'Fast Data' Applications Emerge to Manage Real-Time Data

By Randy Bean | Contributor | January 6, 2015

Welcome to 2015, and part two of the Data Decade. If the past five years have been largely about the emergence of Big Data, the next five years are likely to be about the further evolution and application of data to a growing variety of challenges and opportunities where timely analysis and insight are critical, and where the ability to act fast is essential.

Remember the cartoon character, Road Runner? Beep! Beep! Road Runner was about Fast. As mobile data and sensor data sources accelerate, a class of data applications is emerging to manage and process massive volumes of real-time data. These applications are coming to be known as "Fast Data."

It is said that data is "Fast" before it becomes "Big." Big Data has largely been about the historical data businesses collect about customers, operations, events and interactions with customers, business partners and prospects. Big Data means "data at rest" for most corporations — large and rapidly growing quantities of data stored, and analyzed after the fact, to identify trends, patterns, and inform future decisions.

In contrast, Fast Data is about "data in motion" and immediate response and action. It's the velocity component of the Big Data triad. While large corporations have been focused on the variety and volume of data they manage, Fast Data applications are being developed to seize on the opportunities presented by data velocity. Fast Data applications are designed to be:

- Personal — customized for consumer preferences, versus estimates based on averages or aggregates
- Contextual – aware of where you are and what you've looked at;
- Fast and Interactive — responsive in real-time to actions.

Dr. Michael Stonebraker is adjunct professor at The MIT Computer Science and Artificial Intelligence Laboratory (CSAIL) and was long-time professor of computer science at University of California, Berkeley, where he pioneered database research for more than a quarter century. His latest venture is VoltDB, a firm which has developed a data architecture designed specifically for Fast Data.

Dr. Stonebraker sees the business opportunity presented by Fast Data as fundamentally different from the challenge presented by Big Data. Companies that evolve their systems to use and extract value from

Fast Data are "making their products and services more personal, providing real-time context and awareness, and responding interactively to users and opportunities in the moment. Their applications are smarter, more aware and more useful, and they are realizing extraordinary benefits." Dr. Stonebraker, who previously launched successful database companies such as Ingres and Vertica, reflects, "It's difficult to say which evolves first, business need or technology solution. Technology is always the key, in my mind. Technology makes possible what was, before, impossible."

Fast Data is now making inroads among large corporations and mainstream financial services firms that extract business value from "data in motion" as it flows into the organization, as the customer is online, and as systems are in operation. Real world examples are accelerating:

Banking — Banks have been introducing small mobile banking, which enables a mobile banking customer, who may have recently inquired about financing a new property, to receive alerts on a new mortgage offer from the bank as they approach a local branch.

Credit Cards – American Express and Uber have established a relationship to pay for your Uber ride in return for double reward points. A credit card company, by knowing their customers destination and their historical purchases, can make a merchant reward offer. At checkout, they may receive another offer.

Insurance — An auto insurance company, in response to a customer's having just had an accident, can in real-time based on GPS coordinates, arrange an approved towing service and, based on the customer's policy, make arrangements with the nearest rental car service.

Trading — Risk assessment in a trading relies on Fast Data. Systems must evaluate the impact of trades in real time to prevent unbalancing portfolio metrics and increasing equity risk exposure.

By improving the customer experience and personalizing applications and services based on actual context, companies can create new revenue sources, improve customer satisfaction, make real-time offers, and reduce costs and churn. Fast Data applications make operations more efficient and "smart" by automating decisions, enriching data, and managing resources in real-time.

Bruce Reading, VoltDB's President and CEO, notes, "In the very near future, all businesses will compete on their ability to make decisions 'in the moment' with fast data. It's a rare, transformative market opportunity. Innovators in key segments, such as mobile, social, online gaming, and the Internet of Things, are already differentiating their businesses with Fast Data. Their experiences will be broadly adopted, and Fast Data will be common practice, within five years."

So, move over Big Data, and make room for Fast Data, which promises the next stage of business disruption, and at least a good story. As Chuck Berry sang, "Roll over Beethoven, Better Give Tchaikovsky the News!"

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