



Teradata and Fuzzy Logix Deliver Game-Changing
In-Database Analytics

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Solving Business Problems

A Top 5 marketing company realized a 1,000 percent increase in revenue in 4 years, lowering churn from above 4 percent to below 1 percent and reducing the cost of Internet sales by 50 percent.

A Top 5 health insurer cut the time for provider scoring from 6 weeks to 4.5 minutes. This significantly reduced its risk because provider quality and efficiency of care is now scored on demand instead of twice per year.

A Top 5 healthcare company is running its existing reports using existing BI reports 91 percent faster, which allows for timelier peer comparisons.

A Top 5 financial services company used to require 15 hours for its calculations on compliance reporting; today those calculations occur in 7 minutes.

A Top 3 marketing company has found that its model building team is ten times more effective at building models; it has seen a 3,200 percent return on investment in Fuzzy Logix's DB Lytix™ in 12 months.

Abstract

Harnessing the potential of data and analytics has long been hampered by structured, multi-structured, and unstructured data living in disparate locations, as well as by the need to manually move data between systems or to a middle tier for analysis. By creating a data architecture that unifies disparate data and embedding best-of-breed analytics within it, Teradata® and Fuzzy Logix™ have knocked down the barriers to critical business insights with remarkable speed and consistency. The result is increased productivity, lower operating costs, and a sustainable competitive advantage.

The Gap between Promise and Reality

Far too often, the game-changing potential of data and analytics has been more promise than reality.

Consider for example, the frustrated manager who wants to quickly ask a new question within an existing churn model, but at the moment of need the IT team is swamped and cannot help in a timely fashion. The business analyst watches helplessly as thousands of desirable customers shift to a competitor. This is one of countless examples where the promise of analytics has been limited by the facts on the ground. Across nearly every industry, the goal of consistently mining timely, relevant, and accurate insights that drive innovation and competitive advantage has been hampered due to three prominent hurdles.

- Typically analytic architectures require a middle tier. The introduction of a middle tier implies the need to transfer, convert, and integrate data on a frequent, iterative basis. The associated costs and latency issues can be prohibitive for timely analytical analysis.
- Companies struggle when trying to access up-to-date data—structured, multi-structured, and unstructured—located across multiple platforms. As a result, it is often not possible to apply sophisticated analytics against all of their data.
- IT resources strain to keep up with the demands of the analyst and timely deployment of models across the enterprise, causing the data scientist to spend more time moving data than modeling data.

In theory, the solution is simple: create a Teradata Unified Data Architecture™ rooted in a best-in-class data warehouse, discovery platform, and data staging environment, with scalable high-performance in-database analytics. Such an architecture would not only enable companies to get the most from their data, but also from their existing analytics platforms.

But in practice, there is only one place that companies can go for such a combination: the partnership between Teradata and Fuzzy Logix.

Delivering on the Game-Changing Potential of Data and Analytics

The Teradata Unified Data Architecture™ (UDA) is the only truly unified solution on the market, leveraging the best-of-breed and complementary values of the Teradata Database, Teradata Aster® Database, and open source Apache™ Hadoop® to align the best technology to the specific analytic need; all engineered, configured, and delivered ready to run.

Adding Fuzzy Logix in-database analytics further enhances the Teradata Unified Data Architecture by enabling companies to directly integrate analytics where data already resides. This dramatically reduces the time it takes to build analytic models and enables near real-time analytic capability by minimizing data movement and leveraging the parallel processing of the databases. As a result, businesses can discover behavioral patterns and meaningful associations and inferences, getting the most value from all their data.

For years, nearly every industry analyst and leading business across major industries has chosen an integrated data warehouse from Teradata as the best-in-class data warehouse solution, due to pioneering massive parallel processing and deeply embedded in-database analytics. Fuzzy Logix expands Teradata analytic capabilities with more than 600 mathematical, statistical, data mining, simulation, time series, and financial analytic algorithms. This provides the most comprehensive scalable analytic platform in the market today.

