

UST empowers Healthcare Provider with DevOps capabilities



Executive Summary

The client is a provider of health insurance in the United States. The association offers a personalized approach to healthcare based on the needs of the communities where their members live and work. They work closely with hospitals and doctors in the communities they serve to provide quality, affordable healthcare.

Customer Challenge

Provider Data Transformation (PDT) is a platform that enables users or patients with the information of the various providers covered under their health coverage plans. However, the project was running into issues due to lack of agility in the provider's data infrastructure. The client sought to resolve this by utilizing modern methods for data ingestion and distribution, emphasizing the use of industry-standards and interoperability.

Why UST

UST was selected, due to its extensive its cloud expertise, to design and develop an automated continuous integration/continuous delivery (CI/CD) pipeline for PDT application. UST conducted an in-depth analysis to understand the landscape of the client's architecture. Based on the discovery phase analysis, UST laid out a plan to strategically deliver the capabilities, in a phased manner, across streams, including cloud infrastructure capabilities, security capabilities, and DevSecOps capabilities.

Additionally, UST developed a blueprint of the automated DevSecOps process for enterprise-wide adoption. This ensured a continuous delivery pipeline with best practices and capabilities for PDT applications by integrating and configuring tools for continuous integration, testing, security, and continuous delivery. The team developed pipeline stages in the renewed architecture and deployed associated pipeline as code. Furthermore, they provided application build scripts, automated testing suites, and deployment scripts.

About The Client

The client is a provider of health insurance in the United States. The association offers a personalized approach to healthcare based on the needs of the communities where their members live and work.

Benefits

- Speed of Deployment with DevOps practices
- Ease of scaling on demand
- Improved agility in the business

AWS Services

- AWS CloudFormation
- AWS CodeStar
- AWS CodePipeline
- AWS CodeBuild
- AWS CodeArtifact
- AWS CodeDeploy
- Amazon EC2
- Amazon DynamoDB
- Amazon RDS
- AWS CloudTrail
- AWS CloudWatch
- Amazon Simple Notification Service
- AWS Key Management Service
- AWS Direct Connect
- AWS Transit Gateway
- Amazon API Gateway

About UST

For more than 20 years, UST has worked side by side with the world's best companies to make a real impact through transformation. Powered by technology, inspired by people and led by our purpose, we partner with our clients from design to operation.

Through our nimble approach, we identify their core challenges, and craft disruptive solutions that bring their vision to life. With deep domain expertise and a future-proof philosophy, we embed innovation and agility into our clients' organizations—delivering measurable value and lasting change across industries, and around the world. Together, with over 26,000 employees in 25 countries, we build for boundless impact—touching billions of lives in the process. Learn more at ust.com.



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Solution Provider

UST Solution

In deploying the services in the pipeline, the UST team introduced other services like Network Load Balancers and Amazon API Gateway into the infrastructure. AWS CodeStar connection was utilized as a powerful interface to manage the deployments. Under the hood, utilized AWS Transit Gateway for Intra-VPC secure connections and AWS Direct Connect services. AWS CodeBuild is used to build the source code and push the build artifacts to AWS CodeArtifact. This is facilitated by using cross-account roles and execution roles in AWS CodePipeline. AWS CodeDeploy is used to deploy the resources into target accounts by fetching build artifacts from AWS Code Artefact. AWS S3 buckets were employed as the staging artifact bucket in the pipeline, which had AWS Key Management Service (SSE-KMS) encryption.

Cloud Security and Monitoring

AWS CloudTrail was enabled across all regions and resources, with appropriate naming conventions that helped classify logs that were further redirected to SPLUNK monitoring. The logs were encrypted by AWS Key Management Service (SSE-KMS). Amazon CloudWatch Alarms was set in place as part of automated smart monitoring, threshold monitoring, and detection of any failures, abnormalities, or unauthorized events. In the event of these, e-mail alerts were triggered and sent to respective departments via Amazon Simple Notification Service (SNS), ensuring on-time notification and subsequent remediations.

UST thoroughly analyzed PDT application architecture and Infrastructure as Code (IaC) requirements for different components and the list of existing tools and capabilities to support those applications. They proposed developing IaC across all application components, utilizing AWS CloudFormation. The components included AWS Data lake, Glue, Fast Healthcare Interoperability Resources (FHIR), and Protegrity servers on Amazon Elastic Computing (EC2) instances, Amazon DynamoDB, and Amazon RDS for storing transactional data. This enabled on-demand automated provisioning of PDT infrastructure components.

Why AWS?

AWS Network services like AWS Virtual Private Clouds, Private subnets, Network access controls, Security groups, and Bastion hosts were deployed at all architecture tiers ensuring Perimeter security. Similarly, data encryptions on AWS S3 buckets, Elastic Block Store (EBS) volumes, SSL terminations, bucket policies were implemented as part of Data Security.

A strong governance model was set up to ensure smooth delivery and support during the engagement lifecycle, adopting methodologies from Scaled Agile Framework. UST trained their staff around Backlog grooming, Sprint planning, User Story breakdown, and refinements to aid the same. This provided better predictability and an incremental approach to deploying the features into the application and environments. Operational excellence could be ascertained with these changes brought into the working model.

Leveraging AWS resources and services, UST helped PDT achieve quantifiable results in:

- speed of deployment
- business agility
- feedback loops

The combination of UST and AWS provided PDT the ability to dynamically spin up environments and deliver seamless feature releases using the DevOps lifecycle. This increased the flexibility as well as the predictability of the feature's market presence by adopting agile methodologies.