

CASE STUDY

**Softserve Helps Fortune 500
Healthcare Provider Implement
Centralized Platform In 3000 Clinics
With Google Spanner**

softserve

Client Background

Our client is a Fortune 500 health care provider and the largest provider of kidney care services in the U.S., leading in clinical quality and innovation for 20 years. The company treats patients with chronic kidney failure and end stage renal disease. Through these efforts, our client has also become the largest provider of home dialysis in the country.

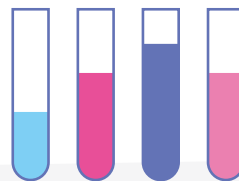
Business Challenge

Our client was faced with a number of business needs that prompted them to search for a new solution:

- Possibility to use a single application in all the clinics
- Single login IDs
- Ensuring easy system and data accessibility
- Avoiding data redundancy
- Easy training of new teammates
- Role based menus/modules
- System generated worklist of patients who need attention
- IT focused on individual roles

To meet their business needs our client introduced a new innovative centralized solution developed to replace the existing hosted in clinics set of core applications. The platform was developed based on DB2.

The platform's estimated support load includes 3,000 clinics, 200,000 patients, 100M orders (critical volume), and 57,000 users (1,000 concurrent users).



However, our client's architecture could not support business expected SLA for performance. Challenges included:

- Data quality and integrity
- System stability
- Performance at scale
- Time to business value delivery
- Disaster recovery
- Operational cost efficiency

To address these challenges, our client decided to transfer the platform from its datacenters to Google Cloud and from DB2 to Google Spanner.

SoftServe was consulted to implement a PoC to move data to Google Spanner to set up our client's system and prove that performance could support all 3,000 clinics.

The platform features capabilities that can address implementation challenges including:

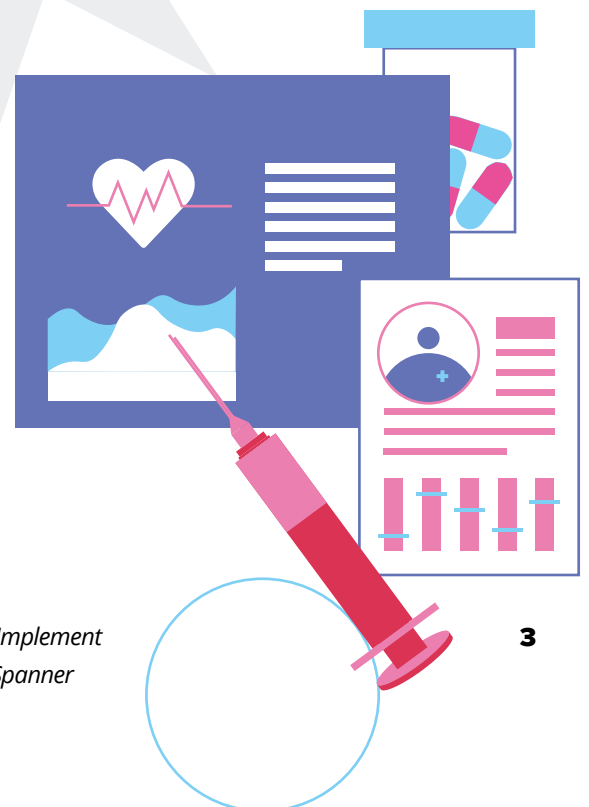
- Ability to use the platform in all clinics
- Horizontally scalable Cloud Spanner
- Manageable utilization and scalability of Google Cloud
- Security protection capabilities of Google Cloud
- System health monitoring and stability support
- Data analytics capabilities essential for predictive medicine

Project Description

Platform design principals include multi-domain (microservice) architecture (patient, facility, order management, order fulfilment), CQRS (Command Query Responsibility Segregation), and event pattern for communication with other domains/systems.

SoftServe identified critical gaps in our client's current solution:

- Existing DB2 database could not provide the expected performance at scale
- With the existing denormalized data model and configuration of Elasticsearch, changes to master data was very time consuming
- Data duplication in multiple data sources DB2/WXS/Elasticsearch caused integrity and consistency issues
- On-prem hosting limited flexibility, slowed time to value, and increased operational cost



From an allocation perspective, the project concerns the group of microservices deployed in the existing solution environment. SoftServe was tasked with using Google Spanner (vs DB2) for these services to mimic the behavior of the existing ones. The application stack is Spring-cloud centric and uses Java programming language. The main communication channels of the application are REST and Kafka as a message log.

SoftServe moved part of the storage from the client's private cloud and on-prem database to the public cloud (GCP). In addition to the ability of horizontal scaling of data storage provided by GCP, SoftServe gave the client a better understanding of hybrid cloud solutions from technological, organizational, and business perspectives.

To move data from a live system to the cloud and mitigate the possibility of data loss and maintain the ability to remain flexible in performing go/no-go decisions at any stage of the project, SoftServe created a specific transition process which is a combination of the hot-warm data recovery and canary deployment.

SoftServe also designed and implemented a dedicated audit tool to better ensure data consistency. This tool selects random data in the background (silent mode) and performs its consistency comparison — considering data model differences caused by technology limitations and optimizations made. To keep the existing SLAs along with the advantages of cloud storage, SoftServe revisited and optimized the database-application approach to reduce the network and database load.

As our client continues developing the application, SoftServe developed a plan to continue development concurrently with the migration process.

Value Delivered

SoftServe delivered a timely migration of a portion of our client's application, proving that such a migration of data was possible. The PoC provided to our client demonstrated the feasibility of a data migration to GCP. The implementation of the project will give our client the opportunity to operate this platform in all 3000 of its clinics.



ABOUT US

SoftServe is a digital authority that advises and provides at the cutting-edge of technology. We reveal, transform, accelerate, and optimize the way enterprises and software companies do business. With expertise across healthcare, retail, media, financial services, software, and more, we implement end-to-end solutions to deliver the innovation, quality, and speed that our clients' users expect.

SoftServe delivers open innovation—from generating compelling new ideas, to developing and implementing transformational products and services.

Our work and client experience is are built on a foundation of empathetic, human-focused experience design that ensures continuity from concept to release.

We empower enterprises and software companies to (re)identify differentiation, accelerate solution development, and vigorously compete in today's digital economy—No matter where you are in your journey.

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NORTH AMERICAN HQ

201 W 5th Street, Suite 1550
Austin, TX 75703
+1 866 687 358

1 University Avenue Suite 11-112
Toronto, ON M5J 2P1
+1 647 948 7638

EUROPEAN HQ

14 New Street
London EC2M 4HE
+44 (0) 800 302 9436

info@softserveinc.com
www.softserveinc.com

softserve