Teradata Integrated Analytics

Create an Open Analytics Service Environment for Everyone

Today's analytical demands are unprecedented. The need to integrate new data with existing business data is driving big, diverse data requirements across enterprises. This data burden has become more urgent with the explosive growth of customer interactions through the Web and mobile devices.

As more and more data are captured from social media, Web transactions, GPS devices and machines, companies are struggling to keep up with all the information. But their challenges go well beyond increasing volumes of data. To understand individual customer behavior, relationships, and characteristics of new trends better, companies need insights faster than ever before – within minutes or seconds instead of days, weeks, or even months. But, far too many business analysts operate in analytic silos where they can waste valuable time and resources moving data from one analytic silo to another.

There must be a better way. With Teradata, there is. Next-generation analytics environments must support a wide range of data and techniques to optimize decision making at blazing fast speeds. At the same time, the analytics environment must be flexible to embed customized analytics and open source technology. What's needed is a next-generation analytics platform, one that can support a wide variety of data, user groups, and techniques within an integrated environment to reduce analytic silos.

A Portfolio for Performance

Teradata® Integrated Analytics delivers on both fronts. This portfolio of comprehensive, high-performance analytics technology allows you to run analysis directly in your data warehouse. With it, you can integrate analytic processing – and data, dramatically reducing time-consuming data movement. At the same time, you can perform analytics – within the database – for superior performance.

Teradata Big Data Analytics – Deeper, More Optimized Insight

Teradata helps businesses unlock the full value of their big data. Here are some examples of what's possible.

> **Digital marketing optimization** – cross-media analysis of user behavior, intent and actions across search, ad media, and Web properties to create a comprehensive view of user behavior. Cross-channel analysis enables optimized ad targeting, cross-channel attribution, deep personalization, influencer marketing, and related applications.

> **Fraud detection and prevention** – analyze transactions, interactions, and systems on-the-fly to detect, block, and prevent malicious users, networks, and programs engaged in fraud.

> **Social network and relationship analysis** – uncover deep social relationships and interactions hidden in purchase behavior, on-line activity, and social networks that can be used for behavioral analysis, influencer marketing, virality analysis, crowd sourcing, and similar applications.

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Teradata Integrated Analytics

Because it provides highly scalable analytics that leverage in-database parallel processing, Teradata Integrated Analytics delivers the speed and performance to quickly and efficiently analyze massive data volumes. It also offers the scalability to consolidate special purpose analytic data marts into an integrated environment that provides an array of technologies from geospatial to predictive analytics.

The solution is as flexible as it is scalable. That's because its framework allows you to extend in-database analytic capabilities to enable customization. With this framework, you can operationalize your analytic procedures so you can store, package, and reuse procedures as analytic services in the database – saving significant time and development costs.

The Integration Point

Teradata Integrated Analytics provides the integration point for smarter, faster insights, offering you superior in-database and analytical processes. You no longer need to struggle with inconsistent, separate versions of your data. Teradata Integrated Analytics transforms a Teradata data warehouse into an analytic platform – providing analytics for everyone. This complete set of tools addresses the most demanding analytics needs:

Blazing Fast – leveraging in-database parallel processing to deliver high performance and scalability for an array of technologies. Equally as important, in-database processing allows analysts to

Temporal Delivers a Time-savvy Way to Track Insurance Claims and More

There's a difference between when an insurance policy is entered into a database and when it's in effect. With Teradata Database's temporal capability, insurance providers can go beyond so-called *TransactionTime*, the date a transaction is entered into the database, to capturing *ValidTime*, when a policy is activated.

Teradata Database's temporal capability delivers a complete picture that makes use of both time periods. In this way, Teradata Database can distinguish that a claim on August 8 is payable because the policy was valid on August 1, even though it wasn't entered into the system until August 15. It would also know that future claims are payable if they fall within the policy time period.

"Temporal is the next step in analytic capability. It analyzes how a data element evolves or how it relates to other data over time. This argues from a much deeper understanding of the time dimension."

– Ramesh Bhashyam, Teradata Engineering Fellow, quote excerpt from *Teradata Magazine*

Web-driven Data Explosion

According to IDC, the amount of digital information created and replicated in 2010 was expected to hit an astounding 1.2 zettabytes, or one billion terabytes – enough data to fill a stack of DVDs reaching from Earth to the moon and back. That number will approach 35 zettabytes by 2020 – a data volume equivalent to extending these same DVDs from Earth halfway to Mars.

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Comprehensive Solution Suite

What makes Teradata different? Teradata Integrated Analytics is a comprehensive portfolio that runs seamlessly on every Teradata Purpose-Built Platform Family member – from the entry-level data warehouse to the active enterprise data warehouse.

Eight components, along with world-class Teradata Professional Services and the Advanced Analytics Center of Excellence comprise the portfolio:

> **Visual data exploration** tools allow you to quickly analyze and understand data within the database, identifying patterns and anomalies. This interactive tool enables analysts to focus on results – not moving data.

> **OLAP Optimization** – the best analytic foundation to power best-in-class OLAP vendors, from IBM Cognos, Microsoft®, Microstrategy®, Oracle® Fusion Middleware (including Oracle Business Intelligence Suite Enterprise Edition), SAS and SAP® BusinessObjects, speeds up Relational OLAP processing.

- Teradata Aggregate Designer accelerates in-database OLAP processing and increases the BI solution's scalability.
- Teradata OLAP Connector provides business users with direct access from Excel PivotTables to Teradata Database.

