callibrity

Data Science Company
Benefits from Thought Leadership in Cloud Architecture and Development

INDUSTRY: DATA SCIENCE • HEADQUARTERS: CINCINNATI

ABOUT 84.51°

84.51° is a wholly owned subsidiary of Kroger, which serves over 62 million households across 38 states. Originally part of dunnhumbyUSA, Kroger purchased and renamed the company 84.51° in 2015. The name coincides with the location of its Cincinnati headquarters and is a tribute to the longitudinal analytics the company employs. 84.51° brings together 10+ petabytes of customer data, marketing strategy, and advanced analytics to drive sales growth and customer loyalty for Kroger and more than 300 consumer-packaged-goods companies in the U.S. using a proprietary suite of tools, technology, and customized data science.

INITIATIVE:
STREAMLINING THE DATA SCIENCE LIFECYCLE

Agatha is the Enterprise Data Science Platform that enables data scientists to create and scale science across the enterprise for better answers, faster. Agatha provides access to the latest development tools, libraries, and languages from one common platform and delivers faster solutions and collaboration through automation.

From one single source, data scientists can seamlessly access their data, choose from their preferred compute option and quickly uncover the right answers for customers. Agatha integrates with DataRobot (automated machine learning) so that data scientists can leverage automated machine learning.

Agatha enables data scientists to reduce the time it takes to build science. Scoring that used to take days or weeks is now completed in minutes. Faster insights are provided to help customers make the right decisions. Spending less time on the upfront work leaves more time for deeper analysis and exploration that humans are uniquely qualified to do. Kroger and 84.51 data scientists are also able to rapidly test different models with varied use cases to keep pace with changes in the market.

CHALLENGE

Before Agatha, data scientists used only on-premise solutions, which resulted in a limited amount of bandwidth for developing science. Even if a cloud solution was available, data scientists would be taken away from their core focus and have to constantly tinker with server details such as CPU, memory, and disk sizing. Increasingly, data scientists were forced to target solutions in DevOps and development, rather than continue to focus on writing valuable science for customers and clients. Agatha was initiated to create and scale science across the enterprise.

> Keeping data scientists focused on data science: not integrations, new tech languages, and DevOps
> Developing a usable, scalable, enterprise platform solution for data scientists
> Creating more speed and efficiency in seeking out trends and forecasts
> Creating more speed and efficiency in scheduling science to run periodically without issues

SOLUTION

There are many steps to the data science lifecycle. In the beginning, data scientists are figuring out which datasets and sources to use, as well as writing code around these datasets to figure out trends and forecasts. This process normally requires many iterations via different data sources and different code strategies. One piece of Agatha was designed as a sandbox that enables scientists to have an actively running session within a cloud container as big or as small as required (for the given datasets). This sandbox allows the science to run quickly and the scientists to continually iterate on their code and data sources. This solves the time-consuming issue of figuring out cloud infrastructure or technology languages or waiting for on-premise resources to become available.

Once the science is established, another stage in the data science lifecycle is scheduling it to run on a regular basis. With Agatha, this can now be scheduled through the User Interface to run on a daily, weekly, or custom schedule. Callibrity consulting assisted with:

> Implementing science jobs to kick off upon arrival of a file - using Google Cloud Platform pubsub messages. Pubsub is a message queuing system that allows one to subscribe and react to events as they happen, at scale. For example, when a store sends in their daily receipts, pubsub publishes a message that kicks off data science jobs.
> Moving the Agatha web application from on-premise to Google Cloud Platform. Although still in progress, 84.51 is already experiencing benefits from the amount of time saved by making this architectural change.
> Migrating from a developer-designed web application to a stable, consistent and functional website. As the product grows and developers work more closely with users, the focus shifts from individual features to overall reliability to help meet strict SLAs.

RESULTS

Agatha now powers many objectives throughout 84.51, and thus Kroger systems - enabling data science to move a lot faster than was previously possible.

- Improved speed and reliability, for both planning and implementation of science.
- Data scientists focusing on science rather than cloud infrastructure, code debugging and DevOps responsibilities.
- Scalability, consistency, and reliability for data scientists by migrating fromusing GCP tooling directly to a new web application, asking for only configuration details.
- Re-skinned and re-visited information architecture and verbiage for a consistent application experience throughout different modules.
- Quality and quantity of science results for 84.51 customers and clients: allowing for more time to work on, analyze, and iterate on science coderather than waiting on jobs to finish.

ABOUT CALLIBRITY

Callibrity is a developer owned and managed custom software development firm that is dedicated to providing clients with quality software, improved coding practices, and modernized tech stacks. We provide subject matter expertise and solve complex problems with simple solutions for our clients, ranging from midsize to Fortune 100 companies.

WHAT'S IN A NAME?

The name Callibrity comes from two different roots, calli, and caliber. Calli means 'beautiful' in Greek, as in Calligraphy - beautiful writing. Caliber means 'a degree of merit or excellence.' We strive to do beautiful work with a high degree of merit and excellence.

STRATEGIES:

- > Agile
- > Cloud
- > DevOps
- > IoT
- > Test Automation
- > Machine Learning

SERVICES:

- > Custom Software Development
- > Digital Transformation
- > Tech Audit
- > Training

INDUSTRIES:

- > eCommerce
- > Financial Services
- > Insurance
- > Retail
- > Technology

WE ARE ARTISTS.
WE ARE ENGINEERS.
WE ARE INNOVATORS.
WE ARE CALLIBRITY.

Learn more about Callibrity
Callibrity.com