Together, Teradata and Fuzzy Logix apply all of this processing power to industry-specific solutions including but not limited to:

- Healthcare
- Retail
- Financial Services
- Telecommunications and Media
- Marketing Services

The Fuzzy Logix Advantage

Fuzzy Logix complements existing Teradata analytics by deploying an additional 600 in-database algorithms to leverage the benefits of the Teradata environment. The algorithms fall into four categories:

1. Mathematical and Statistical
 - Matrix algebra
 - Gamma and beta functions
 - Interpolation methods
 - Descriptive statistics
 - Hypothesis testing
2. Simulation
 - Monte Carlo simulations
 - Univariate distributions
 - Multivariate distributions
 - Copules—correlated multivariate distributions
3. Data Mining
 - Linear regression
 - Logistic regression
 - Principal component analysis
 - Cluster analysis (five available modules)
4. Financial Services
 - Corporate Finance
 - Equity Options and Derivatives
 - Fixed Income
 - Time Series

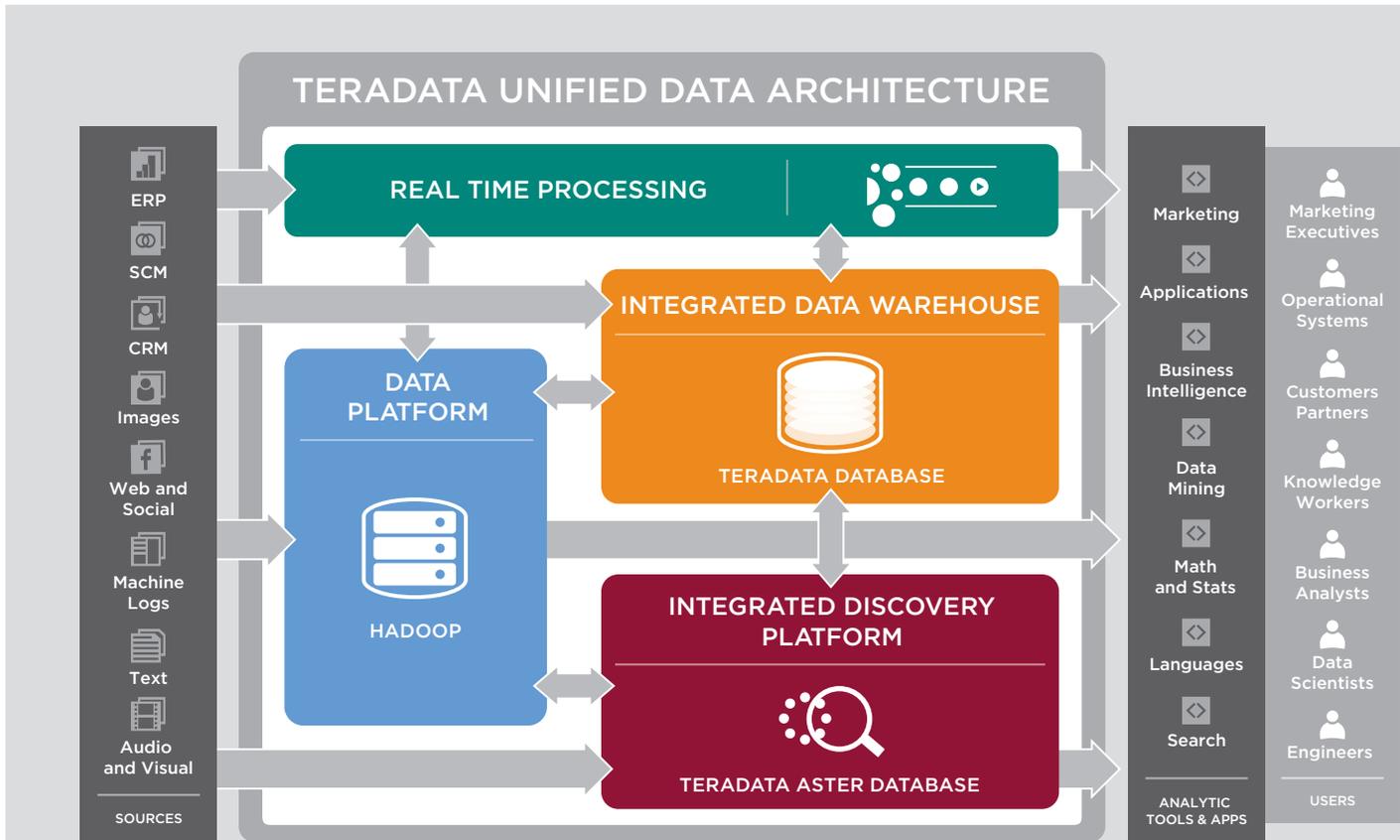


Figure 1. Teradata Unified Data Architecture.™

These algorithms are easily embedded within the Teradata system, allowing any analytics on any data, including data within the Hadoop system. SQL-H accesses data from Hadoop, allowing data scientists the ability to run Fuzzy Logix algorithms on combined data from Hadoop and Teradata. Thus, individuals throughout the organization can complete analyses within the Teradata Unified Data Architecture, enabling nearly unlimited questions and more reliable and insightful answers.

Fuzzy Logix does all this without inhibiting an organization's ability to use its existing tools. In fact, in some cases, Fuzzy Logix can increase the speed of existing tools by as much as 1,000 percent. Ultimately, Fuzzy Logix models can be utilized by leading data mining and business intelligence tools.

And because Fuzzy Logix operates inside the Teradata memory kernel, the Teradata workload manager allocates all resources and manages the workload on existing databases. Additionally, if needed data scientists can carve out space in a separate data lab within the environment. This gets rid of any impact on other database users or applications.

Five Business Benefits for Competitive Advantage

The business benefits of running in-database analytics within a Teradata Unified Data Architecture are extraordinary.

Analyze all Available Data

The ability to run analytics on all of your data—not just a subset—and the integration with existing reporting tools and analytics software means that your users get a consistent, reliable up-to-date view of the enterprise all from one set of source data.

Do it Fast with the Most Current Data

