

“We’re subject to stringent regulations. Sumo Logic plays a major role in helping us stay in compliance.”

Isaac Wong

VP Platform Architecture and User Experience



Challenge

Pharmaceutical companies and medical device manufacturers rely on Medidata’s solution to power the studies that determine whether their products are ready for delivery to the market. Medidata was generating a tremendous volume of logs from its systems, but this raw, unprocessed data was neither centralized nor efficiently scrutinized. At any given moment, Medidata’s customers are managing more than 5,000 active clinical trials on its platform. This means that, on average, every hour the company must respond to greater than 1 million transactions composed of 3,000 unique logins, up to 300,000 patient data page requests, and 150,000 Web service API calls.

The company’s management set a goal to democratize access to its machine data as a critical precursor towards increasing the quality and availability of its Software as a Service (SaaS) offerings.



Solution

Medidata incorporated Sumo Logic’s cloud native, machine data analytics platform into its technology portfolio. As part of this initiative, the company aggregated all machine data into a central location. This made it possible to derive meaningful insights from these logs via an extensive assortment of dashboards, alerts, and custom-built applications.



Results

Medidata’s machine data endeavor has become widely popular across multiple organizations within the company. By positively impacting hundreds of users, Sumo Logic is now an integral part of their daily activities, helping them identify and correct problems more quickly and accurately. The ultimate beneficiaries of these optimizations are Medidata’s customers, who are now able to bring their lifesaving solutions to patients faster and at a lower cost.

Company

Medidata

Industry

Healthcare/Life sciences technology

Headquarters

New York, NY

Size

2,000+ employees

Use cases

Operations

“Users throughout our organization benefit from the insights we’re continually extracting from Sumo Logic’s centralized machine data repository.”

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The Details

Medidata is a leading life sciences technology provider. The company's mission is to aid pharmaceutical firms and medical equipment manufacturers in validating that their experimental drugs or devices are safe, effective, and help treat a given disease. The upshot is that Medidata plays a significant role in helping patients lead healthier lives by expediting the process of bringing a new treatment to market and then monitoring it in the population at large after approval. Customers use its cloud-based products to carry out a wide variety of tasks, such as designing studies, managing them, and analyzing results to glean significant conclusions.

All of these activities are carried out within a consistent user interface on information that's maintained by Medidata. The company offers its SaaS products to customers in the U.S. and Europe, with failover capabilities across geographies. Multiple constituents either directly utilize the platform or are represented within it, including patients of all ages, physicians, and biostatisticians, to name just a few. Medidata also gathers data directly from patients via smartphones, wearable devices, and sensors.

Medidata implemented its solutions on a hybrid cloud environment that's comprised of U.S.-based private data centers and those from Amazon Web Services (AWS). The company elected to employ distributed data centers to reduce latency, as well as comply with regulations such as the European Union (EU) requirement that patient data be stored on servers within the EU.

Medidata was an early AWS adopter and now fields an extensive - and evolving - collection of its services for all aspects of its technical landscape: compute - Elastic Compute Cloud (EC2); storage - Simple Storage Service (S3), Elastic Block Store (EBS); data - Relational Database Service (RDS), Dynamo, Redshift, Kinesis; containerization - Elastic Container Service (ECS), Lambda; machine learning/analytics - Hive, Pig, R, SageMaker, SageMaker Ground Truth, Python; and management - CloudFront, Elastic Load Balancing (ELB), Application Load Balancer (ALB). The company's application architecture is equally disparate and includes logic written in .NET, Ruby on Rails, and Java/Scala.

Although it had deployed a highly sophisticated array of software and services, Medidata's machine data capacities were lagging. For example, logs were fragmented across multiple servers with no centralized aggregation. To make matters even more challenging, the company's secure production architecture made it burdensome for developers to access the servers holding the logs necessary to decipher problems. Meanwhile, Medidata was about to make a major foray into a new microservices architecture that would generate even greater log volumes.

At this point, the company's executive leadership recognized that it was time to resolve these challenges by gathering logs into a

central repository, and then making this information available to all those that had a legitimate reason to work with it. This operation would also provide developers and administrators with the tools necessary to utilize, manage, and analyze this data.

