

Big Data Platform for Wellness Management

Overview

Client is a leading medical device manufacturer in cardiac rhythm management. Client desired a big data platform on the cloud for its wellness management initiative to support data ingestion, aggregation, real-time processing and predictive analytics.

CitiusTech leveraged its big data platform, H-Scale, to design and implement a scalable data and server architecture, for client's insertable cardiac monitoring device, that creates sample reports on aggregated patient and device data.

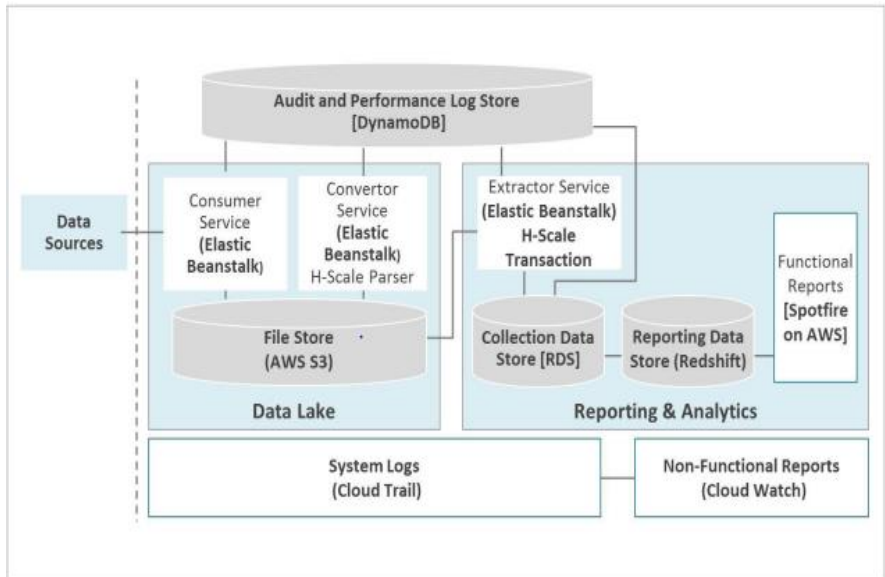
Requirement Analysis

CitiusTech's team identified the key success criteria to meet client's requirements including:

- Scaling an existing single-threaded library on cloud
- while ingesting and processing high volume of data
- Creating a HIPAA-compliant solution
- Utilizing auto-scaling to optimize resources and cost-based on spikes in message ingestion
- Ensuring high availability, confidentiality and integrity of data while maintaining economical viability

Solution Design

- Accepting binary files using a Java Web Service hosted on Elastic Beanstalk and storing them on S3, which prevented loss of data
- Leveraging S3 to fire SQS messages which are consumed by a transformation service hosted on AWS Elastic Beanstalk with Private VPC
- Leveraging auto-scaling and processing based on CPU Utilization and Queue Depth using AWS technologies
- Transformation service that transformed binary messages into XML files
- Utilizing AWS Lambda and Extractor Service to collate the data from XML file and inserting into AWS RDS datastore (MySQL)
- Moving log data stored in DynamoDB into Redshift using EMR
- Utilizing Spotfire to create analytical reports from Redshift
- Making optimum use of CloudWatch and CloudTrail features to define custom metrics and alerts for non-functional reporting of various AWS services



Customer Value

By partnering with CitiusTech, the client was able to:

- Improve current data ingestion and processing rate
- Reduce the processing time of daily workload of **80,000** messages from **8 hours** to **4.5 minutes**
- Build a scalable solution that could process up to **1 million** messages per hour, achieving significant cost savings and faster results

About CitiusTech

CitiusTech (www.citiustech.com) is a leading provider of healthcare technology services, solutions and platforms to over 130 organizations across the payer, provider, medical technology and life sciences markets. With over 5,000 technology professionals worldwide, CitiusTech powers healthcare digital transformation through next-generation technologies, solutions and accelerators. Key focus areas include healthcare interoperability & data management, quality & performance analytics, value-based care, omni-channel member experience, connected health, virtual care coordination & delivery, personalized medicine and population health management. CitiusTech has two subsidiaries, FluidEdge Consulting (www.fluidedgeconsulting.com) and SDLC Partners (www.sdldapartners.com), with deep expertise in healthcare consulting and payer technologies, respectively. CitiusTech's cutting-edge technology expertise, deep healthcare domain expertise and a strong focus on digital transformation enables healthcare organizations to reinvent themselves to deliver better outcomes, accelerate growth, drive efficiencies, and ultimately make a meaningful impact to patients..

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