



Modernizing Delivery of Financial Aid



Common Origination and Disbursement (COD) is a mission-critical suite of applications used by the U.S. Department of Education's Office of Federal Student Aid (FSA).

COD processes federal financial aid for those seeking to pursue postsecondary education in the United States, and for U.S. based people attending universities and colleges abroad.

To enable cost savings, improve agility, and enhance the security posture, it was necessary to modernize COD by re-architecting it from its mainframe platform to a fully automated, modern technology stack hosted on a FedRAMP authorized cloud service provider, AWS GovCloud (US). Accenture Federal Services (Accenture) transitioned the hosting with the establishment of a DevSecOps foundation to enable a rapid path to adopt AWS capabilities to support the pace of capability development needed by FSA.

Managing the Risk of Retiring 3 Million Lines of Code

COD processes 23 million award originations and 48 million disbursements annually accounting for \$115 billion in aid in 2020. Due to the criticality of COD to the Department of Education, Accenture and FSA prioritized risk mitigation and contingency planning on the modernization roadmap.



one

During the first of three phases of the initiative, progress was made over a series of releases to modernize and replace discrete legacy components. This allowed the team to prove the viability of the modernized components in the overall enterprise landscape.

two

Building on the success of the first phase, the team then moved into the second phase which included building the target state architecture. This modernized application and execution architecture relied on a DevSecOps tool and process foundation. This included automation to achieve consistent environment and application builds to support the ultimate core system transition.

three

During the third phase, a single deployment approach was taken to replace the core of the system and migrate all data to the target architecture. The new, modern architecture included the replacement of 3 million lines of COBOL code and movement of ~18 billion records from legacy IMS[®] and DB2[®] databases to a new data model comprising 700 tables. The team utilized end-to-end mock conversions and multi-month production simulations to compare functionality across systems and confirm equivalency of financial and person record level data.

Realizing Outcomes in the Cloud

The inclusion of industry aligned tools and Cloud-native services enabled the ultimate realization of the modernized architecture platform for COD on AWS GovCloud (US).

The mainframe transition enabled the selection of modern, better aligned security, operations, and development tools with an emphasis on open source and cloud native.

With the transition to AWS GovCloud (US), the team utilized leading AWS capabilities including the Relational Database Service (RDS™), Lambda™ serverless compute, and other FedRAMP High services to achieve the security and operations requirements for the COD system.

Pairing automation with AWS scalability enabled a new pace of growth for COD which saw the shift to more modular development

and the creation of new capabilities to drive FSA mission outcomes. The net result was an expansion of COD applications from 40 to more than 80. The previous mainframe platform supported 4 test environments and through use of automation, containerization, and a flexible Cloud architecture this now scales to more than 40 test environments.

Driven by test automation within the CI/CD pipelines, the Cloud environment enables FSA to support its concurrent delivery needs for the enterprise.

A DevSecOps Foundation

To support the pace of COD architecture and application changes arising from legislative requirements and business driven enhancements, Accenture established a fully automated DevSecOps architecture as part of the mainframe transition.

