

Couchbase Capella Helping Customers Lower TCO



EXECUTIVE SUMMARY



53% OF SURVEYED ORGANIZATIONS LOWERED TOTAL COST OF OWNERSHIP BY 50% OR MORE SINCE WORKING WITH COUCHBASE



To stay ahead of the competition and keep customers happy, organizations have to constantly reevaluate, evolve, and modernize their custom applications. This requires a continuous investment of time, effort, and money, with a significant portion tied to the database and its supporting infrastructure. To lower total cost of ownership (TCO) in these technologies, IT teams try to use cost-effective software solutions, minimize cloud costs, consolidate technologies, automate manual setup tasks, streamline maintenance work, and leverage in-house skills.

Couchbase has a long history of supporting all these cost-cutting strategies and successfully helping customers lower their TCO. In a survey performed by TechValidate, more than half of our customers stated that by moving to Couchbase they were able to lower their TCO by 50% or more.

This ebook is a guide to the most effective ways your organization can minimize and control costs in the areas of database technology, infrastructure, data transfer fees, and operations. It highlights the many ways that Couchbase Capella™, Couchbase's fully managed Database-as-a-Service (DBaaS), delivers industry-leading price-performance and lowers TCO.

OVERVIEW OF COUCHBASE CAPELLA

Couchbase Capella is a modern distributed multi-model NoSQL DBaaS designed with a flexible JSON data model at its core. Capella provides familiar relational and multi-model data access services to operational and operational analytic applications with numerous advantages such as swift in-memory performance, scalability, mobile app services, consistent availability, and advanced security. These features underscore Couchbase's commitment to providing high-performance operations, distributed cluster networks, mobility, flexible data models, and flexible data access while maintaining incredible value and low TCO.

Fully managed

As a fully managed DBaaS, Capella simplifies setup, configuration, auto-sharding, backups, maintenance, and ongoing operations, which allows teams to focus on development and accelerate time to market. It also brings industry-leading performance, flexibility, and cloud scalability within easy reach.

Packed with enterprise features

Capella provides a scalable JSON document and key-value database with built-in search, eventing, and analytics capabilities. It supports node changes without application modifications and guarantees global data reliability through multicloud clusters. Capella also provides top-notch security with end-to-end encryption and role-based access control, meeting compliance standards such as SOC 2, HIPAA, PCI DSS, and CSA STAR.



Ready for mobile, IoT, and edge

Capella's App Services is a fully managed backend that ensures mobile, IoT, and edge applications are always on, regardless of web connectivity and speed. Developers can use App Services to access and sync data between Capella DBaaS and edge devices, and to manage and authenticate mobile and edge application users. These services help make Capella the fastest, easiest, and most affordable way to get started with Couchbase.

HOW CAPELLA LOWERS TCO

At its core, Capella is a JSON document database that provides great flexibility to quickly build and evolve applications. This translates into numerous ways customers can lower their costs:

- **Schema flexibility:** JSON allows you to store and query data without rigid predefined schemas. Compared to traditional relational databases, this flexibility reduces the effort and cost associated with data modeling and schema migrations. Developers can easily adapt the data model as requirements change, which minimizes development and maintenance costs.
- **Scalability and performance:** Capella's in-memory architecture includes an integrated and highly scalable cache, which is used by some of the world's most high-demand applications to perform millions of operations with single-digit millisecond response times. Capella easily scales horizontally without any application downtime, ensuring high performance and efficient resource utilization as your applications grow. Horizontal scaling avoids costly investments in expensive hardware and database upgrades.
- **Developer speed and productivity:** JSON aligns well with modern application development paradigms by offering high flexibility for designing and evolving data models. Capella allows developers to work with JSON documents using their preferred programming languages, frameworks, and tools. And Capella also uses SQL++ to provide rich query capabilities for both operational and analytics workloads. (See the SQL++ section on page 5.) Together, this familiarity and ease of use increase developer productivity and reduce development cycles and associated costs.
- **NoSQL strengths:** Capella offers a variety of powerful features like automatic sharding, geo-replication, and fault tolerance. These features simplify database administration and enhance data availability, which in turn reduces operational costs and minimizes downtime.



