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nClouds | AWS Case Studies
Alation

How nClouds helped Alation modernize its application and maintain the uptime and reliability of its production environment on AWS.

Alation

Industry
Data Intelligence, Data Catalog, Data Governance

Location
Redwood City, CA

Challenge
Modernize its application and maintain the uptime and reliability of its production environment on AWS.

Featured Services
Application Modernization, Migration Services, Site Reliability Services, 24/7 Support Services

About Alation

Alation is the leader in enterprise data intelligence solutions and an AWS Advanced Technology Partner. The platform combines machine learning with human insight to tackle the most demanding challenges in data and metadata management. Alation provides a single place for data users, regardless of technical skill set, to find, understand, and trust the data they need to make business decisions. The company helps organizations around the world to build and foster a data culture. To learn more, go to alation.com

Benefits Summary

Engineers can devote more time to product innovation.	Enhanced support of application layer for end customers.	Expert modernization of its application infrastructure.

Challenge:

Modernize its application and maintain the uptime and reliability of its production environment on AWS.

Alation wanted to modernize its application by migrating it from Amazon EC2 to Amazon EKS. The company required a dual-platform system, moving some tenants from on-premises to AWS and creating a hybrid on-premises/cloud platform for others. Alation's engineering team was stretched thin between maintaining the uptime and reliability of the environment and developing innovative new features for its application.

> " I value nClouds' expertise in maintaining and troubleshooting the production environment for our internal team and our end customers."
>
> **— Abhishek Gupta**
> Site Reliability Engineering Manager, Alation

Why AWS and nClouds

Alation has a long history with nClouds and AWS, which first involved migrating Alation from on-premises to AWS. Then, nClouds completed the next phase of modernization of Alation's platform from a monolithic infrastructure to a modern, containerized environment. Next, Alation

needed an enhanced platform to maintain its production environment. To support its growing business, Alation asked nClouds to manage site reliability and provide 24/7 support services for its end customers in a multi-tenant AWS environment. Among other capabilities, they needed scalability. So, Alation's in-house DevOps team designed the architecture and nClouds' Site Reliability Engineering team implemented their plan.

Alation leveraged several Amazon Web Services:

- **Amazon Elastic Container Registry (Amazon ECR)** - A fully-managed Docker container registry integrated with Amazon ECS that makes it easy for Alation to store, manage, and deploy Docker container images.

- **Amazon Elastic Container Service for Kubernetes (Amazon EKS)** - Makes it easy for Alation to deploy, manage, and scale containerized applications using Kubernetes on AWS across multiple AWS Availability Zones to eliminate a single point of failure.

- **Amazon Redshift** - Enables Alation to analyze all its business data using existing business intelligence tools.

- **Amazon Relational Database Service (Amazon RDS)** - This makes it easy for Alation to set up, operate, and scale a relational database in the cloud. It provides cost-efficient and resizable capacity while automating time-consuming administration tasks such as hardware provisioning, database setup, patching, and backups.

- **Amazon Route 53** - A highly available and scalable cloud Domain Name System (DNS) web service that provides a reliable and cost-effective way to route Alation's end users to internet applications.

- **Amazon Simple Storage Service (Amazon S3)** - A flexible way to store and retrieve data, providing Alation with cost optimization, access control, and compliance.

- **Amazon Virtual Private Cloud (Amazon VPC)** - Enables Alation to provision a logically isolated section on AWS where they can launch AWS resources in a virtual network that they define.

- **AWS Network Load Balancer** - Handles tens of millions of requests per second while maintaining high throughput at ultra-low latency, with no effort on Alation's part.

- **AWS Web Application Firewall (AWS WAF)** - Helps protect web applications or APIs against common web exploits that may affect availability, compromise security, or consume excessive resources.

aws partner network	aws partner network
Premier Consulting Partner	**Premier** Consulting Partner
AWS CloudFormation	Migration Competency
Data & Analytics Competency	MSP Partner
DevOps Competency	Public Sector Partner
Immersion Day Partner	SaaS Competency
Marketplace Seller	Well-Architected Partner Program

Alation's solution stack also included additional, essential third-party tools:

- **Datadog** - A monitoring and analytics tool to determine performance metrics and event monitoring for infrastructure and cloud services. The software can monitor services such as servers, databases, and tools.

- **GitHub** - A development platform to host and review code, manage projects, and build software.

- **Jenkins** - An open-source automation server written in Java to support CI/CD.

- **PagerDuty** - A SaaS platform that enables Alation to prevent and resolve business-impacting incidents to improve customer experience.

- **SendGrid** - A cloud-based SMTP provider that allows users to send email without having to maintain email servers. SendGrid manages all of the technical details, from scaling the infrastructure to ISP outreach and reputation monitoring to whitelist services and real-time analytics.

- **Sumo Logic** - Provides cloud monitoring, log management, cloud SIEM tools, and real-time insights for web and SaaS-based apps. The app consists of predefined dashboards that enable Alation to track performance, logins, connections, errors, and overall system health.

