

Teradata Vantage™

Optimized solutions for analytic workloads, powered by Dell Technologies

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Essentials

Teradata offers a complete cloud analytics and data platform for the enterprise. Teradata Vantage and ClearScape Analytics™ deliver the unlimited intelligence and modern stack optimization to build the future of your business, integrating data and activating AI/ML for all use cases across the enterprise.

Dell and Teradata have designed three Vantage solutions powered by Dell infrastructure:

- [Vantage Quick Start](#)
- [Vantage Analytic Archive](#)
- [Vantage Enterprise Data Warehouse](#)

The flexible use of data and faster analytics performance are huge accelerators in today's business environment — leading to major competitive advantages. Together, Teradata and Dell have developed a portfolio of solutions for holistic, data-driven insight with a variety of deployment options that offer the flexibility of the cloud with the control and security of on-premises implementation.

These solutions combine the industry-leading Teradata Vantage™ data management and enterprise analytics software with Dell Technologies' enterprise data infrastructure. The solutions are designed and optimized for a wide range of analytic use cases that enable businesses with virtual environments to extend them to enterprise data management and advanced analytics.

Business Challenges and Benefits

Teradata Vantage is a highly effective platform for driving business outcomes. The Vantage solutions powered by Dell Technologies are designed to provide:

- **Faster innovation:** improve your analytics capabilities to surpass the competition in powering AI/ML operations
- **Improved customer experience:** realize the autonomy, visibility, and insights you need to keep pace with customer demand
- **Cost effectiveness:** gain full visibility and control over your analytics usage to manage and allocate costs better
- **Predictive performance:** deliver answers from IoT data to proactively identify opportunities to optimize assets and avoid costly failures
- **Operational excellence:** optimize supply chains and manufacturing processes by delivering answers that improve efficiencies
- **Risk mitigation:** leverage advanced analytics (e.g., artificial intelligence, machine learning) to predict and prevent fraudulent activity

The impact of these use cases is huge in terms of revenue, cost-savings, and profitability. But the attainment can be complicated. Different organizations have unique compute and storage requirements. Teams close to the customer often want a localized data mart. Data scientists and developers want to experiment in self-service sandboxes. Industries that rely on streaming data want to move processing to the edge. Companies in regulated industries must archive large amounts of data. And data warehouses remain the backbone of large, highly profitable companies.

Understanding these requirements and how analytics can benefit the business calls for a winning integrated hardware and software solution that delivers value and performance.

Who is Teradata?

Teradata offers the complete cloud analytics and data platform for all enterprise use cases. By delivering harmonized data and trusted AI/ML, Teradata empowers people with better information to make the right business decisions — inspiring the confidence to take action and making the world more connected. Teradata's industry-leading innovation and proven hybrid, multi-cloud platform improves business performance, ensures better customer experiences, and drives profitable growth with the speed, flexibility, and scale that businesses need — all at the lowest TCO.

Teradata Vantage Overview

Central to Teradata's business and its partnership with Dell Technologies is Teradata Vantage, the company's modern data management platform for enterprise analytics. Vantage provides fast and flexible access to data no matter where it lives and adapts as your business needs change. Teradata's industry-leading ClearScape Analytics capabilities offer the most comprehensive, end-to-end pipeline of AI/ML functions, integrations, and implementation features to quickly answer complex questions and definitively deliver actionable results. Figure 1 shows a high-level view of the Vantage architecture.

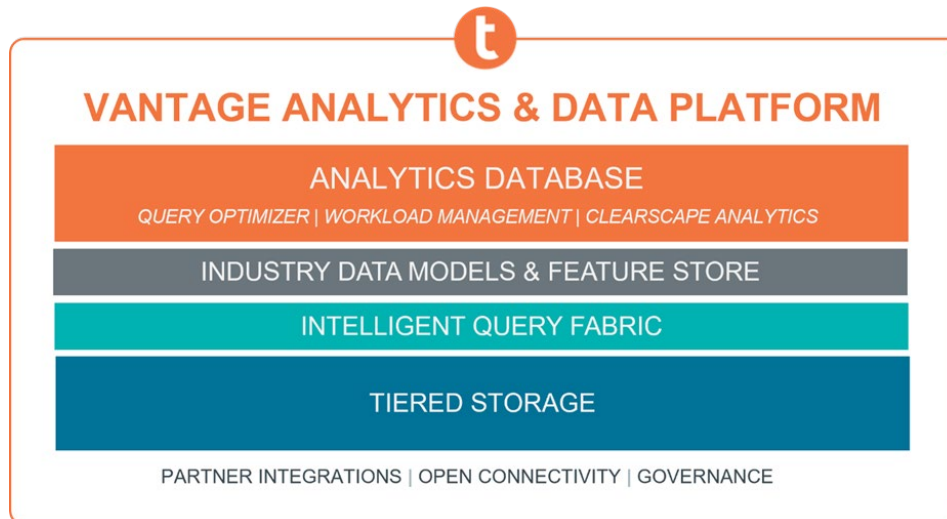


Figure 1. Teradata Vantage Architecture

Teradata Vantage is a highly adaptable data analytics platform, built to deliver the power and flexibility modern businesses need, with more control, less risk, and no lock-ins. Vantage offers:

