

USING DEVOPS TO MODERNIZE THE AMERICAN DREAM

In recent years, U.S. Citizenship and Immigration Services (USCIS) has embraced Agile Development, Continuous Delivery and DevOps to improve service delivery to aspiring residents and citizens. Despite significant progress, however, aging systems continued to impede their long-term goals. With Excella's support, the agency pressed forward to update three mission-critical legacy systems responsible for immigration case verification. The modernized systems have not only dramatically decreased case processing times, they reimagine a leaner government IT ready to respond to 21st century needs.

Mission Driven

At the turn of the last century officials hand-processed 12 million arrivals at Ellis Island. Today, USCIS is the gateway to the United States, where 19,000 federal employees and contractors at 223 offices globally provide immigration services to over 14 million people each year. Tasked with safeguarding the nation's immigration system, USCIS' work demands significant attention to detail, but after years of struggling to keep up with paper forms and applications, the agency refocused its mission to improve customer service, strengthen security and eliminate case backlogs.

Mission Stalled

A strong mission required stronger IT, but many USCIS legacy systems struggled to keep pace with changing demands. The cumbersome system updates and bugs often required long fixes that occasionally brought the system down completely for a deployment. The systems were costly, according to a recent congressional report, the government spends roughly three-quarters of its \$80 billion IT budget simply maintaining the aging systems. For an agency that processes roughly seven million applications a year—under a DHS operations and maintenance budget of \$4.5B—modernizing was no longer aspirational, it was critical.



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E-Verify: This online system is the first tier through which businesses can determine an employee's eligibility to work in the US.



Systematic Alien Verification for Entitlements (SAVE): This system determines eligibility for receiving government benefits by verifying an applicant's immigration or citizenship status.



Status Verification System (SVS): SVS provides additional verification for E-Verify and SAVE cases. SVS data integration allows USCIS to resolve these cases more quickly.

Moving Forward

For Excella, the first step in the process was to assemble a cross-functional development team with the right skills to deliver value to USCIS. The team partnered with a fully dedicated Product Owner from USCIS who worked closely with stakeholders and customers to elicit needs and solicit feedback. Together the team worked incrementally and iteratively to deliver information quickly and develop usable, working software in short sprints.

Key Methods



Cloud Re-architecture: The team applied strangler pattern and micro-service architecture to build the new systems in a cloud-based environment. This method allowed the team to put working software into production just three months from project kickoff. Rather than modernizing the old system all at once, this approach allows developers to work incrementally by breaking off smaller pieces of the system.



Fully Automated Testing: To ensure security, stability and reliability, the team used an automated deployment pipeline, which takes an engineer's code, runs it against a series of tests and then merges it with other code in a production-like environment.



Continuous Deployment: To minimize lead times, the development team deployed working software directly to production multiple times a day. In one two-week sprint, the E-Verify team deployed to production more than 40 times.



UX Research: Designers conducted user interviews and observations both remotely and in the field. Areas where users encountered difficulty or where there were opportunities for improvement were noted and recommendations for modernization and enhancement were sent to the Product Owner. Once enhancements were determined to provide sufficient value, they were quickly implemented.

Verifiable Results

E-Verify: Client enrollment average time is now **45% faster**. USCIS also saw a **22.9% decrease in the number of abandoned enrollments**.¹

Status Verification System (SVS): The new SVS has led to an **overall 30% decrease in case processing time**.

¹Both stats represent project results as of May 2017.



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