nClouds | AWS Case Studies

OperationsRx

How nClouds helped OperationsRx build and manage a well-architected infrastructure on AWS to enable faster innovation.

OPERATIONS RX
Simple Solutions for a Complex World

Industry
Management Consulting

Location
Davidson, NC

Challenge
Improve and maintain its AWS infrastructure to become — and stay — well-architected.

Featured Services
AWS Well-Architected Framework Review, Managed DevOps, 24/7 Support Services.

About OperationsRx

Founded in 2001, OperationsRx is a management consulting firm specializing in gross margin improvement and cash flow optimization. Its CloudAnalytics advanced supply chain analytics platform integrates seamlessly with customers' ERP systems. OperationsRx takes the time to understand each customer's unique situation and works with their team to develop the best overall solutions to maximize the results they want to achieve. To learn more, go to: operationsrx.com.

Benefits Summary

- Enhanced reliability and availability
- Faster time-to-market
- Freedom to focus on innovation

CHALLENGE

Improve and maintain its AWS infrastructure to become — and stay — well-architected.

OperationsRx wanted a best-practices infrastructure on AWS to support their CloudAnalytics advanced supply chain analytics platform. They needed a modern well-architected infrastructure and sought expert help to make it a reality and support to keep it that way.

Why AWS and nClouds

An AWS representative referred OperationsRx to nClouds to help them assess and improve their infrastructure. OperationsRx was impressed with nClouds' DevOps and 24/7 Support Services and asked nClouds to perform an AWS Well-Architected Framework Review (WAFR) of its CloudAnalytics supply chain planning platform. Based on the WAFR findings and recommendations, OperationsRx asked nClouds to work on items in its DevOps improvement roadmap, proactively identify and remediate issues, support the development team, and regularly communicate with product stakeholders.

OperationsRx leveraged several Amazon Web Services:

- **Amazon CloudWatch (CloudWatch)** - Monitors applications, responds to system-wide performance changes, optimizes resource utilization, and provides a unified view of operational health.
- **Amazon Elastic Container Registry (Amazon ECR)** - A fully-managed Docker container registry integrated with Amazon ECS that makes it easy for OperationsRx to store, manage, and deploy Docker container images.
- **Amazon RDS for PostgreSQL** - Makes it easy for OperationsRx to set up, operate, and scale PostgreSQL deployments in the cloud.
- **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 OperationsRx end users to internet applications.
- **Amazon Simple Storage Service (Amazon S3)** - A flexible way to store and retrieve data, providing OperationsRx with cost optimization, access control, and compliance.
- **AMS CodeSuite** - A set of Amazon managed services that enables OperationsRx to model its development processes and automatically build, test, deploy, and release applications. It includes the following fully managed services: AWS CodeCommit source control service, AWS CodeBuild continuous integration service, AWS CodeDeploy deployment service, and AWS CodePipeline continuous delivery service.
- **AWS Application Load Balancer (AWS ALB)** - To support content-based routing and applications that run in containers.
- **AWS Availability Zone (AWS AZ)** - One or more discrete data centers with redundant power, networking, and connectivity in an AWS Region, enabling OperationsRx to operate production applications and databases that are more highly available, fault-tolerant, and scalable than would be possible from a single data center.
- **AWS Backup** - A fully managed backup service that makes it easy for OperationsRx to centralize and automate the backup of data across AWS services.
- **AWS Fargate** - Enables OperationsRx to run containers without having to manage servers or clusters.
- **AWS Organizations** - Provides policy-based management for multiple AWS accounts.
- **AWS Single Sign-On (SSO)** - Makes it easy to centrally manage SSO access to multiple AWS accounts and business applications.
- **AWS Systems Manager Parameter Store** - Provides OperationsRx with secure, hierarchical storage for configuration data management and secrets management.

aws partner network

Premier
Consulting Partner

Data & Analytics Competency
DevOps Competency
MSP Partner
Migration Competency
SaaS Competency

> OperationsRx wanted a best-practices infrastructure on AWS, and nClouds helped make it a reality. Now, they're keeping it that way with their Managed DevOps and 24/7 Support Services. The result: happy OperationsRx customers and engineers that have the time and freedom to do what they love — innovate to their heart's content."
>
> **Alex MacPherson,**
> Director of Technology, OperationsRx

OperationsRx'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.
- **HashiCorp Terraform** - An infrastructure-as-code (IaC) tool that allows OperationsRx to create, update, and version its AWS infrastructure.
- **OpenVPN Access Server** - A full-featured SSL VPN software solution to provide fine-grained access control of the infrastructure.

