



Driver & Vehicle Standards Agency

UK Driver and Vehicle Standards Agency Cuts Costs 42%, Streamlines Innovation on AWS

2021

Upon migrating to AWS, the United Kingdom's Driver and Vehicle Standards Agency (DVSA) greatly increased the rate at which it could develop and deploy new services. Responsible for driver and vehicle safety in Great Britain, DVSA was struggling with an outdated on-premises legacy environment that was costly to maintain and scale. The agency initiated an incremental migration to AWS in 2015, taking advantage of managed services like Amazon RDS and garnering a 42 percent cost reduction by using Amazon EC2 Spot Instances. During the COVID-19 pandemic, the agency used managed services and serverless technology on AWS to quickly develop critical services.



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Laurence Barker

Principal Platform/DevOps, DVSA

The United Kingdom's [Driver and Vehicle Standards Agency](#) (DVSA) is always looking to keep pace with new technologies and provide better services for British drivers and vehicles. But the agency's legacy on-premises infrastructure posed challenges regarding storage, scaling, and cost and time optimization. To address these issues, DVSA embarked on an incremental migration to Amazon Web Services (AWS), ultimately shutting down all data centers and moving away from outsourcing contracts. When the COVID-19 pandemic forced severe limits on DVSA services, the agency used its new cloud-based infrastructure to develop and deploy critical new services quickly.

All told, the agency has seen many benefits from its migration to AWS, including scalability, speedy iteration and deployment, cost savings, security and compliance, and time optimization. DVSA's migration has earned it several awards, and the agency is seen by many as a technological leader in the public sector.

Moving On from an Outdated On-Premises Environment

An executive agency of the United Kingdom's Department for Transport, DVSA administers services in Great Britain, where it carries out driving tests, enforces regulations to keep cars and trucks safe to drive, monitors vehicle recalls, and provides many other services related to road safety. Though the agency's legacy infrastructure could securely process 42 million transactions a year, it had become outdated—it hindered growth, was expensive and time intensive, and prevented DVSA from innovating the way it wanted to. "One of the challenges with a monolithic on-premises architecture is that you don't have the flexibility to change specific components, so it's difficult and expensive to keep up with the latest innovations in technology," says Laurence Barker, principal platform/DevOps at DVSA.

When DVSA's private finance initiative contract expired in 2015, it cast its gaze to a new cloud-based solution. "In the cloud, you don't have to worry as much about things like storage, being able to scale up and down on demand, high availability and reliability, and managing security," says Mike Beddington, head of digital services at DVSA. The agency also saw migrating to the cloud as a means to save on management costs, attract creative engineering talent from the more-lucrative private sector, and develop a more agile model for experimenting with and deploying new services.

Speeding Up Innovation and Cutting Costs in the Cloud

DVSA's incremental migration to the cloud began on [Amazon Elastic Compute Cloud](#) (Amazon EC2), a web service that provides secure, resizable compute capacity in the cloud. From there, DVSA moved consistently toward technologies that enabled the agency to use the flexibility of AWS and cloud-native systems. One service that DVSA adopted was [Amazon Relational Database Service](#) (Amazon RDS), which makes it simple to set up, operate, and scale a relational database in the cloud. It provides cost-efficient and resizable capacity while automating time-consuming administrative tasks, such as hardware provisioning, database setup, patching, and backups. "Database implementation on traditional infrastructure requires more intensive maintenance and monitoring," says Barker. "Now, that is less of a factor. We have Amazon RDS databases that we can scale with demand." The managed environment also helps DVSA avoid security risks that come from accumulating too much technical debt.

Also present in DVSA's new cloud-based architecture is [Amazon EC2 Spot Instances](#), which lets the agency take advantage of unused Amazon EC2 capacity at up to a 90 percent discount compared to On-Demand Instance prices. "With traditional servers, we'd pay for 24/7 uptime," says Barker. "Now we can shut down Amazon EC2 instances overnight when they're not in use. We can resize instances on demand and use Spot Instance pricing if we require instances for a couple of hours. All this is driven by the capabilities of the cloud and AWS, and it brings massive cost savings." For example, by rightsizing instances and using the Spot Instances pricing model, DVSA reduced hosting costs for its Vehicle Operator Licensing service by a monthly average of 42 percent. DVSA is funded by its customers' fees, so it is particularly keen to offer them value for their money.

Adding to the company's agility is serverless technology on AWS, including [AWS Lambda](#), a serverless compute service that lets developers run code without provisioning or managing servers, creating workload-aware cluster scaling logic, maintaining event integrations, or managing runtimes. "The flexibility is important for us," says Barker. "We can deploy code on serverless components, paying only when those components are used."

DVSA put its agile new cloud-based infrastructure to the test when the COVID-19 pandemic and subsequent shutdowns made it impossible for the agency to operate as normal. Fortunately, DVSA was in a good position to quickly develop new services out of its existing environment, including a solution that granted critical workers priority access to DVSA systems and a capacity service that helped optimize testing for heavy goods vehicles. DVSA has earned several internal and civil service awards for its modernization efforts: in 2018, one of the agency's modeling tools was named [AI & Machine Learning Project of the Year](#) by the UK IT Industry Awards, and in 2020, the agency earned a Civil Service Award for its MOT reminder services. DVSA has become an attractive place to work despite offering a lower paycheck than most private-sector tech companies. "Tech people want to work at DVSA because we're more agile and forward looking," says Beddington.

Embracing the Vast Potential of Serverless Technology

DVSA's migration to AWS has enabled the agency to continue accelerating its rate of innovation and to keep up with changes in technology. Planned initiatives include using serverless technology on AWS to develop multifactor authentication and to enable connected vehicles. "When it comes to implementing new solutions, we have a serverless-first policy," says Barker. "There are significantly fewer maintenance overheads, and it enables the application teams to focus on feature delivery. The use of AWS enables us to deliver proofs of concepts more quickly, without the need for costly investment in permanent infrastructure. And since team members don't have to manage infrastructure, they can spend their time innovating and improving."

About the Driver and Vehicle Standards Agency.

The Driver and Vehicle Standards Agency (DVSA) oversees driver and vehicle safety in Great Britain. The organization administers driving tests, approves driving instructors and MOT vehicle roadworthiness testers, and enforces regulations to keep vehicles safe to drive.

Benefits of AWS

- Reduced hosting costs for the Vehicle Operator Licensing service by 42%
- Developed critical services quickly during the COVID-19 pandemic
- Enabled faster deployment of new services
- Enabled consistent security and compliance

AWS Services Used

AWS Lambda

AWS Lambda is a serverless compute service that lets you run code without provisioning or managing servers, creating workload-aware cluster scaling logic, maintaining event integrations, or managing runtimes.

[Learn more »](#)

Amazon EC2

Amazon EC2 is a web service that provides secure, resizable compute capacity in the cloud. It is designed to make web-scale cloud computing easier for developers.

[Learn more »](#)

Amazon EC2 Spot Instances

Amazon EC2 Spot Instances let you take advantage of unused EC2 capacity in the AWS cloud.

[Learn more »](#)

Amazon RDS

Amazon RDS makes it easy to set up, operate, and scale a relational database in the cloud.

[Learn more »](#)

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