

InBrief

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Teradata Vantage

The company

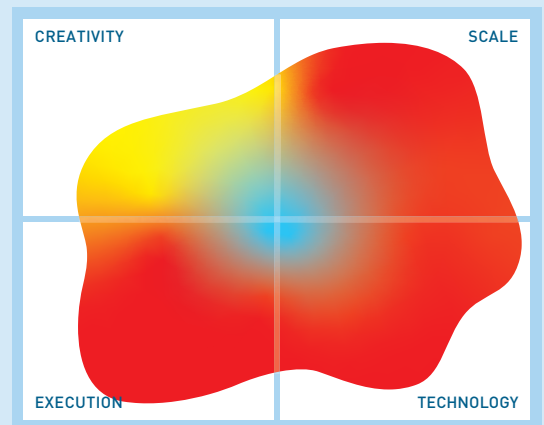
Teradata hardly needs an introduction: it is the largest, longest established pure-play data warehouse vendor. It is a public company listed on the New York Stock Exchange.

It has offices throughout the world and across all continents (except Antarctica) and it has customers across all vertical sectors.

Deployment options for Teradata Vantage include Teradata Cloud, third-party clouds (AWS, Microsoft Azure currently, Google support has been announced), an on-premises Teradata platform and on-premises using commodity infrastructure, or any combination of these. Subscription-

based pricing, based on a pay as you go model, is portable across all of these environments.

Teradata also offers a Hadoop migration accelerator for those wishing to move off that platform.



The image in this Mutable Quadrant is derived from 13 high level metrics, the more the image covers a section the better. Execution metrics relate to the company, Technology to the product, Creativity to both technical and business innovation and Scale covers the potential business and market impact.

added new capabilities to support two personas; Vantage Analyst and Vantage Customer Experience, that makes it easy to apply these functions to address business opportunities. Vantage Analyst is essentially about support for machine learning and complex analytics (including text analytics) for the business analyst. The second supported persona is via Vantage Customer Experience, which is focused on supporting marketing professionals.

The architecture of Teradata Vantage is illustrated in **Figure 1**, where the elements shown in light blue are currently provided by Teradata and those in dark blue represent potential areas of expansion. Note that Teradata natively supports both Amazon S3 and Azure BLOB storage, with these being treated as foreign tables in a manner that is transparent to users.

The other notable feature of the Teradata Vantage architecture is that it offers the separation of storage from compute, which supports Teradata's new pay as you go pricing model. Note that you don't have to separate storage from compute if you don't want to (there are some use cases where it does not provide any benefit).

“ We're investing in the cloud to provide greater flexibility. The exciting thing about the consumption model is we still have all the great features of Teradata Vantage and are able to manage and control our costs. It's simple and easy to auto scale up with our AI and ML models, making sure we're available and responsive. ”
Larry H. Miller

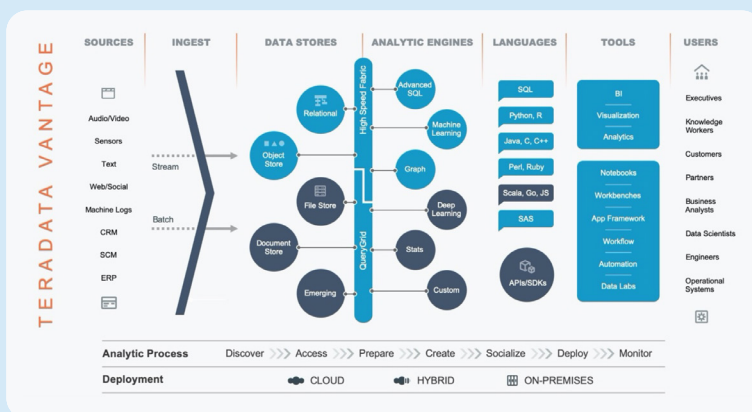


Figure 1 – Architecture of Teradata Vantage

What is it?

Teradata Vantage is the latest offering from Teradata. It effectively consists of a merger between what was previously simply Teradata Database, and Aster Analytics with its approximately 180 advanced analytics, machine learning, and graph functions. Teradata also

Performance	★★★★★
Architecture	★★★★★
Ease of use/administration	★★★★★

Data science support	★★★★★
Data federation/virtualisation	★★★★★
Geospatial and other datatype support	★★★★★

How does it work?

As can be seen in **Figure 1**, Teradata supports a wide variety of languages for analytic purposes, most notably Python and R, though not Scala yet. Jupyter Notebooks are also supported. The company also offers an AnalyticOps Accelerator, a software and services offering comprised of best practices, proven design patterns, and tried-and-tested code, which jointly enable the client to implement an AnalyticOps Framework to support robust and continuous operationalisation of analytics. These assets have been taken from successful real-world projects and Teradata services, and genericised so that they may be reused and customised to other client settings.