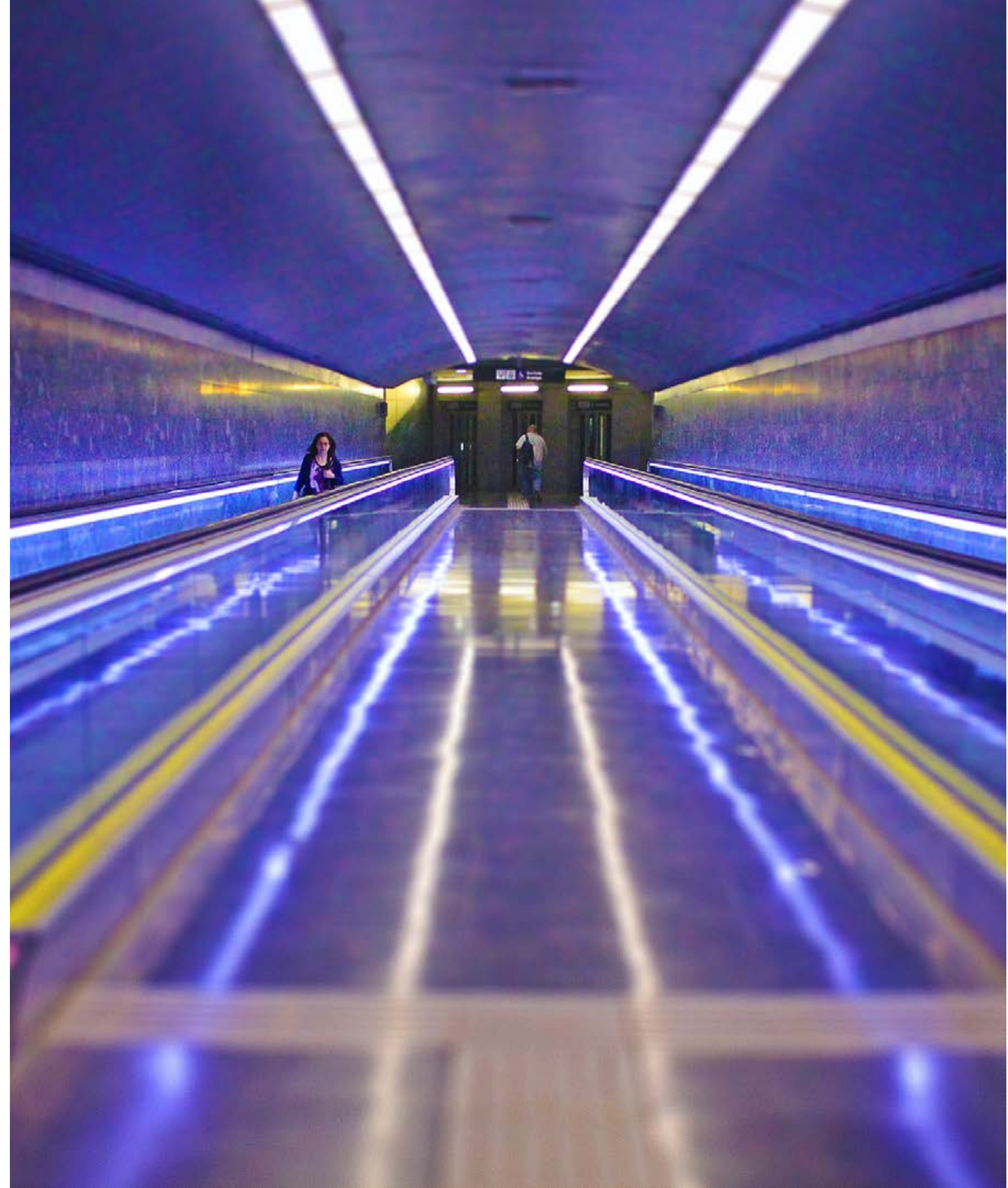
The team's DevSecOps approach emphasizes consistent and controlled environment configuration management as a means of mitigating delivery risk with a complex set of integrated applications. This is driven through an everything-as-code approach utilizing a Configuration-as-Code (CaC) solution for platform and application which then extended to infrastructure with the transition to AWS.

The automation in place supports the provisioning and management of each layer of the COD architecture enabling the build and rebuild of one or all components. The CI/CD pipelines integrate with the container platform to enable delivery of consistent, secure packaging of each application for rapid deployment. Deployments occur at a weekly cadence during peak change periods.

Refocusing the Team

Transitioning from mainframe to Cloud required the re-orientation of COD's technology stack, but also drove the retooling and growth of its architecture, operations, and security teams.

These teams needed to transition at pace with the modernization to provide continuity of operations through each successive phase of the transition. By using both the Accenture and AWS partner training, Accenture transformed more than 200 resources to maintain, enhance, and evolve the COD Cloud platform.



Embracing the Cloud

The transition of COD to AWS GovCloud (US) provided the seed that has now grown to see FSA transitioning its core systems to the Cloud. By the end of 2021, 60% of FSA's enterprise systems will run on the Cloud.

This transition includes the modernization of another mainframe system and the establishment of new systems to deliver on FSA's investment in improving the financial aid experience for students and borrowers. Today, this includes a partner ecosystem that supports more than 5,600 schools and a borrower population that includes more than 40 million active borrowers.

Customer Info

The U.S. Department of Education (Department) is the organization responsible for education policy within the U.S. Federal Government. One of the Department's key programs, known as Title IV, provides financial aid to support the postsecondary education goals of eligible students and their families. The Office of Federal Student Aid (FSA) is the agency within the Department with responsibility for managing Title IV federal student aid programs and processes. FSA delivers more than \$115B in student aid to 10.8M students and their families through its loan and grant programs annually.

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