



Bring Database Performance and Flexibility to Your Apps

with AWS and Couchbase Capella



Table of contents

Databases are supposed to help your development, not hinder it.....	3
Build next-generation applications without compromise.....	4
Leverage AWS integrations and links for more of everything	6
Why developers choose Couchbase Capella for mobile and edge development	7
How Nexon speeds time to market with Couchbase Capella on AWS	9
Couchbase Mobile provides seamless syncing for a smooth ride.....	10
Get started.....	11



Databases are supposed to help your development, not hinder it

In a world where you are expected to develop high-performing applications fast, you don't need a database that slows things down. A good database allows developers to focus on building core functionality that queries and fetches data quickly and seamlessly. By contrast, a cumbersome database requires time-intensive maintenance, yields slow query performance, comes with a learning curve, and involves complex migrations. This can prolong development cycles, bloat budgets, and reduce a business's competitive edge.

While moving to the cloud has solved some of the problems inherent to earlier databases, they still need to be well-architected and designed for you to reap the maximum benefits. In fact, research shows that development teams feel they are asked to do too much in too little time and they don't have the technology to support them.¹

Keep it simple with Couchbase Capella

To simplify the way you build, launch, and consume applications, Couchbase created [Couchbase Capella](#), a fully managed database-as-a-service (DBaaS) for enterprise application developers that is fast, flexible, scalable, and affordable.

More than 30% of Fortune 100 companies trust Couchbase

Couchbase leverages the near-unlimited compute and storage of [Amazon Web Services \(AWS\)](#) so you can develop without also having to configure database infrastructure to support your apps. Offering integrations with more than 20 AWS services, Couchbase Capella helps organizations to consolidate databases, customize their development process, see faster development times, and optimize costs.



¹ Couchbase research, 2022

Build next-generation applications without compromise

Seamless and reliable data access strongly impacts the development process and the quality of applications. But developers who want the benefits of multi-cloud databases often do so at the risk of compromising data consistency, security, and cost, among other things.

As a distributed, multi-model NoSQL database built on the world's most comprehensive and broadly adopted cloud platform, Couchbase Capella on AWS removes that compromise. Because it provides cross-cloud querying and a single, unified data layer, you don't need to manage or replicate data across databases and gain transparency. With the flexibility of having multiple services work well together, you can build and redesign apps and release new functionalities rapidly.

The no-strings-attached benefits of Couchbase Capella

Couchbase Capella has everything you like about the database you're already using with none of the downsides. Instead of complex configuration and administration, Couchbase Capella offers flexibility and accelerated development cycles with the added benefit of familiarity.



Adaptability. Couchbase Capella supports multiple data models, including document, key-value, full-text search, eventing, giving you the freedom to choose the model that best fits your needs.

- SQL with the agility and performance of NoSQL
- ACID transactions
- Multi-model services
- Mobile- and edge- ready
- SDKs for 12+ languages
- Global cloud deployments



Performance and speed. Couchbase Capella's distributed in-memory architecture and built-in cache offer high throughput and reduced latency, facilitating swift development cycles and providing app users with the fast response times they expect. It is optimized for high performance and low latency, making it ideal for applications that require fast read and write times and globally distributed teams that need constant availability of their data.

- Cloud-native scale
- High availability
- Geo-replication
- Disaster recovery and backup
- Low-latency cloud to edge
- Real-time analytics

FICO, a financial analytics company that scores 65% of the world's credit and debit cards, saw response times of under a millisecond with Couchbase's memory-first architecture and application uptime 365 days a year, 24 hours a day.

[Learn more »](#)



Scalability. Designed to scale seamlessly and automatically, you can use the DBaaS to easily adjust capacity to meet your applications' needs.

- Built-in caching
- Automatic sharing and rebalancing
- Eventing to accommodate growing use cases
- Independently scale integrated services



Easy UI. Couchbase Capella's simple, intuitive interface makes it easy to set up and use, even for developers who are new to NoSQL databases.

