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Teradata Vantage in the Cloud

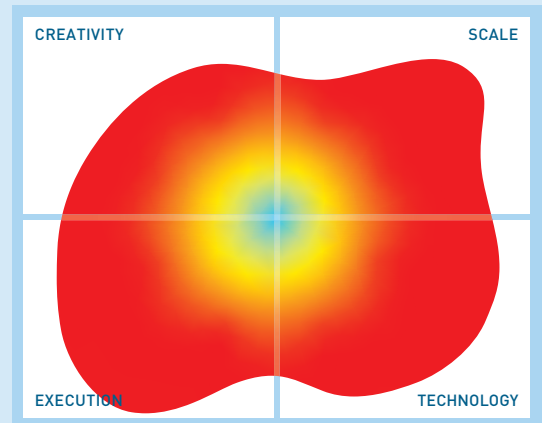
The company

Teradata hardly needs an introduction: it is the 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.

What is it?

Teradata Vantage is a data warehousing and analytics solution that is effectively a merger between what was previously Teradata Database and Aster Analytics. It delivers advanced analytics while supporting machine learning and graph functions. Moreover, it makes it easy for analysts, data scientists, and line of business users alike to harness these functions to address business opportunities.

“A lot of cloud providers are saying they have [flexibility and scalability]. But what’s the real cost of the solution? What’s the performance and scalability? Can it handle complex workloads? We knew that Teradata can not only handle the simple 3-second queries, but also the complex queries with many joins without suffering in query response times.”
 Brinker International



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.

How does it work (in general)?

Teradata supports a wide variety of languages for analytic purposes, most notably Python and R, as well as Jupyter Notebooks. It also offers an AnalyticsOps Accelerator, a collection of best practices, proven design patterns, and tried-and-tested code derived from successful Teradata projects, that is designed to make it much easier for you to implement an AnalyticsOps framework.

The platform offers graph capability, support for machine learning, and access to “Advanced SQL”, Teradata’s extension to SQL in support of advanced analytics and machine learning at scale. This includes time-series and temporal functions that, along with comprehensive geo-spatial support, are combined in what Teradata calls “4D Analytics”.

Teradata also provides a wide range of industry and analytic models.

How does it work (in the cloud)?

All of the capabilities described above are delivered in the cloud just as they are on-premises, allowing Teradata Vantage to be used as a highly effective cloud data analytics platform. It can be deployed across a number of clouds, including the “big three” of AWS, Microsoft Azure, and Google Cloud, as well as VMware, Teradata Cloud, and purpose-built on-premises infrastructure.

Vantage First-Party Integration with Cloud Services

	AWS	Azure	Google Cloud
Object Store <small>Integrations, unlimited storage</small>	Amazon S3	Azure Blob Storage Azure Data Lake Storage Gen2	Google Cloud Storage
Streaming & ETL <small>Data movement and transformation</small>	AWS Glue, Amazon AppFlow Amazon Kinesis, Amazon MSK	Azure Data Factory Azure Batch	Cloud Pub/Sub, Cloud Data Fusion, Cloud Dataflow
BI & Reporting <small>Querying and visual presentation</small>	Amazon QuickSight	Azure Power BI, Azure Analysis Svcs Azure PowerApps, Azure LogicApps	Google Looker
Analytics / Machine Learning <small>Advanced analytics</small>	Amazon SageMaker Amazon EMR, Amazon Comprehend	Azure Machine Learning Azure HDInsight, Azure Databricks	Cloud AI BigQuery, Cloud Dataproc
Security <small>Storage encryption</small>	AWS Key Management Service	Azure Key Vault	Cloud Key Management Service
Connectivity <small>Dedicated & private connections</small>	AWS Direct Connect AWS PrivateLink	Azure ExpressRoute Azure Private Link	Cloud Interconnect
Orchestration <small>Automation</small>	AWS CloudFormation	Azure Automation	
Container Management <small>Containerized applications</small>	Amazon Elastic Kubernetes Services(EKS)	Azure Kubernetes Service (AKS)	
Data Protection <small>Rapid, whole system backups</small>	Amazon EBS Snapshots	Azure Disk Snapshots	Google Cloud Persistent Disk Snapshots
Monitoring, including API <small>Infrastructure awareness</small>	Amazon CloudWatch Amazon CloudTrail	Azure Monitor Azure Metrics	Security Command Center

Figure 1 – Teradata Vantage “Big 3” cloud integrations

Deployment options for Teradata Vantage are varied, and include on-premises and cloud options (notably including hybrid cloud), but for the purposes of this report we focus on the latter, and thus explore Teradata Vantage as a cloud solution. As such, we have split our discussion into two parts: the first is a truncated discussion of the platform’s general functionality (see our prior InBrief on Teradata Vantage for the full discussion) while the second explores the product’s cloud capabilities specifically.

