HIGH PERFORMANCE ANALYTICS
Bringing Analytics To The Data

THE WAY WE LOOK AT DATA HAS FUNDAMENTALLY CHANGED

In 2003, we collected and stored more data collectively than we did from the beginning of time until then. Smartphones with high resolution cameras, Tablets, GPS devices, telemetry sensors and connected cars have contributed to this phenomenon. According to IDC, starting 2015, we will double the amount of data created annually by humankind. That is faster than the famous Moore's law that held up for over a decade about compute power doubling every eighteen months.

One other thing happened. We became smart about keeping this data around. Our view of data evolved from being a simple storage cost to an asset that deserved to be mined.

And therein lies our collective next challenge.

We have mountains of data, and complex algorithms that need considerable time to run. The traditional approach to running a program on a database has always been the following:
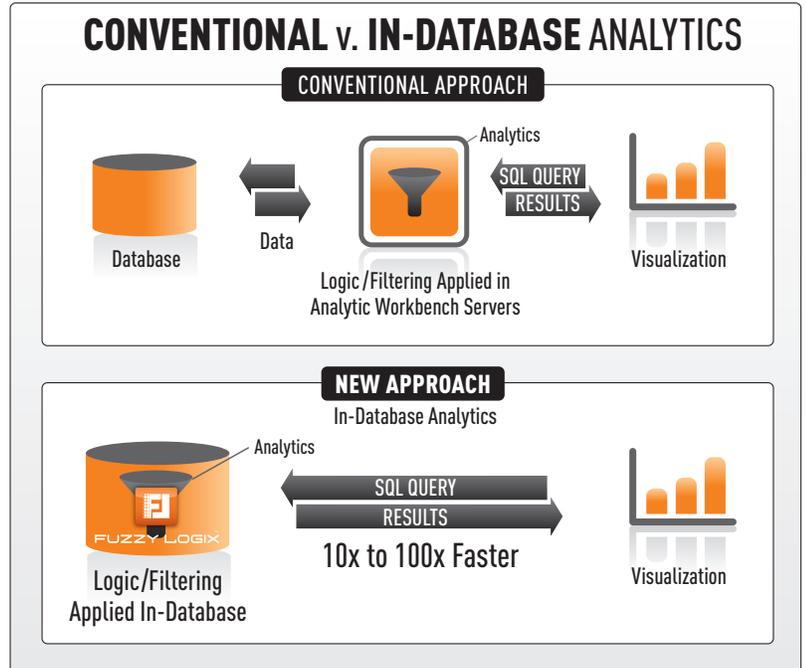
> (a) Scan through the data
> (b) Compute the results
> (c) Write back the results

Above is a rather simplistic view. Many algorithms require multiple scans of the data, and require the storing of intermediate results. When the data itself is three to four orders of magnitude more than the compute program, this can be an almost impossible feat. This approach is also often limited by the size of memory on the processing machine – in many instances the data just won't fit into available memory for complex algorithms. This approach is shown in figure A. to the right.

What Fuzzy Logix does differently here is that we move the program and run it _inside_ the database, not requiring a pull of the data into memory.

The second way in which Fuzzy Logix creates value for their customers is by leveraging the intellectual capital our data scientists have created over the last eight years of practicing and applying high performance data mining techniques. Beyond just the computational genius of re-writing 700+ algorithms to run in a distributed, parallel system and provide mathematically correct answers, we've gone to the higher level of understanding the key problems in a variety of industry verticals, and offer a systematic way of solving the business issue at hand. This is shown in Fig. B to the right.

(Fig. A)

CONVENTIONAL v. IN-DATABASE ANALYTICS

CONVENTIONAL APPROACH

Database → Data → Logic / Filtering Applied in Analytic Workbench Servers — Analytics — SQL QUERY / RESULTS → Visualization

NEW APPROACH
In-Database Analytics

Logic/Filtering Applied In-Database — Analytics — SQL QUERY RESULTS — 10x to 100x Faster → Visualization

(Fig. B)

