nClouds | AWS Case Studies
The Pill Club

How nClouds helped The Pill Club build a modern, scalable, well-architected infrastructure to support its fast-growth telemedicine business.

PiLL CLUB

Industry

Healthcare, Telemedicine, Pharmaceuticals

Location

San Mateo, CA

Challenge

Build a modern, scalable, well-architected infrastructure to support its fast-growth telemedicine business.

Featured Services

Application Modernization, Containerization, DevOps Services, Migration Services, 24/7 Support Services

About The Pill Club

Founded in 2014, The Pill Club is a digital health company that empowers women to lead their healthiest lives. Their mission is to make healthcare more accessible by building digital primary care that closes gender, socioeconomic, and racial gaps in our current health system. As one of the few digital health companies that accepts Medicaid, most major insurance plans, and cash, The Pill Club helps women address their sexual health and overall wellness, regardless of where they live or their financial situation -- making them an affordable, accessible telehealth provider.

The Pill Club's platform fills prescriptions, manages fulfillment, and ships birth control at no charge with a personal touch. Their platform is HIPAA compliant, and powered by pharmacies in California and Texas that are recognized by the National Association of Boards of Pharmacy (NABP) and multiple other pharmacy boards to dispense medication nationwide. Backed by Stanford physicians, The Pill Club's exemplary healthcare team consists of doctors, nurse practitioners, pharmacists, and registered nurses. For more information about The Pill Club, go to: thepillclub.com

Benefits Summary

Faster time-to-market for new features

Improved reliability and availability

Enhanced scalability

CHALLENGE

Build a modern, scalable, well-architected infrastructure to support its fast-growth telemedicine business.

To achieve its goal of dramatically increasing the customer base, The Pill Club needed an automated CI/CD pipeline to deliver new features and functionality rapidly and enhanced scalability to handle increased demand.

Why **AWS and nClouds**

New to AWS and growing fast, The Pill Club wanted to ensure that its online environment would scale to support growing demand. An existing customer of nClouds referred The Pill Club to nClouds. After thorough analysis and discussions between The Pill Club and nClouds' engineers, nClouds created a solution that met all of The Pill Club's requirements.

The Pill Club leverages 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 EFS Container Storage Interface (Amazon EFS CSI) driver** - Provides a CSI interface that allows Amazon EKS clusters to manage Amazon EFS file systems' lifecycle.

- **Amazon ElastiCache (ElastiCache)** - Makes it easy for The Pill Club to scale out, scale in, and scale up to meet fluctuating application demands.

- **Amazon Elastic Compute Cloud (Amazon EC2)** - A web service that provides secure, resizable compute capacity in the cloud. It is designed to make web-scale cloud computing easier for developers. It provides complete control of computing resources, and runs on Amazon's proven computing environment.

- **Amazon Elastic Container Registry (Amazon ECR)** - A fully-managed Docker container registry integrated with Amazon ECS that makes it easy for The Pill Club 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 The Pill Club to run and scale containerized applications on AWS easily.

- **Amazon Elastic File System (Amazon EFS)** - Provides The Pill Club with a simple, scalable, fully managed elastic network file system (NFS) for use with AWS services and on-premises resources.

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

- **Amazon Relational Database Service (Amazon RDS)** - Makes it easy for The Pill Club 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 The Pill Club's end users to internet applications.

- **Amazon Simple Queue System (Amazon SQS)** - Allows The Pill Club's team to send, store, and receive messages between different applications in its environment.

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

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

aws partner network

Premier

Consulting Partner

DevOps Competency
Marketplace Seller
Migration Competency
MSP Partner
Well-Architected Partner

"
nClouds has been an integral part of our migration to AWS. Their unique DevOps skill set and AWS migration expertise helped The Pill Club build an automated infrastructure that's helping our engineers deliver new features and functionality rapidly."

