

# Couchbase Server 4.6

## Develop with Agility, Operate at Any Scale

### Key Benefits

#### Consistent high performance

Easily support very high throughput rates (>1M ops/sec) with sub-millisecond latency

#### Elastic scalability

Scale easily and efficiently – from a few nodes to many, one data center to multiple – with “push button” simplicity

#### Always-on availability

Maintain 24x7 availability with built-in replication, automatic failover, and zero-downtime online operations

#### Flexible data modeling

Build applications that evolve over time: Since the data model is defined by your application, you can extend and modify it on demand

#### Powerful SQL-based querying

Interact with data easily and in advanced ways by writing concise but powerful queries with *N1QL* (“nickel”) — a declarative query language that extends SQL to JSON

Couchbase Server enables developers to build applications easier and faster by leveraging the power of SQL with the flexibility of JSON, and allows enterprises to operate at any scale: Its modern, distributed architecture can handle millions of operations a second and terabytes of data with ease.

#### General Purpose Database

Couchbase Server is an open source, distributed database engineered for scalability, performance, and availability. It’s a general purpose database that can be deployed as a document database, key-value store, and/or distributed cache.

#### Memory-centric Architecture

Its memory-centric, multi-threaded architecture leverages integrated caching, memory-optimized indexes, and memory-to-memory replication to provide consistent high throughput, low latency access to data, and is capable of fully utilizing multi-core processors and terabytes of memory.

#### Geographic Replication

The cross data center replication (XDCR) protocol enables both unidirectional and bidirectional replication between independent clusters running in different data centers and/or cloud regions for higher availability, faster disaster recovery, and better data locality.

#### Distributed, SQL-based Querying

N1QL is a full-featured, SQL-based query language that extends SQL to JSON and enables low latency queries on distributed data, regardless of scale. It supports filtering, projection, and aggregation as well as joins and subqueries, and utilizes indexes to improve query performance – including simple, compound, partial, functional, and covering indexes.

#### Integrated Dev/Admin UI

A comprehensive, web-based console simplifies development with integrated query editing and schema browsing, and for administrators, simplifies management and monitoring by performing complex tasks with the push of a button, and providing over 200+ metrics on everything from cluster health to individual node performance.

## Query Workbench

An integrated query editor and schema browser for creating and executing ad-hoc queries with built-in formatting, syntax highlighting, and autocomplete.

## Big Data Integration

- **Spark**
  - RDD
  - DataFrame
  - DStream
- **Kafka**
  - Consumer
  - Producer
- **Hadoop**
  - MapReduce
  - HDFS

## Mobile Extensions

- Embedded database
- Offline data access
- Remote Synchronization
- Cross-platform support
- iOS, Android, .NET
- Linux and Java



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## Querying & Indexing

- Certified JDBC/ODBC drivers for integrating with BI, reporting, and ETL tools
- Query editor and schema browser for creating and executing ad-hoc queries
- Left outer and inner joins for powerful querying, flexible data modeling
- Simple, compound, partial, functional, and covering indexes for performance
- Geospatial indexes for querying multidimensional data and complex geometries
- Incremental MapReduce for low latency queries with precomputed results

## Data Access

- Partial reads & updates for accessing and modifying specific fields
- Array operations for inserting, prepending, and appending elements to arrays
- Counters for incrementing and decrementing numeric fields

## Performance & Scalability

- Parallel query execution for leveraging multi-core processors
- Multi Dimensional Scaling for optimized hardware profiles and workload isolation
- Global and/or memory-optimized indexes for faster index updates and scans
- Configurable query consistency for faster queries with higher consistency
- Circular writes for less frequent and minimal compaction, and reduced disk IO

## High Availability & Disaster Recovery

- Rack Awareness for intelligent replica placement on different servers and racks
- XDCR (cross data center replication) for multi-master, multi-site deployment
- Incremental and cumulative backups for faster time to recovery

## Security

- LDAP integration for external identity management and security policies
- Encrypted communications for secure data access and administration
- X.509 certificates for management and rotation with trusted certificate authorities
- Auditing for capturing 25+ types of admin events to meet regulatory standards
- Role-based access control for restricting access to administrative resources

## Administration

- Schema inference for browsing the data model — document types and fields
- Query monitoring for listing/terminating active queries, listing completed queries
- Web-based console for “push button” administration, comprehensive monitoring
- CLI/REST APIs for scripted administration, diagnostics, and configuration

## About Couchbase

Couchbase delivers the database for the Digital Economy. Developers around the world choose Couchbase for its advantages in data model flexibility, elastic scalability, performance, and 24x365 availability to build enterprise web, mobile, and IoT applications. The Couchbase platform includes Couchbase, Couchbase Lite - the first mobile NoSQL database, and Couchbase Sync Gateway. Couchbase is designed for global deployments, with configurable cross data center replication to increase data locality and availability. All Couchbase products are open source projects. Couchbase customers include industry leaders like AOL, AT&T, Cisco, Comcast, Concur, Disney, Dixons, eBay, General Electric, Marriott, Nordstrom, Neiman Marcus, PayPal, Ryanair, Rakuten / Viber, Tesco, Verizon, Wells Fargo, as well as hundreds of other household names. Couchbase investors include Accel Partners, Adams Street Partners, Ignition Partners, Mayfield Fund, North Bridge Venture Partners, Sorenson Capital and WestSummit Capital.