

# CI/CD Implementation for GitHub Repo using Azure DevOps



A leading SaaS provider for the professional services industry which offers a legal practice management software with CRM, email, document, accounting and matter management.

## The Challenges

The client was facing several challenges in their software development life cycle that impacted delivery time directly due to lack of automation. Some of the major points are highlighted below.

- Long, manual build and deployment processes triggered by the developers through Visual Studio which required minutes to hours of developer time.
- No automation testing pipelines, and no standard unit testing framework in place
- No integration testing present
- Security vulnerabilities reported by Vulnerability Assessment software
- Delay in development and testing cycle during updates to the infrastructure

## Quarks Solution

A CI/CD model consisting of four environments was recommended: **Production, UAT, QA and Development.** **Automated Unit and Integration testing, Code Review with Manual Approval of PRs, Deployment Checks & Approvals and Test Coverage Management** were also a part of this plan. **The response to each of the challenges is listed below.**

- Created continuous integration pipeline to execute unit test cases, with a recommendation to the client team to standardize unit test case framework
- Created a new dev environment on Elastic Beanstalk for .NET web application

- Added AWS Toolkit Integration in Azure Devops Pipeline to create continuous deployments to Elastic Beanstalk dev environment based on development branch merge trigger
- Manual release pipelines were also created to manage Azure Pipeline Artifact based releases to multiple environments for flat deployment to IIS servers hosted in AWS EC2 instances
- Manually fixed the vulnerabilities reported by Nessus Agent by collaborating with the client infrastructure team to perform updates on relevant servers
- Created modular code in Terraform to safely and predictably create, change, and improve infrastructure maintaining state in state files on S3 backend

## The Benefits

### Quarks' innovative solutions helped in:

- Reduced the duration of SDLC by automating build processes using Azure DevOps Build Pipelines
- Minimized time to delivery by offering both manual and continuous deployment options to the client team via Azure DevOps Release Pipelines
- High quality of code and minimal errors due to continuous integration pipelines
- Eliminated all critical and severe vulnerabilities on client servers by keeping the packages updated
- Reduced time for infrastructure updates



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