TERADATA®

Data is Just Data, The Unified Data Difference

In This Paper

- Many Big Data efforts abandon existing analytics solutions in favor of something new
- The adoption of new analytics techniques must leverage existing infrastructure
- Teradata® Unified Data Architecture™ helps provide a unified, 360-degree view of a company's data

Datamation®
Executive Brief

Introduction

Big Data analytics are a top priority at many companies today. Most hope to derive new insights from all available data to improve productivity, cut costs, reduce churn, enhance the customer experience, and seize new business opportunities.

Unfortunately, companies too often start their Big Data efforts from scratch abandoning their existing analytics solutions in favor of something new. The typical approach is to bring all data of interest into a common file system and run new "Big Data" analytics against that data. With this approach, many companies rush the implementation of Big Data technologies like Hadoop, Pig, Python, and others without regard for integrating processes to include existing data discovery and analytics tools. As a result, people requiring the derived information from Big Data efforts must learn to use new tools. Additionally, companies get locked into using certain tools, which often results in a narrow view of the data and prevents companies from deriving the new insights they desired.

To avoid these problems and to get the most out of Big Data analytics, companies need to take an approach that accommodates a variety of data and analytics techniques, while leveraging existing infrastructure. In particular, for companies to go from their current data capture, storage, and processing systems to a true

Big Architecture, Hadoop alone will not do. Companies need three key elements including a flexible and open discovery platform, an integrated data warehouse, and a data platform that cost-effectively stores and processes large datasets. This will help companies realize the benefits of Big Data analytics.

Big Data analytics challenges

Big Data analytics has the potential to help companies improve operations and make faster, more intelligent decisions. As such, Big Data initiatives are poised for explosive growth. But like any new technology there are obstacles that might prevent companies from realizing the full benefits Big Data can provide.

To start, **there is the issue of meeting expanding user needs. In most companies today, more users need** access to the decision-making information that can be derived from Big Data analytics efforts. Besides data scientists, corporate management, and lines of business want to use Big Data analytics.

This can introduce several problems if the right Big Data approach is not selected. The increased number of users who require access to the information means the traditional approach to analytics that relied on IT or analysts to create reports and build dashboards will no longer work.

When it was just the data scientists doing high-level analytics work, they had training and expertise that allowed them to navigate an analytics workflow. They knew how to find the relevant data, extract it, process it, and make sense of the results. Corporate

and business managers do not have the time or expertise to learn how to use all of the needed techniques and tools. And relying on IT to perform the tasks for them is impractical, adding weeks or months to any process.

A second challenge to consider relates to the growth of data. Data used by businesses for decision-making is exploding. Various industry studies peg data volumes doubling every 12 to 18 months. An additional factor driving the growth is the increased appeal of extracting insight from previously unused datasets such as unstructured data sources (e.g., email messages, call logs, document files, and spreadsheets) and social media streams. The result is that there are orders of magnitude more data routinely being captured and saved. Much of that data must be retained for long periods of time.

Furthermore, many companies are finding that their Big Data efforts involve the use of vastly different data types. One project might involve text analysis of tens of thousands of Word files; another might search a single very large database for patterns. Each of these applications places different requirements on data capture, extraction, and storage.

Moreover, most analytics efforts have focused on spotting trends by looking at the past. How well did this product sell in that store? How many customers who got this email clicked on an embedded link and completed a purchase or transaction? Which supplier's products contributed to the highest failure rates in a product line? These types of queries could be answered by analyzing data that had been orderly collected and stored in a structured database or data warehouse.

Today, Big Data analytics can help produce more refined analysis for these queries. But companies also might want to ask different questions. For instance, can information from social media streams give more timely information about changing customer sentiment or can richer transactional data that contains location information help with real-time marketing or fraud detection?

Third, **most companies are experiencing an IT resources crunch.** Even without considering Big Data, IT departments are stretched thin. IT budgets have been flat or had only modest growth for several years. This has occurred at a time when demands for new IT services exploded. In most companies, IT is being asked to do more with the same or fewer staff and dollars.

As Big Data analytics projects are conceived and implemented, IT departments might not be able to dedicate resources in the time frame to satisfy end users and business units. Additionally, some Big Data initiatives can bring added complexity that simply drains more IT resources and slows the time to results.