- **Unlock Data** – Vantage connects more data to harness deeper relationships across an organization. Through massive multiway joins of data and a cohesive, intelligent data fabric that spans multiple systems, Vantage distributes processing, minimizes data movement, and enables deep insights from your data.
- **Activate Analytics** – With support for real-time data streaming and the ability to run and manage complex analytic pipelines directly within the database, Vantage operationalizes solutions for sophisticated analytic challenges at scale, yielding rapid business results.
- **Accelerate Value** – Everything in Vantage is parallelized, from the movement of data to the processing of machine learning models. With its industry-leading, cost-based query optimization and workload management capabilities, Vantage offers significant value for your investment.

Teradata Vantage Solutions powered by Dell Technologies

Together, Teradata and Dell have developed three fully integrated and optimized solutions that address a variety of data analytic use cases, from a quick start package to enterprise-scale solutions for analytic archives and enterprise data warehouses.

These three solutions combine Teradata’s market-leading Vantage data management and enterprise analytics software and Dell’s industry-leading compute, storage, and networking infrastructure, with VMware providing the private cloud layer. This allows for easy installation and expansion, while the separation of compute and storage enables high utilization of both along with easier upgrades.

Teradata Vantage Quick Start powered by Dell Technologies

Teradata Vantage Quick Start is optimized for ease and speed of deployment, with fast and efficient processing to power development. It is designed for smaller, non-mission-critical workloads such as proofs of concept, development and test, departmental data marts, self-service analytic workspaces for data scientists and developers, and edge/IoT computing.

Quick Start is a customer-installable option for deployments on a single server that can be operational within hours. The Quick Start deployer prompts the user for the information required to perform the installation and then deploys the Advanced SQL Engine in Vantage and the optional ecosystem products onto a single VMware-enabled server. It requires no deployment services.

Customers can start small with Quick Start and grow to larger-scale deployments, all within a consistent Vantage software stack. The Vantage software is 100% compatible across deployment modes. It supports easy data movement and sharing with other Vantage deployments and third-party data sources through standards-based interfaces. In these and other ways, customers’ investments are protected from start to scale.

Figure 2 shows the high-level architecture of Teradata Vantage Quick Start powered by Dell Technologies server infrastructure.



Figure 2. Solution Architecture for Teradata Vantage Quick Start

The Quick Start solution is powered by the Dell PowerEdge R740xd Server which is designed to address application performance and acceleration. Typical workloads, including departmental data marts, advanced

analytics, programming, and edge/IOT computing, use the same Teradata and Dell components. The primary differences are who uses them, the actual data designs, and the scale.

Teradata Vantage Analytic Archive powered by Dell Technologies

The Teradata Vantage Analytic Archive is designed to store large amounts of warm query-able data, as well as cold data, in an available and cost-effective manner best for long-term archival purposes. It is also ideal for managing production workloads that have high data volume-to-compute ratios.

Some of the use cases for the Analytic Archive solution include archiving online history as it rolls off production, anti-money laundering queries that require fast response, regulatory compliance and risk mitigation for large data sets, fraud detection, financial crimes, and enterprise-class storage for reconstitution of data dumps from old tape libraries.

Figure 3 shows the high-level architecture of Teradata Vantage for Analytic Archive powered by Dell Technologies server and storage infrastructure.

