



# Couchbase Mobile and Edge Computing Solutions for Government

## Key benefits

- Fast, efficient bidirectional synchronization of data from the edge to the cloud and via peer-to-peer
- Powerful query language and full-text search support on the edge
- Always-on experience even with spotty network availability
- Scalability from hundreds to millions of users
- Built-in enterprise-grade security to safeguard data
- Image-based machine learning to identify/classify objects, faces, fingerprints, etc.
- The market's only on-premises enterprise architecture that includes mobile databases

## Introduction

The purpose of this paper is to summarize the Couchbase Mobile platform and briefly describe a strategic approach for addressing government use cases. Couchbase Mobile is a mature solution in the mobile database stack that has been on the market since 2012. It can be used to address government IoT use cases, which often require lightweight edge computing capability combined with a robust cloud database platform.

Couchbase Mobile is a truly enterprise solution that securely manages data from the edge to the cloud with Couchbase Lite, Sync Gateway, and Couchbase Server.

Modern applications require fast-moving, fast-changing data that can be accessed rapidly from databases capable of handling enormous volumes of transactions. Mobile databases must be able to support high-volume operations on the edge, sync securely to the backend cluster and from peer to peer, and scale as needed—all while transaction volumes continue to increase.

Government operations can use Couchbase Mobile to support modern applications for battlefield activities, patient data collection, catalog inventory collection, field services such as census surveys, and IoT data collection for everything from airplanes to wearable devices. Common Couchbase Mobile use cases in government include tracking military medical procedures in the field without an internet connection, enabling smart cities with thousands of IoT sensors, running digital displays, and managing thousands of personal wearable devices.

## Solution

Couchbase Mobile includes three key components:

- **Couchbase Lite**

A full-featured embedded NoSQL JSON database that enables offline applications and multiple internet-connected databases on a single device. It supports query, full-text search, automatic notification of cross-referenced data, and database encryption capabilities for data in transit and at rest.

- **Sync Gateway**

A middle-tier component that automatically manages the synchronization and potential conflict of data between the edge (Couchbase Lite) and the backend data store (Couchbase Server) while enforcing access control to prevent unauthorized data access.

- **Couchbase Server**

A distributed NoSQL JSON database for managing data in any public or private cloud or on premises.



## Key features

The key features of the Couchbase Mobile solution includes:

### PEER-TO-PEER SYNCHRONIZATION

Enable offline applications to securely communicate directly across devices in order to support federal services such as battlefield activities, patient data collection, census surveys, and IoT data collection.

### PREDICTIVE QUERIES

Use on-device databases and pretrained machine learning models to enable your mobile apps to compare images and present the closest match.

### DELTA SYNC

Significantly cut bandwidth consumption by synchronizing only data that has changed. Can be used between clients and Sync Gateway, or directly between clients using peer-to-peer synchronization.

### ENHANCED CONFLICT RESOLUTION

Resolve data conflicts that result from concurrent updates to data on multiple devices. The system automatically resolves conflicts using built-in policies or custom user-defined policies.

### DATA RECOVERY ON THE EDGE

Use a backup to recover data on a damaged edge device. On-device replicas offer high availability and disaster recovery.

### ON-DEVICE ENCRYPTION

Secure sensitive data at rest by encrypting the local embedded database.

### COMPREHENSIVE PLATFORM SUPPORT

Build offline-first experiences for apps running on mobile (iOS, Android, Windows) and non-mobile (desktop and embedded) platforms.

