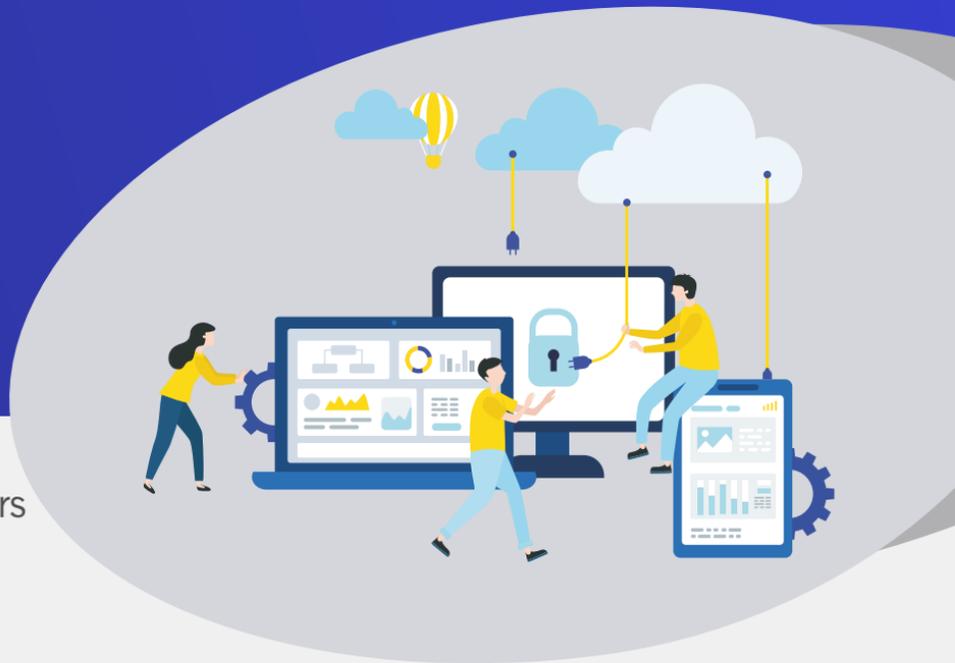


CASE STUDY

DevOps for a Smart Home Security Solution with AWS

Complete implementation from concept to deployment of a cloud-based smart secure home solution with mobile access

- Scaling from light-weight pilot to thousands of users
- Access from mobile apps
- Secure operating environment
- Integration with existing CRM solution
- Continuous integration and deployment of features



Technical Challenges

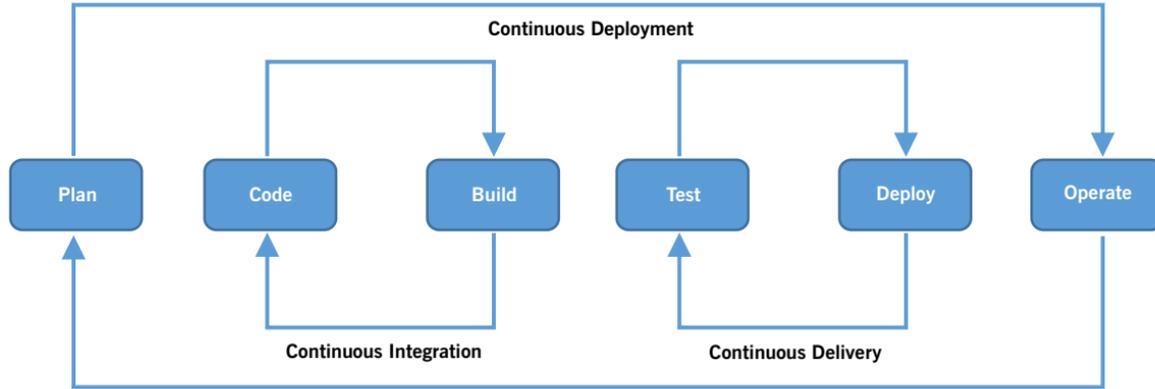


Figure 1. Continuous Development and Deployment

- Isolate code issues by employing automated unit tests
- Ensure ability to create a new environment rapidly
- Ensure security of the solution by conducting penetration tests
- Ability to move new features to production quickly
- Ensure high availability of the solution by identifying and alerting critical errors upfront
- Ability to upgrade device firmware over the air (OTA)