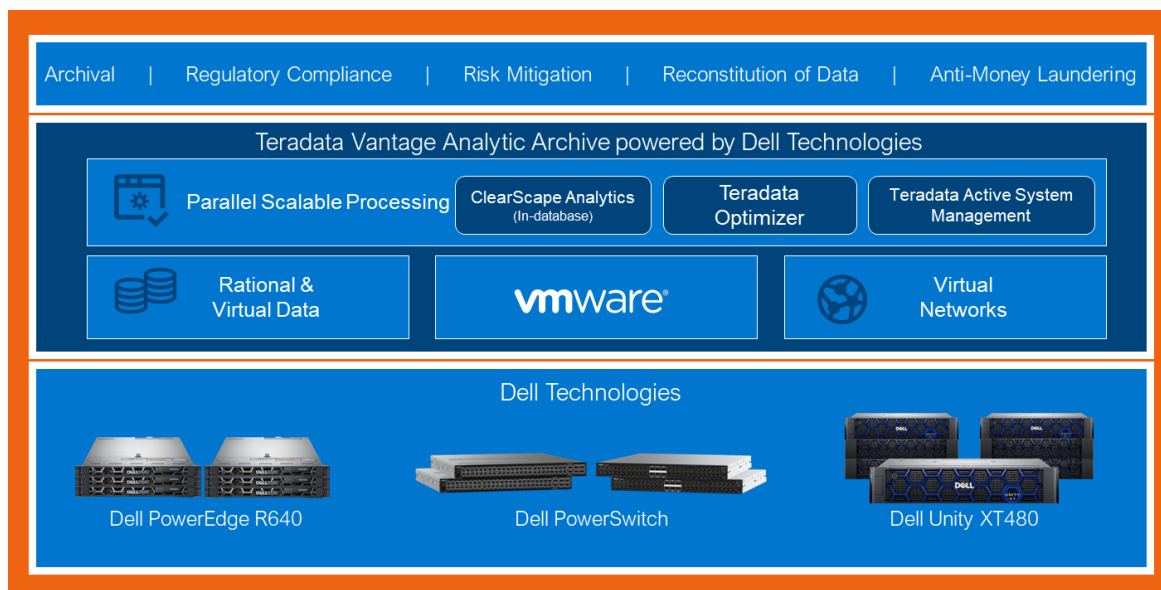


Figure 3. Solution Architecture for Teradata Vantage Analytic Archive

The Analytic Archive is powered by the Dell PowerEdge R640 server together with Dell Unity XT Storage that provides flexible hybrid flash and disk storage for high capacity and cost-effective archival applications.

Teradata Vantage Enterprise Data Warehouse powered by Dell Technologies

The Teradata Vantage Enterprise Data Warehouse is a purpose-built, highly available data and analytics solution for enterprise production-scale deployment with optimized performance and reliability.

It unifies and consolidates silos of enterprise data from multiple sources, facilitating broad access in the organization while enabling advanced analytics for complex and mixed workloads with prioritization capabilities.

Some of the use cases for the Enterprise Data Warehouse solution include customer experience, financial digital transformation, supply chain management, predictive analytics, business asset information, industrial and manufacturing data, and data silo consolidation.

Figure 4 shows the high-level architecture of Teradata Vantage for Enterprise Data Warehouse powered by Dell Technologies server and storage infrastructure.

