



Complement Teradata with fast analytics

A look beyond Teradata for analytics

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Complementing Teradata with fast analytics



Teradata provides appliance based data management solutions that are well established enterprises around the globe. These massively parallel systems accelerate database workloads using high speed interconnects within, and across computing clusters. In this paper we discuss extending or replacing selected Teradata investments with Actian's Vector technology.



Does Teradata do enough?

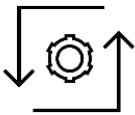
Teradata does provide a credible range of solutions from enterprise class high-end systems to appliance class systems for datamarts, but has it evolved to meet the needs of today's digital enterprise in a flexible and economical way?

Below are some of the top reasons to consider offloading complex analytics from Teradata:



Overcome your analytic backlog: Every organization wants to get more value out of the data they are already generating and storing. Web logs, IoT and customer sentiment technology for example create more data volumes and data types than people have resources to mine for insights. Complex and expensive administration costs tax the resources of the IT department, making them reluctant to accommodate a request from the business for a new data warehouse, or IT is limited from providing developer resources to support new analytics requirements, leaving a business need unfulfilled.

The proprietary nature of Teradata systems make expansion a strain on IT and procurement process, leaving users waiting. Actian's Vector analytics database runs on standard Windows, Linux systems, making them relatively quick to justify, procure and deploy.



Exploit new technology: Deploying a modern solution that runs on standard operating systems such as Windows and Linux on standard servers translates to more choices available for hardware, high availability, management tools than using a proprietary solution.

Actian Vector is a second-generation columnar database that takes advantage of vector processing in modern multi-core CPUs to load columnar data elements into the registers of all the available CPU cores and operating on them in a single instruction cycle. It can be used to accelerate existing Teradata queries or augment Teradata for new analytics.



Address warehouse overload: Rapidly-growing data streams that are increasingly complex, and are generated more quickly and in more varied forms than ever before. As companies seek to gather and analyze this data, they often push their current data warehouse platform to its performance boundaries. Since operational reports and dashboards cannot be impacted without

compromising daily business operations, more intensive analytics are constrained or crowded out when system resources reach their limits. Actian Vector can be used to handle complex analytic workloads outside Teradata on a platform specifically designed to deliver unconstrained analytics. This relieves pressure on the company's existing infrastructure while simultaneously providing business analysts with the tools and data access they need to do their jobs.

This also provides a more robust business continuity option. Organizations that place workloads from multiple business units with competing availability requirements on the same box create an all or nothing BCP strategy which carries risk.



Explore more islands of data: Most companies face the reality that despite their best efforts to consolidate their data analysis to a single platform such as Teradata, demand for insights has created pools of data on Hadoop file systems to exploit Spark extensions for machine learning or graph analytics for instance. Information Technology teams are continuously bombarded with requests to integrate new data types or more detailed data. Whether this data comes from operational systems, external databases, or third-party information providers, it often ends up needing analysis. The sheer amount of data companies must load into their data warehouse can exceed their current capabilities. While some would describe this phenomenon as a curse, most see it as a distinct opportunity.

Business owners and managers do not wish they had less data to work with. To the contrary, even as data warehouses are stretched to their limits, business needs dictate a continued march toward new data that provides a different perspective and increasingly granular data that drives competitive advantage. Actian Vector can read directly from native Hadoop file systems or through popular Spark APIs, so you don't have to load everything into Teradata to provide the business with analytics.

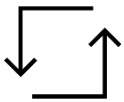


Run ad hoc queries at speed without special tuning: The reason companies store data is to unlock its power for their business. It is typical for companies to run scheduled full-scan queries to build hundreds of data marts, analytic marts, and online analytical processing cubes. All this processing indexes the data for fast retrieval. A data warehouse that is being pushed to its limit also creates a resource drain that quickly becomes prohibitive. It takes time, money, and man-hours to model data, manage workloads, create indexes, and adjust spooling. In-house experts or outside consultants must constantly tune the Teradata platform to enable the information processing demanded by the business.

Scaling the size of a database with more hardware, more views, more indexing and more replication can expand the capabilities of the data warehouse. But the cost of a bigger and bigger data warehouse quickly exceeds the increased benefit the company can achieve. Once again, to make the case for offload, it is

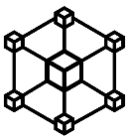
the analytic workloads that require administrative resources far beyond the requirement of reporting and dashboards.

Action Vector eases is easier to administrate than typical analytic data because it extracts columns from traditional relational or big data stores without the need to index it. It even supports updates while maintaining read consistency, cutting down on the need to perform bulk data loads. Administrators don't need to select partitioning indexes because Vector operates on entire columns, compressing data and taking advantage of CPU vectorization to deliver record breaking performance without tuning.



Separate operational and exploratory analytics: Teradata investments already drive better decisions at all levels of the organization via the widespread use of standard reports and dashboards. However, as the organization comes to depend on these systems, any interruption to the existing flows of information cannot be tolerated. Their current use of analytics points the way to what is possible, while also constraining the very resources they need to make deeper analytics possible. In response to these constraints, companies are forced to develop workarounds to support their analytic workloads.

A common mitigating strategy is to restrict access. Stringent processes are set up to protect access to the active data warehouse. If analysts do gain access for their work, there are major constraints. They are not allowed to run queries on demand, but instead must schedule their workloads with the database administrators. These queries often end up running in the middle of the night. Also, since a single ad-hoc query could lock up the entire data warehouse, they are forbidden, or severely limited by spool space. When business analysts finally gain access, database performance can lag due to the nature of their workloads. It is not uncommon to see queries that run for up to 48 hours, or sometimes queries that run out of spool space and won't run at all. Because of restricted access, it is often the case that analysts spend up to 80% of their time gathering data and waiting for their workloads to run.



Handle richer analytics: Deeper analysis leads to new discoveries and a sustainable competitive advantage. This includes a higher number of data points, more advanced multipart processes and algorithms, and a move away from batched runs to more real-time analysis. Analytic offload enables richer analysis along more dimensions. The access to advanced functions creates an environment that supports change. Mean time to change is significantly reduced to the point that analysts can now support market shifts, business movement, and unexpected change.



Enable rapid iteration: The ability to rapidly iterate through the discovery process is perhaps the most valuable outcome of analytic offload. Almost every initiative is measured by time to value. When an analyst can move through eight or ten iterations in a day compared to one, they naturally spend more of their time doing analysis and achieve better results in a quicker time frame. Migrating

workloads to Actian's Vector seamlessly moves complex analytic workloads off Teradata and onto a high-performance analytics platform. This offload strategy provides business analysts with the freedom they need to unlock value for the business while also relieving pressure on the company's existing infrastructure.



Lower cost: Actian vector allows organizations to offload advanced analysis at about one-tenth the cost compared to expanding Teradata to support new analytic workloads.

Organizations must continually explore new ways to exploit operational and market data to be competitive with analytics. Successful companies find new paths to growth and profitability. This paper highlights how Actian Vector can allow you to better meet the needs of business users in a constrained Teradata environment. But don't take our word for it. Take the Actian Vector challenge – take a guided tour of Vector with our experts to evaluate whether it is a fit for your organization. Send an email to sales@actian.com and we'll be in touch very soon.



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