Cameron Seebach,
Senior SysOps Engineer,
The Pill Club

CUSTOMER CASE STUDY The Pill Club

- **AWS Application Load Balancer (AWS ALB)** - To support content-based routing and applications that run in containers.
- **AWS Certificate Manager (ACM)** - Provisions, manages, and deploys public and private Secure Sockets Layer/Transport Layer Security (SSL/TLS) certificates to secure network communications and establish the identity of websites over the internet as well as resources on private networks.
- **AWS CloudFormation (CloudFormation)** - Allows The Pill Club 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 Key Management Service (AWS KMS)** - A managed service that makes it easy for The Pill Club to create and control the encryption keys used to encrypt its data.
- **AWS Lambda (Lambda)** - Enables The Pill Club to run code without provisioning or managing servers. Pay only for the compute time consumed — there is no charge when code is not running.
- **AWS Secrets Manager** - Enables The Pill Club to protect secrets needed to access its applications, services, and IT resources.
- **AWS Systems Manager Agent (SSM Agent)** - Amazon software that can be installed and configured on an EC2 instance, an on-premises server, or a virtual machine (VM) to make it possible for Systems Manager to update, manage, and configure these resources.
- **AWS Systems Manager Parameter Store** - Provides The Pill Club with secure, hierarchical storage for configuration data management and secrets management.

The Pill Club's solution stack also includes 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.
- **Debezium** - An open-source distributed platform for change data capture.
- **Docker** - An open-source container platform to build, ship, and run distributed applications.
- **Jenkins** - An open-source automation server written in Java to support CI/CD.
- **Matillion** - A powerful and easy-to-use, completely cloud-capable ETL/ELT solution.

nClouds' Solution Architecture for The Pill Club

The Pill Club's original infrastructure was small with QA, staging, and production environments. Production had three servers, most of the environment was built manually, and there was no CI/CD pipeline. The Pill Club asked nClouds to help them migrate to AWS and build an infrastructure aligned with AWS Well-Architected Framework best practices. Once the modernized infrastructure was built, The Pill Club asked nClouds to provide 24/7 Support Services to help keep things running smoothly.

The roadmap called for nClouds to build out a multi-region application architecture for improved scalability, availability, and fault tolerance with easy failover to a backup region. It also enhances the user experience (UX) and mitigates possible disruptions and latency to boost application performance.

For the CI/CD pipeline, nClouds engineers migrated the build jobs from CircleCI to Jenkins and then Dockerized the setup for Jenkins using Amazon EC2. nClouds orchestrated the Dockerized applications using Amazon ECS (Amazon EC2 launch type).

CloudWatch is integrated with Datadog (via CloudWatch Metric Streams) to provide the nClouds 24/7 Support Services team with metrics on services running in The Pill Club's infrastructure, an integrated dashboard for a high-level view of the infrastructure's health, and deeper visibility into individual services. AWS ALB maintains high availability, and CloudFormation provides infrastructure automation.

High-level architecture diagram:

