

Action Vector in Hadoop

Turn Hadoop into a High-Performance, Industrial-Strength SQL Analytics Engine

Key Benefits

Analyze Hadoop Data Faster

Give SQL users turbocharged access to Hadoop data and analytics

Unleash SQL Users on Hadoop

Remove all barriers for business access to big data analytics

Improve Operational Intelligence

Enable more precise analytical predictions and decisions by enriching business analytics with Hadoop data

The World's Fastest Native RDBMS in Hadoop

Action is revolutionizing big data analytics with Action Vector in Hadoop (VectorH), the world's fastest, most enterprise-grade massively parallel processing (MPP) SQL query engine built to run natively in Hadoop. Action VectorH combines the most modern, scalable, high-performing database technology with the power of Hadoop, enabling users to directly query data stored in HDFS. Extreme performance is achieved on commodity hardware, with no database tuning. With Action VectorH, Hadoop data is easily consumable and accessible by business users, programmers, and even applications that need fast access using standard SQL.

Action VectorH brings Hadoop out of the batch-processing environment and closer to your business, allowing for high-performance interactive SQL and analytics processing. When you can drill down on billions of rows of Hadoop data for deeper insights in just seconds, you open up a new realm of possibilities for your SQL-enabled applications.

Vectorized Query Processing

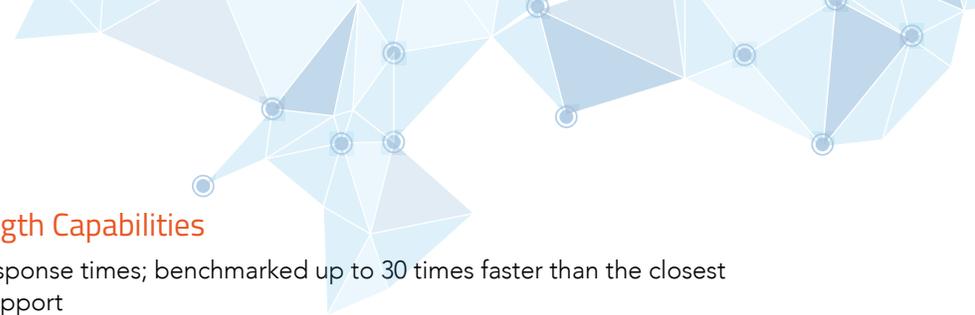
The core technology behind the high processing speeds of Action VectorH is vectorized processing, powered by the hardened, patented X100 query engine. It dramatically reduces the interpretation overhead typically found in other relational database systems. Additionally, it exploits performance-critical features of modern CPUs like super-scalar execution and Single Instruction, Multiple Data (SIMD) instructions. Finally, thanks to its focus on storing data in the CPU cache, main-memory traffic is reduced, which is especially important in modern multi-core systems.

Single Instruction, Multiple Data

SIMD enables a single operation to be applied on a set of data at once. Action VectorH takes advantage of SIMD instructions by processing vectors of data through the Streaming SIMD Extensions instruction set. Because typical data analysis queries process large volumes of data, the use of SIMD results in the average computation against a single data value taking significantly less time than a single CPU cycle.

Ultrafast Performance

Action VectorH was written from the ground up to take advantage of performance features in modern CPUs, resulting in dramatically higher data processing rates compared to all other approaches. As a result, Action VectorH can process Hadoop data much faster than any other relational database. Much faster data processing performance accelerates time to actionable decisions.



Comprehensive Enterprise-Strength Capabilities

- **Performance** – quickest query response times; benchmarked up to 30 times faster than the closest competitor with broader query support
- **Accessible** – standard ANSI SQL:2003 to support standard BI tools; plus advanced analytics including CUBE, ROLLUP, GROUPING SETS, and WINDOWING functions
- **Secure** – native DBMS security, including user and role-level authentication, data protection, and encryption
- **Reliable** – fully ACID-compliant with multi-version read consistency for transactional integrity, plus system-wide failover protection
- **Open** – collaborative architecture for querying native Hadoop file formats without ingestion, and open APIs to allow read access to our block format
- **Concurrency** – highest number of simultaneous users and tasks possible without long wait times
- **Optimized** – SQL, planning, and execution optimization with built-in machine learning to improve over time
- **Parallelized** – optimal use of every node, CPU, memory, and cache-tested to handle the largest Hadoop clusters (more than 100 nodes)
- **Updates** – fine-grained updates in Hadoop (patent pending) allow real-time insert, update and delete of individual records without impacting the performance of running queries
- **Localized** – data stored within HDFS for high-speed data loading and query execution
- **Compression** – data stored in blocks on HDFS using automatically selected smart compression schemes and tuning parameters
- **Columnar** – data stored in a true columnar format for faster scan rates and analytical processing
- **Manageable** – query workloads managed automatically in Hadoop via YARN
- **Provisioning** – intuitive push-button installation and solution setup for public cloud deployments using Actian Management Console

The Only Full Function SQL Query Engine Integrated in Hadoop

Don't be fooled by imitators who claim to offer native SQL in Hadoop support—most have immature low quality SQL support and require you to move your data out of Hadoop. Only Actian VectorH combines the most modern, scalable, high-performing database technology with the power of Hadoop, thereby enabling users to directly query data stored in HDFS.

Up to 30 Times Faster than the Competition

Actian VectorH, the world's fastest database, has been proven to run up to 30 times faster than Cloudera Impala based on performance testing using their published benchmark environment. Give your SQL users and applications the performance and enterprise-grade SQL access they need to do their jobs.

Native Hadoop Support & YARN Ready

Actian VectorH in Hadoop is distribution agnostic and is the first SQL on Hadoop to be YARN ready. It supports all major distributions and versions of Hadoop, including Apache, Cloudera, Hortonworks and MapR.



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