Google Cloud

ClearDATA

Preparing legacy data for cloud-based healthcare algorithms

CareCloud and ClearDATA join forces to bring legacy healthcare data into HIPAA-compliant cloud environments, where providers and payers can analyze records to improve care.

About ClearDATA

ClearDATA's innovative platform of solutions and services protects customers from data privacy risks, improves data management and scales their healthcare IT infrastructure, enabling them to focus on improving healthcare delivery, every single day.

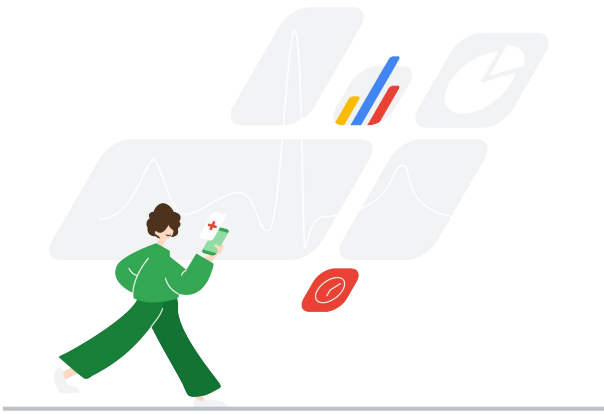
About CareCloud

CareCloud is the leading provider of cloud-based revenue cycle management (RCM), practice management (PM), electronic health record (EHR), and patient experience management (PXM) solutions for high-growth medical groups.

Since modern medicine began, healthcare organizations focusing on advancements in care delivery, more effective medicines, and deeper specialization of medical knowledge have done their best to record resulting improvements in patient outcomes and quality of life.

The mountains of paper records collected in manila folders over the years have slowly given way to various electronic formats, a process made long and arduous by complex regulations. This uneven transition to digital records has unfortunately resulted in disjointed silos that house data in a cornucopia of formats. To inform healthcare's future, data analysts need to harmonize these electronic treasure chests. But this can be a complicated and expensive task, in no small part because health data must be handled in strict compliance with regulations that constantly evolve.

As data interoperability becomes an increasingly pressing concern for healthcare providers, software developers, and technology vendors, data standards that enable the seamless, on-demand exchange of health information have paved the way forward. The Fast Healthcare Interoperability Resource, commonly known as FHIR, has quickly become the go-to industry protocol for joining disparate data systems together, particularly through applications. But a lot of existing data isn't in FHIR format.



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The challenge of modernizing software for new healthcare data standards

"We're all feeling the financial burden of having to bring up our systems up to compliance and in a short period of time with all these ever changing standards," says Alen Pulido, Director of Engineering at CareCloud, a provider of cloud-based software solutions for healthcare IT. "We see the challenge as two-fold. How do we expose all our legacy data that we have collected over the years in these new standards? How do we update our processes in our API to comply with new standards, so we don't have to go through the trouble of migrating them?"

To help customers import legacy data to the cloud quickly and accurately, CareCloud has built a state-of-the-art file translation engine for healthcare data as a part of a FHIR Bridge. Rather than build and maintain their own FHIR service and infrastructure, however, CareCloud relies on the Google Cloud API. With support for popular healthcare data standards such as FHIR, HL7, and DICOM, the Cloud Healthcare API can bulk import and export batch or streamed data in FHIR and DICOM formats, providing a convenient way to move healthcare data to the cloud or between projects. It also offers a service to de-identify data before analysis.

The process begins with data integration that makes multiple components of a health record accessible to the realm of machine learning: DICOM data from medical images like radiology scans, FHIR data representing text in electronic health records, and HL7 data containing clinical messaging. The Cloud Healthcare API accelerates ingestion and integration, helping CareCloud customers take advantage of state-of-the-art analytics and machine learning tools available in Google Cloud.

Alen Pulido, Director of Engineering, CareCloud

> "The question for us is how do we, as an organization, guarantee that all these elastic infrastructures and services are being created and deployed in a secure, compliant way, while at the same time being constantly monitored?"

A key advantage of using Google Cloud Platform (GCP) infrastructure as a service and the Cloud Healthcare API is Google Cloud's focus on compliance with healthcare regulations. "The question for us is how do we, as an organization, guarantee that all these elastic infrastructures and services are being created and deployed in a secure, compliant way, and at the same time being constantly monitored?" asks Pulido. "We're talking about some of the most sensitive data in healthcare IT, where it's a combination of financial and clinical information. Needless to say, all this needs to be protected and guaranteed in transit and at rest. So, we're using a lot of the native ingestion tools to prep and load the data and also stream it across the infrastructure to ultimately save it in the Healthcare API."

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Automating and maintaining HIPAA-compliant cloud configurations

Passed by the US Congress in 1996, the Health Insurance Portability and Accountability Act, known as HIPAA, requires healthcare providers and organizations to ensure the confidentiality and security of protected health information (PHI) when it's transferred, received, handled, or shared. Given the key role cloud computing is now playing at the frontiers of medicine, says Matt Ferrari, chief technology officer and co-founder of ClearDATA, it's important that compliance teams examine how to implement and enforce standards and certification specifics in the cloud. "What kind of protected health information is in that backup and how do you need to replicate it across the environment?" he asks. "In other words, how do you ensure that it's compliant?"

Because cloud environments aren't necessarily HIPAA-compliant right out of the box, ClearDATA provides Automated Safeguards, which configures more than 40 of the most popular cloud services to meet regulatory compliance standards, offering more than 130 technical controls to help keep data safe. This reduces the burden of compliance, freeing healthcare IT to focus on developing applications that harness the full benefits of the cloud.

"There's no third party API, ClearDATA API, or shim between you and the public cloud," says Ferrari. "You are using the public cloud as-is. And that's important for healthcare organizations that are transforming. They want to focus on innovating, changing healthcare, really making an impact on their patients, providers, nurses, and practitioners."

A compliance dashboard provides a near real-time view of where PHI flows and how well an organization's services manage it. This is particularly useful for healthcare organizations that aren't accustomed to cloud-based environments.

Matt Ferrari,
CTO and Co-Founder,
ClearDATA

"ClearData wants to show, specifically, how we drive beyond the minimal level of compliance and security and really drive a culture of compliance into healthcare organizations leveraging Google Cloud Platform."

"ClearData wants to show, specifically, how we drive beyond the minimal level of compliance and security and really drive a culture of compliance into healthcare organizations leveraging Google Cloud Platform," Ferrari says.

The ClearDATA software monitors cloud service consumption to find deviations in use that may impact security or compliance. It tracks changes to public cloud services and evolving regulations, as well as changes to the customer's environment, such as application or operating system updates. "When a customer has some kind of change in any of those scenarios, we can automatically go in and remediate," Ferrari says. This helps ensure that the customer's environment stays compliant.

Google Cloud

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A partnership to unlock the future of medicine

"The two-way partnership with Google on the Healthcare API side and ClearDATA on the compliance side lets us put together a turnkey stack that allows our partners to potentially leverage this type of technology at scale, with automated deployment at the push of a button" says Pulido.

CareCloud's collaboration with ClearDATA and Google Cloud has made it much faster and easier for healthcare teams to develop, test, train, and deploy machine learning models on patient data, and then integrate the outputs into existing clinical workflows to aid decision-making and shape patient treatment plans. With fast access to data stored in the many systems providers and payers use, Machine Learning and AI can unlock its value to radically reduce the weight of traditionally manual clinical and administrative tasks, opening the future to better care.

Alen Pulido, Director of Engineering, CareCloud

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