VICERT
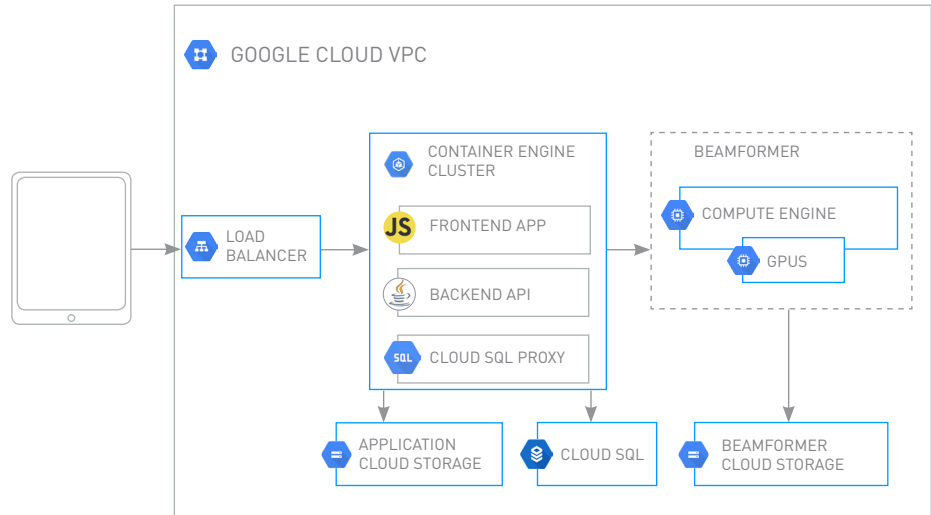
Cloud Medical Imaging Live Feed and Sharing Solution

Live Web Radiology Imaging and Sharing Ready for EHR Integration

GOOGLE CLOUD VPC

CONTAINER ENGINE CLUSTER

JS FRONTEND APP

BACKEND API

SQL CLOUD SQL PROXY

LOAD BALANCER

BEAMFORMER

COMPUTE ENGINE

GPUS

APPLICATION CLOUD STORAGE
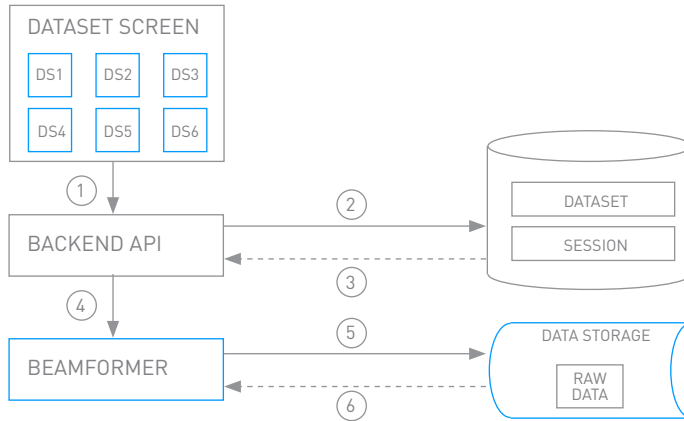
CLOUD SQL

BEAMFORMER CLOUD STORAGE

Challenge

Our client wanted to create an "UBER" for radiologists, that would radically cut the cost of radiology imaging by completely bypassing the expensive hardware component and allowing better interoperability between devices. We had to design and implement a tool that will enable authenticated radiologists to access, manipulate and make diagnoses from images created by our clients beamformer application. In short, for medical professionals to have full functionality of the radiology imagingdeviceona"tablet". This meant we needed to build a web component on a cloud that allows remote access to the radiology machine.

Since we had to migrate and mimic the component from hardware to the cloud, we had to first map out all the processes and functionalities of the solution, as well as keep it secure and interoperable.

VICERT

Diagram

DATASET SCREEN

DS1	DS2	DS3
DS4	DS5	DS6

(1) → **BACKEND API**

(2) → **DATASET** / **SESSION**

(3)

(4) → **BEAMFORMER**

(5) → **DATA STORAGE** / **RAW DATA**

(6)

Benefits

Our client's goal was to cut costs and allow a more affordable solution for medical imaging and sharing. In the future, this solution will speed up the diagnostic process and allow radiologists to better manage their time with patients.

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Solution

The solution will enable the Image-as-a-Service feature for radiologists, allowing them to independently work on studies created and shared by sonographers. Since the client's sonographer stores raw data generated by the probe, the radiologist will be able to use the tool to change the beamforming parameters and generate new raw image data. After reviewing the data from the study, the radiologist would be able to make a diagnosis, annotate the images and save the data in DICOM format on Google Cloud Storage.

We had to come up with a lot of workarounds in order to deploy a solution that was compatible and optimized for both android and iOS devices. The solution is interoperable and HIPAA compliant with a potential to be integrated into EHRs.

Tech: React, React Router, Axios, Spring Boot, gRPC, JDBI, Java, MySQL (Google Cloud SQL)
Duration: 10 weeks
Value: $100K