- SQL++ query language
- Dynamic schema
- Single platform
- Automated set up



Cost efficiency. In addition to the pay-as-you-go model of AWS, Couchbase Capella purchases count toward cloud spend commitment.

- High-density storage for excellent price/performance
- Cost-based optimizer

Couchbase Capella can result in ~81% savings compared to some popular DBaaS offerings on the market.²



Reliability and security. Couchbase Capella on AWS guarantees the global reliability of your data across 96 Availability Zones AWS within 30 AWS Regions. It is based on the latest industry best practices of explicit verification, least privilege access, and monitoring.

- Geo-aware clusters
- End-to-end encryption from the SDK to the disk for security and peace of mind
- Continuous intrusion detection system
- Secure architecture of the AWS Shared Responsibility model
- Enablement of industry-specific compliance such as GDPR and HIPAA



2 2022 Performance Evaluation of NoSQL Databases as a Service, Altoros





Leverage AWS integrations and links for more of everything

From security to scalable storage, integrations with AWS tools and services enhance what developers can do with Couchbase Capella.



Grow, facilitate, and communicate

The virtually unlimited storage of AWS enables you to Integrate Couchbase Capella with [Amazon Elastic Kubernetes Service](#) (Amazon EKS) and [Amazon Elastic Block Store](#) (Amazon EBS) to store data and build powerful, scalable applications. Create links with [Amazon Simple Storage Service](#) (AWS S3) to import, combine, query, and analyze data in real time. Facilitate and scale container-based development by integrating and running Couchbase Capella clusters in [Amazon Elastic Container Service](#) (Amazon ECS). For serverless environments, you can create [AWS Lambda](#) functions to communicate with NoSQL documents in Couchbase Capella and run code without provisioning or managing infrastructure.



Monitor, secure, and configure

Improve security with VPC (Virtual Private Cloud) Peering. After spinning up Couchbase Capella clusters, it's easy to deploy them in the cloud by connecting an AWS VPC to a Couchbase VPC, ensuring a more secure connection, even less latency, and faster cloud migrations. VPC peering also helps reduce data output and network address translation (NAT) costs. You can configure applications or services in VPCs as endpoints that connect to VPC peering by creating an [AWS PrivateLink](#). You can also boost monitoring and security with [AWS Identity and Access Management](#) (IAM) and [Amazon CloudWatch](#).



Price Performance with Graviton

With [AWS Graviton](#), powered instances are typically 20% cheaper than similarly configured x86 instances. And because Graviton2 supports 8x DDR4-3200 memory, with always-on 256-bit DRAM encryption, which provides more memory bandwidth compared to x86 platforms, Couchbase Server customers could see infrastructure costs cut in half.³

³ Source: <https://www.couchbase.com/blog/arm-cpu-support-for-couchbase-server-71/>

Why developers choose Couchbase Capella for mobile and edge development

Couchbase Capella is a powerful tool for mobile development thanks to its ability to support offline synchronization that allows apps to operate—even when they are offline or experiencing poor connectivity. Couchbase Lite, which is embedded in Couchbase databases, synchronizes technology between Couchbase Lite and the Capella cloud-based database. This allows mobile apps to support storing, SQL querying, text searching, and data analysis at the edge along with automatic syncing to the server once a device is back online—so changes to data are never lost.

By leveraging SQL, SDKs, and extensive platform and language support, you can build fast and resilient mobile apps. Users can sync, store, query, search, and analyze data from the cloud while you deliver offline-first data access, peer-to-peer syncing, and automatic data conflict resolution. And because it's cloud-based, managing and scaling mobile application backend infrastructure is easy.

Other benefits include:



Authentication and management of mobile/edge users to safeguard access.



Integration with other mobile development tools and frameworks commonly used in mobile development, such as Xamarin and React Native.



Streamlined management and deployment via a single, easy-to-use interface for both DBaaS and mobile sync services.



Support for many mobile use cases, such as gaming, field support, IoT (Internet of Things) data management, and customer experience.

