

nClouds | AWS Case Studies

LYT

How nClouds helped LYT modernize its AWS infrastructure for faster time to market for new features, enhanced security, and improved application performance.

About LYT

Founded in 2016, LYT builds mobility solutions designed to connect vehicle travel information to traffic signal infrastructure. Its fully connected smart cities traffic management platform tracks vehicle and traffic light data to dynamically update traffic light behavior to improve transit, emergency vehicles, and traffic. LYT has helped communities achieve 20% shorter travel times, 12% reduction in emissions, and 14% fuel savings. To learn more, visit the [LYT website](#).

Benefits Summary



Faster time to market
for new features



Improved application
performance, resilience,
and scalability



Enhanced security

CHALLENGE

Modernize infrastructure, automate software development and operations, and enhance security.

Because of the nature of LYT's software and its necessary safety precautions, LYT required a modern infrastructure that facilitated communication and collaboration between product management, software development, and operations, with security enhancements for real-time alerts.

LYT.

Industry

Wireless Communications
Equipment, Communication
Software

Location

San Jose, CA

Challenge

Modernize infrastructure, automate
software development and
operations, and enhance security.

Featured Services

Containerization, DevOps,
Migration, AWS Well-Architected
Review

LYT was introduced to nClouds by the AWS account team. nClouds is an AWS Premier Consulting Partner with AWS-certified expertise in DevOps, SaaS, Migration, Well-Architected, and other areas that were relevant to LYT. nClouds conducted an AWS Well-Architected Framework Review (WAFR) powered by [nOps](#). The Review identified several high-priority remediation items, encompassing the security, cost optimization, and reliability pillars of AWS Well-Architected Framework best practices. LYT's SaaS platform is on AWS, and the company wanted to partner with nClouds to build out a modern, containerized application architecture to enhance high availability (HA), scalability, and fault tolerance for its function protocols.



LYT leverages several Amazon Web Services:

- **Amazon Elastic Compute Cloud (Amazon EC2)** - A web service that provides LYT with secure, resizable compute capacity in the cloud.
- **Amazon Elastic Container Registry (Amazon ECR)** - A fully managed Docker container registry integrated with Amazon ECS that makes it easy for LYT to store, manage, and deploy Docker container images.
- **Amazon Elastic Container Service (Amazon ECS)** - A highly scalable, high-performance container orchestration service that supports Docker containers and enables LYT to run and scale containerized applications on AWS easily.
- **Amazon ElastiCache for Redis** - An in-memory data structure service to enhance the ease-of-use and power of Redis, and improve availability, reliability, scalability, security, and performance.
- **Amazon Elasticsearch Service** - A fully managed service that makes it easy for LYT to deploy, secure, and operate Elasticsearch at scale with zero downtime.
- **Amazon Virtual Private Cloud (Amazon VPC)** - Enables LYT to provision a logically isolated section on AWS where they can launch AWS resources in a virtual network that they define.
- **AWS Application Load Balancer (AWS ALB)** - To support content-based routing and applications that run in containers.
- **AWS Auto Scaling** - Monitors LYT's applications and automatically adjusts capacity to maintain steady, predictable performance at the lowest possible cost.
- **AWS CloudFormation (CloudFormation)** - Allows LYT to treat its infrastructure as code, automate operations, and bring up new environments.
- **AWS Identity and Access Management (IAM)** - To control users' access to AWS services.
- **AWS Secrets Manager** - Enables LYT to protect secrets needed to access its applications, services, and IT resources.



I was impressed with nClouds' DevOps expertise and the application modernization solution they designed and implemented to enhance LYT's security, high availability, and fault tolerance."

Dustin Harber,
Chief Technology
Officer, LYT

LYT's solution stack also includes additional, essential third-party tools:

- **Atlassian Bitbucket** - A Git-based source code repository hosting service.
- **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.
- **Docker** - An open-source container platform to build, ship, and run distributed applications.

- **ELK Stack** - Gives LYT the ability to aggregate logs from all systems and applications, analyze these logs, and create visualizations for application and infrastructure monitoring, faster troubleshooting, security analytics, and more.
- **Jenkins** - An open-source automation server written in Java to support CI/CD.

nClouds' Solution Architecture for LYT

nClouds migrated LYT to an Amazon ECS-based deployment platform, built out the production environment, and performed the application cutover during the migration implementation phase.

Existing applications were containerized and migrated to Amazon ECS. CI/CD pipelines were implemented in Jenkins for all services to build Docker images and push the images to Amazon ECR. Applications are deployed every time a change is made and pushed in the Atlassian Bitbucket repository. Jenkins configurations and project dependencies are installed through the Dockerfile. Monitoring and alerts are provided by Datadog, with a dashboard where LYT can check the metrics for each application. An ELK stack performs log aggregation.

All the services pull parameters from AWS Secrets Manager to manage sensitive data and pull images from Amazon ECR, where all the Docker images are stored.

The Benefits

Teaming with nClouds, LYT now has a modern AWS infrastructure for its SaaS platform. The project has yielded numerous benefits:



Faster time to market

Automated CI/CD pipelines accelerate the integration, delivery, and deployment processes for faster time to market of new features.



Improved application performance, resilience, and scalability

LYT's new infrastructure is resilient to failure and can recover without a noticeable customer impact. Measures are in place to ensure adequate performance for all tenants of the system where there are shared components. nClouds implemented strategies to mitigate scheduled downtime for deployment of new application features/versions. Scalability is supported by AWS Auto Scaling, Amazon ECS, Amazon ElastiCache for Redis, and Amazon Elasticsearch Service.



Enhanced security

LYT's secure base infrastructure includes an Amazon VPC, subnets, security groups using CloudFormation, and an AWS Site-to-Site VPN from the Amazon VPC to LYT's on-prem network.

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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