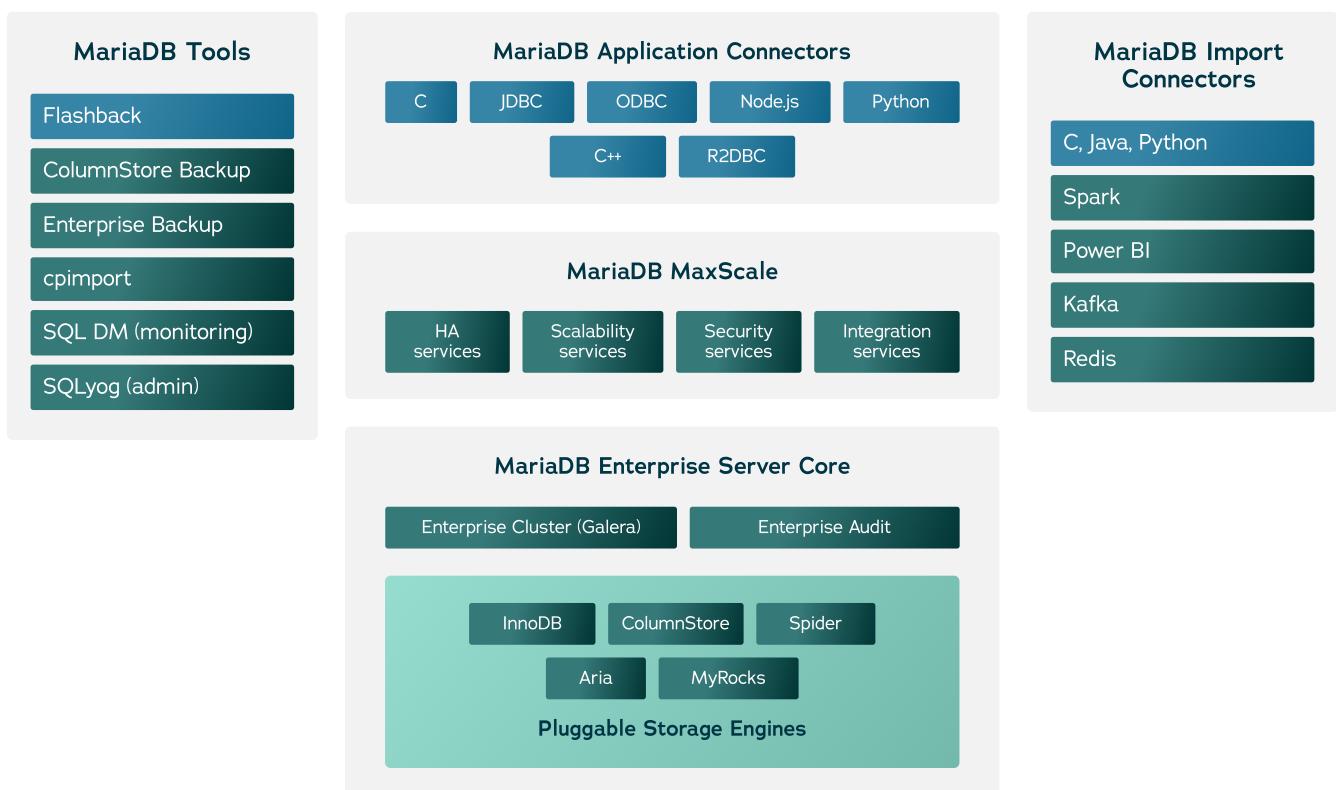# MARIADB ENTERPRISE SERVER

Production-Grade Open Source Database

MariaDB Enterprise Server is a premium version of MariaDB Community Server focused on stability and reliability. It includes additional enterprise features such as non-blocking backups and advanced audit capabilities enterprises need to run in production. Run MariaDB Enterprise Server anywhere – public, private and hybrid cloud. With its purpose-built storage engine architecture, MariaDB Enterprise Server supports transactional, analytical and mixed workloads for relational and JSON data models. Popular new features that have reached a high level of maturity are backported to older release versions so customers do not have to upgrade to the latest version to experience the newest innovation. Companies who switch to MariaDB Enterprise Server from proprietary databases save up to 90% of total database costs.