Fourth, **Big Data efforts require the incorporation of different and new technologies.** Most Big Data efforts make use of a very broad range of technologies to capture and access data, use new analysis methods based on SQL and non-SQL analytics, and need new technologies to extract more relevant insight from data. A single analytics engine or data infrastructure element alone will not give a company the flexibility to apply Big Data analytics throughout the organization across different operational areas. Forcing workers to use specific tools they have not used in the past will require expensive and

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extensive training. At the same time, locking workers into using particular tools might limit how the data is examined or viewed.

What's needed?

These concerns and issues can be addressed by making smart Big Data analytics architecture choices.

A well-planned approach gives companies a choice of data extraction and analytics tools and does not lock workers into using solutions that lack flexibility. Additionally, companies need an approach that lets workers use their existing solutions within a Big Data analytics workflow.

Naturally, a Big Data analytics solution must allow for the use of new technologies like Hadoop to capture, store, and refine data. It must make use of new discovery platforms to help manage the wide variety of data that is expected to be used by the business managers in their analytics efforts. And any solution must use an integrated data warehouse to ensure data is accessible and easily managed.

Most important, end user issues must be addressed. A solution must be easy to use, allowing for the expansion of Big Data analytics beyond the traditional data scientist to business analysts, marketing executives, line of business managers, and customer-facing workers.

A solution that offers such characteristics delivers several benefits including:

- Agility — Eliminating much of the strain on IT that was common with traditional approaches
- Simplicity — Allowing consumption of data in raw format, thus saving time and reducing errors
- Flexibility — Allowing for the use of different analytics techniques (engines) on the data, which helps organizations see the data differently to ask new questions and derive new insights
- Accessibility — Providing users with self-service access all their data using their existing tools and skills

Teradata as your technology partner

Many organizations have difficulty implementing Big Data analytics. There are challenges at nearly every stage of the analytics workflow.

In particular, most companies find it difficult to:

- Process and handle the vast amounts of multi-structured data their business units want to use
- Access and link critical data through the existing infrastructure
- Extract insights from available data to drive future business initiatives
- Effectively deploy, manage, and support all the emerging technologies to create a competitive advantage.

What is needed is an integrated solution that helps companies harness, understand, and execute on available data. Such a solution must synergistically combine existing analytics and infrastructure solutions with new solutions specific to a Big Data effort.

This is an area where Teradata can help.

Teradata has been in the Big Data market before it was called Big Data. The company has decades of experience delivering solutions that help companies work with large datasets to derive meaningful business information.

To address the challenges companies are now facing as they enter or ramp up their Big Data efforts, Teradata offers the Teradata Unified Data Architecture, which integrates three types of engines to provide the best fit-for-purpose analytical capabilities for any kind of data.

Teradata Unified Data Architecture is a unified solution that lets companies leverage best-of-breed solutions in their Big Data efforts. To that point, Teradata integrates key enabling technologies such as Teradata QueryGrid™, BYNET®, Teradata Viewpoint, Teradata Unity,

SQL Assistant, and a global support model to provide transparent access, seamless data movement, and a single operational view of the Unified Data Architecture.

Using Teradata Unified Data Architecture, companies can quickly run iterative analytics against a broad, deep set of data using SQL, non-SQL languages, and Aster SQL-MapReduce®, which allows business users to run MapReduce functions using standard SQL.

Running SQL and non-SQL analytics against large volumes of multi-structured data requires specialized technologies. Rather than getting locked into one solution as some other approaches require, Teradata offers three best-in-class solutions that address business needs.

The solutions are:

Data Warehouse: With over 30 years of development efforts behind it, Teradata Database is the market-leading platform for delivering strategic and operational analytics throughout a company so users can access a single source of consistent, centralized, and integrated data.