SQL++ PROVIDES FAMILIARITY AND EFFICIENCY

Couchbase uses SQL++ (SQL for JSON) as its query language. SQL++ is used to read, update, and delete JSON documents and can also be used with Couchbase's Analytics Service. Here's how it helps lower TCO:

- **Familiar query language:** SQL is the most popular and widely used query language, so using SQL++ to query JSON documents allows developers and other team members to use their existing SQL skills to hit the ground running with Couchbase. This reduces the need for extensive retraining or hiring specialized resources.
- **Reduced development time:** SQL provides a standardized and efficient way to query and manipulate data, enabling developers to easily construct complex queries and perform advanced data manipulations such as filtering, aggregation, and joining on JSON documents. This reduces the time required to implement custom logic or data processing tasks.
- **Improved interoperability:** Using SQL with JSON documents facilitates interoperability between different applications and systems and improves data exchange. This reduces both the complexity and the cost of data integration.
- **Performance optimization:** Capella provides advanced query optimization with highly flexible indexing options and a built-in Index Advisor utility. This is a much more cost-effective way to speed up queries compared to increasing hardware infrastructure.



MULTI-MODEL PLATFORM REDUCES COMPLEXITY

Capella is a multi-model cloud database platform that supports a variety of use cases and different workload types in a single platform. It allows you to reduce the number of technologies you use, rein in data sprawl, and trim or eliminate expenses.

- **Reduce databases and complexity:** You no longer need multiple types of databases for different types of data access patterns (e.g., document, key-value, caching, transactions, time-series, full-text search, analytics). Capella can handle them all, which reduces the need for separate database management and integration efforts.
- **Reduce licensing costs:** By consolidating databases, you can eliminate separate licensing fees.
- **Reduce hardware costs:** With fewer databases, you require less hardware.
- **Reduce storage costs:** Multiple databases lead to more copies of data, which increases data sprawl. Capella can eliminate most of this replication and dramatically reduce storage costs.





- **Lower operational costs:** Operating multiple databases requires a larger team with specialized knowledge for each database type. Capella reduces the need for a specialized team, which lowers salary and training costs.
- **Improve productivity:** Developers can work more efficiently because they don't need to switch between different databases, APIs, and query languages. This unified approach speeds up project completion times, reducing costs and improving time to market.
- **Scale easily:** Capella gives you the flexibility to scale vertically or horizontally, as well as the flexibility to scale services. You can easily scale up or down based on your requirements while only paying for the storage and compute power you need.
- **Improve data consistency:** By storing more data in one place, Capella reduces both the need to synchronize data between different databases and the issues related to data inconsistency.

BETTER PRICE-PERFORMANCE GIVES YOU MORE FOR LESS

Price-performance is a critical factor in the ability of cloud databases to drive down costs at scale. By considering the cost of high performance when investing in new technology, businesses can optimize their spending and potentially realize significant savings over time.

- **Increase efficiency:** A system with better price-performance can handle more tasks or process more data in less time. Customers often see a large reduction in nodes and hardware needed when they move to Capella from a competitor's product.
- **Improve scalability:** As your business grows, the Capella cloud database platform allows you to scale more cost-effectively. Instead of purchasing significant amounts of hardware or resources to handle increased demand, you can incrementally add to your existing setup.
- **Reduce software costs:** Capella's industry-leading price-performance means you get more for less.

MULTI-DIMENSIONAL SCALING TARGETS SAVINGS OPPORTUNITIES

Another unique Couchbase technology is the fine-grained control over how database services are allocated and used. This technology, known as Multi-Dimensional Scaling (MDS), can help you minimize costs, maximize efficiency, and achieve superior performance. MDS allows you to independently scale specific database services—like indexing, query processing, text search, and data access—in order to align to specific hardware choices and the evolving needs of your application. MDS can significantly lower TCO in numerous ways, such as:



“With Couchbase’s high-density data storage engine, we were able to dramatically improve our total cost of ownership by reducing our storage needs by over 50%.”

— PHIL LUPERCIO,
VP OF TECHNOLOGY, BROADJUMP

- **Workload isolation and performance tuning:** For example, heavy write workloads can be separated from analytic workloads that are read and compute intensive. This ability to performance-match Capella to both its application and its infrastructure helps optimize resource consumption without impacting application performance.
- **Scalability:** MDS provides a granular level of scalability. As your application needs change, you can scale out specific services instead of the entire database. This allows you to grow your infrastructure in a more cost-effective manner, aligning costs more closely with your actual usage.
- **Improved performance:** Isolating workloads can help optimize performance. For example, if a heavy write load is separated, it won’t impact query performance. This is a better use of resources and makes operations more efficient.
- **Reduced maintenance costs:** Isolating services allows you to troubleshoot and maintain individual components without impacting the entire system. This simplifies maintenance tasks and reduces costly downtime.