To prepare for its evaluation, Medidata created a robust, far-reaching set of requirements that mandated that any selected product offer:

- Broad distribution within the organization
- High availability
- Interoperability across architectures and data centers
- Robust query features, available to any engineer
- DevOps support for deployment at scale
- Extensive APIs that could be reached from outside of the solution, for script installations, configuration, and dashboarding

During a two-month exploratory period, Medidata's evaluation team examined a number of the most prominent machine data management solutions, notably Sumo Logic, Splunk,

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and Logstash. Sumo Logic won the competition thanks to its functionality, user interface, and more predictable pricing model. The initial deployment took only two months and involved all AWS assets and a subset of the company's internal data centers. The remaining implementation took an additional two months to cover all remaining data centers and reach a much broader audience of up to 500 users, representing: engineering, professional services, quality assurance, service delivery hosting teams, and operations management.

Sumo Logic – which aggregates up to 250 GB of Medidata's machine data per day – presents its insights to the Medidata user community through several different conduits such as prepackaged tools, dashboards, alerts, and reports. Dashboards have proven to be particularly popular: most Medidata engineers have at least one instance visible at any given time. These assets enable tracing transactions through the entire Medidata microservice architecture. The company's service delivery hosting teams have also developed their own, specialized dashboards that span multiple applications.

Medidata has leveraged Sumo Logic's API to create an assortment of custom-built resources. One interesting example is the Service Level Agreement (SLA) monitoring system, which crawls through Sumo Logic's accumulated machine data and inspects it for load, latency, and throughput. It then notifies relevant users should it detect deviation from established SLA commitments, thereby providing vital compliance information.

While Medidata has established numerous use cases for Sumo Logic and the enormous volumes of machine data stored within it, two prominent scenarios stand out: monitoring and error detection/correction. From the monitoring perspective, Medidata's Network Operations Center (NOC) examines key statistics using dashboards or external applications, while other administrators study the entirety of the company's production traffic logs along with overall application performance.

Sumo Logic has also transformed how Medidata carries out the important responsibility of finding and fixing errors. This task had been especially difficult given that some of the company's applications are distributed across multiple instances and orchestrate numerous activity threads. Sumo Logic has helped pull all of these together into a single view – helping to create a valuable package containing screenshots and related log files that's compiled when an error has taken place. This has shaved a significant amount of time and effort from the problem detection and correction cycle. These efficiencies are exceptionally critical in a life sciences business, where time is of the essence when alerting emergency medical personnel about a given patient's experimental treatment profile.

There are many exciting new Sumo Logic use cases on the horizon for Medidata:

- **Product design:** when properly applied, machine data can help trace customer workflows and usage patterns. This can provide guidance about which prospective features will be most useful.
- **Problem resolution:** Medidata aims to employ Sumo Logic's predictive analytics to become more proactive. The company will also further extend visibility across multiple teams to aid in debugging.
- **Enterprise features:** the company will seek ways to apply increased automation, such as script installation of a common dashboard across all Ruby applications or templates for major administrative responsibilities.
- **Governance:** Medidata's Sumo Logic administrators want to encourage more standard behaviors by teams and users.

Sumo Logic and Medidata have forged a collaborative relationship that began with the product evaluation and continued through the rollout and on to production. Sumo Logic assigned a dedicated Medidata technical account manager (TAM) and its customer service group has also been proactive in addressing Medidata's questions. Medidata has been particularly appreciative of the combination of product reliability, continual innovation, and responsive support. This has set the stage for further Sumo Logic adoption and inventive new use cases.

About Medidata

Medidata is leading the digital transformation of life sciences, with the world's most-used platform for clinical development, commercial, and real-world data. Powered by artificial intelligence and delivered by industry experts, Medidata helps pharmaceutical, biotech, medical device companies, and academic researchers accelerate value, minimize risk and optimize outcomes. Medidata and its companies, Acorn AI and SHYFT, serve more than 1,300 customers and partners worldwide and empower more than 150,000 certified users every day to create hope for millions of patients. Discover the future of life sciences: www.medidata.com

About Sumo Logic

Sumo Logic Inc., (NSDQ: SUMO) is the pioneer in continuous intelligence, a new category of software, which enables organizations of all sizes to address the data challenges and opportunities presented by digital transformation, modern applications, and cloud computing. The Sumo Logic Continuous Intelligence Platform™ automates the collection, ingestion, and analysis of application, infrastructure, security, and IoT data to derive actionable insights within seconds. More than 2,100 customers around the world rely on Sumo Logic to build, run, and secure their modern applications and cloud infrastructures. Only Sumo Logic delivers its platform as a true, multi-tenant SaaS architecture, across multiple use-cases, enabling businesses to thrive in the Intelligence Economy. For more information, visit www.sumologic.com.