Overall Architecture
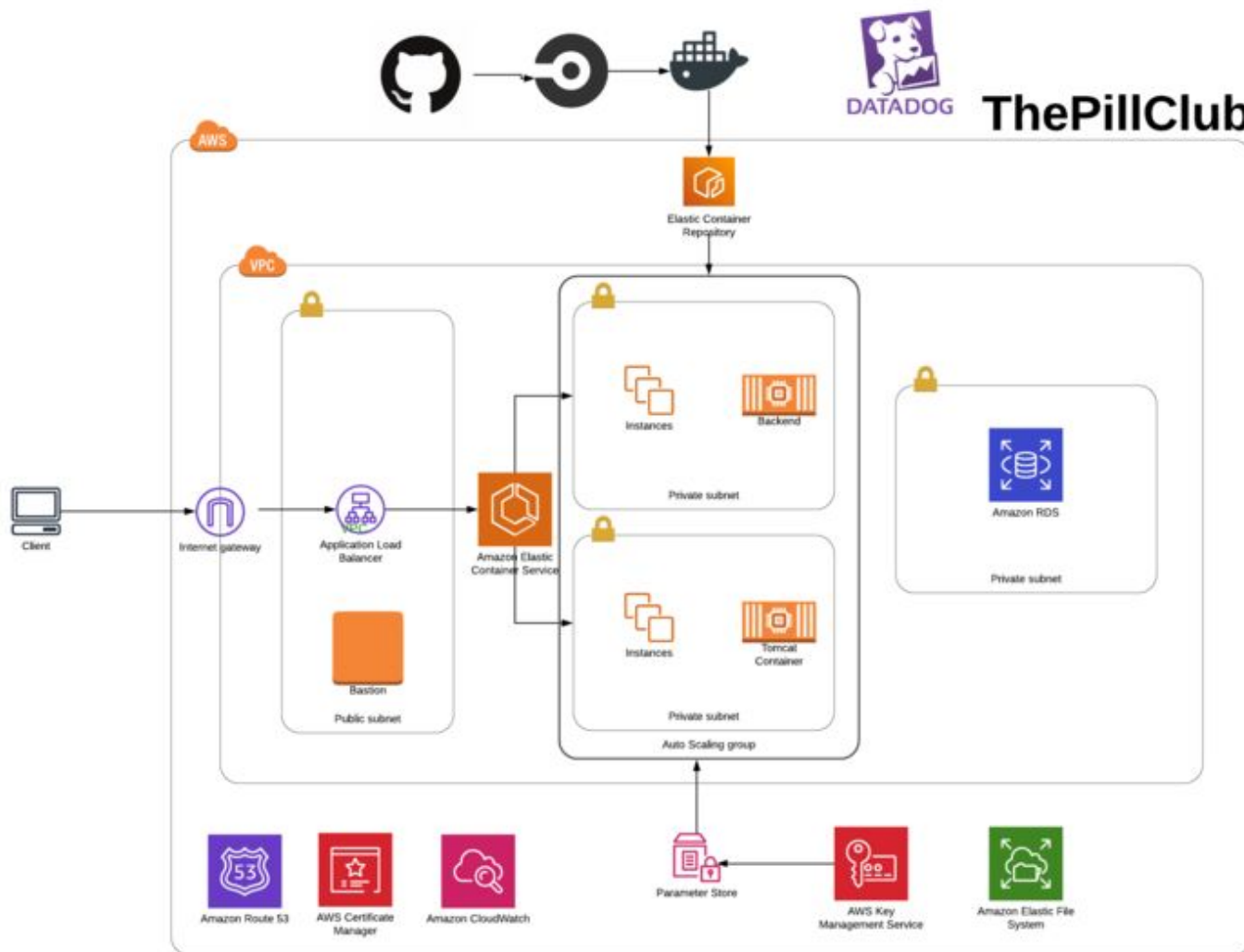
The Benefits

Teaming with nClouds, The Pill Club now has an automated infrastructure aligned with AWS Well-Architected best practices, an integrated CI/CD pipeline, and 24/7 support. The project has yielded numerous benefits:

Faster time-to-market for new features

Jenkins helps automate building, testing, deploying, and facilitating CI/CD. With an automated CI/CD pipeline, The Pill Club now has faster QA and production deployments, which enable them to release new features faster. Amazon RDS automates time-consuming administration tasks such as hardware provisioning, database setup, patching, and backups. CloudFormation automates operations.

Improved reliability and availability

The Pill Club now has a reliable and reproducible infrastructure for different environments, saving valuable engineering time. The multi-region application architecture provides improved reliability and fault tolerance with easy failover to a backup region. CloudWatch and Datadog provide alerts on the infrastructure's health to support reliability. AWS ALB helps improve the reliability and performance efficiency of the AWS environment. Amazon Route 53 provides a highly available public endpoint. nClouds' 24/7 Support Services maximize The Pill Club's website uptime, performance, and stability.

Enhanced scalability

ElastiCache scales out, scales in, and scales up to meet fluctuating application demands. Amazon EC2 provides secure, resizable compute capacity. Amazon ECS is a highly scalable, high-performance container orchestration service. Amazon EFS is a scalable, fully managed elastic network file system. AWS ALB helps improve the scalability of the AWS environment. Amazon RDS provides resizable database capacity.

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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