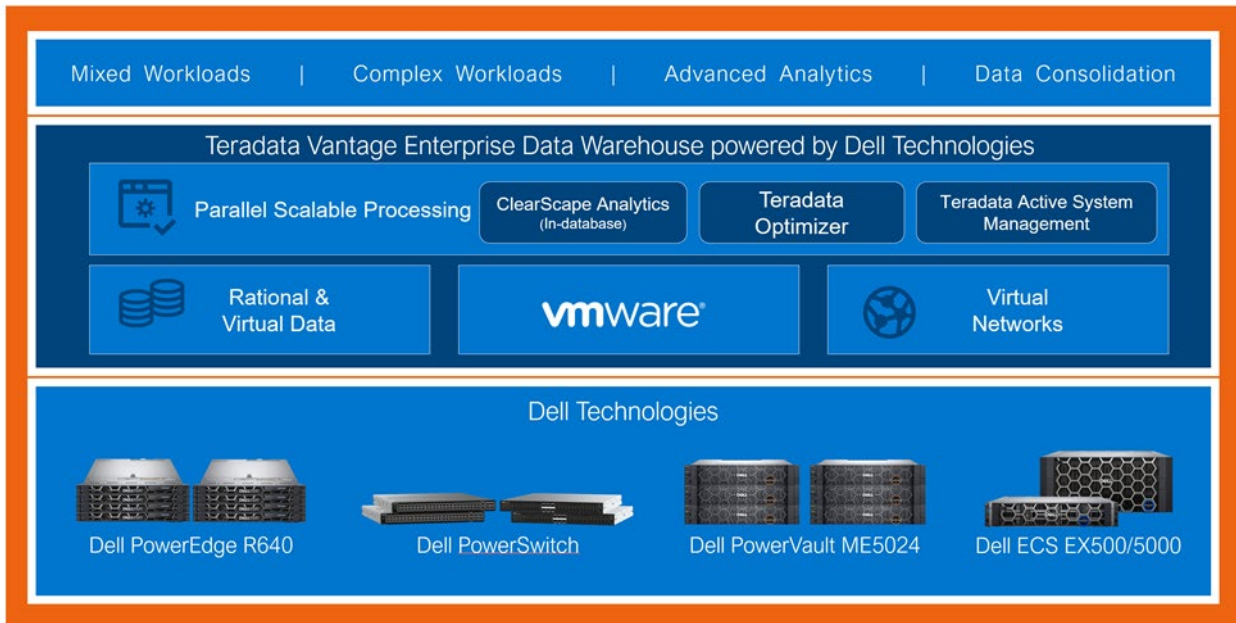


Figure 4. Solution Architecture for Teradata Vantage Enterprise Data Warehouse

The Enterprise Data Warehouse is powered by the Dell PowerEdge R640 server together with Dell PowerVault and ECS storage featuring capacity, performance, and operational simplicity.

Dell Infrastructure Components

The following Dell components provide the foundation for the Teradata Vantage solutions.

Dell PowerEdge R640 Server is the ideal dual-socket 1U rack server for dense scale-out data center computing applications. Benefiting from the flexibility of 2.5” or 3.5” drives, the performance of NVMe, and embedded intelligence, it ensures optimized application performance in a secure platform.

Dell PowerEdge R740xd Server is a dual-socket 2U rack server designed to deliver a perfect balance between storage scalability and application performance. The R740xd is a highly versatile server with extra NVMe, SSD, or HDD storage capacity and I/O performance that is designed for data-intensive applications.

Both servers are designed with a cyber-resilient architecture, integrating security deep into every phase in the lifecycle. They have intelligent automation with integrated change management capabilities for update planning and seamless and zero-touch configuration. And they have built-in telemetry streaming, thermal management, and RESTful APIs with Redfish that offer streamlined visibility and control for better server management.

Dell Unity XT Storage provides flexible hybrid flash storage for cost-sensitive enterprises that want to leverage a combination of flash and disk for lower cost than all flash/NVMe architectures. It supports unified block and file workloads, online upgrade with no migrations, guaranteed 3:1 dedupe, and sync replication.

Dell PowerVault Storage is optimized for DAS and SAN applications and supports PowerEdge server capacity expansion via PowerEdge-ready JBODs. It provides management simplicity and low-cost block storage and is ideal for both edge and high-capacity data warehouse deployments.

Dell ECS Storage is an enterprise-grade, cloud-scale, object storage platform that provides comprehensive protocol support for unstructured object and file workloads on a single modern storage platform. Either the ECS EX500 or EX5000 may be used depending on capacity requirements.

Dell PowerSwitch Networking switches are based on open standards to free the data center from outdated, proprietary approaches: They support future ready networking technology that helps you improve network performance, lower network management cost and complexity, adopt new innovations in networking.

Why Dell Technologies

The technology required for data management and enterprise analytics is evolving quickly, and companies may not have experts on staff or who have the time to design, deploy, and manage solution stacks at the pace required. Dell Technologies has been a leader in the Big Data and advanced analytics space for more than a decade, with proven products, solutions, and expertise. Dell Technologies has teams of application and infrastructure experts dedicated to staying on the cutting edge, testing new technologies, and tuning solutions for your applications to help you keep pace with this constantly evolving landscape.

Dell Technologies is building a broad ecosystem of partners in the data space to bring the necessary experts, resources and capabilities to our customers and accelerate their data strategy. We believe customers should be able to innovate using data irrespective of where it resides across on-prem, public cloud and edge. By partnering with Teradata, an industry leader in enterprise data management and analytics, we are creating optimized solutions for our customers.

Dell Technologies uniquely provides an extensive portfolio of technologies to deliver the advanced infrastructure that underpins successful data implementations. With years of experience and an ecosystem of curated technology and service partners, Dell Technologies provides innovative solutions, servers, networking, storage, workstations, and services that reduce complexity and enable you to capitalize on a universe of data.

Conclusion

Whether you want to expand your existing capabilities or get started with your first project, Teradata Vantage Solutions powered by Dell Technologies offer fully integrated and optimized solutions for a wide range of data analytic use cases with rapid time to value. For more information about the solutions, please contact the Dell Technologies Teradata Solutions team by [email](#).

Additional Resources

For more information, please see the following resources:

- [Teradata Vantage](#)
- [Dell PowerEdge R740xd Server](#)
- [Dell PowerEdge R640 Server](#)
- [Dell PowerVault Storage](#)
- [Dell Unity XT Storage](#)
- [Dell ECS Object Storage](#)
- [Dell PowerSwitch Networking](#)