Smile Digital Health and AWS HealthLake

Industry Challenges

Health data has a history of being siloed and fragmented. This results in a lack of appropriate, timely and quality healthcare data. To address the challenges of data quality, healthcare providers must embrace a FHIR® based Health Information Data Fabric. A Data Fabric is an innovative, integrated approach to data management that unifies data from disparate sources, breaking down silos, and providing a comprehensive view of healthcare data, using open standards

In today's rapidly evolving healthcare landscape, artificial intelligence (AI) and machine learning (ML) have emerged as powerful tools to improve patient outcomes, streamline operations, and enhance decision-making for healthcare providers. However, the success of AI and ML in healthcare is heavily reliant on the quality of the underlying data.

Clinicians require high-quality datasets for the clinical and technical validation of AI models. However, due to the fragmentation of healthcare data across several healthcare platforms, collecting relevant, up-to-date patient information becomes challenging.

Another challenge is that health data from one organization may not be compatible with other platforms due to interoperability problems. To increase the amount of data available for testing AI systems, the healthcare sector must concentrate on techniques for standardizing healthcare data.

Smile Digital Health and AWS HealthLake Better Together

Importance of Data Quality for Analytics To Improve Patient Outcomes

Interoperability is foundational. But the process of breaking down the silos that prevent it is not easy.

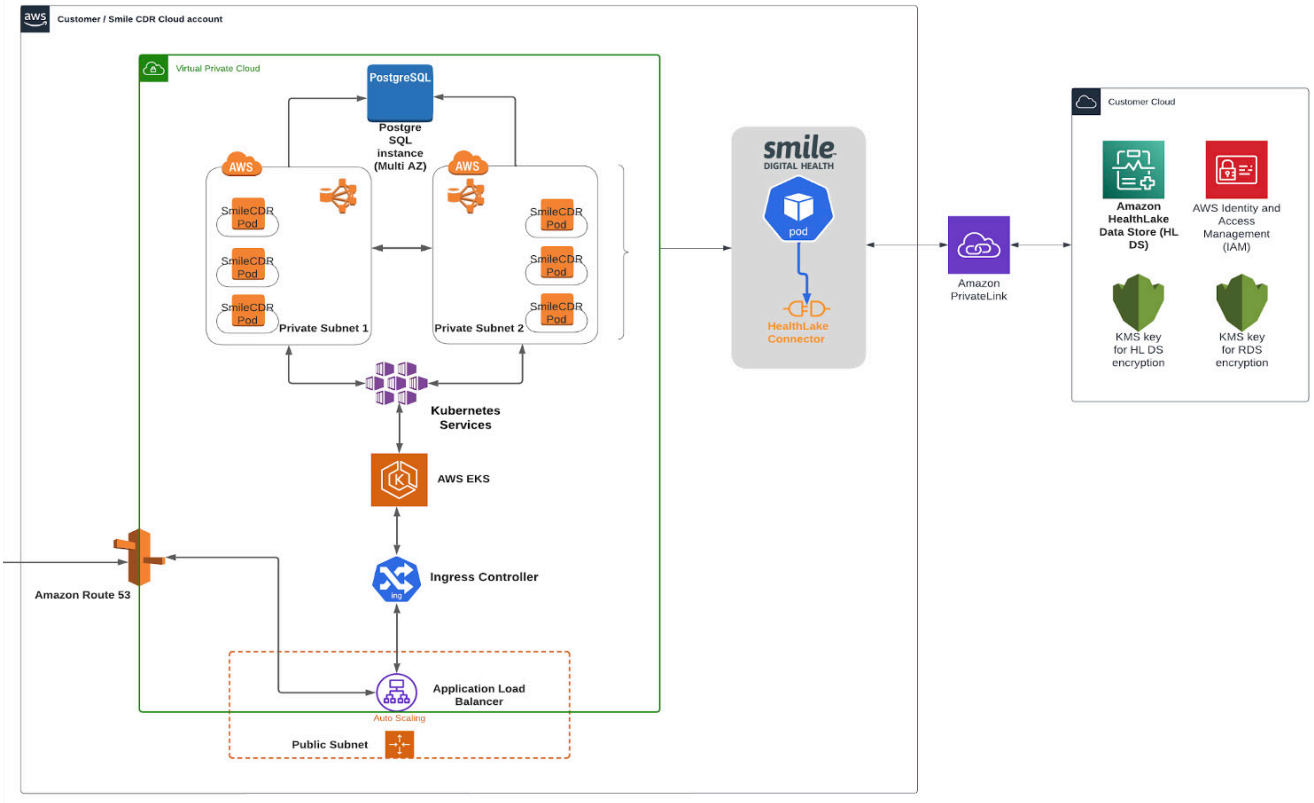
This process becomes easier when you have Smile's Health Data Fabric (HDF), a solution that has the capacity to understand all the different healthcare protocols (HL7® v2, CDA, FHIR®, etc.) as well as the capability to ingest all sources of data from multiple systems and formats. Once all the data is run through the highly performant HDF, your organization gets centralized, intelligent data within a framework that allows for interoperability and converts all data to the FHIR standard. Smile as a Health Data Fabric leverages the FHIR open standard to unlock participation with health ecosystems. This connects data (both structured FHIR and unstructured) and stores that data as FHIR.

