DataStax Enterprise enables any workload on an active-everywhere, zero-downtime platform with zero lock-in and global scale.

Built on the foundation of Apache Cassandra, DataStax Enterprise adds operational reliability, monitoring and security layer hardened by the largest internet apps and the Fortune 100.

DataStax Enterprise 6.8 accelerates cloud-native and bare-metal performance, supports more workload types from graph to search and analytics, and improves user productivity with Kubernetes and APIs.

DataStax Enterprise enables enterprises to build transformational data architectures for applications, microservices and experiences that require data sovereignty, availability, scale, agility, and accessibility by any user.
Zero Downtime

Built on Apache Cassandra’s active-everywhere architecture for 24x7x365 availability.

- Automated node/availability zone failover across multiple geographies and cloud providers
- Zero downtime upgrades ensure business continuity
- Support and services from the experts who support the largest Cassandra deployments

Zero Lock-in

Avoid cloud lock-in and keep compatibility with open source Cassandra.

- Automated data replication enables the choice of cloud provider on workload and cost
- Bulk data loading and integrated stream processing ensure data portability
- API compatibility and consistent developer tools with Apache Cassandra

Global Scale

Put your data where you need it without compromising performance, availability or accessibility.

- Data replication across multiple data centers, availability zones, regions, and cloud providers
- Scale-up to petabytes of data without impacting performance
- Built-in disconnection support provides 100% uptime and resiliency even for remote system

Operational Reliability

Enterprise-grade security, monitoring, and support, hardened by the Fortune 100.

- Advanced protection for data assets (e.g., TLS between client and nodes, encryption for data at rest and in-transit, Single Sign On (SSO), and Role-Based Access Control (RBAC))
- Visual management and monitoring enables you to easily provision, upgrade, monitor, backup/restore, and manage your DataStax Enterprise cluster
- Advanced performance capabilities reduce infrastructure requirements and ensure responsiveness of real-time applications
Cloud-Native Data Platform

Native Kubernetes support to tame the complexity of development, operations, and deployment.

- Kubernetes and Cassandra combine to provide a cloud-native data platform with distributed scale-out capabilities for hybrid cloud or on-premises environments
- Kubernetes operator enables automatic lifecycle management for database clusters including configuration, deployment, node restart/replace, and auto-scaling
- Multiple model (key-value, column, graph, document) support with a single-engine to query without sacrificing performance or scalability
- Integrated advanced workloads capabilities to solve your search, analytics, and graph needs

Developer Success

Powerful and productive APIs for developers and operators.

- Built-in support for Kubernetes enables easier cloud operations
- APIs for common security and operations functions using CQL
- Unified data model for a centralized view, scale up as data increases, APIs to import and access data, and built-in analytics
- Store data once and use your API of choice at read time
- Unified drivers across Cassandra and DataStax Enterprise for simplified app development
- Visual developer tool to collaborate, query, visualize, profile and manipulate data
- DataStax Enterprise Desktop to configure and runs developer tools without manual setup
## Capabilities and Benefits

<table>
<thead>
<tr>
<th>BENEFITS</th>
<th>SUPPORTING FEATURE</th>
</tr>
</thead>
</table>
| **Advanced Performance** | • Zero copy streaming provides up to 4x speed of scaling and node recovery *  
                                • Advanced bulk data loader for Cassandra and DataStax Enterprise loads and unloads data 4x faster than the open-source cqlsh *  
                                • Thread-per-core architecture delivers 2-3x the read/write throughput of open source  
                                • Next-generation analytics engine provides 3x the query speed for Spark-based analytics operations  
                                • Storage engine optimizations reduce read/write latencies by up to 50%  
                                • High-performance graph engine with 10x performance improvements *                                                                                                                                 |
| **Enterprise-Grade Security** | • Advanced encryption protects data at rest and in-flight  
                                • Customer support and maintenance including regular patch release vulnerability reporting  
                                • Fully integrated security model which extends to the integrated graph engine, search, and analytics  
                                • Unified authentication and role management (RLAC, RBAC)  
                                • Configurable data auditing and logs filtering                                                                                                                                 |
| **Management and Monitoring** | • Simplified and visual operations and monitoring tools to check, repair, and keep nodes online  
                                • Entropy resolution transparently handles repair operations automatically with very little overhead  
                                • Maintenance automation for tasks such as upgrades, backups, performance metrics gathering, and more  
                                • User traffic governance keeps nodes online  
                                • Tiered storage management moves cold data to lesser used storage devices  
                                • Operational management tool simplifies visual creation, provisioning, administration, backup, and performance monitoring for all clusters  
                                • Configurable trip-wires in Cassandra that will warn or block known anti-patterns  
                                • Incremental Nodesync provides best of breed anti-entropy solution                                                                                                                                     |
| **Multi-Model Data**    | • Top data models supported in one database cluster including key-value, tabular/wide-column, and document  
                                • Integrated analytics and search fully supported across all data models  
                                • Native graph engine with distributed data management model implemented as a native extension of Cassandra *  
                                • "Write once, access multiple ways" capability                                                                                                                                                    |
Graph Engine

- Distributed graphs efficiently solve complex problems from complex data at scale
- One data model for both Cassandra and Graph
- Graph-optimized data model implemented as a native extension of Cassandra's data model *
- Graph-specific API *
- Discovery capabilities focus on the high relevancy of the relationships between your data
- Proven at scale with 10x performance improvements *