Investment Banking	Retail Banking	Media/ Telecom	Retail	Health & Life Sciences
Market Risk Management	Credit Risk Management (Credit Card)	Customer Churn	Market Basket Analysis	Predictive Modeling of Chronic Illness
Credit Risk Management	Wallet Share Analysis	Customer Lifetime Value	Sales Forecasting	Adverse Reaction Analysis
Asset Pricing	Campaign Management	Packaging of Programming Channels	Customer Segmentation	Provider Scoring
		Optimization of Pay Per View Movies	Product Promotion	Pharmaceutical Benefics Analysis
		Movie Suggestion Engine	Product Suggestion Engine	

SOME OF THE CASE STUDIES WHERE WE'VE APPLIED OUR EXPERTISE FOR OUR CUSTOMERS ARE LISTED BELOW:

- **Product Promotion & Customer Churn Analysis** - 52 weeks of data, 80,000 products, 20 million customers. Astonishing gains in processing time from 4-20 hours to 20 minutes
- **Increased Revenue & Profitability** - Reduced the cost of sale by 50 percent while raising the sales volume by 10 percent, reduced customer churn and therefore capital reserves by 10 percent, improved revenue per call by 10 percent
- **Preventative Healthcare** – Analysis of 5-10 million lifetime medical records with 2,000 variables in less than 30 seconds dramatically shrunk the cycle time for research
- **Scoring** – Reduced the process to analyze and score the quality and efficiency of care across 700 million episodes and 250,000 physicians from 6 weeks to 40 minutes enabling this to move from a bi-annual to weekly process
- **Next Likely Purchase** – Movie Recommendation Engine that can be used by con- sumers to pick movies they would like to watch based on their viewing history and by marketing to suggest the next likely movie that customers may purchase
- **Financial Services** - Value at Risk Calculations – more than 100 billion calculations in less than 1.5 minutes, VWAP on NYSE's TAQ Data for all symbols for a given day (approximately 30 million trades) in less than 10 seconds, NBBO on all sym- bols for a given day (approximately 500 million quotes) in less than 3 minutes
- **Instant prediction of Click-Thru-Rate** (CTR) for advertisements based on last 24 hours of data-used to modify ad spend for each day
- **Realization of a 25:1 return on investment** in 12 months based on revenues driven by customer analytics

FUZZY LOGIX - THE GLOBAL LEADER IN HIGH PERFORMANCE DATA MINING

Fuzzy Logix is an analytics software and professional services company. We provide a new generation of in-database and GPU-based analytic solutions which help companies make smarter decisions and improve effectiveness and performance. Our solutions are easy to use and deploy and run very fast (10X to 100X faster than other products) and we offer structured trials to prove the value of our solutions. We also develop custom analytic solutions and offer OEM and managed services solutions.

Fuzzy Logix has developed over 800 different types of algorithms in C/C++ and C# and this library continues to grow rapidly. In addition to general models, Fuzzy Logix has also developed a comprehensive financial library that includes equity, fixed income, risk and time-series models. We make analytics easy, pervasive and available real-time.

We believe that in-database analytics will profoundly change the way companies leverage analytics. At the core of Fuzzy Logix products are 800 analytic algorithms embedded in database kernels. These algorithms cover data mining, simulation, forecasting, mathematics, statistics and more. The models run using simple SQL statements and are executed inside the database, allowing companies to use any development tool or front-end application to build and deploy analytics pervasively.

Select	a. TickerSymbol AS Ticker1, b. TickerSymbol AS Ticker2, FLCorrel (a.StockReturn, b.StockReturn)
From	tblStockReturn a, tblStockReturn b
Where	b.TxnDate = a.TxnDate
Group By	a.TickerSymbol, b.TickerSymbol
Orderby	1, 2

Ticker1	Ticker2	Correlation
SY	AAPL	0.43916
SY	HPQ	0.41796
SY	IBM	0.43475
SY	SY	1.00000
SY	ORCL	0.39562

OUR SOLUTIONS ARE AVAILABLE IN:

IBM Informix software | NETEZZA an IBM Company | Microsoft SQL Server | PAR)ACCEL | TERADATA ASTER | SYBASE | An SAP Company | TERADATA Raising Intelligence | MySQL

ABOUT FUZZY LOGIX

We accelerate analytics. We are a growing team of data scientists, engineers and marketers that live to discover interesting patterns in super large data sets in record time, and with a purpose: to make this science available to any business function within an organization, in an easy to apply manner. We are all about making analytics on big data pervasive, real time, and approachable. Visit us at www.fuzzylogix.com.