MarkLogic®

M*Modal Improves Patient Care and Reduces Hospital Costs with MarkLogic

MarkLogic Powers M*Modal's Catalyst Platform Running in the Cloud

M*Modal™

CUSTOMER
M*Modal

INDUSTRY
Technology Provider – Healthcare

CHALLENGES
Health data integration,
Risk management,
Security,
Scalability,
Performance

FEATURES
Schema-agnostic,
Ingest data "as is,"
Data enrichment,
Search,
High Availability,
Disaster Recovery

CUSTOMER USE CASE
Heterogeneous Data Integration,
Patient 360 Repository,
Scalability

BENEFITS
Improved patient outcomes,
Decreased costs,
Faster time to value

Company Overview

M*Modal is a leading healthcare technology provider of advanced clinical documentation solutions. M*Modal is delivering hospital and physicians next-generation clinical informatics solutions for clinical documentation and workflow collaboration by Transforming Words into Action. As one of the largest clinical transcription service providers in the U.S., M*Modal also provides advanced cloud-based Speech Understanding™ technology and data analytics that enable clinicians to capture the context of their patient narratives and utilize the data from the documentation to further enhance productivity and quality of patient care at the point of care.

Challenges

M*Modal's vision is to enable clinicians to capture the richness of narrative clinical documents and make it actionable at large scale and in real time. M*Modal knew that the nature of this data made it impossible for traditional relational databases to support the company's vision. In order for M*Modal to successfully sell its services into the healthcare field, company executives knew they had to meet stringent requirements, including:

Security and Transactional Integrity
In addition to meeting Protected Health Information (PHI) and HIPAA (federal Health Insurance Portability and Accountability Act of 1996) requirements for secure and accurate medical records, organizations simply cannot lose patient data. Missing patient data means risking medical errors, loss of reimbursements, and potentially even loss of human life. Additionally, all patient data access must be restricted by user/groups and auditable in cases of inappropriate access.

Performance and Scalability
M*Modal founders understood that documents and data types were increasing and changing, and the company needed an infrastructure that could eventually support millions of documents and tens of thousands of concurrent users. In just one patient stay, hundreds to thousands of data points (lab reports, nurse notations, etc.) can be found in documents that need to be accessed and analyzed by healthcare providers, and these data sources don't come neatly packaged in rows and columns.

Agility and Flexibility
M*Modal needed a database platform that could handle terabytes of data, from a variety of sources. It also required an architecture that could rapidly introduce new data sources,

services and features seamlessly and quickly. This enables key information to be brought to the clinician in real time at the point of care.

Powerful and Relevant Search

If a doctor needed confirmation that a patient was at risk for diabetes, he or she would need access to the patient's history, family history, diet, exercise and more in order to establish an accurate analysis. Effective search would allow M*Modal customers to provide better care, and save time with accurate results right away.

The Solution

M*Modal built its entire solution on the MarkLogic® Enterprise NoSQL database platform running on a private cloud. Specifically M*Modal relies on MarkLogic for: ACID compliance for transactional integrity; search and query to find patient data more effectively; performance that yields rapid response times; scalability for managing multiple terabytes of data and a growing number of concurrent users; a flexible data model that is able to handle a variety of data from multiple sources with ease; and healthcare- and government-grade security.

Why MarkLogic?

M*Modal currently supports over 1,000 hospital systems, thousands of concurrent users, and 36,000 queries and millions of transcription documents each day. Most notably, the combination of M*Modal and MarkLogic is helping hospitals and physicians deliver better care at reduced costs.

Drive Revenue with Faster Time to Diagnosis

MarkLogic's agility allows M*Modal to adapt to global issues and quickly roll out new services to support health concerns and epidemics. For example, when events like the Ebola crisis hit America in 2014, M*Modal was able to create a subscription-based app that helped guide doctors in determining an Ebola diagnosis (identified data points such as high fever, travel, etc.) And because it was a subscription- and cloud-based service, M*Modal was able to support a multi-tenant environment, making the service available to multiple users at hospitals, universities, grants and more – all with the push of a button.

Establish Excellent Data Usage and Customer Experience

Today, M*Modal manages millions of patients' documentation, with sub-second search. M*Modal helps customers address challenges including Meaningful Use, ICD-9 to ICD-10 transition, and the growth of electronic medical records (EMRs) by quickly ingesting, integrating and delivering new information as it emerges. M*Modal and MarkLogic add an additional value layer upon M*Modal's speech recognition technology through data integration. Not only can M*Modal capture a doctor's notes and insight, but it can search and discover relevant patient information to add to the patient's record in order to drive accurate and rapid diagnoses.

Create Healthcare-grade Security with Agility

M*Modal could not succeed without the highest level of security, but sometimes security protocols can hinder innovation. M*Modal resolved this issue with MarkLogic, as the platform has the highest level of security, and allows for personalized controls so every authorized person working with a patient can add critical information into a patient's record, coders can access relevant information for insurance purposes, and more.