> **Geospatial** – now businesses can integrate their geospatial environments with their BI data rather than just extracting a limited data set into a mapping tool. Integrating the location dimension into their data warehouse platform, businesses gain a much richer analytic environment for BI. Teradata:

- Partners with leading vendors ESRI, Safe Software, CoreLogic®, and APOS Systems, Inc., to deliver geospatial BI solutions.
- Offers more than 60 in-database geospatial analytics designed to enhance business analytics with location intelligence.
- Offers a wide range of geospatial BI services through Claraview, a division of Teradata, and Teradata Professional Services.

> **Temporal** – first to provide intelligent time-aware analytics, enabling customers to take a snapshot of their data at any point in time and analyze it for differences. Teradata delivers native temporal support including automated data management and optimized time-aware query processing.

> **Advanced Analytics** – in-database data mining technology from leading open-source vendors and Teradata underscores what Teradata has known all along: in-database processing is the most efficient, scalable, and fastest method when dealing with large data volumes.

- By collaborating with advanced analytics partners – including SAS, IBM SPSS Modeler, and KXEN – Teradata ensures optimal performance and sharing best practices for advanced analytics application development.
- The R add-on for Teradata Database enables R programmers to access data from Teradata Database and call in-database analytic functions. Users can even create their own in-database analytic functions or processes with the Teradata Analytic Data Set Generator and access them through the R console for fast processing.

> **Agile Analytics** – data labs or work spaces within the data warehouse to analyze new data and test theories without affecting production users. Teradata data labs provide analysts with a flexible environment for rapid analysis.

- Analysts can load new, untested data for exploration and analysis without long planning periods.
- New data are easily joined to existing tables to eliminate data replication.
- Data lab workloads are managed to ensure wide queries don't affect the other users.

> **Big Data** – analyze unstructured data with structured, relational data unlocking the full value of your data. Teradata's Aster Data Analytic Platform enables on-the-fly data exploration and analysis to rapidly uncover new, changing patterns in new types and sources of data. This capability enables businesses and organizations to gain a competitive advantage by harnessing the value of their big data. Teradata also offers big data analytic solutions through partnerships with:

- Cloudera – provides a fast, two-way data exchange with open source Hadoop.
- Attensity and Clarabridge – convert unstructured data into structured data that can be integrated within Teradata Database for analysis.

> **Application Development** – tools and techniques to accelerate analytic development. Teradata offers plug-ins to Eclipse that enable SQL, JAVA, and Hadoop development and debugging within a single environment.

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work smarter by eliminating unnecessary data movement thereby accelerating the analytic process.

Comprehensive – offering many technologies and tools within one environment for multi-faceted/multi-dimensional analytics. Analysts enjoy richer, enhanced analysis – no longer bouncing from one environment to another.

Scalability – combining diverse data into a single environment for your complete business analytic needs. As the analytic engine, Teradata Database offers the perfect high scalability environment with data integration with MapReduce analytic platforms.

Open – providing enabling technology for customization and integration to optimize performance – using the best OLAP, geospatial, advanced analytics, and application development tools on the market.

Leveraging the Power of Partnerships

Companies that hunger for not only a single enterprise analytics capability and the freedom to explore the newest development tools need look no further than Teradata Corporation. Teradata Integrated Analytics combines Teradata Database's powerful analytic capabilities with technology from leading analytics vendors. This integrated environment supports an array of best-in-class analytic technologies to help you stay ahead of your competition.

Geospatial Analytics to Improve Driving Safety in Spain

Teradata customer, Spain Traffic Control Agency, Direccion General de Trafico (DGT), is leveraging Teradata Integrated Analytics to understand and track vehicle accident behavior on Spain's national roadways better.

Using Teradata Database's geospatial capabilities, the agency will analyze traffic and incident propensities using detailed geospatial coordinates from multiple data sources – integrated in the data warehouse. The granularity of the data collected by a wide range of devices with sensors, such as radar and weather stations, may be plotted on a map to identify and address those areas most likely to have traffic accidents. With these significant improvements, the agency expects to help ensure safety for Spain's 25 million drivers.

"DGT will incorporate event-triggered alarms in Teradata Database to push decision support data to an increasing number of system users. Road safety analysis is becoming more and more complex. Understanding the root causes and defining plans to address them means supporting each entity involved in the analysis with as many attributes as possible and ensuring those attributes are correlated as much as possible. This has become especially critical for our organization as more users access the system to perform their daily jobs."

– Santiago Dominguez, Deputy Chief Information Officer, DGT

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Optimizing In-Database Processing within an Open Parallel Framework

In-database processing is no longer a trend, but the dominant way leading companies optimize their data. To make it easier to build custom analytics into the Teradata environment, Teradata offers the Teradata Open Parallel Framework. This framework allows all users and partners to extend the reach of Teradata Database with custom in-database analytics. You have three ways to build analytic services in your data warehouse:

Custom Services – where Teradata, customers, and partners can integrate custom analytics into Teradata Database. Users and partners create their own in-database service by leveraging user-defined functions.

Embedded Services – where analytic functions are embedded in Teradata Database releases, leveraging fast-path implementation.

Virtual Machines – where Teradata technology extends analytics with additional language, frameworks, and analytical systems in-database.

Unsurpassed One-stop Analytics

For new and existing Teradata customers, Teradata Integrated Analytics offers the perfect mix of smart analytics in a single environment that is unmatched in the industry. This complete solution serves businesses seeking enterprise-scale analytics at every phase of their data journey, with the ability to scale up and grow as their data needs change.

Learn More Now

For more information about how Teradata Integrated Analytics can deliver a highly scalable, open analytic environment for your organization's specific needs, contact your Teradata representative, or visit Teradata.com.

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