

# HPE Vertica Analytics Platform overview

## The next-generation Big Data analytics platform

### The HPE Vertica Analytics Platform

Fueled by ever-growing volumes of Big Data found in many corporations and government agencies, Hewlett Packard Enterprise offers the Vertica Analytics Platform, an SQL analytics solution built from the ground up to handle massive volumes of data and delivers blazingly fast Big Data analytics. The platform is available in the broadest range of deployment and consumption models, including on premise, on Hadoop, and in the cloud.

- Mature and enterprise-ready
- Maximum scalability
- Blazingly fast performance
- SQL-99 compliant

### Handling today's massive data volumes

In modern data infrastructures, data comes from everywhere: business systems like CRM and ERP, sensors used to gather machine generated data, tweets and other social media data, Web logs and data streams, gas and electrical grids, and mobile networks to name a few. With all this data from so many places, companies often face challenges in simply storing and managing these volumes, never mind performing analytics on that data.

To manage the volume, velocity, and variety of the data, newer, more innovative Big Data analytics platforms have emerged to keep up with the sheer size and complexity. While most of the newly created data is unstructured or semi-structured (email, text, IM, log files), it is the job of these emerging Big Data analytics technologies to combine the known with the unknown to deliver value in ways never before possible. From data monetization to customer retention to compliance to traffic optimization, enterprises that embrace Big Data analytics platforms are changing the dynamics of industries from retail to health care to telecommunications to energy and beyond.

### What are the key technology requirements of a Big Data analytics platform?

So, just what should you look for in a data analytics solution to address today and tomorrow's data challenges? Consider the following:

- **Manage huge data volumes:** You are likely looking to scale limitlessly to store or manage massive volumes. Today, the scale may be gigabytes or terabytes. Tomorrow, you may be thinking about petabytes.
- **Deliver fast analytics:** Users don't want to wait for results. Your solution should provide the scalability to meet service-level agreements (SLAs) and expected timeframes for running a query.
- **Embrace legacy tools:** If your Big Data analytics relies on extract, transform, load (ETL) tools or SQL-based visualizations, your analytics platform should provide robust and powerful SQL and also be certified to work with all of your tools—not just those from your primary vendor.
- **Support data scientists:** The new breed of data scientists are using tools like Java, Python, and R to create predictive analytics. The underlying analytical database should support and accelerate the creation of innovative predictive analytics.
- **Advanced analytics:** Depending upon your use case, it may be important to look at the depth of built-in SQL analytical functions offered by the analytics engine. You have to look under the hood to see exactly what SQL analytics are offered under these volumes, never mind performing analytics on that data.

## HPE Vertica Analytics Platform—no limits, no compromises

Conceived by legendary database guru Michael Stonebraker, the HPE Vertica Analytics Platform is purpose built from the very first line of code for Big Data analytics. Why? Because it is clear that data warehouses and “business-as-usual” practices are limiting technologies, causing businesses to make painful compromises. The HPE Vertica Analytics Platform is consciously designed with speed, scalability, simplicity, and openness at its core and architected to handle analytical workloads via a distributed compressed columnar architecture. HPE Vertica Analytics Platform provides blazingly fast speed (queries run 50–1,000X faster), petabyte scale (store 10–30X more data per server), openness, and simplicity (use any business intelligence [BI]/ETL tools, Hadoop, etc.)—at a much lower cost than traditional data warehouse solutions.<sup>1</sup>

## The technology that makes HPE Vertica so powerful

HPE Vertica is built from the ground up to handle the challenges of Big Data analytics. With its massively parallel processing system, it can handle petabyte scale, and has done so in some of the most demanding use cases in the industry. Because it’s a columnar store and offers compression of data, it delivers very fast Big Data analytics, taking query times from hours to minutes or minutes to seconds vs. outdated row-store technologies built for an earlier era. Finally, HPE Vertica provides very advanced SQL-based analytics from graph analysis to triangle counting to Monte Carlo simulations and more. It is a full-featured analytics system.

Every release of HPE Vertica is certified and tested with visualization and ETL tools. It supports popular SQL, and Java Database Connectivity (JDBC)/Open Database Connectivity (ODBC). This enables users to preserve years of investment and training in these technologies because all popular SQL programming tools and languages work seamlessly. Leading BI and visualization tools are tightly integrated, such as Tableau, MicroStrategy, and others and so are all popular ETL tools like Informatica, Talend, Pentaho, and more.

At the core of the HPE Vertica Analytics Platform is a column-oriented, relational database built specifically to handle today’s analytic workloads. Unlike commercial and open-source row stores, which were designed decades ago to support small data, the HPE Vertica Analytics Platform provides customers with:

- Complete and advanced SQL-based analytical functions to provide powerful SQL analytics
- A clustered approach to storing Big Data, offering superior query and analytic performance
- Better compression, requiring less hardware and storage than comparable data analytics solutions
- Flexibility and scalability to easily ramp up when workloads increase
- Better load throughput and concurrency with querying
- Built-in predictive analytics via Python and Ruby
- Less intervention with a database administrator (DBA) for overhead and tuning

HPE Vertica offers maximum scalability for large-scale Big Data analytics. It is uniquely designed using a memory-and-disk balanced distributed compressed columnar paradigm, which makes it exponentially faster than older techniques for modern data analytics workloads.