Product Architecture

MariaDB Tools

- Flashback
- ColumnStore Backup
- Enterprise Backup
- cpimport
- SQL DM (monitoring)
- SQLyog (admin)

MariaDB Application Connectors

C	JDBC	ODBC	Node.js	Python
	C++	R2DBC		

MariaDB Import Connectors

- C, Java, Python
- Spark
- Power BI
- Kafka
- Redis

MariaDB MaxScale

HA services	Scalability services	Security services	Integration services

MariaDB Enterprise Server Core

Enterprise Cluster (Galera) | Enterprise Audit

InnoDB	ColumnStore	Spider
Aria	MyRocks	

Pluggable Storage Engines

ENHANCED

MariaDB Enterprise Server includes features engineered for customers deploying and maintaining large databases with strict high availability, disaster recovery and security requirements. For example, to perform frequent backups without impacting applications and enforce full end-to-end encryption.

HARDENED

MariaDB Enterprise Server undergoes an extensive, thorough and comprehensive testing and QA process to ensure reliability for production deployments. In addition, key features in future releases are backported to prior non-EOL versions to ensure long-term stability and support.

SECURED

MariaDB Enterprise Server is preconfigured for production environments, including default security parameters to enforce account hygiene, remote root and anonymous access, and replication parameters set to enforce durability. In addition, all non-GA plugins are disabled.

KEY BENEFITS

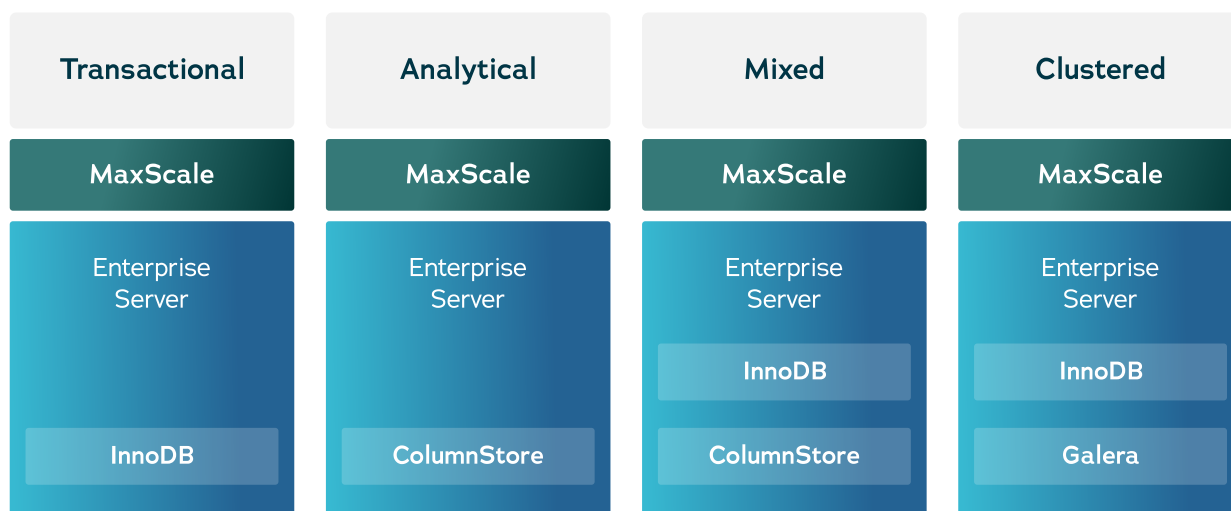### Enterprise High Availability and Clustering

Use MariaDB Enterprise Server with MariaDB MaxScale, an advanced database proxy, to implement enterprise-grade high availability including automatic failover and connection migration, transaction replay, session restore and more. With these powerful features, application users won't see service interruptions if an infrastructure or database failure happens.

MariaDB Enterprise Server also supports synchronous replication and clustering with Galera Cluster with built-in monitoring for cluster, node and session status. MariaDB Enterprise Cluster encrypts transaction buffers and performs non-blocking DDL replication for clusters of three nodes or greater, preferably in an odd-numbered configuration.

One Database – Any Workload

With MariaDB Enterprise Server, one database server is capable of supporting multiple workloads – from transactional to analytical, mixed workloads or structured and semi-structured JSON data. This is possible thanks to MariaDB Enterprise Server's extensible architecture that leverages different storage engines, including InnoDB, ColumnStore, Aria, MyRocks, and Spider, to support different use cases. InnoDB is the most popular general-purpose storage engine for OLTP or transactional workloads, with ColumnStore being the most popular for OLAP or analytical workloads. Different tables can use different storage engines and joins can be performed between tables across storage engines.

