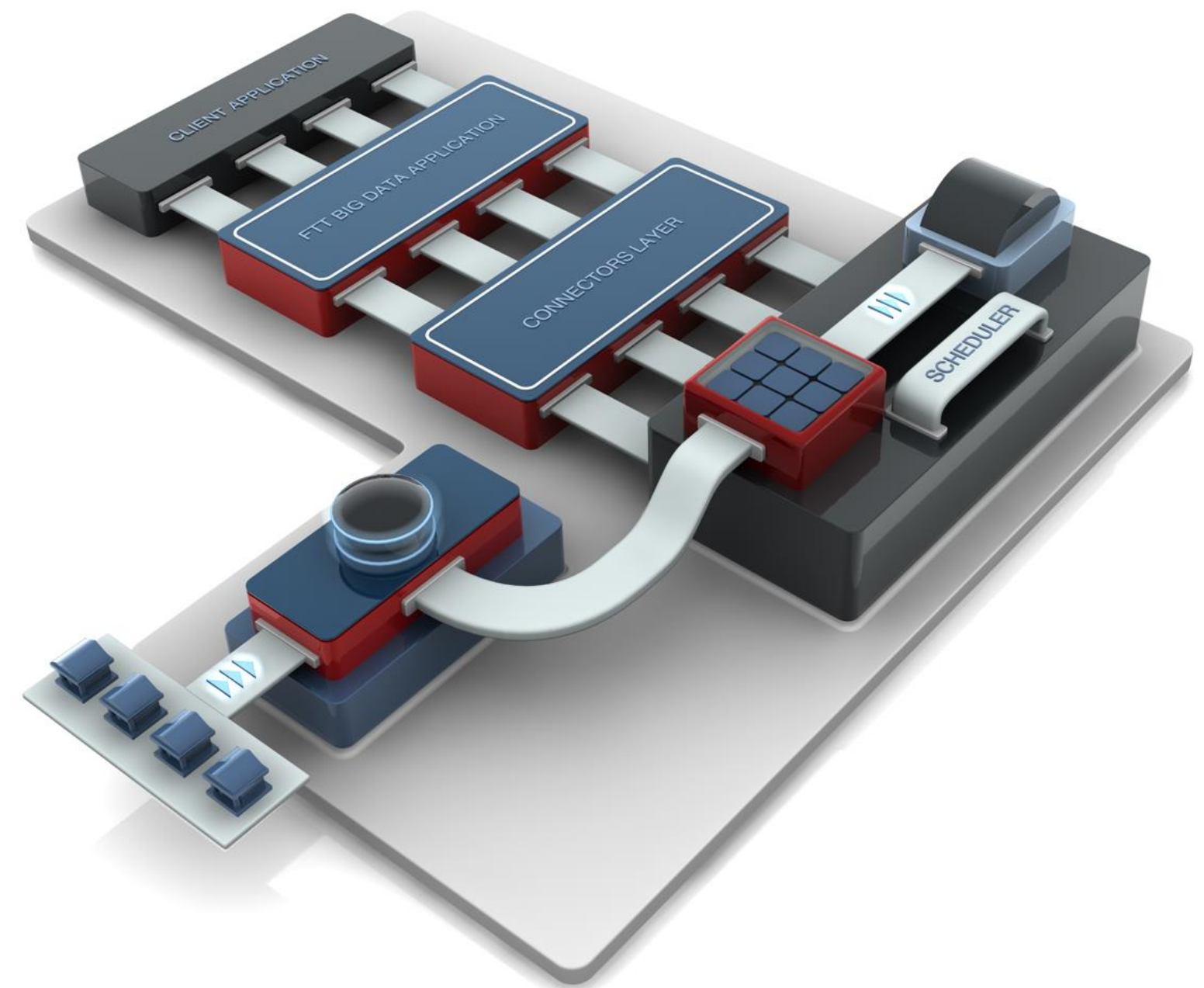
Financial Big Data

Product goals

- **Real time market and Execution data Availability** – records and makes available **tens of millions of messages per second**. Recorded Messages include market data, executions, and even client customized events.
- **Replay and investigate Events** – **Investigate** all events and their impact on a given algorithm. Stream retrieval of historical data, allows the UI to **replay** specified periods.
- **Research and Benchmark** – Delivers an **algorithm optimizer** by comparing executions against any given benchmark. **Research teams** can utilize pre-packaged Special time-alignment schema and Ad-hoc SQL queries.
- **Business Intelligence reports** – Pre-packaged **BI tool and reports**. Any standard BI tool can be connected via the supplied standard connectors.
- **Compliance** – comply with legislation requiring the collection, storage, and accessibility of all data.
- **Connect financial application** – Converts and consolidates **legacy assets** that consumed data through **SQL** interfaces such as **ODBC**, stored procedures etc. to the new BigData store.

