Intel IT Center

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Solution Spotlight

Teradata* Unified Data Architecture* Gives Users Any Analytic on Any Data

Dave Schrader and Jim Dietz, *Products and Services Marketing, Teradata*

Dave Schrader and Jim Dietz talk about the Teradata* Unified Data Architecture*, a powerful, integrated analytics solution designed to make it fast and easy to transform data into meaningful insights—from both traditional and big data environments.

Teradata has a very real-world approach to big data. Beyond the hype (a Google* search for "big data" returns more than 40 million results) is a much more grounded perspective. Step back and you'll see that big data is just data.

At Teradata, we have a firm belief in the value and potential of data—whether it's structured and stored in relational databases or more varied and unstructured (such as text, video, images, machine logs, and social posts). We view the big data trend as important, but see it as an evolution rather than a revolution. The endgame is still the same: transformation of data into insights that help organizations make better decisions.

Cutting through the hype is a major challenge for companies that want to invest in big data analytics. So is finding the right business leader internally to serve as a rallying point for exploring analytics potential, and then integrating insights back into marketing, planning, financial, or other operational systems.

Teradata helps customers navigate these cultural, technological, and operational challenges by offering solutions based on Teradata's Unified Data Architecture. This comprehensive architecture combines and integrates traditional and big data analytics technologies from Teradata with leading partner technologies.

> *"The Teradata* Unified Data Architecture* integrates three platforms—the Teradata Portfolio for Hadoop*, Teradata Aster* discovery, and Teradata integrated data warehouse (IDW)—into a comprehensive analytics solution that enables fast, deep, and powerful data management, storage, and exploration."*
>
> — Dave Schrader, Products and Services Marketing, Teradata

