

Spartan Capital Intelligence Develops New Finance Application That Sources Market Intelligence From The Web



Executive Summary

Spartan Capital Intelligence (SCI) is an ad-free, flat-rate financial advisory firm founded by US military veterans. The early-stage company uses artificial intelligence and machine learning to drive high-caliber investment decision-making. SCI also produces personalized investment guidance for clients to help them maximize returns.

Given the military backgrounds of the founding team, SCI currently focuses on the defense and aerospace industries. The company's machine learning models collect millions of quantitative and qualitative data points 24/7 to help investors understand key trends and relationships across these sectors. Looking ahead, SCI hopes to expand into other industries and give investors additional opportunities to take advantage of its cost-effective services.

The Challenge

SCI wanted to create a market analysis web application that could outperform the analytical techniques and processes used on Wall Street at a lower price point to consumers. The company envisioned a solution that could gather and process real-time market intelligence to estimate stock market movements in the defense and aerospace industries.

Most importantly, SCI wanted its platform to be accessible for traders and investors at all levels. The new application had to generate clear, insightful visualizations from reliable data sources so that users could optimize their investment activity in the target markets.

However, SCI didn't have the internal expertise to launch a consumer-facing website and application capable of such functionality. The startup's leaders wanted to leverage new-age technologies, such as machine learning and cloud computing, but didn't know where to start.

SCI decided to bring in ClearScale, a provider of professional end-to-end cloud services, to execute the project. ClearScale has helped hundreds of clients develop and deploy new applications on the Amazon Web Services (AWS) platform as a Premier Tier Consulting partner. SCI's needs were well within the realm of ClearScale's expertise.

The ClearScale Solution

ClearScale's experts approached the SCI project through two phases:

- Proposal For Funding
- Implementation

To start, ClearScale developed a thorough project proposal that included a product roadmap, as well as an overview of the technologies that would be used to power the final application. The proposal emphasized scalability and automation, two characteristics that were essential given the growth projections and early-stage nature of the business. With the detailed proposal, SCI was able to raise financing from investors.

With funding in place, the ClearScale team moved forward with implementation. At the heart of SCI's new application was an AWS-powered data lake that served as a repository for market intelligence. ClearScale built crawlers that could independently search the web and gather information from credible sources using AWS Batch, a cloud service for executing computing workloads at scale. AWS Batch-enabled crawlers collect many data points, including current pricing data, historical performance, and global news. The data collected by crawlers is transformed and prepped for the [Amazon S3](#) data lake with AWS Glue.

By gathering both quantitative and qualitative data with crawlers, SCI's data lake represented a comprehensive view of available market intelligence. ClearScale next had to set up the surrounding architecture to extract as much value as possible from this pool of information.

ClearScale experts implemented [Amazon Athena](#), a query service that simplifies analytics for data stored in Amazon S3. To support the new machine learning algorithm, ClearScale turned to Amazon SageMaker, a fully managed service that enables developers to build, train, and deploy machine learning models. Amazon Forecast was used to complement SageMaker and add forecasting capabilities to the new application.

With these AWS services, SCI's application could now process the massive amount of information stored in the new data lake.

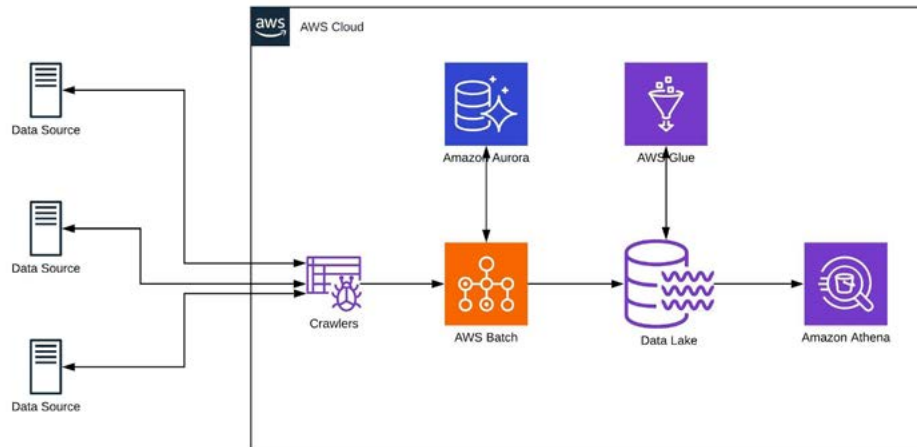
Outside of the specific features used to enable machine learning, ClearScale installed AWS Lambda so that SCI's web solution could run code without having to provision or manage servers. AWS Fargate was used to enable serverless computing for containers and ensure maximum application performance.

To coordinate new serverless workflows, ClearScale implemented AWS Step Functions, which enables businesses to coordinate multiple AWS services using visual tools. These specific AWS features empowered SCI's development team to focus less on burdensome IT infrastructure management and more on higher-value activities.

SCI's application also required a relational database built specifically for the cloud. Understanding that cost-effectiveness, availability, and reliability were all essential to achieving SCI's goals, ClearScale recommended [Amazon Aurora](#). Aurora is a MySQL and PostgreSQL-compatible database that enables companies that use legacy databases to reduce costs by 90%.

The ClearScale approach optimized SCI's application across multiple areas. The company's new web solution now ingests, processes, and analyzes data with tremendous efficiency, as well as automatically executes serverless workflows so that analytical insights reach end users rapidly.

Architecture Diagrams



The Benefits

Thanks to AWS and ClearScale, SCI now has a powerful, yet user-friendly application that sources market intelligence from all over the web for investors and traders. The tool utilizes machine learning to rapidly generate valuable insights displayed in high-quality visualizations. Additionally, the application is highly reliable and scalable, which means the early-stage company has what it needs to thrive over the long term.

SCI is already testing its application with a select group of users to study how they engage with the platform. Looking ahead, the firm hopes to roll out new features on AWS to increase the sophistication of its investing platform. On top of that, ClearScale continues to provide application development and optimization services to the firm.

"The ClearScale team has always maintained the highest level of skillsets. As a team, ClearScale was always poised, with the knowledge to build the system we needed as dictated by our desired end state. They were always available and maintained lines of communication in times of need. SCI is building multiple product lines and ClearScale has contributed to the foundation of each one. Their knowledge across all echelons required to build a tech product is among the best. I highly recommend ClearScale."

Todd Flores, Founder, CEO, Spartan Capital Intelligence