- **HashiCorp Vault** - Provides Alation with secure access to tokens, passwords, certificates, and encryption keys for protecting secrets and other sensitive data using a UI, CLI, or HTTP API.

nClouds' Solution Architecture for Alation

nClouds implemented a modernized Amazon EKS-based architecture for Alation on AWS:

Automation. Amazon EKS automatically deploys, manages, and scales containerized applications using Kubernetes on AWS. AWS Network Load Balancer automatically distributes incoming traffic across multiple targets to increase the availability of Alation's application. Amazon Redshift runs and scales analytics on Alation's data in seconds and automatically manages the data warehouse infrastructure. Amazon RDS automatically handles infrastructure provisioning and software maintenance. Jenkins automates CI/CD.

Availability and performance. Amazon Route 53 provides highly available, reliable, and flexible routing of end users to the application. Amazon ECR provides high-performance hosting to reliably deploy application images and artifacts anywhere.

Efficiency. GitHub supports the collaborative efforts of Alation's developers by tracking code changes across versions.

Scalability. Amazon S3 facilitates highly scalable, secured, and low-latency data storage.

Security. Amazon VPC secures and monitors connections, screens traffic, and restricts instance access within Alation's virtual network. AWS WAF controls how traffic reaches Alation's application by implementing security rules that control bot traffic and block common attack patterns. HashiCorp Vault stores and dynamically creates secrets, provides encryption for applications on the fly, and manages certificates.

Support and reliability. nClouds uses the following third-party tools to provide Alation with 24/7 Support and Site Reliability Engineering Services: SendGrid, Sumo Logic, Datadog, and PagerDuty.

High-level architecture diagram:
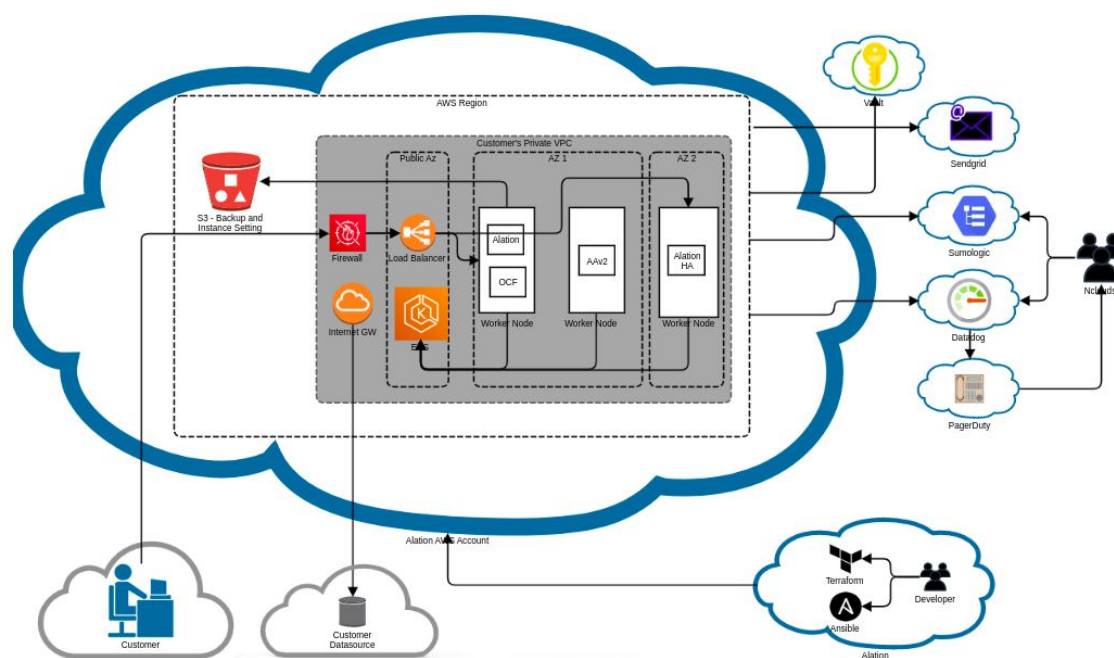
The Benefits

Teaming with nClouds, Alation now has a modern infrastructure sustained by Site Reliability Engineering and 24/7 Support Services. The project has yielded numerous benefits:

Engineers can devote more time to product innovation.

nClouds saves Alation's engineers time so they can focus on product innovation instead of maintaining the production environment. nClouds created an alert system that identifies resource issues in Alation's Amazon EKS-based infrastructure and provides 24/7 rapid response to alerts to maximize Alation's uptime and business continuity.

Enhanced support of application layer for end customers.

nClouds handles site reliability and provides 24/7 application-layer support for Alation's end customers. nClouds' engineers use Datadog to create monitor-based Service-Level Objectives (SLOs). SLOs provide a framework for defining clear targets around application performance to provide a consistent experience for Alation's end customers.

nClouds created public dashboards on Datadog for Alation's end customers. The dashboards enable its customers to visually track their AWS resource consumption, service failures, and HTTP requests. nClouds also set up a dashboard for Alation's team to oversee the resource status and infrastructure-related details for all their customers.

Expert modernization of its application infrastructure.

Alation asked nClouds' Site Reliability Engineering team to apply its AWS and DevOps expertise to implement a modernized Amazon EKS-based architecture for Alation's application. Fully managed Amazon EKS supports application modernization by automating microservices deployment, management, availability, and scalability. It enables Alation to innovate faster while reducing risk, accelerating time to market, and lowering total cost of ownership.

About nClouds

nClouds is a certified, award-winning provider of AWS and DevOps consulting and implementation services. We partner with our customers, as extensions of their teams, to build and manage modern infrastructure solutions that deliver innovation faster. We leap beyond the status quo.

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