Microsoft

Online retailer solves challenges with Azure Machine Learning service

Customer
ASOS

Products and Services
Azure
Azure Cosmos DB
Azure Machine Learning

Industry
Retailers

Organization Size
Large (1,000 - 9,999 employees)

Country
United Kingdom

London-based ASOS was founded in 2000 and has become a top online fashion destination for 20-somethings around the world, with its purpose to give its customers the confidence to be who they want to be. As part of its customer-focused approach, ASOS provides shoppers with targeted recommendations but needed a way to consolidate the three separate solutions it used for its data models. It also wanted to develop a collaboration structure for its data science teams. By standardizing on Microsoft Azure Machine Learning service, it was able to reduce time-to-market for a recommendations model that increases marketing agility from six months to about six weeks.

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ASOS (https://www.asos.com/) is serious about giving consumers choice. For example, it offers clothing in 30 different sizes to customers all over the globe. ASOS applies data science to create brand recommendation models that suggest styles for its customers and help generate sales. Based on machine learning, those models develop more insight over time. The innovative retailer slashed modelling time for its recommendations with an end-to-end Microsoft Azure (https://azure.microsoft.com/en-us/) solution that speeds its machine learning models and streamlines teamwork, outfitting the company for success.

Leading with data

As an online retailer, ASOS is inherently data driven. In the fiercely trend-driven fashion world, the company needs to produce data models as quickly as possible. "We pivot much faster than bricks-and-mortar retailers," explains Reda Kechouri, Senior Agile Delivery Manager at ASOS. "We add about 5,000 new products every week to a catalog of 85,000 items. And trend cycles are getting shorter."

The company set out to improve its customer recommendations modelling and overcome inefficiencies common to data modelling projects. ASOS modelling involved three specialized teams working in three disparate data stacks. Its Data Science team used Python and its Big Data team worked in Scala and Apache Spark. Its Inferencing team, part of the microservices teams that maintained the company's online customer-facing systems, wrote code in C#. Waiting for one team to complete its part of a project blocked the other two, and end-to-end testing across the three stacks complicated the iteration

cycles as models evolved. It typically took six months to bring a new model online, and the company knew it could accelerate that pace.

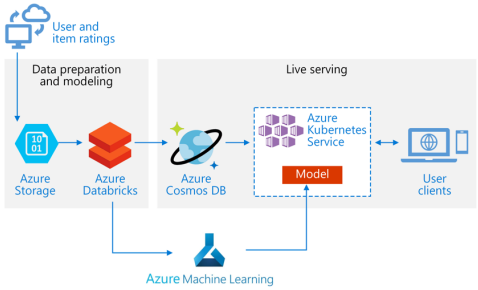
Unifying cross-functional teams with the right technology

ASOS engineers and data scientists embarked on a four-week joint hackathon with Microsoft to create its brand recommender. The datasets involved are enormous—brand recommendations for its 19.2 million customers draw on gigabytes of data each day, published to Azure Cosmos DB (https://azure.microsoft.com/en-us/services/cosmos-db/) for global scalability.

The recommender centers on Azure Machine Learning service (https://azure.microsoft.com/en-us/services/machine-learning-service/) and related services, particularly Deep Learning Virtual Machine (https://docs.microsoft.com/en-us/azure/machine-learning/data-science-virtual-machine/deep-learning-dsvm-overview) , which facilitates using GPU-based instances of virtual machines for training deep-learning models. “Because it’s an agnostic platform, we use Azure Machine Learning service with any technologies that best fit our needs,” says Naeem Khedarun, Principal Software Engineer (AI) at ASOS.

The ASOS teams wanted tools that would help them do more than just accelerate the modelling process. They envisioned a new, enterprise-wide ethos—breaking down barriers for teams and developing best practices for dealing with data science and modelling. “We believed that with Azure Machine Learning service, we could encourage the two practices that we thought would help us speed up modelling,” says Khedarun. “By unifying our tech stack and bringing our engineers in Big Data and online software together with data scientists, we got our development time down from months to just a few weeks.”

Recommenders in production with Azure



Adopting tools that scale with data, support people

Azure Machine Learning service manages the compute elements of the process, running all the jobs in parallel. Data scientists no longer have to manually configure virtual machines and kick off jobs. "Instead of worrying about infrastructure, our data scientists spend time focusing on their models and running experiments, without any barriers to how they want to create their algorithms. That's massively beneficial for us," says Khedarun.

Now ASOS runs a cross-functional team of about 50 data scientists and engineers—and the synergy is paying off. "Overall attitudes on the team toward Azure Machine Learning service are positive, and by standardizing on it and building cross-functional teams, our data scientists and engineers are having a better experience and can be more productive because they work together more easily," says Khedarun. He and Kechouri believe that ASOS is on the right path to realizing its vision. "Azure Machine Learning service has been a vessel for organizational change," says Kechouri. "We've achieved an AI transformation of the business, injecting AI capability into all aspects. We've used Azure Machine Learning service to solve not only technical challenges, but also our organizational challenges."

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