HIGH-DENSITY STORAGE REDUCES HARDWARE

If you want to optimize disk storage and retrieval, Couchbase’s Magma storage engine efficiently handles very large datasets that don’t fit into memory. Magma can potentially lower TCO by enabling you to:

- **Reduce hardware costs:** With Magma, a smaller percentage of datasets need to fit into memory, which can reduce the need for expensive high-memory hardware machines.
- **Improve disk utilization:** Magma makes better use of disk space and reduces storage needs. This includes automatic garbage collection and data compaction, which dramatically reduces write amplification.
- **Use fewer nodes:** Magma allows for larger data volumes per node, which means you can run fewer nodes.



REDUCED MANAGEMENT GIVES YOU BACK TIME AND MONEY

As a fully managed DBaaS, Capella streamlines database management and allows your teams to focus more attention on your core products or services. This provides numerous ways to reduce your operational costs:

- **Eliminate hardware costs:** With Capella, you don’t need to invest in hardware infrastructure. This significantly reduces costs of hardware acquisition, maintenance, and upgrades.





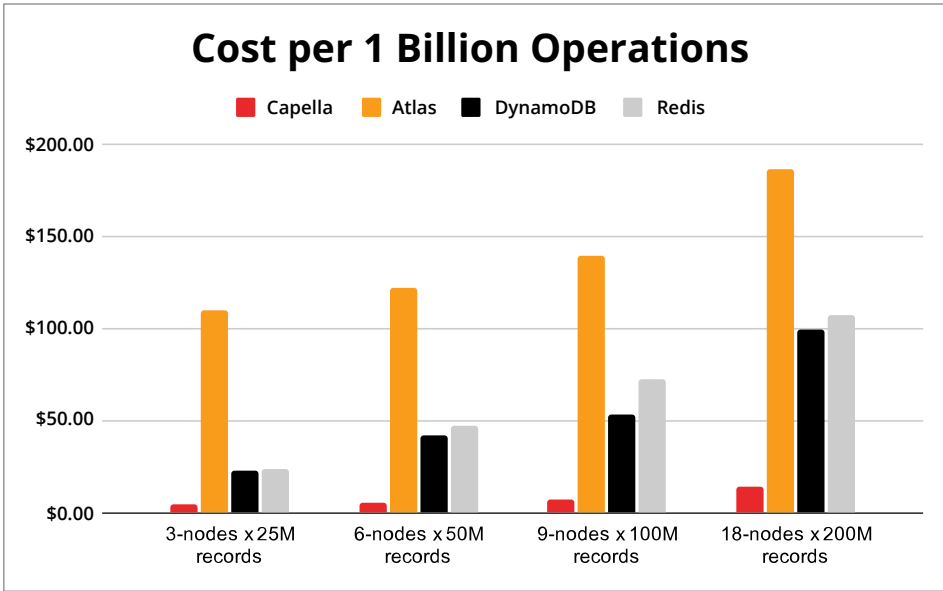
- **Reduce team costs:** Capella handles the majority of administrative database tasks. It lifts the burden of maintenance, upgrades, patching, and security management, which reduces the efforts and costs of in-house teams.
- **Reduce downtime:** Capella's high availability and automated disaster recovery solutions reduce costly downtime.
- **Reduce "On" time:** You can switch your database on and off, both in an on-demand and scheduled manner, which can be used to lower costs in dev/test environments or production systems that may only be needed for certain times of the day or the year.
- **Automate updates:** Capella takes care of software updates and patches, ensuring you always have the latest and most secure version of the database software without any intervention on your part or additional costs.
- **Take advantage of flexible payment models:** Capella offers a variety of payment models to align your costs to your goals. For example, a pay-as-you-go model or long-term volume credit purchases can be used to maximize discounting.

COMPARATIVE PRICE-PERFORMANCE OF LEADING DBAAS VENDORS

In 2023, the IT services and research firm Altoros conducted a commissioned industry benchmark study to evaluate the performance of four of the leading NoSQL DBaaS platforms Couchbase Capella™, MongoDB™ Atlas, Amazon DynamoDB, and Redis Enterprise Cloud. The study revealed Couchbase Capella as the most cost-effective solution, especially in scenarios involving larger data needs and larger hardware configurations. For instance, Capella on 6 nodes consistently outperformed Atlas on 18 nodes across all tested use cases.

In order to further clarify the price-performance of different solutions, Altoros presented the costs of each vendor to perform 1 billion operations within various hardware configurations. The most common benchmark test for NoSQL databases technology is the Yahoo! Cloud Serving Benchmark (YCSB) Workload A. In this test, 50% of the operational workload reads from the database platform and 50% of the workload writes new information to the database. Below is the price-performance graph for YCSB Workload A. Lower figures are better, showing that the vendor can perform a billion operations for less money.