Any Workload

Transactional	Analytical	Mixed	Clustered
MaxScale	MaxScale	MaxScale	MaxScale
Enterprise Server	Enterprise Server	Enterprise Server	Enterprise Server
		InnoDB	InnoDB
InnoDB	ColumnStore	ColumnStore	Galera

Essential Features for Enterprises

MariaDB Enterprise Server is built to meet the requirements of enterprises running in production such as needing stronger security, auditing and performance. Non-blocking backups, other online features and more fine-grained auditing capabilities are available with the enterprise version of MariaDB Server only. In addition, MariaDB Enterprise Server goes above and beyond standard security features such as roles and auditing, with advanced data protection and security layers such as complete, end-to-end encryption. MariaDB Enterprise Server can encrypt all data in motion with secure connections (TLS) and at rest, including logs, with transparent data encryption (TDE). MariaDB Enterprise Server can use HashiCorp Vault to delegate encrypted table key management, thereby managing encryption keys outside the database. Finally, only the enterprise version of MariaDB Server comes with security technical implementation guide (STIG) compliance.

Deploy Anywhere

MariaDB Enterprise Server will run on as little hardware resourcing as a Raspberry Pi, laptop or desktop computer. It will also run on any public or private cloud in VMs or containers starting from 1 vCPU and scaling up to over a thousand. MariaDB enterprise products are available in Docker images and can be deployed and orchestrated through a Kubernetes Operator to run in OpenShift and other container platforms. Because MariaDB Enterprise Server can be deployed anywhere, on-prem or in a public cloud, it is an ideal database to support hybrid cloud strategies.

Save Up to 90% of Proprietary Database Costs

With MariaDB Enterprise Server, you can replace proprietary databases and harness cloud economics without lock-in to a single cloud service provider or SaaS offering. MariaDB Enterprise Server supports ANSI SQL, MySQL, Oracle Database, SQL Server and Sybase SQL dialects, making it easy for developers to port existing applications with minor code and schema changes, plus zero requirement to learn new skills. MariaDB customers have imported hundreds of thousands of lines of proprietary database code. MariaDB Enterprise Server is the only enterprise database solution with a 100% open source Oracle PL/SQL compatible implementation. It supports standard Oracle database packages and procedures, including cursors, loops, variables, exceptions and functions such as CAST, LENGTH and SUBSTR. With MariaDB Enterprise Server, customers get an enterprise open source database that meets the same core requirements as proprietary databases at a fraction of the cost.

CAPABILITIES

HIGH AVAILABILITY

- Synchronous replication and clustering (Galera)
- Lossless replication
- Automatic failover
- Last transaction replay
- Transparent query routing

SCALABILITY

- Sharding
- Compression
- Read-write splitting

ADVANCED SECURITY

- Data at rest encryption
- Password validation, expiration and reuse prevention
- User account locking
- Pluggable authentication
- Roles and user resource limits
- Fine-grained user auditing including configuration change tracking
- Query result limiting (i.e., DoS protection)
- Connection attempt throttling
- HashiCorp Vault plugin
- Enforced SSL/TLS connections

SCHEMA

- Bi-temporal modeling for historical data
  - Application-period time, system versioned and combined bi-temporal tables
- Instant ADD/DROP/MODIFY COLUMN
- Invisible columns
- CHECK constraints
- Default value functions/expressions
- Event triggers
- Virtual column indexes
- Spatial indexes
- Descending and composite indexes
- Decimal scale of 38
- Federated tables via ODBC
- Online schema change

DISASTER RECOVERY

- Enterprise non-blocking backups
- Point-in-time recovery
- Delayed replication

PERFORMANCE

- Query optimizer, cost-based with trace
- Thread pool
- Query result caching
- Bulk insert streams

MODERN SQL

- Common table expressions (recursion option)
- Extensive JSON functions
- Ordered-set aggregate functions
- User-defined aggregate functions
- Percentile and median window functions
- Table value constructors
- INTERSECT/EXCEPT ALL
- INSERT/REPLACE... RETURNING

POWERFUL ANALYTICS

- Distributed, columnar storage
- Massively parallel processing with AMD64/ARM
- Statistical functions (e.g., CORR)
- Apache Spark connector
- Apache Kafka connector
- C, Java and Python import clients
- Shared-nothing storage
- Object storage support (Amazon S3 compatible)
- Amazon S3 bulk high-speed imports

ORACLE DATABASE COMPATIBILITY

- PL/SQL compatibility
- Data types and sequences
- Dynamic SQL and cursors with parameters
- Stored procedures and package