Key Features

- **A layered architecture**, allowing customers to connect at the optimal level for their needs.
- **Fully Scalable solution**, based on the most advanced Big Data technologies.
- **SQL compatible** – all interfaces are industry standard for RDBMS applications, so developers can migrate with minimal investment.
- **Financial Data Expertise** – Fluent has a real-world knowledge of the financial world, enabling us to working solution for this market. This is *not* an all-purpose DIY infrastructure that requires customers to start developing from scratch.



Competitive Analysis

Fluent's BigData solution can be compared against two alternatives: Traditional RDBMS systems which are easy to integrate but give poor performance and high price for large volumes of data, and competing Big Data solutions which are expensive to integrate and hard to manage.

COMPETING SOLUTIONS

- **Reduced Costs** – RDBMS solutions in the scale of several Petabytes are extremely expensive, both in ownership costs and maintenance. In contrast, NoSQL projects are open-source based but choosing the right components and composing a working system from them tends to be very expensive projects.
- **Financial Data Volumes** - modern financial data is very large, be it high frequency Forex full book data or equities and options. Yearly volumes are estimated in hundreds of terabytes and above. **Traditional RDBMS** systems show a performance and maintainability degradation curve at **several dozens of terabytes**.
- **Real Time data availability** - some of the solutions in the market have a long loading cycle. As a result, data is available for querying by users **only after a few hours**. This is inefficient for some of the main applications of the data, such as immediate event analysis and event replay.

FLUENT SOLUTION

- Fluent BigData solution **costs about 20%** of a conservative RDBMS solution of the same size (approx. 1Pb)
- Fluent solution is **fully scalable up to a few petabytes** It's based on **Big Data technologies**, is designed to cope with the volumes emerging in the financial world, and therefore are extremely scalable.
- Fluent solution provides an **immediate availability for the financial data**, allowing the customer to analyze and replay events which occurred **a few seconds ago**.

Competitive Analysis

COMPETING SOLUTIONS

- **Time to market** – no product in the market gives a full solution, so customers need to compose a **solution from several vendors**. This results in a lengthy and painful integration process. In addition, most **3rd party products do not support** Big Data volumes and interfaces.
- **Migration costs** – Big Data engines are based on NoSQL technologies. Customers frequently have existing assets which connected to previous data stores via SQL/ODBC. Changing that requires significant investments, both in development and training.
- **High Availability** – database solutions are mission critical and thus require full availability. Most Big Data solutions are composed of modules without native support of high availability, leading to failover only and sometimes not even that.
- **Security** – the emerging technologies of Big Data and NoSQL are still **immature**, and one of the drawbacks in many of them is **missing reliable security**. Attempts to add security as an external mechanism proved to be unsuccessful.

FLUENT SOLUTION

- Fluent supplies a **working Out of the box applications suite**, including market data and event replay, incident investigation reports, BI reports and research suite. This allows a Customer to **start reaping benefits from day one**.
- Fluent supplies **standard interfaces** in most common pre-NoSQL technologies; SQL queries, JDBC/ODBC, DataSet, XML and JSON – all these require **minimal integration** and allow **maximal leveraging of existing assets**.
- Fluent solution is **fully designed for high availability**, based on a cluster of redundant servers. Even if a few of them are down, the entire solution is still **available – 24x7**.
- Fluent solution is based on **advanced versions** of Big Data technologies, which supply an **integrated and fully security and permissions mechanism**, embedded into the database's core.

Competitive Analysis

COMPETING SOLUTIONS

- **Database Manageability** – since most Big Data solutions are composed of several products, and since these products are immature and lack manageability features, the entire solution is commonly very hard to manage and maintain, leading to frequent downtime.

FLUENT SOLUTION

- Fluent solution has an embedded and concise **set of management tools**. In addition, the integrity of the suite, and the nature of the products composing it, result in an **easy to manage and thus more reliable** solution.