

# Fast, affordable access to consolidated patient data

MedicaSoft is an independent company that provides cloud-based, HIPAA-compliant software solutions and Health IT services to healthcare providers, payors, and health information exchanges. Their flagship product, the [NXT Platform](#), parses, cleans, normalizes, transforms, and enriches large volumes of clinical and claims data in real time.

When MedicaSoft needed a database that could move data quickly to fulfill medical record requests, they turned to Couchbase for a highly secure, available, and scalable solution.

## Challenges

- Required a database that would enable responses to all patient record inquiries within 30 days of submission to ensure compliance with the Cures Act and HIPAA.
- Database had to handle many feeds of clinical data while remaining highly secure, available, and scalable.
- Needed a cost-effective solution to power affordable services for nonprofit organizations with limited budgets.

## Outcomes

- Couchbase is the central solution, storing data as JSON documents to make it highly accessible via APIs.
- Collects 50–200 feeds of clinical data from all the hospitals in a given state, comprising 100K to 2M documents per day – 100 billion JSON documents across all clients.
- The ability to capture data accurately enables MedicaSoft's customers to keep patient data safer, catch clinical errors effectively and protect the health and safety of each patient while providing a compelling price point.

## Industry

- [Healthcare](#)

## Customer application

- Health data platform

## Use case

- Operational analytics
- Content management
- Customer 360

## Product

- [Couchbase Server](#)

## Key features

- In-memory database

## Cloud partner

- [AWS](#)

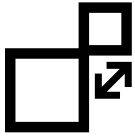


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— Paul Bradley, Chief Technology Officer, MedicaSoft



The data used by the NXT Platform is received from disparate sources in multiple formats and converted into a data repository that uses the Health Level Seven (HL7) Fast Healthcare Interoperability Resources (FHIR) format. Use of the HL7 FHIR standard ensures that healthcare organizations are interoperable – that they are able to store, retrieve, update, and share patient data in an efficient and secure manner while ensuring that it’s usable for everyone who is authorized to access it.



## THE CHALLENGE: Providing disparate data quickly and affordably

With the passage of the 21st Century Cures Act, HIPAA legally entitled patients to the timely release of their medical records. Typically, covered organizations must respond to each request a patient makes for their medical records within 30 days of submission.

To handle these requests in a timely manner, MedicaSoft needed a secure, high-performance database. It also needed to be able to handle many feeds of clinical data while being highly secure, available, and scalable. Cost was another key consideration. Since many of the organizations MedicaSoft supports are nonprofits with limited budgets, economical service delivery is crucial to the value proposition.



## THE SOLUTION: A highly flexible NoSQL database in the cloud

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MEDICASOFT



When MedicaSoft initially developed its Personal Health Record (PHR) solution for the United States Postal Service, they evaluated relational databases and NoSQL databases as options to power their solution. Ultimately, the architecture team and lead developers chose Couchbase on Amazon Web Services (AWS) due to Couchbase’s rich set of features and superior performance.

Storing and processing clinical health data is transaction-intensive and MedicaSoft recognized that Couchbase was the best option to provide the support they needed. Since then, as MedicaSoft has expanded its solution to benefit additional customers, including hospitals and clinics, Couchbase’s flexibility and scalability have been essential elements as the volume of data stored and processed by MedicaSoft has experienced exponential growth.

“There are other solutions out there, but none of them meet our functional and performance requirements as well as Couchbase,” said Paul Bradley, Chief Technology Officer at MedicaSoft. “It’s a very strong solution with the performance and scalability we were looking for. As a Healthcare IT company, we choose to undergo the HITRUST certification process and to meet the most stringent security requirements. Couchbase meets all of these requirements quite well.”



Couchbase is the central technology behind MedicaSoft's data-driven offering, storing the data within JSON documents to make it easily accessible via customers' APIs. The ability to capture data accurately enables MedicaSoft to keep patient data safer and catch clinical errors effectively. Peer-to-peer exchange allows different providers to access records more easily when a patient switches providers. MedicaSoft's platform also supports sophisticated analytics capabilities.

MedicaSoft is also pleased with the way Couchbase works smoothly on AWS. "We've used AWS from the beginning and they're a great partner," said Bradley. "Their new services make deployment of new solutions easier. Along with the security aspect – providing HITRUST and HIPAA compliant solutions – it makes it easy to continue to use their services."



## THE RESULT: High performance at a low price

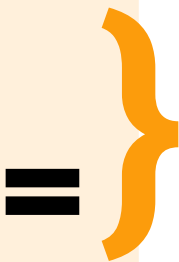
MedicaSoft's goal with the NXT Platform is to provide a longitudinal record for every patient with an electronic record. For example, if a patient gets blood work done at a lab, X-rays done at a different clinic, visits various specialists, and has a different provider for primary care, the platform will aggregate all the data from these different sources into one complete record under that patient's unique medical record number. This allows any provider to see the patient's complete clinical record over a period of years.

Typically, MedicaSoft's customers collect 50-200 feeds of clinical data from all of the healthcare providers in a given state, comprising a total of 100,000 to 2 million documents per day. The number of JSON documents across all clients is roughly 100 billion, with record sets based on a unique identity totaling 70 million.

Before the data is fully ingested into the system, it undergoes significant normalization and enrichment processing. Once ingested, the data can then be accessed by healthcare providers in real time as needed. One of the main benefits to providers is MedicaSoft's high-performance FHIR API, which offers providers the ability to get data in and out of the database quickly.

"Clients select us because we provide a highly secure, available, and scalable cloud-based solution," said Bradley. "We can deploy Couchbase in our AWS infrastructure and keep it running at scale to meet our customers' performance demands."

In healthcare, the landscape changes quickly, including constantly shifting requirements of new regulations. Along with these changes come new competitors who like to claim they can provide the same features and level of service as MedicaSoft. But with the flexibility and scalability of Couchbase built into its platform, MedicaSoft is well equipped to adapt and evolve rapidly. This technical advantage along with their robust solution and years of experience give them a competitive edge that isn't easy to overcome.



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"As these new standards and regulations continue to evolve, architecturally it's not a problem for us," said Bradley. "We have a schemaless database built on Couchbase, so any changes become straightforward extensions. Whereas if we had a relational database it would be much more difficult to manage. The fact that we can evolve the platform as standards evolve is a huge value and an important part of what we do."

Although competition in the healthcare data space is fierce, MedicaSoft has carved out a niche by focusing its NXT Platform solely in the healthcare sector and by aligning the Platform's core features and support model with the practical requirements that healthcare customers must meet in their fast-paced day-to-day operations.

With Couchbase at its core, MedicaSoft's NXT Platform is well-equipped to continue offering providers and payers the capability to see their patients' complete medical history and the opportunity to use that information to achieve better outcomes and improved efficiencies.



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](http://www.couchbase.com) and follow us on Twitter.

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