Teradata's Comprehensive Advanced Analytics Solution

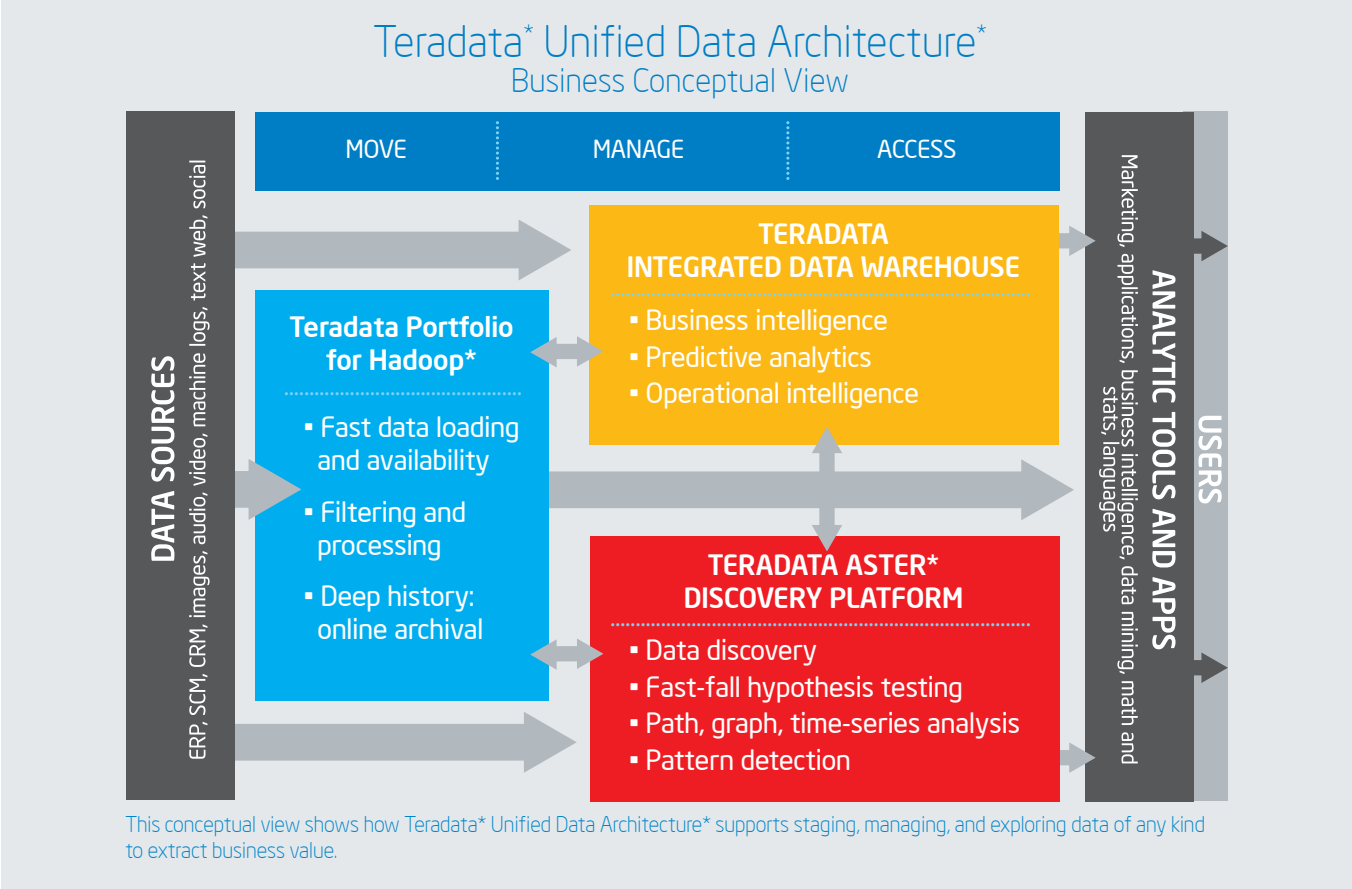
The Teradata Unified Data Architecture integrates three platforms—the Teradata Portfolio for Hadoop*, Teradata Aster* discovery, and Teradata integrated data warehouse (IDW)—into a comprehensive analytics solution that enables fast, deep, and powerful data management, storage, and exploration. Workloads can be moved across different areas of the architecture to take advantage of the economics of the various platforms. Users are provided with access to all their data, yet maintain control.

The Teradata Portfolio for Hadoop (based on open-source Apache Hadoop*) is a data platform that provides fast data availability by loading any data type without preprocessing. Then, filtering and standard preprocessing prepares the data to be passed for further discovery analysis. Low-cost storage reduces the need to archive multiple copies of big data, keeping data ready for subsequent analytical passes during later experimental investigations.

The Teradata Aster discovery platform uses the Aster SQL-MapReduce* framework so that users can take advantage of powerful MapReduce parallel processing and analysis (such as pathing and sessionizing) by using SQL queries. In this way, users can explore, mine, and perform iterative analytics against any kind of data, including large volumes and different types from various sources such as any data in Hadoop. With the Teradata Aster discovery platform, users can also take advantage of combinatorial analytics, the practice of applying more than one analytic technique at the same time to solve problems, with techniques such as SQL, graph, statistical, text, and path/pattern analysis.

Teradata's integrated data warehouse platform delivers strategic and operational analytics for business intelligence with the added benefits of big data analytics. Results of investigations on the Aster discovery platform and Hadoop are promoted into Teradata when they are ready to be shared. By doing this, users access a single source of integrated data, which supports high-value, cross-functional analysis. The IDW includes a broad range of business tools and analytics for fast exploitation of your data.

The Teradata Unified Data Architecture is engineered, configured, and delivered ready to run, with API connectors and tools that provide high-speed movement between components and a single operational view for ease of management. The solution is also available in a traditional data center implementation or via the cloud. In the Teradata Cloud, you have several options: Data Warehouse as a Service (with Teradata Database), Discovery as a Service (with Teradata Aster Database), and Data Management as a Service (with Hadoop).