Cloud performance	★★★★★
Cloud architecture	★★★★★
Ease of use/administration	★★★★★

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

“Going to the cloud with Teradata Vantage on AWS, it was amazing to see what other vendors only touted. I can scale up, in double or triple the size, within minutes and have all the computing power separate from storage to do the big workloads. Then, scale back down to keep ongoing cost-effectiveness in place.”
Brinker International

Multi-cloud, hybrid cloud, and hybrid multi-cloud are all supported, and in terms of the cloud the product is generally delivered as a service. Any number of instances can be viewed, managed and monitored using the same web interface, which is particularly important for multi-cloud. In addition, Teradata Vantage is a highly portable solution (including its licensing – see below), largely owing to the fact that it uses the same software across all platforms. Teradata also provides data migration tools and best practices, and combined with the company’s experience with cloud migrations, moving an instance from one cloud to another should be a relatively painless process.

unknown) utilisation. Also notable is that all Teradata Vantage cloud deployments are single-tenant, which has benefits for both performance and stability, and that Teradata’s pricing models and licenses are portable across cloud (and even on-premises) environments.

Teradata Vantage also offers separation of storage from compute, which helps support these pricing models (particularly consumption pricing). That said, it is not strictly required. Elastic scaling, dynamic resource allocation, software performance optimisation (via indexing and determining least-cost execution methods), and workload management are all available, and all contribute to performance in one way or another. Dynamic resource allocation also addresses data replication and data drift, as well as query prioritisation more complex than ‘first come, first serve’.

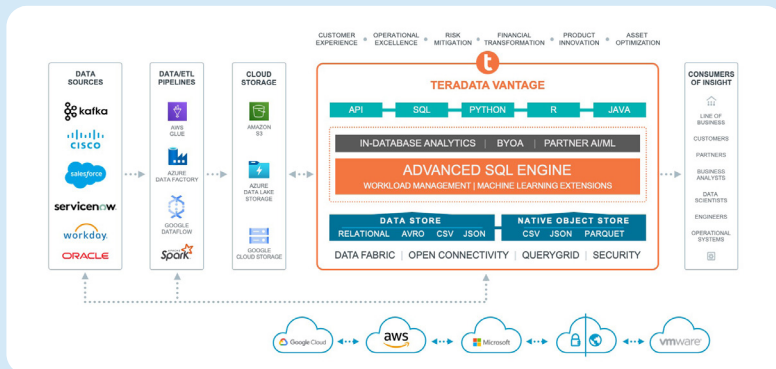


Figure 2 – Teradata Vantage cloud architecture

What’s more, the platform’s relationship with these clouds reaches significantly beyond just deployment. In fact, Teradata Vantage is closely aligned with all three major clouds, and boasts integration with a wide variety of Microsoft, Amazon and Google cloud services, as shown in **Figure 1**. Moreover, Teradata Vantage offers a software architecture (see **Figure 2**) that is well suited to the cloud, which helps to take advantage of the aforementioned cloud services provided by Azure, AWS and GCP.

Pricing models for Teradata Vantage in the cloud are flexible, consisting of both capacity-based pricing (‘blended’) and pay-as-you-go usage-based pricing (‘consumption’). The latter, in particular, provides automatic elasticity, and you only pay for successful queries and loads. It also boasts highly trackable usage statistics (which makes for predictable pricing), and departmental chargeback, among other things. In short, you are able to choose whichever pricing model suits your needs, most likely in terms of high or low (or

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.

As a cloud solution, Teradata admixes its signature, widely-regarded analytics with the benefits of the cloud. This most notably includes increased flexibility, scalability, and ease of use. Starting with a modest Teradata cloud deployment, paying only for what you use and scaling up precisely as much as you need also removes much of the onboarding difficulties that often come with a solution as broad and fully-featured as Teradata, while at the same time reducing risk and hastening time to value.

The Bottom Line

Teradata Vantage is well-known for its performance, scalability, high availability and reliability. These qualities are retained, and in some cases enhanced, in cloud deployments. It then stands to reason that Teradata Vantage should at least be considered for any analytic database requirements, whether in-cloud or on-premises.

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