

# Aster Data<sup>®</sup> Analytic Foundation

## Accelerate Development of Rich Analytics

Faced with exploding volumes of multi-structured data from new and emerging sources combined with the urgent need to deliver rapid analytic insights on that data, organizations are demanding analytics that can rapidly explore and investigate massive volumes of multi-structured data. However, building massively-parallel analytic applications has traditionally required extremely specialized parallel programming skills and often relies on complex SQL programming. New technologies such as MapReduce provide a framework to help address the challenges of parallel programming, but existing MapReduce solutions bring significant programming and management complexity of their own. The challenges of complex programming, limited flexibility, limited reusability, and difficult management and integration common to these approaches create significant obstacles to development, testing, and deployment of rich analytics at large scale. Data scientists, statisticians, and other analysts asked to develop these analytics find it impossibly difficult and costly to meet the critical demand for big data analytics.

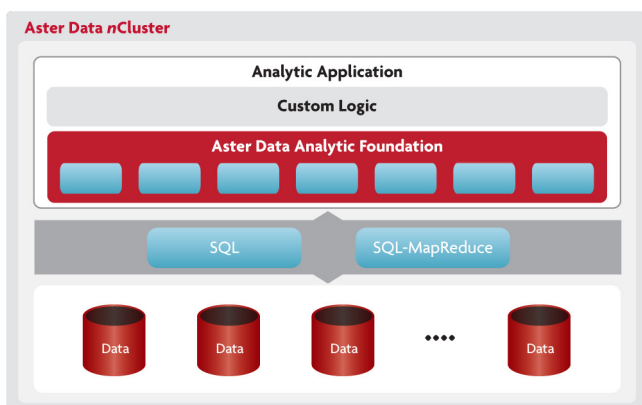


Figure 1: Aster Data Analytic Foundation provides building blocks for advanced analytic applications.

## The Aster Data Solution

Aster Data Analytic Foundation is a powerful suite of reusable SQL-MapReduce<sup>®</sup> analytic functions that simplify and accelerate the development of rich analytic applications. The functions in Analytic Foundation have been designed and optimized for high performance and scalability by leveraging the power of Aster Data's embedded MapReduce analytic engine and patented SQL-MapReduce framework. These building blocks enable developers to simplify and accelerate deployment of analytic applications that deliver high performance and scalability with Aster Data nCluster<sup>®</sup> analytic platform, a massively parallel software solution that embeds MapReduce analytic processing with data stores for big data analytics that incorporate new multi-structured data sources and types.

## Simplify and Accelerate Development

Aster Data Analytic Foundation provides a set of reusable building blocks that can be easily leveraged by custom and packaged analytic applications. Rather than spending time and effort on implementing, testing, and optimizing custom code for common analytic operations, developers can easily use the pre-built functions provided by Analytic Foundation within their applications through the SQL-MapReduce framework. As a result, they can focus on the higher-level logic that is unique to their applications, speeding development and ensuring consistency across their applications.

### Overview

Aster Data Analytic Foundation provides a powerful suite of ready-to-use SQL-MapReduce<sup>®</sup> analytics that simplify and accelerate the development of rich analytic applications.

### Highlights

- Built for parallel processing leveraging Aster Data nCluster's embedded MapReduce engine and SQL-MapReduce framework
- Includes functions for time series and pattern analysis, statistical analysis, relational analysis, text analysis, cluster analysis, and data transformation.
- Easily incorporated into custom analytics through SQL-MapReduce
- Optimized for high performance and scalability
- Easy to use with custom analytics created with the Aster Data Developer Express visual development environment

## Deliver Fast and Scalable Analytic Insights

The analytic functions included in Aster Data Analytic Foundation have been designed and optimized for high performance and scalability. They take full advantage of the Aster Data nCluster system, leveraging nCluster's embedded MapReduce engine and the SQL-MapReduce framework to deliver high performance and scalability. These functions allow developers and analysts to create analytic applications that deliver rapid insights and scale to large data sizes with significantly less time and effort.

## Enable Richer Analytics

Aster Data Analytic Foundation reduces the time and effort required to implement valuable analytic techniques, enabling organizations to focus resources on developing analytic applications that provide deeper insight and more complex analysis of their data. By taking advantage of the performance and scalability of Aster Data nCluster's parallel architecture and embedded MapReduce processing engine, Analytic Foundation enables organizations to create applications that can analyze larger data sets and encompass more data sources than was previously practical. As a result, organizations can create analytic applications that deliver insights that were previously difficult or impractical to provide.

## Aster Data Analytic Foundation Components

Aster Data Analytic Foundation's suite of MapReduce analytic functions can be used and re-used as building blocks by other custom and packaged analytic applications through Aster Data's SQL-MapReduce, which makes it possible for any SQL statement to use MapReduce analytics. It includes analytic functions in the following areas:

- **Time Series and Pattern Analysis** – Discover patterns in sequential data for use in scenarios including predictive analytics and web analytics such as click-stream analysis.
- **Statistical Analysis** – High-performance processing of important statistical calculations for use in applications to analyze portfolios, market prices, consumer behavior, and security.
- **Relational Analysis** – A collection of functions for discovering important relationships among data for use cases that include retail optimization, network analysis, and log file analysis. Examples include:
  - Basket analysis – Create configurable groupings of related items from transaction records in a single pass
  - Graph analysis – Find the shortest path from a distinct node to all other nodes in a graph
- **Text Analysis** – Functions for processing text data to enable statistical analysis and uncover patterns in occurrences of words, word roots, or relative positions of words.
- **Cluster Analysis** – Discover natural groupings of data points for use cases that include behavioral customer segmentation, supplier selection, and fraud detection.
- **Data Transformation** – Transform data in-database for more advanced analysis.

## About Aster Data

Teradata's Aster Data Analytic Platform is the market-leading big data analytics solution. The Aster Data analytic platform embeds MapReduce analytic processing for deeper insights on new data sources and multi-structured data types to deliver analytic capabilities with breakthrough performance and scalability. Aster Data's solution utilizes Aster Data's patented SQL-MapReduce to parallelize the processing of data and applications and deliver rich analytic insights at scale. For more information visit [www.asterdata.com](http://www.asterdata.com).

## Example Use Cases

- Analyze click streams to identify opportunities to optimize websites
- Perform statistical analysis on market prices to create and improve portfolio models
- Explore purchasing patterns to identify key cross-sell opportunities
- Process log files generated by software and systems
- Identify important connections between customers to improve customer retention