

3M HIS – Modern Analytics

Healthcare Data Science

3M Science. Applied to Life.™

Challenge 3M Health Information Systems needed its data moved from datacenter to AWS to take advantage of Data-bricks for more rapid data discovery, machine learning and data science to develop new and better insights for doctors, hospitals and patients.

Solution Cloudwick provided the company with its AWS Modern Analytics QuickStart services, migrating the data and infrastructure from on-premises to AWS, secured the cluster to meet HIPAA compliance, and integrated the Databricks spark platform for the data science team to use for predictive analytics.

- Benefits**
- The company now has a modernized cloud-based, HIPAA-compliant BI and analytics infrastructure.
 - Data scientists can rapidly develop new insights, products and services for doctors and hospitals to improve patient care.
 - 3M can now focus on data science using a modern self-service Databricks analytics platform built on AWS, managed by Cloudwick.

Delivering Cost Savings and Improved Patient Care

3M Health Information Systems delivers innovative software and consulting services designed to raise the bar for clinical documentation improvement, computer-assisted coding, mobile physician applications and quality outcomes reporting. Its robust healthcare data dictionary and terminology services also support the expansion and accuracy of electronic health record (EHR) systems. 3M HIS needed help moving its big data infrastructure to Amazon Web Services (AWS) and needed a solution to perform predictive analytics that would lead to cost savings, health care delivery improvements and more. Predictive analytics in healthcare is used to search through massive amounts of information and analyze it to predict possible outcomes for patients, predict potential negative responses to medications, and even prevent hospital readmissions. It is incredibly useful for hospitals and clinics in



patient care and cost savings.

The migration to AWS was planned in order to increase agility, scalability, flexibility and cost savings. Like most global enterprises focused on scaling its core business, the company did not have the technology specialists on staff to handle the cloud migration, which is where Cloudwick came in. Cloudwick has more than a half dozen years of experience providing solutions to Global 1000 enterprises, helping them meet the demands of BI and analytics modernization.

Security in the Cloud

Cloudwick's primary objective was to set up a HIPAA and Protected Health Information (PHI) compliant cluster running Databricks spark platform on AWS for 3M HIS. Cloudwick chose Amazon Simple Storage Service (Amazon S3) for storing the PHI information, as well as Amazon Elastic Compute Cloud (Amazon EC2) for resizable compute capacity. To achieve HIPAA compliance, Cloudwick set up a Virtual Private Cloud with sub-nets, and implemented the network access control list. In addition, Cloudwick defined the route tables and security

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groups, implemented Identity and Access Management (IAM) users and rules, and provided fine-grained control for accessing the data using S3 bucket policies and Access Lists.

With AWS CloudTrail, the company's AWS API calls are recorded and the log files are delivered, which includes the identity of the API caller, the time of the API call, the source IP address of the API caller, the request parameters, and the response elements returned by the AWS service. Other AWS capabilities rounded out the HIPAA compliance setup and the production cluster successfully met the requirements upon testing.

AWS Services Used

- **Virtual Private Cloud (VPN)**
- **Identity and Access Management (IAM)**
- **Simple Storage Service (S3)**
- **Config**
- **CloudTrail**

Finally, Cloudwick deployed a Databricks spark platform for 3M HIS for predictive analytics. The Databricks spark platform provides a framework for advanced analytics and includes a tool for accelerated queries, a machine learning library, and a streaming analytics engine. Spark provides results quickly, allowing 3M HIS to reach more precise and accurate answers.

Ready for Prime Time

With the new solution provided by Cloudwick, 3M HIS enjoys a modernized business intelligence and analytics infrastructure, eliminating a costly enterprise infrastructure. The company can now focus on data science using a modern self-service Databricks analytics platform built on AWS, managed by Cloudwick. With real-time predictive analytics, it can more rapidly develop new insights, products and services for doctors and hospitals to improve patient care. Ultimately, the company has exchanged its previous solution for a modern business infrastructure - one that provides an accelerated predictive analytics platform for precise answers quickly - that is flexible, agile, and scalable.

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To Become a Data-Driven Enterprise,
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Big Data Success