Solution Approach

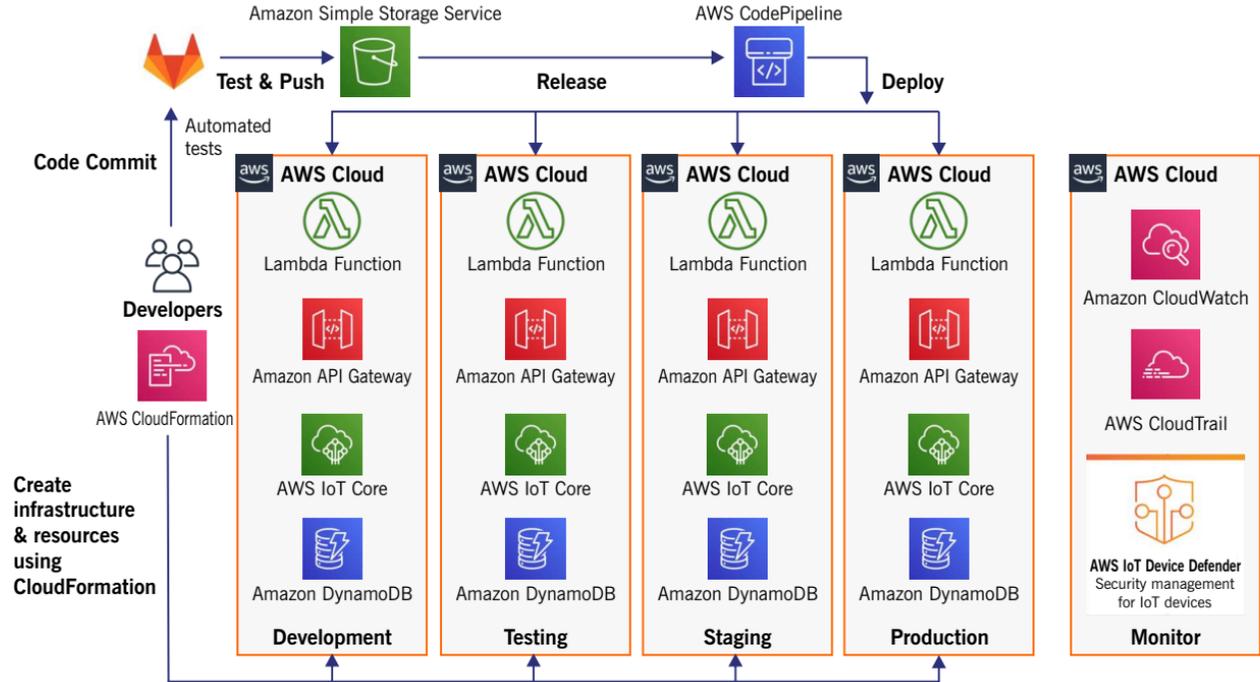


Figure 2. Continuous Development and Deployment with AWS

Technologies Used

- Amazon CloudWatch
- AWS IoT Device Defender
- Amazon ElasticSearch
- Amazon S3
- AWS CloudFormation
- AWS CodePipeline
- AWS CloudTrail
- Apache Jmeter
- GitLab
- Moto
- Kibana

- Deployed GitLab™ as the software configuration management platform
- Ensured code quality by automating unit testing using Boto3 and Moto to mock AWS® services
- Leveraged AWS CloudFormation® templates for provisioning AWS Lambda®, Amazon API Gateway®, Amazon S3®, AWS IoT® and Policies
- Invoked AWS CodePipeline® to build the code and deploy them
- Set up complete CI/CD pipeline from code check-in to environment setup
- Tested for security and scale using OWASP™ tools and Apache Jmeter™
- Used AWS CloudTrail® for operational auditing and risk auditing
- Used Amazon CloudWatch® to monitor the deployed application in real time with required metrics and health dashboard for alerts and triggers
- Used AWS IoT Device Defender to continuously audit IoT configuration on devices against a set of predefined security best practices
- AWS IoT jobs are used for device OTA updates

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