nClouds' Solution Architecture for OperationsRx

OperationsRx asked nClouds to work on items in its DevOps improvement roadmap and remediate issues as necessary to align with the best practices guidance of the five pillars of the AWS Well-Architected Framework: operational excellence, security, reliability, performance efficiency, and cost optimization. OperationsRx engaged nClouds as a Managed Service Provider (MSP) to provide engineering power and expertise as an extension of the OperationRx team. The architecture that nClouds created for OperationsRx was virtually a complete facelift.

nClouds implemented a multiple AWS account strategy to provide a high level of resource or security isolation, optimize costs, and separate the production workflow. The multiple accounts provide custom environments for different workloads. By isolating the dev/prod environments using AWS Organizations, service control policies (SCPs) are in place to create targeted governance boundaries that give their teams the freedom to build with the resources they need while staying within safe boundaries — developers can only break their own environment and not break the production environment.

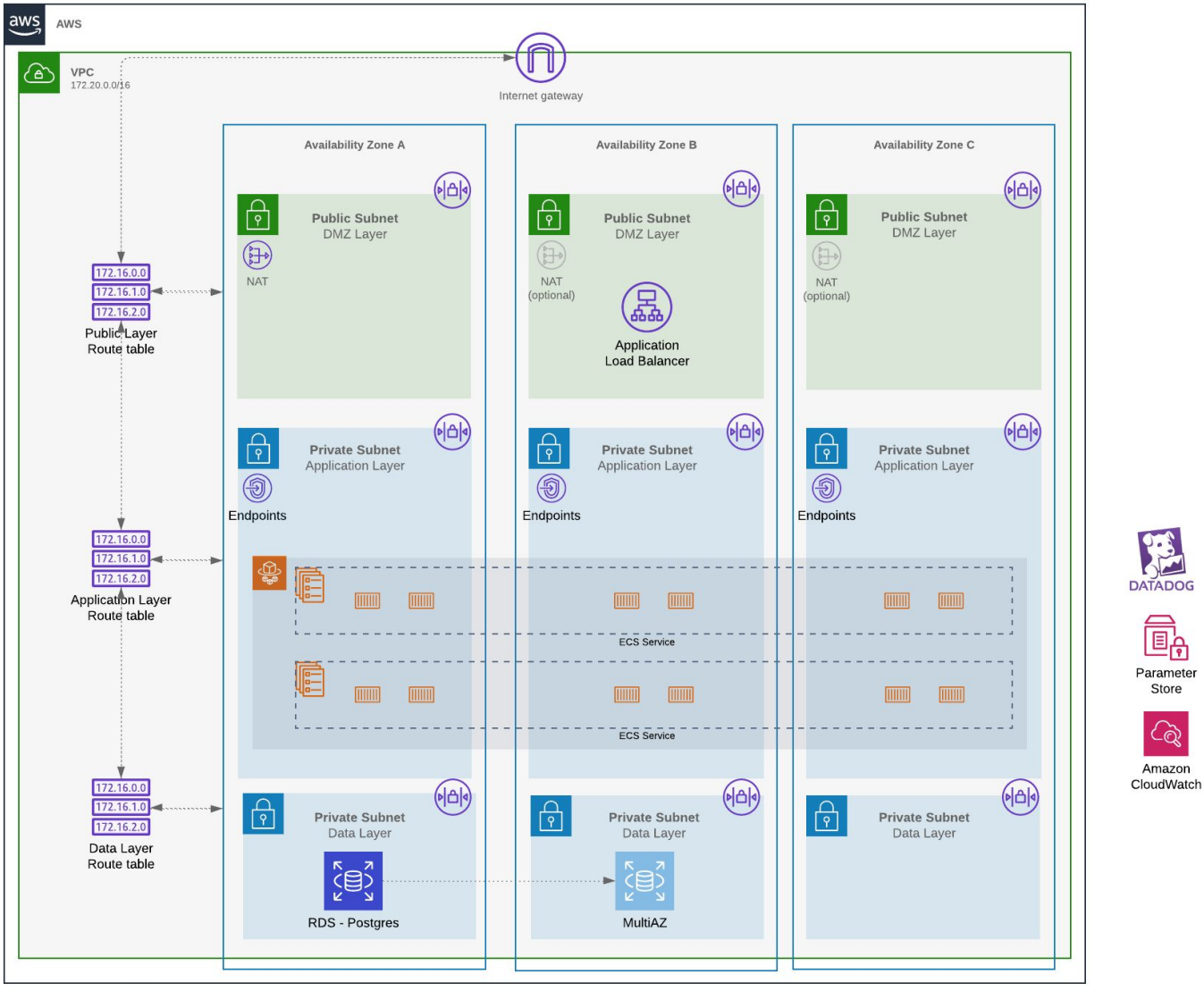
nClouds created a continuous integration / continuous delivery (CI/CD pipeline) using AWS CodeCommit and AWS CodePipeline to deploy microservices in multiple accounts and help maintain system stability and security. Terraform's infrastructure as code (IaC) provides automatic updates and reusability to save OperationsRx's engineers time and enable reliable backups for databases.

