#statecloudz

E-Health Product — a Revolution for Canadian Cardiac Care

Easy-setting, cloud-based, medical-grade, cross-platform, and patient-friendly platform for cardiac care providers with complete control over patient data and access, with a 5-minute-long patient-side onboarding, and 70% reduction in the number of unused electrocardiography equipment and **30%** ...

CANet

industry:
Manufacturing, Energy

technologies:
Web Application
Web Portal
Mobile App

Business challenge

Establishing robust, consistent communication has its way in the healthcare sector, especially when it comes to cardiac care. Medical staff, patients, and their families always seek scientific knowledge about diseases, and constant health data monitoring of high-risk patients can literally save their lives.

Nevertheless, **even though patients, clinics, and research teams are parts of the healthcare ecosystem, they are still very siloed, and so is their data.** Moreover, healthcare tools prove to be too complex, too costly, and too time-consuming, often failing to produce a sufficiently high-quality data insight needed for research and research.

Patients:

- Aren't cared of their personal health data
- Have no access to their medical records, are rarely and time-consuming asset engage follow-ups at the clinic
- Don't have a credible and easy to access source of up-to-date information relevant to their disease

Research centers:

- Don't have access to a regular source of relevant data
- Waste employees' time processing heterogeneous data to find valuable information

Our client intended to rewrite the state of the Canadian healthcare system and **revolutionize the way cardiac care product for a specific patient group, clinic, and research centers (RC).** It was planned that the project would have these elements:

- **Android and IOS apps** for the patients
- **Web apps** for healthcare providers and research centers

Under digitalization and under-communication within the Canadian healthcare system were in the spotlight of our client — the **Cardiac Arrhythmia Network of Canada (CANet).** The organization was in the process of digitalization of the delivery centers with the healthcare ecosystem.

Clinics:

- Lack of systematization in electronic record-keeping when patients are scattered across the whole country
- Unable to keep up with the current workload without remote monitoring and a specialized digital solution for it

After evaluating several potential tech partners, CANet chose Statecloudz because of our deep knowledge of Canadian cloud solution, and readiness to **set up a 15-person project team in less than three days.**

Client's goals

Facilitate communication between the patients, clinics, and research centers within a cohesive healthcare platform.

> "Our platform – SMARTcliff – centers around the patient and provides communication, analytics and wireless connectivity to provide cardiac patients with the best possible care."
>
> **Dr. Anthony Tang, CEO and Scientific Director, CANet**

Reduce the number of non-mandatory visits to the clinics by up to **80%**.

Minimize hospitalizations and emergency department visits by up to **20%**.

Create a trailblazing patient-centered healthcare solution in Canada.

> "Novel or innovative cardiac care for SMARTcliff will **reduce cardiac-related workload on clinics.**"
>
> **Dimitri Popolov, Research Data & Systems Manager, CANet**

Solution

As time to market was critical for the client, we suggested banking on **platform options** that our team had done once by including **IoT platform** in our product. Our team also suggested leaning towards **React native for mobile apps and React JS for web apps.**

This combo yielded triple wins:

- **Budget-friendly cost**

  As React Native is a React JS based framework, the client could reuse the reusable learning to create mobile apps.

- **Simplified maintenance of all solutions**

  Having one programming language at the same time with similar development approaches and code styles, makes software support a walk in the park.

- **Fast-track development**

  Core React concepts are the same, which empowers the developer team to move through the whole process faster.

The client's product team consisted of **Product Manager, Lead Developer, Backend Developer, Frontend Developer, Lead Designer, and Automation Engineer.** Our team had to work very closely with the client's team to ensure the smooth onboarding of the project.

Step 1 The tech groundwork of the platform

Before getting into the brick and brief of the application, we had to check all the boxes regarding regulatory compliance to ensure a smooth launch for SMARTcliff.

Every healthcare related software product targeted at the Canadian market has to comply with the **Personal Health Information Protection Act (PHIPA) and Privacy Impact Assessment (PIPA)** regulations.

Moreover, CANet's cardiac care platform needs the **IEC 62304 Medical Device Software Standard** that has become a global best practice for a fast and secure health data exchange between healthcare providers, patients, and clinics.

These standards guide our team to build a **robust tech stack and architecture** that fulfill the components listed by PHIPA compliant by design. CANet worked with the top of software solutions:

- **SMART on FHIR** was the standard for secure internet platform with a plethora of open-source tools for crafting apps that can access health data. The client chose this as it helps each integrate apps with electronic health records (EHRs) and other healthcare software and wearable devices.
- **Fernie Clinical Data Repository (CDR)** is a data platform that stores patient data and provides a single source of truth for clinical development cycles and allows the running of multiple clinical research studies.
- **Amazon Web Services (AWS) Cognito** provides **Contact Identity** to authenticate patient's identity, ensuring that only authorized users can access the ready-made SMART applications instead of creating a new identity for each app.
- **Research Electronic Data Capture (REDCap)** with the Fernie Clinical Data Interoperability Platform (FCDIP) is a secure, web-based software that enables the creation and management of research projects that ensure top-level security and compliance with Protected Health Information (PHI).

CDIS module supports **both data pulls** from the EHRs and manual uploads of data, providing research centers with data interoperability based that equipped for the task at hand.

HL7 / FHIR
Patient mobile app
Research web app
FDA Cardiologist
Informational Physician
Cohort clinical studies data
PatientHub
smile
SMART
FDA Medical Data Repository
FHIR
FHIR
FHIR