ERP in Action:
Pivot Program

Transforming the National Flood Insurance Program from Mainframe to DevSecOps

Summary: The Pivot program is the culmination of multiple efforts by the Federal Emergency Management Agency to modernize the applications and infrastructure supporting the National Flood Insurance Program (NFIP).
Under increasing demands for next-generation, user-centric applications, migration away from expensive legacy platforms to the Cloud, and access to real-time data instead of 30-day-old batch reports, the NFIP was in need of immediate technology transformation, while still sustaining current mission-essential operations.

Under its joint venture, ERP brought in five cross-functional Agile teams — made up of 40+ project staff — to lead the migration from legacy mainframe and client server applications to a Cloud-native, API-first application architecture. ERP successfully took the program to full operational capability within two years, which led to Pivot becoming the #1 rated Agile program in the Department of Homeland Security (DHS).

The challenge: Transforming NFIP's aging infrastructure to real-time data analytics, Infrastructure as Code (IaC) and software-defined networks (SDN)

NFIP was facing increasing demands for real-time policy and claims processing from the commercial insurance providers who resell flood insurance, in light of the growing intensity of storm systems in recent years.

To meet the growing need — the millions of insurance claims and financial transactions that are processed annually — the Program needed to modernize its application software and infrastructure to provide real-time processing and on-demand system scalability.

What's more, the modernization effort had to take place while sustaining current operations — with no impact to availability — including support for legacy data and applications that were more than 30 years old.

About the NFIP: Administered by FEMA, the National Flood Insurance Program (NFIP) provides flood insurance to property owners, renters and businesses, helping them recover faster when floodwaters recede. The Program is delivered to the public by a network of approximately 60 insurance companies and the NFIP Direct portal. NFIP also works with communities required to adopt and enforce floodplain management regulations that help mitigate flooding effects.

The approach: Collaboration and innovation led by expert Agile teams

Cross functionality

Taking the lead within a complex vendor environment, ERP brought in five Agile teams of more than 40 project staff, including solutions architects, scrum masters, java developers, data scientists, information security professionals, functional SMEs, and user interface and user experience (UI/UX) specialists to modernize the legacy mainframe and client/server applications. Systems were migrated to a Cloud-native, API-first application architecture, using opensource Java and Big Data technologies.

Innovation

In order to sustain current operations during the "Pivot," ERP utilized a flexible, hybrid and relatively non-prescriptive approach to application modernization — using SAFe 5.0 to design, develop, and integrate new capabilities into the NFIP application ecosystem.

User focus

As part of each system modernization and development "epic," we worked with multiple user communities: homeowners; insurance providers; state and local government; and FEMA and other federal organizations that use NFIP's payment systems. We held focus groups and UI/UX design sessions, working iteratively and collaboratively with users to accurately capture their needs in user stories and UI/UX designs. Within each sprint, our graphics and UI/UX team built prototypes and wireframes — to be approved by the product owners — for each application and system.

Process expertise

In each sprint, our Agile teams included dedicated business analysts, as well as insurance and actuarial SMEs, who brought extensive line-of-business expertise to validate and implement workflows, system features, and user experience. Each new application capability was integrated into a multi-contractor-supported portfolio of systems and applications, and went through rigorous pre-production integration testing before any major release.

Dedicated support

ERP also provided change management support, and training documentation including web guides and online help which explained system features and functionality.

The results: The #1 Agile program within DHS

After 11 years of unsuccessful attempts by previous contractors, ERP was able to migrate 30-year-old legacy applications to an API-first, Microservices-based architecture — making Pivot not only the most successful Agile delivery program within DHS, but one of the leading modernization programs within the federal government.

Rapid on-time, on-budget implementation. ERP completed 400+ sprint milestones within two years to deliver a fully operational and capable minimum viable product. Every software development sprint was delivered on-schedule resulting in an on-time delivery of full operational capability (FOC) for the Pivot system. ERP delivered the highly complex Pivot application on-time and on-budget.

Reduced lead time. We successfully reduced the two-month lead time for results reporting in the incumbent software to virtual real-time reporting in 24 hours.

Shorter processing cycle. Because the enhanced architecture is based on open architecture principles and open source software, it is not only flexible and secure, but reduces the turnaround batch processing times and error reporting from a monthly cycle to at least daily.

Greater functionality. Pivot created automated interfaces that collect data from external systems and other FEMA applications; instituted a data hub that serves as a single data store for analytics, reporting, dashboards, and statistical modeling; and created a repository for all documents associated with a specific policy or claim (e.g. elevation certificates and photographs).

Higher accuracy. The program also increased the accuracy of address validation and correction, and correlates geospatial data with policy and claims data to visualize policy and claims distributions on flood maps, helping FEMA better respond to the next flood emergency.

#1
Agile program in DHS

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