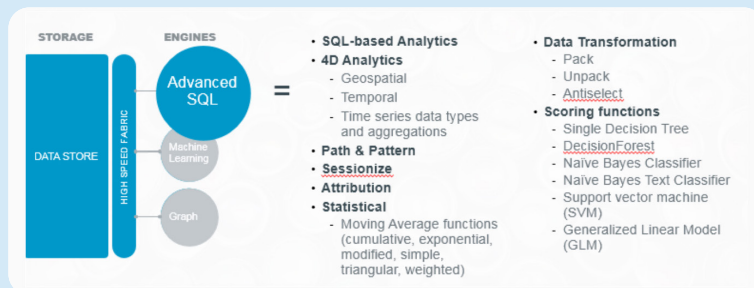


Figure 2 – Example of Teradata Vantage’s 4D Analytics

FINANCIAL SERVICES	HEALTHCARE	MANUFACTURING	COMMUNICATIONS	Media And Entertainment	RETAIL	TRAVEL AND HOSPITALITY
<ul style="list-style-type: none"> Retail Banking Multi-channel Analytics Credit Origination and Risk Analytics Capital Compliance Analytics Financial Advisor Relationship Optimization Insurance Auto Claims Analytics 	<ul style="list-style-type: none"> Quality of Care Enrollment Clinical Operations Claims Multichannel and Campaign Customer Journey 	<ul style="list-style-type: none"> Manufacturing Performance Optimization Condition Based Monitoring and Maintenance 	<ul style="list-style-type: none"> Customer Network Experience – Quality of Service Mobile Revenue Analytics Network Cost Management (Voice) Customer Operations – Subscriber Analytics Customer Journey Analytics 	<ul style="list-style-type: none"> IP Rights Analytics Title Award Analytics Customer Loyalty Analytics Online Activity Analytics Content Performance Analytics 	<ul style="list-style-type: none"> Customer Engagement Analytics Retail Merchandise Assortment Market Basket Segmentation Advanced Analytics 	<ul style="list-style-type: none"> Customer Loyalty Analytics Airline Right Analytics Airport Baggage Analytics Security Event Analytics Hotel Folio Analytics

Figure 3 – Industry and analytic models offered by Teradata Vantage

The services and technical IP of the AnalyticOps Accelerator are designed to help organisations get up and running with AnalyticOps and model management very quickly, accelerating deployment and increasing return on investment. While the company has told us that it intends to productise some or all of its AnalyticOps capabilities, it has not done so yet.

As can be seen in **Figure 2** Teradata also offers both graph capability and Advanced SQL, as well as support for machine learning.

As far as “Advanced SQL” is concerned, this represents Teradata’s extension to SQL that supports advanced analytic functions and machine learning at scale. Time-series and temporal functions

along with the company’s geo-spatial support are combined in what the company calls “4D Analytics”, as illustrated in **Figure 2**.

With respect to time-series, Teradata provides a Primary Time Index with data stored either by time, by column, or both. The data is organised into time buckets, or you can store it by, say, sensor ID. The former means that you don’t need to perform whole table scans. Round robin parallelism is provided, both to improve performance and prevent skew. Aggregation functions supported by Advanced SQL include statistical capabilities (mean, model standard deviation and so forth) as well as functions such as first, last, top, bottom and so on.

Alongside time-series and temporal capability, Teradata supports all the geo-spatial capabilities you would expect. Supported capabilities include points, curves and polygons, as well as functions such as measurements (distance, surface, perimeter), relationships (intersects, contains and so on), transformation and operation functions, and attribute abstraction such as the number of points within an area.

Going beyond 4D Analytics, Teradata also offers a wide range of industry and analytic models. Some examples of the latter are shown in **Figure 3**.

Why should you care?

Teradata has been the gold standard for data warehousing for several decades. While new challengers have emerged over the last few years they have neither the breadth nor the depth that Teradata can offer. While machine learning support is increasingly common currency other vendors cannot typically compete with the capabilities offered by 4D Analytics. This will be particularly true within IoT (Internet of Things) environments but is by no means limited to those use cases.

The Bottom Line

While Teradata Vantage has significant advantages when it comes to 4D Analytics it is for its performance, scalability, high availability and reliability that the company is perhaps most well-known. In the view of Bloor Research these characteristics mean that Teradata Vantage should at least be considered for any analytic database requirements.

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