MOLO17 unlocks enterprise data with Couchbase Capella on AWS

MOLO17 provides products and solutions that help businesses replicate and migrate data from any relational database management system (RDBMS) and other NoSQL databases to the Couchbase platform. As a Couchbase partner, the company enables customers to securely unlock enterprise data potential with 100% uptime and uninterrupted business continuity.



The challenge

The MOLO17 team was approached by an Italian technology services provider to build a location tracking and communication application for Barcolana, the world-renowned regatta in the Gulf of Trieste. But lack of connectivity resulted in an hours-long process to find sailors in the open sea and lack of internet connectivity while boats were on the water delayed rescue efforts.

The solution

MOLO17 turned to Couchbase's fully managed backend designed for mobile, IoT, and edge applications. The development team built a location tracking and communication application that offers situational awareness, streamlined information flow, offline availability, near real-time synchronization, and effortless integration with existing databases.

The results

The precise, one-tap location information from sailors now leads to safer events and faster emergency response times. Since launch, the app has seen 200 downloads and resulted in the rescue of 10 boats within minutes, down from hours with the previous solution. Because the app was built on Couchbase Capella for mobile, the Italian Coast Guard enjoys streamlined information flow, offline availability, and near-real-time synchronization, even while the app is in the background.

How Nexon speeds time to market with Couchbase Capella on AWS

Nexon is a global leader in virtual world games and massively multiplayer online role-playing games (MMORPG).



The challenge

The Nexon development team was looking for a way to build with more agility so it could develop and update products faster. This would require the team to move away from the rigidity of some technologies, which had left the team struggling with disruptive downtime and the inability to deploy at scale across multiple regions.

The solution

Nexon chose Couchbase Capella for its high availability and distributed memory-first architecture, which delivers a consistent performance experience for players as game adoption grows. It also provides Nexon's developers with greater agility.

“ Harnessing the power of the cloud through Capella allowed us to deploy applications in multiple regions in parallel quickly and seamlessly. We're thrilled to be working closely with Couchbase.”

- Jae Beom Cho, Director of Game Infrastructure, Nexon

The results

With Couchbase Capella on AWS, Nexon now has a flexible data model that allows them to keep using SQL. The team sees faster access to data along with more controlled data replication across geographies. Additionally, Nexon has dramatically reduced data management efforts while also improving uptime. As a result of these benefits, Nexon can launch new regions in approximately 20 minutes, and was able to achieve a faster time to market with its worldwide launch of Blue Archive in 2021.

Couchbase Mobile provides seamless syncing for a smooth ride

Hammerhead is a technology company that inspires and empowers people to unlock their athletic potential through cycling. At the center of its mission is Karoo 2, the company's advanced cycling computer that features predictive path technology.

The challenge

Using sensors that track and record what a rider is doing, Hammerhead collects data from multiple points —such as heart monitors and GPS—that it must provide to customers regardless of internet connectivity. To ensure a reliable user experience, Hammerhead's Karoo 2 cycling computer must offer uninterrupted syncing capabilities across devices. Additionally, as Hammerhead continued to develop its product, engineers needed a database that could scale quickly and maintain version management throughout rapid, frequent software releases.

The solution

With Couchbase Mobile and AWS, Hammerhead was able to create bidirectional syncing, providing a uniquely connected experience that allowed cyclists to link their Karoo account to various third-party platforms. The offline capabilities of Couchbase Mobile made it possible for users to receive precise navigation regardless of connectivity.

“An overwhelming benefit of Couchbase is not having to worry as we scale. And having the support team behind us if we need anything has really helped us grow our internal expertise as well.”

- Brian Oberholtzer, VP of Software, Hammerhead

The results

Hammerhead's ability to leverage large amounts of data and ensure bidirectional syncing means Hammerhead cyclists receive an always-fast and always-on experience, anywhere, anytime. With the scalability and high performance of Couchbase Mobile, Hammerhead has been able to adopt an agile development approach that supports continued global growth with confidence.





Want to create great apps? Start with a great database

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