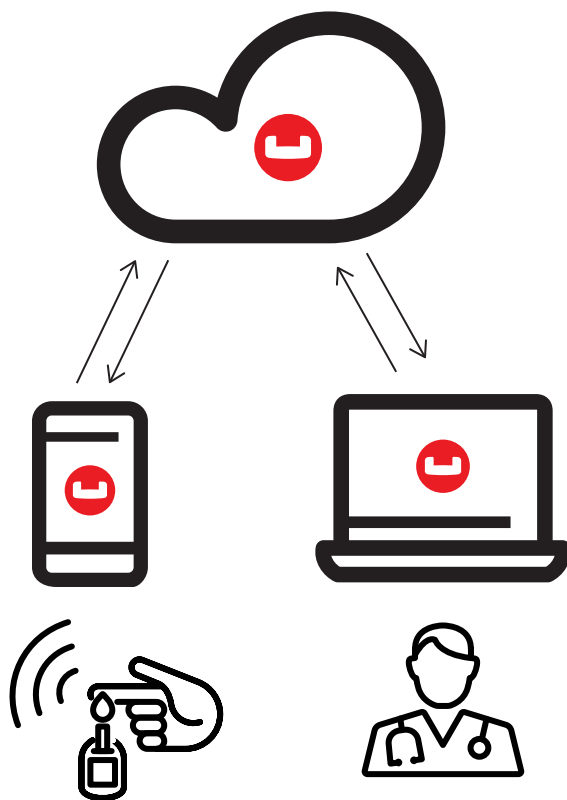
### FLEXIBLE DEPLOYMENT

Couchbase Mobile offers the market's only on-premises installation of enterprise mobile software architecture.



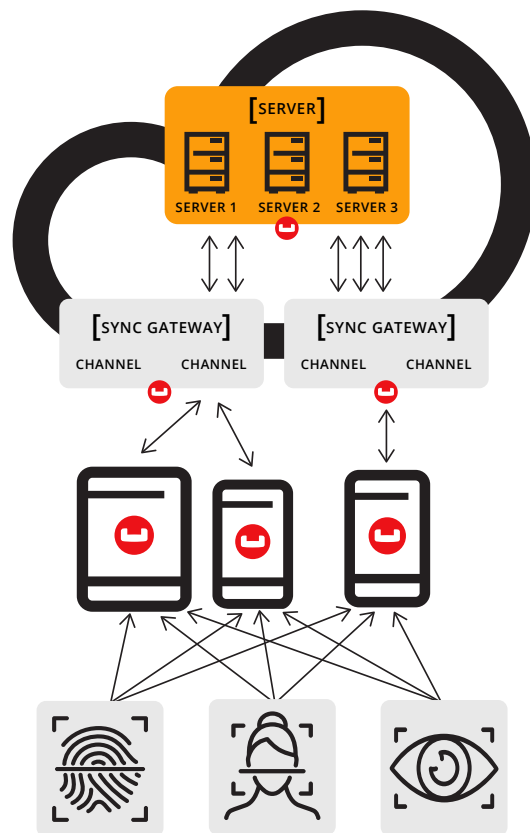
## Sample use cases

Here are two common government-related Couchbase Mobile use cases:



### STREAMLINE HEALTHCARE

Many healthcare organizations use Couchbase to design applications that simplify the lives of patients and medical staff by minimizing the complications and barriers associated with disease management. Couchbase makes it simple to synchronize between patient and doctor devices while also supporting built-in auditing, role-based access control, and encrypted communication. These capabilities offer tremendous value to government agencies in field service scenarios such as collecting patient data with different user profiles or optimizing task assignments outside the office.



### COMBAT THEFT AND FRAUD

Thwart thieves and fraudsters by using modern biometrics to collect fingerprints, facial profiles, retinal scans, and voice samples. Metadata collected about biometrics is easily stored using NoSQL, and NoSQL is much more adaptable than other solutions for new data types and evolving biometric regulations.

How does your organization efficiently and securely collect information in the field?



## COUCHBASE MOBILE RESOURCES

- [Learn more about Couchbase Mobile](#)
- [Couchbase Mobile developer portal](#)
- [Why is Couchbase Mobile a great solution for modern app development](#)

## Summary

Couchbase provides a complete edge-to-database solution, including an enterprise-class database that's cloud native and ideal for multicloud strategies. Couchbase utilizes a memory-first architecture and supports mission-critical applications on a highly scalable distributed platform that meets all the requirements of modern government agencies.

The Couchbase Mobile solution is designed to provide data synchronization for interactive mobile and IoT applications. An offline-first approach ensures that application users always have fast, reliable access to their data. End-to-end security ensures that data always remains within the control of the agency and meets the requirements of government systems.

Couchbase Lite is a mature and proven edge database. Sync Gateway is a secure web gateway for data access and synchronization. Couchbase Server is a highly flexible and scalable enterprise-class multicloud to edge database with robust capabilities. Together, they offer government organizations a secure high-performance solution that's unmatched in the mobile database application marketplace.

## Learn more

To learn more, contact your Couchbase sales representative today or visit: [www.couchbase.com](http://www.couchbase.com)

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.



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