CUSTOMER EXAMPLES OF LOWERING TCO

Many Couchbase customers use the third-party platform TechValidate to share details on the benefits they achieve from working with Couchbase. These include improved performance metrics like higher throughput, lower latency, and faster query speeds as well as financial benefits. Examples include:

Amadeus: A leading technology provider for the global travel and tourism industry.

- Returned value: < 12 months
- Lowered TCO: 50–74%

Trendyol: A top European e-commerce platform that delivers over 1.5 million packages daily across 27 countries.

- Lowered TCO: 75–100%
- Increased operational efficiency: 75–100%

Asia Commercial Bank: A leading commercial bank in Vietnam with an extensive branch network and nearly 10,000 employees.

- Increased operational efficiency: 75–100%
- Improved app uptime: 75–100%

TELUS: A Canadian company that provides a wide range of telecommunications products and services, including internet access, voice, entertainment, and IPTV.

- Lowered TCO: > 100%



Other customer cases studies

Foundries.io offers an Edge-Platform-as-a-Service that empowers clients to construct, roll out, oversee, and link edge and IoT devices using top industry standards. When their database struggled with scaling, they transitioned to Couchbase and achieved a 100x boost in performance. Couchbase also enabled them to resolve an ongoing issue significantly ahead of schedule and at a fraction of the expected cost.

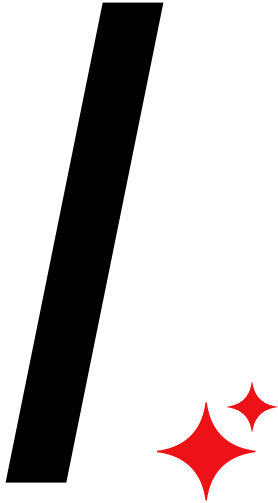
BroadJump is a healthcare analytics firm that helps organizations enhance their expense oversight to lower costs, increase efficiency, and improve the quality of care. In their quest to add database features while cutting costs, BroadJump chose Couchbase. The result? A 50% decrease in storage needs, shorter development cycles, and faster query performance.

Gannett is an American media giant with a digital audience of nearly 140 million monthly users. When Gannett migrated to Couchbase's NoSQL database for enhanced dependability and adaptability, they were able to cut their licensing fees by 75%.

Revolut is a U.K.-based fintech company with a fraud prevention system that uses machine learning to combat financial scams. They chose Couchbase for its speed, flexibility, and scalability, and within the first year improved performance to 75% over industry standards while saving over \$3 million.

BackpackEMR equips mobile clinics with critical technology that boosts efficiency, reduces costs, and refines patient care processes. By collaborating with Couchbase, they were able to use offline-first peer-to-peer networking to introduce a smoother patient interface and slash charting expenses by 20%.

A European SaaS company that provides logistics and route optimization solutions chose Capella and Capella App Services to ensure robust mobile capabilities and quick access, even when offline. They increased their agility, improved cost-efficiency, and eliminated the need to manage backend servers and infrastructure, which together lowered their TCO by over 45%.



CONCLUSION

Couchbase Capella DBaaS simplifies database management and offers industry-leading price-performance to lower your TCO. Here are some of the most important ways Capella helps you consolidate, streamline, and save:

- Provides flexibility, high-performance operations, and advanced security
- Streamlines database setup, configuration, and ongoing operations
- Reduces hardware and labor costs and leverages economies of scale
- Provides schema flexibility, faster development, scalability, and simplified maintenance
- Gives developers the familiarity and efficiency of SQL
- Optimizes resource utilization, scalability, and performance with Multi-Dimensional Scaling
- Supports large datasets, reduces hardware costs, and improves disk utilization with the Magma storage engine
- Ensures always-on connectivity for mobile, IoT, and edge applications via Capella App Services

WHERE TO GO NEXT?

- [Learn more](#) about lowering TCO with Couchbase
- [Watch](#) our cutting TCO webcast
- Explore more customer [use cases](#)
- [Contact](#) our team for a custom TCO evaluation





Modern customer experiences need a flexible database platform that can power applications spanning from cloud to edge and everything in between. Couchbase's mission is to simplify how developers and architects develop, deploy and consume modern applications wherever they are. We have reimagined the database with our fast, flexible and affordable cloud database platform Capella, allowing organizations to quickly build applications that deliver premium experiences to their customers—all with best-in-class price performance. More than 30% of the Fortune 100 trust Couchbase to power their modern applications.

For more information, visit www.couchbase.com and follow us on Twitter.

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