Integrated Analytics

- Integrated Spark analytics allows for hybrid transactional/analytical transaction processing and Spark streaming
- Data pipelines provide high-speed data ingestion using Kafka, Spark, and REST APIs
- Real-time analytics on streaming and time-series data
- AlwaysOn SQL allows Business Intelligence (BI), extract, transform load (ETL), and other tools to connect via the Open Database Connectivity (ODBC) and Java Database Connectivity (JDBC) to analyze data

Enhanced Search

- Rich functionality not available in Cassandra including full-text search, faceting, suggester and geospatial search
- Live indexing engine provides automatic indexing on insert, higher ingestion throughput, and distributed query optimization
- A more convenient way to access data that doesn't require complex data models, data duplication, or significant work on the application side to format results
- Accessible via CQL

Extensible Integration

- Drivers with a common set of features for all popular development languages for both DataStax Enterprise and Cassandra
- Bulk data loader to easily move data to and from DataStax and Cassandra 4x faster than COPY commands and community tools
- Third-party integrations prevent vendor lock-in and improve developer productivity by leveraging a wide variety of software and OSS tools
- Integrated stream processing enables automatic data ingestion from Kafka to DataStax and Cassandra
### DevOps APIs
- CQL, a SQL-like query language, makes it easy to retrieve and manipulate data for your applications
- Connector API which allows you to expose tables as Spark Resilient Distributed Datasets (RDDs) where you can execute CQL queries for Spark applications
- Kubernetes API to read and write Kubernetes resource objects via a Kubernetes API endpoint

### Developer Tools
- A notebook styled developer IDE that supports CQL, Spark SQL, and graph code development
- Unified Apache Cassandra and DataStax Enterprise drivers
- Support for a range of popular programming languages
- Spring Boot Starter which streamlines Spring application development
- Integrations with third-party tools such as Apache Kafka, Spark, Docker, etc
- DataStax Desktop configures and runs developer tools without the complexities of manually setting up a database *
- Free online course with hands-on learning experiences, certification, community support, and quick start in the Cloud including Amazon Web Services (AWS), Google Cloud Platform (GCP), Microsoft Azure and Docker images

### Cloud-Native Automation + Elasticity
- Kubernetes and Cassandra combined emerge as the first highly available, scale-out cloud-native data plane
- Cloud-native Cassandra enables shared data/data accessibility between microservices that are deployed in containers
- A Kubernetes operator greatly simplifies cloud-native application development, deployment and scale-out capabilities across mixed/hybrid environments *
- Cluster/node lifecycle management spans on-prem and in the cloud across datacenters with scale-out/auto-scaling capabilities

*New or enhanced in DSE 6.8*
## What’s New in DataStax Enterprise

Primary advancements introduced in DSE 6.8

<table>
<thead>
<tr>
<th>FEATURE/CAPABILITY</th>
<th>WHAT’S NEW</th>
<th>BENEFIT</th>
</tr>
</thead>
</table>
| **Native Kubernetes Support** | • Distributed data plane enables data sharing between containers for data managed with DSE  
• Start, stop, recover, scale and backup DSE nodes through Kubernetes  
• Extensions/integration with other k8s enabled apps and services  
• Metrics collector integration | • Integrates Cassandra with Kubernetes tooling  
• Simplified cloud-native application development, deployment and auto-scale capabilities  
• Unified platform for microservices development and deployment integrated with distributed data management |
| **Zero Copy Streaming**   | • Sender nodes send full copies of sstables along with metadata to respective receiver nodes  
• Receiver nodes no longer need to serialize data and rebuild metadata  
• Splits sstables to accommodate more use cases (DSE 6.8 only)  
• Supports encrypted and unencrypted data | • Significantly faster and more efficient streaming - what took hours now takes minutes  
• Up to 4X faster node addition and removal (compared to prior Cassandra versions including DSE)  
• Scales linearly with throughput/network bandwidth  
• Up to 4x faster recovery from a catastrophic node failure (compared to prior Cassandra and DSE versions) |
| **Graph in Cassandra**    | • Graph data models are implemented directly as native Cassandra data models  
• Graph-specific API and query language provide new coding efficiencies/less code  
• Up to 10x Graph engine performance over prior versions | • Enables Cassandra developers to directly and more easily join, explore, match, and traverse their distributed, large scale data sets  
• Mixed model use cases possible with one data model; model once, access different ways  
• Highly performant, real-time reads/writes for connected data |
Additional noteworthy advancements introduced in DSE 6.8

<table>
<thead>
<tr>
<th>Incremental NodeSync</th>
<th>• Once the token range has gone through the initial validation, only validate new and/or changed data</th>
<th>• Improves efficiency of repair operations by validating new data faster</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guardrails</td>
<td>• Configurable trip-wires in Cassandra that will warn or block known anti-patterns</td>
<td>• Protect clusters by enforcing best practices (e.g. table number and column size limits)</td>
</tr>
<tr>
<td>DataStax Enterprise Desktop</td>
<td>• A cross-platform container-based tool that allows users to quickly explore DataStax Enterprise in a development environment</td>
<td>• Provision the DataStax Enterprise stack in minutes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Run and configure DataStax developer tools manual setup</td>
</tr>
<tr>
<td>Security</td>
<td>• Security: Allow setting of pre-hashed passwords via CQL</td>
<td>• Improvements in security and data protection</td>
</tr>
<tr>
<td></td>
<td>• Security: New TRUNCATE and Update Permissions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Implement encryption on the SSTable Partition Index</td>
<td></td>
</tr>
</tbody>
</table>