stelligent™

How One Global Bank Moved from Monolithic to Efficient Through Automation on AWS

Learn how Stelligent helped one global bank realize the potential benefits it could gain through microservices and pipeline automation on AWS.

Banking Customers Have Gone Digital

Chances are the last time you made a credit card payment, you simply went to the bank's website or mobile application, typed in a password, completed the task, and then went about your day. You may have taken this action while on the bus, or as it popped into your head while finishing up grocery shopping. But you likely didn't plan any part of your day around addressing your banking needs.

In today's world, consumers expect banking availability at the click of a button, and banks must be able to provide seamless user experiences for consumers based on a digital-first mentality. For one major global bank, its legacy on-premise monolithic application caused significant headaches for developers who faced significant delays in their ability to make changes. The bank knew it needed to transform its architecture in order to develop and deploy changes to the application rapidly. The company sought the expertise of Stelligent, an AWS Premier Consulting Partner and AWS DevOps and Financial Services Competency Partner, to learn how to achieve scalability, agility, and rapid development cycles using automation and Amazon Web Services (AWS).

The Two M's Constraining Transformation: Monolithic Architecture and Manual Processes

A monolithic architecture is built as a single unit and is the form most legacy applications take. When a single change to the application is sought, all development teams must coordinate to ensure the change won't negatively impact other components of the application and implement the update. For the global bank, its monolithic architecture meant the smallest change to the application took coordination between hundreds of developers and many months to complete. Additionally, the bank's development and deployment process were manual and error-prone, causing additional development delays and frustration.

The company sought to understand the benefits it could achieve by decoupling its monolith and moving to microservices on AWS.

AWS Services Used
- AWS CloudFormation

Tools Used
- Chef and bash code for node configuration and application deployment;
- SQL scripts for database provisioning;
- Embedded test automation for verifying the state of the system and compliance with security and governance rules, and
- A "run list" to sequence the deployment of all the components of a tech stack

Stelligent Recommendations
- CI/CD pipelines supporting the development of microservices on AWS.
- A tool to orchestrate the convergence of infrastructure, node configuration, and application a single-click.

Embracing Microservices and Continuous Integration (CI)/Continuous Delivery (CD) Pipelines to Develop Quickly and Securely

Driving each Stelligent engagement is the team's desire to work hand-in-hand with customers at each stage of the customer journey and share deep expertise by continuously transferring knowledge to the customer. For the banking customer, Stelligent began by embedding with the company's development teams and demonstrating:

- *How microservices work and best practices for deploying microservices on AWS;*
- *How to architect solutions around important aspects of microservice development (such as handling authentication of microservice invocations, and integrating with legacy applications);*
- *Best practices for decomposing the monolith application;*
- *Sample applications and patterns for implementation on AWS, and*
- *How to ease the transition to AWS.*

Stelligent then met frequently with the company to learn how its monolithic application worked and identify the priority application components to be decoupled and developed into microservices on AWS. The recommendations that Stelligent made to the bank were then built by Stelligent in the form of tooling, including:

- CI/CD pipelines supporting the development of microservices on AWS. The Stelligent team trained the bank's development team on how to best use the CI/CD pipelines for development work and to develop code in a Test-driven development (TDD) fashion to take advantage of testing automation.
- A tool to orchestrate the convergence of infrastructure, node configuration, and applications with a single-click. Using this tool, a developer could specify a 'tech stack' capturing the entirety of the system as code. Stelligent helped the bank's developers use the tool to migrate applications from on-premise to AWS.

The orchestration tool includes the following components:

- AWS CloudFormation templates for infrastructure;
- Chef and bash code for node configuration and application deployment;
- SQL scripts for database provisioning;
- Embedded test automation for verifying the state of the system and compliance with security and governance rules, and
- A "run list" to sequence the deployment of all the components of a tech stack

Each pipeline takes advantage of [Stelligent's CFN_Nag](#) open source tool, running on Jenkins, to automatically identify patterns in AWS CloudFormation templates that might result in insecure infrastructure.

Enabling Rapid Deployment and Development

Using microservices on AWS, the bank's hundreds of developers around the world have the ability to scale horizontally and shorten development cycles, all while delivering value to customers quickly, incrementally, and consistently.

And through the automation of its deployment processes, the bank has the ability to deploy a new feature to customers in a manner of minutes rather than days or weeks. Using the orchestration tool to demonstrate the benefits of automating application deployment, Stelligent was able to deploy one of the bank's most important lift-and-shift applications to AWS in roughly 30 minutes, while the on-premise deployment typically required multiple days. By deploying on AWS and taking advantage of microservices and automation, the bank no longer needs to worry about keeping up with customer expectations, but can focus on driving new innovation through emboldened development teams that define new expectations.

About Stelligent

Stelligent, a professional services and consulting firm with deep expertise in DevOps automation services on Amazon Web Services (AWS), enables security-conscious enterprises to focus on developing software users love by leveraging automation on AWS. Our goal is to work closely with customers to develop fundamentally secure infrastructure automation code, deployment pipelines, and feedback mechanisms for faster, more consistent software and infrastructure deployments. By embedding with our customer's engineering teams, we empower customers through education and knowledge transfer of our expertise while developing the automation to make them self-sufficient on AWS. As a Premier AWS Consulting Partner, AWS Public Sector Partner, and AWS DevOps and Financial Services Competency holder, we use our demonstrated expertise to help customers benefit from continuous AWS innovation.