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Teradata ClearScape Analytics

The company

Teradata hardly needs an introduction: it is the longest established pure-play analytics and data platform vendor. The publicly traded (NYSE:TDC) company has offices throughout the world and across all continents (except Antarctica), with 100s of proven vertical and enterprise customer use cases.

What is it?

Teradata Vantage is a connected, multi-cloud data platform for enterprise analytics that aims to provide a unified solution for all of your data sources.

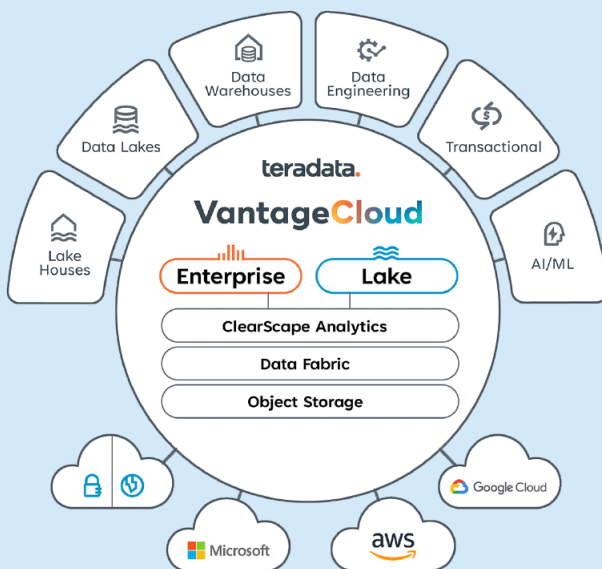
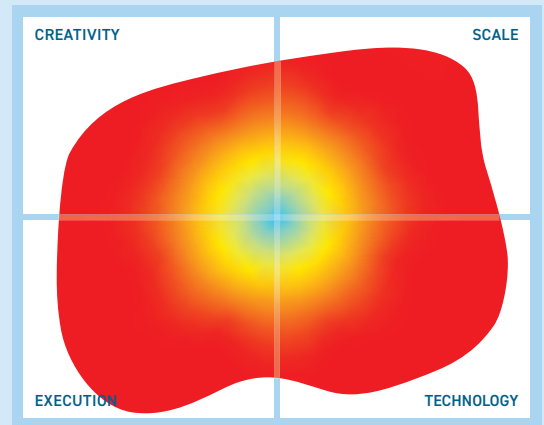


Figure 1 – Teradata VantageCloud architecture

It delivers advanced analytics and machine learning functions, and makes it easy for analysts, data scientists, and line of business users alike to harness these functions to address business opportunities. Its core value proposition is that it will help you to operationalise your AI by improving the productivity of your data scientists, training your models at scale, and situating those models within a concrete business context that directly links them to business outcomes.



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.

VantageCloud – formerly Vantage in the Cloud – is a version of Vantage that operates as a cloud analytics and data platform, offering the aforementioned capabilities as part of a cloud deployment. VantageCloud comes in two versions: VantageCloud Enterprise and VantageCloud Lake. VantageCloud Enterprise is similar to the previous Vantage in the Cloud offering, and accordingly is suitable for mixed, business-critical enterprise workloads. VantageCloud Lake, on the other hand, is a new development that has been designed to enable exploratory analysis and that can operate wherever your data already exists. Both Enterprise and Lake VantageCloud offerings can be used standalone or in conjunction with one another, and both are built on the same underlying tech stack (which is itself very similar to the stack used by on-premises Vantage deployments).

ClearScape Analytics refers to the analytic capabilities available as part of the Vantage platform, including VantageCloud and deployments thereof. It is comprised of more than 150 in-database functions, open and connected integrations/APIs, and features enabling the full-scale activation and operationalisation of analytics. In particular, this means that the same analytics functionality underpins all Vantage deployment options.

For this report we will be focusing on ClearScape Analytics, although we are also publishing a sister report that covers VantageCloud Lake.

What does it do?

ClearScape Analytics is an encapsulated set of functionality that is deployed alongside (and packaged as part of) other Vantage products, most notably VantageCloud Enterprise and VantageCloud Lake. This allows ClearScape Analytics to serve as the core analytics capability supporting any and every Vantage product. That said, it is worth noting that VantageCloud in particular provides an open analytics framework with which you can leverage your own or third-party analytics functionality rather than ClearScape Analytics.

In terms of concrete functionality, ClearScape Analytics supports a wide variety of languages for analytic purposes, most notably Python and R as well as Jupyter Notebooks, SageMaker, Azure Analytics, and more. Additionally, addon libraries for Python and R are available that allow you to generate SQL from your Python and R code and use that to run your queries. Parallel computation is available. It also offers graph capability, support for machine learning, and 150+ built-in analytical algorithms in support of advanced analytics and machine learning at scale. This includes time-series and temporal functions (over fifty of which are provided out of the box) that, along with comprehensive geo-spatial support, are combined in what Teradata calls "4D Analytics". For machine learning in particular, you can either build models using ClearScape Analytics or import existing models from, for example, Dataiku, Spark, SageMaker, R, or Python. These models are converted to PMML (Predictive Model Markup Language), ONNX, MLEAP or an H2O.AI model during the import process, and can then be executed in parallel just as your queries can.

In addition, ClearScape Analytics ModelOps is provided as a comprehensive means to manage your AI/ML models within Teradata Vantage. It aims to address the complexities associated with the deployment of AI/ML models, making it easier for you to leverage them effectively while ensuring that they continue to perform well over time. It offers capabilities in the areas of model lifecycle management, automated model deployment, model governance, and model monitoring. Specific capabilities of note include data drift and decay monitoring, update checking, and automated alerting mechanisms.

ClearScape Analytics provides connectivity plugins with Dataiku and H2O.AI as well as API integration with AWS Sagemaker, Google Vertex AI, and AzureML.

Why should you care?

Teradata has been the gold standard for data warehousing for several decades, offering extensive breadth and depth of analytical capability, and ClearScape Analytics both inherits and furthers that lineage. Moreover, while challengers have emerged, 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, and rarely offer much in the way of ModelOps capabilities at all.

By bundling its analytics capabilities into ClearScape Analytics and allowing you to deploy it with any Vantage product, but especially with VantageCloud Enterprise or VantageCloud Lake, Teradata enables you to choose which kind of data architecture you want, what sort of querying you want to do, and what kind of analytics you want to use, essentially creating a modular analytics architecture. Moreover, ClearScape Analytics consistently provides benefits and drives positive business outcomes, regardless of your use of VantageCloud Enterprise or VantageCloud Lake.

The Bottom Line

ClearScape Analytics offers an exceptionally robust and well-proven set of analytics capabilities, including machine learning and ModelOps. In short, there is a lot to recommend it.

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