This conceptual view shows how Teradata* Unified Data Architecture* supports staging, managing, and exploring data of any kind to extract business value.

Making Big Data Analytics Real

Teradata has a long track record of helping businesses operationalize big data analytics. We helped a telco customer improve its churn model by 10 percent by adding in factors from new big data sources and running hundreds of models to pick out the best behavior-based predictive factors. We worked with an automotive customer to use temporal sequences of repair and other service events such as breakdowns to understand the affinity between various types of repairs, so that when a car is brought in for service, multiple repairs can be done at once—which is good for the customer and good for the business. Using our integrated solution, a bank was able to understand the actions leading up to account closures and improve retention of its most profitable customers.

These are only three examples of how we provide deep services that help customers make big data real by moving from proof of concept to production. We also offer discovery workshops that focus customers on identifying the right big data projects, industry and business-value consulting, technology and implementation services, and support.

Intel and Teradata: Right in Sync

Intel and Teradata have had a deep engineering collaboration for almost three decades. Our Teradata team stays right in sync with Intel's latest technology, quickly designing the new innovations into the latest versions of our solutions to consistently deliver outstanding performance, scalability, and efficiency benefits. For example, we're running all the components of our Teradata Unified Data Architecture on Intel® Xeon® processor E5-2600 product family-based servers and the successive E5-2600 v2 generation of processors.

Intel also benefits from Teradata's early-adopter approach. Participation in preproduction development phases contributes to making Intel products powerful and resilient. Our products push Intel performance and capabilities in many areas, including processor, memory, I/O, and server management. Teradata's massively parallel processing (MPP) architecture takes advantage of Intel's multi-core processors, Intel Hyper-Threading Technology (Intel HT Technology),[1] advanced I/O capabilities, and integrated PCIe* support for speed and bandwidth.[2] Our Teradata BYNET* technology, which connects the components of the Teradata Unified Data Architecture, has now moved to the InfiniBand* system interconnect for increased I/O performance. With Teradata solutions optimized for Intel platforms, our customers are provided with high performance and low overall total cost of ownership (TCO).[3]

Leaders in Data Analytics

Teradata has long had a reputation for being on the cutting edge of data management and analytics technology. We are currently on the *Forbes** list of The World's Most Innovative Companies, and we plan to continue to increase our product capabilities to make it easier for users to gain insight from complex data. On the software side, this means further developing our library of big data analytics. We also continue to build interesting new engines for the Teradata Unified Data Architecture. For example, we now have a SQL graph engine as a component of the Teradata Aster 6.0 discovery platform, along with a new file storage system that makes data exchanges with Hadoop very easy. We're also committed to developing the next generation of smart analytics people by working closely with universities.

Teradata's customers depend on us to help them lead the way with innovative solutions to exploit big data, flexible architectures to incorporate new technologies, and discovery processes and algorithms to drive new insights from big data.

For more information on Teradata Unified Data Architecture, visit teradata.com/products-and-services/unified-data-architecture/.

Share with Colleagues

[1] Intel HT is available on select Intel processors. Requires an Intel Hyper-Threading Technology–enabled system; consult with your system manufacturer. Performance will vary depending on the specific hardware and software used. For more information, including details on which processors support Intel HT Technology, visit intel.com/info/hyperthreading.

[2] Eight GT/s and 128 b/130 b encoding in PCIe 3.0 specification enables double the interconnect bandwidth over the PCIe 2.0 specification. Source: http://pcisig.com/news_room/November_18_2010_Press_Release.

[3] The TCO or other cost-reduction scenarios described in this document are intended to enable you to get a better understanding of how the purchase of a given Intel product, combined with a number of situation-specific variables, might affect your future cost and savings. Circumstances will vary, and there may be unaccounted-for costs related to the use and deployment of a given product. Nothing in this document should be interpreted as either a promise of or contract for a given level of costs.

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