OperationsRx asked nClouds to provide Managed DevOps and 24/7 Support Services. Since nClouds monitors alerts and remediates issues 24/7, OperationsRx's engineers now have time to focus on new features and innovations instead of spending valuable time fixing issues in the environment. CloudWatch is integrated with Datadog (via CloudWatch Metric Streams) to provide the 24/7 Support Services team with metrics on services running in OperationRx's infrastructure, an integrated dashboard for a high-level view of the infrastructure's health, and deeper visibility into individual services.

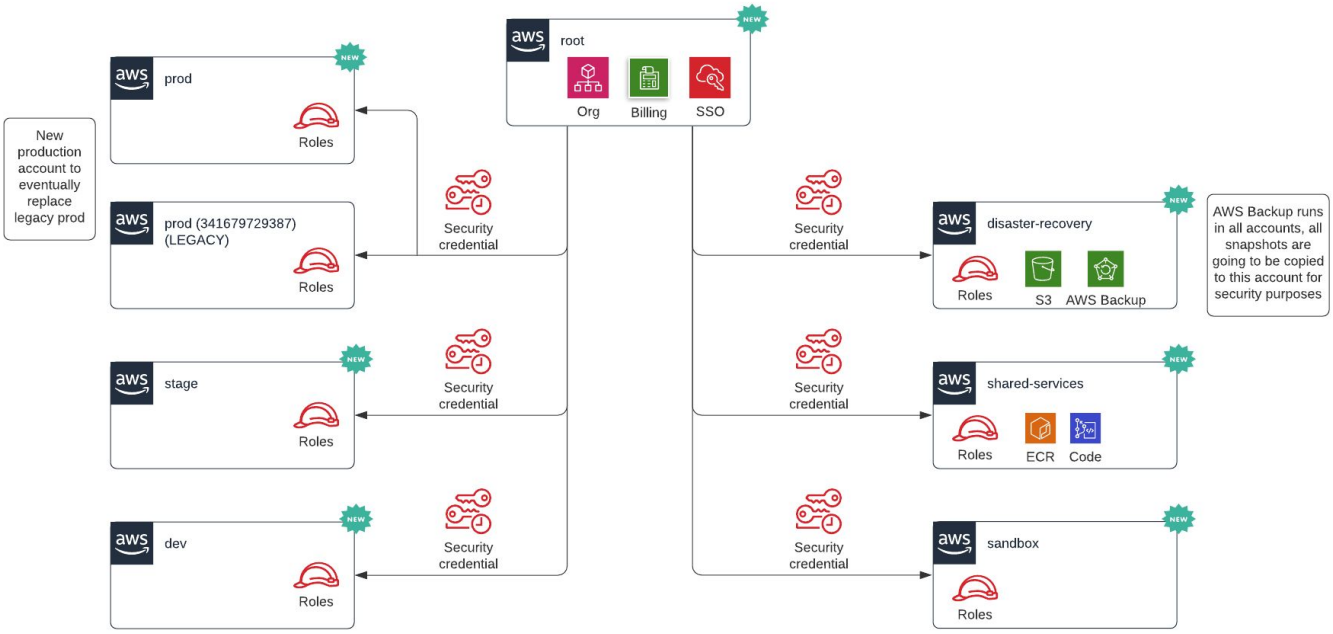
nClouds combined its experience plus AWS services to deliver a solution that met all of OperationsRx's requirements.

High-level architecture diagrams:

Overall Architecture



Multiple AWS Accounts



The Benefits

Teaming with nClouds, OperationsRx now has a well-architected modern infrastructure on AWS. The benefits featured in this case study highlight only some of the great work and follow-up performed by nClouds' engineers:

Enhanced reliability and availability

Multiple AZs provide high availability, fault tolerance, and scalability. AWS Organizations enables policy-based management of multiple AWS accounts, giving developers a worry-free environment to innovate without breaking the production environment. Terraform's IaC provides OperationsRx with automatic updates, reusability, and reliable backups for databases. AWS ALB helps improve the scalability, reliability, and performance efficiency of the AWS environment. Amazon Route 53 provides a highly available public endpoint.

Faster time-to-market

nClouds created a CI/CD pipeline using AWS CodeBuild and AWS CodePipeline. A CI/CD pipeline automates the integration, delivery, and deployment process, creating faster time-to-market for new features and innovations.

Freedom to focus on innovation

nClouds' 24/7 Support Services monitors alerts and remediates issues 24/7, giving OperationsRx's engineers more time to focus on new features and innovations instead of spending valuable time fixing issues in the environment.

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.