

## Delivering Operational Efficiency and 30% Cost Savings with Couchbase



**Türk Telekom**, a 180-year-old telecommunications company, serves 52.6 million subscribers across the 81 provinces in Türkiye. The company provides communication and fiber infrastructure services across landline, cellular, internet, streaming, and digital services. It was paramount for Türk Telekom to keep the technology infrastructure evolving to offer customers innovative solutions, and this drove its transformation from a telecommunications to a technology company.

### Challenges

- Simplify the tech stack and reduce database management
- Needed a highly scalable and cost effective database to handle applications with extensive data volumes and heavy user traffic
- Ability to maintain data copies across multiple servers

### Outcomes

- 50% reduction in time and labor through consolidating databases under a single solution
- 40% hardware savings and 30% reduction in costs
- Couchbase's distributed data architecture and XDCR automatically maintain data copies across multiple servers, minimizing the risk of information loss
- 360-degree view of customers helps provide a faster and more reliable experience

### Industry

- [Telecommunications](#)

### Customer application

- SMS messaging application

### Use case

- [Customer 360](#)

### Product

- [Couchbase Server](#)

### Key features

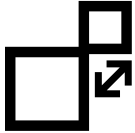
- XDCR
- Full Text Search
- SQL++



**“Couchbase’s scalability, high availability, and data redundancy capabilities offer optimal solutions for regulated industries like ours.”**

— Mehmet Fatih Bekin, Data Center and Cloud Services Director, Türk Telekom

Türk Telekom is leading Türkiye's digitalization process with a comprehensive roadmap that covers all aspects of life, from infrastructure to superstructure. Türk Telekom's digital transformation strategy drove an immediate need to implement an efficient and scalable SMS system. The company turned to Couchbase's platform to provide speed, flexibility, cost management, and ease of use to the business.



## THE CHALLENGE: LACK OF SCALABILITY AND RESOURCE OPTIMIZATION

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Türk Telekom adopted a customer-centric approach to meet rapidly evolving communication and technology requirements. The company's focus is on shifting applications into microservices while managing PaaS (Platform as a Service) infrastructures, DevOps processes, and open-source databases.

One key challenge in selecting a database management system (DBMS) was scalability and resource optimization. Traditional solutions focus on scale-up approaches that are prone to host highly hardware-dependent and passive idle resources. This caused cost inefficiencies and performance bottlenecks for Türk Telekom, particularly for applications handling extensive data volumes and heavy user traffic. The no-master architecture and horizontal scale-out capabilities Couchbase offers play a significant role in addressing such challenges. First, allowing active utilization of all resources within the cluster, leading to high availability and resource optimization. Secondly, providing 24/7 service ensures uninterrupted and stable operations of applications which is of critical importance for maintaining business continuity and enhancing customer satisfaction.

Another concern for the company was data consistency and redundancy. Couchbase's distributed data architecture and cross-data center replication (XDCR) automatically maintains data copies across multiple servers minimizing the risk of information loss while eliminating the "single point of failure" issue.

"Couchbase's scalability, high availability, and data redundancy capabilities offer optimal solutions for regulated industries like ours. These advantages have a direct impact on increasing our operational efficiency", said Mehmet Fatih Bekin, Data Center and Cloud Services Director, Türk Telekom.



## THE SOLUTIONS: CONSOLIDATING DATABASES INTO A SINGLE SOLUTION

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Türk Telekom delivers personalized, marketing solutions to their customers in the form of bulk SMS messages through its "Hızlı SMS" (Fast SMS) project. The company initially planned to use multiple database management systems, however, after evaluation it realized Couchbase would address both the RDBMS and the NoSQL needs of the business within a single platform.



It became a requirement for the company to transition from an outdated framework application platform to a modern and flexible structure. Accordingly, migrating the application platforms to a PaaS model enhances flexibility, scalability, and overall efficiency.

Switching to Couchbase provides:

- **Microservices** support provides a robust infrastructure that enhances system modularity and flexibility, allowing each microservice to manage its own database. This reduced inter-system dependencies, improved scalability, and streamlined data management. The compatibility with microservices made operations more efficient and cost-effective.
- **Application modernization** was crucial. Leveraging both an active-active and a distributed architecture strengthened database management, ensuring high availability, uninterrupted data access, and greater flexibility to meet requirements.
- **Lightweight in-memory processing** capacity resulted in extremely low latency across various applications. This enabled real-time processing and analysis tasks that require exceptionally high performance.
- **SQL++** supported developers running sophisticated queries on complex data, significantly boosting application efficiency. Couchbase's full-text search and analytics uncovered valuable insights from data, enhancing strategic decision-making.

Türk Telekom is optimizing resource planning through precise data modeling, aligning database architecture with specific needs, and ensuring efficient company resource utilization. This strategic decision streamlined system complexity while yielding substantial savings in hardware and maintenance costs.

“The architectural simplification achieved in the project has been particularly gratifying since we could consolidate the management of various structures like Redis, Mongo, and PostgreSQL under a single solution”, said Bekin.



## THE RESULTS: IMPROVING THE CUSTOMER EXPERIENCE AND INCREASING ROI

Türk Telekom is taking firm steps in its digital transformation journey by placing application modernization at the heart of the process. The company is aware that every decision made is aimed at increasing customer satisfaction and maximizing operational efficiency.

The “Hızlı SMS” project is an example of improving the customer experience through modernization. Now advertising and informational SMS are sent through application APIs, enabling faster transmission times even for SMS exceeding 160 characters. The technology has provided Türk Telekom with a significant performance advantage in terms of data processing speeds. It is distinguished by the integration of 25 different services operating on the OpenShift platform, managing real-time data flow through Kafka Topics.



“By implementing this solution, we reduced time and labor by 50%, achieved 40% savings on hardware, and cut licensing cost by 30% (resulting in \$200,000 savings),” exclaimed Bekin. “This cost advantage has significantly enhanced the project’s total return on investment (ROI) and bolstered our competitiveness in the SMS market”.

Furthermore, the solution has been transformative by consolidating multiple legacy systems into a single platform, simplified infrastructure, and streamlined management. The user-friendly setup interface and operational ease have freed up time for teams, allowing more focus on innovation and development.

In today’s dynamic technology landscape, this comprehensive approach has given the company a competitive edge and elevated the quality of services delivered to customers.

“Partnering with Couchbase has provided a 360-degree view of customer behavior, all in support of Türk Telekom’s digital transformation strategy”, replied Bekin.

“We are taking firm steps towards solidifying our leadership in the industry and enhancing our capacity to deliver faster, more reliable, and cost-effective services to our customers.”



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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 run 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](http://www.couchbase.com) and follow us on X (formerly Twitter) @couchbase.