Amazon HealthLake allows healthcare providers to analyze data in the AWS Cloud. It also offers a robust AI/ML analytics platform. By leveraging Smile Digital Health with Amazon HealthLake connector, healthcare providers transform their existing and new data into the FHIR standard and move it into Amazon HealthLake. Smile Digital Health's HealthLake connector helps organizations send their HL7 FHIR R4 data into the AWS HealthLake Analytics platform.

By leveraging Smile Digital Health with Amazon HealthLake customers can:

- Ingest structured and unstructured data along with various HL7® data formats into FHIR® R4 in Smile.
- Store health data in a secure and auditable manner.
- Analyze a subset of data by running an SQL query to drive analytics and machine learning in AWS HealthLake

This powerful solution gives healthcare organizations new tools to provide precise and personalized quality care in near-real time, enabling timely interventions and data-driven decisions. Intelligent analytics and trends support coordinated and efficient care for a population.



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About the Smile Digital Health Data Fabric

Smile Digital Health is a health information technology company focused on delivering better global health through open standards. Our enterprise-grade, health data fabric and exchange platform fuels healthcare's digital transformation and accelerates value creation across all patient journeys at scale.

Powered by HL7® FHIR® standard-based clinical data repository, our solution allows organizations to transform, store, enrich, analyze, aggregate, and meaningfully share health information to power digital transformation. Smile Digital Health prepares healthcare providers, payers, researchers, and life sciences organizations for a connected future beyond legacy systems, adding new value through the intelligent use of information and ultimately delivering better patient outcomes. We help healthcare organizations confidently #ChooseOpenStandards with the goal of #BetterGlobalHealth.

Globally, we support the healthcare industry by providing a proven health data fabric and integration platform which fuels digital transformation, boosts efficiency, and accelerates value creation across all levels of patient journeys at scale.

By leveraging Smile's health data fabric, customers gain:

- Increased modularity of healthcare apps to close industry gaps
- Automation to efficiently deliver team-based care treatment programs
- Value-based care outcomes for individual patient journeys

Smile Benefits

Security - Prioritizes data security and compliance with privacy regulations, ensuring that sensitive patient information remains protected.Identity authorization (OAuth and OIDC), audit, compliance monitoring tools, and built-in security integration built-in. Certifications include HITRUST v9.4, ISO 27001:2013, ISO 27018 and ISO 13485:2016.

High Performance - Proven track record in exceeding known benchmarks at scale with reliability. The Smile FHIR server processed 22,251 resources per second over a sustained period.

Scalability - The Data Fabric is designed to scale effortlessly, accommodating the ever-growing volume of healthcare data.

Innovation - Organizations can shift from 'data-rich' to 'data-driven' by activating clinical and claims data to support various use cases around portability, intelligence, and analytics.

AWS HealthLake Benefits

Athena Integration - HealthLake's integration with Athena means you can create powerful SQL-based queries that you can use to create and save complex filter criteria. You can then use this data in downstream applications such as SageMaker to train a machine learning model or Amazon QuickSight to create dashboards and data visualizations.

Machine Learning (ML) Models - HealthLake provides specialized integrated medical Natural Language Processing (NLP) using Amazon Comprehend Medical, to transform unstructured data. HealthLake then creates new resources based on the traits sign, symptom, and condition for example.

Indexing - All data that is transformed can be fully indexed so you can quickly and easily query, search and analyze all of your health information.

Key Links

- *Smile Digital Health Expands Work on AWS*
- *Benchmarking Smile CDR At Scale in AWS*

About AWS HealthLake

Amazon Web Services (AWS) is the world's most comprehensive and broadly adopted cloud, offering over 200 fully featured services from data centers globally. Millions of customers—including the fastest-growing startups, largest enterprises, and leading government agencies—are using AWS to lower costs, become more agile, and innovate faster. AWS is the trusted technology and innovation partner to the global healthcare and life sciences industry, offering many different health services, such as Amazon HealthLake. Amazon HealthLake uses specialized machine learning (ML) models, like natural language processing to tag, index, and query health data. These ML models are used to identify trends and make predictions for population health.

For more information about Smile Digital Health's Data Fabric, please visit our website.
For more information about AWS HealthLake, please visit our website.