By minimizing data movement and leveraging high-performance architecture and models, users can analyze huge amounts of data quickly; as much as 1,000 times faster than their current processes allow. In addition to the speed, users will be working with the most up-to-date data available, which ensures that results are timely, relevant, and operationally cost effective.

Extend Analytics throughout the Enterprise

Discover truly pervasive analytics that empower business users to run analytics on demand and empower data scientists and model builders to use SQL to quickly build new models. In this scenario, business users become the model runners, while data scientists become the model builders. This eliminates the time required for model builders to run repetitive models that only have slight variations, and puts the capability to explore data in the hands of end users. For example, running forecasting models for different products or geographies can now be performed by the business users, freeing the time of model builders to work on new models and solve complex problems.

Realize Nearly Unlimited Scalability

In-database analytics are not bound by memory and are designed to take advantage of data and computational parallelism where possible, so companies can run queries. Fuzzy Logix leverages the power of the Teradata system, scaling the analytic processing across the system to provide the best performance money can buy.

Do it Economically

- **System-based pricing.** No seat license means organizations can deploy Fuzzy Logix across their entire business community.

- **Lifetime ownership.** The licensing model is for software acquisition and support, however if an organization doesn't continue annual support, it owns Fuzzy Logix analytics models forever.
- **More efficient use of IT resources.** Data scientists can build and iterate models faster and create more flexible models, thus freeing them to focus on building the next-generation models.
- **Leveraged investments.** Using Fuzzy Logix analytics makes existing analytics run faster and more efficiently while helping organizations leverage their existing investment in the Teradata Unified Data Architecture.

Just in Time, the Future of Analytics is Here

The acceleration of industry change is relentless, putting enormous pressure on every business to quickly understand and discover where the advantages are—and to be the first to exploit them.

That's the promise of data and analytics.

That's what the partnership between Teradata and Fuzzy Logix delivers.

By bringing together a Teradata Unified Data Architecture that captures all of an enterprise's structured, unstructured, and multi-structured data with in-database analytics that enable companies to run their analytics without ever having to move selected data to a middle tier, companies gain unprecedented competitive advantage.

For more information, visit Teradata.com/partners/Fuzzy-Logix or contact us at Teradata.com/contact-us.

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