## The broadest deployment and consumption models

Available on-premise, on Hadoop, or in the cloud, HPE Vertica offers proven Big Data analytics that can deliver unmatched speed and scale.

- HPE Vertica Enterprise Edition is the modular, on-premise version of Vertica that provides advanced SQL analytics at limitless scale.
- HPE Vertica in the Cloud enables you to take your enterprise license and install it directly on an Amazon, Microsoft Azure or VMware® cloud. If you need extra capacity and have no time to stand up on-premise hardware, this is an attractive option.
- HPE Vertica for SQL on Apache Hadoop® accelerates data exploration and SQL analytics while running natively on an organization's preferred Hadoop distribution.

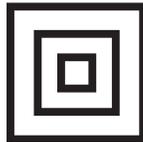
### HPE Vertica in the Cloud

- Get up and running quickly in the cloud
- Amazon AWS, Microsoft Azure and VMware
- Flexible, enterprise-class cloud deployment options



### Core HPE Vertica SQL engine

- Advanced analytics
- Open ANSI SQL standards ++
- R, Python, Java, Spark, Scala



### HPE Vertica Enterprise

- Columnar storage and advanced compression
- Maximum performance and scalability
- Flex tables for schema on read

### HPE Vertica for SQL on Apache Hadoop

- Native support for ORC and more
- Support for industry-leading distributions
- No helper node or single point of failure



**In the Cloud**—HPE Vertica software is optimized and pre-configured to run on Amazon, Microsoft Azure and VMware cloud. HPE Vertica provides users, the agility and extensibility to quickly deploy, self-provision, and integrate with a wide variety of BI and ETL software tools. With the flexibility to start small and grow as your business grows, HPE Vertica enables you to transition your data warehouse to the cloud, to on premises, and back seamlessly. With this level of agility, there's no need to compromise. With the flexibility to start small and grow as your business grows, HPE Vertica enables you to transition your data warehouse to the cloud, to on premises, and back seamlessly. With this level of agility, there's no need to compromise.

**On premise**—The HPE Vertica Analytics Platform is a “shared-nothing,” distributed database designed to work on clusters of cost-effective, off-the-shelf servers, and its performance is scaled simply by adding new servers to the cluster. The grid architecture of HPE Vertica Analytics Platform reduces hardware and scaling costs substantially (by 70 to 90 percent) when compared to traditional databases that require “big iron” servers with many CPUs and SANs. Clustering also speeds up performance by parallelizing querying and loading across the nodes in the cluster for higher throughput.

**On Hadoop**—When used together with Hadoop, HPE Vertica for SQL on Apache Hadoop installs directly in your Hadoop cluster and empowers your organization to use a powerful set of data analytics capabilities and do far more than either platform could do on its own. It offers no single point of failure because it's not reliant on a helper node to query. It even reads native Hadoop file formats like ORC, Parquet, Avro, and others. By installing the Vertica SQL engine in the Hadoop cluster, you can tap into advanced and comprehensive SQL on Hadoop capabilities, complete 100 percent of the TPC-DS queries without modification, and run on any Hadoop distribution.

### Monetizing and making Big Data matter to us all

The HPE Vertica Analytics Platform enables organizations to skip the hype and extract value from Big Data. Here are some examples of organizations that have capitalized on their most strategic asset—their data—with HPE Vertica:

- **Intuit**—Processes billions of transactions to deliver highly personalized and rapid returns for millions of TurboTax tax preparation users.
- **Conservation International**—Helps scientists assess the impacts of climate, people, and land use by comparatively analyzing sites and species on 86 million records in near real time.<sup>2</sup>
- **Cerner**—Improves patient care by analyzing clinician's efficiency in the Emergency Room (EMR) and saved 500 lives to date based on sepsis alert modeling.<sup>3</sup>
- **Democratic National Committee**—Helped re-elect a president with a data-driven approach to marketing that used predictive modeling to optimize when and where to buy television ad time.
- **Guess**—Delivers essential daily store reports via mobile devices for accurate sales tracking, improvements in merchandise allocation and distribution, and insightful customer purchasing behavior.

Try it and make your concept a reality. The HPE Vertica next-generation high-performance SQL analytics engine is available as three integrated offerings to meet your varying needs—on premise, in the cloud, or on Hadoop. Your needs are unique, so your analytics database should be too. Evaluate HPE Vertica today!

Learn more at  
[hpe.com/vertica](http://hpe.com/vertica)

<sup>2</sup> [youtube.com/watch?v=ox-QtXq4mac](http://youtube.com/watch?v=ox-QtXq4mac)

<sup>3</sup> [youtube.com/watch?v=rg3MmgG9YAE](http://youtube.com/watch?v=rg3MmgG9YAE)



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