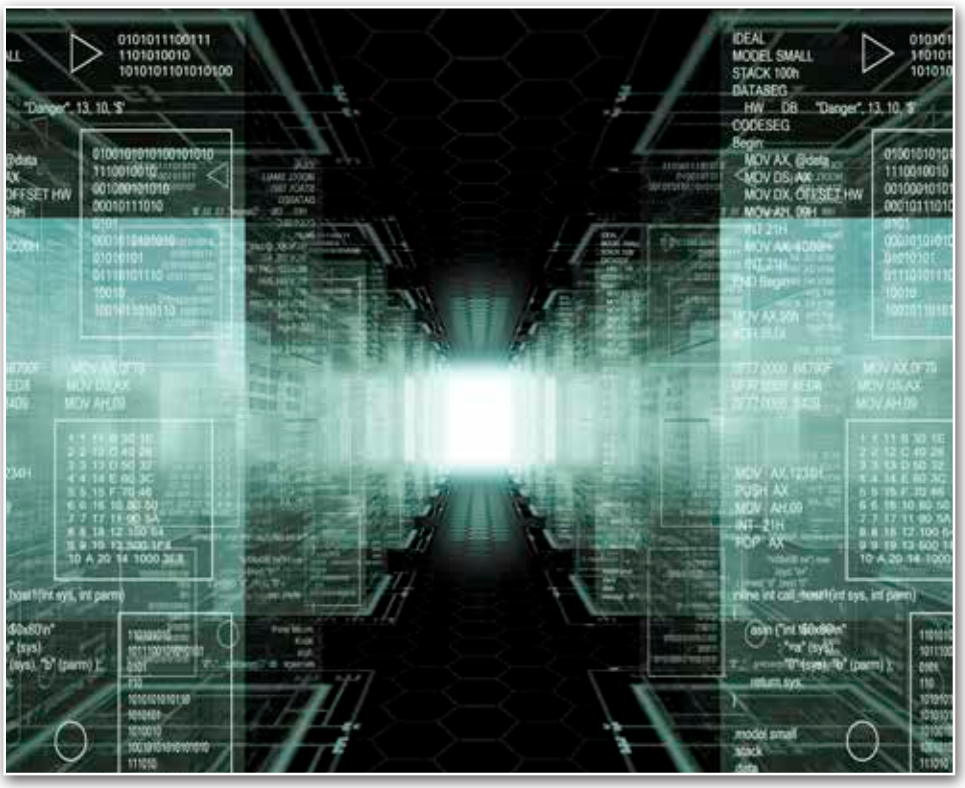
Data Discovery: Aster SQL-MapReduce delivers data discovery through iterative analytics against multi-structured data as well as structured data to the broad majority of your business users. Pre-packaged analytics allow businesses to quickly start data-driven discovery. Companies can create their own custom, reusable analytics and deploy them to broad numbers of users through standard SQL.

Teradata QueryGrid takes a unique approach to multi-system analytics by giving users a seamless, self-service experience in accessing all their data and analytics across systems through SQL. Users can continue using their existing SQL skills and tools, which enables a whole new class of analytics without retraining.

Data Platform: The Teradata Integrated Big Data Platform provides a complete, integrated solution for applying business analytics to massive amounts of detailed data at an affordable cost per data unit. When an open source Hadoop solution is required, Teradata delivers an engineered and supported Hadoop appliance that goes beyond standard ones. Teradata integrates Hortonworks Hadoop with robust tools for system management, data access, and one-stop support for all Teradata products.

Teradata Unified Data Architecture helps companies achieve a unified, 360-degree view of their data. This allows companies to turn previously invisible opportunities into actionable insights.

The solution helps companies more effectively organize, store, and leverage the data that will be used to make smarter business decisions. And the ability to use a variety of analytics



engines on datasets lets companies derive deeper and new insights that were not possible before.

Essentially, the Teradata Unified Data Architecture sits between a raw data sources and the consumers of that data within a company. The solution helps companies move, manage, and access the data. This allows users of all types to more easily run their analytics tools and applications, allowing for more optimized workflows and faster time to insight.

The primary value of Teradata Unified Data Architecture is to convert data—big and small, and all combinations—into useful, actionable insights. This involves analytical approaches designed to uncover previously unknown patterns, or the identification of key events that trigger customer behaviors like decisions to buy products or cancel contracts.

While companies can cobble together core technologies to support their Big Data analytics efforts, Teradata offers an integrated solution designed to deliver business value. Simply put, Teradata brings its broad portfolio of robust products and services to help companies get the highest value from their analytics, making data access transparent for users and simplifying data movement and systems management for administrators.

For more information about Teradata Unified Data Architecture, visit Teradata.com/UDA.

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