Morningstar Uses AWS to Rapidly Create Online Investment Marketplace

Using AWS, Morningstar quickly deployed an application to help customers choose investment products that comply with the new Department of Labor fiduciary rule. Morningstar is a global provider of independent investment research, products, and services. It uses AWS Elastic Beanstalk to host .NET APIs and relies on Amazon VPC for secure connectivity to company databases while retaining the agility to innovate.

Disruption Breeds Opportunity

In 2016, the U.S. Department of Labor announced upcoming rule changes that would hold brokers and other investment advisers to a "fiduciary standard," meaning they would be legally required to act in the best financial interest of their clients. This shift would restrict the types of investments that could be selected for certain retirement plans.

Morningstar, Inc. is a leading provider of research, services, and products for individual and institutional investors, financial advisors, asset managers, and retirement-plan providers and sponsors. It recognized an opportunity to help employers find investments that comply with the fiduciary rule through an easy-to-use, online marketplace named Morningstar Plan Advantage. The marketplace would explain the regulations, offer searching and filtering of compliant investments, and ease enrollment into these plans. APIs connected to the application would allow investment providers to push data into the marketplace. Morningstar hoped to deliver an outstanding experience for employers and investment providers, and build revenue by increasing sales of plans for which they provide administrative services.

Accelerated Development

Building the online investment marketplace was the responsibility of the Morningstar Workplace division. As part of an overall journey toward increased use of cloud services, Morningstar had been using Amazon Web Services (AWS) in various capacities across the organization as a supplement to its own data centers. Morningstar Workplace chose to use Amazon Virtual Private Cloud (Amazon VPC) because it allowed the team to independently provision cloud-based development environments while retaining the ability to securely connect to corporate data centers. This combination of agility and control helped Morningstar Workplace get the product to market in time for the rule change.

"This fits our current approach to cloud, which is to securely extend the capabilities of our data centers using cloud-based services," says Stephen Rylander, head of engineering, Workplace Products, at Morningstar. "Our infrastructure team connects our Amazon VPC environment to the company data center with the appropriate technical guardrails, and then we're free to innovate."

While Morningstar corporate data centers tend to use SQL Server, the Workplace team wanted to use a low-maintenance database hosted in Amazon Relational Database Service (Amazon RDS) to speed time-to-market and improve the manageability of the new application. "We were able to

Morningstar saved four to six weeks of engineering time due to rapid provisioning of cloud-based development and production environments on AWS.

Company	Morningstar
Industry	Financial Services & Insurance
Country	US
Employees	4,300
Website	www.morningstar.com

About Morningstar

Morningstar, Inc., is a leading global provider of independent investment research and products and services for financial advisors, asset managers, retirement-plan providers and sponsors, and individual and institutional investors.

Benefits

- Saved four to six weeks of engineering time
- Teams free to innovate while meeting security requirements
- Access to capabilities not available in company data centers
- Flexibility to choose the best technology for the use case
- Fast rollout of co-branded versions to support partner sales
- Rapid setup of development infrastructure sped time-to-market

AWS Services Used

- AWS Elastic Beanstalk
- Amazon API Gateway
- Amazon EC2
- Amazon ECS
- Amazon RDS
- Amazon S3
- Amazon VPC

configure PostgreSQL in Amazon RDS and connect via Amazon VPC to the SQL Server databases that host our systems of record," says Rylander. This further accelerated development and improved the manageability of the finalapplication.

To host the APIs, Morningstar used AWS Elastic Beanstalk. "We experimented with Elastic Beanstalk and found it was the simplest, fastest way to get .NET code running in AWS," says Rylander. "Out of a team of seven engineers, only one team member had logged into an AWS console before, yet getting the app up and running in Elastic Beanstalk went very quickly. It was much faster than if we'd done it locally." Using Elastic Beanstalk, Morningstar Workplace developers could focus on creating a high-quality user experience rather than managing virtual servers.

Amazon API Gateway provides a streamlined way for financial services providers to add their products to the marketplace, and will accommodate rapid growth after the regulation goes into effect. It provides fully managed API hosting, automating tasks such as proxying, throttling, and logging, with a simple interface and seamless integration. The marketplace also employs Amazon Simple Storage Service (Amazon S3) to host assets and data, and Amazon Elastic Compute Cloud (Amazon EC2) for basic computing services.

Using Amazon EC2 Container Service (Amazon ECS) enables Morningstar to deploy its Node.JS–based back-for-front service layers using the Docker containerization platform. "A managed container service like ECS give us major scalability and flexibility improvements from our traditional VM based approach, and let us avoid having to deploy our own container management system in our data centers," says Rick Bowman, chief software officer at Morningstar.

Speed and Scale, Flexibility and Security

Amazon VPC allows the Morningstar Workplace team to take a modern, agile DevOps approach to development by removing infrastructure bottlenecks. Morningstar can provision the minimum required capacity when the marketplace is launched and then scale up seamlessly to meet demand.

"Security is a top priority for Morningstar," says Michael Allen, chief information security officer at Morningstar. Rylander adds, "Our security team works closely with Amazon. Our due diligence tells us that Amazon has the right physical and data controls, as well as business continuity and disaster-recovery capabilities, to meet our needs and those of our customers."

Using AWS made it easy for Morningstar to invite customers to test and provide feedback on the application, and simplified the process of producing co-branded versions to show prospective partners. "Instead of requiring developers to manage switches and conditionals that would be necessary for co-branding in a single-instance application, we can clone the whole stack, run it with alternative branding, and turn it off when we're finished," Rylander says.

Rylander concludes that Morningstar has saved significant time and money using AWS. "Over the course of six months, we saved four to six weeks of engineering time because we didn't have to provision infrastructure in our own data centers, not to mention the time that would have been spent by our infrastructure team on setup and management."

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